

Appendix B
Summary of Consultation and Contacts

Summary of Consultation and Contacts

In August 2005, Douglas PUD initiated a series of RWG meetings with a group of stakeholders regarding the upcoming relicensing of the Wells Project. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to identify resource issues and to develop preliminary study plans prior to filing the NOI and PAD. Resource Work Groups (RWGs) were formed to discuss issues related to the Wells Project and its operations.

Douglas PUD initiated this RWG process by hosting an introductory workshop regarding the Integrated Licensing Process (ILP) on October 18, 2005. The intent of the workshop was to introduce stakeholders to FERC's new relicensing process, to provide stakeholders with information about the Wells Project and to introduce stakeholders to the relicensing schedule. At the conclusion of the workshop, stakeholders were encouraged to participate in the following four RWGs: Aquatic, Terrestrial, Cultural, and Recreation and Land Use.

A series of RWG meetings and site tours were held beginning in November 2005. The primary goals of the RWGs were to identify resource issues and develop study plans. This process provided stakeholders and Douglas PUD an opportunity to have open dialog about issues in advance of the rigorous timeline that begins once the NOI and PAD are filed. A record of these interactions is included as Appendix B – Summary of Consultation and Contacts. The documents and page numbers for Appendix B contents are listed in tables on the following two pages.

Summary of Consultation and Contacts

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Summary of Consultation and Contacts

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Information Request Letter – August 8, 2005



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

To:
Address:
Address:
City, State, Zip

August 8, 2005

Subject: Wells Hydroelectric Project
Information Pertinent to the Relicensing of the Wells Hydroelectric Project

Dear Interested Party:

As part of its internal activities to prepare for the relicensing of the Wells Project (FERC No. 2149; license expiration date May 31, 2012), the Public Utility District No. 1 of Douglas County (Douglas PUD) is initiating a comprehensive search for existing information relevant to the upcoming relicensing of the Wells Hydroelectric Project. The information obtained from stakeholders through this search and request will be collected, compiled, assessed for relevancy, and summarized as part of the development of Douglas PUD's Pre-Application Document (PAD) as required by the applicable regulations of the Federal Energy Regulatory Commission (FERC). Douglas PUD respectfully requests that you identify any information you are aware of that fulfills **any** of the following criteria:

- 1) Information related to environmental (fish, wildlife, botanical, water quality), socioeconomic, and cultural resources found within or adjacent to the Wells Project Area (Figure 1).
- 2) Information in the form of published/unpublished reports, historical documents, and previous studies that you deem relevant to the relicensing of the Wells Project.
- 3) Information collected and/or studies conducted that were **not** affiliated with or funded by Douglas PUD.
- 4) Information on resources of the mid-Columbia River not generally available through other recent relicensing efforts on the Columbia River.

If you are aware of such available information, we ask that **within 60 days** from the date of this letter, you identify any such information and let us know how we may best acquire a copy of the information. Please address all responses to:

Public Utility District No. 1 of Douglas County
Attn: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497
relicensing@dcpud.org

Questions regarding this information request may be directed to Mary Mayo at (509) 884-7191 ext. 2488. We encourage you to visit the Wells relicensing website at:
<http://relicensing.douglaspud.org>

Thank you for your cooperation.

Yours Truly,



Shane Bickford
Relicensing Coordinator,
Wells Hydroelectric Project
Douglas PUD

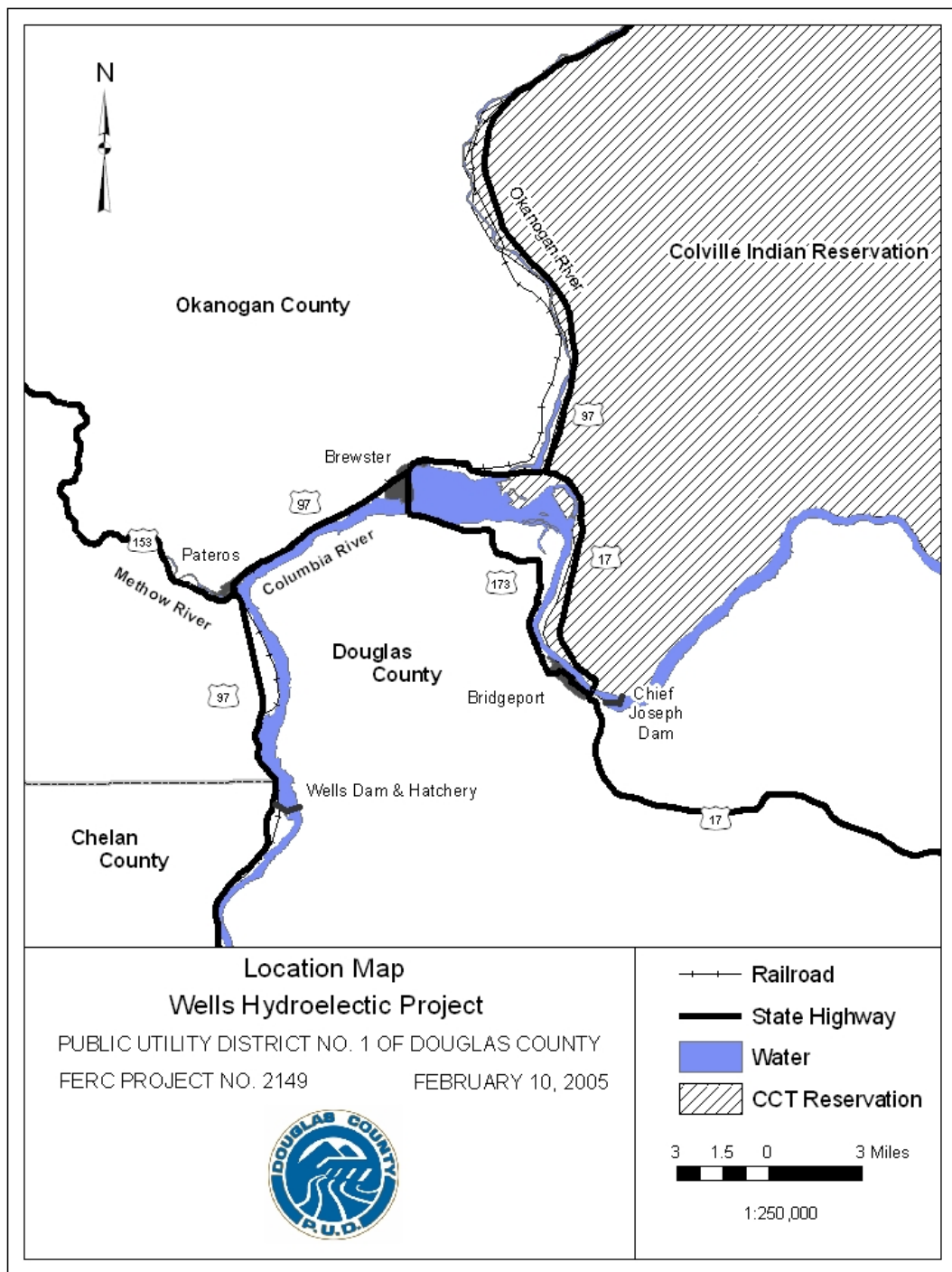


Figure 1. Map of the Wells Project area.

Information Request Letter – Distribution List

Organization & Number of Recipients

Alcoa Inc. - 2
 American Public Power Association - 2
 American Public Power Weekly - 1
 American Rivers - 3
 American Whitewater Affiliation - 1
 Audubon Society - Wash. St. Office - 1
 Avista Corporation - 3
 Battelle Pacific NW Laboratories - 3
 BioPhilia - 1
 Bonneville Environmental Foundation - 1
 Brewster Chamber of Commerce - 1
 Brewster City Council - 1
 Brewster Public Library - 1
 Bridgeport Chamber of Commerce - 1
 Bridgeport Public Library - 1
 Bureau of Indian Affairs - 4
 Bureau of Land Management - 3
 Bureau of Reclamation - 2
 Burke Museum of Natural History and Culture - 1
 Burlington Northern Railroad - 1
 Central Wash. University - 1
 Chelan Public Library - 1
 Chelan County Board of Commissioners - 1
 Chelan County Noxious Weed Control Board - 1
 Chelan County Public Utility District - 2
 City of Brewster - 1
 City of Bridgeport - 1
 City of Pateros - 1
 Clearing Up - 2
 Columbia Basin Bulletin - 1
 Columbia Basin Fish & Wildlife Authority - 2
 Columbia River Alliance - 1
 Columbia River Inter-Tribal Fish Commission - 4
 Confederated Tribes & Bands of the Yakama Nation - 6
 Confederated Tribes of the Colville Reservation - 9
 Confederated Tribes of the Umatilla Indian Reservation - 1
 Confederated Tribes of the Warm Springs Reservation - 1
 Davis Wright Tremaine LLP - 1
 Douglas County - 6
 Douglas County Cooperative Extension - 1
 Douglas County Historical Museum - 1
 Ducks Unlimited - 2
 East Wenatchee Comm. Library - 1
 East Wenatchee Rotary Club - 1

Organization & Number of Recipients

Eastern Wash. University - 1
 Energy Northwest - 1
 ENSR Consulting & Engineering - 1
 Federal Energy Regulatory Commission - 13
 Fish Passage Center - 1
 Foster Creek Conservation District - 1
 Governor's Salmon Recovery Office - 1
 Grant County Public Utility District - 1
 Greater Wenatchee Irrigation District - 1
 Hydro Review - 1
 Hydro Review/Hydrowire, HCI Publications - 1
 HydroPower Reform Coalition - 1
 Hydrowire - 1
 Independent Scientific Advisory Board - 1
 Interagency Comm for Outdoor Rec - 1
 Interior Columbia Technical Recovery Team - 1
 Jacobs Civil - 1
 Jeffers Danielson Sonn and Aylward PS - 2
 KOZI-Radio Wenatchee - 1
 KPQ-Radio - 1
 Lake Chelan Sportsman Association - 1
 Leavenworth Public Library - 1
 Methow Conservancy - 1
 Methow Salmon Recovery Foundation - 1
 Methow Valley Fly Fishers - 1
 Mid Columbia Coordinator - 1
 Mule Deer Foundation - 1
 National HydroPower Association - 1
 National Marine Fisheries Service - 9
 National Park Service - 1
 National Wildlife Federation - 1
 Natural Resources Conservation Service - 1
 Natural Resources Defense Council - 1
 Nature Conservancy of Wash. - 1
 North Central Regional Library - 1
 North Central Wash. Audubon Society - 1
 North Columbia Comm. Action - 2
 Northwest Energy News - 1
 Northwest Environmental Defense Center - 1
 Northwest Fishletter - 1
 Northwest Hydroelectric Association - 1
 Northwest Indian Fisheries Commission - 1
 Northwest Power Planning Council - 4
 Northwest Public Power Association - 1

Organization & Number of Recipients

Office of Environmental Policy and Compliance - 2
Office of Environmental Project Review - 1
Office of the US Senate - 2
Okanogan County Commissioners - 1
Okanogan County Office of Planning and Dev. - 1
Okanogan County PUD - 2
Okanogan County Weed Board - 1
Okanogan Wilderness League - 1
Orondo Fruit Company - 1
Pacific Fishery Management Council - 1
Pacific Northwest Conference Committee - 1
Pacific NW Waterways Association - 1
PacifiCorp - 4
Pateros Chamber of Commerce - 1
Pheasants Forever - 1
PNUCC - 1
Port District of Chelan County - 2
Port District of Douglas County - 2
Portland General Electric - 2
Public Power Council - 2
Puget Sound Energy - 4
Quad City Herald - 1
Rail America - 1
Representative Adam Smith - 1
Representative Brian Baird - 1
Representative Doc Hastings - 1
Representative Cathy McMorris - 1
Representative Rick Larsen - 1
Representative Jay Inslee - 1
Representative Dave Reichert - 1
Representative Jim McDermott - 1
Representative Norman Dicks - 1
Save Our Dams - 1
Save Our Wild Salmon - 1
Seattle PI - 3
Seattle Times - 2
Trout Unlimited - 4
U.S. Army Corps of Engineers - 3
University of Idaho - 2
University of Wahsington - 1
University of Wash. School of Law - 1
US Advisory Council on Historic Preservation - 3
US Army Corps of Engineers-NW Division - 2
US Dept. of Energy - 1

Organization & Number of Recipients

US Dept of Agriculture-N R Conservation Service - 1
US Dept of Agriculture-Wildlife Services - 1
US Dept of Energy-Bonneville Power Administration - 3
US Dept of Interior - 4
US Environmental Protection Agency - 3
US Federal Emergency Management Agency - 1
US Fish and Wildlife Service - 8
US Forest Service - 5
US Geological Survey - 2
US Northwest Power Planning Council - 1
Wash. Attorney General - 1
Wash. Comm.Trade & Econ. Dev. - 1
Wash. Fish and Wildlife Commission - Member - 1
Wash. Forest Protection Assoc. - 1
Wash. Governor's Office - 1
Wash. Native Plant Society - 2
Wash. PUD Association - 3
Wash. St. Rural Development Council - 1
Wash. Rural Electric Coop. Assoc. - 1
Wash. Sportsmen Association - 1
Wash. St. Conservation Commission - 3
Wash. St. Dept. of Agriculture - 2
Wash. St. Dept. of Comm., Trade & Econ. Dev. - 2
Wash. St. Dept. of Ecology - 7
Wash. Military Dept. - 1
Wash. St. Dept. of Fish & Wildlife - 13
Wash. St. Dept. of Natural Resources - 4
Wash. St. Dept. of Transportation - 6
Wash. St. IAC for Outdoor Recreation - 1
Wash. St. Legislature - 2
Wash. St. Office of Archeology & Hist. Pres. - 2
Wash. St. Parks & Recreation Commission - 8
Wash. St. Senate - 1
Wash. St. University - 4
Washington Trout - 1
Wash. Utilities and Trans. Comm. - 1
Waterville Comm. Library - 1
Wenatchee Boating Club - 1
Wenatchee Business Journal - 1
Wenatchee Public Library - 1
Wenatchee Sportsman's Assoc. - 1
Wenatchee Valley Chamber of Commerce - 1
Wenatchee Valley Sports Council - 1
Wenatchee World - 1
Wild Salmon - 1

Stakeholder Outreach Letter – August 31, 2005



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

To:
Address:
Address:
City, State, Zip

August 31, 2005

Subject: Wells Project Relicensing Process - Stakeholder Outreach

Dear:

The current Federal Energy Regulatory Commission (FERC) license to operate the Wells Hydroelectric Project (FERC Project No. 2149) expires May 31, 2012. By law and by regulation, the Notice of Intent (NOI) to relicense the Wells Project and the Wells Pre-Application Document (PAD) must be filed with FERC between five and five and one-half years prior to the expiration of the FERC operating license. Public Utility District No. 1 of Douglas County (Douglas PUD) plans on filing the NOI and PAD with FERC in December of 2006, five and one-half years prior to the expiration of the existing FERC license.

By regulation, the newly formed Integrated Licensing Process (ILP) is the default licensing process and thus will be utilized for relicensing the Wells Project. By all accounts, the ILP is schedule driven with numerous deadlines and milestones within each stage. The response and review timelines are short and the criteria for time extensions are limited.

In order to ensure that all of the timelines are met for the Wells Project ILP and to provide stakeholders a broader opportunity for interaction in this process, Douglas PUD would like to invite you and members of your staff to participate in a series of voluntary, pre-NOI meetings to discuss relicensing goals, details about the Wells Hydroelectric Project and potential study needs. For these pre-NOI meetings to be a success, Douglas PUD is requesting that appropriate members of your staff be made available to fully participate in these meetings. The first informal meeting, entitled "ILP 101" will take place at 10:00 AM, October 18, 2005 at the Douglas PUD headquarters building at 1151 Valley Mall Parkway, East Wenatchee, Washington.

Subsequent pre-NOI meetings will focus on resource issues and study needs and will take place within technically oriented Resource Work Groups (RWGs). There will be four RWGs formed to discuss relevant relicensing issues and future studies appropriate to the relicensing of the Wells Project. The Cultural RWG will address cultural and historic resources. The Terrestrial RWG will address wildlife, botanical, land use and aesthetics resources. The Aquatics RWG will address fish, aquatic and water quality resources. The Recreation RWG will address recreation and socioeconomic resources. Each of the four RWGs will meet independently and will usually

meet at Douglas PUD's headquarters in East Wenatchee, Washington. A schedule for all future RWG meetings leading up to the start of the formal ILP process will be discussed at the October 18th meeting.

Douglas PUD resource leads have been identified for each of the RWGs. For questions related to the Cultural, Recreation and Terrestrial RWGs please contact Scott Kreiter at scottk@dcpud.org or (509) 881-2327. For questions related to the Aquatic/Water RWG please contact Bao Le at baol@dcpud.org or (509) 881-2323.

For additional information on the ILP, the Wells Project or the Wells Relicensing Process and schedule, please feel free to contact Shane Bickford, Relicensing Coordinator, at sbickford@dcpud.org or (509) 881-2208 or refer to the Wells Project Relicensing website at: <http://relicensing.douglaspud.org/>

In addition to these resources, Douglas PUD is in the process of conducting outreach meetings with each of the organizations listed below. These meetings have been scheduled to take place prior to the ILP 101 Workshop and are intended to provide your organization with an opportunity to ask PUD staff questions related to the Wells relicensing process. We encourage you to dedicate sufficient attention to this process and in particular, we urge attendance at the ILP 101 workshop set for October 18, 2005.

Sincerely,

A handwritten signature in blue ink, appearing to read "W.C. Dobbins".

William C. Dobbins
CEO/Manager

Copy: USFWS – Susan Martin, Mark Miller, Steve Lewis
NMFS – Bob Lohn, Keith Kirkendahl, Bruce Suzumoto, Ritchie Graves, Dale Bambrick,
Kristine Petersen
BLM – Barron Bail, Jim Fisher
WDFW – Jeffery Koenings, Dennis Beich, Carmen Andonaegui
WDOE – Jay Manning, Derek Sandison, Tom Tebb, Pat Irle
State Parks – Rex Derr, Bill Koss, Eliot Scull, Jim Harris, Bill Fraser
CCT – Council Chairman Harvey Moses, Joe Peone, Jerry Marco, Camille Pleasants
YN – Council Chairman Jerry Meninick, Phillip Rigdon, Steve Parker, Bob Rose
Bridgeport – Mayor Steven Jenkins
Brewster – Mayor Bonnie House
Pateros – Mayor Gail Howe
Okanogan County – Commissioners
Douglas County – Commissioners
Chelan County – Commissioners

Enclosures: (1) Resource Work Groups - Proposed Schedule for Pre-NOI/PAD.
(2) Integrated Licensing Process – Final Rule.

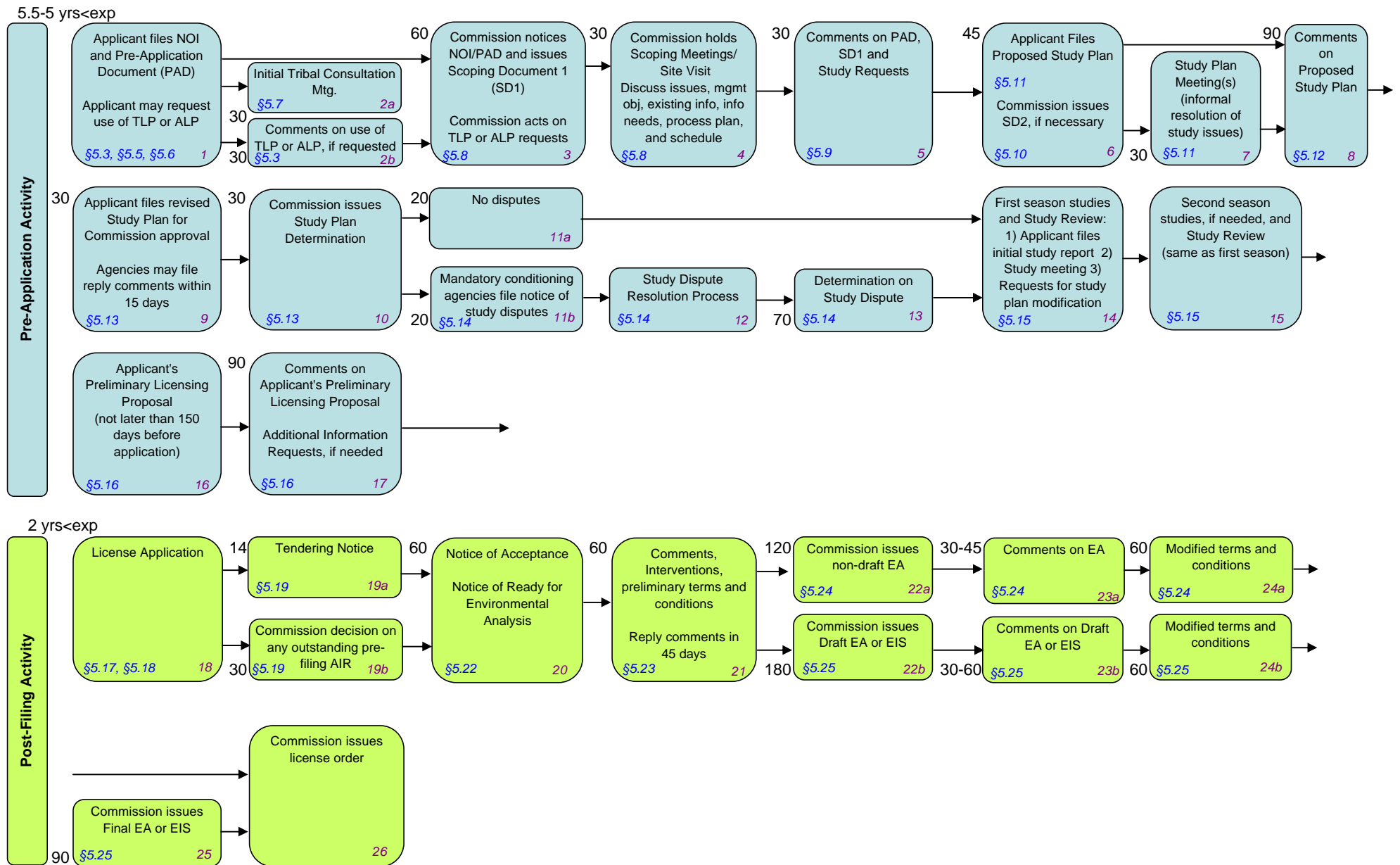
Resource Work Groups

Proposed Schedule for Pre-NOI/PAD

- **Cultural**
- **Terrestrial** (includes Wildlife, Botanical, Land Use & Aesthetics)
- **Aquatics** (includes Fish and Water Quality)
- **Recreation** (includes Socioeconomics)

Meeting	Date	Time
ILP 101	Tues. Oct. 18, 2005	10:00 AM
RWG 1 (introduction, roles, 7 criteria, ILP tie)		
Cultural	Fri. Nov. 18, 2005	10:00 AM
Aquatics	Tues. Nov. 15, 2005	10:00 AM
Terrestrial	Wed. Nov. 16, 2005	10:00 AM
Recreation	Thurs. Nov. 17, 2005	10:00 AM
RWG 2 (issues defined, active dialog)		
Cultural	Thurs. Dec. 15, 2005	10:00 AM
Terrestrial	Tues. Jan. 3, 2006	10:00 AM
Aquatics	Thurs. Jan. 5, 2006	10:00 AM
Recreation	Tues. Jan. 10, 2006	10:00 AM
RWG 3 (scope issues, nexus statements)		
Cultural	Thurs. Jan. 12, 2006	10:00 AM
Terrestrial	Tues. Jan. 31, 2006	10:00 AM
Aquatics	Thurs. Feb. 2, 2006	10:00 AM
Recreation	Tues. Feb. 7, 2006	10:00 AM
RWG 4 (final nexus statements for PAD)		
Cultural	Thurs. Feb. 9, 2006	10:00 AM
Terrestrial	Tues. Feb. 28, 2006	10:00 AM
Aquatics	Thurs. Mar. 2, 2006	10:00 AM
Recreation	Tues. Mar. 7, 2006	10:00 AM
RWG 5 (review Phase II Study Plans)		
Cultural	Thurs. July 6, 2006	10:00 AM
Terrestrial	Tues. July 11, 2006	10:00 AM
Aquatics	Thurs. July 13, 2006	10:00 AM
Recreation	Tues. July 18, 2006	10:00 AM
RWG 6 (finalize Phase II Study Plans)		
Cultural	Thurs. Sept. 7, 2006	10:00 AM
Terrestrial	Tues. Sept. 12, 2006	10:00 AM
Aquatics	Thurs. Sept. 14, 2006	10:00 AM
Recreation	Tues. Sept. 19, 2006	10:00 AM

Integrated Licensing Process Final Rule



Stakeholder Outreach Letter – September 20, 2005



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

To:
Address:
Address
City, State, Zip

September 20, 2005

Subject: Wells Project Relicensing Process - Stakeholder Outreach

Dear:

The current Federal Energy Regulatory Commission (FERC) license to operate the Wells Hydroelectric Project (FERC Project No. 2149) expires May 31, 2012. By law and by regulation, the Notice of Intent (NOI) to relicense the Wells Project and the Wells Pre-Application Document (PAD) must be filed with FERC between five and five and one-half years prior to the expiration of the FERC operating license. Public Utility District No. 1 of Douglas County (Douglas PUD) plans on filing the NOI and PAD with FERC in December of 2006, five and one-half years prior to the expiration of the existing FERC license.

By regulation, the newly formed Integrated Licensing Process (ILP) is the default licensing process and thus will be utilized for relicensing the Wells Project. By all accounts, the ILP is schedule driven with numerous deadlines and milestones within each stage. The response and review timelines are short and the criteria for time extensions are limited.

In order to ensure that all of the timelines are met for the Wells Project ILP and to provide stakeholders a broader opportunity for interaction in this process, Douglas PUD would like to invite you and members of your staff to participate in a series of voluntary, pre-NOI meetings to discuss relicensing goals, details about the Wells Hydroelectric Project and potential study needs. For these pre-NOI meetings to be a success, Douglas PUD is requesting that appropriate members of your staff be made available to fully participate in these meetings. The first informal meeting, entitled "ILP 101" will take place at 10:00 AM, October 18, 2005 at the Douglas PUD headquarters building at 1151 Valley Mall Parkway, East Wenatchee, Washington.

Subsequent pre-NOI meetings will focus on resource issues and study needs and will take place within technically oriented Resource Work Groups (RWGs). There will be four RWGs formed to discuss relevant relicensing issues and future studies appropriate to the relicensing of the Wells Project. The Cultural RWG will address cultural and historic resources. The Terrestrial RWG will address wildlife, botanical, land use and aesthetics resources. The Aquatics RWG will address fish, aquatic and water quality resources. The Recreation RWG will address recreation and socioeconomic resources. Each of the four RWGs will meet independently and will usually

meet at Douglas PUD's headquarters in East Wenatchee, Washington. A schedule for all future RWG meetings leading up to the start of the formal ILP process will be discussed at the October 18th meeting.

Douglas PUD resource leads have been identified for each of the RWGs. For questions related to the Cultural, Recreation and Terrestrial RWGs please contact Scott Kreiter at scottk@dcpud.org or (509) 881-2327. For questions related to the Aquatic/Water RWG please contact Bao Le at baol@dcpud.org or (509) 881-2323.

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We encourage you to dedicate sufficient attention to this process and in particular, we urge attendance at the ILP 101 workshop set for October 18, 2005.

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Kristine Petersen
BLM – Barron Bail, Jim Fisher
WDFW – Jeffery Koenings, Dennis Beich, Carmen Andonaegui
WDOE – Jay Manning, Derek Sandison, Tom Tebb, Pat Irle
State Parks – Rex Derr, Bill Koss, Eliot Scull, Jim Harris, Bill Fraser
CCT – Council Chairman Harvey Moses, Joe Peone, Jerry Marco, Camille Pleasants
YN – Council Chairman Jerry Meninick, Phillip Rigdon, Steve Parker, Bob Rose
Bridgeport – Mayor Steven Jenkins
Brewster – Mayor Bonnie House
Pateros – Mayor Gail Howe
Okanogan County – Commissioners
Douglas County – Commissioners
Chelan County – Commissioners
IAC – Jim Eychaner
SHPO – Allyson Brooks, Rob Whitlam

Enclosures: (1) Resource Work Groups - Proposed Schedule for Pre-NOI/PAD.
(2) Integrated Licensing Process – Final Rule.

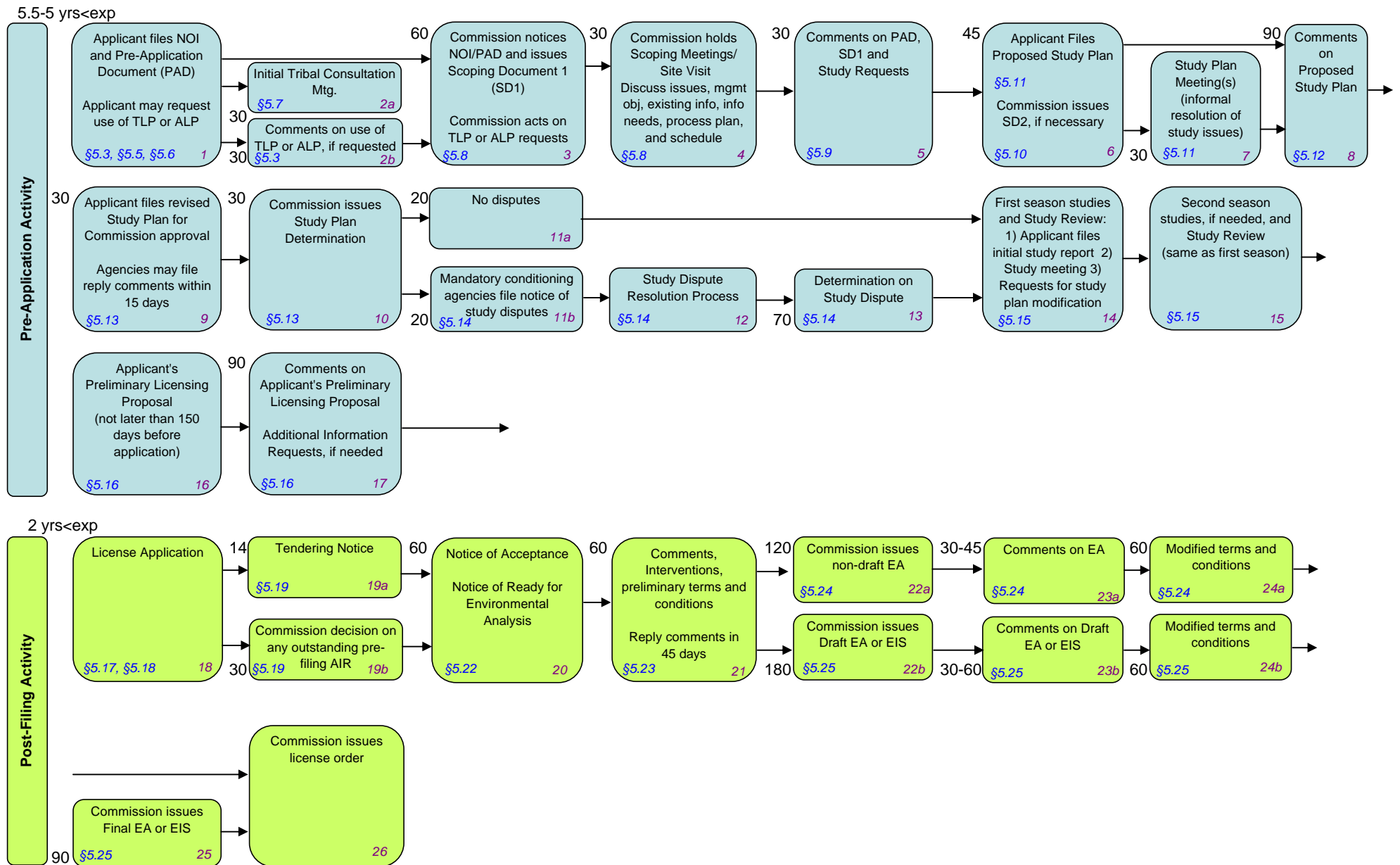
Resource Work Groups

Proposed Schedule for Pre-NOI/PAD

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Recreation	Tues. Sept. 19, 2006	10:00 AM

Integrated Licensing Process Final Rule



Responses Received from Information Request Letter



SB
file

STATE OF WASHINGTON

Department of Archaeology and Historic Preservation

1063 S. Capitol Way, Suite 106 • PO Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065 Fax Number
(360) 586-3067 • <http://www.dahp.wa.gov>

August 16, 2005

Mr. Shane Bickford
PUD No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, Washington 98802-4497

Log No.: 0603504-03-FERC
Re: Wells Hydroelectric Project
FERC #: 2149

Dear Mr. Bickford;

Thank you for contracting our department. We look forward to your efforts in developing the cultural resources information component of your relicensing effort. Please feel free to contact us for further consultation in the determination of the Area of Potential Effect (APE) and we look forward to participating in your cultural resources efforts.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and this department notified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: rob.whitlam@dahp.wa.gov

RECEIVED

AUG 18 2005

DOUGLAS PUD

Mary Mayo

From: Relicensing Wells
Sent: Tuesday, August 16, 2005 10:51 AM
To: Public Received; Mary Mayo
Subject: FW: Pertinent Information

Attachments: Mainstem Final.PDF



Mainstem Final.PDF
(4 MB)

>
>-----
>From: Dauble, Dennis D[SMTP:DD.DAUBLE@PNL.GOV]
>Sent: Tuesday, August 16, 2005 10:47:50 AM
>To: Relicensing Wells
>Cc: Mahon, Darlene F
>Subject: Pertinent Information
>Auto forwarded by a Rule
>

Shane Bickford

I received your request for information and will be sending a limited set of published/unpublished documents that you may not have in your re-licensing library. The attached PDF is a report that we completed for BPA a few years back. Some of the historical data on fall Chinook salmon distribution and habitat use may be of use to you in your assessment.

DDD

--

Director, Natural Resources Division
Environmental Technology Directorate
PO Box 999
Pacific NW National Laboratory
dd.dauble@pnl.gov
Phone (509)376-3631
Fax (509)373-1153



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
TTY 711 or 800-833-6388 (for the speech or hearing impaired)

NOTED

AUG 24 2005

S.A.B.

August 18, 2005

Shane Bickford, Relicensing Coordinator
Public Utility District/No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, Washington 98802-4497

RE: Wells Hydroelectric Project / Information Pertinent to the Relicensing of the Wells Hydroelectric Project

Dear Mr. Bickford,

This acknowledges receipt of your letter dated August 8, 2005, by the Department of Ecology under RCW 42.17.320. Ecology received your request on August 18, 2005.

It is my understanding that you would be requesting:

- 1) Information related to environmental (fish, wildlife, botanical, water quality), socioeconomic, and cultural resources found within or adjacent to the Wells Project Area.
- 2) Information in the form of published/unpublished reports, historical documents, and previous studies that are deemed relevant to the relicensing of the Wells Project.
- 3) Information collected and/or studies conducted that were not affiliated with or funded by Douglas PUD.
- 4) Information on resources of the mid-Columbia River not generally available through other recent relicensing efforts on the Columbia River.

Your request has been forwarded to Roger Johnson, who is the Public Disclosure Coordinator for the Department of Ecology's Central Regional Office. Our Central Regional Office handles matters for the central portion of Washington State, which includes Douglas County. The contact phone number for Roger Johnson is (509) 454-7658.

Feel free to contact me if you have any further questions at carr461@ecy.wa.gov.

Sincerely,

Carrol A. Johnston
Public Disclosure Coordinator
Department of Ecology
Water Quality
(360) 407-6091

NOTED

AUG 23 2005

MEM





SB
file

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
TTY 711 or 800-833-6388 (For the Speech or Hearing Impaired)

August 23, 2005

Mr. Shane Bickford
Relicensing Coordinator, Wells Hydroelectric Project
Douglas Public Utility District No. 1
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

Re: Wells Hydroelectric Project FERC License No. 2149 Request for Pertinent Information

Dear Mr. Bickford:

The Department of Ecology (Ecology) and a number of its employees have received your August 8, 2005 request for existing pertinent information as part of your Pre-Application Document for the relicensing of the Wells Hydroelectric Project. Because of the complex and comprehensive requirements that are necessary to develop a water quality attainment plan for a mid-Columbia hydroelectric project, Ecology greatly appreciates Douglas PUD's effort to initiate the process early.

As you may know, Section 401 of the Clean Water Act requires that applicants for a hydroelectric project license from the Federal Energy Regulatory Commission (FERC) apply for a Section 401 Certification. The purpose of a 401 Certification is to ensure compliance with water quality standards and other appropriate requirements of state law. Ecology is the responsible natural resource agency for issuing, or denying, such certifications.

Currently, our staff is engaged in other mid-Columbia River hydroelectric project relicensing efforts (Chelan PUD's Rocky Reach and Grant PUD's Priest Rapids Project), and are preparing to issue draft Section 401 Certifications for public review this fall or early winter. The Section 401 Certifications are designed to achieve the state water quality standards through a scientifically based adaptive management strategy.

Development of the necessary data, studies, and analysis, has taken a number of years for the Chelan and Grant Projects. This information will provide an excellent example for understanding Ecology's water quality, resource protection, and enhancement goals, for hydropower projects in the mid-Columbia River region. We recommend you review the studies and data regarding water quality and aquatic resources developed in these relicensing processes. Much of it may be applicable to your project or provide indications of data needs that your project may have.

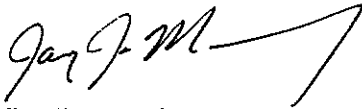
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AUG 29 2005

Mr. Shane Bickford
August 23, 2005
Page 2

The Wells Hydroelectric Project is situated within our Central Region. Therefore, your primary contacts for initiating the process to obtain your Section 401 Certification are Derek Sandison, Central Regional Director, and Tom Tebb, our Water Quality Section Manager. Derek can be reached at (509) 457-7120, and Tom at (509) 457-7107. Please contact them directly to arrange a suitable time that Ecology can further define the regulatory process and available information.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay J. Manning", with a long horizontal stroke extending to the right.

Jay J. Manning
Director

cc: Magalie Salas, FERC

CITY OF PATEROS

113 Lakeshore Drive
PO Box 8
Pateros, WA 98846
509 923 2571
FAX 509 923 2971
e-mail: pateros@nwi.net

August 25, 2005

Attn: Mary Mayo
Douglas County PUD
1051 Valley Mall Parkway
East Wenatchee, WA 98802

Re: City Documents

Dear Ms. Mayo:

Enclosed are document for the City of Pateros as requested by the PUD for future reference. Included are the following:

- Zoning Code
- Comprehensive Land Use Plan
- Shoreline Master Program
- Capital Facilities Plan
- Scenic Byway DRAFT Plan

There will be periodic updates, which will be forwarded to your attention after adoption by the City Council. The City will also be completing a Business District Plan this fall, which we will forward upon adoption by the City Council.

Please feel free to contact Joey Bruno, Deputy Clerk, or Diane Winans, Clerk/Treasurer, if you have questions regarding this information.

Sincerely,



Gail A. Howe
Mayor

enclosure



United States Department of the Interior

BUREAU OF RECLAMATION

Ephrata Field Office
P. O. Box 815
Ephrata, Washington 98823

NOTED

AUG 24 2005

S.A.B.

IN REPLY REFER TO:

EPH-2003

PRJ-17.10

AUG 24 2005

Public Utility District No. 1 of Douglas County

Attn: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

Subject: Wells Hydroelectric Project-Information Pertinent to the Relicensing of the Wells
Hydroelectric Project (Your letter of 8/8/05), Columbia Basin Project, Washington

Dear Ms. Mayo

In response to your request, we have searched our records for information that may be pertinent to the relicensing of the Wells Hydroelectric Project. Currently, information we have is available either from the Federal Energy Regulatory Commission, (items supplied for Rocky Reach or Priest Rapids relicensing efforts) or on Reclamation's websites. Most of this information relates to planning/operation studies on the Columbia River. We also have several planning documents related to specific areas within irrigation projects in central Washington State that are available.

If you have any questions, please contact Mr. Jim Blanchard at 509-754-0226.

Sincerely,

William D. Gray
Deputy Area Manager

NOTED

AUG 25 2005

MEM

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Pacific Northwest National Laboratory

Operated by Battelle for the
U.S. Department of Energy

August 30, 2005

Mary Mayo
Public Utility District No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

Dear Ms. Mayo:

WELLS HYDROELECTRIC PROJECT INFORMATION PERTINENT TO THE RELICENSING OF THE WELLS HYDROELECTRIC PROJECT

Ref: Your letter to Director, PNNL, dated August 8, 2005, subject as above.


I have enclosed a limited set of documents in response to the subject letter. The documents are:

- Fish, F.F. and M.G. Hanavan. 1948. A Report upon the Grand Coulee Fish-Maintenance Project 1935-1947. U.S. Fish and Wildlife Service, Special Scientific Report No. 55.
- Gilbert, C.H. and B.W. Evermann. A Report upon Investigations in the Columbia River Basin with Descriptions of Four New Species of Fishes.
- Butler, V.L. and R.F. Schalk. Appendix A-1, Holocene Salmonid Resources of the Upper Columbia. University of Washington, Institute for Environmental Studies, Office of Public Archaeology.
- Dauble, D.D., T.P. Hanrahan, and D.R. Geist. 2003. Impacts of the Columbia River Hydroelectric System on Main-Stem Habitats of Fall Chinook Salmon. North American Journal of Fisheries Management. 23:641-659.

In addition, I emailed you a copy of "Assessment of the Impacts of Development and Operation of the Columbia River Hydroelectric System on Mainstem Riverine Processes and Salmon Habitats," prepared by Battelle's Pacific NW Division for the Bonneville Power Administration.

Please feel free to call me if you have any questions or need further information.

Sincerely yours,



Dennis D. Dauble
Director
Natural Resources Division
Environmental Technology Directorate

DDD/dm
Enclosures

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

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SEP 06 2005

DOUGLAS PUD



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file

September 26, 2005

Public Utility District No. 1 of Douglas County
Attn: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee WA 98802-4497

SUBJECT: Wells Hydroelectric Project – Pertinent Available Information

The Washington Natural Heritage Program is responsible for collecting and maintaining information on the state's rare plant species as well as high quality native ecosystems.

Standard products that provide information related to the presence of rare plant species and natural ecosystems are available from the Natural Heritage Program. For professional environmental assessment or land management purposes, project area reports can be requested or GIS software users may license the use of the WNHP GIS Data Set by contacting me at (360) 902-1667, or by e-mail at sandra.moody@wadnr.gov.

For more information, please visit our internet website at <http://www.dnr.wa.gov/nhp>. Lists of rare plants and their status, rare plant fact sheets, as well as rare plant survey guidelines are available for download from the site.

Sincerely,

Sandy Swope Moody, Environmental Review Coordinator
Washington Natural Heritage Program
Asset Management & Protection Division
PO Box 47014
Olympia WA 98504-7014

RECEIVED
OCT 03 2005
DOUGLAS PUD





Colville Confederated Tribes

Fish and Wildlife Department

P.O. Box 150
Nespelem, WA 99155
Phone: 509-634-2110



October 5, 2005

Mr. Shane Bickford
Relicensing Coordinator
Douglas PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

Dear Mr. Bickford:

Per your request of August 8, 2005, I have compiled a list of reference documents that contain information that may be relevant to the development of Douglas PUD's Pre-Application Document. Additionally, I have outlined some water quality issues that the Colville Tribes (Tribes) feel important to include in the baseline information.

Relevant Documents:

- Northwest Power and Conservation Council's Okanogan Subbasin Plan/Columbia Cascade Provincial Information. These documents will have relevant information on fish, wildlife, and botanical resources found within or adjacent to the Wells Project Area. These documents can be found on the NWPCC web site at: <http://www.nwcouncil.org/>
- Chief Joseph Dam Hatchery Program- Volume 1 Master Plan. The master plan contains information on several anadromous fish management strategies of the Tribes. Additionally, general information on the cultural history and socioeconomic is found within the master plan document. This document can be obtained through the Tribes Fish and Wildlife Department.
- The Upper Columbia Salmon Recovery Plan- This document provides relevant information on ESA listed fish in the Upper Columbia. The plan can be obtained through the Tribes Fish and Wildlife Department.

Water Quality Issues:

Several water quality parameters are important to the Tribes as they relate to human health, fish, wildlife, and overall health of the upper Columbia River. These parameters include:

- Total maximum daily loads (TMDL's)
- Water temperatures
- Total Dissolved Gases (TDG)

- Toxicity of sediment behind the Wells pool and the confluence of the Columbia River and Okanogan River.

We appreciate the opportunity to provide you with this preliminary information and look forward to working with you through the relicensing process. If I can be of any assistance please do not hesitate to call me at 509-838-1057.

Sincerely,

A handwritten signature in black ink, appearing to read "William T. Towey", with a long, sweeping horizontal line extending from the end of the signature.

William T. Towey, Policy Analyst
Colville Confederated Tribes Fish and Wildlife Department

cc:

Joe Peone, CCT F&W Department Director

Jacobs Civil Inc.

600 108th Avenue, N.E., Suite 700
Bellevue, Washington 98004 U.S.A.
1.425.452.8000 Fax 1.425.452.1212

October 4, 2005

X416-00-0070-LT-001

Public Utility District No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

Attention: Mr. Shane Bickford, Relicensing Coordinator

Subject: Wells Hydroelectric Project
Information Pertinent to the Relicensing of the Wells Hydroelectric Project

Dear Mr. Bickford,

In response to your letter dated August 8, 2005 and in support of the relicensing of the Wells Hydroelectric Project, we have prepared a summary of activities and documents that Jacobs Civil Inc. has participated in during the execution of our engineering contracts with the District (1973 to the present) or has knowledge of that may be pertinent to the relicensing of the Wells Hydroelectric Project.

1. Information related to environmental, socioeconomic, and cultural resources within or adjacent to the Wells Project Area.

a. Jacobs (Sverdrup) has been involved in developing erosion protection and monitoring of cultural resource sites along the Wells Project Reservoir. We retain in our files photographs and inspection reports of the cultural resource sites that required erosion protection and monitoring.

b. Jacobs (Sverdrup) has been involved in numerous erosion protection projects along the Wells Reservoir including the protection/creation of the Kirk and Bridgeport Bar Goose Nesting Islands. We retain in our files information, studies, and photographs of some of the erosion protection projects.

c. Jacobs (Sverdrup) assisted the District in developing a land acquisition policy and studies for land acquisition to contain future erosion to District-owned land along the Wells Reservoir. Two different study methods were used since the geologic history of the project lands bordering the Columbia River are very different than those bordering the Okanogan River. Our files contain study documents and some photographs of the affected properties.

d. Jacobs (Sverdrup) prepared a report in response to Article 50 of the order amending the license for Project No. 2149 (investigation and identification of all non-project lands and structures, including the Brewster swimming pool, that would be adversely impacted by an increase in the Wells Project Reservoir to elevation 781 feet msl).



e) Jacobs (Sverdrup) has assisted the District in developing public recreation facilities such as trails, boat docks and boat launching ramps along the Wells Reservoir. We retain in our files study and design information for these projects.

f) Jacobs (Sverdrup) has been involved in fish passage issues with the upstream fish passage facilities at Wells Dam. We retain in our files study information and data taken on the piezometers that were installed in the West Fish Facility. We were also involved in the design of the retrofit of the fish trapping facility located in the East Fish Facility. Our files also contain photographs of the dewatered components of the fish passage facilities.

g) Jacobs has recently been involved with dissolved gas issues at the Wells Project and we retain in our files data and study information related to the dissolved gas issue.

2. Information in the form of published/unpublished reports, historical documents, and previous studies that we deem relevant to the relicensing of the Wells Project.

a. Jacobs (Sverdrup) assisted the District in preparing an application for an amendment to the Wells Project license for increasing the forebay elevation at Wells Dam by two feet. We retain in our files some of the studies and data related to this license amendment.

b. Jacobs (Sverdrup) has been involved with the issue of sedimentation in the Methow River estuary. We retain in our files studies and information related to the sedimentation. In the past, a movable bed hydraulic study of the sedimentation was planned. This study did not move forward, but we retain in our files information on sediment grain size that was collected for the study.

c. Jacobs (Sverdrup) supported the District in the investigations and preliminary design for the Methow Hatchery and acclimation ponds. We retain in our files studies and information related to the hatchery and acclimation ponds.

d. Jacobs has been involved for many years in studies and modifications to the Wells Hatchery and retain in our files studies and design information on the water supply system for the hatchery.

3. Information collected and/or studies conducted that were not affiliated with or funded by Douglas PUD.

a. *Priest Rapids Project Juvenile Fish Bypass Surface Flow Attraction Alternative – Report on Bathymetric Survey of Wells Hydroelectric Project Forebay*, ENSR Consulting and Engineering, October 24, 1994.

b. *Wells Dam Forebay and Lake Pateros Velocity Profiles Run May 10-13, 1995*. This information consists of raw data taken by the U.S. Geological Survey and transmitted to Jacobs from Hydraulic Design, Portland District Corps of Engineers.

c. *Flood Insurance Study, Okanogan County, Washington Unincorporated Areas*, U.S. Department of Housing and Urban Development, September 1978.



d. *Three Dimensional Computation Fluid Dynamics (CFD) Modeling of the Wells Dam Forebay*, Iowa Institute of Hydraulic Research (IIHR) - Hydrosience and Engineering, August 16, 2004 (Funded by Grant PUD).

4. Information on resources of the mid-Columbia River not generally available through other recent relicensing efforts on the Columbia River.

a. Since 1990 Jacobs (Sverdrup) has been the engineering consultant for fisheries related projects (fish bypass at Wanapum and Priest Rapids Dams and fish hatchery planning and development) for Grant County PUD's Priest Rapids Project. Some of the work that we are involved in may not be in recent re-licensing documents.

We hope that you will find this information useful in your relicensing efforts for Wells Dam. Please contact me if you have any questions.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in black ink, appearing to read 'Rolf G. Wielick', with a stylized flourish at the end.

Rolf G. Wielick, PE
Project Manager



mm
file

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

October 6, 2005

Mary Mayo
Public Utility District No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

**RE: Wells Hydroelectric Project, FERC No. 2149
Information Pertinent to the Relicensing**

Dear Ms. Mayo:

In response to your letter of August 9, 2005, we are providing the enclosed information.

Included are:

- 1) Total Maximum Daily Load for Total Dissolved Gas in the Mid-Columbia River and Lake Roosevelt; Submittal Report; June 2004; EPA and Ecology (Ecology Pub No. 04-03-002)
- 2) A Total Maximum Daily Load Evaluation for Arsenic in the Similkameen River, Ecology, Nov 2002. (Ecology Pub No. 02-03-044)
- 3) Lower Similkameen River Arsenic Total Maximum Daily Load, Submittal Report; Ecology and EPA; January 2004. (Ecology Pub. No. 03-10-074)
- 4) Draft Lower Similkameen River Arsenic Total Maximum Daily Load, Detailed Implementation Plan; Ecology; August 2005. (Ecology Pub. No. 05-10-074)
- 5) Effects of Small-Scale Gold Dredging on Arsenic, Copper, Lead and Zinc Concentrations in the Similkameen River; Ecology; March 2005. (Ecology Pub No. 05-03-007)
- 6) TMDL Technical Assessment of DDT and PCBs in the Lower Okanogan River Basin; Ecology; July 2003. (Ecology Pub. No. 03-03-013)
- 7) Lower Okanogan River Basin DDT and PCBs Total Maximum Daily Load, Submittal Report; Ecology; October 2004. (Ecology Pub. No. 04-10-043)
- 8) Methow River Basin Fish Habitat Analysis Using the Instream Flow Incremental Methodology; Ecology; August 1992. (Ecology Pub. No. 92-82). (partial provided)

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OCT 07 2005

DOUGLAS PUB



Mary Mayo
Public Utility District No. 1 of Douglas County
October 6, 2005
Page 2

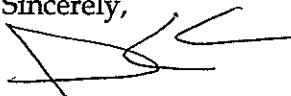
Copies of these *and additional* reports are available on Ecology's website:
<http://www.ecy.wa.gov/biblio> . I also have the entire IFIM report (see #8 above)
available by e-mail.

You can attain additional data on the following websites.

- 1) The Pacific Northwest Water Quality Data Exchange project website, at:
<http://deq12.deq.state.or.us/pnwwqx/> . If you would like additional
assistance, you may want to contact Chris Neumiller, Ecology, (360) 407-6528.
- 2) Ecology has data and study information on a watershed basis at the following
website: <http://www.ecy.wa.gov/eim/> .
- 3) Other places to look include the general Ecology website at
<http://www.ecy.wa.gov>. Once you get there, additional information is available
by program. There are several choices. Both the Water Quality Program and the
Environmental Assessment Program (EAP) have relevant information. EAP's
information includes aquatic plant species and biological information.

If you need additional help in accessing this data or have other questions, please contact
me at (509) 454-7864 or Jon Merz at (509) 454-7207.

Sincerely,



Pat Irle
Water Quality Program

PI:ww

Critical Stakeholders Outreach Meetings List

Critical Stakeholders Outreach Meetings List

Meeting	Date	Time	Location
Pateros	August 26, 2005	9:00-10:00	Pateros
Okanogan County	August 30, 2005	2:00-3:00	Okanogan
Brewster	September 1, 2005	3:00-4:00	Brewster
WDFW	September 7, 2005	1:00-2:00	Olympia
Douglas County	September 20, 2005	1:30-2:30	19 th Street
Bridgeport	September 22, 2005	9:30-10:30	Bridgeport
USFWS	September 28, 2005	10:00-12:00	East Wenatchee
State Parks	September 29, 2005	10:00-11:00	East Wenatchee
BLM	September 29, 2005	1:30-2:30	BLM Offices
Colville Tribe	October 4, 2005	10:00-11:00	Nespelem
Yakama Nation	October 5, 2005	10:00-11:00	Toppenish
NMFS	October 6, 2005	1:00-2:00	Portland
Chelan County	October 11, 2005	11:00-12:00	Wenatchee
WDOE	October 12, 2005	11:00-12:00	Olympia
ILP 101	Oct 18, 2005	10:00	East Wenatchee

Thank You Letters to Critical Stakeholders



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

To:
Address:
Address:
City, State, Zip

September 8, 2005

Subject: Resource Work Group Meetings

Dear:

Thank you for taking time out of your busy schedule to meet with Dr. Robert Clubb, Mr. Shane Bickford and me to discuss the upcoming relicensing of the Wells Project. As indicated during our brief meeting, we strongly encourage you and your organization to actively participate in the proposed Resource Work Group (RWG) meetings scheduled to begin in October 2005. The first and most important RWG meeting, entitled "ILP 101: an introduction to a new relicensing process" is scheduled to take place at 10:00 AM, October 18, 2005 at the Douglas PUD headquarters building at 1151 Valley Mall Parkway, East Wenatchee, Washington. In addition to discussing the new licensing process, Douglas PUD will also be discussing the roles, responsibilities, schedule and the appropriate meeting location for each of the four RWGs.

If you have not already done so, we encourage you to identify someone within your organization to be the primary point of contact for each of the four RWGs. Should you have questions related to the Cultural, Recreation and Terrestrial RWGs, please contact Scott Kreiter at scottk@dcpud.org or (509) 881-2327. For questions related to the Aquatic/Water RWG, please contact Bao Le at baol@dcpud.org or (509) 881-2323.

For additional information on the ILP, the Wells Project or the Wells Relicensing Process and schedule, please feel free to contact Shane Bickford, Relicensing Coordinator, at sbickford@dcpud.org or (509) 881-2208 or refer to the Wells Project Relicensing website at: <http://relicensing.douglaspud.org/>

Once again, thank you for your time, attention and future participation in the relicensing of the Wells Hydroelectric Project.

Sincerely,

William C. Dobbins
CEO/Manager

Name	Organization	Date Sent
Bonnie House	Mayor of Brewster	9/21/2005
Gail Howe	Mayor of Pateros	9/21/2005
Commissioners	Okanogan County	9/21/2005
Commissioners	Douglas County	9/21/2005
Jeff Koenings	WDFW	9/21/2005
Dennis Beach	WDFW	9/21/2005
Carmen Andonaegui	WDFW	9/21/2005
Curt Leigh	WDFW	9/21/2005
Susan Martin	USFWS	9/30/2005
Mark Miller	USFWS	9/30/2005
Steve Lewis	USFWS	9/30/2005
Steven Jenkins	Mayor of Bridgeport	9/30/2005
Jim Harris	State Parks	9/30/2005
Jim Fisher	BLM	9/30/2005
Harvey Moses	Colville Tribes	10/10/2005
Joe Peone	Colville Tribes	10/10/2005
Camille Pleasants	Colville Tribes	10/10/2005
D.R. Michel	Colville Tribes	10/10/2005
Steve Parker	Yakama Nation	10/10/2005
Phil Rigdon	Yakama Nation	10/10/2005
Bob Rose	Yakama Nation	10/10/2005
Bob Lohn	NMFS	10/10/2005
Keith Kirkendahl	NMFS	10/10/2005
Derek Sandison	WDOE	10/13/2005
Tom Tebb	WDOE	10/13/2005
Joe Stohr	WDOE	10/13/2005
Commissioners	Chelan County	10/13/2005

ILP Workshop Agenda

Integrated Licensing Process (ILP) 101
October 18, 2005 10:00 – 3:00
Meeting Agenda
2005-01
FINAL

Posted: October 7, 2005

1. Welcome and Introductions (Bob Clubb, Douglas PUD).
2. Overview of New Integrated Licensing Process (David Turner, FERC).
3. Relicensing and the Wells HCP (Ritchie Graves, NMFS).
4. Project Overview (Shane Bickford, Douglas PUD).
5. Wells ILP Schedule: 2006-2012 (Shane Bickford, Douglas PUD).
6. Lunch. (On your own) 12:30 – 1:30
7. Introduction, Rationale and Goals for pre-PAD Resource Work Groups (RWGs) (John Devine, DTA).
8. Baseline Studies Video (Shane Bickford, Douglas PUD).
9. Resource Work Groups, Baseline Studies and RWG Schedule (Shane Bickford, Douglas PUD).
 - Aquatic RWG (Bao Le).
 - Cultural RWG (Scott Kreiter).
 - Recreation RWG (Scott Kreiter).
 - Terrestrial RWG (Scott Kreiter).
10. Resource Work Group Sign-Up Tables (All).

**ILP Workshop
Sign-In Sheet**

SIGN-IN SHEET
ILP 101 MEETING
OCTOBER 18, 2005

NAME	ORGANIZATION	TELEPHONE NO.	EMAIL ADDRESS
David Turner	FERC	202-502-6091	David.Turner@FERC.GOV
Patricia Leppert	FERC	(202) 502-6034	patricia.leppert@FERC.gov
Guy Moura	CCT	509 634-2695	guy.moura@colvilletribes.com
George Brady	City of Pateros	923-2326	cascafeb@telepac.com
Jean Harlow	City of Brewster	688-9041	slportcity@aminc.net
Car Harlow	USA		
Colleen Diener	Ecology	509 457-7107	gtele461@ecy.wa.gov
Tom TEBB	City of Pateros	509-923-2571	pateros@nwi.net
Gail A. Horne	City of Brewster	509 689-8012	lwebster@505@hotmail.com
Greg Webster	Colville Tribes	509 634-3147	mpalmer@colletttribes.com
Mike Palmer	NMFS	503-231-6891	Ritchie.Graves@noaa.gov
Ritchie Graves	FWS	509 465-3508	Stephen-Lewis@FWS.gov
Steve Lewis	"	"	Gg.VanStrah@FWS.gov
Greg Van Strah	USFWS	509-888-893-8421	Dan.Trachata@FWS.gov
Dan Trachata	WDFW	" 662-0452	John.Fisher@blm.gov
John Fisher	BLM	665-2100	John.Fisher@blm.gov
Man Hunt	Douglas County	745-8537	manhunt@co.douglas.wa.us
Mark Miller	USFWS	665-3528	Mark-Miller@FWS.gov
Wyatt Scheibner	Douglas PUD	884-7191	wscheibner@dcnud.org
Mrs. Parsons	WDFW	754-4624	PARSOCHP@dfw.wa.gov
Lura Heminger	Douglas	884-7471	lheminger@dcnud.net
Carmen Andrazgail	WDFW	398-0140	andranca@dfw.wa.gov
Bill Dobbins	Douglas	509-884-7191	wdobbins@dcnud.org
Meaghan Vibbert	"	"	mvibbert@dcnud.org
Ken Plueger	"	"	kplueger@dcnud.org
Scott Kreiter	"	"	skreiter@dcnud.org
Jim McGee	"	"	jmcgee@dcnud.org
Tim Bacheider	DTA	207-775-4495	timothy.bacheider@devimeterbell.com
John Devine	DTA	"	John.devine@ "
Bob Le	DCPUD	509-881-2323	ble@dcnud.org
Mam Mayo	"	509 881-2488	m.mayo@dcnud.org
Bob Clubb	"	509 884-7191	bobc@dcnud.org
Shane Bickford	"	"	sbickford@dcnud.org
Gordon Brett	"	"	gordonb@dcnud.org
Dennis Beich	WDFW	(509) 398-0140	beichdub@dfw.wa.gov
Brad Hawkins	DCPUD	509-884-7191	bhawkins@dcnud.org

RWG Sign-In Sheets

AQUATICS WORK GROUP

SIGN UP SHEET

ILP 101 MEETING

OCTOBER 18, 2005

[illegible]

CULTURAL WORK GROUP
SIGN UP SHEET
ILP 101 MEETING
OCTOBER 18, 2005

[illegible]

RECREATION WORK GROUP
SIGN UP SHEET
ILP 101 MEETING
OCTOBER 18, 2005

[illegible]

OCTOBER 18, 2005

[illegible]

**Thank You Email After ILP Workshop
October 24, 2005**

From: Mary Mayo
Sent: Monday, October 24, 2005 3:34 PM
To: 'guy.moura@colvilletribes.com'; 'cascadeb@televar.com'; 'bportcty@nwi.net'; 'gteb461@ecy.wa.gov'; 'pateros@nwi.net'; 'lwebster005@hotmail.com'; 'mpalmer@colvilletribes.com'; 'ritchie.graves@noaa.gov'; 'stephen_lewis@fws.gov'; 'greg_vanstralen@fws.gov'; 'dan_trochta@fws.gov'; 'eldredte@dfw.wa.gov'; 'j1fisher@blm.gov'; 'mhunt@co.douglas.wa.us'; 'mark_miller@fws.gov'; 'parsocbp@dfw.wa.gov'; 'andonca@dfw.wa.gov'; 'beichdvb@dfw.wa.gov'; Bob Rose (brose@yakama.com); Steve Parker (parker@yakama.com); Jim Eychaner (jime@iac.wa.gov); Dinah Demers (dinah.demers@colvilletribes.com); Robert Whitlam Dr. (robw@cted.wa.gov); Camille Pleasants (camille.pleasants@colvilletribes.com); Joe Miller (millejlm@DFW.WA.GOV); 'pirl461@ecy.wa.gov'; 'jim.harris@parks.wa.gov'; 'hallemh@dfw.wa.gov'; 'mondamjm@dfw.wa.gov'; 'jatefrj@dfw.wa.gov'; 'bcrowell@co.okanogan.wa.us'; 'prigdon@yakama.com'
Cc: Bob Clubb; Shane Bickford; Scott Kreiter; Bao Le; Brad Hawkins; Gordon Brett; Jim McGee
Subject: Resource Work Group Meetings and Wells Project Tour

Thank you for participating in the Wells Hydroelectric Project ILP 101 meeting on October 18, 2005. As a follow-up, we would like to ensure that all participants are aware of the upcoming Resource Work Group meetings and Project tours.

The following dates have been set for the Pre-NOI/PAD Resource Work Group meetings.

Aquatics - November 15, 2005

10:00 AM – 3:00 PM
Douglas PUD Headquarters
1151 Valley Mall Parkway, East Wenatchee

Terrestrial - November 16, 2005

10:00 AM – 3:00 PM
Douglas PUD Headquarters
1151 Valley Mall Parkway, East Wenatchee

Recreation and Land Use - November 17, 2005

10:00 AM – 3:00 PM
Columbia Cove Community Center
601 W. Cliff Ave.
Brewster, WA

Cultural - November 18, 2005

10:00 AM – 3:00 PM
Douglas PUD Headquarters
1151 Valley Mall Parkway, East Wenatchee

If you have not already done so, please provide contact information for any individuals who will represent your organization in any of the four Work Groups. Douglas PUD will send agendas and background information prior to the first work group meetings.

We have also planned Wells Project tours on November 3rd and November 9th, from 9:00 AM to 4:00 PM. If you are interested in attending one of the tours, please contact me by Monday, October 31 with the specific date that fits your schedule.

If you have any questions or concerns, please do not hesitate to contact me.

Mary Mayo
mmayo@dcpud.org
509-881-2488

Meeting Notes from ILP Workshop

Integrated Licensing Process (ILP) 101
October 18, 2005 10:00-3:00
Meeting Minutes
2005-01
FINAL

Posted: November 7, 2005

1. Welcome and Introductions (Bob Clubb, Douglas PUD).

Bob Clubb welcomed all the Stakeholders to the ILP 101 meeting here at Douglas PUD and thanked them for their attention and attendance.

2. Overview of New Integrated Licensing Process (David Turner, FERC).

David Turner from the Federal Energy Regulatory Commission presented an overview of the Commission's Integrated Licensing Process (ILP). He stated that the purpose of the ILP is to provide a predictable, efficient, and timely licensing process that continues to ensure adequate resource protections. It involves a collaborative effort involving Agencies, Tribes, Non-governmental Organizations, and hydro developers. The ILP process is a time driven approach.

The three fundamentals of the ILP are: 1) early study plan development and resolution of any study disagreements, 2) integration with other stakeholder processes, and 3) established time frames. Time frames are very short and are intended to keep things moving. Activities include developing the Pre-Application Document (PAD), conducting scoping and refining the process plan, and working out studies.

The PAD is the foundation of the licensing process. Comprehensive and detailed information contained within the PAD will be used by all stakeholders to identify issues, data gaps and study needs at the project. A good PAD should also include a copy of the project's process plan and a list of preliminary issues and studies.

A list of criteria was developed to better focus study requests. They are as follows:

- Study goals and objectives clearly defined;
- Studies answer resource goals and objectives;
- Studies answer public interest considerations;
- Consider existing information;
- Clearly make a connection between project operations and effects and how study results would inform development of license requirements;
- Methodology consistent with accepted scientific practice;
- Consideration of level of effort and cost and why alternative studies would not suffice.

The study plan development process begins with the filing of study requests by stakeholders. The applicant then has 45 days to prepare and file a proposed study plan. This is followed by meetings conducted over the next 90 days to resolve disputes over study needs. The applicant then has 30 days to file a revised study plan that addresses any agreements or continued disagreements over studies and it must meet all 7 criteria. The Office of Energy Project director will then issue study determination approving the study plan with any modifications based on the

record. The applicant must conduct the studies required by the Commission approved study plan. The timeframe for completing these steps is about 7 months.

There was some discussion regarding 401 Certification, watershed issues and that there needs to be some room in the licensing process for dealing with the lack of cooperation from mother nature and how difficult it can be to achieve the original objectives. During the ILP, FERC will be more involved in dispute resolution and PME measures than they have during the ALP. The Commission has been clear that they like settlement agreements provided that they contain items that are within their power to enforce, have a tie to ongoing project impacts and are logistically feasible to implement.

There was a brief review of some of the differences between the three processes (TLP, ALP & ILP) regarding consultation, FERC involvement, deadlines, study plan development and study dispute resolution as well as application, additional information requests and timing of resource agency terms and conditions.

3. Relicensing and the Wells HCP (Ritchie Graves, NMFS).

Ritchie Graves from the National Marine Fisheries Service in Portland, Oregon gave a presentation on the Anadromous Fish Agreement and Habitat Conservation Plan.

He began with a chronological history of the fish protection proceedings.

1979-1980 FERC establishes Mid-Columbia Proceedings which set the government standards;
1989-1990 Rock Island and Wells Settlement Agreements;
1991-1992 Started listing threatened & endangered fish population and they were in bad shape;
1993 HCP negotiations begin, this was a long & arduous process that continued for 10 yrs.
2002-2003 Parties sign HCP;
PUDs resubmit HCP Applications;
NMFS issues FEIS, BiOps, Record of Decision and Permits;
June 2004 FERC amends the Wells, Rocky Reach & Rock Island Project licenses to incorporate the HCPs.

This process was very difficult but everyone ended up in a good place. The HCP is the only one of its kind for a hydroelectric project in the United States. Grant PUD decided not to sign on to the HCP. The signatory parties to the Wells HCP are NMFS, USFWS, WDFW, Confederated Colville Tribes, Yakama Nation (signed 4-25-05) and Douglas County PUD & its power purchasers.

The purpose and need for the Wells HCP is to protect both ESA-listed and unlisted salmon and steelhead migrating through the Wells Project and to allow Douglas County PUD to continue to generate electricity to meet the power demands of the Pacific Northwest.

Under Section 10(a)(1)(B) of the Endangered Species Act, NMFS or FWS will issue a permit to a non-Federal party for the “incidental take” of federally listed species as long as certain criteria are met. The HCP is intended to satisfy the Endangered Species Act, Federal Power Act, Fish &

Wildlife Coordination Act, NW Electric Power Planning & Conservation Act, Magnuson-Stevens Fishery Conservation & Management Act and Title 77 Revised Code of Washington.

The Plan Species covered by the HCP are Spring (endangered) and Summer/Fall Chinook, Steelhead (endangered), Sockeye (may be soon listed) and Coho.

100% No-Net Impact (NNI) Standard assures that the total project survival is 91% (adults & juveniles) with 2% tributary compensation and 7% hatchery compensation. The cost for NNI was \$10 million dollars.

Mr. Graves reviewed the HCP committee structure. The HCP Coordinating Committee has been established to oversee the implementation of survival standards, hydro improvement measures, passage studies and for dispute resolution of issues that arise within the Tributary and Hatchery committees. The Hatchery Committee and Tributary Committee are overseen by the Coordinating Committee. The Coordinating Committee then reports to the Policy Committee. To date, no disputes have been elevated to the policy committee.

To date, project survival estimates for Upper Columbia River (UCR) Steelhead and UCR Spring Chinook Salmon for juvenile survival at Wells Dam is 96.2% (based on 3 studies) and >98.0% for adult survival (based on 02-04 returns). Survival rates for UCR Summer/Fall Chinook Salmon and OR Sockeye juveniles are 97.0-98.4% and adult survival rates are >98%.

The benefits of the HCP are that it protects all plan species, provides for ESA compliant hatchery programs, provides \$10 million dollars to fund tributary enhancement projects, and most important, signatory parties are working collaboratively to achieve NNI using a clearly defined adaptive management process.

4. Project Overview (Shane Bickford, Douglas PUD).

Shane Bickford, Relicensing Coordinator for Douglas PUD was the next presenter. He began with the history of Wells Dam. The Wells Project license was issued in 1962 and was for a term of 50 years. It expires May 31, 2012. Douglas PUD is again seeking a 50-year license and does not plan to alter operations during the term of the new license.

The features of the Wells Hydrocombine are very unique, especially in the way it was built with the power generation units on top of the turbines and spillways. There are 10 generator units and 11 spillways with a maximum head of 78 feet. Further descriptions were done of the Wells reservoir, forebay, tailrace, two adult fish ladders, juvenile fish bypass system and transmission lines. The five modified fish bypass spillways are the most efficient on the mainstem Columbia River.

Scott Kreiter, Douglas PUD, mentioned that Wells is a fee title project versus Rocky Reach is an easement project.

Ken Pflueger, Douglas PUD, talked about upcoming maintenance and improvements to project facilities and infrastructure.

Shane continued with an overview of the allocation of power from the Project. Power is allocated through long term power sales contracts. 62% of the output of the Wells Project is sold to four power purchasers. These contracts expire August 31, 2018. Wells Project is the primary power source for Douglas County. Douglas PUD's allotted 38% is shared with Okanogan PUD. Their share is 8%. The Colville Tribes also receive a full 4 ½ percent.

Operations at Wells Dam are coordinated with 7 other Mid-Columbia Dams through hourly coordination. These 7 dams compose the main load following capability of the Pacific Northwest generating pool.

Shane mentioned that enclosed in the main packet is a project data sheet with general information on the Wells Project as well as a map.

5. Wells ILP Schedule: 2006-2012 (Shane Bickford, Douglas PUD).

Shane provided a brief overview of the Wells Process Plan and Schedule. Douglas PUD wants to take full advantage of the time limits that it can. The goal is to identify the preliminary issues by March 1, 2007. The blue areas are the study areas, developing and scoping. Formal dispute resolution is for mandatory conditioning agencies only. FERC will be the final word on any disagreements.

There was some discussion between Tom Tebb, Dept. of Ecology and David Turner, FERC, regarding water quality, Draft 401 Certification and the DEIS.

6. Lunch.

7. Introduction, rational and goals for the pre-PAD Resource Work Groups (RWGs) (John Devine, Devine Tarbell & Associates).

John Devine gave a talk on the rational and goals for pre-PAD Resource Work Groups (RWGs). Relicensing the Wells Project will be a unique challenge given the project size, location, layout, dynamics operations, new FERC process and the importance that the project plays on the Columbia River.

There are 3 key points: 1) the front end formal schedule is very intense as the ILP process has a very aggressive and compressed timeframe, 2) all of the scheduled dates are firm with no extensions, 3) FERC is very serious about the 7 criteria and the study plans need to meet them all.

The goal is to have a study plan that meets the needs and issues for all parties, develops a common understanding of the project and its operations, and defines the connection between the project operations and effects. Douglas PUD will work with the stakeholders to write the study plans.

Each RWG has a definite function. All stakeholders have certain responsibilities to provide consistent and active participation, building common understanding, expect open and forthright discussions, come prepared and have communication between meetings.

8. Baseline Studies Video (Shane Bickford, Douglas PUD).

A 20-minute video on baseline studies was shown. Several questions related to studies were asked and answered following the video.

9. Resource Work Groups, Baseline Studies and RWG Schedule (Shane Bickford, Douglas PUD).

Shane introduced both Bao Le and Scott Kreiter as the RWG leads for their respective RWGs. Bao Le, Douglas PUD, talked about the Aquatics RWG. Relevant topics will be all the fish not covered under the HCP, water quality, aquatic invertebrates, macrophyte mapping, aquatic habitat and aquatic RT&E.

Scott Kreiter, Douglas PUD, talked about the Cultural RWG. Relevant topics will be cultural & historical resources, archaeology, and traditional cultural properties. Recreation and Land Use RWG topics will include recreation, aesthetics, socioeconomics and land use. Terrestrial RWG topics will include wildlife & plants RT&E, geology & soils, wildlife, botanical and wetlands.

10. Resource Work Group Sign-Up Tables.

Shane Bickford closed with his encouragement for people to sign up for the RWGs and be sure to sign up their co-workers who were unable to attend. He suggested that everyone bring their calendars to the first meeting to try to match up dates for further meetings.

Meeting adjourned at 3:10 PM.

RWG Meetings Schedule

Resource Work Groups Schedule for Pre-NOI/PAD

- **Cultural**
- **Terrestrial** (includes Wildlife and Botanical)
- **Aquatic** (includes Fish and Water Quality)
- **Recreation and Land Use** (includes Socioeconomics and Aesthetics)

Meeting	Date	Time
ILP Workshop	Tues. Oct. 18, 2005	10:00 AM
RWG 1	Goals of the process will be reviewed including the use of the 7 study plan criteria. An example issue statement will be discussed and the study plan outline will be reviewed. The majority of the discussion will involve issue identification.	
Aquatic	Tues. Nov. 15, 2005	10:00 AM
Terrestrial	Wed. Nov. 16, 2005	10:00 AM
Recreation	Thurs. Nov. 17, 2005	9:00 AM
Cultural	Fri. Nov. 18, 2005	10:00 AM
RWG 2	Draft issue statements will be presented followed by group discussion. Issue statements will be finalized and a draft nexus statement will be discussed.	
Aquatic	Mon. Jan. 9, 2006	10:00 AM
Terrestrial	Wed. Jan. 11, 2006	10:00 AM
Cultural	Thurs. Jan. 12, 2006	10:00 AM
Recreation	Fri. Jan. 13, 2006	9:00 AM
RWG 3	Review draft issue determination statements for each issue statement.	
Aquatic	Thurs. Feb. 2, 2006	9:30 AM
Terrestrial	Wed. Feb. 8, 2006	9:30 AM
Cultural	Thurs. Feb. 9, 2006	10:00 AM
Recreation	Fri. Feb. 10, 2006	9:00 AM
RWG 4	Finalize issue determination statements for each issue statement for the PAD.	
Terrestrial	Fri. Feb. 24, 2006	9:30 AM
Aquatic	Thurs. Mar. 2, 2006	9:00 AM
Recreation	Fri. Mar. 10, 2006	9:00 AM
RWG 5	Discuss input from agency policy staff and discuss study objectives.	
Terrestrial	Thurs. Mar. 23, 2006	9:30 AM
Aquatic	Thurs. Apr. 6, 2006	9:00 AM
Recreation	Fri. Apr. 14, 2006	9:00 AM

- **FERC will review issue determination statements (PAD -- Section 6).**

RWG 6	Review study plan goals and objectives.	
Cultural (meeting 4)	Thurs. July 27, 2006	10:00 AM
Terrestrial	Thurs. July 20, 2006	9:30 AM
Aquatic	Fri. July 21, 2006	9:00 AM
Recreation	Fri. July 14, 2006	9:00 AM

RWG 7	Review/Finalize study plans.	
Cultural (meeting 5)	Thurs. Sept. 7, 2006	10:00 AM
Terrestrial	Tues. Sept. 12, 2006	9:30 AM
Aquatic	Tues. Aug. 29, 2006	9:00 AM

RWG 8	Review/Finalize study plans.	
Aquatic	Thurs. Sept. 14, 2006	9:00 AM
Cultural (meeting 6)	Thurs. Sept. 28, 2006	10:00 AM

RWG 9	Finalize study plans.	
Cultural (meeting 7)	Thurs. Oct. 19, 2006	10:00 AM

Aquatic RWG Meeting 1
November 15, 2005

Bao Le

From: Bao Le
Sent: Tuesday, November 01, 2005 4:31 PM
To: Bill Towey; Bob Jateff; Bob Rose; Carmen Andonaegui; Jerry Marco; Joe Miller; Pat Irle; Ritchie Graves; Steve Lewis; Tom Tebb
Cc: Mark Miller (mark_miller@fws.gov); Steve Parker (parker@yakama.com); joe.peone@colvilletribes.com; Dennis Beich (beichdvb@dfw.wa.gov); Keith Kirkendall (keith.kirkendall@noa.gov); Bob Clubb; Shane Bickford; 'Devine, John'
Subject: Wells Relicensing Aquatic Resources Work Group Meeting
Attachments: Wells_Project_Resident_Fish_and_Aquatic_Habitat_Chronology.pdf; 7 Criteria for Study Requests - 18 CFR S 51.9 b.pdf; Meeting Agenda AQUATICSRWG.pdf; Wells Project Water Quality Chronology[1].pdf

To: Wells Relicensing Aquatic Resources Work Group

From: Bao Le

Subject: November 15th Aquatic Resources Work Group Meeting

Please find attached the agenda for the first Aquatic Resources Work Group meeting to be held on November 15, 2005 at Douglas PUD in East Wenatchee, WA. The Aquatic Resources Work Group addresses the following issues as they relate to Wells Project operations: 1) Water Quality; 2) Resident Fish and Lamprey; 3) Aquatic Habitat; 4) Aquatic Macroinvertebrates; and 5) Aquatic RT&E Species.

The purpose of the first meeting is to provide an understanding of the issue identification and study planning phase of the formal Integrated Licensing Process (ILP), and to begin developing a list of issue statements. The ultimate goal in this informal phase of Wells relicensing is to identify issues associated with the operation of Wells Dam and develop study plans that can be implemented during the formal Integrated Relicensing Process.

Also attached for your information are the ILP Seven Criteria for Study Plan Development, and chronologies of Douglas PUD's water quality and resident fish and aquatic habitat activities. Items in the chronology are available by request.

We will also take some time during the meeting to schedule future Work Group meetings, so please bring your calendar.

If you have any questions, please contact me at any time.

Aquatic Resources Work Group Wells Relicensing Meeting Agenda

Meeting Purpose: To provide an understanding of the issue identification and study plan development phase of the Integrated Licensing Process (ILP), and to begin developing a list of issue statements that will be used to define potential relicensing studies.

Objectives:

1. Provide an overview of the RWG issue identification and study plan development processes.
2. Develop a draft list of issue statements.

Meeting called by: Bao Le, (509) 881-2323

Date of meeting: November 15, 2005

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Introductions, review objectives and agenda	Bao Le
10:20	Overview of ILP Study Plan development and seven criteria.	Shane Bickford
10:45	Issue identification brainstorm	Bao Le / Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue identification brainstorm continued	Group
2:30	Schedule RWG meetings 2, 3, and 4.	Bao Le
2:45	Define action items and next steps.	Bao Le

Attendees Invited:

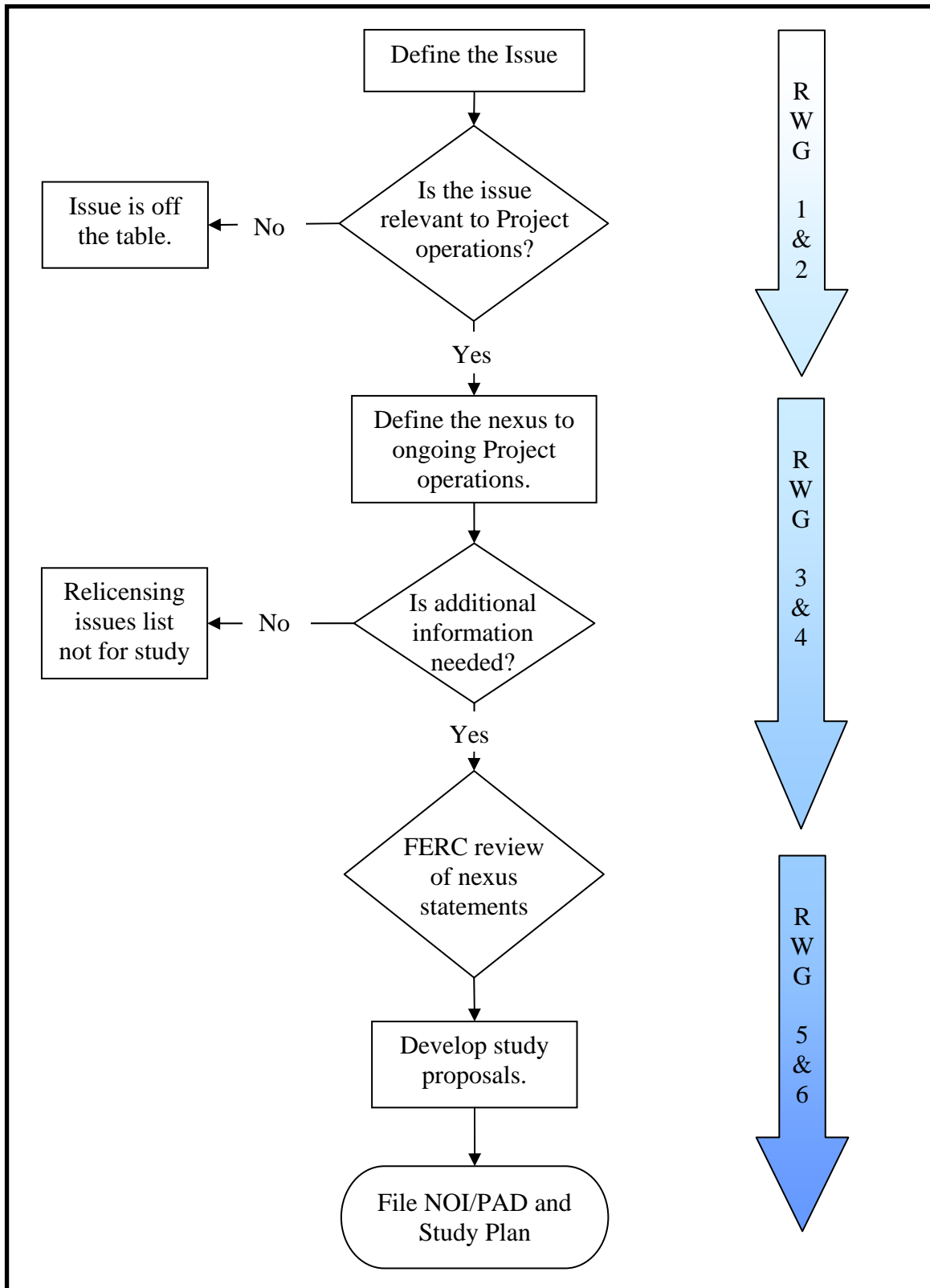
Tom Tebb, WDOE
Pat Irle, WDOE
Ritchie Graves, NMFS
Steve Lewis, USFWS
Joe Miller, WDFW
Bob Jateff, WDFW
Carmen Andonaegui, WDFW

Bob Rose, Yakama Nation
Bill Towey, Confederated Tribes of the Colville Reservation
Jerry Marco, Confederated Tribes of the Colville Reservation
Bao Le, Douglas PUD
Shane Bickford, Douglas PUD
John Devine, Devine, Tarbell, and Associates

7 Criteria for Study Requests – 18 CFR § 5.9 (b)

1. Describe the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
4. Describe existing information concerning the subject of the study proposal, and the need for additional information;
5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

**Issue Identification and Study Planning Flow Chart
Wells Hydroelectric Project ILP**



Wells Project Resident Fish and Aquatic Habitat Chronology (1965-2005)

Date	Description
Resident Fish Inventories and Studies	
1974	<i>Occurrence of Gas Bubble Disease Symptoms on Fish in Mid-Columbia Reservoirs.</i> Dell et al. (Dell, M., Erho, M. & Leman, B.) addressed the occurrence of gas bubble trauma on juvenile salmonids and resident fish. Fish were collected with beach seines, Lake Merwin traps, Pennsylvania traps and angling throughout the Mid-Columbia reservoirs and included extensive sampling in the Wells Reservoir. Presence of various resident fish species was documented during this survey in addition to monitoring for signs of gas bubble disease.
1979	<i>Fisheries Survey of Wells Reservoir.</i> J.A. McGee. Douglas PUD conducted a survey to document the abundance and distribution of resident fish species present in the Wells Project Reservoir (RM 515.6 to RM 538.0). Trap nets, beach seines, and angling were used to collect a total of 2,480 fish. Twenty of the 27 known species previously trapped in the Mid-Columbia reservoirs (Dell et al. 1974) were identified during the 1979 inventory.
1983	<i>Resident Fisheries of the Wells Pool (A Review).</i> William Zook. Zook conducted a historical review of resident fish in the Wells Reservoir that included an assessment of origin, general biology, abundance, habitat use, and distribution.
1994	<i>Significance of Predation in the Columbia River from Priest Rapids Dam to Chief Joseph Dam.</i> Craig Burley and Thomas Poe. A one-year study that determined the relative abundance and rates of predation for several predatory species of fish. The study documented the rates of predation by northern pikeminnow (<i>Ptychocheilus oregonensis</i>), smallmouth bass (<i>Micropterus dolomieu</i> Lacepede) and walleye (<i>Stizostedion vitreum vitreum</i>) on outmigrating juvenile salmonids. Results of the study showed that northern pikeminnow were by far the most abundant predator collected and that abundance index values were highest in mid-reservoir areas while consumption index values were highest near the boat restricted zone of project tailraces.
1999	<i>Assessment of Resident Fish in Lake Pateros, Washington.</i> Beak Consultants and Rensel Associates. An updated inventory of the resident fish species composition of the Wells Reservoir. Sampling gear used during this study included scuba, snorkeling and beach seining and was designed to be consistent with past inventories. The primary goal of the study was to characterize species composition and distribution within the Wells Reservoir and to document changes from past resident fish inventories.

Bull Trout (<i>Salvelinus confluentus</i>)	
2000-present	During the fish migration season (May 1 to November 15), 24-hour bull trout counts have been conducted at both the east and west fish ladders at Wells Dam since 2000.
2000-Present	From 2000 to 2003, Douglas PUD conducted video counts for bull trout of at least 1 adult fishway for 28% (2 days a week) of the off-season period (November 16 to April 30). During this period, no adult bull trout have been observed using the adult fishways.
2001-2004	<i>Movement of Bull Trout within the Mid-Columbia River and Tributaries.</i> BioAnalyst, Inc. The objectives of this 3-year telemetry study were to describe the movements of migratory sized bull trout in the Mid-Columbia River and to assess the effects of hydroelectric operations on the migration patterns of these fish. This study was a collaborative effort between Douglas and Chelan PUD and examined movements within the Rock Island, Rocky Reach, and Wells Project areas. Although not a stated goal of the study, movements and behavior patterns within the major tributary streams were also documented during this study. Drainages surveyed include the Methow, Wenatchee and Entiat rivers.
2004-2005	Beginning in the winter of 2004, Douglas PUD initiated winter video counts in operating fishways at Wells Dam. The intent of these counts was to determine the use of the fishways by bull trout during the entire off-season (winter) period. These experimental counts have determined that no bull trout utilized the fishways at Wells Dam during the winter of 2004-2005.
2005-2008	<i>Bull Trout Radio-telemetry Study.</i> LGL Limited. As part of the Wells Bull Trout Monitoring and Management Plan, Douglas PUD is in the process of implementing another 3-year radio-telemetry study to assess incidental take associated with bull trout passage through Wells Dam. In addition, this study will also provide more refined passage metrics for bull trout. Douglas PUD will also PIT tag and collect genetic samples from juvenile and adult bull trout when encountered during either smolt trapping in the Methow, brood collection at Wells Dam or during radio-tagging associated with this study. The collection of genetic information is intended to assist the USFWS in developing a genetic database for each of the Bull Trout Populations in the Upper Columbia River.
Pacific Lamprey (<i>Lampetra tridentata</i>)	
1995-1998	Adult Pacific lamprey have been counted at both the east and west fish ladders at Wells Dam during the fish migration season (May 1 to November 15) from 1995 to 1998. This information is in a hard-copy format and is yet to be electronically archived.
1998-Present	Since 1998, Adult Pacific lamprey have been counted at both the east and west fish ladders at Wells Dam during the fish migration season (May 1 to November 15). This information is stored in an electronic database and updated annually..
2004	<i>Assessment of Adult Pacific Lamprey Migratory Behavior at Wells Dam Using Radio-telemetry Techniques, 2004.</i> LGL Limited. In 2004, Chelan PUD captured, tagged, and released 150 lamprey in the Rocky Reach Project area. At Wells Dam tailrace, 18 of these tagged fish were detected. A proportion of these fish entered the fishway and passed the project. Although sample sizes of this baseline study were relatively small, data collected provided information regarding passage metrics, migratory behavior, and potential impediments within the Wells fish ladders.

White Sturgeon (<i>Acipenser transmontanus</i>)	
2001-2003	<i>Sturgeon Population Assessment and Behavior Study.</i> Starting in the spring of 2001, Central Washington University in cooperation with Douglas PUD initiated an inventory of the sturgeon population living in the Wells Reservoir. During this study, long-line gear was deployed in an effort to collect, PIT-tag and radio-tag individual sturgeon. The study segmented the Wells Reservoir into five discrete sampling zones and attempted to uniformly spread effort across these zones. Mark-recapture was used to estimate population. Locations of captured sturgeon were documented and radio-tags were used to determine habitat preferences over a two year period. Length-at-age metrics were developed based upon the samples collected during the study. This report is still being prepared by a Master's student at Central Washington University.
Aquatic Habitat	
1965-Present	Douglas PUD owns approximately 88 miles of Wells Project shoreline in fee title and through the implementation of its land use policy, addresses shoreline management issues and maintains an approval process for land use activities below Wells Project boundary. Applications for activities such as construction of boat docks and piers are reviewed and considered for approval by Douglas PUD. Although shoreline enhancement activities are directly related to land use in the Wells Project, these management efforts may indirectly benefit resident fish, juvenile anadromous fish, and aquatic invertebrates and plants by minimizing impact in littoral areas of the Wells Project.
2004	Wells HCP Approved by FERC. The HCP requires Douglas PUD treat project lands as habitat for anadromous salmonids. The District further agrees to notify and consider comments received from HCP parties regarding any land use permit applications associated with Project owned lands.
2005	<i>Macrophyte Identification and Mapping of the Wells Project.</i> Douglas PUD. In August and September of 2005, Douglas PUD conducted an assessment of the aquatic macrophyte communities found in Wells Project water bodies. The study approach consisted of using high resolution orthophotography and detailed bathymetry to estimate probable locations of macrophyte beds throughout the Wells Reservoir. Estimates were made based on trends observed in similar studies at the Rocky Reach, Wanapum, and Priest Rapids reservoirs. Macrophyte locations were estimated and mapped based on depth using a Geographic Information System (GIS). The estimated locations were then field verified through a comprehensive survey of the reservoir to determine presence or absence of macrophyte beds in the estimated locations. Species composition data was categorized into pre-determined aquatic plant community types which were integrated into a final continuous macrophyte map layer in the GIS.
2005	A detailed bathymetric survey was conducted for the Wells Reservoir and portions of the Okanogan and Methow Rivers that are within the FERC Project boundary. The final product includes a digital elevation model and one-foot contours in GIS format for the entire Wells Reservoir and Tailrace.

Agreements	
1970	Agreement between Douglas PUD and the Confederated Tribes of the Colville Reservation for fish and wildlife impacts upon the Colville Indian Reservation and the Columbia and Okanogan Rivers adjacent thereto as a result of the development of the Wells Hydroelectric Project.
1972	Agreement between Douglas PUD and the Washington State Department of Game for Mitigation of Gamefish Losses in Connection with the Wells Project.
1972-2003	Correspondence between Douglas PUD and the Washington Department of Game for resident trout mitigation. Memorandums document the progression of this agreement to the present day mitigation program of 20,000 pounds of resident rainbow trout to be planted in lakes in Okanogan and Douglas Counties.

Wells Project Water Quality Chronology (1988 – 2005)

Date	Description
Water Quality Monitoring: Total Dissolved Gas	
1998-Present	Since 1998, total dissolved gas (TDG) has been monitored in the forebay and the tailrace at Wells Dam using Hydrolab Minisonde sensors. The monitoring period goes from April 1 to September 15. Columbia Basin Environmental is the contractor responsible for deployment and management of equipment used for the TDG monitoring program.
Water Quality Monitoring: Temperature	
1998-Present	The Hydrolab Minisonde sensors used in the TDG monitoring program also collects temperature information in the forebay and tailrace of the Wells Dam. Temperature data along with TDG data are monitored closely and calibrated monthly during the monitoring season (April 1 to September 15).
2001-Present	Since 2001, Douglas PUD has collected hourly water temperature data in the Wells Project. Temperature loggers have been deployed at sites throughout the Wells Reservoir and associated tributaries below project boundary. Vertical temperature profiles at select sites were also collected. Up until 2004, temperature loggers were typically deployed in the spring and retrieved in late fall. In 2005, Douglas PUD extended the monitoring season to cover the entire year and implemented a more frequent downloading schedule to avoid temperature data gaps.
2005-Present	Douglas PUD collects water temperature data at Wells Dam by placing two thermistors into the flow emanating from the fishway attraction water pumps located in the tailrace of the dam. These probes are constantly submerged in the river and one probe is located on either side of the river. An average of the two probes is logged on the hour.
Water Quality Monitoring: Other Parameters	
1998-Present	At Wells Dam, turbidity readings are taken daily during the adult fish passage assessment period of May 1 to November 15 using a secchi disk. A standard secchi disk is lowered into the forebay on the west side of Wells Dam near the exit to the west fishway. Measurements are recorded in feet of visibility.
2005-2006	Dissolved oxygen and pH sensors have recently been added to the forebay Hydrolab Minisonde sensor that is used for the TDG monitoring program. Data has been collected for the 2005 monitoring period and will be collected in 2006.
2005-Present	Although meteorological data are not a direct water quality issue, site specific weather information is an integral component for the development of water temperature models which can be used to support 401 water quality certification. Weather information applicable to the entire Wells Reservoir was unavailable until 2005 when Douglas PUD installed meteorological stations on the reservoir. Douglas PUD identified three sites that would most effectively characterize weather trends in the Wells Reservoir. These sites were Chief Joseph Dam (upper reservoir area), Bridgeport Bar (mid-reservoir area) and the Wells Project forebay (lower reservoir area). Since reliable meteorological information was already available near Chief Joseph Dam, NRG systems weather stations were erected at the other two identified sites. The parameters being collected are air temperature, relative humidity, dew point temperature, solar incidence, cloud cover, wind speed, and wind direction.

Water Quality Studies/Assessments: Total Dissolved Gas	
2005-2006	<i>Wells Dam Spillway Total Dissolved Gas Evaluation.</i> Columbia Basin Environmental. Douglas PUD has recently initiated a series of assessments aimed at gaining a better understand of TDG production dynamics resulting from spill operations at Wells Dam. Starting in 2005, Douglas PUD initiated several spill tests to examine the relationship between water spilled over the dam and the production of TDG.
2005	A detailed bathymetric survey was conducted for the Wells Reservoir and portions of the Okanogan and Methow rivers that are within the FERC Project boundary. The final product includes a digital elevation model and one-foot contours in GIS format of the entire reservoir and tailrace.
2005-2006	<i>Wells Project Limnology.</i> EES Consulting. In 2005, Douglas PUD implemented a study to begin collecting baseline information on the limnology of all waters within the Wells Project. The objective of this study was to assess seasonal water quality dynamics in the Wells Project and to collect information to fill water quality data gaps identified by Douglas PUD as necessary to support the water quality certification process administered by WDOE, pursuant to Section 401 of the Clean Water Act. The year long study began in May 2005 and collected physical, chemical, and biological water quality parameters.
Settlements and Agreements	
1988	<i>Vernita Bar Agreement.</i> This agreement specifies the water management measures that the Bonneville Power Administration and Grant, Chelan, and Douglas PUD will take in order to protect Fall Chinook salmon at Vernita Bar.
1997-2017	<i>1997Agreement for the Hourly Coordination of the Projects on the Mid-Columbia River.</i> An agreement between the Mid-Columbia Projects, both Federal and PUD to increase the efficiency of the system to provide energy to the region while maintaining support for biological activities, recreation, and flood control. This agreement supersedes all of the previous hourly coordination agreements dating back to 1972.
2004	<i>Hanford Reach Fall Chinook Protection Program Agreement.</i> This agreement will replace and supersede the 1988 Vernita Bar Agreement. It was submitted to FERC by Grant PUD on April 19, 2004 and is awaiting approval.

**Aquatic RWG Meeting 1
Sign-in Sheet and Meeting Products**

AQUATICS RESOURCE WORK GROUP
SIGN IN SHEET
NOVEMBER 15, 2005

[illegible]

**Aquatic Resources Work Group
Preliminary Issues List
November 15, 2005**

Below are the preliminary issues that were discussed and recorded in the first Aquatic Resources Work Group Meeting on November 15th, 2005. This issues list was **taken directly** from the meeting. In the near future, draft issue statements (created from this list) will be developed by the Aquatic RWG lead (Bao) for review by work group members prior to RWG #2.

Issues List

1. Juvenile lamprey passage (BR)
 - survival
 - route of passage
 - timing
2. Adult lamprey passage (BR)
 - ladder passage
 - timing
 - fallback
 - accuracy of counting
3. Juvenile lamprey reservoir use (BR)
 - habitat preference by life stage
 - habitat availability
4. Adult lamprey reservoir and tributary use (BR)
 - timing, migration, spawning
 - tributary habitat use
 - reservoir habitat use
5. White sturgeon habitat use (CA)
 - A. habitat preference
 - B. habitat availability
 - C. carrying capacity
 - D. recruitment
 - E. entrainment (out/in)
 - F. passage
6. Resident Fish (AV, CA, JM)
 - A. predation on anadromous/non-anadromous fish
 - B. population abundance/assemblage
 - C. recreation fishing
 - D. investigate management actions (+/-)

- E. Native vs. non-native
 - F. sport fish, non-sport fish
 - G. tailrace hydraulics and its connections to predation
 - H. species competition
 - I. carrying capacity, food web dynamics
 - *tools such as habitat mapping and bioenergetics modeling
7. Predation (BR, JM)
 - A. predator/prey dynamics
 - B. habitat use and preferences
 - C. predation on salmonids and resident fish
 - D. tailrace flows and impacts on resident fish use
 - E. temperature, DO, pH, and thermal stratification effects on predator abundance
 8. Sediment Dynamics in the Wells Reservoir (BT)
 - accumulation of toxins and effects on aquatic organisms and humans
 - sediment input, retention and overall dynamics in Wells Reservoir
 9. Reservoir fluctuation effects (JM)
 - effects on plant assemblage near-shore (riparian, wetland, littoral) on both sides of the high water mark
 - allochthonous inputs into environment
 - reservoir fluctuations effects on habitat, habitat effects on aquatic/ wildlife community, ie., birds, amphibians, macrophytes, invertebrates.
 - * tool such as habitat mapping
 10. Compliance to Washington State Water Quality Standards (PI)
 - TDG
 - temperature
 - DO/pH
 - turbidity
 - toxins
 11. Anadromous Fish (JM)
 - *bioenergetics model
 12. Nutrient cycling (JM)
 13. Status of Hanford Reach Fall Chinook Protection Program and how is Wells involved? (SL, BR, CA)
 - characterize Wells operations on Hanford Reach flows
 14. Existing hatchery facilities (JM)
 - maintenance
 - operations
 - uses

-improvements/upgrades

15. Bull Trout Management Plan (BTMP)- long-term implementation (SL)

16. Invasive species-monitoring, control, and planning (CA)

*tools such as habitat model and bioenergetics model

Aquatic RWG Meeting #1
November 15th, 2005
Action Items

1. John Devine to send Art Viola court case examples on the concept of baseline/existing conditions.
2. Bao will send out three documents to the entire RWG (Burley and Poe 1994, McGee 1979, and Beak 1999).
3. Douglas PUD will review the Okanogan River TMDL for preliminary information used to assist in framing some issue statements.
4. Reservoir fluctuation graphic to group.
5. Douglas PUD will review the Mid-Columbia River TDG TMDL.
6. Douglas PUD will contact, if necessary, invasive species coordinators for WDFW and the Colville's for pertinent literature to respective programs.
7. Bao will work with Joe Miller to explore the possibility of setting up a presentation for a bio-energetics model.
8. Bao will send out a list of issues and sub-objectives identified in RWG #1.
9. Bao will put together a TDG timeline (past, present, and future plans) and decision tree and send to the group.
10. Bill Towey will provide informational update on the toxins accumulation study being done by the Colville Tribe.
11. Pat Irle to send John Merz's email to Bao for addition to the RWG list.

Cultural RWG Meeting 1
November 18, 2005

From: Scott Kreiter

Sent: Wednesday, November 02, 2005 9:47 AM

To: Bill Towey; Camille Pleasants; Chris Parsons; Gordon Brett; Guy Moura; Jim Fisher; Rob Whitlam; Scott Kreiter

Cc: 'Bill Towey'; Shane Bickford; Bob Clubb; Mary Mayo; Tim Bachelder (timothy.bachelder@devinetarbell.com); 'Glenn Hartmann (glenn@wshsinc.com)'; Devine, John

Subject: November 18 Cultural Resources Work Group

To: Wells Relicensing Cultural Resources Work Group

From: Scott Kreiter

Subject: November 18 Cultural Resources Work Group Meeting

Please find attached the agenda for the first Cultural Resources Work Group meeting to be held on November 18, 2005 at Douglas PUD Headquarters in East Wenatchee, WA.

The purpose of the first meeting is to provide an understanding of the issue identification and study planning phase of the formal Integrated Licensing Process (ILP), and to begin developing a list of issue statements. The ultimate goal in this informal phase of Wells relicensing is to identify issues associated with the operation of Wells Dam and develop study plans that can be implemented during the formal Integrated Relicensing Process.

Also attached for your information are the ILP Seven Criteria for Study Plan Development, and a chronology of Douglas PUD cultural resource activities. Items in the chronology are available by request.

We will also take some time during the meeting to schedule future Work Group meetings, so please bring your calendar.

If you have any questions, please contact me at any time.

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda**

Meeting Purpose: To provide an understanding of the issue identification and study plan development phase of the Integrated Licensing Process (ILP), and to begin developing a list of issue statements that will be used to define potential relicensing studies.

Objectives:

1. Provide an overview of the RWG issue identification and study plan development processes.
2. Develop a draft list of issue statements.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: November 18, 2005

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Introductions, review objectives and agenda	Scott Kreiter
10:20	Overview of ILP Study Plan development, goals of the RWG and seven criteria.	Shane Bickford
10:45	Issue identification and brainstorm	Scott Kreiter / Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue identification brainstorm (continued)	Group
2:30	Schedule RWG meetings 2, 3, and 4.	Scott Kreiter
2:45	Define action items and next steps.	Scott Kreiter

Attendees Invited:

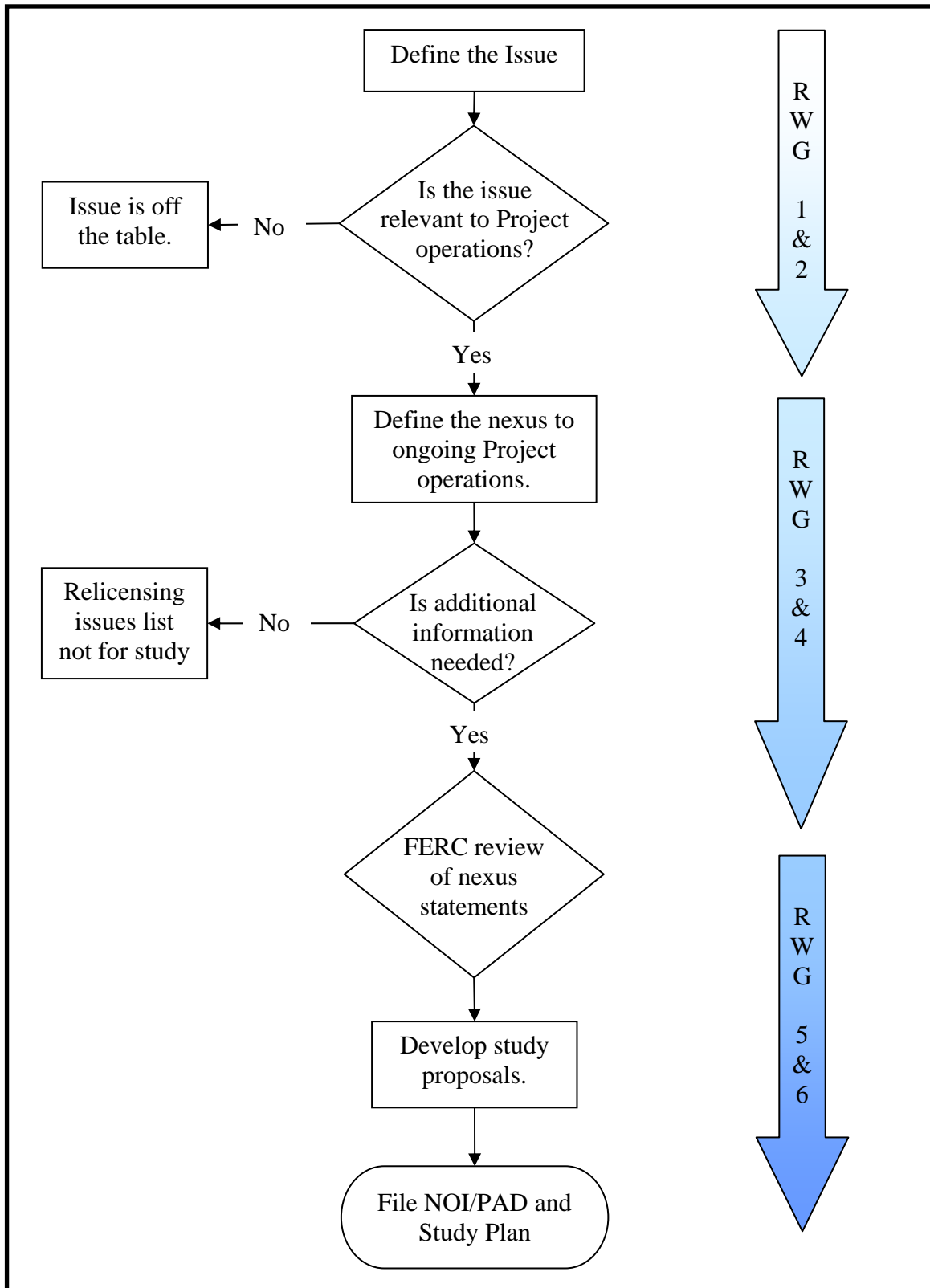
Camille Pleasants, Colville Tribes (THPO)
Guy Moura, Colville Tribes
Rob Whitlam, Washington DAHP (SHPO)
Jim Fisher, BLM

Bob Clubb, Douglas PUD
Shane Bickford, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
John Devine, Devine Tarbell & Assoc. (DTA)
Tim Bachelder, DTA

7 Criteria for Study Requests – 18 CFR § 5.9 (b)

1. Describe the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
4. Describe existing information concerning the subject of the study proposal, and the need for additional information;
5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

**Issue Identification and Study Planning Flow Chart
Wells Hydroelectric Project ILP**



Wells Hydroelectric Project Integrated Licensing Process Timeline

2006	2007	2008	2009	2010	2011	2012
File PAD and NOI	ILP Initiation and Study Scoping	Conduct Studies		File License Application	Environmental Assessment	License Issuance
<u>December 1</u> File Notice of Intent and Pre-Application Document	<u>January 2</u> Initial Tribal Consultation Meeting <u>January 30</u> Notice of NOI/PAD and issuance of Scoping Document 1 <u>March 1</u> Scoping Meetings and site visit <u>March 30</u> Comments on PAD, SD1, and Study Requests <u>May 15</u> File proposed Study Plan <u>September 12</u> File Revised Study Plan <u>October 12</u> FERC Issues Study Plan Determination <u>November 1 – January 10, 2008</u> Dispute Resolution	<u>January – December</u> Conduct First Season of Study <u>November 12</u> Initial Study Report <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>January – December</u> Conduct Second Season of Study <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary <u>December 30</u> File Preliminary Licensing Proposal (PLP)	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>March 30</u> Comments on PLP Due <u>May 28</u> License Application Filed <u>June 27</u> FERC Determination on Additional Study Requests and Notification of Deficiencies <u>August 26</u> Notice of Acceptance and Ready for Environmental Analysis <u>October 25</u> Comments and Interventions Due 10(a), 10(j) Recommendations Due 4(e) Preliminary Terms and Conditions Due <u>December 9</u> Ready for Environmental Analysis	<u>February 22</u> FERC Issues Environmental Assessment (EA) FERC Issues Biological Assessment FERC Issues Draft Historic Properties Management Plan <u>March 24</u> EA Comments Due <u>May 23</u> Modified Mandatory Terms and Conditions Due <u>May 28</u> Water Quality Certification Issued <u>August 21</u> FERC Issues Final EA	<u>May 31</u> FERC Issues License Order

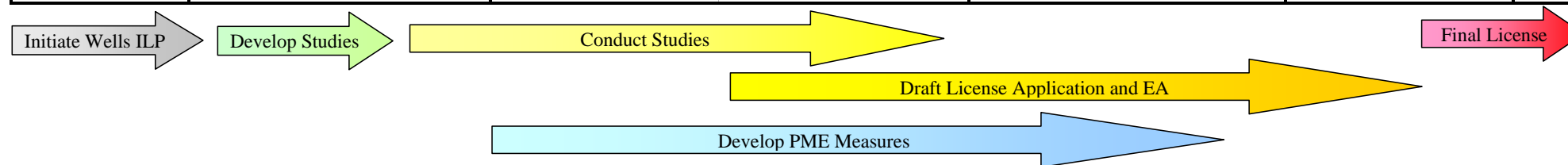


Table 5-2 Known Cultural Resource Sites Within or Near the Wells Project Area

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-CH-276	Not evaluated for eligibility	Large amount of relatively contemporary trash.	Historic
45-CH-277	Not evaluated for eligibility	10 mussel shell fragments and a cryptocrystalline flake. These were in two small scatters.	Prehistoric
45-CH-402	Not evaluated for eligibility	Fire cracked rock, bone fragments, shell lens, cryptocrystalline flakes	Prehistoric
45-DO-291	Not evaluated for eligibility	Glass, nails, wire, stove pipe, miscellaneous trash	Historic
45-DO-292	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, hearths, stained soil, possible house pit.	Prehistoric
45-DO-293	Not evaluated for eligibility	Fire cracked rock, stained soil, flakes, cairn. Stone alignments may represent prehistoric fishing weirs.	Prehistoric
45-DO-371	Not evaluated for eligibility	Tools and flakes	Prehistoric
45-DO-372	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	River mussel shells, fire cracked rock, bone cryptocrystalline flakes.	Prehistoric
45-DO-373	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-DO-375	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Circular rock arrangement, flakes, potential burial	Prehistoric
45-DO-376	Not evaluated for eligibility	River mussel shells	Prehistoric
45-DO-377	Not evaluated for eligibility	Fire cracked rock, mussel shells	Prehistoric
45-DO-378	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flakes, one petrified wood ovate knife, projectile point fragment, sparse shell midden	Prehistoric
45-DO-379	Not evaluated for eligibility	Charcoal, bone, mussel shell	Prehistoric
45-DO-380	Not evaluated for eligibility	Wood cabin, latrine, root cellar, iron Euro-American objects	Historic

45-DO-381	Not evaluated for eligibility	Foundation, tin cans, glass, apricot trees, latrine	Historic
45-DO-382	Not evaluated for eligibility	Mussel shell, cryptocrystalline flakes	Prehistoric
45-DO-383	Not evaluated for eligibility	Cryptocrystalline flakes, fire cracked rock	Prehistoric
45-DO-384	Not evaluated for eligibility	River mussel shell	Prehistoric
45-DO-385	Not evaluated for eligibility	Fire cracked rock, tools, flakes, bone, shell	Prehistoric
45-DO-386	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Mussel shell, lithic scatter, cobble tools, basalt core tool	Prehistoric
45-DO-387	Eligible	Shell deposit, cryptocrystalline flakes, fire cracked rock	Prehistoric
45-DO-388	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-389	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-390	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-391	Not evaluated for eligibility	Bone, one core, 2 flakes, one ovate knife fragment.	Prehistoric
45-DO-392	Not evaluated for eligibility	Fire cracked rock, sparse shell, antler tine fragment, one core, one flake.	Prehistoric
45-DO-467	Not evaluated for eligibility	Crypto-crystalline silicate debitage	Prehistoric
45-DO-468	Eligible	Dark staining, Mazama ash. Mammal, fish and shellfish remains.	Prehistoric
45-DO-469	Determined not eligible	Mussel shell	Prehistoric
45-DO-470	Eligible	Mammal and fish remains, worked bone point, possible net sinker.	Prehistoric
45-DO-472	Not evaluated for eligibility	Non-diagnostic flaked lithic tools, fire cracked rock	Prehistoric
45-DO-485	Not evaluated for eligibility	One basalt mass removal flake. root cellar, remnants of house foundation and wall	Historic
45-DO-486	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-DO-515	Not evaluated for eligibility	Fire cracked rock and large cobbles	Prehistoric
45-DO-60	Not evaluated for eligibility	Hammerstone, shallow grinding stone.	Prehistoric
45-DO-61	Not evaluated for eligibility	Shell, bone, fire blackened earth	Prehistoric
45-DO-62	Not evaluated for eligibility	Shell and broken rock	Prehistoric

45-DO-63	Not evaluated for eligibility	Fire cracked rock, shell, bone and flakes	Prehistoric
45-DO-64	Not evaluated for eligibility	Fine broken rock, mussel shell, bone, flat cobbles	Prehistoric
45-DO-65	Not evaluated for eligibility	Fire cracked rock, flakes	Prehistoric
45-DO-66	Not evaluated for eligibility	Fire cracked rock, sparse mussel shell, antler tine.	Prehistoric
45-DO-67	Not evaluated for eligibility	Depression - no materials	Prehistoric
45-DO-68	Not evaluated for eligibility	Fire cracked rock, shell, bone, lithic artifacts	Prehistoric
45-DO-70	Not evaluated for eligibility	Fire cracked rock, cobble chopper, spall tool, net sinker	Prehistoric
45-DO-71	Not evaluated for eligibility	Flakes, projectile point fragment	Prehistoric
45-DO-72	Not evaluated for eligibility	Fire cracked rock, bone	Prehistoric
45-DO-74	Not evaluated for eligibility	Bone, shell	Prehistoric
45-DO-75	Not evaluated for eligibility	Fire cracked rock, bone, shell	Prehistoric
45-DO-76	Not evaluated for eligibility	Fire cracked rock, shell, worked knife. Possible small stone lined storage pit.	Prehistoric
45-DO-77	Not evaluated for eligibility	Fire cracked rock, bone, charcoal, shell	Prehistoric
45-DO-78	Not evaluated for eligibility	Spall tool	Prehistoric
45-DO-79	Not evaluated for eligibility	Petroglyph. 6 circles with stems in a row and a deer(?). Pecked and patinated, not painted.	Prehistoric
45-DT-35A	Eligible	Wells Archaeological District	Prehistoric
45-OK-100	Not evaluated for eligibility	Shell midden, cobble chopper, detritus, possible housepits	Prehistoric
45-OK-104	Not evaluated for eligibility	Highly eroded shell midden, fire cracked rock	Prehistoric
45-OK-105	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-OK-106	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pre-contact camp, shell midden and lithic scatter, 5 x 20m	Prehistoric
45-OK-108	Not evaluated for eligibility	Pre-contact shell midden and lithic material, 500 x 200m (disturbed by railway and highway relocation 1965)	Prehistoric

45-OK-109	Not evaluated for eligibility	Housepit with small apparently associated depressions, cobble chopper	Prehistoric
45-OK-110	Not evaluated for eligibility	Fire cracked rock, shell, charcoal	Prehistoric
45-OK-111	Not evaluated for eligibility	Pre-contact shell midden and hearth feature (70-60cm)	Prehistoric
45-OK-112	Not evaluated for eligibility	8 low rock cairns, shell, fire cracked rock, lithic material	Prehistoric
45-OK-113	Not evaluated for eligibility	Housepit with 2 possible pits, flakes, cairns, possible burials	Prehistoric
45-OK-114	Not evaluated for eligibility	2 stone cairns with ash and charcoal beneath stones. possible burials	Prehistoric
45-OK-115	Not evaluated for eligibility	Sand dune burial, parts of 4 human skulls	Prehistoric
45-OK-116	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flake scatter, hammerstone, and possible burial cairn	Prehistoric
45-OK-117	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flake scatter, cobble tool	Prehistoric
45-OK-118	Not evaluated for eligibility	Pre-contact camp, fire cracked rock, charcoal, shell, bone, chipping debris	Prehistoric
45-OK-119	Not evaluated for eligibility	Pre-contact burial with beads, matting, bone button, cordage.	Prehistoric
45-OK-120	Not evaluated for eligibility	Depression / possible housepit, 3-4 meters across	Prehistoric
45-OK-121	Not evaluated for eligibility	Pre-contact shell midden, fire cracked rock, one basalt flake	Prehistoric
45-OK-122	Not evaluated for eligibility	Mussel shell, fire cracked rock	Prehistoric
45-OK-125	Not evaluated for eligibility	Pre-contact shell midden, fire cracked rock, hearth feature	Prehistoric
45-OK-126	Not evaluated for eligibility	Fire cracked rock in form of hearth, some shell, charcoal & bone evident.	Prehistoric

45-OK-128	Not evaluated for eligibility	Pre-contact shell midden and fire cracked rock scatter, 45 x 120ft	Prehistoric
45-OK-130	Not evaluated for eligibility	Pre-contact lithic scatter and possible cairn, 60 x 40m	Prehistoric
45-OK-131	Determined not eligible	Pre-contact camp, bone fragments, lithic scatter, 120 x 45m	Prehistoric
45-OK-132	Not evaluated for eligibility	Pre-contact camp, bone fragments and lithic scatter, 45 x 235m	Prehistoric
45-OK-137	Not evaluated for eligibility	Fire cracked rock, hearths, detritus, heat spalls	Prehistoric
45-OK-138	Not evaluated for eligibility	Storage pit, 2 x 4m	Prehistoric
45-OK-139	Not evaluated for eligibility	One housepit, small piece of bone, one clam shell	Prehistoric
45-OK-30	Not evaluated for eligibility	Fire cracked rock, bone, shell, charcoal, organic staining, thumb-nail scraper	Prehistoric
45-OK-31	Not evaluated for eligibility	Pre-contact camp	Prehistoric
45-OK-371	Not evaluated for eligibility	Fire cracked rock, organic staining, core and flake tools, shell	Prehistoric
45-OK-372	Not evaluated for eligibility	Iron chute, pipes, timbers, road bed, paving	Historic
45-OK-373	Not evaluated for eligibility	Fire cracked rock, quartzite flakes	Prehistoric
45-OK-374	Not evaluated for eligibility	Cyst, spikes, nails and wire, enamel tea kettle, 1930's plow, scattered planks and posts. Possible house foundation in sand dune.	Historic
45-OK-375	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-376	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-377	Not evaluated for eligibility	Petrified wood core, hearths ,fire cracked rock, organic staining, flake tools and cores	Prehistoric
45-OK-378	Not evaluated for eligibility	Fire cracked rock, organic staining, core and flake tools	Prehistoric
45-OK-379	Not evaluated for eligibility	Fire cracked rock, charcoal stains, core and flake tools	Prehistoric
45-OK-380	Not evaluated for eligibility	Fire cracked rock, quartzite flakes and core tools	Prehistoric
45-OK-381	Not evaluated for eligibility	Fire cracked rock, shell, organic staining, choppers, flakes, tools, one large anvil stone	Prehistoric

45-OK-382	Not evaluated for eligibility	Fire cracked rock in large discrete concentrations, shell, bone, charcoal, core and flake tools, hopper mortar bases. Distribution of material suggests living floors and activity areas.	Prehistoric
45-OK-383	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Hearths, fire cracked rock, shell, large flat rocks, hammerstones, flake and core tools, choppers.	Prehistoric
45-OK-419	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Lithic scatter	Prehistoric
45-OK-420	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-421	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-422	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-423	Not evaluated for eligibility	Mussel shell, 2 cobble tools, one core tool	Prehistoric
45-OK-424	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, 2 cores	Prehistoric
45-OK-425	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-426	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Shell fragments, scrapers, flakes, triangular chipped slate knife	Prehistoric
45-OK-427	Not evaluated for eligibility	Mat lodge site. Rectangular shaped boulder outlined dwelling area. No portable artifacts recovered.	Prehistoric
45-OK-428	Not evaluated for eligibility	Basalt cores, basalt flakes, cryptocrystalline flakes, projectile point	Prehistoric
45-OK-429	Not evaluated for eligibility	Fire cracked rock, cryptocrystalline flakes, mussel shell	Prehistoric

45-OK-430	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Basalt core, cobble tools	Prehistoric
45-OK-431	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-432	Not evaluated for eligibility	Basalt core, basalt waste flakes, quartzite flake tool	Prehistoric
45-OK-433	Not evaluated for eligibility	Sparse scatters of cryptocrystalline waste flakes, fiver mussel shell fragments, fire cracked rock	Prehistoric
45-OK-434	Not evaluated for eligibility	Historic mat lodge site with possible storage pit. Rectangular shaped boulder outlined dwelling area. side sealed tine cans, wire nails, enamel ware, stove fragments	Historic
45-OK-435	Not evaluated for eligibility	Fire cracked rock, shell, hammerstone, flakes	Prehistoric
45-OK-436	Not evaluated for eligibility	Fire cracked rock, cobble tools, anvil stone	Prehistoric
45-OK-437	Not evaluated for eligibility	Small amounts of shell, charcoal stained soil	Prehistoric
45-OK-438	Not evaluated for eligibility	Wooden planks & timbers, square cut nails, cobalt blue glass, yellow embossed earthen ware, one 2-hole mother of pearl button.	Historic
45-OK-439	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-44	Not evaluated for eligibility	Burial ground, 10-12 stone circles on surface	Prehistoric
45-OK-48	Not evaluated for eligibility	Previously recorded at pithouse. fire cracked rock, shell and bone fragments	Prehistoric
45-OK-487	Not evaluated for eligibility	One cairn.	Prehistoric
45-OK-488	Not evaluated for eligibility	Fire cracked rock, shell, flaked cobbles	Prehistoric
45-OK-49	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pit house depression, fire cracked rock, shell, one cairn	Prehistoric
45-OK-50	Not evaluated for eligibility	Hearth, charcoal, fire cracked rock, shell, chert flakes.	Prehistoric

45-OK-51	Not evaluated for eligibility	Fire cracked rock, hearths, shell and bone fragments, net weight, chopper, flakes	Prehistoric
45-OK-518	Not evaluated for eligibility	Isolated find - one large cryptocrystalline core	Prehistoric
45-OK-519	Eligible	Shell, lithic debris, bone, charcoal, fire cracked rock, hearth, distinct saucer-shaped depression indicates possible pithouse.	Prehistoric
45-OK-52	Not evaluated for eligibility	Housepits, 8 storage pits and associated burials	Prehistoric
45-OK-520	Determined not eligible	River mussel shell lens, fire cracked rock, charcoal, hearth	Prehistoric
45-OK-521	Eligible	Shell lens, fire cracked rock, bone, charcoal, organic staining, flakes, bone tools, hearths	Prehistoric
45-OK-527	Not evaluated for eligibility	Fire cracked rock, dark staining, shell, hearth	Prehistoric
45-OK-53	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Site in on undulating sand dune. Possible human bone fragments, mammal and bird bone, basalt and quartzite core and flake tools. fire cracked rock, shell	Prehistoric
45-OK-54	Not evaluated for eligibility	Chipping debris, a little bone. burial was reportedly found within irrigation ditch	Prehistoric
45-OK-55	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-56	Not evaluated for eligibility	Spall tool, net sinker, choppers, points	Prehistoric
45-OK-57	Not evaluated for eligibility	Fire cracked rock, shell, bone. 2 figures on rock wall. Owner has collected pestles..	Prehistoric
45-OK-58	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-OK-59	Not evaluated for eligibility	Pre-contact shell midden and camp, 65 m in length along shore	Prehistoric
45-OK-60	Not evaluated for eligibility	Shell, broken rock, flakes	Prehistoric
45-OK-61	Not evaluated for eligibility	Rock shelter, pictographs	Prehistoric
45-OK-62	Not evaluated for eligibility	Pre-contact pictographs	Prehistoric
45-OK-65	Not evaluated for eligibility	Historic trading post. Hudson Bay company fort. 2 pottery fragments, 1 piece of used obsidian	Historic
45-OK-66	Not evaluated for eligibility	Housepit/burial	Prehistoric

45-OK-67	Not evaluated for eligibility	Fire cracked rock, bone, shell	Prehistoric
45-OK-68	Not evaluated for eligibility	Fire cracked rock, shell, cone	Prehistoric
45-OK-69	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, bone, human femur. possible burial. hearth feature in water	Prehistoric
45-OK-70	Not evaluated for eligibility	Fire cracked rock, shell, chipping debris	Prehistoric
45-OK-71	Not evaluated for eligibility	4 storage pits	Prehistoric
45-OK-72	Not evaluated for eligibility	Housepit and storage pit	Prehistoric
45-OK-74	Eligible	Shell midden on partially eroded river bank. Fire cracked rock	Prehistoric
45-OK-75	Not evaluated for eligibility	Fire cracked rock, shell lenses, organic staining.	Prehistoric
45-OK-76	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pictograph. Two anthropomorphic figures and 2 rather amorphous shapes. possibly same as ok57	Prehistoric
45-OK-77	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, flakes	Prehistoric
45-OK-78	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, antler wedge, flakes, cobble tools, hammerstone, spall tool	Prehistoric
45-OK-79	Not evaluated for eligibility	5 sweat lodge pits	Prehistoric
45-OK-80	Not evaluated for eligibility	Pre-contact shell midden, 35 x 18m	Prehistoric
45-OK-81	Not evaluated for eligibility	Fire cracked rock, shell. Projectile points reportedly collected. Berry picking site before the early 1900's to present.	Prehistoric
45-OK-834	Not evaluated for eligibility	Fire cracked rock and a few cobble cores and flakes	Prehistoric
45-OK-84	Not evaluated for eligibility	3 sweat lodge pits.	Prehistoric
45-OK-85	Not evaluated for eligibility	Shell, ash, fire cracked rock	Prehistoric
45-OK-86	Not evaluated for eligibility	Fire cracked rock, bone	Prehistoric
45-OK-87	Not evaluated for eligibility	Shell midden	Prehistoric
45-OK-88	Not evaluated for eligibility	Pre-contact shell midden, 8 x 4m	Prehistoric

45-OK-91	Not evaluated for eligibility	11 housepits, 14 smaller pits, 2 possible burials, cairn, cobble chopper, milling stone	Prehistoric
45-OK-92	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, lithic items, nails, metal	Prehistoric
45-OK-93	Not evaluated for eligibility	Burial in sand dune. one skull and one bone fragment	Prehistoric
45-OK-95	Not evaluated for eligibility	Cobble choppers, spall tools, pestle, hammerstone	Prehistoric
45-OK-96	Not evaluated for eligibility	Pre-contact shell midden, 100 x 100m	Prehistoric
45-OK-97	Not evaluated for eligibility	Fire cracked rock, calcined bone	Prehistoric
45-OK-98	Not evaluated for eligibility	Fire cracked rock, cobble chopper	Prehistoric
45-OK-99	Not evaluated for eligibility	Fire cracked rock, cobble chopper	Prehistoric

Wells Project Cultural Chronology (1957 – 2005)

Date	Description
Inventories/Surveys	
1957	<i>An Archaeological Survey of the Wells Reservoir in the State of Washington.</i> Bruce Stallard conducted a preliminary survey of areas to be effected by construction of Wells Dam. Twenty-four sites were located and evaluated.
1963 - 1966	The University of Washington conducted salvage of archaeological data from the Wells Reservoir (Grabert 1968; 1970). Gar Grabert et. al. completed an archaeological survey of the Wells Project area resulting in the identification of 107 sites. Testing was performed at 24 sites.
1977	David Munsell and Laur Salo surveyed a portion of the Wells Reservoir between the dam and the mouth of the Okanogan River pursuant to planned changes in the release of water from Chief Joseph Dam. They found 22 sites, of which 15 had not previously been recorded.
1980	<i>A Reevaluative Survey of Wells Reservoir.</i> Grabert and Griffin led a survey of the Wells Project in response to a proposed two-foot pool raise. Seventy-two sites were visited and evaluated, of which 42 had been previously known.
1982	A Resurvey and Assessment of Selected Cultural Resources in the Wells Reservoir. Seven sites along the Okanogan River were inspected to determine the impact of a two-foot pool raise (Welch, et. al., 1982).
1984 - 1986	Archaeological monitoring survey to document any unrecorded cultural resource sites which may have been exposed as a result of ongoing Project operation. (Grabert and Griffin 1984; Griffin and Griffin 1985; Reid and Sweifel 1986)
Site Testing/Evaluations	
1968	<i>The Astor Fort Okanogan</i> (Grabert 1968). Excavations were conducted at the site of the original trading post established by John Jacob Astor's Pacific Fur Company near the mouth of the Okanogan River in 1811.
1981	Western Heritage Inc. conducted test excavations and evaluated 18 sites in the Project Area. Sites were evaluated "in terms of their potential for testing regional hypotheses and investigating local research topics in the Project area and on the Plateau" (Carlevato et. al., 1982).
1982	Phase II testing and evaluation of 18 Sites in the Wells Project Area (Welch 1982).
1983 – 1984	Evaluation of thirteen sites with intensive data recovery excavations at nine of them (Smith and Chatters 1984).
1986	The Wells Reservoir Archaeological Project Volume I and II (Chatters et. al. 1986). Excavation of 12 sites, development of a research design, recommendations for site protection.
1994	Testing completed at 45DO373 (Chatters 2003).

Agreements	
1983	Memorandum of Agreement with the Washington State Department of Archaeology and Historic Preservation to undertake a cultural resources management program to address the potential impacts of the Wells Project on historic and archaeological sites.
2004	Memorandum of Understanding for Curatorial Services between Douglas PUD and the Confederated Tribes of the Colville Reservation.
Site Protection Measures	
1966	Cemetery relocation.
1983	Site protection through erosion control measures completed at sites 45OK53, 45OK74, 45OK78, and 45OK49.
1999	Analysis and Repatriation of Human Remains and Associated Objects from the Wells Project (Chatters 2002).
Monitoring	
1989 - 2005	Archaeological monitoring survey every three years of 29 sites in the Wells Project Area. Monitoring was conducted in 1989, 1992, 1995, 1998, 2001, and 2004.

**Cultural RWG Meeting 1
Sign-in Sheet and Meeting Products**

NOVEMBER 18, 2005

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Wells Relicensing - Cultural Resources Work Group
Issues List and Action Items
Meeting 1 – November 18, 2005

Below are the preliminary issues and action items that were discussed and recorded in the first Cultural Resources Work Group Meeting on November 18th, 2005.

Issues and Items of Concern

1. The Section 106 process should be formally initiated by FERC, and the steps for Section 106 should be followed to identify issues related to cultural resources.
2. Contracting for cultural resources work. The Colville Tribes History and Archaeology Department is interested in providing contracting / consulting services for the following:
 - a. TCP Studies
 - b. Archaeological investigations
 - c. Archaeological monitoring
3. How severe is the erosion on the Okanogan and Methow rivers in terms of potential impacts on cultural resources?
4. The Wells Project is somewhat unique because cultural resources are being managed under an existing MOA. An analysis/audit of how this management tool has been working should be conducted to determine if changes to standard procedures are needed.
5. The current curation agreement between Douglas PUD and the Colville Tribes expires in 2012. This agreement will need to be reauthorized prior to expiration
6. Douglas PUD needs to ensure that public access to confidential cultural site information is restricted. This restriction includes Douglas PUD consultants and many of the stakeholders involved in the recreation, aquatic and terrestrial RWGs.

Action Items

1. Follow-up with FERC on their views on Programmatic Agreements and whether they would issue a single PA for the SHPO and THPO or two separate PAs. (Scott)
2. Ask FERC to initiate the Section 106 process by authorizing Douglas PUD to conduct day-to-day consultation with the THPO and SHPO. (Scott)
3. Revise Cultural RWG meeting schedule after FERC completes formal designation of Douglas PUD as FERC's Section 106 representative for day-to-day consultation. (Scott)
4. Provide clarification on the 2005 erosion control monitoring report to SHPO and THPO. (Gordon)

5. Send the Okanogan River Erosion Evaluation Report (Demich Engineering, 2003) to the work group. (Scott)

Recreation and Land Use RWG Meeting 1
November 17, 2005

From: Scott Kreiter

Sent: Tuesday, November 01, 2005 4:13 PM

To: Bill Towey; Brenda Crowell; Chris Parsons; Gail Howe; George Brady; Jean Hardie; Jim Eychaner; Jim Fisher; Jim Harris; Lee Webster; Mary Hunt; Mike Palmer; Tony Eldred

Cc: Bonnie House (brewster@ncidata.com); Steve Jenkins (mayor@nwi.net); Carmen Andonaegui (andonca@dfw.wa.gov); Mary Mayo; Brad Hawkins; Shane Bickford; Bob Clubb; Bao Le

Subject: Wells Relicensing Recreation and Land Use Work Group

To: Wells Relicensing Recreation and Land Use Work Group

From: Scott Kreiter

Subject: November 17 Recreation Work Group Meeting

Please find attached the agenda for the first Recreation and Land Use Work Group meeting to be held on November 17, 2005 at the Columbia Cove Community Center in Bridgeport, WA. The Recreation and Land Use Work Group addresses the following issues as they relate to Wells Project operations: 1) Recreation; 2) Land Use; 3) Socioeconomics; and 4) Aesthetics.

The purpose of the first meeting is to provide an understanding of the issue identification and study planning phase of the formal Integrated Licensing Process (ILP), and to begin developing a list of issue statements. The ultimate goal in this informal phase of Wells relicensing is to identify issues associated with the operation of Wells Dam and develop study plans that can be implemented during the formal Integrated Relicensing Process.

Also attached for your information are the ILP Seven Criteria for Study Plan Development, and a chronology of Douglas PUD recreation and land use activities. Items in the chronology are available by request.

We will also take some time during the meeting to schedule future Work Group meetings, so please bring your calendar.

If you have any questions, please contact me at any time.

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda**

Meeting Purpose: To provide an understanding of the issue identification and study plan development phase of the Integrated Licensing Process (ILP), and to begin developing a list of issue statements that will be used to define potential relicensing studies.

Objectives:

1. Provide an overview of the RWG issue identification and study plan development processes.
2. Develop a draft list of issue statements.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: November 17, 2005

Location: Columbia Cove Community Center
601 W. Cliff Avenue
Brewster, Washington

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Introductions, review objectives and agenda	Scott Kreiter
10:20	Overview of ILP Study Plan development, goals of the RWG and seven criteria.	Shane Bickford
10:45	Issue identification and brainstorm	Scott Kreiter / Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue identification brainstorm (continued)	Group
2:30	Schedule RWG meetings 2, 3, and 4.	Scott Kreiter
2:45	Define action items and next steps.	Scott Kreiter

Attendees Invited:

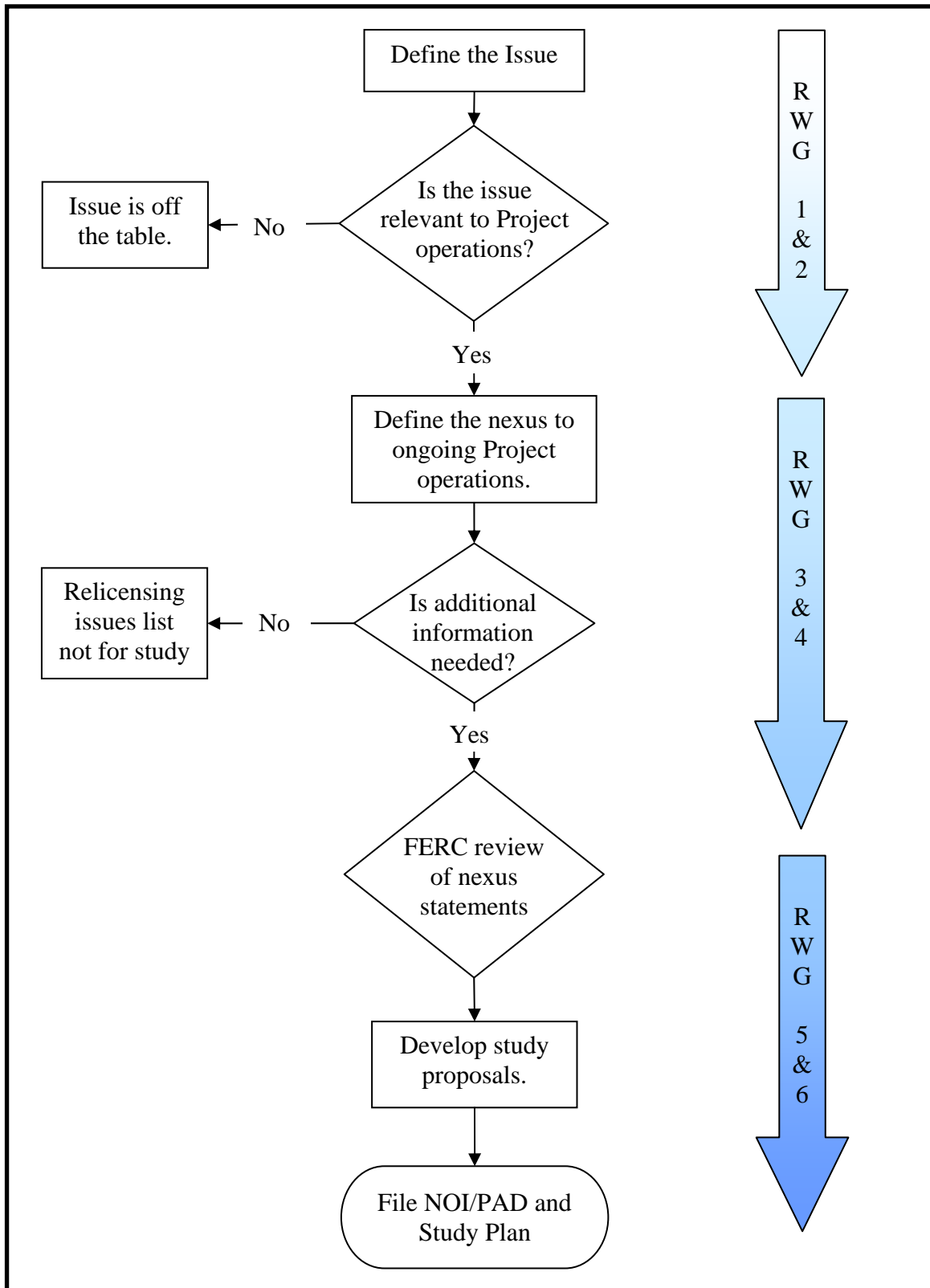
Gail Howe, City of Pateros
George Brady, City of Pateros
Lee Webster, City of Brewster
Bob Fately, City of Brewster
Jean Hardie, City of Bridgeport
Brenda Crowell, Okanogan County
Mary Hunt, Douglas County
Chris Parsons, WDFW
Tony Eldred, WDFW
Jim Harris, Washington State Parks
Bill Fraser, Washington State Park

Jim Eychaner, Washington IAC
Susan Rosebrough, National Park Service
Bill Towey, Colville Tribes
Mike Palmer, Colville Tribes
Jim Fisher, Bureau of Land Management
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine Tarbell & Assoc.

7 Criteria for Study Requests – 18 CFR § 5.9 (b)

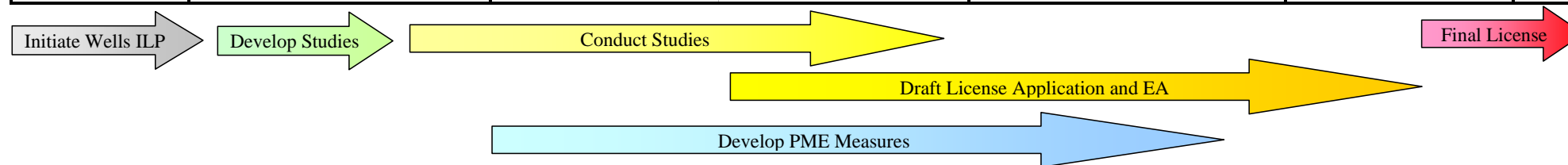
1. Describe the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
4. Describe existing information concerning the subject of the study proposal, and the need for additional information;
5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

**Issue Identification and Study Planning Flow Chart
Wells Hydroelectric Project ILP**



Wells Hydroelectric Project Integrated Licensing Process Timeline

2006	2007	2008	2009	2010	2011	2012
File PAD and NOI	ILP Initiation and Study Scoping	Conduct Studies		File License Application	Environmental Assessment	License Issuance
<u>December 1</u> File Notice of Intent and Pre-Application Document	<u>January 2</u> Initial Tribal Consultation Meeting <u>January 30</u> Notice of NOI/PAD and issuance of Scoping Document 1 <u>March 1</u> Scoping Meetings and site visit <u>March 30</u> Comments on PAD, SD1, and Study Requests <u>May 15</u> File proposed Study Plan <u>September 12</u> File Revised Study Plan <u>October 12</u> FERC Issues Study Plan Determination <u>November 1 – January 10, 2008</u> Dispute Resolution	<u>January – December</u> Conduct First Season of Study <u>November 12</u> Initial Study Report <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>January – December</u> Conduct Second Season of Study <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary <u>December 30</u> File Preliminary Licensing Proposal (PLP)	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>March 30</u> Comments on PLP Due <u>May 28</u> License Application Filed <u>June 27</u> FERC Determination on Additional Study Requests and Notification of Deficiencies <u>August 26</u> Notice of Acceptance and Ready for Environmental Analysis <u>October 25</u> Comments and Interventions Due 10(a), 10(j) Recommendations Due 4(e) Preliminary Terms and Conditions Due <u>December 9</u> Ready for Environmental Analysis	<u>February 22</u> FERC Issues Environmental Assessment (EA) FERC Issues Biological Assessment FERC Issues Draft Historic Properties Management Plan <u>March 24</u> EA Comments Due <u>May 23</u> Modified Mandatory Terms and Conditions Due <u>May 28</u> Water Quality Certification Issued <u>August 21</u> FERC Issues Final EA	<u>May 31</u> FERC Issues License Order



Wells Project Recreation Chronology (1967 – 2005)

Date	Description
Reporting/Planning	
1967 – 2002	<i>FERC Form 80 – Licensed Hydropower Development Recreation Report.</i> A brief summary of the existing recreation conditions and facilities associated with the Wells Project. Based on FERC regulations, the forms were submitted every two years from 1967 – 1984, every four years from 1984 – 1996 and every six years since 1996. The most recent Form 80 was submitted to FERC in 2002.
1967	<i>Wells Recreation Plan.</i> A plan to provide guidance for the development of recreation facilities for maximum public benefit in the Wells Project area. The plan discussed the region, factors influencing development, estimated attendance, recreation resources and development.
1974	<i>Wells Recreation Plan, Supplement.</i> Provided an update on recreation improvements, fish production and wildlife areas.
1982	<i>Public Use Plan, 1982.</i> This document was prepared in conjunction with Douglas PUD's application to amend the Wells Project license to raise the maximum elevation of the Wells Reservoir from 779 ft. to 781 ft. This plan analyzed the types of recreation facilities appropriate for the Wells Reservoir and discussed how facilities could be developed.
1987	<i>Recreation Action Plan, 1987.</i> First supplement to the 1982 <i>Public Use Plan</i> prepared in consultation with various stakeholders, including Washington State Parks and the cities of Pateros, Brewster and Bridgeport. It represents the first of a series of 5-year updates discussed in the plan (p. 2) and a FERC Order issued August 12, 1987. The plan discusses recreation needs, improvements and costs for years 1987 – 1992.
1992	<i>Recreation Action Plan, 1992.</i> Second supplement to the 1982 <i>Public Use Plan</i> prepared in consultation with various stakeholders, including Washington State Parks and the cities of Pateros, Brewster and Bridgeport. The plan discusses recreation needs, improvements and costs for years 1992– 1997.
1997	<i>Recreation Action Plan, 1997.</i> Third supplement to the 1982 <i>Public Use Plan</i> prepared in consultation with various stakeholders, including Washington State Parks and the cities of Pateros, Brewster and Bridgeport. The plan discusses recreation needs, improvements and costs for years 1998– 2002.
2002	<i>Recreation Action Plan, 2002.</i> Fourth supplement to the 1982 <i>Public Use Plan</i> prepared in consultation with various stakeholders, including Washington State Parks and the cities of Pateros, Brewster and Bridgeport. The plan discusses recreation needs, improvements and costs for years 2003– 2007.
Improvements	
1960s	Parks in the cities of Pateros, Brewster and Bridgeport were developed to mitigate for construction of the Wells Project.
1967	Douglas PUD deeded approximately 300 acres of land to Washington State Parks for the future development of Chief Joseph State Park (Bridgeport Bar).

1983	Douglas PUD paid Washington State Parks a \$125,000 lump sum and agreed to \$25,000 annual payments through 2012 to assist in the future development of Chief Joseph State Park.
1987 – 1992	Recreation improvements were made to Methow River Boat Launch (Pateros), Winter Boat Launch (Pateros), Tennis Courts (Pateros), Starr Boat Launch (upstream of Wells Dam) and to parks in the cities of Pateros, Brewster and Bridgeport. Approximate cost: \$1.5 million.
1992 – 1997	Recreation improvements were made to Waterfront Trail (Brewster), Winter Boat Launch (Pateros), Tennis Courts (Pateros), Boat Launch sites (Monse Bridge, Okanogan River and Washburn Island), Wells Dam Overlook and to parks in the cities of Pateros, Brewster and Bridgeport. Approximate costs: \$1.2 million.
1998 - 2002	Recreation improvements made to Waterfront Trail (Brewster), Methow River Fishing Areas (6 sites), Site Suitability Analysis with Washington State Parks and to parks in the cities of Pateros, Brewster and Bridgeport. Approximate costs: \$1.3 million.
2003 – 2007	Recreation improvements are currently being made to Tennis Courts – landscaping (Pateros), Highway Turn Lanes (Wells Dam Overlook and Starr Boat Launch) and to parks in the cities of Pateros, Brewster and Bridgeport. Approximate costs: \$911,000.
Agreements	
1983	Interlocal Agreement with Washington State Parks Regarding Chief Joseph State Park. This agreement provided mitigation for the Wells Reservoir elevation increase. Douglas PUD agreed to pay Washington State Parks a lump sum of \$125,000 and \$25,000 annually through 2012 to assist in the future development of the park.
1987	Agreements with the cities of Pateros, Brewster and Bridgeport Regarding Additional Recreation Facilities. The agreements included an expenditure of up to \$250,000 by Douglas PUD to each city for construction of recreation facilities. They also formalized a commitment by the cities to administer, operate and maintain the new facilities.
1991	Memorandum of Understanding with Washington State Parks and Department of Fish and Wildlife. This MOU helped resolve land management conflicts associated with the proposed Chief Joseph State Park and the Bridgeport Bar Unit of the Wells Wildlife Area. This MOU set forth the management responsibilities of both agencies for the proposed Chief Joseph Park and a 200 foot buffer surroundings the site. It also confirmed Douglas PUD's obligations to both agencies.
2002	Memorandum of Understanding with Washington State Parks Regarding Chief Joseph State Park. This MOU raised concerns regarding the incompatibility of intense recreation development of the proposed Chief Joseph State Park adjacent to highly valued wildlife habitat on the Bridgeport Bar. This MOU provided for the sale of land back to Douglas PUD, identified unspent funds from the 1983 agreement, paid the future obligation of Douglas PUD under the 1983 agreement and allowed that these monies be used to secure a substitute property. This MOU also provided that Washington State Parks would be supportive of Douglas PUD's relicensing of the Wells Project.
2003	Memorandum of Understanding with Washington State Parks Regarding Chief Joseph State Park (amended). This modified MOU removed references to relicensing from the 2002 MOU.

CITY OF PATEROS

113 Lakeshore Drive
PO Box 8
Pateros, WA 98846
509 923 2571
FAX 509 923 2971
e-mail: pateros@nwi.net

November 17, 2005

To: Douglas County PUD/Wells Hydroelectric Project

From: City of Pateros in cooperation with City of Bridgeport and City of Brewster

We would like to make the following recommendations for studies to be done, but not limited to, regarding the relicensing of Wells Hydroelectric Project.

1. Analyze the past 5 year recreational plans to review deficiencies in past plans, enhancements that should be evaluated in the new license, and areas where plan implementation can be carried out more reasonably. Also, methods to provide for continued city involvement in a more regular fashion.
2. Impacts of PUD ownership of shoreline and PUD ownerships inside the city limits.
3. Past and future economic impacts of project to local communities including:
 - Maintenance and Operation for parks, trails, etc.
 - Water/sewer/infrastructure impacts in towns because of PUD and project.
 - Fishery impacts and boat launches.
 - Higher groundwater level impacts.
4. Milfoil and pondweed impacts to recreation.
5. Pool level impacts to recreation during peak weekends.
6. Revenue issues (taxes, in lieu payments, fire/EMT services and coverage) compared with other dams further down the Columbia.
7. Examine recreational study to see if the methodology is appropriate for the time frame of the study.

The three towns impacted by the Wells Project will meet further in the coming weeks and will have additional study proposals we desire to undertake.

Thank you.

Sincerely,



Gail Howe, Mayor
City of Pateros

CC: City of Bridgeport
City of Brewster

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**Recreation and Land Use RWG Meeting 1
Sign-in Sheet and Meeting Products**

RECREATION AND LAND USE
RESOURCE WORK GROUP
SIGN IN SHEET
NOVEMBER 17, 2005

[illegible]

Issues List
Recreation and Land Use Work Group
Meeting 1 – November 17, 2005

Below are the preliminary issues that were discussed and recorded in the first Recreation and Land Use Work Group Meeting on November 17th, 2005. This issues list was **taken directly** from the meeting. In the near future, draft issue statements (created from this list) will be developed by Douglas PUD for review by work group members prior to RWG #2.

Consolidated Issues

1. Project Operations Impacts on Recreation
 - A. Pool fluctuations (Peak Use)
 - B. Water weeds, milfoil -- control measures and options
 - C. Sediment transport and deposition (dredging, debris and water quality)
 - D. Loss of wildlife habitat
2. Ownership and Use of Douglas PUD project lands
 - A. Impact within cities
 - B. Shorelines and docks
 - C. Ownership vs. Easement
 - D. PUD's Land Use Policy and permitting
 - E. Project lands managed for wildlife
 - F. Access to project lands and waters
 - G. Vegetation management
3. Consistency with federal and state land management and recreation policies
 - A. SCORP
 - B. County and City -- Comprehensive Plans and development regulation (critical area ordinances, shoreline management zoning)
 - C. ESA
 - D. ECPA (FPA) "Non-Power Equal Consideration"
 - E. ADA
4. Recreation Use
 - A. Past and future use and methodology
 - B. Analysis of recreation action plans (implementation, communication, compliance, audit).
 - C. Capacity at recreation facilities
 - D. Chief Joe Hatchery
 - E. Access to WMAs and project lands
 - F. Trail system, linkages and parks
 - G. New facilities/improvements
5. Socioeconomic impacts on cities and counties
 - A. O&M of recreation facilities

- B. Infrastructure
 - C. Pool level -- groundwater
 - D. Tax base
 - E. Community services
 - F. Comparison to other projects
 - G. In lieu payments
 - H. Water rights
6. Tourism -- Relationship to Project operations and facilities.
- A. Opportunities to increase (Fort Okanogan, Wells Visitor Center, Pateros Visitor Center and enhancements at Alta Lake State Park).

Issues Identified

1. ECPA – Equal consideration for non-power related resources. “Recreation” (JE)
2. Consistency with SCORP (JE)
3. Adequate/Appropriate access to Project lands and waters (JE)
4. Pool fluctuations during peak use – weekends – recreation impacts (Pateros)
5. Continued access and use of WMA (CP)
 - Consumptive – Hunting
 - Non-Consumptive – Bird watching, hiking
6. Analysis of Recreation Action Plans (GB)
 - Every 5-year plan
 - Implementation
 - Communication
 - What is missing?
 - Ways to improve process and implementation
 - Enhancements
 - Compliance with RAP
7. Impacts of PUD ownership on city – inside city limits. (Cities)
8. Ownership vs. Easement on shorelines (PUD owned shorelines) (Cities)
9. Potential recreational uses in addition to existing uses (JE)
 - Trail System(s)
 - Linkage between cities – recreation sites

10. Recreation Trends (SR)
 - Changes over time
 - forecast
11. Changes in land use (Cities and CP)
 - Impacts on wildlife
 - Zoning changes
 - Docks
 - Habitat changes – vegetation management
 - Regulatory development, ordinances, zoning, regulations
 - Growth Management Act
 - Endangered Species Act
 - Land Management Plan
 - Comprehensive Plan
 - Wastewater
12. Milfoil, water weeds – problem (GB)
 - Impacts on recreation
 - Pond weed harvesting
 - Control measures and options
13. Project impacts on economics within cities and counties (GB)
 - O&M
 - Infrastructure
 - Groundwater elevations
14. Revenue impacts resulting from Project existence (GB)
 - Taxes
 - In lieu payments
 - Fire
 - EMT services, coverage
 - Compare with other hydro projects
15. Accurate trends in recreational use – needed/have (Cities)
Accurate assessment of recreational use
16. Sediment transport (CP)
 - Dredging
 - Recreation impacts (fishing, swimming, boating)
 - Debris (misc.)
 - Water quality
17. Capacity of Existing boat launch facilities (Cities)
 - Parking

- ADA
- 18. ESA Impacts on recreational development (Cities)
- 19. Chief Joseph Hatchery (Cities)
 - Recreation Changes/Impacts
- 20. Tourism – Relationship to Project operations and facilities (Cities, BF)
 - Opportunities to increase tourism
 1. Fort Okanogan (add facilities/exhibits)
 2. Wells Visitor Center (open/closed?)
 3. Pateros Visitor Center
- 21. Alta Lake water levels (WSP)
- 22. Water Rights (Cities)
 - Recreation
 - Future growth

Action Items
Recreation and Land Use Work Group
Meeting 1 – November 17, 2005

1. Type up issue statements and email to the RWG. (Scott)
2. Establish and RWG FTP site for file sharing (Brad)
3. Look into other potential locations for future meetings, such as Pateros City Hall, Wells Dam, etc. (Scott & Cities)
4. Send new meeting schedule to RWG. (Scott)
5. Prepare Recreation Use Assessment summary results for the RWG.
6. Look up the definition for “attractive development.”(Scott)

Terrestrial RWG Meeting 1
November 16, 2005

From: Scott Kreiter

Sent: Wednesday, November 02, 2005 10:27 AM

To: Bill Towey; Brenda Crowell; Dinah Demers; Gordon Brett; Jim Fisher; Jim McGee; Marc Hallett; Mary Hunt; Matt Monda; Scott Kreiter; Steve Lewis; Tony Eldred

Cc: Mark Miller (mark_miller@fws.gov); Dennis Beich (beichdvb@dfw.wa.gov); Carmen Andonaegui (andonca@dfw.wa.gov); joe.peone@colvilletribes.com; Bob Clubb; Shane Bickford; Devine, John; Tim Bachelder (timothy.bachelder@devinetarbell.com); Mary Mayo; Brad Hawkins; Bao Le

Subject:

To: Wells Relicensing Terrestrial Resources Work Group

From: Scott Kreiter

Subject: November 16 Terrestrial Resources Work Group Meeting

Please find attached the agenda for the first Terrestrial Resources Work Group meeting to be held on November 16, 2005 at Douglas PUD Headquarters in East Wenatchee, WA. The Terrestrial Resources Work Group addresses the following issues as they relate to Wells Project operations: 1) Wildlife and botanical; 2) Rare, Threatened and Endangered terrestrial species ; 3) Wetlands; and 4) Geology and Soils.

The purpose of the first meeting is to provide an understanding of the issue identification and study planning phase of the formal Integrated Licensing Process (ILP), and to begin developing a list of issue statements. The ultimate goal in this informal phase of Wells relicensing is to identify issues associated with the operation of Wells Dam and develop study plans that can be implemented during the formal Integrated Relicensing Process.

Also attached for your information are the ILP Seven Criteria for Study Plan Development, and a chronology of Douglas PUD wildlife program activities. Items in the chronology are available by request.

We will also take some time during the meeting to schedule future Work Group meetings, so please bring your calendar.

If you have any questions, please contact me at any time.

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda**

Meeting Purpose: To provide an understanding of the issue identification and study plan development phase of the Integrated Licensing Process (ILP), and to begin developing a list of issue statements that will be used to define potential relicensing studies.

Objectives:

1. Provide an overview of the RWG issue identification and study plan development processes.
2. Develop a draft list of issue statements.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: November 16, 2005

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Introductions, review objectives and agenda	Scott Kreiter
10:20	Overview of ILP Study Plan development, goals of the RWG and seven criteria.	Shane Bickford
10:45	Issue identification and brainstorm	Scott Kreiter / Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue identification brainstorm (continued)	Group
2:30	Schedule RWG meetings 2, 3, and 4.	Scott Kreiter
2:45	Define action items and next steps.	Scott Kreiter

Attendees Invited:

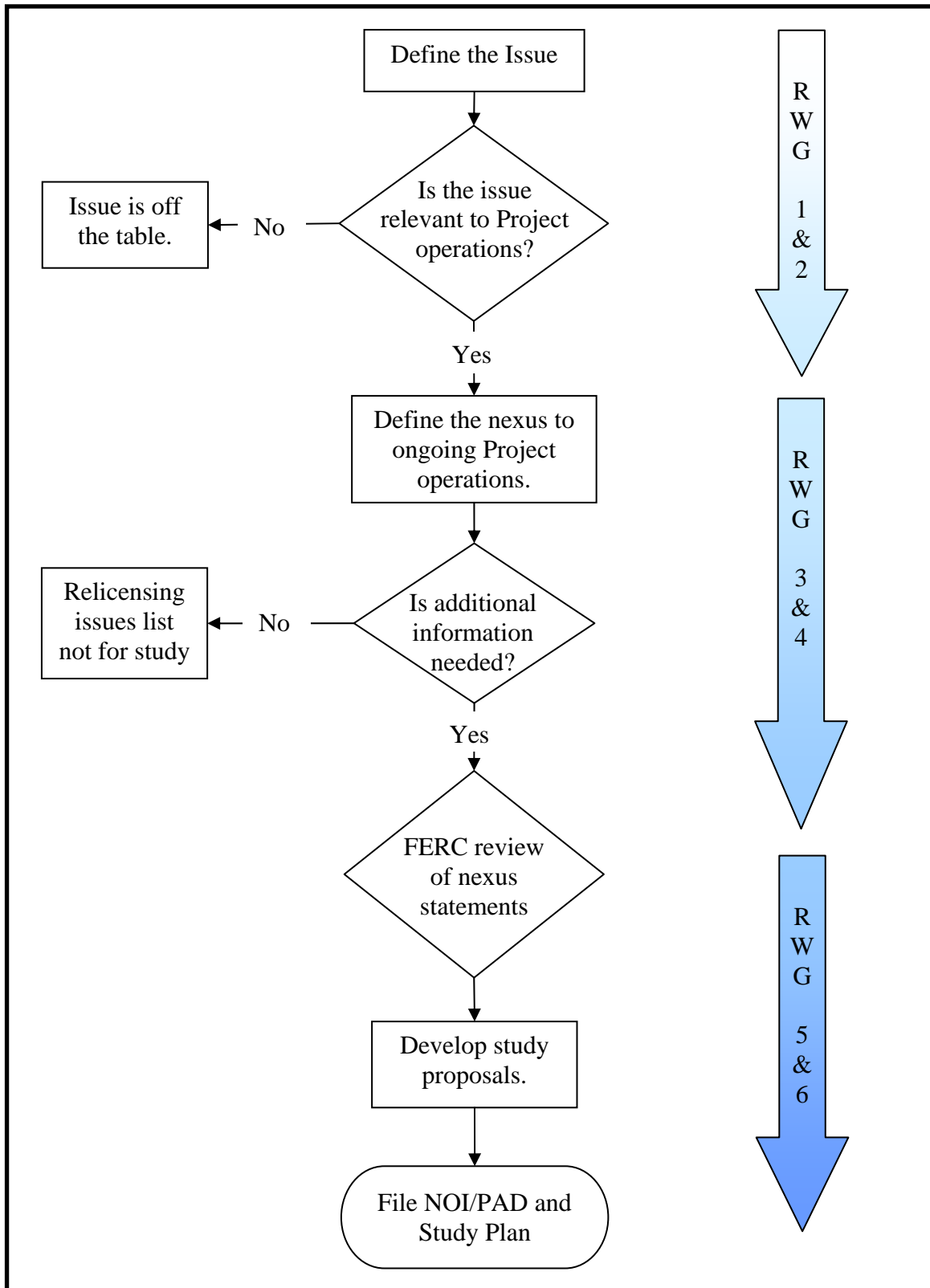
Bill Towey, Colville Tribes
Dinah Demers, Colville Tribes
Jim Fisher, BLM
Brenda Crowell, Okanogan County
Marc Hallett, WDFW
Matt Monda, WDFW
Tony Eldred, WDFW
Steve Lewis, USFWS

Mary Hunt, Douglas County
Bob Clubb, Douglas PUD
Jim McGee, Douglas PUD
Shane Bickford, Douglas PUD
Scott Kreiter, Douglas PUD
John Devine, Devine Tarbell & Assoc.

7 Criteria for Study Requests – 18 CFR § 5.9 (b)

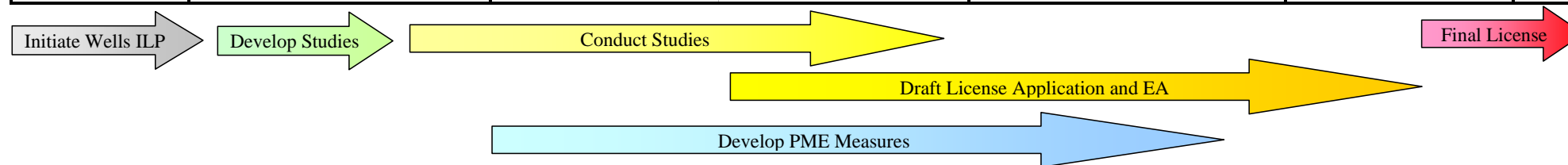
1. Describe the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
4. Describe existing information concerning the subject of the study proposal, and the need for additional information;
5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

**Issue Identification and Study Planning Flow Chart
Wells Hydroelectric Project ILP**



Wells Hydroelectric Project Integrated Licensing Process Timeline

2006	2007	2008	2009	2010	2011	2012
File PAD and NOI	ILP Initiation and Study Scoping	Conduct Studies		File License Application	Environmental Assessment	License Issuance
<u>December 1</u> File Notice of Intent and Pre-Application Document	<u>January 2</u> Initial Tribal Consultation Meeting <u>January 30</u> Notice of NOI/PAD and issuance of Scoping Document 1 <u>March 1</u> Scoping Meetings and site visit <u>March 30</u> Comments on PAD, SD1, and Study Requests <u>May 15</u> File proposed Study Plan <u>September 12</u> File Revised Study Plan <u>October 12</u> FERC Issues Study Plan Determination <u>November 1 – January 10, 2008</u> Dispute Resolution	<u>January – December</u> Conduct First Season of Study <u>November 12</u> Initial Study Report <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>January – December</u> Conduct Second Season of Study <u>November 27</u> Initial Study Report Meeting <u>December 12</u> File Study Report Meeting Summary <u>December 30</u> File Preliminary Licensing Proposal (PLP)	<u>January 11 – March 12</u> FERC Resolves Meeting Summary Disagreements <u>March 30</u> Comments on PLP Due <u>May 28</u> License Application Filed <u>June 27</u> FERC Determination on Additional Study Requests and Notification of Deficiencies <u>August 26</u> Notice of Acceptance and Ready for Environmental Analysis <u>October 25</u> Comments and Interventions Due 10(a), 10(j) Recommendations Due 4(e) Preliminary Terms and Conditions Due <u>December 9</u> Ready for Environmental Analysis	<u>February 22</u> FERC Issues Environmental Assessment (EA) FERC Issues Biological Assessment FERC Issues Draft Historic Properties Management Plan <u>March 24</u> EA Comments Due <u>May 23</u> Modified Mandatory Terms and Conditions Due <u>May 28</u> Water Quality Certification Issued <u>August 21</u> FERC Issues Final EA	<u>May 31</u> FERC Issues License Order



Wells Project Wildlife Mitigation Chronology (1963 – 2005)

Date	Description
Wildlife Mitigation Agreements	
1963	Master Memorandum of Agreement Between Douglas PUD and Washington Department of Fisheries, Washington Department of Game, the Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries of the U. S. Department of the Interior. Agreement related to proposed Wells Hydroelectric Development on the Columbia River. Memorandum of Agreement provided \$139,500 for various pre and post inundation fish and wildlife studies.
1970	Agreement Between Douglas PUD and the Confederated Tribes of the Colville Reservation for Fish and Wildlife. Wildlife portion of the mitigation agreement provided a total of \$168,000, paid in 10 equal yearly payments, for wildlife habitat development on the Colville Reservation.
1970	Agreement Between Douglas PUD, the Confederated Tribes of the Colville Reservation and Ervin D. and Loretta M. Wolley. Agreement established 116 acre wildlife management area on Cassimer Bar.
1974	Agreement Between Douglas PUD and the State of Washington Department of Game for Wildlife Mitigation. The wildlife mitigation agreements provided 5,715.8 acres of land, \$1,250,000 for an O & M fund and established the Wells Wildlife Area.
1976	Agreement Between Douglas PUD and Washington Department of Game. The agreement provided \$2,927.50 for baseline studies of the Wells Wildlife Area.
1979	Agreement Between Douglas PUD and the State of Washington, Department of Game, for Preliminary Assessment of Effects to Wildlife. The agreement provided \$8,179 to study the wildlife impacts associated with raising the Wells Dam forebay two feet.
1982	Agreement Between Douglas PUD and the State of Washington, Department of Game. The agreement outlined the wildlife mitigation package for impacts associated with raising the Wells Dam forebay two feet.
1984	Agreement Between Douglas PUD and the Confederated Tribes of the Colville Reservation. Offer of partial settlement for wildlife habitat mitigation associated with the Wells Dam forebay elevation increase.
1994	Memorandum of Agreement Between Douglas PUD and Washington Department of Fish and Wildlife. The agreement provides supplemental funding for the Wells Wildlife Area.

Wildlife Mitigation with Colville Confederated Tribes	
1970-2005	Mitigation to develop wildlife habitat and hunting improvement projects within the boundaries of the CCT Reservation - Douglas PUD paid \$16,800 per year for 10 years, \$168,000 total.
1970-2005	Set aside 116 acres of land on Cassimer Bar as a wildlife management area. Cost of land \$49,795.
1984	Mitigation for the Wells Project two foot raise in forebay elevation. Constructed dikes across 3 sloughs on Cassimer Bar to stabilize water levels and preserve wildlife habitat. Project cost \$90,950.
Wildlife Mitigation with Washington Department of Fish and Wildlife	
1974	Wells Wildlife Area established by 1974 agreement.
1974-1975	5,715.8 acres of land purchased by Douglas PUD and given in fee title to WDG as wildlife habitat.
1974-1975	566.2 acres of land below Wells Project Boundary and owned by Douglas PUD are incorporated into the Wells Wildlife Area.
1974-1975	1884.0 acres of leased land with an annual fee are also incorporated into the wildlife areas.
1974	Douglas PUD provided \$1,250,000, for O & M funding to WDG, as part of the 1974 wildlife mitigation agreement.
1994-2004	Douglas PUD has provided \$750,337 of supplemental O & M funds from 1997 to 2004.
1974-2005	Approximately \$5,409,027 has been expended for the operation and maintenance of the Wells Wildlife Area between 1975 and 2004
1975–2005	WDFW developed food plots, riparian habitat, developed shrub steppe vegetation, maintains upland bird feeders, developed springs, installed guzzlers, build dikes in Foster Creek and developed ponds.
1982-1984	Mitigation for the Wells Dam two foot raise in forebay elevation. Protected goose nesting islands, protected cattail marsh on Washburn Island pond, planted 14 acres of riparian shrubs and 25 raptor perch poles.
WDFW Studies and Mitigation Reports	
1978 -2005	Annual fall wildlife survey
1978 - 2005	Annual goose nesting surveys
1975–2005	Annual report on wildlife mitigation program to FERC

Douglas PUD Wildlife Inventories and Studies	
1996 - 2004	Annual bald eagle winter surveys
1996 - 2000	Quarterly bird surveys
2005	Botanical Resource Study, rare threatened and endangered plant survey and invasive plant surveys.
2005	Vegetation cover-type mapping
2005	Wildlife surveys including documentation of breeding and fall migrating birds and small mammals, amphibian and reptile surveys. In addition, these studies also determined the presence and absence of RT&E wildlife species within the Wells Project.

**Terrestrial RWG Meeting 1
Sign-in Sheet and Meeting Products**

NOVEMBER 16, 2005

[illegible]

Issues List
Terrestrial Resources Work Group
Meeting 1 – November 16, 2005

Below are the preliminary issues that were discussed and recorded in the first Terrestrial Resources Work Group Meeting on November 16th, 2005. This issues list was **taken directly** from the meeting. In the near future, draft issue statements (created from this list) will be developed by Douglas PUD for review by work group members prior to RWG #2.

Consolidated Issues

1. Relationship of Project and operations to habitat
 - A. Mule deer wintering
 - B. Sharptail wintering
 - C. Bald Eagle
 - D. Connectivity, fragmentation, succession (future projections) (migration)
 - E. Species diversity
 - F. Aquatic and riparian plant communities
 - G. Adequate mapping of habitat
 - H. Impacts on waterfowl, game and non-game species, waterbirds
 - I. RTE presence and abundance
2. Relationship of project and operations to land use and development
 - A. Land use policy
 - B. Protection of existing habitat
 - C. Loss of habitat due to “attractive development”
 - D. Indirect effects (noise, disturbance, low cost power, flood control)
 - E. Conflicting land management goals
3. Wildlife Management Area Issues
 - A. Funding obligations
 - B. Maintain wildlife and recreation values
 - C. FERC’s view of off-site mitigation
 - D. Effects of mitigation on species abundance and diversity
 - E. Conflicting management goals
4. Predator Control
 - A. Mammal
 - B. Avian
5. Status of active erosion along reservoir
 - A. Loss of vegetation
 - B. Cultural sites
 - C. Stabilization options

6. Recreation
 - A. Disturbance
 - B. Impacts on wildlife and wildlife habitat (Wildlife Management Areas and lands within Project boundary)
 - C. Management of recreation activities
 - D. Okanogan fishing access
7. Impacts of powerline right-of-way maintenance on wildlife and botanical species
 - A. Avian collisions and electrocutions
 - B. Sharptail and other species avoidance

Issues Identified

1. Status of wildlife lands related to Project boundary and future PUD funding. (BP, MH)
2. How to maintain wildlife values of existing Wildlife Management Areas (WMA)? (MM, MH)
3. What is the baseline? How do the offsite WMAs fit into the baseline? (MM, BP)
4. Does baseline include existing recreation on the WMAs? (MM, MH)
5. Habitat connectivity and Project contribution to continuity vs. fragmentation of habitats
 - Migration corridors
 - Shrub-steppe species need to migrate (MM)
6. Loss of Habitat due to the development of stable pools and attractive Project features.
 - Direct and indirect effects
 - Parks, etc. (noise disturbance, presence of pets)
 - “Attractive development” (low cost power, flood control, irrigation)
 - Affects on wildlife (TE, MH)
7. Habitat succession within Project boundary. Successional impacts/changes on different species
 - How has it changed since Project construction?
 - How might it change in the future?
 - Includes aquatic and riparian plant communities (BP)
8. Status of Land Use Policy?
 - What does the license say?
 - How to keep lands below Project boundary undeveloped (protection of habitat)?

- Will PUD change land use policy?
 - Consider incremental, long term effects (BP)
9. Management of recreation activities and impacts of recreation on wildlife and wildlife habitat. (TE, BP)
 10. Status of active erosion along reservoir
 - Loss of vegetation
 - Cultural sites
 - Stabilization options (BP, DT)
 11. Effects of offsite mitigation on species diversity and abundance (MM)\
 12. Effect of Project on terrestrial species diversity
 - Sharptail grouse
 - Native species
 - Game and non-game species (MH)
 13. Management of habitat in Project Boundary in contrast to WMA management goals (conflicting management goals). (MH)
 14. Impacts of Project operations on waterfowl (game and non-game)
 - Foraging
 - Nesting
 - Cormorants
 - Pelicans
 - Predators, predator control (heron, gulls) (MM)
 15. Presence of rare, threatened, and endangered species (RTE). (BP, SB)
 16. Potential need for sharptail wintering habitat along the reservoir. (MH)
 17. Impact of Project and its operations on mule deer winter habitat. (MM)
 18. Fishing Access (Okanogan River). (MM)
 19. Protection of bald eagle habitat. (MM)
 20. Impacts of powerline right-of-way maintenance including avian collisions and electrocutions as well as sharptail and other species avoidance of the right of way. (MM)
 21. Is there species assemblage data? (CA, BP)
 22. Recreation uses of Project lands and WMAs related to wildlife.

Action Items
Terrestrial Resources Work Group
Meeting 1 – November 16, 2005

1. Type up issue statements and email to the RWG. (Scott)
2. Establish and RWG FTP site for file sharing (Brad)
3. Compile information on eagle roosting in the Project area (Jim)
4. Compile existing wildlife data (Jim, Marc)
5. Provide information on the Similkameen - Okanogan Corridor project (Beau)
6. Gather “Christmas Bird Count” information (Jim)
7. Distribute relevant court cases related to “baseline”. (John)
8. Distribute FERC or other language on “attractive development”. (Scott)
9. Determine if existing habitat mapping is sufficient to answer wildlife questions (Work Group)
10. Get FERC input on off-site mitigation (DCPUD)

Wells Project Tours and Participants

WELLS PROJECT TOUR

November 3, 2005

Douglas PUD staff gave a tour of the Wells Dam facilities.

Attendees:

Joe Miller – WDFW
Gail Howe – Mayor of Pateros
Pat Irle – DOE
Jonathan Merz – DOE
Shane Bickford – Douglas PUD
Scott Kreiter – Douglas PUD
Bao Le – Douglas PUD

November 9, 2005

Douglas PUD staff gave a tour of the Wells Dam facilities, recreation sites including the cities of Pateros, Brewster & Bridgeport. Marc Hallet (WDFW) gave an overview of the Wells Wildlife Areas.

Attendees:

Tony Eldred – WDFW
Beau Patterson – WDFW
Marc Hallet – WDFW
Matt Monda – WDFW
Chris Parsons – WDFW
Colleen Deiner – Jeffers, Danielson, Sonn & Aylward
Shane Bickford – Douglas PUD
Scott Kreiter – Douglas PUD
Jim McGee – Douglas PUD

November 28, 2005

Douglas PUD staff gave a tour of the Wells Dam facilities and Wells Wildlife Areas.

Attendees:

Carmen Andonaegui – WDFW
Linda Marsh – City of Pateros
Shane Bickford – Douglas PUD
Scott Kreiter – Douglas PUD

**Letter to FERC requesting designation as non-federal representative for ESA
consultation and consultation under Section 106 of the National Historic
Preservation Act – December 1, 2005**



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

Honorable Magalie Roman Salas, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

December 1, 2005

Subject: Public Utility District No. 1 of Douglas County – Wells Hydroelectric Project (No. 2149) - Request for Designation as Non-Federal Representative for Endangered Species Act Consultation and Consultation under Section 106 of the National Historic Preservation Act

Dear Ms. Salas:

Public Utility District No. 1 of Douglas County (Douglas PUD) is preparing to initiate the Integrated Licensing Process (ILP) for the Wells Hydroelectric Project No. 2149. The formal ILP for the Wells Project will begin in December 2006, when Douglas PUD submits the NOI and PAD for the Wells Project. In preparation for the formal ILP, Douglas PUD has been conducting Pre-ILP discussions with various resource agencies, tribes and local community governments. One of the main goals of these discussions is to identify resource issues associated with future operations of the Wells Project.

Douglas PUD, the resource agencies and Tribes, agree that the process of issue identification would be streamlined if the Commission would assign consultation authority to Douglas PUD for cultural resources and endangered species issues at this time. Therefore, Douglas PUD respectfully requests that FERC do the following:

- (1) Authorize Douglas PUD to initiate and conduct day-to-day consultations on cultural resources with the Confederated Tribes of the Colville Reservation, Washington State Department of Archaeology and Historic Preservation, and any appropriate and interested tribal, resource agency or other entities consistent with requirements under Section 106 of the National Historic Preservation Act, pursuant to the provisions of 36 CFR § 800.2(c)(4).
- (2) Designate Douglas PUD as the Commission's non-federal representative for the purposes of informal consultation related to ESA listed and candidate species. Agencies involved in this consultation include the US Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act.

Douglas PUD understands that the Commission retains ultimate authority and responsibility for consultation related to ESA and Section 106 issues, including its responsibility for government-to-government relationships with Tribes.

If you have any questions related to this request, please feel free to contact Scott Kreiter at 509-881-2327.

Sincerely,



Shane Bickford
Relicensing Coordinator
Douglas PUD

Copy: Camille Pleasants (Confederated Tribes of the Colville Reservation - THPO)
Allyson Brooks (Washington Department of Archaeology and Historic Preservation – SHPO)
Jim Fisher (Bureau of Land Management)
Mark Miller (U.S. Fish and Wildlife Service)
Keith Kirkendall (National Marine Fisheries Service)
Ritchie Graves (National Marine Fisheries Service)
David Turner (Federal Energy Regulatory Commission)

Letter to Douglas PUD from FERC granting authorization to conduct day-to-day Section 106 Consultation regarding Wells Relicensing – December 7, 2005

SB
file

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

DEC 7 2005

Project No. 2149 - Washington
Wells Hydroelectric Project
PUD No. 1 of Douglas County

Shane Bickford, Relicensing Coordinator
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

RE: Section 106 Consultation Authorization.

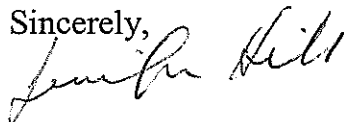
Dear Mr. Bickford:

In your December 1, 2005 letter (see attachment), you requested that we grant permission for you to initiate Section 106 consultation on our behalf. By copy of this letter, we are authorizing Douglas County PUD to initiate consultation with the Washington State Historic Preservation Officers and other consulting parties, pursuant to 36 CFR § 800.2(c)(4) of the regulations implementing Section 106 of the National Historic Preservation Act. This consultation pertains to the relicensing effort by Douglas County PUD involving the Wells Hydroelectric Project located in Douglas County, Washington.

As stated in your letter, we are granting authorization to Douglas County PUD in order for them to conduct day-to-day Section 106 consultation responsibilities in regards to the above relicensing effort; however, the Commission remains ultimately responsible for all findings and determinations.

If you have any questions, please contact Dr. Frank Winchell at 202-502-6104 with any questions or comments.

Sincerely,



Jennifer Hill
Chief, Hydro West Branch 1

RECEIVED

DEC 13 2005

DOUGLAS PUD

Camille Pleasants, THPO
Confederated Tribes of the Colville Reservation
P.O. Box 150
Nespelem, WA 99155

Allyson Brooks, SHPO
Dept. of Archaeology and Historic Preservation
1063 South Capitol Way, Suite 106
Olympia, WA 98501

Jim Fisher
Bureau of Land Management
915 N. Walla Walla Avenue
Wenatchee, WA 98801-1521

Public Files
Service List

**Letter to Douglas PUD from FERC designating Douglas PUD as non-federal
representative for Endangered Species Act Consultation for Wells Relicensing
– December 7, 2005**

SB
file

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON D.C. 20426

December 7, 2005

OFFICE OF ENERGY PROJECTS

Project No. 2149--Washington
Wells Hydroelectric Project
Public Utility District No. 1 of Douglas County

Shane Bickford
Relicensing Coordinator
Douglas PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

**Reference: Douglas PUD designated as Non-Federal Representative for
Endangered Species Consultation**

Dear Mr. Bickford:

By letter dated December 1, 2005, the Public Utility District No. 1 of Douglas County (Douglas PUD) asked to be designated the Commission's non-federal representative for informal consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act.

By this letter, we designate Douglas PUD our non-federal representative as described above for the relicensing of the Wells Hydroelectric Project.

The role of the non-federal representative includes conducting studies, developing and supplying information, attending meetings, ensuring that pertinent endangered species information is maintained in a project file, developing a draft biological assessment, participating in informal consultation with the FWS and NOAA Fisheries, and keeping the Commission apprised of its actions. We recommend you meet with the FWS and NOAA Fisheries to discuss how to conduct informal consultation for the Wells Hydroelectric Project.

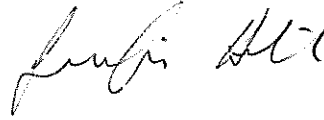
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DEC 13 2005

DOUGLAS PUD

If you have any questions, please contact David Turner at (202) 502-6091 or david.turner@ferc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Hill", with a stylized flourish at the end.

Jennifer Hill
Chief
Hydro West Branch 1

cc: Mark Miller
U.S. Fish and Wildlife Service
215 Melody Lane, Suite 119
Wenatchee, WA 98801

Keith Kirkendall
National Marine Fisheries Service
1201 NE Lloyd Blvd., Suite 1100
Portland, OR 97232

Ritchie Graves
National Marine Fisheries Service
1201 NE Lloyd Blvd., Suite 1100
Portland, OR 97232

Mailing List
Service List

Aquatic RWG Meeting 2
January 9, 2006

From: Bao Le
Sent: Wednesday, December 28, 2005 9:44 AM
To: Art Viola; Bill Towey; Bob Jateff; Bob Rose; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; Jonathan Merz; Keith Kirkendall; Mark Miller; Pat Irle; Ritchie Graves; Steve Lewis; Steve Parker; Tom Tebb
Cc: Shane Bickford; Bob Clubb; 'Devine, John'; Brad Hawkins; Mary Mayo; Scott Kreiter
Subject: Aquatic RWG Meeting #2
Attachments: Meeting Agenda Aquatics RWG 2.pdf; Issue statements Aquatic RWG_Carmen comments.DOC

Aquatic Resources Work Group:

Please find attached the agenda for the January 9 Work Group meeting. The purpose of this meeting is to finalize and categorize issue statements. I received one set of comments from Carmen Andonaegui and have attempted to integrate those into the existing issue statements document. I've attached this "revised" issue statements document with marked up additions and/or changes. No other comments have been received thus far aside from Carmen's comments, but feel free to send any you may have prior to the meeting.

As mentioned in a previous email, Douglas PUD has set up an FTP site for access to all work group materials. Instructions for accessing the FTP site are below.

FTP Instructions

Point your browser to <ftp://relicensingftp.dcpud.org>

User logon: wellsftp

Password: Fishing (With a capital "F")

The FTP site is organized first by resource workgroup and then by meeting date, with a general supporting documents folder for each group.

Please contact me if you have questions.

Bao Le
Senior Aquatic Resources Biologist
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802
Phone: (509) 881-2323
FAX: (509) 884-0553
ble@dcpud.org

**Aquatics Resources Work Group
Wells Relicensing
Meeting #2 Agenda – January 9, 2006**

Meeting Purpose: To develop final issue statements related to Wells Project relicensing.

Objectives: 1. Finalize issue statements from issues identified during RWG #1 and #2
2. Begin developing draft nexus statements

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: January 9, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #1	Bao Le
10:10	Discuss any new issues Develop draft issue statement for each new issue	Group
11:00	Review and comment on draft issue statements Reach agreement on finalized issue statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue Categorization Review Example Nexus Statement	Group
2:45	Action items and next steps	Bao Le
3:00	Adjourn	

Attendees Invited: Tom Tebb, WDOE Pat Irle, WDOE John Merz, WDOE Ritchie Graves, NMFS Steve Lewis, USFWS Joe Miller, WDFW Bob Jateff, WDFW Carmen Andonaegui, WDFW Art Viola, WDFW	Bob Rose, Yakama Nation Bill Towey, Confederated Tribes of the Colville Reservation Jerry Marco, Confederated Tribes of the Colville Reservation Bao Le, Douglas PUD Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD John Devine, Devine, Tarbell and Associates
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Aquatic RWG Meeting #1
November 15th, 2005
Action Items

1. John Devine to send Art Viola court case examples on the concept of baseline/existing conditions.
2. Bao will send out three documents to the entire RWG (Burley and Poe 1994, McGee 1979, and Beak 1999).
3. Douglas PUD will review the Okanogan River TMDL for preliminary information used to assist in framing some issue statements.
4. Reservoir fluctuation graphic to group.
5. Douglas PUD will review the Mid-Columbia River TDG TMDL.
6. Douglas PUD will contact, if necessary, invasive species coordinators for WDFW and the Colville's for pertinent literature to respective programs.
7. Bao will work with Joe Miller to explore the possibility of setting up a presentation for a bio-energetics model.
8. Bao will send out a list of issues and sub-objectives identified in RWG #1.
9. Bao will put together a TDG timeline (past, present, and future plans) and decision tree and send to the group.
10. Bill Towey will provide informational update on the toxins accumulation study being done by the Colville Tribe.
11. Pat Irle to send John Merz's email to Bao for addition to the RWG list.

Aquatic Resources Work Group
Issue Statements from Meeting 1-November 15, 2005

1. (Issues 1) Operations of the Project may affect juvenile Pacific lamprey dam passage survival during their downstream migration.
2. (Issues 2 & 4) Existence and operation of the Project may affect adult Pacific lamprey habitat and behavior related to passage, spawning and upstream migration timing.
3. (Issue 3) Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various life stages.
4. (Issue 5-A,B,C) The existence and operation of the Project may be affecting white sturgeon habitat and carrying capacity.
5. (Issue 5-D,E,F) Existence and operation of the Project may affect white sturgeon behavior related to spawning, rearing, recruitment, upstream and downstream passage (entrainment/recruitment).
6. (Issue 6 A,G Issue 7 A,C,D,E) Existence and operation of the Project may affect the rates of predation on anadromous and resident fish. Potential contributing factors to higher predation rates may include unique tailrace hydraulics and potential localized adverse water quality characteristics.
7. (Issue 6 B,C,D,E,F,H,I Issue 7 B, Issue 11 & 12) Existence of the Project has established a site-specific resident fish community assemblage. Stakeholders expressed an interest in investigating bioenergetics, food web, predation and carrying capacity models and habitat mapping and how these models may fit into the development of an overall management strategy related to resident fish.
8. (Issue 8) Existence and operations of the Project may affect sediment dynamics within the Wells Reservoir. Potential Project effects identified by Stakeholders were the input, accumulation and retention of toxins and their potential effects on aquatic organisms and humans.
9. (Issue 9) Reservoir fluctuations in the Wells Reservoir may affect the nearshore ecosystem. This may include allochthonous inputs into the system; riparian, wetland and littoral plant assemblages; and impacts on birds, amphibians, and macroinvertebrates. (**Riparian and wetland habitat and wildlife, birds and amphibians are topics covered under the Terrestrial RWG)
10. (Issue 10) Is the Wells Project's in compliance with the Washington State Water Quality Standards (TDG, Temperature, DO, pH, turbidity, toxins)?

11. (Issue 13) A question was raised by Stakeholders about the role of the Wells Project operations on the flows in the Hanford Reach, and to the overall Hanford Reach Fall Chinook Protection Program?

12. (Issue 14) Are the existing hatchery facilities and supplementation strategies sufficient to meet current and future fish mitigation programs?

13. (Issue from Carmen) There is a need to develop a strategy to identify sources of juvenile lamprey (ammocoetes) that may be used in the implementation of downstream passage and survival studies.

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14. (Issue 15) Action Item: What is the status regarding long term implementation of the Bull Trout Management Plan?

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15. (Issue 16) Action Item: What is the status of invasive and exotic species monitoring, control and planning in the Wells Reservoir?

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Federal and State RTE Species found on Wells Project Lands.

Common Name	Species Name	Federal List	State List
Botanical Resources			
Little Bluestem	<i>Schizachyrium scoparium</i>		State Threatened
Snails			
None			
Mollusks			
None			
Insects			
None			
Fishes			
Bull Trout	<i>Salvelinus confluentus</i>	Federal Threatened	State Candidate
Steelhead	<i>Oncorhynchus mykiss</i>	Federal Threatened	State Candidate
Spring Chinook	<i>Oncorhynchus tshawytscha</i>	Federal Endangered	State Candidate
Amphibians			
None			
Reptiles			
None			
Mammals			
None			
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Federal Threatened	State Threatened
American White Pelican	<i>Pelecanus erythrorhynchos</i>		State Endangered
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	Federal Candidate	State Threatened

Aquatic RWG Meeting 2
Sign-in Sheet and Meeting Products

AQUATICS

SIGN IN SHEET

January 9, 2006

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Aquatic Resources Work Group
Final Issue Statements from Meeting 2 -- January 9, 2006

1. Operations of the Project may affect juvenile Pacific lamprey dam passage survival (survival, route of passage and timing) during their downstream migration.
2. Existence and operation of the Project may affect adult lamprey habitat use.
3. Existence and operation of the Project may affect adult Pacific lamprey behavior related to ladder passage, timing, fallback and upstream migration.
4. Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.
5. The existence and operation of the Project may be affecting white sturgeon habitat and carrying capacity.
6. Existence and operation of the Project may affect white sturgeon genetics and behavior related to spawning, rearing, recruitment, and upstream and downstream passage (entrainment/recruitment).
7. Existence and operation of the Project may affect the predator-prey dynamics within the Wells Project (components may include investigating bioenergetics, food web, predation and carrying capacity models and habitat mapping). Potential contributing factors to higher predation rates may include unique hydraulics and habitat (macrophytes, localized water temperature, turbidity, substrate, pH and DO and anthropogenic structures).
8. Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) and their potential effects on aquatic organisms and humans.
9. Reservoir fluctuations, including those caused by system-wide energy requirements, in the Wells Reservoir may affect the ecosystem (i.e., allochthonous inputs into the system). This may include, impacts on littoral plant assemblages, fish use, submergent plants, macrophytes and macroinvertebrates.
10. Project operations may affect compliance with TDG in the Wells Tailrace and Rocky Reach Forebay.
11. Project operations may affect compliance with temperature in the Wells Project.
12. Project operations may affect compliance with DO, pH and turbidity in the Wells Project.

13. The Wells Project may affect Bull Trout survival and habitat.
14. The Wells Project may contribute to the spread of aquatic invasive species.
15. The Wells Project may affect resident fish species abundance and composition.
16. The Wells Project should continue resident fish production at the Wells Hatchery.

Aquatics RWG Meeting #2
January 9, 2006
Action Items

1. Carmen can assist Bao with aquatic invasive species information (if needed).
2. Provide the resource work group members with a copy of the Hanford Reach Fall Chinook Protection Program Agreement via FTP site.
3. Provide the status regarding long term implementation of the Bull Trout Management Plan to resource work group members.
4. Post critical needs and uncertainties document to FTP site (Lamprey Technical Work Group).
5. Develop and distribute technical memo summarizing 4 (TDG, Limnology, Macrophyte Mapping and Macroinvertebrate Inventory) studies to RWG members prior to RWG 3.

Cultural RWG Meeting 2
January 12, 2006

From: Scott Kreiter

Sent: Thursday, January 05, 2006 4:51 PM

To: Bob Clubb; Camille Pleasants; Gordon Brett; Guy Moura; Jim Fisher; John Devine; Richard Bailey; Rob Whitlam; Scott Kreiter; Shane Bickford; Timothy Bachelder

Subject: Wells Relicensing - Cultural RWG, Jan. 12

Please find attached the agenda for the January 12 Cultural Resources Work Group meeting.

Also attached is a proposed list of Section 106 steps for Wells Relicensing for you to look at prior to the meeting.

For those dialing in, a conference number will be sent out shortly.

Please contact me if you have questions.

*****Please note that the meeting will be held at the Colville Tribe History Department in Nespelem.

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – January 12, 2006**

Meeting Purpose: To develop a list of steps for Section 106, and begin identifying issues.

Objectives: 1. Agree to a process for complying with Section 106 for Wells relicensing.
2. Begin identifying issues and next steps.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: January 12, 2006

Location: Colville Confederated Tribes
Nespelem, Washington

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #1	Scott Kreiter
10:10	Develop steps for Section 106	Group
11:10	Begin identifying issues and appropriate next steps for relicensing (e.g. define APE, identify study needs)	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue identifying and defining issues and next steps.	Group
2:45	Action items and next steps.	Scott Kreiter
3:00	Adjourn	

Attendees Invited:

Camille Pleasants, Colville Tribes (THPO)
Guy Moura, Colville Tribes
Rob Whitlam, Washington DAHP (SHPO)
Jim Fisher, BLM
Rich Bailey, BLM

Bob Clubb, Douglas PUD
Shane Bickford, Douglas PUD
Gordon Brett, Douglas PUD
Scott Kreiter, Douglas PUD
John Devine, Devine Tarbell & Assoc.
Tim Bachelder, Devine Tarbell & Assoc.

STEPS FOR SECTION 106 COMPLIANCE Wells Hydroelectric Project Relicensing Discussion Draft – January 12, 2006			
TASK		DESCRIPTION	STATUS
1	Identify interested parties and stakeholders	FERC and/or Douglas PUD should identify any tribes, agencies, or other interested parties who have an interest in cultural resources related to the Wells relicensing.	
2	Establish policy-level consultation	FERC should initiate policy-level consultation with agencies and tribes. FERC may decide to delegate day-to-day consultation to Douglas PUD.	
3	Define Area of Potential Effect (APE)	Define the area where cultural resources may be impacted by ongoing project operations. Seek formal concurrence from SHPO and THPO.	
4	Background research to identify study needs	A qualified archaeological/historic consultant conducts research to summarize previously completed studies in the Project area to obtain an understanding of what is known about historic use in the APE. This information is used to scope additional studies.	
5	Phase I Study - Inventory (if needed)	The entire APE is assessed and surveyed for cultural resources by walking transects at pre-determined intervals to identify potential sites.	
6	Traditional Cultural Properties (TCP) Study	A qualified consultant conducts research to determine if any TCPs exist in the APE.	
7	Phase II Study - Evaluation of site eligibility for the National Register of Historic Places (NRHP)	Douglas PUD and the Section 106 parties will determine what level of site evaluation is needed to evaluate NRHP eligibility.	
8	Historic Properties Management Plan (HPMP)	Douglas PUD will consult with the Section 106 parties to develop a Historic Properties Management Plan for incorporation into the new license.	
9	Programmatic Agreement	FERC develops and distributes a Programmatic Agreement (PA) for signature that commits the Licensee to implement the HPMP. This also documents FERC's completion of Section 106 and allows the SHPO and THPO to sign off on FERC's assessment of Project effects on historic properties.	

Wells APE Definition
Discussion Draft

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary and any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license.

Cultural RWG Meeting 2
Sign-in Sheet and Meeting Products

CULTURAL
SOURCE WORK GROUP
SIGN IN SHEET
January 12, 2006

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Action Items
Cultural Resources Work Group
Meeting 2 – January 12, 2006

1. Check to see when FERC plans to send the public notice of the Wells ILP to potential stakeholders.
2. Send the Douglas PUD Land Use Policy to the RWG.
3. Submit a revised Area of Potential Effect (APE) statement and maps to the RWG. Maps should include the FERC boundary, 230 KV transmission line, and watersheds associated with the tributary enhancement program. Property ownership categories (PUD, private, federal by agency) should also be included on these maps along with project wildlife areas.
4. Include cultural resource protection provisions of the HCP in the Historic Properties Management Plan (HPMP).
5. Develop a scope of work for a cultural resources “audit” and send to the RWG for review. The scope of work should include a bibliography of past Wells cultural resources activities.
6. Check feasibility of using hyperspectral imaging as a monitoring tool for the Wells Project.
7. Develop preliminary scope of work (objectives) for TCP study.
8. Contact FERC and determine whether they are interested in attending future Cultural RWG meetings.
9. Revise the Steps for Section 106 Compliance table based on comments received from RWG members. The new Table should include a Section 106 schedule that is synchronized with the ILP schedule as well as the relevant references to CFR 800. The new Table should also include a placeholder for the development of a “project effects” analysis in the pre-filing historic properties inventory. Send the new Table out to the RWG for review prior to the next meeting

Recreation and Land Use RWG Meeting 2
January 13, 2006

From: Scott Kreiter
Sent: Thursday, December 22, 2005 2:42 PM
To: Bill Fraser; Bill Towe; Bob Fateley; Brad Hawkins; Brenda Crowell; Chris Parsons; Diane Priebe; Gail Howe; George Brady; Gordon Brett; Jean Hardie; Jim Eychaner; Jim Fisher; Jim Harris; Lee Webster; Mary Hunt; Mike Nickerson; Mike Palmer; Scott Kreiter; Susan Rosebrough; Tony Eldred
Cc: Shane Bickford; Bao Le; Mary Mayo; Bob Clubb; Mike Bruno
Subject: Wells Relicensing - Recreation and Land Use RWG #2
Attachments: Meeting Agenda Recreation RWG 2.pdf; Recreation and Land Use RWG 1 issue Statements.DOC

Recreation and Land Use Work Group:

Please find attached the agenda for the January 13 Recreation and Land Use Work Group meeting. The purpose of this meeting is to finalize and categorize issue statements. The issue statements are also attached. No comments have been received thus far, but feel free to send any you may have prior to the meeting.

***** Please note that the meeting will be held at Wells Dam. Park at the parking area outside the gate. Someone will be there to escort you into the dam. If you arrive late, just use the phone outside the gate to gain access.

As discussed in RWG #1, Douglas PUD has set up an FTP site for access to all work group materials. Instructions for accessing the FTP site are below.

Please contact me if you have questions.

-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

FTP Instructions

Point your browser to <ftp://relicensingftp.dcpud.org>

User login: wellsftp

Password: Fishing (With a capital "F")

The FTP site is organized first by resource workgroup and then by meeting date, with a general supporting documents folder for each group.

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda – January 13, 2006**

Meeting Purpose: To develop final issue statements related to Wells Project relicensing.

Objectives: 1. Finalize issue statements from issues identified during RWG #1 and #2
2. Categorize issues and discuss example nexus statements

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: January 13, 2006

Location: Wells Dam, Large Conference Room.

Meeting time: 9:00 AM – 2:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #1	Scott Kreiter
9:10	Discuss any new issues Develop draft issue statement for each new issue	Group
10:00	Review and comment on draft issue statements. Reach agreement on finalized issue statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue Categorization Review Example Nexus Statement	Group
1:45	Action items and next steps.	Scott Kreiter
2:00	Adjourn	

Attendees Invited:

Gail Howe, City of Pateros
George Brady, City of Pateros
Lee Webster, City of Brewster
Bob Fately, City of Brewster
Jean Hardie, City of Bridgeport
Brenda Crowell, Okanogan County
Mary Hunt, Douglas County
Chris Parsons, WDFW
Tony Eldred, WDFW
Jim Harris, Washington State Parks
Bill Fraser, Washington State Park

Jim Eychaner, Washington IAC
Susan Rosebrough, National Park Service
Bill Towey, Colville Tribes
Mike Palmer, Colville Tribes
Jim Fisher, Bureau of Land Management
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine Tarbell & Assoc.

**Recreation and Land Use
Resource Work Group
Issue Statements from Meeting 1 – November 17, 2005**

1. (Issue 1 A) Reservoir fluctuations during high use days may limit access and use of the reservoir and recreation facilities.
2. (Issue 1 B) Existence of the reservoir may result in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
3. (Issue 1 C) Existence of the reservoir and Project operations may affect sediment and debris transport and deposition, which may restrict access and use of the reservoir and may affect water clarity.
4. (Issue 1 D) Existence of the Project and reservoir could result in habitat losses and disturbance (attractive development). (Terrestrial RWG Issue 2C).
5. (Issue 2 A, B, D, E, F) Ownership (vs. easement) and management of Project lands may impact the cities located adjacent to the reservoir, which may affect the use and development of Project lands and access to those lands.
6. (Terrestrial RWG – Issues 2, 1D) Ownership of Project lands could affect wildlife habitat and species diversity. Land management policies and goals such as dock permitting, weed control, and other developments may result in different levels of wildlife impacts/protection including habitat fragmentation and succession. Future land management plans for PUD owned property could influence development outside the Project boundary.
7. (Issue 2 E, G) Ownership and management of Project lands could affect wildlife habitat, species diversity and vegetation management. (Similar to Terrestrial RWG -- Issues 2, 1D)
8. (Issue 3 A, B, C, D, E) Recreation proposals under the license should be consistent with ESA, ADA, ECPA, SCORP as well as local comprehensive plans and development regulations.
9. (Issue 4 A, B, C, D, E, F, G, H and Issue 6) Recreation plans under the new license should consider recreation trends, an analysis of the capacity at recreation facilities and within the Project, possibilities for new facilities (Chief Joe Hatchery), tourism (Fort Okanogan, Wells Visitor Center, Pateros Visitor Center and enhancements at Alta Lake State Park) and the linkage of trails between communities and wildlife areas. The development of recreation plans in the new license should consider improvements in the current Recreation Action planning process.

10. (Issue 5A, D) Existence of the Project (reservoir and ground water) could result in economic impacts to the cities adjacent to the reservoir, including O&M funds for recreation facilities, development of infrastructure, tax base and community services.
11. (Issue 5 B, E, F) How have other licensees supported emergency services and community infrastructure for local communities? (Electric Utility Rural Economic Development Revolving Fund and/or method for collecting and distributing emergency services tax revenue).
12. (Issue 5 G) What are in lieu taxes and how are they distributed?
13. (Issue 5 H) Water use at city parks may affect the availability of water for future city development.
14. (Issue 6D –Terrestrial RWG) The Okanogan River fishing access sites should continue to be maintained during the new license. (Issue Statement moved from the Terrestrial RWG to the Recreation RWG)

Taxes Paid by Douglas PUD

Douglas PUD is subject to a variety of taxes in Washington State. The primary taxes that Douglas PUD pays are the Public Utility Tax, Sales Tax, Use Tax, Wholesaling Tax, Retailing Tax, Service and Other Taxes, Leasehold Excise Tax, and Privilege Tax. Cities also have the authority to impose the Municipal Utility Tax on electricity sales. The taxes apply to Douglas PUD's electric generation system, Douglas PUD's electric distribution system or both systems. A summary of each tax is included below:

Public Utility Tax

Utilities in Washington State that operate "a plant or system for the generation, production or distribution of electrical energy for hire or sale and/or for the wheeling of electricity to others" are engaging in the "light and power business," and subject to the Public Utility Tax (RCW 82.16). The effective tax rate under RCW 82.16.020 for light and power business activity is 3.873 percent (3.62 percent plus an additional tax of .002534 percent) on gross income. Wholesale electrical energy is not subject to Public Utility Tax (RCW 82.16.050-9). Therefore, in the case of Douglas PUD, the tax only applies to the electric distribution system. Washington State deposits receipts from this tax into its general fund.

In 2004, Douglas PUD's electric distribution system paid \$447,074 in Public Utility Tax.

Sales Tax

Washington State imposes a Sales Tax on the gross receipts of retail sales and certain services purchased within the state. The state portion of the sales tax is 6.5% of each sale (RCW 82.08.020). Local governments, such as cities and counties, have the authority to impose various levels of additional sales tax. Douglas PUD pays the combined state and local sales taxes to retailers who are responsible for remitting the taxes to the state. Douglas PUD does not maintain a record of total sales taxes paid. When Douglas PUD invoices companies for services that it provides, such as wholesale communication services, Douglas PUD collects sales tax and remits the taxes to the state. After receiving payments for sales taxes, the state deposits its portion of the taxes into its general fund and remits the local portions to the cities and counties.

Use Tax

Washington State imposes a Use Tax on the gross receipts of retail sales and certain services that are purchased outside of a taxing jurisdiction but are used within the boundaries of the jurisdiction (RCW 82.12.020). The rates for the Use Tax are equal to the rates in effect for the Sales Tax. These taxes are commonly grouped together as the "sales and use taxes" during Sales Tax discussions.

In 2004, Douglas PUD's electric distribution system paid \$135,032 in Use Tax.

In 2004, Douglas PUD's electric generating system paid \$117,672 in Use Tax.

Wholesaling Tax

Douglas PUD is subject to a Wholesale Sale or a “Wholesaling Tax” if it sells various types “tangible personal property” or services which are not considered a “sale at retail” (RCW 82.04.060). The revenues collected by Douglas PUD for sale of a piece of equipment, such as a transformer, to another PUD for example, are subject to the Wholesaling Tax. This tax is calculated based on gross proceeds of sales multiplied by the rate of 0.484% (RCW 82.04.270). Washington State deposits receipts from this tax into its general fund.

In 2004, Douglas PUD’s electric distribution system paid \$1,243 in Wholesaling Tax.

Retailing Tax

Douglas PUD is subject to a Retail Sale or a “Retailing Tax” if it sells or charges for “tangible personal property (including articles produced, fabricated or imprinted) to all persons irrespective of the nature of their business” (RCW 82.04.050). These items have included such things as power poles and inventory stock. This tax is calculated based on gross proceeds of sales multiplied by the rate of 0.471% (RCW 82.04.250). Washington State deposits receipts from this tax into its general fund.

In 2004, Douglas PUD’s electric distribution system paid \$844 in Retailing Tax.

Service and Other Taxes

Douglas PUD is subject to taxes on service and other activities if the type of service “does not constitute a ‘sale at retail’ or a ‘sale at wholesale’” (RCW 82.04.290). Items provided by Douglas PUD subject to this tax include such things as co-location services paid by communication service providers and Contributions-In-Aid-of Construction paid by distribution system customers. This tax is calculated based on the gross income or gross proceeds of sales multiplied by a rate of 0.275%. Washington State deposits receipts from this tax into its general fund.

In 2004, Douglas PUD’s electric distribution system paid \$17,644 in service and other taxes.

Leasehold Excise Tax

Douglas PUD is subject to a Leasehold Excise Tax on “publicly owned real or personal property which exists by virtue of any lease” (RCW 82.29A.020). The tax imposed is 12% of taxable rent (RCW 82.29A.030). Douglas PUD, through property acquisitions, owns three homes (two in East Wenatchee adjacent to the Douglas PUD headquarters building and one mobile home northeast of Brewster).

In 2004, Douglas PUD paid \$2,537 in Leasehold Excise Tax.

Municipal Utility Tax

Municipalities have the option to levy a tax on the gross revenues of electricity sales within their jurisdiction (RCW 54.28.070). The Municipal Utility Tax is often referred to as the City Occupation Tax. The tax is limited to 6% of electricity sales based on the laws that govern cities and towns (RCW 35.21.870). PUDs have the authority to add the amounts of such taxes to the electric bills for customers within the city limits of each city. Three cities in Douglas County have chosen to impose this tax – Bridgeport, Waterville and Mansfield. Each city imposes a 6% tax. Douglas PUD collects the tax and remits 100% of the funds to the respective cities.

Privilege Tax

PUDs are subject to the Privilege Tax, which is “a tax for the act or privilege” of engaging in the generation, distribution and sale of electric energy (RCW 54.28.20). Land and land rights costs contribute, in part, to how the tax receipts are distributed.

- **The Privilege Tax paid by Douglas County PUD is calculated based on the following (RCW 54.28.020):**

1(a) Two percent of the gross revenues derived by the district from the sale of all electric energy which it distributes to consumers who are served by a distribution system owned by the district. *Applicable to: Douglas PUD’s electric distribution system.*

1(c) Five percent of the first four mills per kilowatt-hour of revenue obtained by the district from the sale of self-generated energy for resale. *Applicable to: Sales of Wells Project output to the Power Purchasers and Distribution System.*

(2) A surtax of 7% (RCW 82.02.030) is imposed on the amount calculated using 1(a) and 1(c) above. (2004 - \$904,575 total tax prior to the 7%)

- **The Privilege Tax receipts from Douglas County PUD are distributed by the state as follows:**

The 7% surtax collected according to RCW 54.28.020(2) is deposited in the state general fund. (2004 - \$63,320)

The state general fund also receives an additional 4% of the amount calculated using 1(a) and 1(c) above according to RCW 54.28.040(3). (2004 - \$36,183)

After deduction of the 4%, 37.6% (tax calculated under 1(a) and 1(c) minus 4% multiplied by 37.6%) is placed “in the state general fund to be dedicated for the benefit of the public schools” according to RCW 54.28.050. A portion of this funding flows back to local schools. (2004 - \$326,515)

After deduction of the 4% and the 37.6%, the balance from 1(a) is distributed to each county in proportion to the gross revenue from sales of electric energy made within each county

according to RCW 54.28.050, in this case Douglas and Grant Counties. (2004 – Douglas \$144,544, Grant \$20.00)

According to RCW 54.28.050, after deduction of the 4% and the 37.6%, the balance from 1(c) is distributed to counties in which the reservoir is located based on a three-part calculation. The first part of the calculation compares two times the cost of land and land rights acquired for the reservoir to the actual total costs of land and land rights plus generating and switching facilities to perform a pro-rata allocation. The second part distributes the tax to be allocated on the basis of land and land rights costs on a pro-rata basis to the counties where the land is located. The third part of the calculation applies a 60/40 allocation factor between the two counties where the powerhouse and dam reside. The 60% factor is applied to the county of the owning district and the 40% factor is applied to the other county. Since Wells Dam is located between Douglas and Chelan counties, the 60% factor applies to Douglas County and the 40% factor applies to Chelan County. (2004 – Chelan \$103,350, Douglas \$178,393, Okanogan \$115,570)

According to RCW 54.28.090, the counties have the authority to distribute the tax receipts remitted to them by the state, “according to the manner they deem most equitable.”

Summary of Recreation Plan Actions (1967 – 2005)

December 29, 2005

In conjunction with the initial development of the Wells Project a Recreation Plan was developed to serve as a guide for coordinated development of recreation facilities contiguous to the Wells Project (1967). Subsequently, a license amendment issued by FERC for a change in the Wells Reservoir elevation in 1982 required a Public Use Plan along with updates on five year intervals.

The Recreation Plan (1967) and subsequent updates (Public Use Plan 1982, 1987, 1992, 1997, 2002) identified certain conceptual improvements and projects for consideration as action items. The conceptual improvements and projects considered for implementation were submitted to FERC for approval prior to the development of site specific plans or construction documents. Following FERC review and approval, these conceptual ideas were handed over to engineers for the development of construction plans and submitted to agencies with environmental permitting authority over the proposed projects.

At times, the planning and permitting of these proposals necessitated modification from the original concept to address engineering, design, permitting and public concerns. Several proposed projects were withdrawn at the request of local communities or due to environmental constraints imposed by state and federal agencies. The project components of these Plans are summarized below with the project components separated as complete and not complete. A table of recreation improvements completed outside of the Public Use Plans are also summarized in this document.

Wells Recreation Plan 1967

With the exception of the visitor center within the dam itself, the 1967 Plan did not propose specific actions but summarized the recreation needs in the Wells Project area and suggested potential funding and partnerships for their development. The 1967 Plan referred to the transfer of Bridgeport Island to State Parks and included a draft plan view drawing of the proposed park.

During the early years of the project, the District transferred Bridgeport Island to State Parks, and in addition established parks in the communities of Pateros (Memorial Park, Peninsula Park), Brewster (Columbia Cove Park) and Bridgeport (Marina Park).

Public Use Plan 1982

The 1982 Public Use Plan provided for an initial payment to State Parks of \$125,000.00 followed by annual payments of \$25,000.00 through the term of the Wells Project License (2012). These funds were intended to assist State Parks in the development of a state park on Bridgeport Island. Additionally, the 1982 Plan established a requirement for updating the Public Use Plan on five year intervals, 1987, 1992, 1997, 2002 and 2007.

Public Use Plan Update 1987

The 1987 Plan provided funding for major improvements to facilities throughout the Wells Reservoir area. These improvements mirrored the recreation capital facilities plans for the communities of Pateros, Brewster and Bridgeport. Associated with the District's funding of these capital improvements, each of the three cities entered into a long-term agreement for their continued maintenance of each community's park facilities.

Proposed actions completed

The improvements in Pateros included the construction of restrooms, a picnic shelter/kitchen, two fishing docks, repairing an existing dock and re-roofing existing picnic shelters in Memorial Park. Improvements to the Methow launch included installing a concrete ramp, a new finger dock, a restroom, a fish cleaning station and graveling the parking lot. Peninsula Park improvements included a new restroom, construction of a sand beach and shrub plantings. The tennis court received a new asphalt overlay and parking lot curbs. A new concrete launch and finger dock was installed at the winter launch.

Brewster improvements at Columbia Cove Park include constructing a new concrete launch ramp, a finger dock, a moorage dock, a picnic shelter/kitchen, restrooms, developing a sand beach and installing a child's play structure. Additionally, Columbia Cove Park was expanded nearly doubling its size. A vault toilet was installed along with additional paved parking to serve the expanded park.

Bridgeport improvements included a new moorage dock, a finger dock, restrooms, development of a sand beach, a new play structure and an asphalt path at Marina Park. Marina Park was expanded and the existing park re-developed.

In addition to the improvements within the local communities, a new concrete launch and graveled parking area were installed at Starr Launch.

Proposed actions not completed

The 1987 Plan included a proposed pathway linking the parking area to the restrooms. The restrooms were located away from the beach which eliminated the need for the pathway.

Public Use Plan 1992

Proposed actions completed

The 1992 Plan provided funding for the following improvements in Pateros: a 2,200 foot long lighted path linking the Methow River launch to Memorial Park, installation of two ski docks, and construction of a concrete launch for small hydros, stairs and a concrete bulkhead for large hydros and the installation of additional landscaping. The tennis courts in Pateros were resurfaced and the tennis court restrooms were re-painted.

At Columbia Cove Park in Brewster, a picnic shelter was constructed, trees were planted and the basketball court was resurfaced. A new waterfront trail was built and included the installation of addition of shoreline protection structures, a new compacted gravel surface, pathway lighting, access stairs and new benches.

In Bridgeport, improvements at Marina Park included the construction of additional RV camping sites, a new sewage lift station, a picnic shelter/kitchen, a gazebo and the installation of additional riprap along the shoreline for bank stabilization, and the installation of additional landscape plantings.

The dirt launches at Monse and Washburn Island were improved with the addition of concrete ribbons and the parking areas were graveled.

The Monse Boat Launch was constructed per the request in the 1992 Plan. Dredging prior to the installation of the new concrete boat ramp was not completed because the project did not require dredging for installation as originally indicated in the Public Use Plan. Fortunately, Douglas PUD was able to install the concrete ramp without having to dredge the Okanogan River.

Improvements to the Wells Overlook included the installation of new interpretive display panels, restrooms, a picnic shelter/kitchen and tables.

Proposed actions not completed

The FERC approved 1992 Public Use Plan called for the Brewster waterfront trail to be paved with asphalt.. Unfortunately, the use of asphalt on the trail would have prevented heavy equipment from accessing the shoreline in Brewster for future bank stabilization efforts. Therefore, a compacted gravel surface was selected as it provides a more durable surface for movement of heavy equipment.

Following approval of the 1992 plan, the title to the Fort Okanogan Overlook was believed to be held by the Washington Department of Transportation. Unfortunately, the Title to this property is actually held by a private individual. Therefore, improvements to this site were not completed.

The proposed installation of a boat launch and finger dock on the lower Okanogan River was not completed. Environmental and engineering concerns arose as the proposed project required the excavation of a large portion of shoreline riprap, potentially destabilizing a large part of the Okanogan River shoreline.. In addition, the accompanying finger dock would have required placing piling into a section of the Okanogan subject to heavy ice flows. Because of these concerns, the launch and finger dock were not installed.

Public Use Plan 1997

Proposed actions completed

The 1997 Plan provided Pateros with a new picnic shelter, benches and tables for Peninsula Park and looked into a freshwater exchange to the Peninsula Park lagoon area. The restrooms were painted in Memorial Park.

In Brewster the vegetation was thinned along the waterfront trail. A 75 foot pier and 80 foot floating dock were installed at Columbia Cove Park.

In Bridgeport the beach was enhanced, the asphalt path improved, fire rings were added to the RV sites, and a waterfront trail study conducted.

Methow River access sites provided to the Washington Department of Fish and Wildlife as Wells Project mitigation were improved. Vault toilets were installed at three sites, parking lots expanded and graveled and a pathway to the river improved.

Proposed actions not completed

The proposed park on Bridgeport Island was not constructed due to concerns related to proximity to sensitive wildlife areas and poor access to the park from the reservoir. Instead, Douglas PUD and Washington State Parks conducted a site suitability analysis to identify an alternate site for the Chief Joseph State Park. Two sites were identified and an offer made on one of the properties (the property was located adjacent to Alta Lake State Park). This offer was refused by the owner. The second site, Kirk property, was tied up in litigation and subsequently sold to a private party. Subsequent to the District's search for an alternate park site, State Parks determined that Chief Joseph State Park was no longer suitable as a destination facility. Negotiations between State Parks, WDFW and the District resulted in the District purchasing Bridgeport Island from State Parks and providing State Parks a discounted payment of future construction funds as provided for through the Chief Joseph State Park Agreement.

The 1997 Plan proposed shoreline protection measures and beach enhancements for Peninsula Park. Permits were secured but the permit conditions were inconsistent with Pateros' concept for Peninsula Park. Therefore, at the request of Pateros, these proposals were not implemented. Similarly, the permits for the shoreline protection measures proposed for Columbia Cove Park and marina Park were also overly onerous and were inconsistent with public use of the parks and associated waterfront. Therefore, the shoreline protection measures for all three parks were never implemented.

A fishing-viewing platform proposed for the waterfront trail in Brewster was eliminated due to engineering concerns associated with shoreline stability. In lieu of this platform, the single removable float proposed for Columbia Cove Park was expanded from 1- 8x20 float to a 75 foot pier and 4 – 2x20 floats.

The 1997 Plan included a path for Columbia Cove Park and as proposed would have cut through the limited available open space. The narrow configuration of the park allowed

for easy pedestrian access on the perimeter, therefore at the city of Brewster's request, the path was not constructed.

The 1997 Plan included benches and tables for Columbia Cove Park and vehicle curbing at Marina Park. These items were to be included in the major shoreline protection contract and were overlooked when the shoreline protection was eliminated. These items will be completed as part of the 2002 Plan implementation with anticipated completion during the spring of 2006.

Public Use Plan 2002

The 2002 Plan is in the implementation stage. To date, the electrical upgrades to Memorial Park are the only item completed. Other proposals are out for review.

Recreation Improvements completed outside of the Public Use Plans are summarized in the table below.

Carpenter Island	Completed Parking lot improvements Added Portable toilets to the parking area
Wells Overlook	Installed fall protection under turbine runner exhibit Installed landscape walls and beautified the park entrance
Starr Launch	Graded and re-graveled the of roadway and parking area Installed vault toilet
Methow Launch	Installed two sets of Vault toilets Graded and graveled parking area
Memorial Park	Added shoreline protection structures Resurfaced existing docks
Peninsula Park	Upgraded fall protection surface under playground equipment
Waterfront Trail	Added shoreline protection structures Removed Elem trees to restore waterfront views
Columbia Cove Park	Installed fall protection under playground equipment Repaired existing playground equipment
Columbia Cove Park	Installed ADA sidewalks from the parking lot to the picnic shelters
Monse Launch	Installed Vault toilet Expanded the existing parking lot
Okanogan River	Constructed a new access road Re-surfaced the parking lot Installed vehicle barriers along shoreline Constructed new vault toilet
Washburn Island	Constructed new vault toilet Expanded the parking area
Marina Park	Installed new fall protection under playground equipment

DOUGLAS PUD RECREATION VISITOR USE STUDY

MAY-DECEMBER 2005

SUMMARY OF METHODOLOGY

Survey Development: Douglas PUD utilized three types of visitor use evaluations: 1) an on site (land and water) visitor survey; 2) a mail-back follow-up survey; and 3) visitor spot counts. The on-site and mail back surveys addressed the following in order to respond to the study goals and information needed for future carrying capacity and recreation demand studies:

- overnight facilities selection
- reasons for choosing a specific campground or site
- acceptability of boat launches
- other locations in the area visited on the trip
- preferences and attitudes towards developed facilities and services (including interpretive and education facilities and a Project scenic overlook).
- importance of dispersed site features
- satisfaction with shoreline access and opportunities
- comparison of their primary destination site to other places
- satisfaction with specific trip attributes
- perceived personal safety
- crowding and conflict
- changed recreational use patterns
- overall trip satisfaction

The specific questions in each survey were based on previous recreation visitor use data available on the Wells Project, a review of recreation research literature on these types of projects, and the specific needs or gaps in information identified by the Licensee. Prior to implementation in the summer of 2005, we pre-tested the survey instruments with recreation users and refined the spot count form which was used at the sites highlighted in Table 1.

Table 1 -Visitor Spot Count Sites

<u>Resource Area</u>	<u>Wells Recreation Use Assessment Survey Sites</u>	<u>Type of Spot Count</u>
Wells Overlook	Site 1: Carpenter Island Boat Launch (Map Site #1)	Land
	Site 2: Wells Overlook (Map Site #2)	Land
	Site 3: Bonita Flats (Map Site #3)	Boat
	Site 4: Starr Boat Launch (Map Site #4)	Land
	Site 5: Schluneger Flats (Map site #5)	Boat
	Site 6: Beaches for Summer Recreation (Map Site #6)	Boat
Pateros	Site 7: Pateros Rapids (Map Site #7)	Boat
	Site 8: Private RV Park in Pateros (Map Site #16)	Land
	Site 9: City of Pateros Memorial Park (Peninsula Park, Methow Boat Launch) (Map Site #15)	Land/Boat
	Site 10: Informal Undeveloped Beach Launch (Map Site #17)	Boat
	Site 11: Pateros Island (Map Site #18)	Boat
Methow River	Site 12: Methow Fishing Access on lower Methow; North side of the river (Map Site #9)	Land
	Site 13: Methow Fishing Access at parking/toilet area mid-Methow; North side of the road (Map Site #8)	Land
	Site 15: Methow Fishing Access on lower Methow; two parking areas adjacent on the South side of road (Map Site #12)	Land
	<i>Site 14-not a valid recreation site.</i>	
Brewster	Site 16: Methow Fishing Access at parking/toilet area mid-Methow; South side of the road (Map Site #8)	Land
	Site 17: Methow Fishing and Rafting Take-out upper-Methow at Carlton; South side of road (Map Site #14)	Land
	Site 18: City of Brewster Columbia Cove Park (Map Site #20)	Land
	Site 19: Brewster Public RV Park (Map Site #21)	Land
	Site 20: Kirk Islands (Map Site #19)	Boat
	Site 21: Informal Boat Launch (Map Site #22)	Boat
	Site 22: Waterfront Trail	Land
Bridgeport	Site 23: City of Bridgeport Marina Park (Map site #24)	Land
	Site 24: Wells Wildlife Area (Map Site #23)	Boat
	Site 25: Washburn Boat Launch (Map Site #25)	Land
	Site 26: Washburn Island Wildlife Unit (Map Site #26)	Boat
Okanogan	Site 27: Cassimer Bar (Map Site #27)	Boat
	Site 28: Fishing Access (Map Site #28)	Land
	Site 29: Okanogan Wildlife Unit (Site #30)	Land/Boat
	Site 30: Monse Boat Launch (Map Site #31)	Land
	Site 31: Okanogan Dirt Boat Launch (Map Site #32)	Land
	Site 32: Gravel Boat Launch (Map Site #29)	Boat
	<i>Site 33: Fishing Access to Okanogan-surveying stopped at this site in October due to no visitation observed.</i>	

On-site/Mail-back Visitor Survey

The Wells Project Area consists of a range of developed and dispersed recreation sites accessible by foot, boat, or vehicle. In an effort to understand visitor use in a relatively 'open and varied access' recreation system, a systematic stratified random sampling technique was used with the land- and reservoir-based samples (see Table 1 for the sites at which the survey was distributed). Researchers randomly selected the first date for weekday sampling and the first date for weekend sampling; randomly selected a time slot for each resource area; then chose the remaining dates based on an interval rotation of times (i.e., AM, Mid-Day, PM) and dates (i.e., SA or SUN for weekend days; T/TH or M/W/F for weekdays). The advantages of a systematic approach are as follows:

- a. it may reduce variability (it may be more efficient than simple random sampling);
- b. the sampling effort is guaranteed to be distributed evenly over the survey season (based on limited knowledge of visitor behavior in the project area, researchers felt this was an important component of this sampling strategy);

Additionally, the decision to utilize the stratified random sampling technique was because it provides representation of: a) the overall study population and b) the key sub-groups of the study population (i.e., weekend/holiday/weekday users). In addition, stratified random sampling is thought to have more statistical precision than simple random sampling and is responsive to the constraints imposed by budgetary restrictions.

Stratification was by location (the resource areas listed in Table 1), type of day (weekday, weekend, and holiday weekend), time of day (AM/Mid-day/PM), and season (i.e., peak and shoulder). The first day of the survey cycle was chosen at random with the order and rotation of sites (sites 1 through 33) alternating by time of day for each resource area visited. The goal was to capture visitors during two weekend days and two weekdays per month. Memorial Day weekend, July 4th holiday weekend, and Labor Day weekend were targeted in order to capture unique users to the resource. Also included was the opening day for Salmon Fishing on the Okanogan River, July 16th.

In total, surveys of the boating population and spot counts took place over 29 days, beginning May 24th and ending December 13th. Data was not collected on three of the scheduled survey days due to poor weather conditions. In terms of the land-based surveys, data were collected 32 days beginning on May 24th and ending December 17th. Tables 2 and 3 depict the variation in type of day (i.e., week day, weekend day, or holiday) and number of days across the survey period.

Table 2 -Summary of Boating Survey/Spot Count Days

Type of Day	Frequency	Percent
Weekday	15	51.7
Weekend	11	37.9
Holiday	3	10.3
Total	29	99.9*

*Total does not equal 100% due to rounding.

Table 3 -Summary of Land Survey/Spot Count Days

Type of Day	Frequency	Percent
Weekday	15	46.9
Weekend	14	43.8
Holiday	3	9.4
Total	32	100.1*

*Total does not equal 100% due to rounding.

Only visitors 18 years or older were asked to complete the on-site survey. The questions on the on-site survey focused primarily on visitors' feelings about current resource conditions. Visitors were also asked to complete a multi-page, mail-back survey. If they agreed, they were handed a survey packet containing instructions on completing the survey, an incentive notice (i.e., drawing for a \$100 gift certificate), and a self-addressed stamped envelope addressed to DTA in Sacramento. The follow-up mailback survey process was conducted in accordance with standard mail survey methodology (Dillman, 1978), which included the use of a mail survey packet. This packet included a self-addressed, stamped envelope, instructions and cover letter, and mail survey. Each survey was numbered for tracking purposes, with a reminder follow-up postcard sent approximately 1 week after the respondents were surveyed, and a second letter and survey sent to the respondent two weeks and three weeks respectively after the follow-up postcard, depending on response. The number of on-site refusals was recorded.

Recreation researchers trained the surveyors on (a) techniques for randomly choosing groups at a site, participants within groups, or individuals at a site; (b) introduction strategies, (c) how to record feedback, and (d) how to track refusals.

Completed Sample Size:

For the purposes of this study, the population to be surveyed was the recreation users who visited the Project Area. The survey team projected a sample size based on rough estimates of the visitor population and the need for a 95% confidence interval, with a +/-

10% sampling error (Patten, 2002). As part of the stratified sampling technique, researchers employed a proportional sampling determination strategy. In this procedure, a proportional sample size was chosen for each resource area based on the most recent data available (Douglas PUD, 2002) and on the geographic distribution of each recreation access site.

A note on survey efforts:

- During the study process, the survey team monitored the response rate of completed surveys on a weekly basis in relation to the number of people sighted in one area. In one case, Site 33 on the upper Okanogan was deleted from the survey efforts due to 0 visitor sightings from May-September. In other cases, weather played a role with on-water survey efforts. On three occasions, surveyors did not conduct surveys with boaters due to high winds and bad weather. Additionally, on July 16th, the opening day of salmon fishing, surveyors conducted spot counts but did not disturb boaters while fishing. Past research has found that the refusal rate among outdoor recreationists on opening day of any season is so high that the survey process is essentially a waste of money and time.

Table 4. Summary of completed recreation on-site and mail-back

Resource Areas	Total Completed On-site Survey	Total Completed Mail-back
Wells Overlook Resource Area:	41	20
Pateros Resource Area:	90	26
Methow River Resource Area:	23	11
Brewster Resource Area:	83	37
Bridgeport Resource Area:	82	29
Okanogan Resource Area:	41	16
Total Project Area Estimate:	360	139

Visitor Surveys (On-Site)

Douglas PUD has conducted limited recreation use monitoring since 1982. The recreation visitation use reported in Table 4 was a rough estimate extrapolated from the Recreation Action Plan Update (2002).

According to the Recreation Plan (2002), information on recreation users was typically kept for five primary locations: 1) Columbia Cove Park, Brewster; 2) Marina Park; 3) Memorial Park; 4) Wells Overlook; and 5) Methow River Fishing Access sites. For the purposes of this study, data collection included 32 sites identified as visited potential recreation sites by the Licensee along the Methow and Okanogan Reaches, and the Wells Reservoir (Table 6). Recreational visitors to these sites were approached via land and/or

boat access, depending on the location. Sites included both developed and dispersed (informal user created) recreation sites. Figure 1 provides a visual representation of where visitors completed surveys while on the reservoir surface.

- The survey collection efforts obtained 360 on site completed surveys and 139 mail-back surveys, for a total response rate of 39% (Table 5).

Table 5-Study Sites, Access for Visitor Use Survey, and Total Number of Surveys

<u>Resource Area</u>	<u>Site # and Description</u>	<u>Surveyed Land/Boat</u>	<u>Total Land Surveys</u>	<u>Total Boat Surveys</u>
Wells Overlook	Site 1: Carpenter Island Boat Launch (Map Site #1)	Land	5	-
	Site 2: Wells Overlook (Map Site #2)	Land	19	-
	Site 3: Bonita Flats (Map Site #3)	Boat	-	6
	Site 4: Starr Boat Launch (Map Site #4)	Land	3	-
	Site 5: Schluneger Flats (Map site #5)	Boat	-	3
	Site 6: Beaches for Summer Recreation (Map Site #6)	Boat	-	5
Wells Resource Area Total On-Site Surveys:			27	14
Pateros	Site 7: Pateros Rapids (Map Site #7)	Boat	-	4
	Site 8: Private RV Park in Pateros Area (Map Site #16)	Land	14	1
	Site 9: City of Pateros Memorial Park (Peninsula Park, Methow Boat Launch) (Map Site #15)	Land/Boat	51	11
	Site 10: Informal Undeveloped Beach Launch (Map Site #17)	Boat	-	4
	Site 11: Pateros Island (Map Site #18)	Boat	-	5
Pateros Resource Area Total On-Site Surveys:			65	25
Methow River	Site 12: Methow Fishing Access on lower Methow; North side of the river (Map Site #9)	Land	2	-
	Site 13: Methow Fishing Access at parking/toilet area mid-Methow; North side of the road (Map Site #8)	Land	4	-
	Site 15: Methow Fishing Access on lower Methow; two parking areas adjacent on the South side of road (Map Site #12)	Land	3	-
	Site 16: Methow Fishing Access at parking/toilet area mid-Methow; South side of the road (Map Site #8)	Land	1	-
	Site 17: Methow Fishing and Rafting Take-out upper-Methow at Carlton; South side of road (Map Site #14)	Land	13	-

<u>Resource Area</u>	<u>Site # and Description</u>	<u>Surveyed Land/Boat</u>	<u>Total Land Surveys</u>	<u>Total Boat Surveys</u>
Methow River Total On-Site Surveys:			23	0
Brewster	Site 18: City of Brewster Columbia Cove Park Area (Map Site #20)	Land	28	15
	Site 19: Brewster Public RV Park (Map Site #21)	Land	9	-
	Site 20: Kirk Islands (Map Site #19)	Boat	-	4
	Site 21: Informal Boat Launch (Map Site #22)	Boat	-	26
	Site 22: Waterfront Trail	Land	1	-
Brewster Resource Area Total On-Site Surveys:			38	45
Bridgeport	Site 23: City of Bridgeport Marina Park Area (Map site #24)	Land	45	3
	Site 24: Wells Wildlife Area (Map Site #23)	Land	-	5
	Site 25: Washburn Boat Launch (Map Site #25)	Land	6	3
	Site 26: Washburn Island Wildlife Unit (Map Site #26)	Land	-	3
	Site 27: Cassimer Bar (Map Site #27)	Boat	-	17
Bridgeport Resource Area Total On-site Surveys:			51	31
Okanogan	Site 28: Fishing Access (Map Site #28)	Land	7	5
	Site 29: Okanogan Wildlife Unit (Site #30)	Land	-	12
	Site 30: Monse Boat Launch (Map Site #31)	Land	3	-
	Site 31: Okanogan Dirt Boat Launch (Map Site #32)	Land	1	-
	Site 32: Gravel Boat Launch (Map Site #29)	Boat	1	12
Okanogan Resource Area Total On-Site Surveys:			12	29
	Site 33: Fishing Access to Okanogan River (Map Site #33)	<i>Cancelled early/mid October due to no response.</i>		
Total On-site Survey Response			216 Land Surveys / 144 Boat Surveys Total:	360

Visitor Use Spot Counts

To estimate recreation use along shorelines of rivers, at the reservoir and on water surfaces of the reservoir, the survey team conducted a roving use survey using a stratified two-stage (geographic and temporal) probability sampling approach (Mavestuto, 1996; Pollock et al., 1996). The sample was stratified by recreation resource areas (Table 6), type of day (weekdays, non-holiday weekends, holiday weekends, and opening fishing or event weekends), and time of day (mornings from 7 AM – 11 AM; afternoon from 11 PM

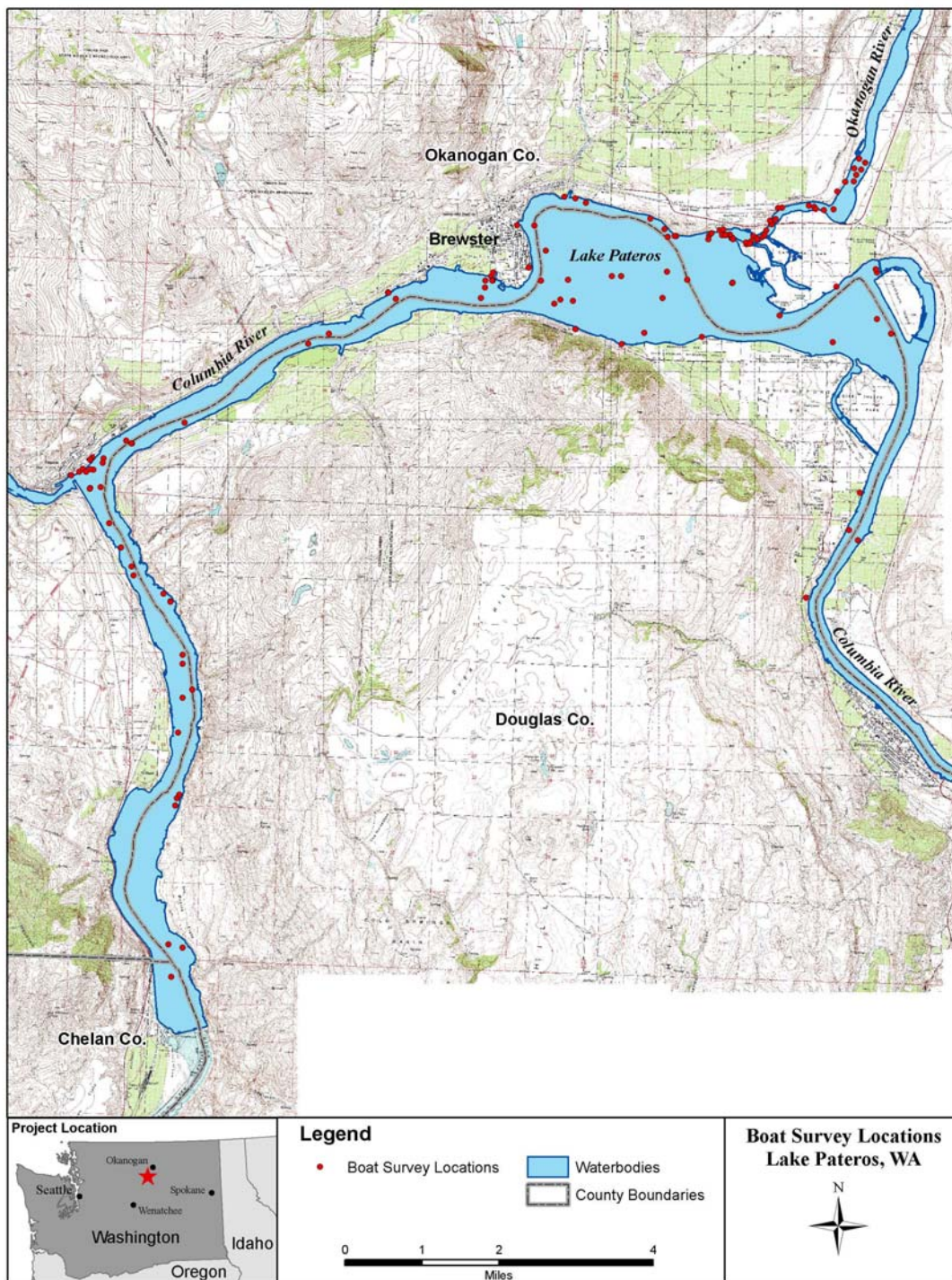
to 2 PM; and evenings from 2 PM to 7 PM) during summer months (May-September); 8 AM-11 AM, 11 AM-2 PM, and 2 PM – 5 PM during off-season.

A surveyor counted the number of vehicles, trailers, boats, people, day groups, and the types of activities in which users were engaged. At dispersed areas, overnight groups were differentiated from day-use groups by the presence of camping equipment or the results of an on-site recreation visitor survey (if conducted with user group). To estimate boating and tubing use that occurred on the Methow River, the survey team counted the number and type of watercraft passing a shoreline location during a recreation survey day and during a time frame pre-selected according to the survey rotation of times and days.

Some Preliminary Results:

- Of those surveyed, 71% were male and 29% were female;
- Eighty-six percent of those surveyed identified their ethnic origin as “white, not of Hispanic origin”, with 10% identifying “Hispanic origin”;
- Average number of people in a recreation group was between 4-5 people, and most were visiting with family (49%), followed by friends at 23%, alone (14%), or with family and friends (10%);
- Day use visitors versus overnight visitors is generally split, with 52% of respondents on a day trip and 48% on an overnight trip;
- When respondent’s were asked to rate their overall experience on a scale from 1-10, with a rating of 10 being the best possible experience, and a rating of 1 being the worst possible experience you could imagine, 95% of respondents rated their experience 7 or higher.

Note: Visitation estimates to the other recreation resource areas, however, will be updated based on spot counts and field visits. We anticipate the use estimates based on May-December spot counts will provide greater accuracy in visitor use estimation for each area.



**Recreation and Land Use RWG Meeting 2
Sign-in Sheet and Meeting Products**

RECREATION AND LAND USE
RESOURCE WORK GROUP
SIGN IN SHEET
January 13, 2006

NAME	ORGANIZATION	TELEPHONE NO.	EMAIL ADDRESS
Scott Kreiter	DC PUD	881-2327	scottk@dc.pud.org
Kelly Bricker	DTA		
Lee Webster	City of Brewster	689-8012	brewstermayor@hotmail.com
MIKE NICKERSON	WA. STATE PARKS	923-2473	AIGALAKE@PARKS.WA.GOV
Jim Harris	WA. State Parks & Rec Comm	663-9719	jim.harris@parks.wa.gov
GEORGE BRADY	City of Paterson	923-2326	CASCAPEB@telusnet.ca
Bob Clubb	Douglas PUD	881-2285	rclubb@dc.pud.org
Shaun Bickford	Douglas PUD	881-2208	Sbickford@dc.pud.org
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Gordon Brett	Douglas PUD	509-881-2242	G.Brett@DCPUD.org
Brad Hawkins	Douglas PUD	509-881-2225	bhawkins@dc.pud.org
Andy Lampe	Okanagan County	509-422-7100	alampe@CO.Okanagan.WA.US
Gael Howe	City of Paterson	923-2571	pateros@nwi.net
Tim Eucharner	IAC		
Tony Eldred	WDFW	(509) 677-0465 " 679-0665	eldredte@dgs.wa.gov

**Recreation and Land Use
Resource Work Group
Issue Statements from Meeting 2 – January 13, 2006**

1. Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.
2. The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
3. The reservoir and Project operations may affect sediment transport and deposition, which may restrict access and use of the reservoir.
4. Ownership (vs. easement) of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).
5. Recreation proposals under the license need to consider ESA, ADA, ECPA, SCORP as well as local comprehensive plans and development regulations.
6. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.
7. The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.
8. The development of recreation plans in the new license should consider improvements to the current Recreation Action planning process.
9. The Project may affect the economics of the cities and counties adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, community services and water table).
10. How have other dam owners supported emergency services and community infrastructure for local communities? (method for collecting and distributing emergency services tax revenue).
11. Water use at city parks may affect the availability of water for future city development.
12. Public access sites should be evaluated for possible continued maintenance and enhancements during the new license (eg. Okanogan, Columbia, Methow rivers and Washburn fishing sites).

13. Wells Dam may be a hindrance to river travel.

Action Items
Recreation and Land Use Work Group
Meeting 2 – January 13, 2006

1. Contact Mayor Jenkins regarding support for EMS services and provide information related to whether or not other dam operators provide financial support to community EMS and infrastructure (Brad).
2. Follow up with Mayor Jenkins regarding work group discussions (Scott and Brad).
3. Consider the relationship between the 2007 Recreation Action Plan and the Relicensing process (Scott).
4. Email list of issues from other work groups to Mayor Howe (Scott).

Terrestrial RWG Meeting 2
January 11, 2006

From: Scott Kreiter
Sent: Thursday, December 22, 2005 1:59 PM
To: Beau Patterson; Bill Towey; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dinah Demers; Gordon Brett; Jim Fisher; Jim McGee; Marc Hallett; Mary Hunt; Matt Monda; Neal Hedges; Scott Kreiter; Steve Lewis; Tony Eldred
Cc: Shane Bickford; 'Devine, John'; Brad Hawkins; Bao Le
Subject: Wells Relicensing - Terrestrial RWG #2
Attachments: Meeting Agenda Terrestrial RWG 2.pdf; Terrestrial_Issue_Statements_from_RWG_1.doc

Terrestrial Work Group:

Please find attached the agenda for the January 11 Terrestrial Work Group meeting. The purpose of this meeting is to finalize and categorize issue statements. The issue statements are also attached. No comments have been received thus far, but feel free to send any you may have prior to the meeting.

As discussed in RWG #1, Douglas PUD has set up an FTP site for access to all work group materials. Instructions for accessing the FTP site are below. Please contact me if you have questions.

-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

FTP Instructions
Point your browser to <ftp://relicensingftp.dcpud.org>
User logon: wellsftp
Password: Fishing (With a capital "F")
The FTP site is organized first by resource workgroup and then by meeting date, with a general supporting documents folder for each group.

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – January 11, 2006**

Meeting Purpose: To develop final issue statements related to Wells Project relicensing.

Objectives: 1. Finalize issue statements from issues identified during RWG #1 and #2
2. Categorize issues and discuss example nexus statements

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: January 11, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 10:00 AM – 3:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #1	Scott Kreiter
10:10	Discuss any new issues Develop draft issue statement for each new issue	Group
11:00	Review and comment on draft issue statements. Reach agreement on finalized issue statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Issue Categorization Review Example Nexus Statement	Group
2:45	Action items and next steps.	Scott Kreiter
3:00	Adjourn	

Attendees Invited: Bill Towey, Colville Tribes Dinah Demers, Colville Tribes Jim Fisher, BLM Brenda Crowell, Okanogan County Marc Hallett, WDFW Matt Monda, WDFW Tony Eldred, WDFW Carmen Andonaegui, WDFW	Steve Lewis, USFWS Dan Trochta, USFWS Mary Hunt, Douglas County Bob Clubb, Douglas PUD Jim McGee, Douglas PUD Shane Bickford, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc.
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Terrestrial Resources Work Group
Issue Statements from Meeting 1 – November 16, 2005

1. (Issues 2, 1D) Ownership of Project lands could affect wildlife habitat and species diversity. Land management policies and goals such as issuing dock permits, conducting weed and erosion control, and other developments may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession. Future land management plans for PUD owned property could influence development outside the Project boundary.
2. (Issue 2C) Existence of the Project and reservoir could have resulted in habitat losses and disturbance (attractive development).
3. (Issue 1 and 2) Reservoir fluctuations may influence wildlife and aquatic species and may influence terrestrial wildlife habitat.
4. (Issue 1) Existence of the reservoir could affect migrations of mule deer.
5. (Issue 1A, 1B) Construction of the Project could have reduced winter habitat for mule deer and sharptail.
6. (Issue 1F) Action Item: Is the existing habitat mapping sufficient to answer wildlife questions.
7. (Issue 1H) Are there any terrestrial RTEs present within the Project boundary?
8. (Issue 3A, 3D) Continued operations and maintenance funding for the Wildlife Management Areas (WMA) can influence wildlife species diversity and wildlife habitat.
9. (Issue 3E 3B) Conflicting goals on WMAs could influence wildlife species and habitat. Conflicting goals, such as consumptive and non-consumptive recreation and/or past habitat management decisions, could also influence future funding of the WMAs.
10. (Issue 3C) Action Item: FERC's view of off-site mitigation.
11. (Issue 4) Ongoing predator control programs may influence wildlife species abundance and diversity.
12. (Issue 5A) Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.
13. (Issue 5C) Project operations may be influencing erosion on lands within the Project boundary. Options may be available for reducing the impact of Project caused erosion on wildlife populations (protection measures).

14. (Issue 6C) Management of recreation and Project access may disturb wildlife and wildlife habitat.
15. (Issue 6A) Recreation activities have the potential to disturb wildlife and wildlife habitat.
16. (Issue 6D) The Okanogan River fishing access sites should continue to be maintained during the new license. (Issue Statement moved to the Recreation RWG)
17. (Issue 7B) Presence of the transmission ROW could influence wildlife movements.
18. (Issue 7A) Maintenance of the transmission ROW could affect wildlife and/or botanical species (eg. Weed control and road maintenance)

Federal and State RTE Species found on Wells Project Lands.

Common Name	Species Name	Federal List	State List
Botanical Resources			
Little Bluestem	<i>Schizachyrium scoparium</i>		State Threatened
Snails			
None			
Mollusks			
None			
Insects			
None			
Fishes			
Bull Trout	<i>Salvelinus confluentus</i>	Federal Threatened	State Candidate
Steelhead	<i>Oncorhynchus mykiss</i>	Federal Threatened	State Candidate
Spring Chinook	<i>Oncorhynchus tshawytscha</i>	Federal Endangered	State Candidate
Amphibians			
None			
Reptiles			
None			
Mammals			
None			
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Federal Threatened	State Threatened
American White Pelican	<i>Pelecanus erythrorhynchos</i>		State Endangered
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>		State Threatened

Terrestrial RWG Meeting 2
Sign-in Sheet and Meeting Products

TERRESTRIAL

RESOURCE WORK GROUP

SIGN IN SHEET

January 11, 2006

[illegible]

Terrestrial Resources Work Group
Finalized Issue Statements from Meeting 2 – January 11, 2006

1. Ownership or transfer of Project lands could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.
2. The Project and reservoir could attract and facilitate development adjacent to the Project. This could result in associated disturbances to wildlife and wildlife habitat.
3. The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.
4. The reservoir might affect the migration abilities of mule deer.
5. The Project could affect winter habitat for mule deer and sharp-tailed grouse.
6. The Project could affect terrestrial RTE species.
7. Changes in operations and maintenance funding for the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.
8. WDFW management goals for the Wells Wildlife Area may affect wildlife species and habitat. Various management decisions could also influence future funding of the Wells Wildlife Area.
9. Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.
10. Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.
11. Permit requirements associated with erosion control measures could limit the ability of Douglas PUD to protect Project lands from erosion.
12. Public use (recreation) of the Project may affect wildlife and wildlife habitat.
13. Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.
14. Maintenance of the transmission right-of-way could affect wildlife and/or botanical species (eg. Weed control and road maintenance).
15. The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license.

16. Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand and cobble bars.

Action Items
Terrestrial Resources Work Group
Meeting 2 – January 11, 2006

1. Provide information on eagle nesting, eagle use and other activities (Jim).
2. Provide an inventory, map and description of purpose for each piece of land located outside of the Project boundary owned by Douglas PUD adjacent to Wells Reservoir (Scott).
3. Provide the cover type and macrophyte mapping, botanical and wildlife study results at RWG 3 (Scott).
4. Provide a summary of FERC's view of off-site mitigation (TBD).
5. Provide a map of the 230 kV transmission line right-of-way with the land ownership marked on the map. Specifically the map should identify public and private lands within the right-of-way corridor (Scott).

Aquatic RWG Meeting 3
February 2, 2006

From: Bao Le
Sent: Wednesday, January 25, 2006 9:10 AM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Pat Irle; Ritchie Graves; Shane Bickford; Steve Lewis; Steve Parker
Cc: Scott Kreiter
Subject: Agenda for Aquatic RWG meeting #3
Attachments: Meeting Agenda Aquatics RWG 3.pdf

Work group members, attached is the agenda for the Aquatic RWG meeting #3. The date of the meeting is Thursday, February 2, 2006 here at Douglas PUD headquarters. Please make an effort to be present as discussions at this meeting will provide the foundation for determining if a Final Issue Statement may be developed into a relicensing study. Please let me know as soon as possible if you will not be able to attend the upcoming meeting.

Also note that we will be starting at 9:30am in order to briefly present the Wells Project Baseline studies that were implemented in 2005. In the next few days, I will provide the work group with technical summaries of these baseline studies for review prior to the meeting. I hope to see you all there.

Regards,

Bao Le
Senior Aquatic Resources Biologist
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802
Phone: (509) 881-2323
FAX: (509) 884-0553
ble@dcpud.org

**Aquatic Resources Work Group
Wells Relicensing
Meeting #3 Agenda – February 2, 2006**

Meeting Purpose: To develop issue statement determinations through issue categorization discussions related to Wells Project relicensing.

Objectives: 1. Categorize issue statements using FERC's 7 study criteria
2. Develop issue determination statements

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: February 2, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:30 AM – 3:00 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda Review action items from RWG #2	Bao Le
9:40	Brief presentation of Wells Project Baseline Studies (Macroinvertebrates, Macrophyte Distribution, TDG, and Limnology Technical Summaries)	Bao Le/Rick Klinge
10:10	Issue statement categorization discussion and development of issue determination statements.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue issue categorization discussion and development of issue determination statements.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited:

Pat Irle, WDOE
John Merz, WDOE
Ritchie Graves, NMFS
Steve Lewis, USFWS
Joe Miller, WDFW
Bob Jateff, WDFW
Carmen Andonaegui, WDFW
Art Viola, WDFW
Bob Rose, Yakama Nation

Bill Towey, Confederated Tribes of the
Colville Reservation
Jerry Marco, Confederated Tribes of the
Colville Reservation
Bao Le, Douglas PUD
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine, Tarbell, and Associates

Final Issue Statements

Aquatic Resources Work Group

1. Operations of the Project may affect juvenile Pacific lamprey dam passage survival (survival, route of passage and timing) during their downstream migration.
2. Existence and operation of the Project may affect adult lamprey habitat use.
3. Existence and operation of the Project may affect adult Pacific lamprey behavior related to ladder passage, timing, fallback and upstream migration.
4. Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.
5. The existence and operation of the Project may be affecting white sturgeon habitat and carrying capacity.
6. Existence and operation of the Project may affect white sturgeon genetics and behavior related to spawning, rearing, recruitment, and upstream and downstream passage (entrainment/recruitment).
7. Existence and operation of the Project may affect the predator-prey dynamics within the Wells Project (components may include investigating bioenergetics, food web, predation and carrying capacity models and habitat mapping). Potential contributing factors to higher predation rates may include unique hydraulics and habitat (macrophytes, localized water temperature, turbidity, substrate, pH and DO and anthropogenic structures).
8. Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) and their potential effects on aquatic organisms and humans.
9. Reservoir fluctuations, including those caused by system-wide energy requirements, in the Wells Reservoir may affect the ecosystem (i.e., allochthonous inputs into the system). This may include, impacts on littoral plant assemblages, fish use, submergent plants, macrophytes and macroinvertebrates.
10. Project operations may affect compliance with TDG in the Wells Tailrace and Rocky Reach Forebay.
11. Project operations may affect compliance with temperature in the Wells Project.
12. Project operations may affect compliance with DO, pH and turbidity in the Wells Project.

13. The Wells Project may affect Bull Trout survival and habitat.
14. The Wells Project may contribute to the spread of aquatic invasive species.
15. The Wells Project may affect resident fish species abundance and composition.
16. The Wells Project should continue resident fish production at the Wells Hatchery.

Wells Dam Total Dissolved Gas Production Dynamics Study 2005 Technical Summary

In spring, 2005, Douglas PUD contracted with Columbia Basin Environmental to implement a total dissolved gas study at Wells Dam. The study was designed to measure total dissolved gas pressures resulting from various spill patterns at the dam. An array of water quality data loggers were installed in the Wells Dam tailwater for a period of two weeks between 23 May and 6 June, 2005. Each logger was programmed to record water temperatures and total dissolved gas pressures at ten-minute intervals. The Wells Dam powerhouse and spillway were operated through a predetermined range of operational scenarios that varied both total flow and shape of the spillway discharge (Tables 1). A total of eight configurations were tested (Table 2) including flat spill patterns (near equal distributions of spill across the spillway), crowned spill patterns (spill is concentrated towards the center of the spillway), and spill over loaded and unloaded units. Due to the unique hydrocombine configuration of Wells Dam where the spill bays are located directly above generating units, Tests 1A-1D addressed spilling over units that were generating (spill over loaded units), spilling over units that were not generating (spill over unloaded units), and varying these configurations between the east and west sides of Wells Dam (Table 2).

A simple mass balance approach was used to predict mean tailwater TDG saturations. If it was assumed that powerhouse releases were not gassed by spill operation, predicted values averaged 4.3% less than actual values. By assuming that powerhouse releases were gassed to some degree by spill operation, predicted values were closer to the values collected during the study, averaging 0.1% less than predicted values.

Preliminary results show that spill from the west side of the spillway resulted in consistently higher TDG saturations than similar spill discharges from the east side (Figure 1). Flat spill patterns consisting of near equal distribution of spill across the entire spillway yielded higher TDG saturations than crowned spill for similar total project discharges (Figure 2).

Although the results of this study indicated that powerhouse release waters may have been influenced by spill, background TDG saturations – represented by the Wells Dam forebay monitor – were affected both by thermal dynamics within the reservoir and upstream spill activity.

Table 1. Test Matrix for 2005 Wells Dam Total Dissolved Gas Production Dynamics Study.

Test	Description
1A	Spill over load, east spill/east generation
1B	Divided spill load, east spill/west generation
1C	Divided spill load, west spill/east generation
1D	Spill over load, west spill/west generation
2A	Crowned spill, modest flow
2B	Flat spill, modest flow
2C	Crowned spill, high flow
2D	Flat spill, high flow

Table 2. Mean Unit Discharge at Wells Dam for the eight test configurations during the 2005 Total Dissolved Gas Production Dynamics Study.

		Discharge (kcfs)											
Test		1	2	3	4	5	6	7	8	9	10	11	Total
1A	Spillbay	0.0	1.1	0.0	2.1	0.0	3.4	4.6	5.8	4.6	5.2	4.6	31.3
	Generator	0.0	0.0	0.0	0.0	0.0	0.0	15.8	15.9	15.6	15.9		63.2
1B	Spillbay	0.0	1.8	0.0	3.0	0.0	4.4	5.4	4.4	5.4	3.5	5.4	33.5
	Generator	0.0	16.1	16.2	16.0	15.9	0.0	0.0	0.0	0.0	0.0		64.2
1C	Spillbay	6.4	3.4	6.4	4.7	4.7	4.7	0.0	2.9	0.0	3.4	0.0	36.6
	Generator	0.0	0.0	0.0	0.0	0.0	0.0	15.1	15.2	14.9	15.3		60.5
1D	Spillbay	5.9	1.6	5.9	4.3	5.9	4.3	0.0	4.3	0.0	1.6	0.0	33.8
	Generator	0.0	16.0	16.1	16.2	15.9	0.0	0.0	0.0	0.0	0.0		64.2
2A	Spillbay	0.0	1.3	0.0	3.3	8.3	6.2	8.3	3.3	0.0	1.3	0.0	32.0
	Generator	0.0	0.0	15.2	15.1	15.0	15.2	15.2	15.3	0.0	0.0		91.0
2B	Spillbay	4.1	1.6	2.9	4.3	2.9	4.3	2.9	4.3	2.9	3.4	4.1	37.5
	Generator	0.0	0.0	14.4	14.3	14.2	14.4	14.4	14.5	0.0	0.0		86.3
2C	Spillbay	0.0	2.3	0.0	5.4	11.3	6.9	11.3	6.9	0.0	2.3	0.0	46.3
	Generator	0.0	16.0	16.1	15.9	15.9	16.1	16.0	16.2	15.9	0.0		128.0
2D	Spillbay	5.3	1.8	5.0	4.6	5.0	4.6	5.0	4.6	5.0	3.4	0.0	44.1
	Generator	0.0	15.4	15.5	15.3	15.2	15.4	15.6	15.5	15.2	1.7		124.9

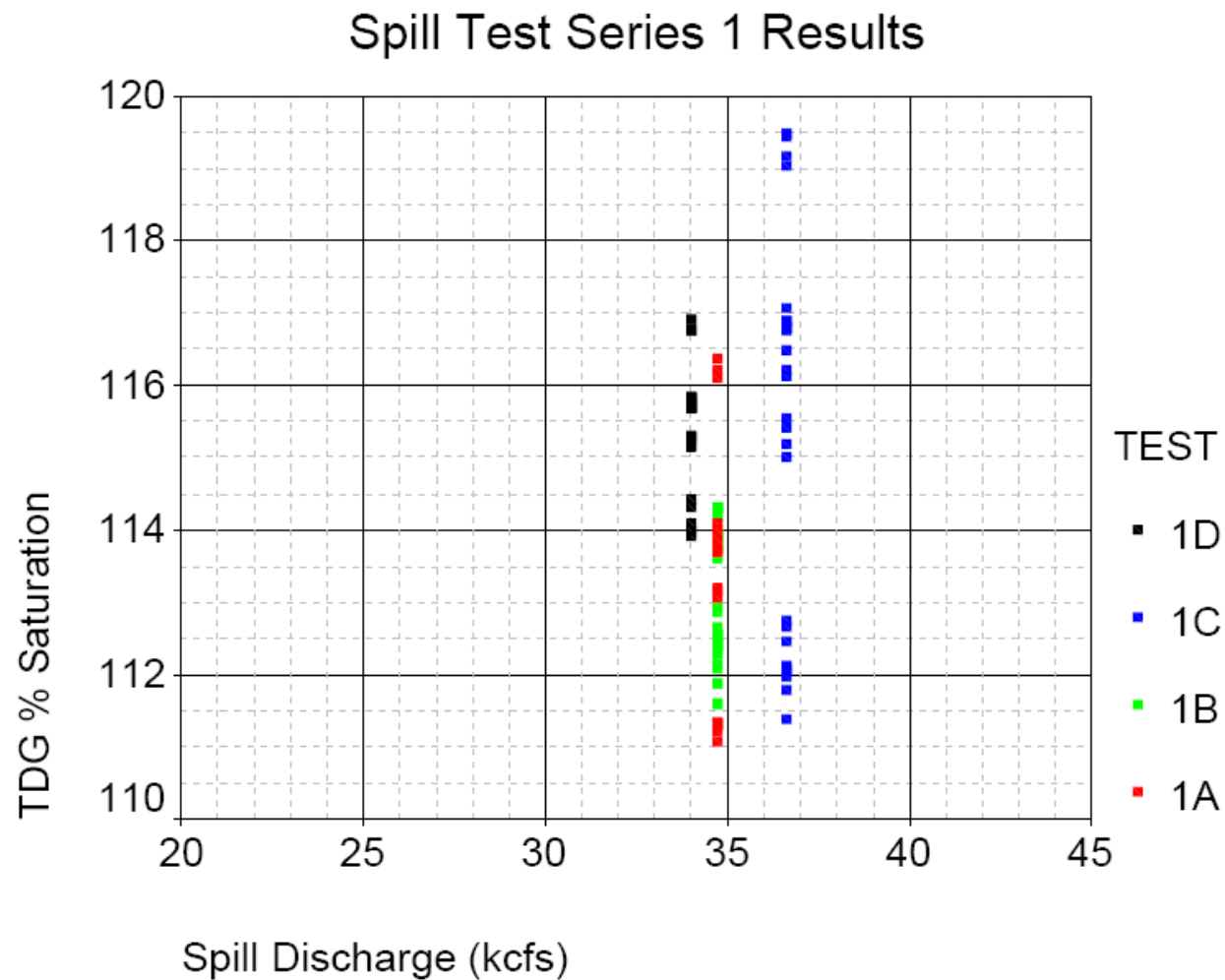


Figure 1. Results of spill over loaded versus unloaded units and east versus west test configurations during the 2005 Wells TDG Study.

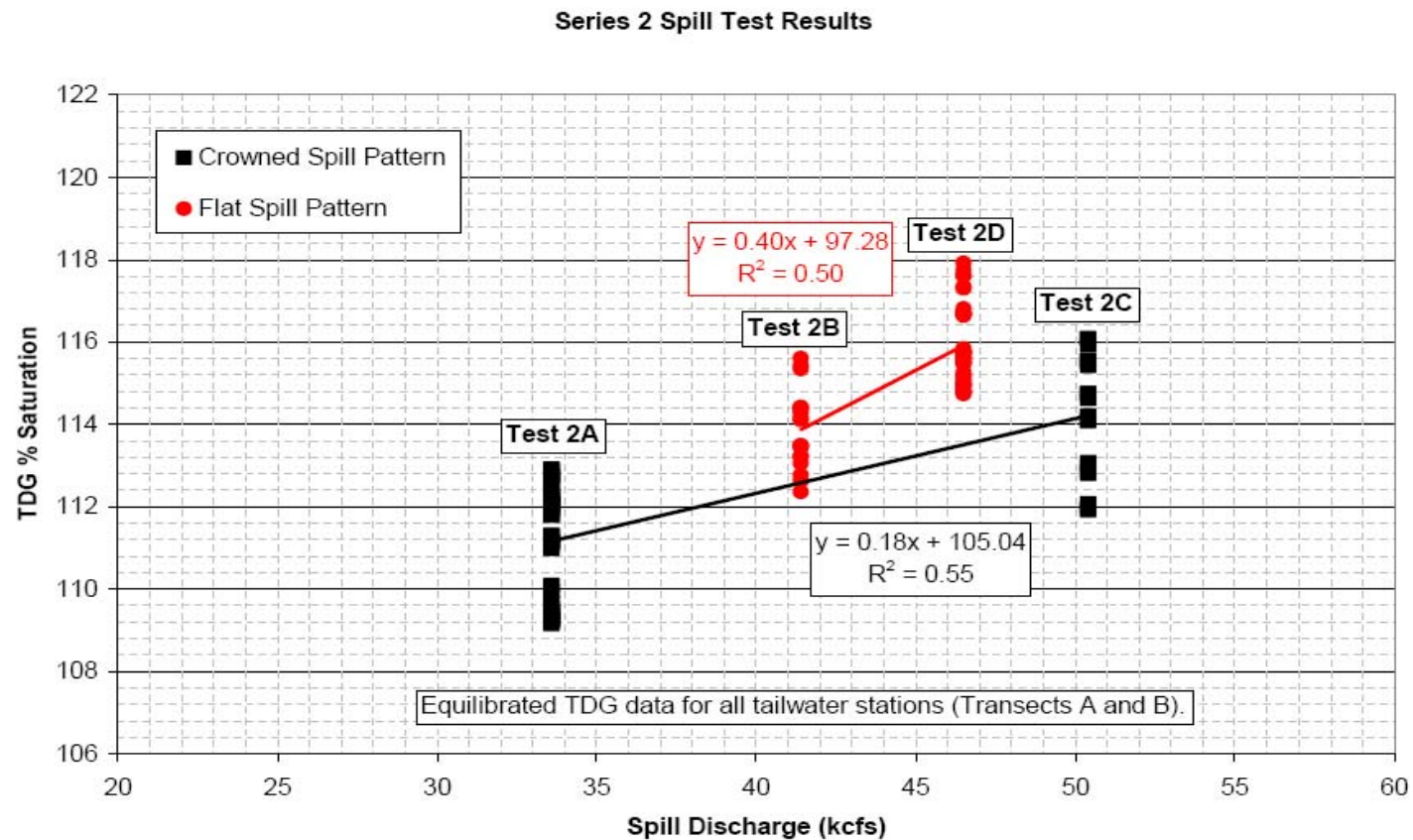


Figure 2. Results of crowned versus flat spill configurations at modest and high flows during the 2005 Wells TDG Study.

**COMPREHENSIVE LIMNOLOGICAL INVESTIGATION
WELLS HYDROELECTRIC PROJECT
PRELIMINARY FINDINGS**

FERC NO. 2149

January: 2006

Prepared by:



EES Consulting, Inc.
1155 W. State Street, Suite 700
Bellingham, WA 98225
360.734.5915

Prepared for:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

COMPREHENSIVE LIMNOLOGICAL INVESTIGATION WELLS HYDROELECTRIC PROJECT PRELIMINARY FINDINGS

The purpose of this study is to collect information to support the water quality certification that is issued by the Washington Department of Ecology (WDOE), pursuant to Section 401 of the Clean Water Act, for the operation of the Wells Hydroelectric Project under a new FERC license. This study documents the existing water quality conditions in the Wells Reservoir and Wells tailrace. Data generated by this study will also be available for future TMDL modeling efforts.

The study objectives were designed to document existing water quality conditions within the Wells Reservoir and Wells Dam tailrace with reference to WDOE water quality standards. The data generated from this study were collected and managed in a manner that would support potential future water quality modeling efforts.

This report presents preliminary findings of the Wells Project Limnological Study. Data are still being analyzed at the time of preparation of this report. Therefore the results presented are considered provisional. The information presented highlights selected key findings. A complete report detailing all of the data collected during this study will be provided to the Aquatic RWG. Information from the final water quality monitoring report will be included into the Wells Pre-Application Document.

1.0 METHODS

The study approach and methods are consistent with WDOE's "Water Quality Certification for Existing Hydropower Dams: Preliminary Guidance Manual (September 2004). Quality assurance plans are consistent with State and Federal guidelines. The laboratory analyzing water quality samples is fully certified to conduct the analyses included in this study.

The study design is structured to evaluate the effects of Project operations and structures on water quality. The selection of sample sites is consistent with data needs anticipated for future water quality modeling. A total of nine sampling sites, which include mainstem sites, tributaries and lateral habitats were selected to represent the spatial variability within the Wells Project. The nine sampling sites include:

- Downstream of Chief Joseph Dam
- Columbia River just downstream of Brewster bridge
- Bridgeport Bar littoral site
- Columbia River downstream of Pateros where the thalweg approaches maximum depth in the lower reservoir
- Okanogan River upstream of confluence with Columbia River
- Methow River upstream of confluence with Columbia River
- Lower reservoir/Starr boat launch littoral site
- Wells Dam forebay, and
- Wells Dam tailrace

Sampling included the physical, chemical, and biological water quality characteristics as outlined in Table 1. A total of 22 water quality characteristics were sampled. The parameters sampled at each of the identified sampling locations varied according to the type of water body being sampled and the time of year the sampling was conducted. All procedures used for the purpose of collecting, preserving, and analyzing samples followed established EPA 40 CFR 136 protocol.

Water quality sampling was seasonal with one sample event scheduled for each season. Spring sampling was conducted in May, summer sampling was conducted in August, fall monitoring was conducted in October and winter sampling will be conducted in February. Additional sampling events were scheduled for the months of July and September to provide more data during the times of the year when potential water quality exceedances were most probable and were expected to be temporally more dynamic. Phytoplankton sampling occurred concurrently with water chemistry sampling. Periphyton sampling occurred concurrently with all sample events except October (five total sample events).

Vertical profiling using a Hydrolab measured temperature, pH, dissolved oxygen (DO) and specific conductivity at 1 m intervals for the entire water column at each sample site. One depth-integrated hose grab sample was collected over the photic zone up to a maximum depth of 5 m. One grab sample from 1 m above the bottom was also collected. These samples were transferred to the laboratory for analysis.

A Quality Control and Quality Assurance (QA/QC) plan was prepared and implemented for this study that is consistent with methods fully described in EPA, 2002. QA/QC procedures address both field and laboratory methods. Desired data accuracy is defined in Measurement Quality Objectives.

Table 1 Water Quality Parameters, Sampling Sites and Schedule

Parameter	Number of Sampling	
	Sites	Sampling Frequency
Chemical:		
Total Phosphorus (TP)	8	
Ortho-phosphorus	8	
NH ₄ ⁺ -N	8	
Total Nitrogen	8	
Total Alkalinity	8	
pH	9	1/month
Total Suspended Solids (TSS)	8	Month 5,7,8,9,10,2
Total Dissolved Solids (TDS)	8	
Total Organic Carbon	9	
DO (water column)	9	
Conductivity	9	
Specific Conductance	9	
MTBE	3 ¹	Month 7,8,9
Physical:		
Temperature	9 grab samples	1/month (5,7,8,9,10,2); Continuous ³
Turbidity	9	1/month (5,7,8,9,10,2)
Secchi Transparency	9	1/month (5,7,8,9,10,2)
Aesthetics ²	9	1/month (5,7,8,9,10,2)
Biological:		
Total Fecal Coliform	4	May, Aug & Oct only
Zooplankton (biomass and taxonomic)	6	1/month (5,7,8,9,2)
Chlorophyll <i>a</i> (phytoplankton)	8	1/month (5,7,8,9,10,2)
Taxonomic (phytoplankton)	8	1/month (5,7,8,9,10,2)
Taxonomic (periphyton)	5	1/month (5,7,8,9,2)

¹ Monthly July through September 2005 for mainstem pelagic sites.

² Odors, fungi or other growths, sludge/deposits, discoloration, scum, oily slick, floating solids.

³ Temperature continuous monitoring being conducted by Douglas PUD

2.0 RESULTS

Wells Reservoir is characterized by low to moderately low levels for nutrients, slightly basic pH (range 7.5 – 8.5), well-oxygenated water, and low turbidity with moderately low algae growth. Average Secchi depth for the Wells Reservoir varied minimally during May through August with only a slight increase as the season progressed (study average per site range 4.1 m to 4.5 m). Secchi depth (transparency) increased to a seasonal peak in September of 6.25 m before slightly decreasing in October to a mean depth of 5.3 m. Transparency increased downstream at the Brewster Bridge and Wells forebay relative to the head of the reservoir at the Chief Joseph Dam tailrace for all months.

Turbidity in the Wells Reservoir showed relatively little seasonal variation with an annual average of 0.98 NTU. Longitudinal variation in turbidity was also minimal; sampling did not occur within the mixing zone plume of the Okanogan River. Turbidity in the Okanogan River was consistently higher than the reservoir. Turbidity in the Methow River was higher than in the reservoir in May (due to sediment load) and in August due to phytoplankton growth. The only turbidity reading over 5 NTU was in the Methow River during May where turbidity was 5.6 NTU.

Water temperature in the Wells Reservoir is primarily governed by the temperature of inflowing water at Chief Joseph Dam with little warming occurring as water traverses the reservoir's length. The Wells Reservoir remained unstratified throughout the study period and was vertically homogeneous for dissolved oxygen. Figure 1 shows a typical vertical profile; data are from the deepest portion of the thalweg in the reservoir downstream of the Brewster Bridge for August 17, 2005. Low respiration rates at depth, a lack of vertical stratification and short water retention times resulted in homogeneous dissolved oxygen levels at all depths within the reservoir.

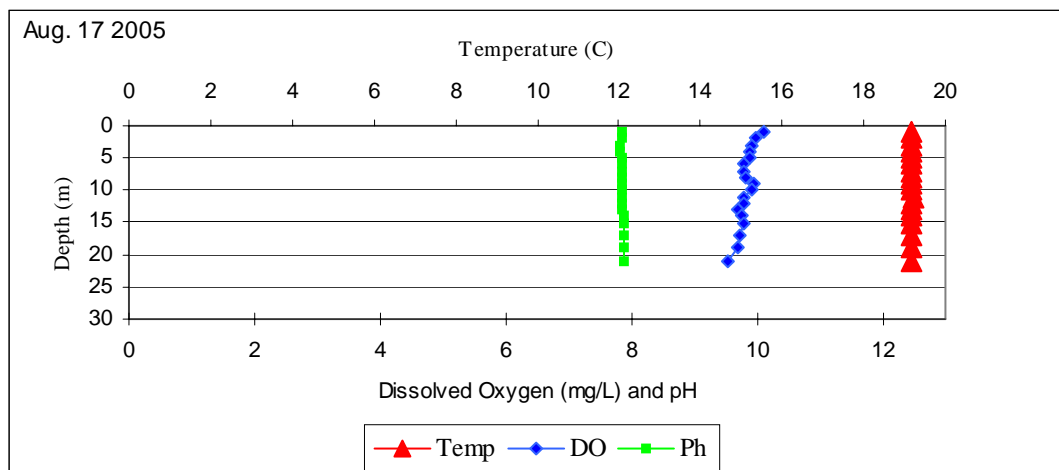


Figure 1. Vertical water quality profile Wells Reservoir

Dissolved oxygen levels at 1 m depth increased from upriver to downriver; the average difference (May through October) was 1.07 mg/L. The difference was more pronounced during May through August. The difference in September and October was 0.3 mg/L, which is similar to instrument reliability. Littoral DO was similar or slightly higher than pelagic DO for surface waters. DO saturation levels were equal or greater than 100% for all sites and all depths in all months except October when DO percent saturation for surface waters ranged from 110% to 91% saturation. The lower saturation levels in October may be due to reduced primary productivity while water temperatures were still relatively warm. All DO readings were above 8.0 mg/L.

Nitrogen and phosphorus are the two primary macronutrients needed for plant growth. Silica is important for diatomaceous phytoplankton. Ammonia levels were near or below detection levels for pelagic and littoral reservoir waters as well as the Okanogan River for May through August. Ammonia levels were only slightly higher in September and October. Ammonia peaked in the Methow River in August. This spike may be associated with shoreline development (lawns) in the very lowest part of this tributary. Nitrates for reservoir waters were higher in May before leveling off. Nitrates within littoral waters were lower than pelagic waters, which may be attributed to aquatic plant uptake in shallow areas. Nitrates in both the Okanogan and Methow Rivers showed an increasing trend during the growing season. Total nitrogen levels for reservoir pelagic and littoral waters were similar and relatively constant.

Orthophosphorus peaked for all stations in July. Orthophosphorus levels for pelagic and littoral waters were similar in all months except July when littoral orthophosphorus concentrations were significantly higher than observed for pelagic areas. Orthophosphorus levels in the Methow and Okanogan rivers were higher than in the reservoir. Orthophosphorus was partially depleted in the Okanogan River but not in the Methow River at the time of the August sampling. Inputs from shoreline development and agriculture in the lower Methow River may be a factor in the August peak for orthophosphorus for this water body.

Total phosphorus was slightly higher in littoral waters than in pelagic areas. Wave disturbance to bottom sediments may be a factor for this difference. Total phosphorus levels in pelagic surface waters ranged from below detection limits to 30.8 ug/L. Total phosphorus was higher for the Okanogan River than elsewhere, which is likely due to the higher sediment load. Total phosphorus for all stations peaked in July before gradually declining throughout the rest of the growing season.

The range in N:P ratios for the Wells Reservoir was 2.5 to 30.8. The average TN:TP ratio in the Wells Reservoir was 13.7 for the photic zone and 14.8 averaged for samples from all depths. These values are within the suggested literature ranges for phosphorus limitation. The N:P ratios peaked in July with pelagic and littoral waters showing similar trends. A decreasing N:P ratio through the major part of the algae growing season is typical of moderate to low nutrient waters as algae assimilate available nutrients. The N:P ratios were higher in the tributary rivers relative to the reservoir. The N:P ratios are an indicator but not an absolute confirmation of factors limiting productivity.

Moderate to low chlorophyll *a* concentrations (range 0.5 ug/L to 5.8 ug/L) occurred throughout the sample period with peaks in July and October for the Wells Reservoir. Concentrations were lowest in August and also had the least variability among sites for the August sampling event. Pelagic and littoral waters were similar for chlorophyll *a* concentrations in most months except October when littoral waters reported twice as high chlorophyll *a* levels.

Phytoplankton were dominated by diatoms for all months at all sites sampled with Chryptophyta (small unicellular flagellates) being second dominant based on biovolume. Diatoms and Chryptophyta are both considered a good food source for the rest of the aquatic food web. Diatoms comprised 75% to 84% of the total phytoplankton biomass for the reservoir sites. Chlorophytes (green algae) were sub-dominant in the tailrace but only a minor component elsewhere. Total phytoplankton biomass was relatively low for all reservoir sample sites; total biomass was generally less than 200,000 $\mu\text{m}^3/\text{ml}$. Biomass peaked in July and August for pelagic areas of the reservoir and minor peaks occurred in October for littoral sites. The timing of peaks varied among all stations. Cyanophyta (blue-green algae) were only recorded in the reservoir for the July sample at Brewster bridge where they comprised 16% of the total biomass; however, the biomass of Cyanophytes were comprised of relatively few but very large multicellular units. Cyanophytes also were recorded in the Wells Dam tailrace (4.7% biomass) in July. Diatoms dominated phytoplankton in the Methow River where peak biomass occurred in August (1,455,158 $\mu\text{m}^3/\text{ml}$). This peak is much higher than biomass observed anywhere else in the reservoir. Biomass levels in the Okanogan River were only slightly higher than in the reservoir for most months with minor peaks occurring in May and October. Cyanophytes were a small proportion of the August biomass sample for the Okanogan River.

Diatoms also dominated periphyton. Seasonal lows occurred in July for all sites except Bridgeport shallows where the trend was decreasing periphyton biovolume as the season progressed.

Zooplankton density was greatest in May (5,173/ m^3) and lowest (478/ m^3) in August. Copepods dominated the zooplankton population. Although rotifers were present in all months, their

density dropped to very low levels after May. Cladocera were the third most prevalent group with a minor peak occurring in July for this group.

Trophic Status Index (TSI) developed by Carlson (1977, 1996) and modified for nitrogen by (Kratzer and Brezonik 1981) is an indication of the productivity of a lake based on Secchi depth, TP, TN and chlorophyll *a* concentrations for summer months (June through September). Wells Reservoir is classified as oligo-mesotrophic based on a mean TSI score of 36.5 with 40 to 50 being the range for mesotrophic classification.

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Table 2 Summary of water quality data: mean values averaged for the period May through October 2005.

		Secchi Disk Depth (m)	Turbidity (NTU)	pH	Dissolved Oxygen (mg/L)	Total Alkalinity (mg/L)	Ammonia (ug/L)	Nitrate (ug/L)	Total Nitrogen (ug/L)	Ortho phosp hate (ug/L)	Total Phosphorus (ug/L)	Solids, Total Dissolved (TDS) mg/L	Solids, Organic Total Suspended (TSS) mg/L	Total Carbon (TOC) mg/L
Pelagic ¹	May	4.13	1.50	7.83	11.79	57.97	10.07	76.80	196.33	5.67	11.53	73.10	1.20	
	Jly	4.33	1.02	7.96	10.15	57.60	5.23	57.07	158.30	9.60	25.73	79.97	0.97	
	Aug	4.50	0.63	7.68	9.84	56.90	6.03	58.97	174.10	6.63	8.87	77.60	0.93	1.77
	Sep	6.25	0.67	7.85	8.96	56.23	15.03	62.23	175.40	8.23	13.63	75.97	0.43	1.63
	Oct	5.28	1.08	7.90	8.47	55.63	11.90	67.27	162.97	5.53	2.77	79.93	1.50	1.37
	Spring ³	4.13	1.50	7.83	11.79	57.97	10.07	76.80	196.33	5.67	11.53	73.10	1.20	
	Summer	5.67	0.77	7.83	9.65	56.91	8.77	59.42	169.27	8.16	16.08	77.84	0.78	
	Annual	5.28	0.98	7.85	9.84	56.87	9.65	64.47	173.42	7.13	12.51	77.31	1.01	
Littoral ²	May			7.89	10.70	58.65	7.30	81.25	200.55	4.40	11.50	83.45	5.10	
	Jly			8.06	10.35	57.95	9.95	64.05	173.85	13.30	30.90	80.40	1.45	
	Aug			8.38	9.95	57.30	11.70	36.30	149.80	5.75	10.65	78.35	1.05	1.50
	Sep			8.08	9.41	56.50	13.30	49.45	155.50	8.50	15.75	76.00	0.50	1.20
	Oct			8.02	8.93	56.50	13.75	45.45	176.45	4.40	6.00	78.15	2.80	1.20
	Spring			7.89	10.70	58.65	7.30	81.25	200.55	4.40	11.50	83.45	5.10	
	Summer			8.17	9.90	57.25	11.65	49.93	159.72	9.18	19.10	78.25	1.00	
	Annual			8.08	9.87	57.38	11.20	55.30	171.23	7.27	14.96	79.27	2.18	
Wells Tailrace	May		1.10		10.50	59.80	6.50	83.70	222.30	8.20	15.20	84.90	1.40	
	Jly		1.02		9.44	58.10	2.30	55.40	158.90	8.10	23.60	78.40	0.70	
	Aug		1.31	7.71	10.01	57.30	22.60	65.70	223.20	6.60	12.20	77.80	4.10	1.30
	Sep			7.51	8.90	57.10	13.50	59.00	172.20	7.80	12.90	75.90	0.60	1.20
	Oct			7.97	8.60	56.60	25.30	58.70	338.60	6.70	2.80	80.80	6.10	1.00
	Spring		1.10	0.00	10.50	59.80	6.50	83.70	222.30	8.20	15.20	84.90	1.40	
	Summer		1.17	7.61	9.45	57.50	12.80	60.03	184.77	7.50	16.23	77.37	1.80	
	Annual		1.14	7.73	9.49	57.78	14.04	64.50	223.04	7.48	13.34	79.56	2.58	

Table 2 Summary of water quality data: mean values averaged for the period May through October 2005.

		Secchi		pH	Dissolved Oxygen (mg/L)	Total Alkalinity (mg/L)	Ammonia (ug/L)	Nitrate (ug/L)	Total Nitrogen (ug/L)	Ortho phosph hate (ug/L)	Total Phosphorus (ug/L)	Solids, Total Dissolved (TDS) mg/L	Solids, Total Suspended (TSS) mg/L	Total Organic Carbon (TOC) mg/L
		Depth (m)	Turbidity (NTU)											
Methow R	May	2.00	5.63	7.87	10.38	32.00	-0.70	50.70	166.00	6.80	15.30	50.50	7.20	
	Jly	3.00	0.98	8.01	9.26	58.30	14.50	72.70	205.70	16.70	33.20	79.90	1.80	
	Aug	1.25	4.78	7.92	8.13	80.50	52.40	112.10	327.60	14.80	23.90	110.70	1.30	1.50
	Sep	3.20	1.06	8.06	9.66	72.40	22.00	96.60	262.20	12.80	17.70	95.50	0.80	1.60
	Oct	3.00	0.99	7.98	8.95	82.00	17.40	159.00	275.10	8.60	7.20	112.60	1.40	0.87
	Spring	2.00	5.63	7.87		32.00	-0.70	50.70	166.00	6.80	15.30	50.50	7.20	
	Summer	2.48	2.27	8.00		70.40	29.63	93.80	265.17	14.77	24.93	95.37	1.30	
	Annual	2.49	2.69	7.97		65.04	21.12	98.22	247.32	11.94	19.46	89.84	2.50	
Okanogan R	May	0.75	3.70	7.80	9.73	51.40	0.20	4.30	179.00	8.00	30.60	87.10	16.50	
	Jly	1.50	3.19	8.25	8.68	74.90	9.70	8.30	192.70	16.30	37.30	115.70	4.60	
	Aug	2.25	2.35	8.07	9.39	76.70	4.20	18.80	211.70	8.10	17.10	127.30	2.70	2.30
	Sep	2.70	3.78	8.25	9.04	84.80	15.30	23.00	194.20	11.30	20.60	126.70	4.60	2.40
	Oct	2.25	3.66	7.98	8.65	74.60	17.50	42.70	194.30	7.50	17.20	112.80	8.80	1.90
	Spring	0.75	3.70	7.80		51.40	0.20	4.30	179.00	8.00	30.60	87.10	16.50	
	Summer	2.15	3.11	8.19		78.80	9.73	16.70	199.53	11.90	25.00	123.23	3.97	
	Annual	1.89	3.34	8.07		72.48	9.38	19.42	194.38	10.24	24.56	113.92	7.44	

¹Pelagic sites include Chief Joseph tailrace; Wells Reservoir at Brewster Bridge and Wells forebay. Values are average for these three sites

²Littoral sites include Bridgeport shallows and shallows near Starr boat launch. Values are average for these two sites

Spring = May; Summer is average for July, August and September

Annual is average for May, July, August, September and October

Wells Project Macrophyte Identification and Distribution Study 2005 Technical Summary

In August and September 2005, Douglas PUD staff conducted an aquatic macrophyte distribution study of the water bodies in the Wells Project. The objectives of the study were to 1) collect information to determine the location, size and relative species composition of aquatic macrophyte communities present in the Wells Project and 2) produce a Geographic Information System (GIS) map of the aquatic macrophyte communities that represent the information collected.

The study approach consisted of using high resolution orthophotography and detailed bathymetry to estimate probable locations of macrophyte beds throughout the Wells Reservoir. Probable locations for macrophyte beds were developed based on depth distribution trends observed in similar studies at the Rocky Reach, Wanapum, and Priest Rapids reservoirs. Each of the probable macrophyte bed locations were then mapped using a GIS system. Each suspected macrophyte bed was then field sampled through a comprehensive survey of the reservoir to determine presence or absence of macrophyte beds. Next, species composition of existing macrophyte beds were verified during more intensive surveys. Species composition data were then categorized into several pre-determined aquatic plant community types (Table 1) and then integrated into a final continuous macrophyte map layer in the GIS.

To increase the efficiency of data sampling and analysis, Wells Project waters were divided into six zones where distinct breaks were observed in habitat characteristics, macrophyte distribution, abundance and species composition (Table 2). Parameters such as river flow, bathymetry, and substrate type were considered during this exercise.

Sixty-one transects totaling 369 sample points were completed during the 2005 study (Lê and Kreiter, 2005). Numbers of transects for zones 1 to 6 were 10, 2, 10, 15, 11, and 13, respectively. Average number of sample points per transect was 6.05. Depths of up to 30 feet were sampled and sampling points along transects were completed at intervals of 5 feet or less. A total of 9 aquatic plant species were documented (Table 3). Table 3 presents the percentage of samples in which each of the identified aquatic species was categorized as the dominant species (consisting of >60% of the sample composition).

The two most dominant species in samples collected were common waterweed (*Elodea canadensis*) and leafy pondweed (*Potamogetion foliosus*) at 24.7% and 16.7%, respectively. Both of these species are native. Non-native Eurasian watermilfoil was dominant in only 6.3% of samples collected (Table 3) and all of these samples were collected at depths between 4 and 15 feet. Samples in which no plants were identified (absent) consisted of 41.7% of all samples taken and supported the concept that macrophyte communities maintain a patchy distribution throughout the Wells Reservoir.

Results of the study found that in general, macrophyte communities in the Wells Project were distributed by depth. Table 4 presents the aquatic plant community types observed in each zone and how these community types shifted with changes in depth. In general, macrophyte communities did not recruit to depths of less than 4 feet in the Wells Project. Depths between 5

and 15 feet were characterized by a native dominant species composition (Table 4). In locations where Eurasian watermilfoil was present, this species was most often sub-dominant and present at relatively low densities (less than 10% milfoil). From depths of 15 to 24 feet, species composition consisted of exclusively native species. From 24 feet to 30 feet, macrophyte communities were absent most likely due to the limited light at these depths.

Despite the general trend, there were some areas in which macrophyte presence was expected but not observed. Macrophytes did not establish below 10 feet in Zone 5 (downstream of Chief Joseph Dam) as steep shoreline slopes promoted areas of high water velocity near shore. In Zone 3, depths below 20 feet (Brewster Bridge to Park Island) were located in the middle of the Columbia River where water velocities were not conducive to macrophyte colonization. In Zone 6 (Okanogan River), light penetration was limited due to higher turbidity. These conditions appeared to exclude macrophytes from depths greater than 8 feet (Table 4). Currently, a GIS map is being developed to graphically present the different aquatic community types observed in the Wells Project, the depth distributions at which they were observed, and the overall acreage of macrophyte beds that were identified during the study.

Table 1. Aquatic plant community types for the aquatic macrophyte study of the Wells Project, 2005. Community types are defined by two parameters at a particular site, species composition and plant density.

Aquatic Plant Community Type	
Species Composition	Density
Native (100% Native)	D, M, S ¹
Native Dominant (>60% Native)	D, M, S
EWM ² Dominant (>60% EWM)	D, M, S
EWM (100% EWM)	D, M, S
Absent	N/A

Table 2. Wells Project zone designations for aquatic macrophyte distribution study, 2005.

Zone	Description
1	Wells Dam tailrace (RM 515.8) to the upstream end of Pateros (RM 524)
2	Mouth of Methow River upstream to RM 1.5 of the Methow River
3	Pateros upstream to the Brewster Bridge (RM 530)
4	Brewster Bridge (RM 530) upstream to the north end of Park Island (RM 538.3)
5	Park Island upstream to Chief Joseph Dam (RM 545.1)
6	Mouth of the Okanogan River upstream to RM 15.5 of the Okanogan River

Table 3. Aquatic macrophyte species identified and the frequency at which each of the species was considered the dominant species (consisting of >60% of the total sample) in a given sample during the Wells Project Macrophyte Identification and Distribution Study, 2005 (Lê and Kreiter, 2005).

Scientific Name	Common Name	Percentage of samples in which dominant	Native/Non-Native
<i>Elodea canadensis</i>	Common waterweed	24.7% (98/396)	Native
<i>Potamogeton foliosus</i>	Leafy pondweed	16.7% (66/396)	Native
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	6.3% (25/396)	Non-Native
<i>Potamogeton crispus</i>	Curly leaf pondweed	4.3% (17/396)	Non-Native
<i>Potamogeton zosteriformis</i>	Flat-stemmed or eelgrass pondweed	2.3% (9/396)	Native
<i>Potamogeton nodosus</i>	American pondweed	1.3% (5/396)	Native
<i>Potamogeton pectinatus</i>	Sago pondweed	0.8% (3/396)	Native
<i>Chara spp.</i>	Muskgrass	.003% (1/396)	Native
Absent		41.7% (165/396)	N/A

¹ D=Dense, M=Medium, and S=Sparse

² EWM=Eurasian watermilfoil

Table 4. Aquatic plant community types by Wells Reservoir zone designation and water depth, Wells Project Macrophyte Identification and Distribution Study 2005.

Zone Designation	Depth Range (ft)	Aquatic Plant Community Type	Density
1 – Wells Dam to Pateros	0-4	Absent	N/A
	4.01-10	Native Dominant	Dense
	10.01-16	Native	Dense
	16.01-20	Native	Medium
	20.01-30	Absent	N/A
2 – Methow River	0-2	Absent	N/A
	2.01-9	Native Dominant	Dense
	9.01-15 ³	Absent	N/A
3 – Pateros to Brewster Bridge	0-4	Absent	N/A
	4.01-15	Native Dominant	Dense
	15.01-18	Native	Dense
	18.01-24	Native	Medium
	24.01-30	Absent	N/A
4 – Brewster Bridge to Northern Park Island	0-4	Absent	N/A
	4.01-10	Native Dominant	Dense
	10.01-15	Native Dominant	Medium
	15.01-20	Native	Sparse
	20.01-30	Absent	N/A
5 – Northern Park Island to Chief Joseph Dam	0-5	Absent	N/A
	5.01-8	Native Dominant	Dense
	8.01-10	Native Dominant	Medium
	10.01-30	Absent	N/A
6 - Okanogan River	0-4	Absent	N/A
	4.01-6	Native Dominant	Dense
	6.01-8	Native	Sparse
	8.01-30	Absent	N/A

³ Maximum depth along transect was 15 feet for all transects in Zone 2.

Wells Project Macroinvertebrate Inventory and RTE Assessment 2005 Technical Summary

In September and October 2005, Douglas PUD contracted with EES Consulting and BioAnalysts, Inc. to conduct an aquatic macroinvertebrate inventory and assessment of whether rare, threatened and endangered (RTE) aquatic macroinvertebrates are present within the Wells Project.

The overall objective of the study was to document the distribution, habitat associations, and qualitative abundance of the current aquatic macroinvertebrate (e.g. clams, snails, and insects) assemblage in the Wells Project. Additionally, an RTE assessment was conducted to document the possible presence of several species of mollusks that have been listed as species of concern in Washington State. These are the giant Columbia spire snail (*Fluminicola Columbiana*) and the California floater (*Anodonta californiensis*). The California floater is also listed as a candidate species for Federal protection.

Samples were collected within the Wells Project using an air lift suction device, Petite Ponar grabs, and colonization baskets. The suction device was primarily used for collecting mollusks along a 40-meter transect within one square meter plots. Seven randomly selected plots within a transect were intensively sampled by removing the top 15 cm of substrate. These dredge samples were collected at sites in the Columbia, Methow and Okanogan rivers within the Wells Project Boundary. Other samples were obtained from colonization baskets, petite Ponar grabs, and dredge samples and were analyzed for macroinvertebrate fauna. Colonization baskets consisted of gravel and cobble substrate filled baskets (15cm x 15cm) deployed at depths between 1 and 5 meters within areas of good light penetration. Samples made with petite Ponar grabs were made in deeper water habitats (> 5 meters) where silt and sand were the exclusive substrate type. All samples were sieved (500 micron filter) and preserved prior to being sent to laboratories for analysis (BioAnalysts, Inc., 2005).

Approximately 20 species of freshwater mollusks were identified during the inventory from dredge samples (Table 1). Within the Methow, Okanogan, and Columbia river portions of the Wells Project, 13, 11, and 9 species of mollusks were present, respectively. Of the 20 species, 10 gastropods (snails) and 10 bivalves (clams, mussels) were identified. The gastropods included 9 native species and one introduced species (*Radix auricularia*). Similarly, the bivalves also included 9 native species and one introduced species (*Corbicula fluminea*).

Samples collected from colonization baskets and petite Ponar grabs are presented in Table 2 and 3, respectively. The colonization baskets for stations one through three were placed in shallow (1-5 meters) water habitat in the wider and generally lower velocity sections of the Wells Reservoir. These stations were almost always in close proximity to aquatic macrophyte beds where the majority of the substrate was sand and silt (BioAnalysts, Inc., 2005). In this habitat, chironomids, trichopterans, and gastropods made up the largest percentage of the macroinvertebrates identified (Table 2). However,

tubellaria (flatworms) and crustacean were also a large percentage of the taxa identified in stations one and two, respectively. Chironomidae and Trichoptera were the dominant taxa in stations four and five that were located in the narrower, swifter sections of Wells Reservoir (Table 2). At these stations there was generally larger substrate (gravels and cobbles) mixed with sand and aquatic macrophyte beds were limited.

Samples collected with the petite Ponar were made in deeper water habitats (> 5 meters) where silt and sand were the only substrates available. At these stations chironomids, bivalves, annelids, and Tricoptera were the dominant taxa identified (Table 3). In the Okanogan River, Coleoptera were dominant at one station and at one station in the Columbia River, nematods were dominant (Table 3).

Rare, Threatened, and Endangered Species

The ashy pebblesnail (*F. fuscus*) is a species of concern in Washington State and was a candidate species for Federal listing under the name giant Columbia spire snail (*F. Columbiana*) in 1995. It is also commonly referred to as the Columbia pebblesnail (ICBEMP). Currently, the name is revised by Hershler and Frest (1996). It was determined that the ashy pebblesnail did not require Federal protection and it is no longer considered a Federal candidate species. Specimens of this species were found during the survey in the Methow and Okanogan rivers (Table 1). Only one specimen was found alive while all others were dead or identified from shell fragments.

Table 1. Mollusks collected from sampling stations on the Methow, Okanogan, and Columbia rivers during the 2005 Wells Project Aquatic Macroinvertebrate Inventory.

Location	Common Name	Taxon
Methow River	Western pearlshell	<i>Margaritinopsis falcata</i>
	Striate fingernail clam	<i>Sphaerium striatinum</i>
	Ridgebeak peaclam	<i>Pisidium compressum</i>
	Western lake fingernail clam	<i>Musculium raymondi</i>
	Shortface lanx	<i>Fisherola nuttalli</i>
	Ashy pebblesnail**	<i>Fluminicola fuscus</i>
	Western floater	<i>Anodonta kennerlyi</i>
	Ubiquitous peaclam	<i>Pisidium casertanum</i>
	Big-ear radix*	<i>Radix auricularia</i>
	Golden fossaria	<i>Fossaria obrussa</i>
	Prairie fossaria	<i>Fossaria (Bakerilymnaea) bulimoides</i>
Okanogan River	Ash gyro	<i>Gyraulus parvus</i>
		<i>Corbicula sp.</i>
	Western ridgemussel	<i>Gonidea angulata</i>
	Striate fingernail clam	<i>Sphaerium striatinum</i>
	Ridgebeak peaclam	<i>Pisidium compressum</i>
	Ubiquitous peaclam	<i>Pisidium casertanum</i>
	Asian clam*	<i>Corbicula fluminea</i>
	Ashy pebblesnail**	<i>Fluminicola fuscus</i>
	Fragile ancylid	<i>Ferrissia californica</i>
Columbia River	Ash gyro	<i>Gyraulus parvus</i>
	Western lake fingernail clam	<i>Musculium raymondi</i>
		<i>Physella sp.</i>
		<i>Anodonta sp.</i>
	Western floater	<i>Anodonta kennnerlyi</i>
	Asian clam*	<i>Corbicula fluminea</i>
	Ridgebeak peaclam	<i>Pisidium compressum</i>
	Three ridge valvata	<i>Valvata tricarinata</i>
	Rocky Mountain physa	<i>Physella propinqua propinqua</i>
	Ash gyro	<i>Gyraulus parvus</i>
	Golden fossaria	<i>Fossaria (F.) obrussa</i>
	Prairie fossaria	<i>Fossaria (Bakerilymnaea) bulimoides</i>
	Big-ear radix*	<i>Radix auricularia</i>

*=Introduced (non-native) taxon.

**=State species of concern.

Table 2. Percent of macroinvertebrate groups found within colonization baskets deployed at five stations within the Columbia River. Stations one through three were deployed in the lower Wells Reservoir. Stations four and five were deployed further upstream in the Wells Reservoir where habitats were characterized by higher water velocities and larger substrates.

Taxon	Columbia River Stations				
	1	2	3	4	5
Ephemeroptera (Mayflies)	0.0	0.0	0.9	0.0	0.0
Odonata (Damselflies and Dragonflies)	0.0	0.3	0.9	0.0	0.0
Coleoptera (Beetles)	0.0	0.0	0.0	0.0	0.0
Diptera-Chironomidae (Chironomid Flies)	29.5	2.9	32.9	88.2	85.2
Diptera (Flies)	0.0	0.0	0.0	0.0	0.0
Trichoptera (Caddisflies)	1.2	24.8	10.0	6.0	9.1
Lepidoptera (Butterflies and Moths)	0.0	0.0	0.0	0.0	0.0
Gastropoda (Snails and Limpets)	8.3	46.6	47.2	0.5	0.0
Bivalvia (Clams and Mussels)	0.5	0.0	0.0	0.0	0.0
Annelida (Segmented Worms)	4.8	1.2	0.4	2.1	1.9
Acari (Mites)	1.3	0.9	0.9	2.5	3.1
Crustacea (Crayfish, amphipods, isopods)	7.0	17.4	6.9	0.3	0.3
Nematoda (Roundworms)	0.0	0.0	0.0	0.5	0.3
Tubellaria (Flatworms)	47.2	0.0	0.0	0.0	0.0

Table 3. Percent of macroinvertebrate groups found from petite Ponar grabs at six stations within the Wells Project. These stations represent the deeper water habitats associated with fine substrates. Samples were collected from within the lower Methow and Okanogan rivers and in the Columbia River.

Taxon	Methow		Columbia		Okanogan	
	6	7	8	9	10	11
Ephemeroptera (Mayflies)	0.0	0.0	0.0	0.0	0.0	0.0
Odonata (Damselflies and Dragonflies)	0.0	0.0	0.0	0.0	0.0	0.0
Coleoptera (Beetles)	0.0	0.0	0.0	0.0	47.4	7.2
Diptera-Chironomidae (Chironomid Flies)	39.7	27.7	0.0	4.7	10.5	23.4
Diptera (Flies)	0.0	0.0	0.0	0.0	0.0	0.6
Trichoptera (Caddisflies)	0.2	0.0	20.0	5.1	23.0	3.6
Lepidoptera (Butterflies and Moths)	0.0	0.0	0.0	0.0	0.0	0.0
Gastropoda (Snails and Limpets)	0.0	0.2	0.0	0.0	0.7	0.3
Bivalvia (Clams and Mussels)	6.3	14.4	80.0	44.7	0.7	29.0
Annelida (Segmented Worms)	52.4	56.0	0.0	0.7	9.2	24.9
Acari (Mites)	0.4	1.5	0.0	1.0	4.6	7.2
Crustacea (Crayfish, amphipods, isopods)	0.8	0.2	0.0	0.3	2.0	2.4
Nematoda (Roundworms)	0.2	0.0	0.0	43.4	2.0	1.5

Aquatic RWG Meeting 3
Sign-in Sheet and Meeting Products

AQUATICS

SIGN IN SHEET

February 2, 2006

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**Aquatic Resources Work Group
Final Issue Statements and Draft Issue Determination Statements
From RWG 3 -- February 2, 2006**

Finalized Issue Statement #1

1. Operations of the Project may affect juvenile Pacific lamprey dam passage [and reservoir](#) survival (survival, route of passage and timing) during their downstream migration.

Draft Issue Determination Statement #1

[It is unknown as to whether there is a Project effect on juvenile lamprey. However, dam passage survival](#) can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study [for dam passage survival](#); 1) Tag technology for juvenile macrophthalmia is unavailable; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable.

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[Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial. The work group agrees that it is not possible to assess the overall juvenile lamprey population in the Wells Reservoir but that a study to examine the stomach contents of birds and fish may be appropriate.](#)

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Work group members have determined that an updated literature review of juvenile lamprey survival [and the predation on juvenile lamprey is](#) warranted. Douglas PUD can also include in this review existing information related to past fyke net data and previous studies (Burley and Poe 1994 and Columbia Basin Research Pikeminnow Removal Program Reports) at Wells Dam to provide preliminary information related to route of passage, timing, and predation.

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Finalized Issue Statement #2

Existence and operation of the Project may affect adult [Pacific](#) lamprey habitat use.

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Draft Issue Determination Statement #2

There were two types of habitat identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir deepwater habitat is plentiful and undisturbed by Project operations suggesting that overwintering habitat is not a concern.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depths of 1-2 meters). This type of habitat is not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the lower 1.5 mile portion of the Methow River that may have marginal spawning habitat for adult Pacific lamprey.

A study to determine whether adult lamprey are spawning within the lower 1.5 miles of the lower Methow River could be conducted.

Finalized Issue Statement #3

Existence and operation of the Project may affect adult Pacific lamprey behavior related to ladder passage, timing, [drop back](#) and upstream migration.

Draft Issue Determination Statement #3

Work group members have determined that this issue has a tie to the Project and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, and upstream migration. The results of an adult lamprey passage study would be useful during the development of PM&E measures.

The group has expressed concern that “fallback,” which is a term that has been used with salmonids, cannot be measured for Pacific lamprey as they do not exhibit homing behavior similar to salmonids. The frequency of “drop back” events can be measured via the radio-telemetry study but it is important to distinguish the difference between these two types of behavior as it relates to the biological fitness of the species being studied. Because lamprey do not home, drop back may be less related to project operations and more to do with spawning site selection and searching for the pheromones emitted from lamprey ammocoetes.

The work group recommends that a radio telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam.

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Finalized Issue Statement #4

Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.

Draft Issue Determination Statement #4

The work group agrees that juvenile lamprey are mobile and robust organisms capable of avoiding the fluctuation zone. An evaluation of actual juvenile lamprey use of identified habitats is problematic due to an inability to accurately capture, mark and recapture juvenile ammocoetes within the deep water habitats of the Wells Project. In addition, there are no statistically rigorous methodologies to accurately assess juvenile lamprey abundance and distribution. Lastly, the preferred collection mechanism, electro-shocking, is not advisable within the Wells Project due to the presence of ESA listed fish, including steelhead, spring chinook and bull trout.

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Accurate population assessment methodologies have not been developed for juvenile lamprey and studies would be limited by available sampling technology. Therefore, a juvenile lamprey habitat assessment would not be sufficiently reliable and would not contribute to the development of future license requirements.

Finalized Issue Statement #5

The existence and operation of the Project may be affecting white sturgeon habitat and carrying capacity.

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Draft Issue Determination Statement #5

The current estimate of the white sturgeon population ranges from 20-50 adult fish. The effect of the Project on these fish is unknown. A study is not feasible for habitat although little is known about white sturgeon habitat other than their preference for deep water habitats which is not lacking in the Wells Project. Project operations do not affect deepwater habitats. There is little evidence to suggest that white sturgeon habitat is adversely affected.

A carrying capacity estimate could be developed; however, the accuracy of such an estimate is in question given the dynamic nature of a lotic system. The habitat assessment and carrying capacity estimates would be further compromised due to the low numbers of fish in the Wells Project.

The development of carrying capacity estimates would not be reliable because of low abundance of the subject species and the inability to conduct a statistically meaningful study. Additionally, a study on potential habitat alterations is not needed because no alterations are proposed.

The work group does not believe that a carrying capacity and habitat assessment can be completed during the two-year ILP study period but could be part of M & E associated with a proposed white sturgeon augmentation strategy.

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Finalized Issue Statement #6

Existence and operation of the Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment, and upstream and downstream passage (entrainment/recruitment).

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Draft Issue Determination Statement #6

There is consensus by the group that the Project currently restricts upstream passage of adult sturgeon. Additional passage information is not needed because 8 projects downstream of Wells Dam also block adult sturgeon from migrating from the lower Columbia River to areas upstream of Wells Dam. Further, the population of sturgeon in the Rocky Reach Reservoir is small (less than 50 adults) and not likely limited by habitat within that reservoir.

Sturgeon typically spawn in the tailraces of Columbia River dams. This is also expected to be the case in the Wells tailrace. Because Wells Dam is a run-of-river project, flow and temperature manipulations to assist in sturgeon spawning are not feasible.

The sturgeon population found within the Wells Reservoir is small (20-50 adults fish) and juvenile fish are present within the population. This population is expected to spawn in the Chief Joseph tailrace, which is outside of the Wells Project boundary. Early rearing is expected to take place within the Wells Project, however because the adult population is relatively small and because spawning is infrequent and sporadic, the ability to study spawning effectiveness and recruitment during the ILP two year study window is not feasible or meaningful.

Augmentation has been suggested as a means to increase the population size to a level that could provide meaningful study results. The RWG has discussed the potential to enhance the sturgeon population via the implementation of a augmentation program (during the term of the new license) similar to the other Mid-Columbia PUDs (Grant and Chelan County). Longer-term monitoring of recruitment would be conducted after an augmentation program has been initiated and additional adult fish are present within the Project.

[The work group agrees that a sturgeon population census and genetic sampling in the Wells Reservoir would be beneficial, assuming that existing information is insufficient. This baseline information could assist the licensee in developing long-term strategies to augment the sturgeon population.](#)

Finalized Issue Statement #7

Existence and operation of the Project may affect the predator-prey dynamics within the Wells Project (components may include investigating bioenergetics, food web, predation and carrying capacity models and habitat mapping). Potential contributing factors to higher predation rates may include unique hydraulics and habitat (macrophytes, localized water temperature, turbidity, substrate, pH and DO and anthropogenic structures).

Draft Issue Determination Statement #7

This issue proposes a study to find an impact. Information on the resident fish assemblage from studies published in 1974, 1979, 1983, 1994 and 1999 is adequate to address predator-prey dynamics. These studies do not indicate that the Project is having an adverse effect on the resident fish resource.

All anadromous species are already covered by the HCP survival standards. Game fish species are managed by the State of Washington and are influenced by recreational fishing and fish planting regimes. The species assemblage, including predator-prey dynamics, within the Wells Reservoir have developed over the last 50-years of fish management and species introductions.

This issue proposes the development of several fish management tools that are outside of the control of the Project. The development of these tools is not related to assessing how

operations of the Wells Project influence predator-prey dynamics. Studies completed to date do not demonstrate an adverse Project effect.

This issue is not relevant to project operations, will not assist in identifying project impacts and would not contribute to the development of future license requirements.

Finalized Issue Statement #8

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) and their potential effects on aquatic organisms and humans.

Draft Issue Determination Statement #8

The Project does not discharge toxic pollutants into the Wells Project or Columbia River. Non-point source pollutants that may be present within the Wells Project are not the product of Douglas PUD activities.

The Okanogan River likely contains toxins within the sediment. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project. Although a study would be feasible, there are numerous reports by the Washington State Department of Ecology and the Colville Tribes documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments conducted on toxins in the Okanogan River most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River.

Toxins that have accumulated within the lower 15.5 miles of the Okanogan River are ultimately captured at the mouth of the Okanogan River where their effects are minimized.

It may be beneficial to determine how Project operations affect the accumulation, transport and deposition of toxins within the Project boundary. It would also be helpful to determine the impacts of toxins on the aquatic organisms and humans.

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Finalized Issue Statement #9

Reservoir fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.

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Comment [Bc1]: Replaces littoral plant assemblages, submergent plants and macrophytes

Draft Issue Determination Statement #9

This issue proposes a study to find an impact. The existing aquatic and wetlands plant communities have evolved over the past forty years of Wells Project operations. Douglas PUD is not proposing to change Project operations during the next license term. Aquatic and wetland plant distribution studies conducted in 2005 document the presence of robust communities which are indicative of the long-term effects of reservoir fluctuation on these plant communities. Mobility of fish and macroinvertebrates has allowed these species to move out of area affected by reservoir fluctuations.

There is existing information to assess the effects of Project operations on aquatic and wetland plant communities.

Finalized Issue Statement #10

Project operations may affect compliance with TDG in the Wells Tailrace and Rocky Reach Forebay.

Draft Issue Determination Statement #10

There is consensus by the group that the operations of Wells Dam can have an effect on compliance with the total dissolved gas (TDG) standard. The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the formal ILP study window (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

Finalized Issue Statement #11

Project operations may affect compliance with temperature in the Wells Project.

Draft Issue Determination Statement #11

There is consensus by the group that the operations of Wells Dam can have an effect on compliance with the water temperature standards. The group agrees that studies to address this issue are feasible and the results will be meaningful for the 401 Water Quality Certification Process and therefore, relicensing. Douglas PUD is currently collecting temperature data throughout the Wells Project and at Wells Dam. Furthermore, Douglas PUD has established weather stations to collect meteorological data in key locations of the Wells Reservoir. These data sets will be utilized to develop a temperature model (CE-QUAL-W2) to assess the Wells Project's effect on water temperatures.

The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respects to 401 Water Quality Certification. The RWG agrees that the development of specific water temperature models will be an activity to be implemented during the ILP two-year study window. Toward this goal, Douglas PUD will continue to collect water temperature and meteorological data during 2006 and 2007 for use in the development of a temperature model to be used in 2008 and/or 2009. Data may continue to be collected in 2008 and 2009 if necessary. The results will be used to evaluate compliance with the state's water quality standards.

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Finalized Issue Statement #12

Project operations may affect compliance with DO, pH, and turbidity in the Wells Project.

Draft Issue Determination Statement #12

There is consensus by the group that the operations of Wells Dam may have an effect on compliance with various water quality parameters. Currently, Douglas PUD is collecting water quality data toward the evaluation of meeting the numeric criteria for the state's water quality standards. Data suggests that Douglas PUD is in compliance with the Washington State Standard for these parameters.

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The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respects to 401 Water Quality Certification. Douglas PUD shall continue to collect these parameters on a seasonal basis during the two-year relicensing study. Multiple years of study will provide reasonable assurance that Wells Dam operations are in compliance with state water quality standards.

Finalized Issue Statement #13

The Wells Project may affect Bull Trout survival and habitat.

Draft Issue Determination Statement #13

There is consensus by the group that the Bull Trout Monitoring and Management Plan (Plan), which has been approved by FERC and the U.S. Fish and Wildlife Service, is sufficient to address this issue. The Plan was implemented beginning in December 2004 and will continue into 2008. The group also agrees that the results of the Plan will be meaningful to relicensing in that it will help determine continued measures to protect Bull Trout during the new license term.

Finalized Issue Statement #14

The Wells Project may contribute to the spread of aquatic invasive species.

Draft Issue Determination Statement #14

The Project has not contributed to the spread of aquatic invasive species. This issue proposes a study to find an impact. Douglas PUD has completed baseline studies that show that the vast majority of aquatic plant species and macroinvertebrates in the Wells Reservoir are native. Most aquatic invasive species are spread by recreational boats, fishermen and waterfowl. Douglas PUD does not have control over any of these resources. Existing information indicates that there is no evidence of a Project effect. This may be an education and enforcement issue.

Finalized Issue Statement #15

The Wells Project should continue resident fish production at the Wells Hatchery.

Draft Issue Determination Statement #15

This issue will be discussed during the development of PM&E measures, specifically the 20,000 lbs. of resident fish. The group agrees that this is not an issue requiring a study.

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The Wells Project may affect resident fish species abundance and composition.

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This issue proposes a study to find an impact. It is unlikely that a study addressing such a broad issue would be meaningful for relicensing. Existing information on the resident fish assemblage is adequate to address this issue and includes information from studies published in 1974, 1979, 1983, 1994 and 1999.

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Finalized Issue Statement #16

Is there a resident fish species that could be introduced into the Wells Reservoir to provide a recreation enhancement without adversely impacting other fish species or their habitat?

Draft Issue Determination Statement #16

This question proposes a study to evaluate opportunities to introduce a new fish species into the Wells Reservoir to provide a recreation enhancement without adversely impacting other species or their habitat. This could be a potential PM&E measure. Or is this a study to determine whether or not a PM&E is even feasible?

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Aquatics RWG Meeting #3
February 2, 2006
Action Items

1. Provide Aquatics RWG members with catch data from sturgeon study (Bao).
2. Add Brad and Molly from WDFW to Aquatics RWG email list (Bao).
3. Email Draft Issue Determination Statements to RWG members (Bao).
4. Email notice to the Aquatics RWG regarding the new meeting on April 6, 2006 (Bao).
5. Produce tables and figures for the Columbia Basin Environmental 2003 TDG Spill Study for Pat Irle (Bao).

Cultural RWG Meeting 3
February 9, 2006

From: Scott Kreiter
Sent: Friday, February 03, 2006 1:49 PM
To: Bob Clubb; Brad Hawkins; Camille Pleasants; Frank Winchell; Gordon Brett; Guy Moura; John Devine; Neal Hedges; Richard Bailey; Rob Whitlam; Scott Kreiter; Shane Bickford; Timothy Bachelder
Cc: Mary Mayo
Subject: Wells Relicensing - Cultural Resources RWG Meeting Agenda
Attachments: Meeting Agenda Cultural RWG 3.pdf; Sandwich checklist.doc

Please find attached the proposed agenda for the Wells Cultural Resources RWG meeting on February 9 in Nespelem.

Please return the attached lunch menu so that we can be properly fed. You can open it in MS Word and place an X next to the items you want. Please return to me by Tuesday so that we can make orders.

For those attending by phone, please dial the following number at 10 AM:

(360) 357-2903 – Pin No. 15555 #

Please contact me if you have questions or comments.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – February 9, 2006**

Meeting Purpose: To scope initial studies for addressing cultural resources issues related to Wells relicensing.

Objectives: 1. Develop scope of work for the Cultural Resources Audit
2. Develop objectives for TCP investigation

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: February 9, 2006

Location: Colville Confederated Tribes
Nespelem, Washington

Meeting time: 10:00 AM – 12:30 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #2	Scott Kreiter
10:10	Discuss updated steps for Section 106	Group
10:30	Discuss updated APE definition	Group
10:45	Discuss Cultural Resources Audit Scope of Work	Group
11:15	Develop objectives for TCP study	Group
11:50	Action items and next steps.	Scott Kreiter
12:00	Lunch (Provided by Douglas PUD)	
12:30	Adjourn or continue discussions if needed	

Attendees Invited: Camille Pleasants, Colville Tribes (THPO) Guy Moura, Colville Tribes Rob Whitlam, Washington DAHP (SHPO) Jim Fisher, BLM Rich Bailey, BLM Frank Winchell, FERC	Bob Clubb, Douglas PUD Shane Bickford, Douglas PUD Gordon Brett, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc. Tim Bachelder, Devine Tarbell & Assoc.
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STEPS FOR 106 COMPLIANCE

TASK		DESCRIPTION	ILP Schedule
1	Identify interested parties and stakeholders (36 CFR 800.3(c))	FERC and/or Douglas PUD should identify any tribes, agencies, or other interested parties who have an interest in cultural resources related to the Wells relicensing.	<u>October 2005</u> Stakeholder outreach
2	Establish policy-level consultation (36 CFR 800.2(c)(ii))	FERC should initiate policy-level consultation with agencies and tribes. FERC may decide to delegate day-to-day consultation to Douglas PUD.	<u>January 2007</u> Initial tribal consultation meeting
3	Define Area of Potential Effect (APE) (36 CFR 800.4(a))	Define the area where cultural resources may be impacted by ongoing project operations. Seek formal concurrence from SHPO and THPO.	<u>January – March 2005</u> Pre-ILP consultation
4	Background research to identify the scope of identification efforts (36 CFR 800.4(a)(2, 3, 4))	A qualified archaeological/historic consultant conducts research to summarize previously completed studies in the Project area to obtain an understanding of what is known about historic use in the APE. This information is used to scope additional studies.	<u>March – June 2005</u> Pre-ILP baseline study
5	Phase I Study – Inventory (if needed) (36 CFR 800.4(b)(1))	The entire APE is assessed and surveyed for cultural resources by walking transects at pre-determined intervals to identify potential sites. A qualified consultant conducts research to determine if any TCPs exist in the APE.	<u>2008</u> Conduct 1 st season of studies
6	Phase II Study - Evaluation of site eligibility for the National Register of Historic Places (NRHP) (36 CFR 800.4(c))	The Section 106 parties will determine what level of site evaluation is needed to evaluate NRHP eligibility.	<u>2009</u> Conduct 2 nd season of studies
7	Assess adverse effects (36 CFR 800.5)	The Section 106 parties will assess the effects of ongoing Project operations on historic properties and develop treatments.	<u>December 2009</u> Preliminary Licensing Proposal Due
8	Historic Properties Management Plan (HPMP)	Douglas PUD will consult with the Section 106 parties to develop a Historic Properties Management Plan for incorporation into the new license.	<u>May 2010</u> License Application Filed
9	Programmatic Agreement (36 CFR 800.14)	FERC develops and distributes a Programmatic Agreement (PA) for signature that commits the Licensee to implement the HPMP. This also documents FERC's completion of Section 106 and allows the SHPO and THPO to sign off on FERC's assessment of Project effects on historic properties.	<u>February 2011</u> FERC Issues Draft HPMP

Scope of Work
Audit of Archaeological Site Information
Wells Hydroelectric Project

Discussion Draft
February 6, 2006

Need

Public Utility District No. 1 of Douglas County (hereafter Douglas PUD) has identified a need for an audit of available archaeological site information for the Wells Hydroelectric Project.

Summary data for 171 archaeological sites within, or adjacent to, the Wells Project are presented in Table 1. Archaeological investigations in the Wells Project began in the 1950s and continue to the present day. There have been several archaeological inventories of the project and there is a monitoring survey of archaeological sites within the project every three years. Although several sites within the project have been test excavated or evaluated, most sites have not been assessed for their significance. At present, there is not a single comprehensive source for information about the Wells Project archaeological sites.

The basic goal of the audit is to compile and collate archival and published information pertinent to each archeologically significant site. Information considered during this process would include any information detailing investigations that have been conducted to date, the condition of known sites, and the significance of each site (i.e., potential National Register eligibility). Douglas PUD would use this information to support the Wells Project relicensing effort. In addition, this information could also be used to guide future archaeological studies. The proposed audit could also have utility for informing daily management decisions concerning specific archaeological site location within the Project.

Approach

The audit would consist of three steps: 1) compile and review all archival site information (e.g. archaeological site records, Indian allotment records); 2) conduct an analysis of archaeological reports for the Wells Project area; 3) and synthesize information for each site into a database.

1. Review archival information such as archaeological site forms and Indian allotment data

Assemble and review archaeological site information for all sites within the Wells Project APE. This information will provide baseline information regarding site location, ownership, and site extent. A file will be prepared for each archaeological site that contains the original site file and any additional supplemental information. An updated archaeological site form will be prepared for each site.

Allotment data will be compared with archaeological site information to see if there might be archaeological correlates with certain allotments.

2. Review literature listed in the Wells Project archaeology bibliography

Review all reports of past investigations within the Wells Project boundary and investigations at each site will be summarized in narrative form. An initial bibliography of Wells Project archaeology is appended to this scope. Site data will be evaluated for the quality of available information that could support National Register of Historic Places (NRHP) assessments.

Summary data will be provided in a format that could readily be incorporated into NRHP determinations of eligibility (DOEs).

3. Assemble information about each site into a database

Prepare a database to enable site information to be readily accessed in a variety of formats (e.g., NRHP eligibility, temporal placement, site condition, site monitoring status, location, etc.). The database would be developed to facilitate incorporation of traditional cultural property information as those data are developed. This information would be used by Douglas PUD for ongoing site management as well as for planning additional studies that might be required as part of the relicensing effort. The database would be constructed so that it could be linked with the Project GIS.

Deliverables

The following deliverables for the archaeological audit will be provided:

1. A comprehensive folder for each archaeological site within the Wells Project APE, including all editions of archaeological site forms.
2. A database comprised of summary information for each site including location information, past investigations, NRHP status, and site condition.

Schedule

Following is a proposed schedule for accomplishing the archaeological audit:

<u>Activity</u>	<u>Time Period</u>	<u>Deliverable</u>
Site form and allotment review	March–August 2006	Individual site files; updated site forms
Literature review	March–July 2006	Individual site files
Archaeological database	June–September 2006	Archaeological database

Wells APE Definition

Discussion Draft

February 9, 2006

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary (Figure 1). The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license.

Table 1. Recorded Archaeological Sites Within or Near the Wells Project Area

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-CH-276	Not evaluated for eligibility	Large amount of relatively contemporary trash.	Historic
45-CH-277	Not evaluated for eligibility	10 mussel shell fragments and a cryptocrystalline flake. These were in two small scatters.	Prehistoric
45-CH-402	Not evaluated for eligibility	Fire cracked rock, bone fragments, shell lens, cryptocrystalline flakes	Prehistoric
45-DO-291	Not evaluated for eligibility	Glass, nails, wire, stove pipe, miscellaneous trash	Historic
45-DO-292	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, hearths, stained soil, possible house pit.	Prehistoric
45-DO-293	Not evaluated for eligibility	Fire cracked rock, stained soil, flakes, cairn. Stone alignments may represent prehistoric fishing weirs.	Prehistoric
45-DO-371	Not evaluated for eligibility	Tools and flakes	Prehistoric
45-DO-372	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	River mussel shells, fire cracked rock, bone cryptocrystalline flakes.	Prehistoric
45-DO-373	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-DO-375	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Circular rock arrangement, flakes, potential burial	Prehistoric
45-DO-376	Not evaluated for eligibility	River mussel shells	Prehistoric
45-DO-377	Not evaluated for eligibility	Fire cracked rock, mussel shells	Prehistoric
45-DO-378	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flakes, one petrified wood ovate knife, projectile point fragment, sparse shell midden	Prehistoric
45-DO-379	Not evaluated for eligibility	Charcoal, bone, mussel shell	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-DO-380	Not evaluated for eligibility	Wood cabin, latrine, root cellar, iron Euro-American objects	Historic
45-DO-381	Not evaluated for eligibility	Foundation, tin cans, glass, apricot trees, latrine	Historic
45-DO-382	Not evaluated for eligibility	Mussel shell, cryptocrystalline flakes	Prehistoric
45-DO-383	Not evaluated for eligibility	Cryptocrystalline flakes, fire cracked rock	Prehistoric
45-DO-384	Not evaluated for eligibility	River mussel shell	Prehistoric
45-DO-385	Not evaluated for eligibility	Fire cracked rock, tools, flakes, bone, shell	Prehistoric
45-DO-386	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Mussel shell, lithic scatter, cobble tools, basalt core tool	Prehistoric
45-DO-387	Eligible	Shell deposit, cryptocrystalline flakes, fire cracked rock	Prehistoric
45-DO-388	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-389	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-390	Not evaluated for eligibility	Site destroyed	Prehistoric
45-DO-391	Not evaluated for eligibility	Bone, one core, 2 flakes, one ovate knife fragment.	Prehistoric
45-DO-392	Not evaluated for eligibility	Fire cracked rock, sparse shell, antler tine fragment, one core, one flake.	Prehistoric
45-DO-467	Not evaluated for eligibility	Crypto-crystalline silicate debitage	Prehistoric
45-DO-468	Eligible	Dark staining, Mazama ash. Mammal, fish and shellfish remains.	Prehistoric
45-DO-469	Determined not eligible	Mussel shell	Prehistoric
45-DO-470	Eligible	Mammal and fish remains, worked bone point, possible net sinker.	Prehistoric
45-DO-472	Not evaluated for eligibility	Non-diagnostic flaked lithic tools, fire cracked rock	Prehistoric
45-DO-485	Not evaluated for eligibility	One basalt mass removal flake. root cellar, remnants of house foundation and wall	Historic
45-DO-486	Not evaluated for eligibility	Fire cracked rock	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-DO-515	Not evaluated for eligibility	Fire cracked rock and large cobbles	Prehistoric
45-DO-60	Not evaluated for eligibility	Hammerstone, shallow grinding stone.	Prehistoric
45-DO-61	Not evaluated for eligibility	Shell, bone, fire blackened earth	Prehistoric
45-DO-62	Not evaluated for eligibility	Shell and broken rock	Prehistoric
45-DO-63	Not evaluated for eligibility	Fire cracked rock, shell, bone and flakes	Prehistoric
45-DO-64	Not evaluated for eligibility	Fine broken rock, mussel shell, bone, flat cobbles	Prehistoric
45-DO-65	Not evaluated for eligibility	Fire cracked rock, flakes	Prehistoric
45-DO-66	Not evaluated for eligibility	Fire cracked rock, sparse mussel shell, antler tine.	Prehistoric
45-DO-67	Not evaluated for eligibility	Depression - no materials	Prehistoric
45-DO-68	Not evaluated for eligibility	Fire cracked rock, shell, bone, lithic artifacts	Prehistoric
45-DO-70	Not evaluated for eligibility	Fire cracked rock, cobble chopper, spall tool, net sinker	Prehistoric
45-DO-71	Not evaluated for eligibility	Flakes, projectile point fragment	Prehistoric
45-DO-72	Not evaluated for eligibility	Fire cracked rock, bone	Prehistoric
45-DO-74	Not evaluated for eligibility	Bone, shell	Prehistoric
45-DO-75	Not evaluated for eligibility	Fire cracked rock, bone, shell	Prehistoric
45-DO-76	Not evaluated for eligibility	Fire cracked rock, shell, worked knife. Possible small stone lined storage pit.	Prehistoric
45-DO-77	Not evaluated for eligibility	Fire cracked rock, bone, charcoal, shell	Prehistoric
45-DO-78	Not evaluated for eligibility	Spall tool	Prehistoric
45-DO-79	Not evaluated for eligibility	Petroglyph. 6 circles with stems in a row and a deer(?). Pecked and patinated, not painted.	Prehistoric
45-DT-35A	Eligible	Wells Archaeological District	Prehistoric
45-OK-100	Not evaluated for eligibility	Shell midden, cobble chopper, detritus, possible housepits	Prehistoric
45-OK-104	Not evaluated for eligibility	Highly eroded shell midden, fire cracked rock	Prehistoric
45-OK-105	Not evaluated for eligibility	Fire cracked rock	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-106	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pre-contact camp, shell midden and lithic scatter, 5 x 20m	Prehistoric
45-OK-108	Not evaluated for eligibility	Pre-contact shell midden and lithic material, 500 x 200m (disturbed by railway and highway relocation 1965)	Prehistoric
45-OK-109	Not evaluated for eligibility	Housepit with small apparently associated depressions, cobble chopper	Prehistoric
45-OK-110	Not evaluated for eligibility	Fire cracked rock, shell, charcoal	Prehistoric
45-OK-111	Not evaluated for eligibility	Pre-contact shell midden and hearth feature (70-60cm)	Prehistoric
45-OK-112	Not evaluated for eligibility	8 low rock cairns, shell, fire cracked rock, lithic material	Prehistoric
45-OK-113	Not evaluated for eligibility	Housepit with 2 possible pits, flakes, cairns, possible burials	Prehistoric
45-OK-114	Not evaluated for eligibility	2 stone cairns with ash and charcoal beneath stones. possible burials	Prehistoric
45-OK-115	Not evaluated for eligibility	Sand dune burial, parts of 4 human skulls	Prehistoric
45-OK-116	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flake scatter, hammerstone, and possible burial cairn	Prehistoric
45-OK-117	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Flake scatter, cobble tool	Prehistoric
45-OK-118	Not evaluated for eligibility	Pre-contact camp, fire cracked rock, charcoal, shell, bone, chipping debris	Prehistoric
45-OK-119	Not evaluated for eligibility	Pre-contact burial with beads, matting, bone button, cordage.	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-120	Not evaluated for eligibility	Depression / possible housepit, 3-4 meters across	Prehistoric
45-OK-121	Not evaluated for eligibility	Pre-contact shell midden, fire cracked rock, one basalt flake	Prehistoric
45-OK-122	Not evaluated for eligibility	Mussel shell, fire cracked rock	Prehistoric
45-OK-125	Not evaluated for eligibility	Pre-contact shell midden, fire cracked rock, hearth feature	Prehistoric
45-OK-126	Not evaluated for eligibility	Fire cracked rock in form of hearth, some shell, charcoal & bone evident.	Prehistoric
45-OK-128	Not evaluated for eligibility	Pre-contact shell midden and fire cracked rock scatter, 45 x 120ft	Prehistoric
45-OK-130	Not evaluated for eligibility	Pre-contact lithic scatter and possible cairn, 60 x 40m	Prehistoric
45-OK-131	Determined not eligible	Pre-contact camp, bone fragments, lithic scatter, 120 x 45m	Prehistoric
45-OK-132	Not evaluated for eligibility	Pre-contact camp, bone fragments and lithic scatter, 45 x 235m	Prehistoric
45-OK-137	Not evaluated for eligibility	Fire cracked rock, hearths, detritus, heat spalls	Prehistoric
45-OK-138	Not evaluated for eligibility	Storage pit, 2 x 4m	Prehistoric
45-OK-139	Not evaluated for eligibility	One housepit, small piece of bone, one clam shell	Prehistoric
45-OK-30	Not evaluated for eligibility	Fire cracked rock, bone, shell, charcoal, organic staining, thumb-nail scraper	Prehistoric
45-OK-31	Not evaluated for eligibility	Pre-contact camp	Prehistoric
45-OK-371	Not evaluated for eligibility	Fire cracked rock, organic staining, core and flake tools, shell	Prehistoric
45-OK-372	Not evaluated for eligibility	Iron chute, pipes, timbers, road bed, paving	Historic
45-OK-373	Not evaluated for eligibility	Fire cracked rock, quartzite flakes	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-374	Not evaluated for eligibility	Cyst, spikes, nails and wire, enamel tea kettle, 1930's plow, scattered planks and posts. Possible house foundation in sand dune.	Historic
45-OK-375	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-376	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-377	Not evaluated for eligibility	Petrified wood core, hearths ,fire cracked rock, organic staining, flake tools and cores	Prehistoric
45-OK-378	Not evaluated for eligibility	Fire cracked rock, organic staining, core and flake tools	Prehistoric
45-OK-379	Not evaluated for eligibility	Fire cracked rock, charcoal stains, core and flake tools	Prehistoric
45-OK-380	Not evaluated for eligibility	Fire cracked rock, quartzite flakes and core tools	Prehistoric
45-OK-381	Not evaluated for eligibility	Fire cracked rock, shell, organic staining, choppers, flakes, tools, one large anvil stone	Prehistoric
45-OK-382	Not evaluated for eligibility	Fire cracked rock in large discrete concentrations, shell, bone, charcoal, core and flake tools, hopper mortar bases. Distribution of material suggests living floors and activity areas.	Prehistoric
45-OK-383	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Hearths, fire cracked rock, shell, large flat rocks, hammerstones, flake and core tools, choppers.	Prehistoric
45-OK-419	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Lithic scatter	Prehistoric
45-OK-420	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-421	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-422	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-423	Not evaluated for eligibility	Mussel shell, 2 cobble tools, one core tool	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-424	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, 2 cores	Prehistoric
45-OK-425	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-426	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Shell fragments, scrapers, flakes, triangular chipped slate knife	Prehistoric
45-OK-427	Not evaluated for eligibility	Mat lodge site. Rectangular shaped boulder outlined dwelling area. No portable artifacts recovered.	Prehistoric
45-OK-428	Not evaluated for eligibility	Basalt cores, basalt flakes, cryptocrystalline flakes, projectile point	Prehistoric
45-OK-429	Not evaluated for eligibility	Fire cracked rock, cryptocrystalline flakes, mussel shell	Prehistoric
45-OK-430	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Basalt core, cobble tools	Prehistoric
45-OK-431	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-432	Not evaluated for eligibility	Basalt core, basalt waste flakes, quartzite flake tool	Prehistoric
45-OK-433	Not evaluated for eligibility	Sparse scatters of cryptocrystalline waste flakes, fiver mussel shell fragments, fire cracked rock	Prehistoric
45-OK-434	Not evaluated for eligibility	Historic mat lodge site with possible storage pit. Rectangular shaped boulder outlined dwelling area. side sealed tine cans, wire nails, enamel ware, stove fragments	Historic

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-435	Not evaluated for eligibility	Fire cracked rock, shell, hammerstone, flakes	Prehistoric
45-OK-436	Not evaluated for eligibility	Fire cracked rock, cobble tools, anvil stone	Prehistoric
45-OK-437	Not evaluated for eligibility	Small amounts of shell, charcoal stained soil	Prehistoric
45-OK-438	Not evaluated for eligibility	Wooden planks & timbers, square cut nails, cobalt blue glass, yellow embossed earthen ware, one 2-hole mother of pearl button.	Historic
45-OK-439	Not evaluated for eligibility	Fire cracked rock, shell	Prehistoric
45-OK-44	Not evaluated for eligibility	Burial ground, 10-12 stone circles on surface	Prehistoric
45-OK-48	Not evaluated for eligibility	Previously recorded at pithouse. fire cracked rock, shell and bone fragments	Prehistoric
45-OK-487	Not evaluated for eligibility	One cairn.	Prehistoric
45-OK-488	Not evaluated for eligibility	Fire cracked rock, shell, flaked cobbles	Prehistoric
45-OK-49	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pit house depression, fire cracked rock, shell, one cairn	Prehistoric
45-OK-50	Not evaluated for eligibility	Hearth, charcoal, fire cracked rock, shell, chert flakes.	Prehistoric
45-OK-51	Not evaluated for eligibility	Fire cracked rock, hearths, shell and bone fragments, net weight, chopper, flakes	Prehistoric
45-OK-518	Not evaluated for eligibility	Isolated find - one large cryptocrystalline core	Prehistoric
45-OK-519	Eligible	Shell, lithic debris, bone, charcoal, fire cracked rock, hearth, distinct saucer-shaped depression indicates possible pithouse.	Prehistoric
45-OK-52	Not evaluated for eligibility	Housepits, 8 storage pits and associated burials	Prehistoric
45-OK-520	Determined not eligible	River mussel shell lens, fire cracked rock, charcoal, hearth	Prehistoric
45-OK-521	Eligible	Shell lens, fire cracked rock, bone, charcoal, organic staining, flakes, bone tools, hearths	Prehistoric
45-OK-527	Not evaluated for eligibility	Fire cracked rock, dark staining, shell, hearth	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-53	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Site in on undulating sand dune. Possible human bone fragments, mammal and bird bone, basalt and quartzite core and flake tools. fire cracked rock, shell	Prehistoric
45-OK-54	Not evaluated for eligibility	Chipping debris, a little bone. burial was reportedly found within irrigation ditch	Prehistoric
45-OK-55	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell	Prehistoric
45-OK-56	Not evaluated for eligibility	Spall tool, net sinker, choppers, points	Prehistoric
45-OK-57	Not evaluated for eligibility	Fire cracked rock, shell, bone. 2 figures on rock wall. Owner has collected pestles..	Prehistoric
45-OK-58	Not evaluated for eligibility	Fire cracked rock	Prehistoric
45-OK-59	Not evaluated for eligibility	Pre-contact shell midden and camp, 65 m in length along shore	Prehistoric
45-OK-60	Not evaluated for eligibility	Shell, broken rock, flakes	Prehistoric
45-OK-61	Not evaluated for eligibility	Rock shelter, pictographs	Prehistoric
45-OK-62	Not evaluated for eligibility	Pre-contact pictographs	Prehistoric
45-OK-65	Not evaluated for eligibility	Historic trading post. Hudson Bay company fort. 2 pottery fragments, 1 piece of used obsidian	Historic
45-OK-66	Not evaluated for eligibility	Housepit/burial	Prehistoric
45-OK-67	Not evaluated for eligibility	Fire cracked rock, bone, shell	Prehistoric
45-OK-68	Not evaluated for eligibility	Fire cracked rock, shell, cone	Prehistoric
45-OK-69	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, bone, human femur. possible burial. hearth feature in water	Prehistoric
45-OK-70	Not evaluated for eligibility	Fire cracked rock, shell, chipping debris	Prehistoric
45-OK-71	Not evaluated for eligibility	4 storage pits	Prehistoric
45-OK-72	Not evaluated for eligibility	Housepit and storage pit	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-74	Eligible	Shell midden on partially eroded river bank. Fire cracked rock	Prehistoric
45-OK-75	Not evaluated for eligibility	Fire cracked rock, shell lenses, organic staining.	Prehistoric
45-OK-76	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Pictograph. Two anthropomorphic figures and 2 rather amorphous shapes. possibly same as ok57	Prehistoric
45-OK-77	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, flakes	Prehistoric
45-OK-78	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, antler wedge, flakes, cobble tools, hammerstone, spall tool	Prehistoric
45-OK-79	Not evaluated for eligibility	5 sweat lodge pits	Prehistoric
45-OK-80	Not evaluated for eligibility	Pre-contact shell midden, 35 x 18m	Prehistoric
45-OK-81	Not evaluated for eligibility	Fire cracked rock, shell. Projectile points reportedly collected. Berry picking site before the early 1900's to present.	Prehistoric
45-OK-834	Not evaluated for eligibility	Fire cracked rock and a few cobble cores and flakes	Prehistoric
45-OK-84	Not evaluated for eligibility	3 sweat lodge pits.	Prehistoric
45-OK-85	Not evaluated for eligibility	Shell, ash, fire cracked rock	Prehistoric
45-OK-86	Not evaluated for eligibility	Fire cracked rock, bone	Prehistoric
45-OK-87	Not evaluated for eligibility	Shell midden	Prehistoric
45-OK-88	Not evaluated for eligibility	Pre-contact shell midden, 8 x 4m	Prehistoric
45-OK-91	Not evaluated for eligibility	11 housepits, 14 smaller pits, 2 possible burials, cairn, cobble chopper, milling stone	Prehistoric
45-OK-92	Not evaluated for eligibility. Contributing element to Lake Pateros Archaeological District.	Fire cracked rock, shell, lithic items, nails, metal	Prehistoric

Site Number	Eligibility Description	Site Description	Historic/Prehistoric
45-OK-93	Not evaluated for eligibility	Burial in sand dune. one skull and one bone fragment	Prehistoric
45-OK-95	Not evaluated for eligibility	Cobble choppers, spall tools, pestle, hammerstone	Prehistoric
45-OK-96	Not evaluated for eligibility	Pre-contact shell midden, 100 x 100m	Prehistoric
45-OK-97	Not evaluated for eligibility	Fire cracked rock, calcined bone	Prehistoric
45-OK-98	Not evaluated for eligibility	Fire cracked rock, cobble chopper	Prehistoric
45-OK-99	Not evaluated for eligibility	Fire cracked rock, cobble chopper	Prehistoric

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Cultural RWG Meeting 3
Sign-in Sheet and Meeting Products

CULTURAL
SOURCE WORK G
SIGN IN SHEET
February 9, 2006

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Action Items
Cultural Resources Work Group
Meeting 3 – February 9, 2006

1. Complete Figure 1 and Figure 2 maps for APE definition.
2. Locate scanned site forms and reports available through agreement with DAHP.
3. Revise scope of work for the Cultural Resource Audit based on comments received. Set up meeting with the CCT History/Archaeology Department to review CCT literature for inclusion in the bibliography.
4. Document outreach effort for all parties invited to participate in the relicensing process.
5. Contact BIA to determine whether they have an interest in participating in the Section 106 process.
6. Send a request for proposal to the CCT History/Archaeology Department for completion of a TCP study.
7. Revise the Steps for Section 106 Compliance table based on comments received from RWG members.

Recreation and Land Use RWG Meeting 3
February 10, 2006

From: Scott Kreiter
Sent: Thursday, February 02, 2006 7:45 AM
To: Andy Lampe; Bill Fraser; Bill Towey; Bob Clubb; Bob Fateley; Brad Hawkins; Brenda Crowell; Chris Parsons; Dennis Beich; Diane Priebe; Gail Howe; George Brady; Gordon Brett; Jean Hardie; Jim Eychaner; Jim Fisher; Jim Harris; John Devine; Lee Webster; Mary Hunt; Mike Nickerson; Mike Palmer; Scott Kreiter; Shane Bickford; Susan Rosebrough; Tony Eldred
Cc: Mary Mayo
Subject: Wells Relicensing - Recreation and Land Use RWG #3
Attachments: Meeting Agenda Recreation RWG 3.pdf

Please find attached the agenda for the Recreation and Land Use RWG #3. The meeting will be held at Wells Dam on Friday, February 10 at 9 AM. The purpose of the meeting is to categorize issue statements in order to determine which studies will be needed for relicensing.

Please send an RSVP to Mary Mayo at marym@dcpud.org so we can bring the appropriate number of lunches.

Thanks.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda – February 10, 2006**

Meeting Purpose: To categorize issues by developing issue determination statements for Wells relicensing.

Objectives: 1. Categorize issue statements using FERC's 7 study criteria
2. Develop issue determination statements

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: February 10, 2006

Location: Wells Dam, Large Conference Room.

Meeting time: 9:00 AM – 2:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #2	Scott Kreiter
10:20	Issue statement categorization and development of issue determination statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue development of issue categorization statements	Group
1:50	Action items and next steps.	Scott Kreiter
2:00	Adjourn	

Attendees Invited: Gail Howe, City of Pateros George Brady, City of Pateros Lee Webster, City of Brewster Bob Fately, City of Brewster Jean Hardie, City of Bridgeport Steve Jenkins, City of Bridgeport Andy Lampe, Okanogan County Brenda Crowell, Okanogan County Mary Hunt, Douglas County Chris Parsons, WDFW Tony Eldred, WDFW Jim Harris, Washington State Parks	Mike Nickerson, Washington State Parks Bill Fraser, Washington State Parks Jim Eychaner, Washington IAC Susan Rosebrough, National Park Service Bill Towey, Colville Tribes Mike Palmer, Colville Tribes Jim Fisher, Bureau of Land Management Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD Scott Kreiter, Douglas PUD Gordon Brett, Douglas PUD Brad Hawkins, Douglas PUD John Devine, Devine Tarbell & Assoc.
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**Recreation and Land Use
Resource Work Group
Issue Statements from Meeting 2 – January 13, 2006**

1. Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.
2. The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
3. The reservoir and Project operations may affect sediment transport and deposition, which may restrict access and use of the reservoir.
4. Ownership (vs. easement) of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).
5. Recreation proposals under the license need to consider ESA, ADA, ECPA, SCORP as well as local comprehensive plans and development regulations.
6. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.
7. The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.
8. The development of recreation plans in the new license should consider improvements to the current Recreation Action planning process.
9. The Project may affect the economics of the cities and counties adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, community services and water table).
10. How have other dam owners supported emergency services and community infrastructure for local communities? (method for collecting and distributing emergency services tax revenue).
11. Water use at city parks may affect the availability of water for future city development.
12. Public access sites should be evaluated for possible continued maintenance and enhancements during the new license (eg. Okanogan, Columbia, Methow rivers and Washburn fishing sites).

13. Wells Dam may be a hindrance to river travel.

2007 Recreation Action Plan

Proposed Schedule

October 2, 2006, Resolution to advertise for SOQ for recreation consultant

October 5, 12, 19, 2006, run ad.

October 27, 2006, final day for submittal of SOQs.

October 30 – November 3, 2006, interview top three firms.

November 13, 2006, Commission authorization to offer a contract.

November 27, 2006, Commission approval of consultant contract.

December 11, 2006, Consultant deadline for submission of insurance/bond.

January 8, 2007, Consultant and District staff meet to review past Recreation Plans and draft a schedule for completion of 2007 Recreation Plan by December 1, 2007.

January 22, 2007, first letter to stakeholders with draft schedule and initial meeting date.

February 2007, initial meeting with stakeholders.

March through November 2007, stakeholder meetings and development of Recreation Action Update

December 2007 submittal of Recreation Action Plan to FERC.

**Recreation and Land Use RWG Meeting 3
Sign-in Sheet and Meeting Products**

RECREATION AND LAND USE
RESOURCE WORK GROUP
SIGN IN SHEET
February 10, 2006

[illegible]

**Recreation and Land Use
Resource Work Group
Finalized Issue Statements from Meeting 2 – January 13, 2006
Draft Issue Determination Statements from Meeting 3 – February 10, 2006**

Finalized Issue Statement #1

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Draft Issue Determination Statement #1

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The working group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks.

The site evaluation study will be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue during the term of the next license.

Finalized Issue Statement #2

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Draft Issue Determination Statement #2

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of this work indicate that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage. Altering this vegetation could adversely impact aquatic species in the reservoir and may impact waterfowl use of the reservoir and recreational wildlife observation, hunting and fishing.

The recreation work group recommends that a site evaluation study should be completed to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a macrophyte map detailing type of species and focus on macrophytes restricting access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir.

The site evaluation study report will help to determine whether new measures are needed to address this issue during the term of the next license.

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Finalized Issue Statement #3

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Draft Issue Determination Statement #3

Sediment conditions at public recreation sites will be considered during the site evaluation study discussed in Issues No. 1 and 2 above.

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Finalized Issue Statement #4

Ownership (vs. easement) of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).

Draft Issue Determination Statement #4

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development on the Columbia River has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Douglas PUD's Land Use Policy and ownership of the reservoir shoreline has no effect on the ability of adjacent land owners to develop private lands. Development of privately-owned lands adjacent to the Project is affected by numerous factors outside the control of the Project, including city, county and tribal regulations.

Deleted: Development on Wells Project lands is limited to those activities allowed by Douglas PUD's Land Use Policy and the FERC license. This is primarily a safety and resource protection issue. ¶

Deleted: Activities allowed by the Land Use Policy include the installation of docks and water systems in appropriate areas provided that the applicable state and federal permits are required. Permitted use of project land and waters for other purposes (fences, landscaping and agriculture) must be consistent with adjacent property designations and appropriate for the site. This includes ensuring protection of identified cultural and RTE fish, wildlife or botanical resources. ¶

Douglas PUD has no plans to divest ownership of any project land holdings within the Wells Project boundary. Therefore, no additional information is needed to address this issue and a study is not recommended during the two year ILP study period. Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing recreation and land use resources may be warranted.

Finalized Issue Statement #5

Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State Comprehensive Outdoor Recreation Plan (SCORP) as well as local comprehensive plans and development regulations.

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Draft Issue Determination Statement #5

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. No additional information is needed and a study is not recommended.

Finalized Issue Statement #6

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Draft Issue Determination Statement #6

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities. After the group receives the report, it will discuss whether any additional information is needed.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The Recreation Working Group has concluded that additional information is needed and that a Recreational Needs Assessment is needed to assess the condition of existing facilities and to evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey.

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Finalized Issue Statement #7

The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Draft Issue Determination Statement #7

Douglas PUD is proposing to complete a Recreational Needs Assessment as part of the formal relicensing studies. The results of this study will help identify potential enhancements that may be needed to meet current, future and potential recreation needs within the Project. The study will also help to determine whether adequate demand exists to justify the construction of new recreation facilities.

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The Recreation Working Group has concluded that additional information is needed. A Recreational Needs Assessment is proposed to identify potential recreation enhancements.

Finalized Issue Statement #8

The development of recreation plans in the new license should consider improvements to the current Recreation Action planning process.

Draft Issue Determination Statement #8

Additional communication within to the current ~~recreation~~ action planning process would be beneficial. According to stakeholders, the existing process is overly cumbersome and delays implementation of various actions. A new process should be developed to address these concerns. The new planning process should focus on improving communication between stakeholders, the FERC and Douglas PUD. The current ~~recreation~~ action planning process is a component of the existing license. Recreation planning under the new license, if required by FERC, may be significantly different than the current process.

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The working group agrees that no new information is needed to address this issue; therefore, a study is not being proposed. However, Douglas PUD will work with stakeholders to examine areas for potential improvements to the current recreation action planning process.

Finalized Issue Statement #9

The Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, community services and water table).

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Draft Issue Determination Statement #9

There are many variables that could affect the economic health of a city or county. Studying effects on municipal and business infrastructure, tax base and community services, with all possible variables considered, does not have a readily discernible linkage to the Wells Project. Specific individual components of this issue do have an association with the project and its operation, including Operations and Maintenance (O&M) support for recreation facilities located within the counties and within each of the three cities.

Douglas PUD proposes to work with stakeholders on the issue of O&M funding for existing and potential recreation facilities through the development of Protection, Mitigation and Enhancement (PM&E) measures. Ongoing project impacts on infrastructure have not been clearly identified, a relicensing study is not proposed at this time.

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Finalized Issue Statement #10

How have other dam owners supported emergency services and community infrastructure for local communities? (method for collecting and distributing emergency services tax revenue).

Draft Issue Determination Statement #10

The resource work group agrees that this issue is not recommended for a study during the two-year ILP study period but is an issue that will be discussed outside of the relicensing process.

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Finalized Issue Statement #11

Water use at city parks may affect the availability of water for future city development.

Draft Issue Determination Statement #11

Under the terms of the original FERC operating license for Wells Dam, Douglas PUD constructed recreational facilities in the cities of Pateros, Brewster, and Bridgeport. Douglas PUD has continued to provide funding for major maintenance and improvements to these facilities. Each of the respective Cities provides routine operation and maintenance funding for ongoing operation of the facilities located within their respective communities. One component of this responsibility is to provide water for drinking and for irrigation. Because water rights in the communities are limited, the Cities would like to utilize the water rights being used for the public recreation facilities for other potential development needs.

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The parks were originally constructed to provide access to Project lands and waters. Douglas PUD is responsible for maintaining these facilities to a level that allows continued access to the Project. Watering lawns is not a major maintenance item. This issue is an enhancement proposal. Douglas PUD proposes to work with the Cities during the relicensing process to develop options for addressing this issue. A study is not needed to collect additional information related to this topic.

Finalized Issue Statement #12

Public access sites should be evaluated for possible continued maintenance and enhancements during the new license (eg. Okanogan, Columbia, Methow rivers and Washburn fishing sites).

Draft Issue Determination Statement #12

The RWG has concluded that a Recreational Needs Assessment should be one of the formal relicensing studies conducted during the relicensing of the Wells Project. The results of this study will help determine whether maintenance and enhancements are needed to meet current, future and potential recreational demands within the Project.

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Finalized Issue Statement #13

Wells Dam may be a hindrance to river travel.

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Draft Issue Determination Statement #13

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future. [An evaluation of options to address this issue should be considered in the Recreation Needs Assessment.](#)

Deleted: However, no additional information is needed at this time and no study is required to address this issue.

Action Items
Recreation and Land Use Work Group
Meeting 3 – February 10, 2006

1. Cities will determine if they receive a portion of the Privilege Tax.
2. The counties will determine how they distribute Privilege Tax receipts received from Washington State Department of Revenue for Wells Project Privilege Taxes.
3. Send Jim Eychaner information on the Rural Economic Development Revolving Fund (Brad).
4. Ensure consistency in wording usage throughout all issues (Brad).
5. Determine location for next meeting and notify all participants (Scott).
6. Douglas PUD will work with interested stakeholders to coordinate tours. Mike, Andy, Jim, Jean, Susan and Gail have expressed interest in a Wells Reservoir and Dam tour (Scott).
7. Jim Eychaner will provide a recreation trends presentation at next meeting.

Terrestrial RWG Meeting 3
February 8, 2006

From: Scott Kreiter
Sent: Wednesday, February 01, 2006 2:19 PM
To: Beau Patterson; Bill Towey; Bob Clubb; Brad Hawkins; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dennis Beich; Dinah Demers; Gordon Brett; Jim Fisher; Jim McGee; John Devine; Marc Hallett; Mary Hunt; Matt Monda; Neal Hedges; Scott Kreiter; Shane Bickford; Steve Lewis; Tony Eldred
Cc: Mary Mayo
Subject: Wells Relicensing - Terrestrial RWG #3
Attachments: Meeting Agenda Terrestrial RWG 3.pdf

Please find attached the agenda for Terrestrial RWG #3. The meeting will be held at the Douglas PUD headquarters in East Wenatchee on Wednesday, February 8. The purpose of the meeting is to categorize issue statements in order to determine which studies will be needed for relicensing.

***Note that the meeting time has changed to 9:30 AM – 2:30 PM.

Thanks.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – February 8, 2006**

Meeting Purpose: To categorize issues by developing issue determination statements for Wells relicensing.

Objectives: 1. Categorize issue statements using FERC's 7 study criteria
2. Develop issue determination statements

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: February 8, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 9:30 AM – 2:30 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda Review action items from RWG #2	Scott Kreiter
10:00	Issue statement categorization and development of issue determination statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue development of issue categorization statements	Group
2:15	Action items and next steps.	Scott Kreiter
2:30	Adjourn	

Attendees Invited:

Bill Towey, Colville Tribes
Dinah Demers, Colville Tribes
Jim Fisher, BLM
Brenda Crowell, Okanogan County
Marc Hallett, WDFW
Matt Monda, WDFW
Tony Eldred, WDFW
Carmen Andonaegui, WDFW

Beau Patterson, WDFW
Steve Lewis, USFWS
Dan Trochta, USFWS
Mary Hunt, Douglas County
Bob Clubb, Douglas PUD
Jim McGee, Douglas PUD
Shane Bickford, Douglas PUD
Scott Kreiter, Douglas PUD
John Devine, Devine Tarbell & Assoc.

Terrestrial Resources Work Group
Finalized Issue Statements from Meeting 2 – January 11, 2006

1. Ownership or transfer of Project lands could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.
2. The Project and reservoir could attract and facilitate development adjacent to the Project. This could result in associated disturbances to wildlife and wildlife habitat.
3. The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.
4. The reservoir might affect the migration abilities of mule deer.
5. The Project could affect winter habitat for mule deer and sharp-tailed grouse.
6. The Project could affect terrestrial RTE species.
7. Changes in operations and maintenance funding for the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.
8. WDFW management goals for the Wells Wildlife Area may affect wildlife species and habitat. Various management decisions could also influence future funding of the Wells Wildlife Area.
9. Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.
10. Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.
11. Permit requirements associated with erosion control measures could limit the ability of Douglas PUD to protect Project lands from erosion.
12. Public use (recreation) of the Project may affect wildlife and wildlife habitat.
13. Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.
14. Maintenance of the transmission right-of-way could affect wildlife and/or botanical species (eg. Weed control and road maintenance).
15. The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license.

16. Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand and cobble bars.

**Terrestrial RWG Meeting 3
Sign-in Sheet and Meeting Products**

TERRESTRIAL
RESOURCE WORK GROUP
SIGN IN SHEET
February 8, 2006

[illegible]

Terrestrial Resources Work Group
Finalized Issue Statements and Draft Issue Determination Statements
From RWG 3 – February 8, 2006

Finalized Issue Statement #1

Ownership and transfer of Project lands and implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

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Draft Issue Determination Statement #1

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Deleted: Development on Wells Project lands is limited to those activities allowed by Douglas PUD's Land Use Policy and the FERC license. This is primarily a safety and resource protection issue. ¶

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what are provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's proposal to retain shoreline ownership during the term of the new license.

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Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resource Inventories (Cover type mapping, RT&E plant surveys, and invasive species surveys)

¶ Douglas PUD's Land Use Policy and o

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Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing terrestrial resources may be warranted.

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Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. A study is not recommended during the two year ILP study period.

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Finalized Issue Statement #2

The Project is one factor of many that could attract and facilitate development adjacent to Project lands. This could result in disturbances to wildlife and wildlife habitat within the Project.

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Draft Issue Determination Statement #2

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project, but its Land Use Policy does restrict the ability of adjacent landowners to develop the shoreline of the Wells Project. However, Douglas PUD does control shoreline development activity within the Project Boundary and actively patrols the reservoir to monitor compliance with the Land Use Policy.

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Deleted: Douglas PUD's Land Use Policy does restrict the ability of adjacent landowner's to develop the shoreline of the Wells Project. Douglas PUD actively patrols the reservoir to ensure compliance with the Land Use Policy.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of other nearby lands, proximity to social infrastructure (e.g. schools and hospitals), and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

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Additional information will not resolve this issue or produce results meaningful to relicensing. The group agrees that Douglas PUD should retain ownership of Project lands and continue implementing its Land Use Policy. A study is not recommended during the two year ILP study period.

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Finalized Issue Statement #3

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #3

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RT&E plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. The group also expressed concerns that future changes to how the project is operated could negatively affect the high quality macrophyte beds located within the Wells Reservoir. These beds

are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands during extended reservoir draw down. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Aquatic vegetation in the Wells Reservoir is abundant and is comprised of mostly native species. Aquatic vegetation provides valuable habitat for fish and forage for migrating and overwintering waterfowl. Waterfowl in turn provide important food for bald eagles and recreation for waterfowl hunters.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime, and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. A study during the two-year ILP study period is not needed because changes in operations are not being proposed and because good baseline information exists.

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Finalized Issue Statement #4

The reservoir might affect the movements and migration abilities of mule deer.

Draft Issue Determination Statement #4

There is no evidence to suggest that Project operations are affecting the local mule deer movements, migrations or populations. Indeed, local mule deer are abundant in the region and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #5

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Draft Issue Determination Statement #5

There is no evidence of Project related adverse impacts to mule deer or sharp-tailed grouse.

Riparian habitat for game and non-game species has flourished since the project was built and the wildlife areas have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

No Project operational impacts have been identified on these species. Therefore, no additional studies are needed to address this issue.

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It is conceivable that mule deer and sharp-tailed grouse, as well as other wildlife, could be negatively impacted if funding for the Wells Wildlife Area is reduced during the next license term. ¶

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Finalized Issue Statement #6

The Project could affect terrestrial RTE species.

Draft Issue Determination Statement #6

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RT&E plant surveys, and invasive species surveys)

The following RTE species were documented in the Wells Project area:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – Federal Candidate/State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

Additional information is needed to determine if there is a potential effect on the state listed species little bluestem that were identified in the RTE botanical survey. Future land management, recreation planning and operational decisions should consider impacts to state RTE species.

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Future land management, recreation planning and operational decisions should avoid and/or minimize the potential impacts to federal RTE species. No additional information is needed related to federal RTE species.

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Finalized Issue Statement #7

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

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Draft Issue Determination Statement #7

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife due to the construction and operation of the Wells Project. Specifically, the mitigation was focused on compensating for the loss of upland game bird recreation (eg. quail and pheasant hunting) and to benefit wildlife in Okanogan and Douglas counties. Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

▼ Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PM&E development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #8

WDFW management goals for the Wells Wildlife Area may affect wildlife species and habitat. Various management decisions could also influence future funding of the Wells Wildlife Area.

Draft Issue Determination Statement #8

The Wells Wildlife Area is beneficial to wildlife and wildlife habitat. The area has been managed in various ways throughout the term of the existing license. The Wells Wildlife Area should be managed in a way that is consistent with mutually agreed mitigation goals associated with the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #9

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Draft Issue Determination Statement #9

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of avian and mammal predators is not the preferred solution to this problem but has become an important part of controlling bird and mammal predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to

lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

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Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program, and if there is a significant impact on the population of sensitive or recreationally important species. The group has concluded that a white paper should be developed that summarizes the predator control program, and identifies alternative options, where feasible, for each target species. The specific population-level impact to each species will also be assessed. The white paper summarizing existing practices, should be prepared and used to guide future management decisions.

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The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #10

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Draft Issue Determination Statement #10

Shoreline conditions vary throughout Wells reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

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Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RT&E plant surveys, and invasive species surveys)

There is not a clear Project impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005. The work group has determined that the issue can be addressed through the use of existing data. A series of Project maps with RTE species, sensitive botanical cover-types and designated wildlife areas should be overlaid with known areas of active erosion. This comparison could then be used to determine whether erosion areas are having an adverse effect on these resources.

A study is needed to bring together all of the existing information related to erosion and natural resources. The study would evaluate the erosion potential associated with various natural resources and determine if further site-specific surveys or protection measures are needed.

Finalized Issue Statement #11

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #11

Douglas PUD cannot control recreation activities on the Reservoir. However, recreation development activities on Douglas PUD-owned lands are controlled through Douglas PUD's Land Use Policy. The FERC license requires Douglas PUD to provide safe and efficient access to appropriate Project land and waters. The group agrees that recreation activities, including water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project.

This issue does not have a clear nexus to the Wells Project. Information provided in the baseline studies is sufficient for making future land management decisions. Therefore, no additional information is needed to address this issue.

Deleted: Finalized Issue Statement #11¶
Permit requirements associated with erosion control measures could limit the ability of Douglas PUD to protect Project lands from erosion. ¶

¶ Draft Issue Determination Statement #11¶
Permitting requirements are not controlled by Douglas PUD. However, this issue should be considered during PME development.¶
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Finalized Issue Statement #12

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

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Draft Issue Determination Statement #12

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

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The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts.

Because there is a potential nexus to the Project, Douglas PUD is proposing to complete a literature investigation to identify potential avian species that might be impacted. A field investigation will also be completed to identify potential raptor nesting and use of the transmission corridor.

Finalized Issue Statement #13

Maintenance of the transmission right-of-way could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

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Draft Issue Determination Statement #13

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The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the corridor. Douglas PUD is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor. The results of these baseline studies will inform the development of PM&E related to future maintenance activities on the transmission corridor.

Finalized Issue Statement #14

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The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license.

Draft Issue Determination Statement #14

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Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue only becomes pertinent if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification and distribution and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project.

Finalized Issue Statement #15

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Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand and cobble bars.

Draft Issue Determination Statement #15

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Once every 5-10 years and during above average flow events in the Methow River, Douglas PUD draws down the Wells Reservoir to allow sediment to pass through the Methow River confluence. This is done to prevent sediment buildup at the boat launches and swimming areas, and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including operations, reservoir drawdown and fluctuations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program. No additional studies are needed to address this issue.

Action Items
Terrestrial Resources Work Group
Meeting 3 – February 8, 2006

1. Send reservoir fluctuation information to work group members.
2. Send link to FTP site with ownership maps.
3. Provide DVDs (CDs if necessary) of Botanical Report and Covertypes Maps.
4. Send the red-lined markup of Issue Determination Statements.

**Letter to Douglas PUD from WDFW regarding Relicensing Priorities
February 1, 2006**



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

February 1, 2006

NOTED
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W.C.D.

Mr. Bill Dobbins, Manager/CEO
Douglas County Public Utility District
1151 Valley Mall Parkway
East Wenatchee, Washington 98802-1107

Subject: WDFW Wells Hydroelectric Project (FERC Project No. 2149) Relicensing Priorities

Dear Mr. Dobbins:

The Washington Department of Fish and Wildlife (WDFW) appreciates Douglas County Public Utility District's (PUD) commitment to creating a relicensing environment that fosters a broad opportunity for interaction between the PUD and interested parties during the Wells Hydroelectric Project relicensing process. Initiating the relicensing work group meetings in advance of filing the Pre-Application Document (PAD) due to FERC December 1, 2007, is a reflection of the PUD's commitment to developing a license application that will address, as broadly as possible, the range of matters inherent in the operation of the Project into the future.

As the state agency charged with stewardship of the fish and wildlife resources of the state of Washington, WDFW places a high priority on insuring that the new FERC license for the Wells Project will include measures to meet the needs of fish and wildlife resources affected by the Project, as well as meet WDFW policy expectations of No Net Impact (NNI) on those resources. As such, it is WDFW's desire to work cooperatively with the PUD throughout the Integrated Licensing Process (ILP). Towards achieving this goal, we are providing a list of relicensing priorities that WDFW would like to work with the PUD to resolve prior to the May 28, 2010, license application deadline, if not prior to the December 1, 2006, PAD filing deadline. Following our list of priority items, WDFW staff contacts are provided. The identified staff will be available to work with the PUD throughout the relicensing process.

ANADROMOUS FISH

- For anadromous salmonids, WDFW supports the incorporation of the Wells Hydroelectric Project Anadromous Fish Agreement and Habitat Conservation Plan (HCP) obligations as proposed conditions in the new license application.

WATER QUALITY

- WDFW anticipates entering into an Implementing Agreement (IA) with the Washington State Department of Ecology (Ecology) for the purpose of describing the commitments and procedures to enhance coordination and cooperation between the agencies with respect to protecting water quality and aquatic species of the state of Washington affected by the Wells Project. WDFW and Ecology have entered into IAs for both the Rocky Reach and the Priest Rapids projects. With an IA as guidance, WDFW and Ecology anticipate providing the PUD with a single state position on matters surrounding the delicate balance between appropriate spill programs for juvenile fish passage and regulation of total

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dissolved gas, including any study needs associated with this issue that may arise during the development of the new license application.

- Aquatic Invasive Species (AIS) and freshwater aquatic algae are causing economic, environmental, and public health problems that affect the citizens and aquatic resources of Washington State. Many highly destructive species, such as the zebra mussel, are currently not found in Washington's waters and efforts should be made to prevent the introduction or spread of these aquatic invasive species into our state waters. Preventing new introductions is significantly less expensive and causes far less ecological damage than trying to control new infestations. WDFW plays an important role in the monitoring and enforcement actions being taken to control the introduction and spread of AIS in Washington State (RCW 77.12.185, RCW 77.12.253, RCW 77.15.878). To avoid and minimize the costly effects of AIS invasions in the Wells Project specifically, and the Columbia River basin in general, WDFW believes the PUD has a role to play, supported by WDFW.

For inclusion in the Wells license application, WDFW would like to work with the PUD to develop an AIS Monitoring and Control Plan (Monitoring Plan), building on the work the PUD is already doing to detect and monitor AIS. WDFW requests that the Monitoring Plan include: signage at Wells Project boat launch sites; distribution of educational materials and boater questionnaires to voluntary participants at Wells boat launch sites; voluntary boat inspection demonstrations at Wells Project boat launch sites; and methodology and schedule of prevention, monitoring, and control measures to detect and control the movement of AIS at or near Project facilities.

As part of our role in monitoring and controlling the spread of AIS in Washington State, WDFW has signs, brochures, and boater questionnaires for use by the PUD at its boat launch sites. WDFW can also train PUD personnel to conduct voluntary boat inspections for AIS. This particular measure has proven to be particularly effective in raising boater awareness of the dangers and pathways associated with the spread of AIS. WDFW also participates in the maintenance of a regional database of AIS detections. WDFW will enter data from boater questionnaires filled out at Project boat launch sites and send it into WDFW in Olympia.

RESIDENT FISH

- Based on the PUD's 2004 study of adult Pacific lamprey passage at Wells Dam (LGL 2004), a proportion of adult lamprey that enter the Wells fishway do pass the dam. As part of the relicensing discussion, WDFW wishes to further explore issues of adult lamprey passage timing and fallback. We also believe there is a need to increase the confidence in and knowledge of our understanding of the effect of the Project on adult lamprey passage by continuing to evaluate adult passage prior to filing the license application in May 2010. WDFW also requests that as part of its pre-application studies, the PUD assess Project effects on passage routes, timing of passage, and passage survival of juvenile lamprey within the Project. For inclusion in its license application, the PUD should also develop a monitoring strategy for continuing to evaluate Project effects on juvenile lamprey passage during the term of the new license.

Reservoir and tributary use by adult and juvenile lamprey should also be evaluated prior to the license application deadline. Studies on adult lamprey should be geared toward gaining an understanding of migration timing, spawning timing and habitat use, tributary

habitat use, and reservoir habitat use. Studies of juvenile lamprey should be geared toward gaining an understanding of habitat preference by life stage and habitat availability.

- WDFW is aware that the PUD is in the process of having a report prepared for the 2001-2003 inventory of the sturgeon population living in the Wells Reservoir initiated by the PUD. Not having reviewed this report yet, WDFW requests that an evaluation of the white sturgeon population in the Wells Project be as thorough as the white sturgeon investigations conducted by Golder and Associates for the Rocky Reach (Golder Associates, 2003) and for the Priest Rapids projects (Golder Associates, 2002). Such an investigation should evaluate the effects of the Wells Project on the various life history stages of white sturgeon in the Project. WDFW requests the white sturgeon investigation include determining if white sturgeon spawn in the Project area and, if spawning occurs, assess spawning success through the use of egg mats or other acceptable methodology. An evaluation of habitat preference, habitat availability, carrying capacity, recruitment, entrainment (out/in), and dam passage should also be a part of the investigation.
- The Wells Project creates ongoing impacts to resident fish population abundance and species composition and to recreational fishing opportunities formerly provided by those populations. Resident fish population abundance and species compositions presently are an artifact of the reservoir environment maintained by current Project operations and the fisheries management actions that occur in the Project area and within the Columbia Basin overall. WDFW supports continuing the resident fish production and stocking program, as developed under the current license, as mitigation for ongoing project impacts, and we commend the PUD for its expressed intent to do so. To enhance our collective ability to evaluate the appropriateness and relative potential success of implementing various aquatic species protection, mitigation, and enhancement measures (PMEs) within the Project boundary that may be identified in the relicensing process, WDFW requests the PUD develop a bioenergetics model for the Project area. Specifically, WDFW believes there is a need to understand species competition, predation, reservoir carrying capacity, nutrient cycling, and food web dynamics within the Wells Project boundary. Modeling the bioenergetics of the Wells Project will contribute to understanding the Project's baseline conditions. Understanding the baseline conditions will assist fish managers in their evaluation of what management actions are most appropriate given the constraints under which the PUD must operate.
- WDFW supports the measures contained in the Wells Project Bull Trout Monitoring and Management Plan. At this time, WDFW has no priorities identified that are not addressed by this Plan.

WILDLIFE

- WDFW requests that the PUD thoroughly investigate the effect of Project operations on wildlife habitat and recreational hunting opportunities. Aspects of this investigation should include: assessment of the extent of habitat fragmentation; quantification of habitat changes; effects on wildlife habitat from recreation activities associated with

features of the Project that create recreational opportunities; effects of reservoir aging/succession on riparian and aquatic wildlife habitat; and effects of Project operations on species abundance and diversity.

- WDFW would like to recognize not only Douglas PUD's contribution during the term of this current license to insuring that the original intent of wildlife license mitigation measures is fulfilled, but also we would like to recognize the PUD's general willingness to work with our WDFW to maintain the wildlife values of the Wells Wildlife Areas. We also appreciate the PUD's stated intent to continue this mutually beneficial relationship during the term of the new license. To accomplish this intent, WDFW looks forward to working with PUD staff to quantify Project effects on wildlife, the habitat that supports it, and the recreational hunting opportunities associated with healthy, sustainable wildlife populations. Further, we look forward to discussions with the PUD, agencies, and tribes to characterize for FERC that relationship between Project operations and effects, and to subsequently identify protection, mitigation, and enhancement measures.
- The impacts of powerline and distribution line right-of-ways on wildlife and botanical species are not well quantified for the Wells Project. To better understand the extent of these impacts, WDFW requests that the PUD investigate the extent of avian collisions and electrocutions associated with powerlines and distribution lines. Additionally, the PUD should investigate the effects of powerline and distribution line right-of-ways on wildlife and, in particular, on sharp-tailed and sage grouse.

WDFW has attempted to make the agency priority list provided here as comprehensive as possible at this time. The priorities listed in this letter are intended to reflect the issues identified during the Aquatic, Terrestrial, and Recreation/Land Use Resources Work Group meetings held by the PUD to date that most closely capture WDFW's priorities. We hope this list will have value in helping to direct discussions in resource work group meetings scheduled by the PUD in the following months in the lead-up to filing of the PAD on December 1, 2006.

Towards helping in the relicensing effort, WDFW herein identifies the following staff contacts that will work with the PUD:

Wells Aquatic Resources Work Group

- Art Viola – Primary contact, WDFW Area Fish Biologist, Wenatchee; office (509) 665-3337/cell (509) 679-4662; email: violaaev@dfw.wa.gov
- Carmen Andonaegui – Policy contact, WDFW Columbia River Policy Coordinator, Ephrata; office (509) 754-4624 ext 25/cell (509) 398-0140; email: andonca@dfw.wa.gov

Wells Terrestrial Resources Work Group

- Beau Patterson – Primary contact, WDFW Area Wildlife Biologist, Wenatchee; office (509) 663-9764/cell (509) 670-6086; email: pattebap@dfw.wa.gov
- Marc Hallet – Primary contact, Wells Wildlife Area Manager, Bridgeport; office (509) 686-4305/cell (509) 679-4780; email: hallembh@dfw.wa.gov
- Tony Eldred – Policy contact, WDFW Major Mitigation Program Biologist, Wenatchee; office (509) 622-0452/cell (509) 679-0655; email: eldredte@dfw.wa.gov

Wells Recreation/Land Use Resources Work Group

- Chris Parsons – Primary contact and Policy contact, WDFW Region 2 Habitat Program Manager, Ephrata; office (509) 754-4624 ext. 12/cell (509) 630-0628; email: parsoebp@dfw.wa.gov

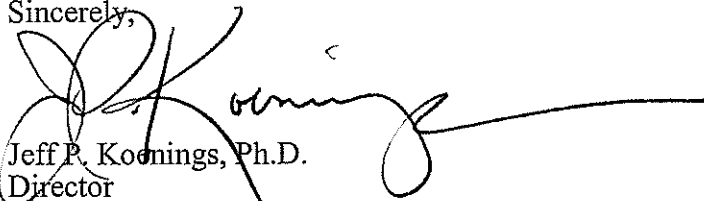
Literature Citations

Golder Associates, Ltd. 2002. White sturgeon investigations in Priest Rapids and Wanapum Reservoirs on the Middle Columbia River, Washington, U.S.A. Report prepared for Public Utility District No. 2 of Grant County, Ephrata, Washington. Golder Associates Ltd. Report No. 002-8817F: 82p. + 5 app.

Golder Associates, Ltd. 2003. White sturgeon investigations in Rocky Reach Reservoir on the Middle Columbia River, Washington, U.S.A. Report prepared for Public Utility District No. 1 of Chelan County, Wenatchee, Washington. Golder Associates, Ltd. Report No. 022-8041F: 29p. + 3 app.

LGL, Ltd. 2005. Assessment of Adult Pacific Lamprey Migratory Behavior at Wells Dam Using Radio-Telemetry Techniques. Report prepared for Public Utility District No. 1 of Chelan County, Wenatchee, Washington. LGL Ltd.

Sincerely,



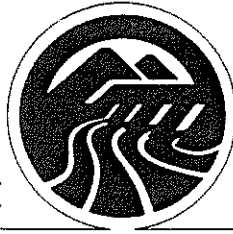
Jeff P. Koonings, Ph.D.
Director

cc: Bill Tweit, WDFW
Dennis Beich, WDFW
Dave Brittell, WDFW
Matt Monda, WDFW
Chris Parsons, WDFW
Joe Miller, WDFW
Tony Eldred, WDFW
Bill Frymire, AAG

**Letter to WDFW from Douglas PUD regarding Relicensing Priorities
February 17, 2006**

Commissioners:
MICHAEL DONEEN
T. JAMES DAVIS
LYNN M. HEMINGER

Chief Executive Officer/Manager:
WILLIAM C. DOBBINS



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

February 17, 2006

Dr. Jeff P. Koenings, Director
Washington Department of Fish and Wildlife
600 Capitol Way N.
Olympia, WA 98501-1091

Subject: WDFW February 1, 2006 Letter to Douglas PUD regarding the Relicensing of the Wells Project

Dear Dr. Koenings:

Thank you for your letter dated February 1, 2006 concerning the Washington Department of Fish and Wildlife's (WDFW) list of priority issues related to the relicensing of the Wells Hydroelectric Project. We would also like to thank you for your positive comments about Douglas PUD.

As you acknowledged in your letter, Douglas PUD has initiated relicensing work group meetings in advance of the formal relicensing process that will start December 1, 2006. The first work group meeting was held on October 18, 2005. Since that initial meeting, the Aquatic, Terrestrial, Cultural and Recreation working groups have been meeting to identify resource related issues and to develop studies for the formal relicensing process. To date, there have been three separate meetings for each of the resource work groups. WDFW personnel have participated actively in the Aquatic, Terrestrial and Recreation work groups. Douglas PUD appreciates the positive professional input these individuals have made in this process. I am pleased to report that each and every one of the issues contained within your February 1, 2006 letter have already been discussed and are being tracked as issues within the various resource work groups.

Our next set of work group meetings will be used to determine which of the identified issues have a nexus to project operations and which of those issues require a formal relicensing study. It is our goal to reach agreement with all of the work group members regarding the number and types of studies to be conducted during the formal ILP study period.

Douglas PUD appreciates WDFW's participation in the resource work groups and looks forward to a continued positive relationship with WDFW during the remaining years of the existing license and during the terms of future licenses for the Wells Project.

Sincerely,

William C. Dobbins
CEO/Manager

c: Robert W. Clubb, Ph.D.
Shane Bickford

Aquatic RWG Meeting 4
March 2, 2006

From: Bao Le
Sent: Friday, February 24, 2006 2:15 PM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Brad James; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Molly Hallock; Pat Irle; Ritchie Graves; Shane Bickford; Steve Lewis; Steve Parker
Subject: Aquatics RWG meeting #4 agenda
Attachments: Meeting Agenda Aquatics RWG 4.pdf

Work group members, attached is the agenda for the upcoming Aquatics RWG meeting on March 2, 2006. As always, you can find this agenda and other distributed information on the FTP site. If you have any questions, please feel free to give me a call. Looking forward to seeing you all here.

Bao Le
Senior Aquatic Resources Biologist
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802
Phone: (509) 881-2323
FAX: (509) 884-0553
ble@dcpud.org

**Aquatic Resources Work Group
Wells Relicensing
Meeting #4 Agenda – March 2, 2006**

Meeting Purpose: To continue to categorize issues through the development of issue determination statements for Wells Project relicensing.

Objectives: 1. Continue developing issue determination statements using FERC's 7 study criteria.

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: March 2, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:00 AM – 3:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #3	Bao Le
9:20	Development of issue determination statements.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue development of issue determination statements.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited: Pat Irle, WDOE John Merz, WDOE Ritchie Graves, NMFS Steve Lewis, USFWS Joe Miller, WDFW Bob Jateff, WDFW Carmen Andonaegui, WDFW Art Viola, WDFW Bob Rose, Yakama Nation	Bill Towey, Confederated Tribes of the Colville Reservation Jerry Marco, Confederated Tribes of the Colville Reservation Bao Le, Douglas PUD Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD Brad Hawkins, Douglas PUD John Devine, Devine, Tarbell, and Associates
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**Aquatic Resources Work Group
Final Issue Statements and Draft Issue Determination Statements
From RWG 3 -- February 2, 2006**

Finalized Issue Statement #1

1. Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.

Draft Issue Determination Statement #1

It is unknown as to whether there is a Project effect on juvenile lamprey. However, dam passage survival can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study for dam passage survival; 1) Tag technology for juvenile macrophthalmia is unavailable; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable.

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Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial. The work group agrees that it is not possible to assess the overall juvenile lamprey population in the Wells Reservoir but that a study to examine the stomach contents of birds and fish may be appropriate.

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Work group members have determined that an updated literature review of juvenile lamprey survival and the predation on juvenile lamprey is warranted. Douglas PUD can also include in this review existing information related to past fyke net data and previous studies (Burley and Poe 1994 and Columbia Basin Research Pikeminnow Removal Program Reports) at Wells Dam to provide preliminary information related to route of passage, timing, and predation.

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Finalized Issue Statement #2

Existence and operation of the Project may affect adult Pacific lamprey habitat use.

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Draft Issue Determination Statement #2

There were two types of habitat identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir deepwater habitat is plentiful and undisturbed by Project operations suggesting that overwintering habitat is not a concern.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depths of 1-2 meters). This type of habitat is not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the lower 1.5 mile portion of the Methow River that may have marginal spawning habitat for adult Pacific lamprey.

A study to determine whether adult lamprey are spawning within the lower 1.5 miles of the lower Methow River could be conducted.

Finalized Issue Statement #3

Existence and operation of the Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Draft Issue Determination Statement #3

Work group members have determined that this issue has a tie to the Project and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, and upstream migration. The results of an adult lamprey passage study would be useful during the development of PM&E measures.

The group has expressed concern that “fallback,” which is a term that has been used with salmonids, cannot be measured for Pacific lamprey as they do not exhibit homing behavior similar to salmonids. The frequency of “drop back” events can be measured via the radio-telemetry study but it is important to distinguish the difference between these two types of behavior as it relates to the biological fitness of the species being studied. Because lamprey do not home, drop back may be less related to project operations and more to do with spawning site selection and searching for the pheromones emitted from lamprey ammocoetes.

The work group recommends that a radio telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam.

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Finalized Issue Statement #4

Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.

Draft Issue Determination Statement #4

The work group agrees that juvenile lamprey are mobile and robust organisms capable of avoiding the fluctuation zone. An evaluation of actual juvenile lamprey use of identified habitats is problematic due to an inability to accurately capture, mark and recapture juvenile ammocoetes within the deep water habitats of the Wells Project. In addition, there are no statistically rigorous methodologies to accurately assess juvenile lamprey abundance and distribution. Lastly, the preferred collection mechanism, electro-shocking, is not advisable within the Wells Project due to the presence of ESA listed fish, including steelhead, spring chinook and bull trout.

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Accurate population assessment methodologies have not been developed for juvenile lamprey and studies would be limited by available sampling technology. Therefore, a juvenile lamprey habitat assessment would not be sufficiently reliable and would not contribute to the development of future license requirements.

Finalized Issue Statement #5

The existence and operation of the Project may be affecting white sturgeon ~~habitat~~ and carrying capacity.

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Draft Issue Determination Statement #5

The current estimate of the white sturgeon population ranges from 20-50 adult fish. The effect of the Project on these fish is unknown. A study is not feasible for habitat although little is known about white sturgeon habitat other than their preference for deep water habitats which is not lacking in the Wells Project. Project operations do not affect deepwater habitats. There is little evidence to suggest that white sturgeon habitat is adversely affected.

A carrying capacity estimate could be developed; however, the accuracy of such an estimate is in question given the dynamic nature of a lotic system. The habitat assessment and carrying capacity estimates would be further compromised due to the low numbers of fish in the Wells Project.

The development of carrying capacity estimates would not be reliable because of low abundance of the subject species and the inability to conduct a statistically meaningful study. Additionally, a study on potential habitat alterations is not needed because no alterations are proposed.

~~The work group does not believe that a carrying capacity and habitat assessment can be completed during the two-year ILP study period but could be part of M & E associated with a proposed white sturgeon augmentation strategy.~~

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Finalized Issue Statement #6

Existence and operation of the Project may affect white sturgeon genetics and ~~productivity~~ related to spawning, rearing, recruitment, and upstream and downstream passage (entrainment/recruitment).

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Draft Issue Determination Statement #6

There is consensus by the group that the Project currently restricts upstream passage of adult sturgeon. Additional passage information is not needed because 8 projects downstream of Wells Dam also block adult sturgeon from migrating from the lower Columbia River to areas upstream of Wells Dam. Further, the population of sturgeon in the Rocky Reach Reservoir is small (less than 50 adults) and not likely limited by habitat within that reservoir.

Sturgeon typically spawn in the tailraces of Columbia River dams. This is also expected to be the case in the Wells tailrace. Because Wells Dam is a run-of-river project, flow and temperature manipulations to assist in sturgeon spawning are not feasible.

The sturgeon population found within the Wells Reservoir is small (20-50 adults fish) and juvenile fish are present within the population. This population is expected to spawn in the Chief Joseph tailrace, which is outside of the Wells Project boundary. Early rearing is expected to take place within the Wells Project, however because the adult population is relatively small and because spawning is infrequent and sporadic, the ability to study spawning effectiveness and recruitment during the ILP two year study window is not feasible or meaningful.

Augmentation has been suggested as a means to increase the population size to a level that could provide meaningful study results. The RWG has discussed the potential to enhance the sturgeon population via the implementation of a augmentation program (during the term of the new license) similar to the other Mid-Columbia PUDs (Grant and Chelan County). Longer-term monitoring of recruitment would be conducted after an augmentation program has been initiated and additional adult fish are present within the Project.

The work group agrees that a sturgeon population census and genetic sampling in the Wells Reservoir would be beneficial, assuming that existing information is insufficient. This baseline information could assist the licensee in developing long-term strategies to augment the sturgeon population.

Finalized Issue Statement #7

Existence and operation of the Project may affect the predator-prey dynamics within the Wells Project (components may include investigating bioenergetics, food web, predation and carrying capacity models and habitat mapping). Potential contributing factors to higher predation rates may include unique hydraulics and habitat (macrophytes, localized water temperature, turbidity, substrate, pH and DO and anthropogenic structures).

Draft Issue Determination Statement #7

This issue proposes a study to find an impact. Information on the resident fish assemblage from studies published in 1974, 1979, 1983, 1994 and 1999 is adequate to address predator-prey dynamics. These studies do not indicate that the Project is having an adverse effect on the resident fish resource.

All anadromous species are already covered by the HCP survival standards. Game fish species are managed by the State of Washington and are influenced by recreational fishing and fish planting regimes. The species assemblage, including predator-prey dynamics, within the Wells Reservoir have developed over the last 50-years of fish management and species introductions.

This issue proposes the development of several fish management tools that are outside of the control of the Project. The development of these tools is not related to assessing how

operations of the Wells Project influence predator-prey dynamics. Studies completed to date do not demonstrate an adverse Project effect.

This issue is not relevant to project operations, will not assist in identifying project impacts and would not contribute to the development of future license requirements.

Finalized Issue Statement #8

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) and their potential effects on aquatic organisms and humans.

Draft Issue Determination Statement #8

The Project does not discharge toxic pollutants into the Wells Project or Columbia River. Non-point source pollutants that may be present within the Wells Project are not the product of Douglas PUD activities.

The Okanogan River likely contains toxins within the sediment. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project. Although a study would be feasible, there are numerous reports by the Washington State Department of Ecology and the Colville Tribes documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments conducted on toxins in the Okanogan River most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River.

Toxins that have accumulated within the lower 15.5 miles of the Okanogan River are ultimately captured at the mouth of the Okanogan River where their effects are minimized.

It may be beneficial to determine how Project operations affect the accumulation, transport and deposition of toxins within the Project boundary. It would also be helpful to determine the impacts of toxins on the aquatic organisms and humans.

Deleted: It is likely that results of a study would not provide any additional information beyond that already contained within the five recently published reports.

Finalized Issue Statement #9

Reservoir fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.

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Comment [Bc1]: Replaces littoral plant assemblages, submergent plants and macrophytes

Draft Issue Determination Statement #9

This issue proposes a study to find an impact. The existing aquatic and wetlands plant communities have evolved over the past forty years of Wells Project operations. Douglas PUD is not proposing to change Project operations during the next license term. Aquatic and wetland plant distribution studies conducted in 2005 document the presence of robust communities which are indicative of the long-term effects of reservoir fluctuation on these plant communities. Mobility of fish and macroinvertebrates has allowed these species to move out of area affected by reservoir fluctuations.

There is existing information to assess the effects of Project operations on aquatic and wetland plant communities.

Finalized Issue Statement #10

Project operations may affect compliance with TDG in the Wells Tailrace and Rocky Reach Forebay.

Draft Issue Determination Statement #10

There is consensus by the group that the operations of Wells Dam can have an effect on compliance with the total dissolved gas (TDG) standard. The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the formal ILP study window (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

Finalized Issue Statement #11

Project operations may affect compliance with temperature in the Wells Project.

Draft Issue Determination Statement #11

There is consensus by the group that the operations of Wells Dam can have an effect on compliance with the water temperature standards. The group agrees that studies to address this issue are feasible and the results will be meaningful for the 401 Water Quality Certification Process and therefore, relicensing. Douglas PUD is currently collecting temperature data throughout the Wells Project and at Wells Dam. Furthermore, Douglas PUD has established weather stations to collect meteorological data in key locations of the Wells Reservoir. These data sets will be utilized to develop a temperature model (CE-QUAL-W2) to assess the Wells Project's effect on water temperatures.

The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respects to 401 Water Quality Certification. The RWG agrees that the development of specific water temperature models will be an activity to be implemented during the ILP two-year study window. Toward this goal, Douglas PUD will continue to collect water temperature and meteorological data during 2006 and 2007 for use in the development of a temperature model to be used in 2008 and/or 2009. Data may continue to be collected in 2008 and 2009 if necessary. The results will be used to evaluate compliance with the state's water quality standards.

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Finalized Issue Statement #12

Project operations may affect compliance with DO, pH, and turbidity in the Wells Project.

Draft Issue Determination Statement #12

There is consensus by the group that the operations of Wells Dam may have an effect on compliance with various water quality parameters. Currently, Douglas PUD is collecting water quality data toward the evaluation of meeting the numeric criteria for the state's water quality standards. Data suggests that Douglas PUD is in compliance with the Washington State Standard for these parameters.

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The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respects to 401 Water Quality Certification. Douglas PUD shall continue to collect these parameters on a seasonal basis during the two-year relicensing study. Multiple years of study will provide reasonable assurance that Wells Dam operations are in compliance with state water quality standards.

Finalized Issue Statement #13

The Wells Project may affect Bull Trout survival and habitat.

Draft Issue Determination Statement #13

There is consensus by the group that the Bull Trout Monitoring and Management Plan (Plan), which has been approved by FERC and the U.S. Fish and Wildlife Service, is sufficient to address this issue. The Plan was implemented beginning in December 2004 and will continue into 2008. The group also agrees that the results of the Plan will be meaningful to relicensing in that it will help determine continued measures to protect Bull Trout during the new license term.

Finalized Issue Statement #14

The Wells Project may contribute to the spread of aquatic invasive species.

Draft Issue Determination Statement #14

The Project has not contributed to the spread of aquatic invasive species. This issue proposes a study to find an impact. Douglas PUD has completed baseline studies that show that the vast majority of aquatic plant species and macroinvertebrates in the Wells Reservoir are native. Most aquatic invasive species are spread by recreational boats, fishermen and waterfowl. Douglas PUD does not have control over any of these resources. Existing information indicates that there is no evidence of a Project effect. This may be an education and enforcement issue.

Finalized Issue Statement #15

The Wells Project should continue resident fish production at the Wells Hatchery.

Draft Issue Determination Statement #15

This issue will be discussed during the development of PM&E measures, specifically the 20,000 lbs. of resident fish. The group agrees that this is not an issue requiring a study.

Deleted: Finalized Issue Statement #15

The Wells Project may affect resident fish species abundance and composition. ¶

¶

Draft Issue Determination Statement #15

This issue proposes a study to find an impact. It is unlikely that a study addressing such a broad issue would be meaningful for relicensing. Existing information on the resident fish assemblage is adequate to address this issue and includes information from studies published in 1974, 1979, 1983, 1994 and 1999. ¶

¶

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Finalized Issue Statement #16

Is there a resident fish species that could be introduced into the Wells Reservoir to provide a recreation enhancement without adversely impacting other fish species or their habitat?

Draft Issue Determination Statement #16

This question proposes a study to evaluate opportunities to introduce a new fish species into the Wells Reservoir to provide a recreation enhancement without adversely impacting other species or their habitat. This could be a potential PM&E measure. Or is this a study to determine whether or not a PM&E is even feasible?

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Aquatic RWG Meeting 4
Sign-in Sheet and Meeting Products

Aquatics RWG Meeting #4
March 2, 2006

<u>Name</u>	<u>Affiliation</u>	<u>Phone Number</u>	<u>Email</u>
Pet Irle	Ecology	(509) 454-7864	pir1461@
Carmen Andonaequi	WDFW	(509) 398-0140	ecy .wa.gov

Art Viola	WDFW		
Shane Bickford	Douglas PUD	509 881-2208	
Bob Clubb	" "	509 881-2285	
Brad Hawkins	Douglas PUD	509 881 2225	
Baro Le	" "	509 881-2323	
Bill Towey	Colville Tribe	—	
John Devide (on phone)	DTA	—	
Brad James (on phone)	WDFW	—	

**Aquatic Resources Work Group
Final Issue Statements and Draft Issue Determination Statements
From RWG 4 -- March 2, 2006**

Finalized Issue Statement #1

Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.

Draft Issue Determination Statement #1

It is unknown as to whether there is a Project effect on juvenile lamprey. However, dam passage survival can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study for dam passage survival; 1) Tag technology for juvenile macrophthalmia is unavailable; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable. Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial.

The resource work group agrees that a study is needed during the two-year ILP study period. This study will include an updated literature review on juvenile lamprey survival and predation on juvenile lamprey and will examine the stomach contents of birds and fish.

Finalized Issue Statement #2

The Wells Project may affect adult Pacific lamprey habitat use.

Draft Issue Determination Statement #2

There were two types of habitat identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir deepwater habitat is plentiful and undisturbed by Project operations.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depths of 1-2 meters). This type of habitat is not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the lower 1.5 mile portion of the Methow River that may have marginal spawning habitat for adult Pacific lamprey.

The resource work group agrees that a study to determine whether adult lamprey are spawning within the lower 1.5 miles of the lower Methow River should be conducted during the two-year ILP study period.

Finalized Issue Statement #3

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Draft Issue Determination Statement #3

Work group members have determined that this issue has a tie to the Project and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, drop back and upstream migration. The results of an adult lamprey passage study would be useful during the development of PME measures.

The resource work group agrees that a radio telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam during the two-year ILP study period.

Finalized Issue Statement #4

Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.

Draft Issue Determination Statement #4

The work group agrees that juvenile lamprey are mobile and robust organisms capable of avoiding the fluctuation zone. An evaluation of actual juvenile lamprey use of identified habitats is problematic due to an inability to accurately capture, mark and recapture juvenile ammocoetes within the deep water habitats of the Wells Project. In addition, there are no statistically rigorous methodologies to accurately assess juvenile lamprey abundance and distribution. Lastly, the preferred collection mechanism, electro-shocking, is not advisable within the Wells Project due to the presence of ESA-listed fish, including steelhead, spring chinook and bull trout.

Accurate population assessment methodologies have not been developed for juvenile lamprey and studies would be limited by available sampling technology. Therefore, a juvenile lamprey habitat assessment would not be sufficiently reliable and would not contribute to the development of future license requirements.

The resource work group agrees that a study on the effects of the Project on juvenile lamprey habitat cannot be completed during the ILP two-year study period.

Finalized Issue Statement #5

The Wells Project may be affecting white sturgeon habitat and carrying capacity.

Draft Issue Determination Statement #5

The current estimate of the white sturgeon population ranges from 20-50 adult fish. The effect of the Project on these fish is unknown. A study is not feasible for habitat although

little is known about white sturgeon habitat other than their preference for deep water habitats which is not lacking in the Wells Project. Project operations do not affect deepwater habitats. There is little evidence to suggest that white sturgeon habitat is adversely affected.

A carrying capacity estimate could be developed; however, the accuracy of such an estimate is in question given the dynamic nature of a lotic system. The habitat assessment and carrying capacity estimates would be further compromised due to the low numbers of fish in the Wells Project.

The development of carrying capacity estimates would not be reliable because of low abundance of the subject species and the inability to conduct a statistically meaningful study. Additionally, a study on potential habitat alterations is not needed because no alterations are proposed.

The resource work group does not believe that a carrying capacity and habitat assessment can be completed during the two-year ILP study period but could be part of mitigation and enhancement associated with a proposed white sturgeon augmentation strategy.

Finalized Issue Statement #6

The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment, and upstream and downstream passage (entrainment/recruitment).

Draft Issue Determination Statement #6

The Wells Project currently restricts upstream passage of adult sturgeon. Additional passage information is not needed because 8 projects downstream of Wells Dam also block adult sturgeon from migrating from the lower Columbia River to areas upstream of Wells Dam. Further, the population of sturgeon in the Rocky Reach Reservoir is small (less than 50 adults) and not likely limited by habitat within that reservoir.

Sturgeon typically spawn in the tailraces of Columbia River dams. This is also expected to be the case in the Wells tailrace. Because Wells Dam is a run-of-river project, flow and temperature manipulations to assist in sturgeon spawning are not feasible.

The sturgeon population found within the Wells Reservoir is small (20-50 adults fish) and juvenile fish are present within the population. This population is expected to spawn in the Chief Joseph tailrace, which is outside of the Wells Project boundary. Early rearing is expected to take place within the Wells Project, however because the adult population is relatively small and because spawning is infrequent and sporadic, the ability to study spawning effectiveness and recruitment during the two-year ILP study period is not feasible or meaningful.

Augmentation has been suggested as a means to increase the population size to a level that could provide meaningful study results. The resource work group has discussed the potential to enhance the sturgeon population via the implementation of an augmentation

program (during the term of the new license) similar to the other Mid-Columbia PUDs (Grant and Chelan County). Longer-term monitoring of recruitment would be conducted after an augmentation program has been initiated and additional adult fish are present within the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period. The group recommends that additional sturgeon information be collected during the new license term.

Finalized Issue Statement #7

There may be an opportunity to shift a portion of the existing off-site resident fish program (Issue #15) to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.

Draft Issue Determination Statement #7

Information on the resident fish assemblage from studies published in 1974, 1979, 1983, 1994 and 1999 provides helpful baseline information. In order to introduce a resident fish population into the Wells Reservoir, a study would consist of reviewing existing biological and limnological data, identifying and addressing any data gaps and evaluating the opportunity. Any potential enhancement opportunity identified through this study needs to be fully discussed and evaluated along with all other PME's proposed for aquatic species.

Finalized Issue Statement #8

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) in the Okanogan River and their potential effects on aquatic organisms and humans.

Draft Issue Determination Statement #8

The Okanogan River likely contains toxins within the sediment. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project boundary. Although a study would be feasible, there are numerous reports by the Washington State Department of Ecology and the Colville Tribes documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments conducted on toxins in the Okanogan River most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River. Toxins that have accumulated within the lower 15.5 miles of the Okanogan River are ultimately captured at the mouth of the Okanogan River where their effects are minimized.

The resource work group agrees that a study is needed during the ILP two-year study period. The study would consider toxic pollutants in the Okanogan River and how those toxins flow into and accumulate in the Wells Project. This study would include a literature review, an assessment of fish tissues, discrete sampling of specific recreation areas and substrate adjacent to the Okanogan River. Existing information can be used in

the area above Project boundary and in proximity to Monse. Substrate sampling would include an area at the mouth of the Okanogan River and in the Columbia River immediately downstream of the Okanogan River.

Finalized Issue Statement #9

Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.

Draft Issue Determination Statement #9

The existing aquatic and wetlands plant communities have evolved over the past forty years of Wells Project operations. Douglas PUD is not proposing to change Project operations during the next license term. Aquatic and wetland plant distribution studies conducted in 2005 document the presence of robust communities which are indicative of the long-term effects of reservoir fluctuation on these plant communities. Mobility of fish and macroinvertebrates has allowed these species to move out of area affected by reservoir fluctuations.

There is existing information to assess the effects of Project operations on aquatic and wetland plant communities.

Finalized Issue Statement #10

Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.

Draft Issue Determination Statement #10

Wells Dam can have an effect on compliance with the TDG standard. The group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the formal ILP study window (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

Finalized Issue Statement #11

Project operations may affect compliance with temperature standards in the Wells Project.

Draft Issue Determination Statement #11

The Wells Project can have an effect on compliance with the water temperature standards. The resource work group agrees that studies to address this issue are feasible and the results will be meaningful for the 401 Water Quality Certification Process. Douglas PUD is currently collecting temperature data throughout the Wells Project. Furthermore, Douglas PUD has established weather stations to collect meteorological data in key locations of the Wells Reservoir. These data sets will be utilized to develop a

temperature model (e.g., CE-QUAL-W2) to assess the Wells Project's effect on water temperatures.

The group believes that the development of a temperature model is necessary to determine compliance with the state's water quality standards. The group agrees that the development of specific water temperature models should be implemented during the ILP two-year study period.

Toward this goal, Douglas PUD will continue to collect water temperature and meteorological data during 2006 and 2007 for use in the development of a temperature model to be used in 2008 and/or 2009. Data may continue to be collected in 2008 and 2009, if necessary.

Finalized Issue Statement #12

Project operations may affect compliance with DO, pH, and turbidity standards in the Wells Project.

Draft Issue Determination Statement #12

The Wells Project may have an effect on compliance with the standards for DO, pH, and turbidity. Currently, Douglas PUD has collected water quality data toward the evaluation of meeting the numeric criteria for these parameters. Data suggests that Douglas PUD is in compliance with the Washington State Standard for these parameters at the points monitored. Additional analysis is proposed for areas upstream and within the deltas of the reservoir tributaries (data swap).

Douglas PUD will continue to collect the DO, pH, and turbidity in the Wells Forebay during 2006. Contingent upon results, additional years of monitoring may be implemented.

Finalized Issue Statement #13

The Wells Project may affect Bull Trout survival and habitat.

Draft Issue Determination Statement #13

There is consensus by the group that the Bull Trout Monitoring and Management Plan (Plan), which has been approved by FERC and the U.S. Fish and Wildlife Service, is sufficient to address this issue. The Plan was implemented beginning in December 2004 and will continue into 2008. The group also agrees that the results of the Plan will be meaningful to relicensing in that it will help determine continued measures to protect Bull Trout during the new license term.

Finalized Issue Statement #14

The Wells Project may contribute to the spread of aquatic invasive species.

Draft Issue Determination Statement #14

Deleted: The Project has not contributed to the spread of aquatic invasive species. This issue proposes a study to find an impact. Douglas PUD has completed baseline studies that show that the vast majority of aquatic plant species and macroinvertebrates in the Wells Reservoir are native. Most aquatic invasive species are spread by recreational boats, fishermen and waterfowl. Douglas PUD does not have control over any of these resources. Existing information indicates that there is no evidence of a Project effect. This may be an education and enforcement issue.¶

Aquatic Invasive Species (AIS) introductions present a significant risk to Wells Reservoir and the reservoir could contribute to the spread of AIS into other waters within the state. AIS enter western states' waters from a number of different pathways, including recreational watercraft. The potential costs in both economic and environmental impacts of an AIS invasion could be significant. The risk for a zebra mussel introduction or other AIS has been increased by the alteration of the mid-Columbia River system. AIS flourish in lake type environments and generally do poorly in running rivers. The operation of the Wells Project has also created an environment that attracts a highly mobile recreational boating population. The large boats and outboards originating from areas of major AIS infestations would not have sufficient water depth to use the Columbia River but for the existence of the Douglas PUD Project Reservoir and other hydroelectric project pools on the Columbia River system.

Note: The review of information from Scott Smith, AIS coordinator, will help determine whether this information is sufficient.

Finalized Issue Statement #15

The Wells Project should continue resident fish production at the Wells Hatchery.

Draft Issue Determination Statement #15

The resource work group agrees that continuing the existing off-site resident fish program is important to mitigate for the ongoing Project effects to resident fish. Rationale for conducting this mitigation off-site is tied to potential conflicts with the Wells HCP and ESA recovery goals for anadromous species. Potential on-site conflicts with ESA-listed species include such things as predation, competition and disease transmission. The existing off-site 20,000 lbs. resident fish program adequately mitigates for the ongoing Project effect to resident fish in the Wells Project.

The resource work group agrees that this is not an issue requiring a study during the two-year ILP study period.

Aquatics RWG Meeting #4
March 2, 2006
Action Items

1. Provide Art catch data from sturgeon study (Bao).
2. Review FERC's resident fish decisions in Grant PUD and Chelan PUD relicensing efforts (Carmen).
3. Review the Clean Water Act and temperature standards to determine their applicability to existence of a project (Pat and Bob).
4. Limnological data exchange (Pat and Bao).
5. Distribute Macrophyte Mapping and Macroinvertebrate reports to resource work group members when final and to Scott Smith of WDFW by March 17 (Bao).
6. The resource work group should have a discussion once the Aquatic Invasive Species information is available (group).
7. Carmen will discuss Issue #9 with Joe Miller (Carmen).
8. Ask Molly to review draft Issue Determination Statement #4 (Carmen).

Recreation and Land Use RWG Meeting 4
March 10, 2006

From: Scott Kreiter
Sent: Friday, March 03, 2006 11:11 AM
To: Andre Stone; Andy Lampe; Bill Fraser; Bill Towey; Bob Clubb; Bob Fateley; Brad Hawkins; Brenda Crowell; Chris Parsons; Dennis Beich; Diane Priebe; Gail Howe; George Brady; Gordon Brett; Jean Hardie; Jim Eychaner; Jim Harris; John Devine; Lee Webster; Mary Hunt; Mike McKee; Mike Nickerson; Mike Palmer; Murray McCory; Neal Hedges; Scott Kreiter; Shane Bickford; Susan Rosebrough; Tony Eldred
Subject: Wells Relicensing - Rec and Land Use RWG #4 Agenda
Attachments: Meeting Agenda Recreation RWG 4.pdf

Please find attached the agenda for the Recreation and Land Use RWG meeting to be held at 9 AM on Friday, March 10.

***Note the new meeting location is the Lake Pateros Café, 180 Pateros Mall, Pateros, WA.

Feel free to contact me if you have any comments or additions.

Have a good weekend.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda – March 10, 2006**

Meeting Purpose: To categorize issues by developing issue determination statements for Wells relicensing.

Objectives: Review and refine issue determination statements.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: March 10, 2006

Location: Lake Pateros Café
180 Pateros Mall
Pateros, WA

Meeting time: 9:00 AM – 2:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #2	Scott Kreiter
9:15	Overview of Regional Recreation Trends	Jim Eychaner
9:45	Review of Issue Categorization Statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue review and discussion of issue categorization statements (if needed)	Group
1:50	Action items and next steps.	Scott Kreiter
2:00	Adjourn	

Attendees Invited:

Gail Howe, City of Pateros
George Brady, City of Pateros
Lee Webster, City of Brewster
Bob Fately, City of Brewster
Jean Hardie, City of Bridgeport
Steve Jenkins, City of Bridgeport
Andy Lampe, Okanogan County
Brenda Crowell, Okanogan County
Mary Hunt, Douglas County
Chris Parsons, WDFW
Tony Eldred, WDFW
Jim Harris, Washington State Parks

Mike Nickerson, Washington State Parks
Bill Fraser, Washington State Parks
Jim Eychaner, Washington IAC
Susan Rosebrough, National Park Service
Bill Towey, Colville Tribes
Mike Palmer, Colville Tribes
Jim Fisher, Bureau of Land Management
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine Tarbell & Assoc.

**Recreation and Land Use
Resource Work Group
Finalized Issue Statements from Meeting 2 – January 13, 2006
Draft Issue Determination Statements from Meeting 3 – February 10, 2006**

Finalized Issue Statement #1

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Draft Issue Determination Statement #1

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The working group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks.

The site evaluation study will be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue during the term of the next license.

Finalized Issue Statement #2

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Draft Issue Determination Statement #2

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of this work indicate that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage. Altering this vegetation could adversely impact aquatic species in the reservoir and may impact waterfowl use of the reservoir and recreational wildlife observation, hunting and fishing.

The recreation work group recommends that a site evaluation study should be completed to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a macrophyte map detailing type of species and focus on macrophytes restricting access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir.

The site evaluation study report will help to determine whether new measures are needed to address this issue during the term of the next license.

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Deleted: options to improve

Deleted: at reservoir water levels within the current fluctuation limits of the pool.

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Deleted: A formal relicensing study is not needed to address this issue. Instead, t

Deleted: site evaluation

Finalized Issue Statement #3

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Draft Issue Determination Statement #3

Sediment conditions at public [recreation sites](#) will be [considered](#) during the [site evaluation study discussed](#) in [Issues No. 1 and 2](#) above.

Deleted: At this time a conclusive linkage to Project operations has not been identified. There is no evidence that sediment transport and deposition is restricting public access to and use of the reservoir. No additional studies are being recommended, at this time, for this issue.

Deleted: boat launches

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Finalized Issue Statement #4

Ownership (vs. easement) of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).

Draft Issue Determination Statement #4

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development on the Columbia River has taken place through the acquisition of flowage easements. [Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture \(see Land Use Policy\). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.](#)

Douglas PUD's Land Use Policy and ownership of the reservoir shoreline has no effect on the ability of adjacent land owners to develop private lands. Development of privately-owned lands adjacent to the Project is affected by numerous factors [outside the control of the Project, including city, county and tribal regulations.](#)

Deleted: Development on Wells Project lands is limited to those activities allowed by Douglas PUD's Land Use Policy and the FERC license. This is primarily a safety and resource protection issue. ¶

Deleted: Activities allowed by the Land Use Policy include the installation of docks and water systems in appropriate areas provided that the applicable state and federal permits are required. Permitted use of project land and waters for other purposes (fences, landscaping and agriculture) must be consistent with adjacent property designations and appropriate for the site. This includes ensuring protection of identified cultural and RTE fish, wildlife or botanical resources. ¶

Douglas PUD has no plans to divest ownership of any project land holdings within the Wells Project boundary. Therefore, no additional information is needed to address this issue and a study is not recommended during the two year ILP study period. [Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing recreation and land use resources may be warranted.](#)

Finalized Issue Statement #5

Recreation proposals under the license need to consider [Endangered Species Act \(ESA\)](#), [Americans with Disabilities Act \(ADA\)](#), [Electric Consumers' Protection Act \(ECPA\)](#), [State Comprehensive Outdoor Recreation Plan \(SCORP\)](#) as well as local comprehensive plans and development regulations.

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Draft Issue Determination Statement #5

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. No additional information is needed and a study is not recommended.

Finalized Issue Statement #6

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Draft Issue Determination Statement #6

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities. After the group receives the report, it will discuss whether any additional information is needed.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The Recreation Working Group has concluded that additional information is needed and that a Recreational Needs Assessment is needed to assess the condition of existing facilities and to evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey.

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Finalized Issue Statement #7

The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Draft Issue Determination Statement #7

Douglas PUD is proposing to complete a Recreational Needs Assessment as part of the formal relicensing studies. The results of this study will help identify potential enhancements that may be needed to meet current, future and potential recreation needs within the Project. The study will also help to determine whether adequate demand exists to justify the construction of new recreation facilities.

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The Recreation Working Group has concluded that additional information is needed. A Recreational Needs Assessment is proposed to identify potential recreation enhancements.

Finalized Issue Statement #8

The development of recreation plans in the new license should consider improvements to the current Recreation Action planning process.

Draft Issue Determination Statement #8

Additional communication within to the current ~~recreation action~~ planning process would be beneficial. According to stakeholders, the existing process is overly cumbersome and delays implementation of various actions. A new process should be developed to address these concerns. The new planning process should focus on improving communication between stakeholders, the FERC and Douglas PUD. The current ~~recreation action~~ planning process is a component of the existing license. Recreation planning under the new license, if required by FERC, may be significantly different than the current process.

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The working group agrees that no new information is needed to address this issue; therefore, a study is not being proposed. However, Douglas PUD will work with stakeholders to examine areas for potential improvements to the current recreation action planning process.

Finalized Issue Statement #9

The Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, community services and water table).

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Draft Issue Determination Statement #9

There are many variables that could affect the economic health of a city or county. Studying effects on municipal and business infrastructure, tax base and community services, with all possible variables considered, does not have a readily discernible linkage to the Wells Project. Specific individual components of this issue do have an association with the project and its operation, including Operations and Maintenance (O&M) support for recreation facilities located within the counties and within each of the three cities.

Douglas PUD proposes to work with stakeholders on the issue of O&M funding for existing and potential recreation facilities through the development of Protection, Mitigation and Enhancement (PM&E) measures. Ongoing project impacts on infrastructure have not been clearly identified, a relicensing study is not proposed at this time.

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Finalized Issue Statement #10

How have other dam owners supported emergency services and community infrastructure for local communities? (method for collecting and distributing emergency services tax revenue).

Draft Issue Determination Statement #10

The resource work group agrees that this issue is not recommended for a study during the two-year ILP study period but is an issue that will be discussed outside of the relicensing process.

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Finalized Issue Statement #11

Water use at city parks may affect the availability of water for future city development.

Draft Issue Determination Statement #11

Under the terms of the original FERC operating license for Wells Dam, Douglas PUD constructed recreational facilities in the cities of Pateros, Brewster, and Bridgeport. Douglas PUD has continued to provide funding for major maintenance and improvements to these facilities. Each of the respective Cities provides routine operation and maintenance funding for ongoing operation of the facilities located within their respective communities. One component of this responsibility is to provide water for drinking and for irrigation. Because water rights in the communities are limited, the Cities would like to utilize the water rights being used for the public recreation facilities for other potential development needs.

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The parks were originally constructed to provide access to Project lands and waters. Douglas PUD is responsible for maintaining these facilities to a level that allows continued access to the Project. Watering lawns is not a major maintenance item. This issue is an enhancement proposal. Douglas PUD proposes to work with the Cities during the relicensing process to develop options for addressing this issue. A study is not needed to collect additional information related to this topic.

Finalized Issue Statement #12

Public access sites should be evaluated for possible continued maintenance and enhancements during the new license (eg. Okanogan, Columbia, Methow rivers and Washburn fishing sites).

Draft Issue Determination Statement #12

The RWG has concluded that a Recreational Needs Assessment should be one of the formal relicensing studies conducted during the relicensing of the Wells Project. The results of this study will help determine whether maintenance and enhancements are needed to meet current, future and potential recreational demands within the Project.

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Finalized Issue Statement #13

Wells Dam may be a hindrance to river travel.

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Draft Issue Determination Statement #13

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future. [An evaluation of options to address this issue should be considered in the Recreation Needs Assessment.](#)

Deleted: However, no additional information is needed at this time and no study is required to address this issue.

**Recreation and Land Use RWG Meeting 4
Sign-in Sheet and Meeting Products**

RECREATION AND LAND USE
RESOURCE WORK GROUP
SIGN IN SHEET
March 10, 2006

[illegible]

**Recreation and Land Use
Resource Work Group
Issue Statements and Issue Determination Statements
From RWG 4 -- March 10, 2006**

Finalized Issue Statement #1

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Draft Issue Determination Statement #1

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The working group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks. The study should also evaluate how reservoir elevations affect on-water boating experiences (e.g. motorboats vs. man-powered boats).

The resource work group agrees that a site evaluation study will be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue for the term of the next license.

Finalized Issue Statement #2

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Draft Issue Determination Statement #2

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of the baseline assessments indicated that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage.

The resource work group agrees that a site evaluation study should be completed during the ILP two-year study period to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a map showing where macrophytes occur and focus on identifying where macrophytes restrict or discourage access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir. The study will help identify measures to address this issue for the term of the next license.

Finalized Issue Statement #3

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Draft Issue Determination Statement #3

The resource work group agrees that a study is not needed during the ILP two-year study period. Sediment conditions at public recreation sites will be considered during the site evaluation study discussed in Issues No. 1 and 2 above. The resource work group agrees that it is important to continue monitoring the sediment conditions at Wells Project access sites along the Methow and Okanogan rivers.

Finalized Issue Statement #4

Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).

Draft Issue Determination Statement #4

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development on the Columbia River has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with its FERC License and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as trespassing, the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Douglas PUD has no plans to divest ownership of any project land holdings within the Wells Project boundary. Douglas PUD believes no additional information is needed to address this issue and a study is not recommended during the two-year ILP study period. Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing recreation and land use resources may be warranted.

Finalized Issue Statement #5

Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State Comprehensive Outdoor Recreation Plan (SCORP) as well as local ordinances, laws, regulations and comprehensive plans.

Draft Issue Determination Statement #5

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. These should be applied at existing and future recreation sites. The resource work group agrees that no additional information is needed and a study is not recommended during the two-year ILP study period.

Finalized Issue Statement #6

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Draft Issue Determination Statement #6

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project conducted in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The resource work group agrees that additional information is needed and that a Recreational Needs Assessment should be conducted during the two-year ILP study period. This study should assess the condition of existing facilities and evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey and the WDFW fishermen survey and additional recreation information from the Project area.

Finalized Issue Statement #7

The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park and Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Draft Issue Determination Statement #7

The resource work group agrees that a Recreational Needs Assessment is needed during the two-year ILP study period. The results of this study will help identify potential enhancements that may be needed to meet current, future and potential recreation needs within the Project, including the possibility of trails and trail linkages between communities. The study will help to determine whether adequate demand exists to justify the construction of new recreation facilities and will consider existing and future plans for recreation sites in the Project vicinity. Enhancements to existing facilities outside the Project will be considered if recreation needs cannot be met within the Project Boundary.

Finalized Issue Statement #8

The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.

Draft Issue Determination Statement #8

According to stakeholders, the existing process is overly cumbersome and delays implementation of various actions. A new process should be developed to address these concerns. The new planning process should focus on improving communication between stakeholders, the FERC and Douglas PUD. The current recreation action planning process is a component of the existing license. Recreation planning under the new license, if required by FERC, may be significantly different than the current process.

The resource work group agrees that no new information is needed to address this issue during the two-year ILP study period. However, Douglas PUD will work with stakeholders to examine areas for potential improvements to the current recreation action planning process.

Finalized Issue Statement #9

The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).

Draft Issue Determination Statement #9

There are many variables that could affect the economic health of a city or county. Studying effects on municipal and business infrastructure, tax base, emergency services and community services, with all possible variables considered, does not have a readily discernible linkage to the Wells Project. Specific individual components of this issue do have an association with the project and its operation, including Operations and Maintenance (O&M) support for recreation facilities located within the counties and within each of the three cities.

The resource work group agrees that a study is not needed during the two-year ILP study period. However, Douglas PUD proposes to work with stakeholders on the issue of O&M funding for existing and potential recreation facilities through the development of Protection, Mitigation and Enhancement (PME) measures.

Finalized Issue Statement #10

Water use at city parks may affect the availability of water for future city development.

Draft Issue Determination Statement #10

Under the terms of the original FERC operating license for Wells Dam, Douglas PUD constructed recreational facilities in the cities of Pateros, Brewster and Bridgeport. Douglas PUD has continued to provide funding for major maintenance and improvements to these facilities. Each of the respective Cities provides routine operation and maintenance funding for ongoing operation of the facilities located within their

respective communities. One component of this responsibility is to provide water for drinking and for irrigation. Because water rights in the communities are limited, the Cities would like to utilize the water rights being used for the public recreation facilities for other potential development needs.

The parks were originally constructed to provide access to Project lands and waters. Douglas PUD is responsible for maintaining these facilities to a level that allows continued access to the Project. Watering lawns is not a major maintenance item.

The resource work group agrees that a study is not needed during the two-year ILP study period. Douglas PUD proposes to work with the Cities during the relicensing process to develop options for addressing this issue.

Finalized Issue Statement #11

Wells Dam may be a hindrance to river travel.

Draft Issue Determination Statement #11

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future. An evaluation of portage options to address this issue should be considered in the Recreation Needs Assessment.

Action Items
Recreation and Land Use Work Group
Meeting 4 – March 10, 2006

1. Send out meeting time and meeting place for Wells Reservoir tour (Scott).
2. Send link and/or CDs (Andy, Lee and Mike P.) to macrophyte distribution report (Scott).
3. Email issue statements and issue determination statements from other resource work groups to Recreation and Land Use RWG members (Scott).
4. Email Land Use Policy to Mike M. (Scott).
5. Resource Work Group members provide comments to Douglas PUD on Recreation Visitor Use Assessment to discuss at next meeting (RWG members).
6. Provide a copy of the Flatwater Recreation Report with disk to Douglas PUD (Mike M.).
7. Provide information on Fort Okanogan history to Douglas PUD (Mike N.)
8. Distribute link to the Priest Rapids DEIS to resource work group members (Scott).

Terrestrial RWG Meeting 4
February 24, 2006

From: Scott Kreiter
Sent: Tuesday, February 21, 2006 11:31 AM
To: Beau Patterson; Bill Towey; Bob Clubb; Brad Hawkins; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dennis Beich; Dinah Demers; Gordon Brett; James Rees; Jim McGee; John Devine; Marc Hallett; Mary Hunt; Matt Monda; Neal Hedges; Scott Kreiter; Shane Bickford; Steve Lewis; Tony Eldred
Subject: Wells Relicensing - Terrestrial RWG Agenda
Attachments: Meeting Agenda Terrestrial RWG 4.pdf; Forebay Elevation.zip

Terrestrial Work Group:

Please find attached the agenda for Terrestrial RWG #4. The meeting will be held at the Douglas PUD headquarters in East Wenatchee this Friday, February 24, from 9:30 AM – 2:30 PM.

Also attached for your information is the reservoir fluctuation spreadsheet that was discussed at RWG #3.

See you Friday.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – February 24, 2006**

Meeting Purpose: To develop issue determination statements for Wells relicensing.

Objectives: Develop issue determination statements using FERC's 7 study criteria

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: February 24, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 9:30 AM – 2:30 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda Review action items from RWG #3	Scott Kreiter
10:00	Develop issue determination statements for issues not completed during RWG #3.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue issue categorization statements. Discuss any changes in issue categorization statements since RWG #3	Group
2:15	Action items and next steps.	Scott Kreiter
2:30	Adjourn	

Attendees Invited: Bill Towey, Colville Tribes Dinah Demers, Colville Tribes Neal Hedges, BLM James Rees, BLM Brenda Crowell, Okanogan County Marc Hallett, WDFW Matt Monda, WDFW Tony Eldred, WDFW Carmen Andonaegui, WDFW	Beau Patterson, WDFW Steve Lewis, USFWS Dan Trochta, USFWS Mary Hunt, Douglas County Bob Clubb, Douglas PUD Jim McGee, Douglas PUD Shane Bickford, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc.
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Terrestrial Resources Work Group
Finalized Issue Statements and Draft Issue Determination Statements
From RWG 3 – February 8, 2006

Finalized Issue Statement #1

Ownership and transfer of Project lands and implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

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Draft Issue Determination Statement #1

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Deleted: Development on Wells Project lands is limited to those activities allowed by Douglas PUD's Land Use Policy and the FERC license. This is primarily a safety and resource protection issue. ¶

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what are provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's proposal to retain shoreline ownership during the term of the new license.

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Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resource Inventories (Cover type mapping, RT&E plant surveys, and invasive species surveys)

Douglas PUD's Land Use Policy and o

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Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing terrestrial resources may be warranted.

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Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. A study is not recommended during the two year ILP study period.

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Finalized Issue Statement #2

The Project is one factor of many that could attract and facilitate development adjacent to Project lands. This could result in disturbances to wildlife and wildlife habitat within the Project.

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Draft Issue Determination Statement #2

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project, but its Land Use Policy does restrict the ability of adjacent landowners to develop the shoreline of the Wells Project. However, Douglas PUD does control shoreline development activity within the Project Boundary and actively patrols the reservoir to monitor compliance with the Land Use Policy.

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Deleted: Douglas PUD's Land Use Policy does restrict the ability of adjacent landowner's to develop the shoreline of the Wells Project. Douglas PUD actively patrols the reservoir to ensure compliance with the Land Use Policy.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of other nearby lands, proximity to social infrastructure (e.g. schools and hospitals), and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

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Additional information will not resolve this issue or produce results meaningful to relicensing. The group agrees that Douglas PUD should retain ownership of Project lands and continue implementing its Land Use Policy. A study is not recommended during the two year ILP study period.

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Finalized Issue Statement #3

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #3

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RT&E plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. The group also expressed concerns that future changes to how the project is operated could negatively affect the high quality macrophyte beds located within the Wells Reservoir. These beds

are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands during extended reservoir draw down. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Aquatic vegetation in the Wells Reservoir is abundant and is comprised of mostly native species. Aquatic vegetation provides valuable habitat for fish and forage for migrating and overwintering waterfowl. Waterfowl in turn provide important food for bald eagles and recreation for waterfowl hunters.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime, and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. A study during the two-year ILP study period is not needed because changes in operations are not being proposed and because good baseline information exists.

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Finalized Issue Statement #4

The reservoir might affect the movements and migration abilities of mule deer.

Draft Issue Determination Statement #4

There is no evidence to suggest that Project operations are affecting the local mule deer movements, migrations or populations. Indeed, local mule deer are abundant in the region and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #5

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Draft Issue Determination Statement #5

There is no evidence of Project related adverse impacts to mule deer or sharp-tailed grouse. ▼

▼ Riparian habitat for game and non-game species has flourished since the project was built and the wildlife areas have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

▼ No Project operational impacts have been identified on these species. Therefore, no additional studies are needed to address this issue.

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It is conceivable that mule deer and sharp-tailed grouse, as well as other wildlife, could be negatively impacted if funding for the Wells Wildlife Area is reduced during the next license term. ¶

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Finalized Issue Statement #6

The Project could affect terrestrial RTE species.

Draft Issue Determination Statement #6

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RT&E plant surveys, and invasive species surveys)

The following RTE species were documented in the Wells Project area:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – Federal Candidate/State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

▼ Additional information is needed to determine if there is a potential effect on the state listed species little bluestem that were identified in the RTE botanical survey. Future land management, recreation planning and operational decisions should consider impacts to state RTE species.

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Future land management, recreation planning and operational decisions should avoid and/or minimize the potential impacts to federal RTE species. No additional information is needed related to federal RTE species. ▼

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Deleted: Douglas PUD provides annual funding for operations and maintenance of the Wells Wildlife Area, which was established following the construction of the Wells Project to accommodate for lost upland game bird recreational hunting.

Finalized Issue Statement #7

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

Draft Issue Determination Statement #7

▼

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife due to the construction and operation of the Wells Project. Specifically, the mitigation was focused on compensating for the loss of upland game bird recreation (eg. quail and pheasant hunting) and to benefit wildlife in Okanogan and Douglas counties. Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

▼ Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PM&E development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Deleted: Funding for the Wells Wildlife Area currently includes funding for habitat development and maintenance.

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Deleted: No additional information is needed to address this issue and no studies are recommended for this issue.¶

Finalized Issue Statement #8

WDFW management goals for the Wells Wildlife Area may affect wildlife species and habitat. Various management decisions could also influence future funding of the Wells Wildlife Area.

Draft Issue Determination Statement #8

The Wells Wildlife Area is beneficial to wildlife and wildlife habitat. The area has been managed in various ways throughout the term of the existing license. The Wells Wildlife Area should be managed in a way that is consistent with mutually agreed mitigation goals associated with the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

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Finalized Issue Statement #9

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Draft Issue Determination Statement #9

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of avian and mammal predators is not the preferred solution to this problem but has become an important part of controlling bird and mammal predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to

lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

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Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program, and if there is a significant impact on the population of sensitive or recreationally important species. The group has concluded that a white paper should be developed that summarizes the predator control program, and identifies alternative options, where feasible, for each target species. The specific population-level impact to each species will also be assessed. The white paper summarizing existing practices should be prepared and used to guide future management decisions.

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The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Deleted: No additional studies will be needed for relicensing. ¶

Finalized Issue Statement #10

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Draft Issue Determination Statement #10

Shoreline conditions vary throughout Wells reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

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Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RT&E plant surveys, and invasive species surveys)

There is not a clear Project impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005. The work group has determined that the issue can be addressed through the use of existing data. A series of Project maps with RTE species, sensitive botanical cover-types and designated wildlife areas should be overlaid with known areas of active erosion. This comparison could then be used to determine whether erosion areas are having an adverse effect on these resources.

A study is needed to bring together all of the existing information related to erosion and natural resources. The study would evaluate the erosion potential associated with various natural resources and determine if further site-specific surveys or protection measures are needed.

Finalized Issue Statement #11

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #11

Douglas PUD cannot control recreation activities on the Reservoir. However, recreation development activities on Douglas PUD-owned lands are controlled through Douglas PUD's Land Use Policy. The FERC license requires Douglas PUD to provide safe and efficient access to appropriate Project land and waters. The group agrees that recreation activities, including water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project.

This issue does not have a clear nexus to the Wells Project. Information provided in the baseline studies is sufficient for making future land management decisions. Therefore, no additional information is needed to address this issue.

Deleted: Finalized Issue Statement #11¶

Permit requirements associated with erosion control measures could limit the ability of Douglas PUD to protect Project lands from erosion. ¶

¶ Draft Issue Determination Statement #11¶

Permitting requirements are not controlled by Douglas PUD. However, this issue should be considered during PME development.¶

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Finalized Issue Statement #12

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

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Draft Issue Determination Statement #12

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

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The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts.

Because there is a potential nexus to the Project, Douglas PUD is proposing to complete a literature investigation to identify potential avian species that might be impacted. A field investigation will also be completed to identify potential raptor nesting and use of the transmission corridor.

Finalized Issue Statement #13

Maintenance of the transmission right-of-way could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

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Draft Issue Determination Statement #13

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The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the corridor. Douglas PUD is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor. The results of these baseline studies will inform the development of PM&E related to future maintenance activities on the transmission corridor.

Finalized Issue Statement #14

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The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license.

Draft Issue Determination Statement #14

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Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue only becomes pertinent if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification and distribution and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project.

Finalized Issue Statement #15

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Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand and cobble bars.

Draft Issue Determination Statement #15

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Once every 5-10 years and during above average flow events in the Methow River, Douglas PUD draws down the Wells Reservoir to allow sediment to pass through the Methow River confluence. This is done to prevent sediment buildup at the boat launches and swimming areas, and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including operations, reservoir drawdown and fluctuations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program. No additional studies are needed to address this issue.

**Terrestrial RWG Meeting 4
Sign-in Sheet and Meeting Products**

TERRESTRIAL
SOURCE WORK GROUP
SIGN IN SHEET
February 24, 2006

[illegible]

**Terrestrial Resources Work Group
Issue Statements and Issue Determination Statements
From RWG 4 – February 24, 2006**

Finalized Issue Statement #1

Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

Draft Issue Determination Statement #1

Douglas PUD owns land within the Project boundary. This is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what is provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's plan to retain ownership of lands within the Project boundary.

Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Measures to protect the existing terrestrial resources will be addressed in the Land Management Plan.

Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. A study is not recommended during the two-year ILP study period.

Finalized Issue Statement #2

The presence of the Project is one factor of many that could attract development adjacent to Project lands. This could result in disturbances to wildlife and wildlife habitat within the Project.

Draft Issue Determination Statement #2

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project but its Land Use Policy does restrict the ability of adjacent landowners to develop on Project lands. However, Douglas PUD owns the shoreline and is required to regulate development within the Project boundary. Douglas PUD actively patrols the reservoir to monitor compliance with the Land Use Policy. Monitoring needs will be considered in the development of the Land Management Plan.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of other nearby lands, proximity to social infrastructure (e.g. schools and hospitals) and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

Additional information will not resolve this issue or produce results meaningful to relicensing. The resource work group agrees that Douglas PUD should retain ownership of Project lands and continue implementing its Land Use Policy. A study is not recommended during the two-year ILP study period.

Finalized Issue Statement #3

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #3

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RTE plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. The resource work group also expressed concerns that future changes to how the project is operated could negatively affect the high quality macrophyte beds located within the Wells Reservoir.

These beds are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands during extended reservoir draw down. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. A study during the two-year ILP study period is not needed because changes in operations are not being proposed and because good baseline information exists.

Finalized Issue Statement #4

The reservoir could affect the movements and migration abilities of mule deer.

Draft Issue Determination Statement #4

There is sufficient information pertaining to mule deer movements, migrations and populations in the region. Mule deer are abundant in the region, including within the Wells Project, and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Finalized Issue Statement #5

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Draft Issue Determination Statement #5

There is no evidence of Project related adverse impacts to mule deer or sharp-tailed grouse.

Riparian habitat for game and non-game species has increased since the project was built. The Wells Wildlife Area and other lands managed for wildlife purposes have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

No Project operational impacts have been identified on these species. Therefore, no additional studies are needed to address this issue.

Finalized Issue Statement #6

The Project could affect terrestrial RTE species.

Draft Issue Determination Statement #6

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

The following RTE species were documented in the Wells Project area:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – Federal Candidate/State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

Additional information is needed to determine if there is a potential effect on the state listed species little bluestem that was identified in the RTE botanical survey. Future land management, recreation planning and operational decisions should consider impacts to state and federal RTE species.

Future land management, recreation planning and operational decisions should avoid and/or minimize the potential impacts to federal RTE species. No additional information is needed related to federal RTE species.

Finalized Issue Statement #7

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

Draft Issue Determination Statement #7

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife habitat due to the construction and operation of the Wells Project. Specifically, the wildlife mitigation agreement was intended to benefit wildlife in close proximity to the Wells Reservoir. The mitigation program was initially focused on providing upland game bird

recreation (e.g. quail and pheasant hunting). Subsequently, the program shifted to developing wildlife habitat to increase species diversity.

Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PME development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Finalized Issue Statement #8

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Draft Issue Determination Statement #8

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of avian and mammal predators is not the preferred solution to this problem but has become an important part of controlling bird and mammal predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on the population of sensitive or recreationally important species. The group has concluded that a study should be developed that summarizes the predator control program and identifies alternative options, where feasible, for each target species. The specific population-level impact to each species will also be assessed. The study will evaluate existing practices and alternatives and should inform future management decisions.

The study will be conducted during the two-year ILP study period.

Finalized Issue Statement #9

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Draft Issue Determination Statement #9

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

There is not a clear Project impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005. The work group has determined that the issue can be addressed through the use of existing data. A series of Project maps with RTE species, sensitive botanical cover-types, designated wildlife areas and cultural sites should be overlaid with known areas of active erosion. This comparison could then be used to determine whether erosion areas are having an adverse effect on these resources.

A study is needed to bring together all of the existing information related to erosion and natural resources. The study would evaluate the erosion potential associated with various natural resources and determine if further site-specific surveys or protection measures are needed.

Finalized Issue Statement #10

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Draft Issue Determination Statement #10

The Project is one of many factors that could attract recreational use. Recreation development activities within the Wells Project are controlled through Douglas PUD's Land Use Policy. Douglas PUD strives to provide safe and efficient access to appropriate Project land and waters. Douglas PUD cannot control recreational use within the Wells Reservoir. The group agrees that recreation activities, including but not limited to, water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project. Any Land Management Plan in the new license should consider potential

impacts of recreational use on wildlife and wildlife habitat. Further measures to protect the existing terrestrial resources may be warranted.

Information provided in the baseline studies is sufficient for making future land management decisions. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Finalized Issue Statement #11

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Draft Issue Determination Statement #11

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts.

Wildlife and botanical species inventories have not been completed along the transmission corridor. The resource work group is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence -- whether raptors and prairie grouse are found within or adjacent to the transmission corridor.

In addition, a literature review will be completed to specifically identify potential effects on raptors and prairie grouse.

Finalized Issue Statement #12

Maintenance of the transmission right-of-way could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Draft Issue Determination Statement #12

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide right-of-way.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor. Douglas PUD is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

Finalized Issue Statement #13

The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.

Draft Issue Determination Statement #13

The Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue could become important if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification, distribution and abundance and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Finalized Issue Statement #14

Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

Draft Issue Determination Statement #14

When Methow River flows are predicted to be above 14,000 cfs, Douglas PUD periodically draws down the Wells Reservoir to allow sediment to pass through the Methow River confluence. This occurs approximately every 8-10 years. This is done to prevent sediment buildup at the boat launches and swimming areas and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including operations, reservoir drawdown and fluctuations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue, but it may be beneficial to monitor terrestrial resources during future occurrences of Methow River sediment flushing.

Action Items
Terrestrial Resources Work Group
Meeting 4 – February 24, 2006

1. Dan Trochta will send Jim McGee APLIC information on transmission lines.
2. Resource Work Group members will discuss Issue Determination Statements with agency policy staff.
3. Distribute Issue Determination Statements to Resource Work Group members.

Email regarding Wells Project Tour – March 22, 2006

From: Scott Kreiter

Sent: Wednesday, March 22, 2006 8:24 AM

To: Andy Lampe (alampe@co.okanogan.wa.us); 'Eychaner, Jim'; Susan Rosebrough (susan_rosebrough@nps.gov); Gail Howe (pateros@nwi.net); 'Mike Palmer'

Cc: Shane Bickford

Subject: Wells Project Tour

Below are the details of the Wells Project tour scheduled for April 13, at 10 AM.

We will meet at the Pateros boat launch at 10 AM. To get to the boat launch, simply take the first left off of Hwy 97 after crossing the bridge into Pateros. Take an immediate left on Warren, and then the next left to the boat launch (see attached map). If you have trouble finding the launch, call my cell phone at 509-669-1142.

Confirmed attendees are Mike Palmer, Andy Lampe, Jim Eychaner, Susan Rosebrough, and Gail Howe.

The tentative agenda is to tour the reservoir by boat (2 hours), stop somewhere in town for lunch, then do any additional touring by car.

Please contact me if you have any additional questions.

Thanks.

-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Letter to Douglas PUD from City of Pateros regarding Recreation and
Land Use RWG Issue Statements and Issue Determination Statements
April 3, 2006**

CITY OF PATEROS

113 Lakeshore Drive
PO Box 8
Pateros, WA 98846

509.923.2471
Fax: 509.923.2971
email: pateros@nwi.net

April 3, 2006

Scott Kreiter
PUD No 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, WA 98802

RE: Recreation and Land Use RWG Issue Statements and Issue Determination Statements from March 10, 2006

Dear Scott,

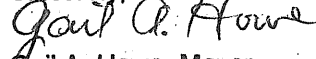
In reviewing over issues 9 and 10 I am concerned about the full issue at stake. I am still uncomfortable with the statement that says "Watering lawns is not a major maintenance item". I need a clearer definition of what constitutes major maintenance? The parks "provide access to Project lands and waters", but just as important are the parks providing viewing opportunities and enjoying activities on the reservoir. These have high recreational value. Recreation and enjoyment of the reservoir is broad based. Has the District fully caught the message of my concern? Do they realize what these facilities are costing me?

We have agreed and really want to have our parks maintained but the economic and resource impacts are troublesome to me. I have listed below some but not limited to items for consideration:

- How many worker hours go or should be going into maintaining these facilities?
- How many pieces of equipment need to be purchased, maintained, and periodically replaced (mowers, edgers, backhoes, etc.)?
- How many volumes of trash pickup and disposal are required?
- How much fertilizer applications frequency and rates of application?
- How much irrigation needs?
- How much watering volumes, water costs?
- How much wastewater demands and costs, etc?
- The cost and availability of park staff for training on maintenance management of the parks?
- The safety/OSHA training, equipment training and certifications, etc.?

The proposal to work with us to develop options for addressing this issue involves more than may be realized. I recommend we determine what these costs really are so they can be dealt with appropriately and fairly.

Sincerely,


Gail A. Howe, Mayor
City of Pateros

C: Mayor Lee Webster, Brewster; Mayor Steve Jenkins, Bridgeport

RECEIVED

APR 12 2006

DOUGLAS PUD

Aquatic RWG Meeting 5
April 6, 2006

From: Bao Le
Sent: Monday, April 03, 2006 10:19 AM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Brad James; Bryan Nordlund; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Molly Hallock; Pat Irle; Shane Bickford; Steve Lewis; Steve Parker
Cc: 'smithsss@dfw.wa.gov'
Subject: Aquatics RWG Meeting #5
Attachments: Final Issue Statements and Draft Issue Determination Statements from Aquatics RWG 4.doc; Meeting Agenda Aquatics RWG 5.pdf

Work group members, attached is the agenda for Aquatics RWG Meeting #5 as well as the most recent track changes version of the Final Issue Determination Statements integrating discussions from Aquatics RWG #4 and any comments received via email. Significant progress was made at RWG meeting #4 and is reflected on the Issue Statements document. However, there are still several issues that still need to be finalized (Issue #9, #14). Please be aware that the goal for this meeting is to FINALIZE issue statements so that we can begin discussions regarding study plan development. Please let me know if you will not be able to attend or if you have any questions. Look forward to seeing you all this Thursday, April 6.

Bao Le
Senior Aquatic Resources Biologist
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802
Phone: (509) 881-2323
FAX: (509) 884-0553
ble@dcpud.org

**Aquatic Resources Work Group
Wells Relicensing
Meeting #5 Agenda – April 6, 2006**

Meeting Purpose: Finalize issue determination statements for Wells Project relicensing in preparation for study plan development.

Objectives: 1. Finalize issue determination statements for the Wells Project relicensing.
2. Begin discussions regarding study plan development (objective identification)

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: April 6, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:00 AM – 3:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #4	Bao Le
9:20	Finalize issue determination statements.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue finalizing issue determination statements and if appropriate, begin discussions regarding study plan development.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited: Pat Irle, WDOE John Merz, WDOE Bryan Nordlund, NMFS Steve Lewis, USFWS Joe Miller, WDFW Bob Jateff, WDFW Carmen Andonaegui, WDFW Art Viola, WDFW Bob Rose, Yakama Nation	Bill Towey, Confederated Tribes of the Colville Reservation Jerry Marco, Confederated Tribes of the Colville Reservation Bao Le, Douglas PUD Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD Brad Hawkins, Douglas PUD John Devine, Devine, Tarbell, and Associates
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Aquatic RWG Meeting 5
Sign-in Sheet and Meeting Products

AQUATICS

SIGN IN SHEET

April 6, 2006

[illegible]

**Aquatics Resources Work Group
Final Issue Statements and Issue Determination Statements
From RWG 5 – April 6, 2006**

Issue Statement #1

Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.

Issue Determination Statement #1

It is unknown as to whether there is a Project effect on juvenile lamprey. At this time, there are no studies documenting Project effects on juvenile lamprey. However, dam passage survival can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study for dam passage survival; 1) Tag technology for juvenile macrophthalmia is currently being developed; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable. Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial.

The resource work group agrees that a study is needed during the two-year ILP study period. This study will include an updated literature review on juvenile lamprey survival and predation on juvenile lamprey and will examine the stomach contents of fish. If permits can be obtained, the study will also examine the stomach contents of birds.

Issue Statement #2

The Wells Project may affect adult Pacific lamprey habitat use.

Issue Determination Statement #2

There were two types of habitat identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir deepwater habitat is plentiful and undisturbed by Project operations.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depths of 1-2 meters). This type of habitat is generally not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the lower 1.5 mile portion of the Methow River that may have marginal spawning habitat for adult Pacific lamprey.

The resource work group agrees that a study to determine whether adult lamprey are spawning within the lower 1.5 miles of the lower Methow River should be conducted during the two-year ILP study period.

Issue Statement #3

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Issue Determination Statement #3

Work group members have determined that this issue has a tie to the Project as it relates to lamprey migration through Wells Dam. Preliminary passage information has been collected at Wells Dam; however, the sample size of the study was limited and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, drop back and upstream migration. The results of an adult lamprey passage study would be useful during the development of PME measures.

The resource work group agrees that a radio telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam during the two-year ILP study period.

Issue Statement #4

Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.

Issue Determination Statement #4

The work group agrees that juvenile lamprey are likely mobile and robust organisms capable of avoiding the fluctuation zone. An evaluation of actual juvenile lamprey use of identified habitats is problematic due to an inability to accurately capture, mark and recapture juvenile ammocoetes within the deep water habitats of the Wells Project. In addition, there are no statistically rigorous methodologies to accurately assess juvenile lamprey abundance and distribution. Lastly, the preferred collection mechanism, electro-shocking, is not advisable within the Wells Project due to the presence of ESA-listed fish, including steelhead, spring chinook and bull trout.

Accurate population assessment methodologies have not been developed for juvenile lamprey and studies would be limited by available sampling technology. Therefore, a juvenile lamprey habitat assessment would not be sufficiently reliable and would not contribute to the development of future license requirements.

The resource work group agrees that a study on the effects of the Project on juvenile lamprey rearing habitat cannot be completed during the two-year ILP study period.

Issue Statement #5

The Wells Project may be affecting white sturgeon habitat and carrying capacity.

Issue Determination Statement #5

The current estimate of the white sturgeon population ranges from 20-50 adult fish. The effect of the Project on these fish is unknown. The white sturgeon population in the Wells Reservoir is so small that establishing the habitat suitability curve for white sturgeon is not feasible. Little is known about white sturgeon habitat and preference other than their preference for deep water habitats which is not lacking in the Wells Project. Project operations do not affect deepwater habitats. There is little evidence to suggest that white sturgeon habitat is adversely affected.

A carrying capacity estimate could be developed; however, the accuracy of such an estimate is in question given the dynamic nature of a lotic system. The habitat assessment and carrying capacity estimates would be further compromised due to the low numbers of fish in the Wells Project.

The development of carrying capacity estimates would not be reliable because of low abundance of the subject species and the inability to conduct a statistically meaningful study. Additionally, a study on potential habitat alterations is not needed because no alterations are proposed.

The resource work group does not believe that a carrying capacity and habitat assessment can be completed during the two-year ILP study period but could be part of mitigation and enhancement associated with a proposed white sturgeon augmentation strategy.

Issue Statement #6

The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment and upstream and downstream passage (entrainment/recruitment).

Issue Determination Statement #6

The Wells Project currently restricts upstream passage of adult sturgeon. Additional passage information is not needed because 8 projects downstream of Wells Dam also block adult sturgeon from migrating from the lower Columbia River to areas upstream of Wells Dam. Further, the population of sturgeon in the Rocky Reach Reservoir is small (less than 50 adults) and not likely limited by habitat within that reservoir.

Sturgeon typically spawn in the tailraces of Columbia River dams. This is also expected to be the case in the Wells tailrace. Because Wells Dam is a run-of-river project, flow and temperature manipulations to assist in sturgeon spawning are not feasible.

The sturgeon population found within the Wells Reservoir is small (20-50 adults fish) and juvenile fish are present within the population. This population is expected to spawn in the Chief Joseph tailrace, which is outside of the Wells Project boundary. Early

rearing is expected to take place within the Wells Project, however because the adult population is relatively small and because spawning is infrequent and sporadic, the ability to study spawning effectiveness and recruitment during the two-year ILP study period is not feasible or meaningful.

Augmentation has been suggested as a means to increase the population size to a level that could provide meaningful study results. The resource work group has discussed the potential to enhance the sturgeon population via the implementation of an augmentation program (during the term of the new license) similar to the other Mid-Columbia PUDs (Grant and Chelan County). Longer-term monitoring of recruitment would be conducted after an augmentation program has been initiated and additional adult fish are present within the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period. The group recommends that additional sturgeon information be collected during the new license term.

Issue Statement #7

There may be an opportunity to shift a portion of the existing off-site resident fish program (Issue #15) to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.

Issue Determination Statement #7

Information on the resident fish assemblage from studies published in 1974, 1979, 1983, 1994 and 1999 provides helpful baseline information. The resource work group agrees that a study is not needed during the two-year ILP study period because current off-site mitigation is appropriate considering ESA-listed species and recovery goals (Issue #15).

Issue Statement #8

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.

Issue Determination Statement #8

The Okanogan River likely contains toxins within the sediment and in the water column. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project boundary. There are numerous reports by the Washington State Department of Ecology and the Colville Tribes documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments conducted on toxins in the Okanogan River most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River. Sediments with toxins appear to be accumulating at the mouth of the Okanogan River.

The resource work group agrees that a study is needed during the two-year ILP study period. The study would consider toxic pollutants in the Okanogan River and how those

toxins flow into and accumulate in the Wells Project. This study would include a literature review (including existing information) and an assessment of fish tissues, water and sediment. The study would focus on specific recreation areas and sampling in the Okanogan River upstream from the Okanogan delta, within the delta and downstream of the Okanogan delta in the Columbia River.

Issue Statement #9

Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allocthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.

Issue Determination Statement #9

The existing aquatic and wetlands plant communities have evolved over the past forty years of Wells Project operations. Douglas PUD is not proposing to change Project operations during the next license term. Aquatic and wetland plant distribution studies conducted in 2005 document the presence of robust communities which are indicative of the long-term effects of reservoir fluctuation on these plant communities. Mobility of fish and macroinvertebrates has allowed these species to adapt to the areas affected by reservoir fluctuations.

Existing information is adequate to assess impacts on aquatic and wetland plant communities to address this issue. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement #10

Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.

Issue Determination Statement #10

Wells Dam can have an effect on compliance with the TDG standard. The resource work group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the two-year ILP study period (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

Issue Statement #11

Project operations may affect compliance with temperature standards in the Wells Project.

Issue Determination Statement #11

The Wells Project can have an effect on compliance with the water temperature standard. The resource work group agrees that studies to address this issue are feasible and the results will be meaningful for the 401 Water Quality Certification Process. Douglas PUD is currently collecting temperature data throughout the Wells Project. Furthermore,

Douglas PUD has established weather stations to collect meteorological data in key locations of the Wells Reservoir. These data sets will be utilized to develop a temperature model (e.g., CE-QUAL-W2) to assess the Wells Project's effect on water temperatures.

The resource work group believes that a study to develop a temperature model is necessary to determine compliance with the state's water quality standards. The resource work group agrees that this study (development of specific water temperature models) should be implemented during the two-year ILP study period.

Toward this goal, Douglas PUD will continue to collect water temperature and meteorological data during 2006 and 2007 for use in the development of a temperature model to be used in 2008 and/or 2009. Data may continue to be collected in 2008 and 2009, if necessary.

Issue Statement #12

Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

Issue Determination Statement #12

The Wells Project may have an effect on compliance with the standards for DO, pH and turbidity. Currently, Douglas PUD has collected water quality data toward the evaluation of meeting the numeric criteria for these parameters. Initial data collected during the 2005 baseline limnological assessment indicates that Douglas PUD is in compliance with the Washington State Standard for these parameters. However, additional monitoring is required to make a final determination.

The resource work group agrees that a study during the two-year ILP study period is necessary. The study will focus on the collection of DO, pH and turbidity in the Wells Project especially focusing on data collection from the Okanogan River and at Wells Dam.

Issue Statement #13

The Wells Project may affect Bull Trout survival and habitat.

Issue Determination Statement #13

There is consensus by the group that the Bull Trout Monitoring and Management Plan (Plan), which has been approved by FERC and the U.S. Fish and Wildlife Service, is sufficient to address this issue. The Plan was implemented beginning in December 2004 and will continue into 2008. The group also agrees that the results of the Plan will be meaningful to relicensing in that it will help determine continued measures to protect Bull Trout during the new license term.

Issue Statement #14

The Wells Project may contribute to the spread of aquatic invasive species.

Issue Determination Statement #14

Aquatic Invasive Species (AIS) introductions present a significant risk to the Wells Reservoir and the reservoir could contribute to the spread of AIS into other waters within the state. AIS enter western states' waters from a number of different pathways, including recreational watercraft. The potential costs in both economic and environmental impacts of an AIS invasion could be significant.

In 2005, Douglas PUD completed a baseline Aquatic Macroinvertebrate Inventory and mapping of the macrophyte communities within the Wells Project. Douglas PUD is also working on a study that inventories plankton within the Wells Reservoir, due to be completed in April 2006. These studies add to our knowledge of non-native species presence and abundance within the Wells Project and will be sufficient to serve as baseline data. Existing data from baseline studies is sufficient but AIS should be monitored during the next license term. This future monitoring will be helpful in determining whether new species are being introduced to the Project or if prevention programs are working well.

The resource work group agrees that this is not an issue that needs further study during the two-year ILP study period. Future needs to monitor and evaluate invasive nuisance species will need to be fully discussed and evaluated along with all other PME's proposed for aquatic species.

Issue Statement #15

The Wells Project should continue resident fish production at the Wells Hatchery.

Issue Determination Statement #15

The resource work group agrees that continuing the existing off-site resident fish program is important to mitigate for the ongoing Project effects to resident fish. Rationale for conducting this mitigation off-site is tied to potential conflicts with the Wells HCP and ESA recovery goals for anadromous species. Potential on-site conflicts with ESA-listed species include such things as predation, competition and disease transmission. The existing off-site 20,000 lbs. resident fish program adequately mitigates for the ongoing Project effect to resident fish in the Wells Project.

The resource work group agrees that this is not an issue requiring a study during the two-year ILP study period.

Aquatics RWG Meeting #5
April 6, 2006
Action Items

1. Email final Issue Determination Statements to the resource work group and make note of Issue Determination Statements #9 to Joe Miller (Bao).
2. Discuss Issue Determination Statements #9 with Joe Miller by April 11 and provide finalized agreed to language to Bao by April 12 (Carmen).
3. Discuss Issue Determination Statement #8 with Bill Towey making note of end of last sentence (Bao).
4. Discuss Issue Determination Statements #11 and #12 with Pat Irle by April 13 (Bao).

Memo to Cultural RWG regarding Wells Area of Potential Effect (APE)
April 11, 2006



MEMORANDUM

TO: Wells Cultural Resources RWG

FROM: Scott Kreiter

DATE: April 11, 2006

SUBJECT: Wells Area of Potential Effect (APE)

As a follow-up to the Wells Relicensing Cultural RWG meeting held on February 9, 2006, we have prepared a series of Project maps to accompany the defined APE. Please find enclosed for your review Figures 1 and 2 of the Wells Area of Potential Effect which is defined below:

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary (Figure 1). The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license (e.g. the Wells HCP Tributary Conservation Program) (Figure 2).

Please contact me at (509) 881-2327 at your convenience with any comments you may have.

Recreation and Land Use RWG Meeting 5
April 14, 2006

From: Scott Kreiter
Sent: Thursday, April 06, 2006 11:04 AM
To: Andre Stone; Andy Lampe; Bill Fraser; Bill Towey; Bob Clubb; Bob Fateley; Brad Hawkins; Brenda Crowell; Chris Parsons; Dennis Beich; Diane Priebe; Gail Howe; George Brady; Gordon Brett; Jean Hardie; Jim Eychaner; Jim Harris; John Devine; Lee Webster; Mary Hunt; Mike McKee; Mike Nickerson; Mike Palmer; Murray McCory; Neal Hedges; Scott Kreiter; Shane Bickford; Susan Rosebrough; Tony Eldred
Cc: Mary Mayo
Subject: Wells Relicensing - Recreation and Land Use RWG #5 Agenda
Attachments: Meeting Agenda Recreation RWG 5.pdf; Issue Statements and Issue Determination Statements from Recreation RWG 4.doc

Please find attached the agenda for the Recreation and Land Use RWG meeting to be held at 9 AM on Friday, April 14.

Also attached are the Issue Determination Statements from our last meeting.

-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda – April 14, 2006**

Meeting Purpose: To finalize issue determination statements and proposed studies for Wells relicensing.

Objectives: 1. Discuss the Wells Visitor Use Assessment report
2. Finalize issue determination statements.
3. Begin developing study plan objectives

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: April 14, 2006

Location: Lake Pateros Café
180 Pateros Mall
Pateros, WA

Meeting time: 9:00 AM – 2:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #4	Scott Kreiter
9:10	Overview of Wells Visitor Use Assessment	Kelly Bricker
9:30	Comments on the Wells Visitor Use Assessment	Group
10:15	Final comments on issue determination statements	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Develop study plan objectives	Group
1:50	Action items and next steps.	Scott Kreiter
2:00	Adjourn	

Attendees Invited:

Gail Howe, City of Pateros
George Brady, City of Pateros
Lee Webster, City of Brewster
Bob Fately, City of Brewster
Jean Hardie, City of Bridgeport
Steve Jenkins, City of Bridgeport
Andy Lampe, Okanogan County
Brenda Crowell, Okanogan County
Mary Hunt, Douglas County
Chris Parsons, WDFW
Tony Eldred, WDFW
Jim Harris, Washington State Parks

Mike Nickerson, Washington State Parks
Bill Fraser, Washington State Parks
Jim Eychaner, Washington IAC
Susan Rosebrough, National Park Service
Bill Towey, Colville Tribes
Mike Palmer, Colville Tribes
Jim Fisher, Bureau of Land Management
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine Tarbell & Assoc.

**Recreation and Land Use RWG Meeting 5
Sign-in Sheet and Meeting Products**

April 14, 2006

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**Recreation and Land Use Resource Work Group
Final Issue Statements and Issue Determination Statements
From RWG 5 – April 14, 2006**

Issue Statement #1

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Issue Determination Statement #1

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The working group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks. The study should also evaluate how reservoir elevations affect on-water boating experiences (e.g. motorboats vs. man-powered boats).

The resource work group agrees that a site evaluation study will be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue for the term of the next license.

Issue Statement #2

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Issue Determination Statement #2

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of the baseline assessments indicated that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage.

The resource work group agrees that a site evaluation study should be completed during the two-year ILP study period to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a map showing where macrophytes occur and focus on identifying where macrophytes restrict or discourage access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir. The study will help identify measures to address this issue for the term of the next license.

Issue Statement #3

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Issue Determination Statement #3

The resource work group agrees that a study is not needed during the ILP two-year study period. Sediment conditions at public recreation sites will be considered during the site evaluation study discussed in Issues No. 1 and 2 above. The resource work group agrees that it is important to continue monitoring the sediment conditions at Wells Project access sites along the Methow and Okanogan rivers.

Issue Statement #4

Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).

Issue Determination Statement #4

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development on the Columbia River has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with its FERC License and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as trespassing, the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Douglas PUD has no plans to divest ownership of any project land holdings within the Wells Project boundary. Douglas PUD believes no additional information is needed to address this issue and a study is not recommended during the two-year ILP study period. Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing recreation and land use resources may be warranted.

Issue Statement #5

Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State Comprehensive Outdoor Recreation Plan (SCORP) as well as local ordinances, laws, regulations and comprehensive plans.

Issue Determination Statement #5

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. These should be applied at existing and future recreation sites. The resource work group agrees that no additional information is needed and a study is not recommended during the two-year ILP study period.

Issue Statement #6

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Issue Determination Statement #6

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project conducted in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The resource work group agrees that additional information is needed and that a Recreational Needs Assessment should be conducted during the two-year ILP study period. This study should assess the condition of existing facilities and evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey and the WDFW fishermen survey and additional recreation information from the Project area.

Issue Statement #7

The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park and Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Issue Determination Statement #7

The resource work group agrees that a Recreational Needs Assessment is needed during the two-year ILP study period. The results of this study will help identify potential enhancements that may be needed to meet current, future and potential recreation needs within the Project, including the possibility of trails and trail linkages between communities. The study will help to determine whether adequate demand exists to justify the construction of new recreation facilities and will consider existing and future plans for recreation sites in the Project vicinity. Enhancements to existing facilities outside the Project will be considered if recreation needs cannot be met within the Project Boundary.

Issue Statement #8

The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.

Issue Determination Statement #8

According to stakeholders, the existing process is overly cumbersome and delays implementation of various actions. A new process should be developed to address these concerns. The new planning process should focus on improving communication between stakeholders, the FERC and Douglas PUD. The current recreation action planning process is a component of the existing license. Recreation planning under the new license, if required by FERC, may be significantly different than the current process.

The resource work group agrees that no new information is needed to address this issue during the two-year ILP study period. However, Douglas PUD will work with stakeholders to examine areas for potential improvements to the current recreation action planning process.

Issue Statement #9

The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).

Issue Determination Statement #9

There are many variables that could affect the economic health of a city or county. Studying effects on municipal and business infrastructure, tax base, emergency services and community services, with all possible variables considered, does not have a readily discernible linkage to the Wells Project. Specific individual components of this issue do have an association with the project and its operation, including Operations and Maintenance (O&M) support for recreation facilities located within the counties and within each of the three cities.

The resource work group agrees that a study is not needed during the two-year ILP study period. However, Douglas PUD proposes to work with stakeholders on the issue of O&M funding for existing and potential recreation facilities through the development of Protection, Mitigation and Enhancement (PME) measures.

Issue Statement #10

Water use at city parks may affect the availability of water for future city development.

Issue Determination Statement #10

Under the terms of the original FERC operating license for Wells Dam, Douglas PUD constructed recreational facilities in the cities of Pateros, Brewster and Bridgeport. Douglas PUD has continued to provide funding for major maintenance and improvements to these facilities. Each of the respective Cities provides routine operation and maintenance funding for ongoing operation of the facilities located within their

respective communities. One component of this responsibility is to provide water for drinking and for irrigation. Because water rights in the communities are limited, the Cities would like to utilize the water rights being used for the public recreation facilities for other potential development needs.

The parks were originally constructed to provide access to Project lands and waters. Douglas PUD is responsible for maintaining these facilities to a level that allows continued access to the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period. Douglas PUD proposes to work with the Cities during the relicensing process to develop options for addressing this issue.

Issue Statement #11

Wells Dam may be a hindrance to river travel.

Issue Determination Statement #11

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future.

The resource work group agrees that a study is not needed during the two-year ILP study period. An evaluation of portage options to address this issue should be considered in the Recreation Needs Assessment.

Action Items
Recreation and Land Use Work Group
Meeting 5 – April 14, 2006

1. Share Appendix B-6 data with Okanogan County and Douglas County Sherriff's Office (Brad).
2. Send Issue Statements and Issue Determination Statements from Aquatics and Terrestrial RWGs to Recreation and Land Use RWG members (Scott).

Terrestrial RWG Meeting 5
March 23, 2006

From: Scott Kreiter
Sent: Wednesday, March 15, 2006 3:44 PM
To: Beau Patterson; Bill Towey; Bob Clubb; Brad Hawkins; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dennis Beich; Dinah Demers; Gordon Brett; James Rees; Jim McGee; John Devine; Marc Hallett; Mary Hunt; Matt Monda; Neal Hedges; Scott Kreiter; Shane Bickford; Steve Lewis; Tony Eldred
Cc: Mary Mayo
Subject: Wells Relicensing: Terrestrial RWG - Meeting Agenda
Attachments: Meeting Agenda Terrestrial RWG 5.pdf

Good afternoon.

Please find attached the Agenda for Terrestrial RWG #5 to be held on March 23.

Note that the objective for this meeting is to finalize the issue statements based on policy review. If time allows, we will also begin developing study plan objectives.

Please let me know if you have any comments or additions to the agenda.

Thanks.

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – March 23, 2006**

Meeting Purpose: To finalize issue determination statements and proposed studies for Wells relicensing.

Objectives: 1. Finalize issue determination statements based on feedback from Policy review
2. Begin developing study plan objectives

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: March 23, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 9:30 AM – 2:30 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda Review action items from RWG #4	Scott Kreiter
9:45	Final edits to issue statements and categorization based on Policy review.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Develop study plan objectives	Group
2:15	Action items and next steps.	Scott Kreiter
2:30	Adjourn	

Attendees Invited: Bill Towey, Colville Tribes Dinah Demers, Colville Tribes Neal Hedges, BLM James Rees, BLM Brenda Crowell, Okanogan County Marc Hallett, WDFW Matt Monda, WDFW Tony Eldred, WDFW Carmen Andonaegui, WDFW	Beau Patterson, WDFW Steve Lewis, USFWS Dan Trochta, USFWS Mary Hunt, Douglas County Bob Clubb, Douglas PUD Jim McGee, Douglas PUD Shane Bickford, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc.
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Terrestrial RWG Meeting 5
Sign-in Sheet and Meeting Products

March 23, 2006

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**Terrestrial Resources Work Group
Final Issue Statements and Issue Determination Statements
From RWG 5 – March 23, 2006**

Issue Statement #1

Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

Issue Determination Statement #1

Douglas PUD owns land within the Project boundary in fee title. This is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what is provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's plan to retain ownership of lands within the Project boundary.

Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Measures to protect the existing terrestrial resources will be addressed in the Land Management Plan.

Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement #2

The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.

Issue Determination Statement #2

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project but its Land Use Policy does restrict the ability of adjacent landowners to develop and make improvements to Project lands. Douglas PUD owns the shoreline and is required to regulate development within the Project boundary. Douglas PUD actively patrols the reservoir to monitor compliance with the Land Use Policy. Monitoring needs will be considered in the development of the Land Management Plan.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of other nearby lands, proximity to social infrastructure (e.g. schools and hospitals) and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

Additional information will not resolve this issue or produce results meaningful to relicensing. The resource work group agrees that Douglas PUD should retain ownership in fee title of Project lands and continue implementing its Land Use Policy. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement #3

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Issue Determination Statement #3

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RTE plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. The resource work group also expressed concerns that future changes to how the project is operated could

negatively affect the high quality macrophyte beds located within the Wells Reservoir. These beds are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands during extended reservoir draw down. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. The resource work group agrees that a study is not needed during the two-year ILP study period because changes in operations are not being proposed and because good baseline information exists.

Issue Statement #4

The reservoir could affect the movements and migration abilities of mule deer.

Issue Determination Statement #4

There is sufficient information pertaining to mule deer movements, migrations and populations in the region. Mule deer are a common and abundant game species in the region, including within the Wells Project, and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement #5

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Issue Determination Statement #5

Evidence of Project related adverse impacts to mule deer or sharp-tailed grouse have not been identified.

Sharp-tailed grouse populations have declined state-wide and are currently a state-threatened species. Riparian habitat for game and non-game species has increased since the project was built. The Wells Wildlife Area and other lands managed for wildlife purposes have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

No Project operational impacts have been identified on these species. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement #6

The Project could affect terrestrial RTE species.

Issue Determination Statement #6

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

The following RTE species have been documented in the Wells Reservoir:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

Future land management, recreation planning and operational decisions will avoid, minimize or mitigate impacts to federal RTE species. Future land management, recreation planning and operational decisions will consider impacts to state RTE species.

The resource work group agrees that a study is not needed during the two-year ILP study period related to federal RTE species on the Wells Reservoir. (See Issue Statement #12 for study related to RTE inventories along the transmission corridor).

Issue Statement #7

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

Issue Determination Statement #7

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife habitat due to the construction and operation of the Wells Project. Specifically, the wildlife mitigation agreement was intended to benefit wildlife in close proximity to the Wells Reservoir. The mitigation program was initially focused on providing upland game bird recreation (e.g. quail and pheasant hunting). Originally, the program included the planting of game birds for harvest purposes. The scope of WDFW's program has changed to emphasize habitat improvements for natural production of game birds. This management direction shift has provided additional benefits to a wide assemblage of game and non-game species.

Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PME development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement #8

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Issue Determination Statement #8

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of bird and mammal predators is not the preferred solution to this problem but has become an important part of controlling bird and mammal predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel.

As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on sensitive or recreationally important species.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate existing practices, evaluate alternatives and inform future management decisions.

Issue Statement #9

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Issue Determination Statement #9

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

There is no demonstrated impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005.

The resource work group has determined that a study is needed during the two-year ILP study period. A series of Project maps with RTE species, sensitive botanical cover-types, designated wildlife areas and National Register eligible cultural sites should be overlaid with known areas of active erosion. This comparison will determine whether erosion areas are having an adverse effect on these resources.

Issue Statement #10

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Issue Determination Statement #10

The Project is one of many factors that could attract recreational use. Recreation development activities within the Wells Project are controlled through Douglas PUD's Land Use Policy. Douglas PUD strives to provide safe and efficient access to appropriate Project land and waters. Douglas PUD cannot control recreational use within the Wells Reservoir. The group agrees that recreation activities, including but not limited to, water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project. Any Land Management Plan in the new license will consider potential impacts of recreational use on wildlife and wildlife habitat. Further measures to protect the existing terrestrial resources may be warranted.

Existing information provided in the baseline studies is sufficient for making future land management decisions. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement #11

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Issue Determination Statement #11

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence -- whether raptors, corvids and prairie grouse are found within or adjacent to the transmission corridor. A literature review will also be completed to specifically identify potential effects on raptors and prairie grouse.

Issue Statement #12

Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Issue Determination Statement #12

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

Issue Statement #13

The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.

Issue Determination Statement #13

The Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue could become important if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification, distribution and abundance and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement #14

Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

Issue Determination Statement #14

When Methow River flows are predicted to be above 14,000 cfs, Douglas PUD periodically draws down the Wells Reservoir to allow sediment to pass through the Methow River confluence. This occurs approximately every 8-10 years. This is done to prevent sediment buildup at the boat launches and swimming areas and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including operations, reservoir drawdown and fluctuations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Action Items
Terrestrial Resources Work Group
Meeting 5 – March 23, 2006

1. Resource Work Group members will discuss Issue Determination Statements with agency policy staff and provide feedback to group (stakeholders).
2. Organize Project Tour for resource work group members (Tues. April 18 - 10:00 am) and email information to Resource Work Group members (Scott).
3. Distribute final Issue Statements and Issue Determination Statements (Scott).
4. Provide comments on Wildlife and Botanical Reports to Douglas PUD by the first week of April (stakeholders).

**Letter to Colville Confederated Tribes from FERC regarding
Consultation with the Colville Confederated Tribes
May 31, 2006**

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
May 31, 2006

OFFICE OF ENERGY PROJECTS

Project No. 2149 – Washington
Wells Hydroelectric Project
Public Utility District No. 1 of
Douglas County

Harvey Moses, Chairman
Tribal Business Council
PO Box 150
Nespelem, WA 99155

Reference: Consultation with the Colville Confederated Tribes

Dear Mr. Moses:

The Federal Energy Regulatory Commission (Commission) invites your participation in the relicensing process for the Wells Hydroelectric Project located on the Columbia River in Douglas, Chelan, and Okanogan Counties, Washington. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the project under a license issued by the Commission and is using the Commission's new Integrated Licensing Process to relicense the project. Douglas PUD's current license for the Wells Project expires May 31, 2012, and an application for a new license must be filed by May 31, 2010.

The Wells Project consists of: (1) a 1,130-foot-long and 168-foot-wide concrete structure called a hydrocombine with integrated generating units, spillways, switchyard and fish passage facilities; (2) a 2,300-foot-long and 40-foot-high earth and rockfill west embankment; (3) a 1,030-foot-long and 160-foot-high earth and rockfill east embankment; (4) eleven 46-foot-wide and 65-foot-high ogee-designed spillway bays with 2 vertical lift gates (upper leaf is 46-feet by 30-feet and lower leaf is 46-feet by 35-feet); (5) five spillways modified to accommodate the Juvenile Fish Bypass System; (6) ten generating units each housed in a 95-foot-wide and 172-foot-long concrete structure with an installed capacity of 774.3 megawatt (MW) and maximum capacity of 840 MW; (7) five 14.4-kilovolts (kV) power transformers each connected to 2 generating units converting the power to 230 kV; (8) two 41-miles-long 230-kV single-circuit transmission lines running parallel to each other; and (9) appurtenant facilities.

The Commission staff is interested in meeting with you to discuss the Commission's relicensing process, how the tribe can participate to the fullest extent possible, your interests and concerns in the affected area, and how to establish procedures to ensure appropriate communication between Commission and tribal staffs. The meeting can be limited to Commission and your tribal staff or can be open to other tribes, Douglas PUD, or any other relicensing participants you wish. Please note that any sensitive tribal information discussed at the meeting, and likewise discussed throughout the entire relicensing process, can be kept strictly confidential.

Please tell us by June 30, 2006, whether or not you would like to participate in relicensing the Wells Project and whether you would like to meet with Commission staff to discuss the project. Please address the response (an original and eight copies) to:

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

The first page of the response should clearly show the project number, P-2149. Your response may be filed electronically via the Internet in lieu of paper. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site (<http://www.ferc.gov>) under the "e-Filing" link. The Commission strongly encourages electronic filings. You may also register online at: <http://www.ferc.gov/esubscribenow.htm> to be notified via email of new filings and issuances related to this or other pending projects. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov; call toll-free at (866) 208-3676; or, for TTY, contact (202) 502-8659.

If you have any questions or comments, please contact Dr. Frank Winchell, the Commission's cultural resource specialist assigned to the Wells Project, at (202) 502-6104 or Frank.winchell@ferc.gov.

As you are aware, we have scheduled a meeting to discuss two other Commission projects with you in early June. Dr. Winchell will contact your office shortly to see if a meeting addressing the Wells Project can be coordinated with the meeting already scheduled to address the Enloe (P-12569) and Boundary (P-2144) Projects.

Sincerely,

Ann F. Miles, Director
Division of Hydropower Licensing

cc: Camille Pleasants
Tribal Historic Preservation Officer
P.O. Box 150
Nespelem, WA 99155

Mailing List
Public File

**Letter to DAHP from Douglas PUD regarding
Project Area of Potential Effect – July 18, 2006**



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

Ms. Allyson Brooks
Department of Archaeology & Historic Preservation
1063 South Capitol Way, Suite 106
Olympia, WA 98501

July 18, 2006

**Subject: Wells Relicensing – Project Area of Potential Effect
Wells Hydroelectric Project, FERC No. 2149**

Dear Ms. Brooks:

As part of the relicensing of the Wells Hydroelectric Project, Douglas PUD is seeking concurrence from the Washington State Historic Preservation Officer (SHPO) on the definition for the Wells Project Area of Potential Effect (APE).

Following FERC's initiation of the Section 106 process in December, 2005, Douglas PUD began consulting with the Cultural Resource Work Group (RWG) comprised of the Washington DAHP, the Colville Tribes, and Bureau of Land Management. As part of this process, the RWG defined the APE as follows:

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary (Figure 1). The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license (e.g. the Wells HCP Tributary Conservation Program) (Figure 2).

On April 11, 2006, Douglas PUD distributed this definition, along with Figures 1 and 2, to the Cultural RWG for comment. No comments were received.

At this time, Douglas PUD is asking for SHPO concurrence on the above APE definition and associated figures (Figures 1 and 2). We are also seeking concurrence from the Colville Tribes' THPO by separate letter.

We appreciate your input regarding this issue. Please contact me at 509-881-2327 if you have any questions or concerns.

Sincerely,

Natural Resources Relicensing Specialist

Enclosures

Copy: Rob Whitlam, DAHP
Frank Winchell, FERC
Shane Bickford, Douglas PUD

**Letter to CCT from Douglas PUD regarding
Project Area of Potential Effect – July 18, 2006**



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

Ms. Camille Pleasants
Colville Confederated Tribes
P.O. Box 150
Nespelem, WA 99155

July 18, 2006

**Subject: Wells Relicensing – Project Area of Potential Effect
Wells Hydroelectric Project, FERC No. 2149**

Dear Ms. Pleasants:

As part of the relicensing of the Wells Hydroelectric Project, Douglas PUD is seeking concurrence from the Colville Tribal Historic Preservation Officer (THPO) on the definition for the Wells Project Area of Potential Effect (APE).

Following FERC's initiation of the Section 106 process in December, 2005, Douglas PUD began consulting with the Cultural Resource Work Group (RWG) comprised of the Washington DAHP, the Colville Tribes, and Bureau of Land Management. As part of this process, the RWG defined the APE as follows:

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary (Figure 1). The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license (e.g. the Wells HCP Tributary Conservation Program) (Figure 2).

On April 11, 2006, Douglas PUD distributed this definition, along with Figures 1 and 2, to the Cultural RWG for comment. No comments were received.

At this time, Douglas PUD is asking for THPO concurrence on the above APE definition and associated figures (Figures 1 and 2). We are also seeking concurrence from the Washington State SHPO by separate letter.

We appreciate your input regarding this issue. Please contact me at 509-881-2327 if you have any questions or concerns.

Sincerely,

Natural Resources Relicensing Specialist

Enclosures

Copy: Frank Winchell, FERC
Shane Bickford, Douglas PUD

Aquatic RWG Meeting 6
July 21, 2006

From: Bao Le
Sent: Tuesday, July 11, 2006 4:58 PM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Brad James; Bryan Nordlund; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Molly Hallock; Pat Irle; Shane Bickford; Steve Lewis; Steve Parker
Subject: Aquatic RWG meeting #6 agenda and draft study plans
Attachments: Meeting Agenda Aquatics RWG 6.pdf

Aquatic RWG members, attached is an agenda for Aquatic RWG meeting #6 which is scheduled for Friday, July 21st, here at the PUD headquarters from 9am to 3pm. Please plan on attending this meeting as we will be taking a first look at the draft study plan requests that were developed from our previous work group meeting discussions related to issue identification and issue determination. Since the study plans are relatively large files, please access these via the relicensing FTP site under Aquatics/Meeting 6/Meeting Announcement and Handouts. Also note that the study plans are in WORD for convenience of commenting and editing in tracked changes. Given the large number of study plans that will need to be reviewed, I suggest focusing on the objectives and methodology sections of the study plans for efficiency. Below are instructions to access the FTP site:

FTP Instructions

Point your browser to <ftp://relicensingftp.dcpud.org>

User logon: wellsftp

Password: Fishing (With a capital "F")

If you have any questions or plan on attending via conference call, please contact me.

Cheers,

Bao Le
Sr. Aquatic Resource Biologist
Douglas PUD
1151 Valley Mall Pkwy.
East Wenatchee, WA 98802
509-881-2323 (Direct)
509-884-0553 (FAX)

**Aquatic Resources Work Group
Wells Relicensing
Meeting # Agenda – July 21, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: 1. Provide an update to the RWG on feedback from FERC, upcoming schedule, etc.
2. Discuss and receive feedback on draft proposed study plans.

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: July 21, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:00 AM – 3:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #5	Bao Le
9:15	Policy review of issue statements; Revised schedule and next steps; Overview of meeting with FERC	Group
9:30	Review FERC comments on Issue Statements Road Map (Issue and study plan reorganization) Revised Issue Determination Statements	Group
10:30	Review and discuss draft study plans. Primary focus will be on objectives and methods.	Group
12:00	Lunch - Douglas PUD will provide box lunches	Group
12:30	Continue study plan review.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited:

Pat Irle, WDOE
John Merz, WDOE
Bryan Nordlund, NMFS
Steve Lewis, USFWS
Joe Miller, WDFW
Bob Jateff, WDFW
Carmen Andonaegui, WDFW
Art Viola, WDFW
Bob Rose, Yakama Nation

Bill Towey, Confederated Tribes of the
Colville Reservation
Jerry Marco, Confederated Tribes of the
Colville Reservation
Bao Le, Douglas PUD
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine, Tarbell, and Associates

Douglas PUD
Pre-Application Document
Outline for Section 6

6.2 Issues for Study

6.2.1 Aquatic

- 6.2.1.1 Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.
- 6.2.1.2 The Wells Project may affect adult Pacific lamprey habitat use.
- 6.2.1.3 The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.
- 6.2.1.4 Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.
- 6.2.1.5 Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.
- 6.2.1.6 Project operations may affect compliance with temperature standards in the Wells Project.
- 6.2.1.7 Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

6.2.2 Recreation and Land Use

- 6.2.2.1 Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.
- 6.2.2.2 The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
- 6.2.2.3 The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.
- 6.2.2.4 Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State

Comprehensive Outdoor Recreation Plan (SCORP), County Shoreline Master Programs as well as local ordinances, laws, regulations and comprehensive plans.

6.2.2.5 Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

6.2.2.6 The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park an Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

6.2.2.7 Wells Dam may be a hindrance to river travel.

6.2.3 Terrestrial

6.2.3.1 Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

6.2.3.2 Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

6.2.3.3 Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

6.2.3.4 Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

6.3 Proposed Study Plans

6.3.1 Aquatic

6.3.1.1 A Retrospective Analysis of Survival and Rates of Predation for Juvenile Pacific Lamprey Migrating through Columbia River Hydroelectric Projects (6.2.1.1).

6.3.1.2 An Assessment of Adult Pacific Lamprey Spawning (6.2.1.2).

6.3.1.3 Adult Pacific Lamprey Passage and Behavior Study (6.2.1.3).

- 6.3.1.4 An Investigation into the effect of Project Operations on the Transport and Accumulation of Toxins within the Sediment of the Okanogan and Columbia rivers (6.2.1.4).
- 6.3.1.5 An Investigation into the Total Dissolved Gas Dynamics of the Wells Project (6.2.1.5).
- 6.3.1.6 Development of a Water Temperature Model Relating Project Operations to Compliance with the Washington State and EPA Water Quality Standards (6.2.1.6).
- 6.3.1.7 Continued Monitoring of DO, pH and Turbidity in the Wells Forebay and Inundated Portion of the Okanogan River (6.2.1.7).

6.3.2 Recreation and Land Use

- 6.3.2.1 Evaluation of Access to and Use of Wells Reservoir as it Relates to Reservoir Fluctuations, Aquatic Plants and Substrate Buildup (6.2.2.1, 6.2.2.2 and 6.2.2.3).
- 6.3.2.2 An Evaluation of Recreational Needs within the Wells Project (6.2.2.4, 6.2.2.5, 6.2.2.6 and 6.2.2.7).

6.3.3 Terrestrial

- 6.3.3.1 An Evaluation of the Effects and Alternatives to the Existing Bird and Mammal Control Programs (6.2.3.1).
- 6.3.3.2 An Evaluation of the Effects of Active, Project Induced Erosion on Wildlife, Botanical, Cultural and RTE Resources (6.2.3.2).
- 6.3.3.3 Plant and Wildlife Surveys and Cover Type Mapping for the Wells Hydroelectric Project 230 kV Transmission Corridor (6.2.3.3 and 6.2.3.4).

6.4 Issues Not for Study

6.4.1 Aquatic RWG

- 6.4.1.1 Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.
- 6.4.1.2 The Wells Project may be affecting white sturgeon habitat and carrying capacity.

- 6.4.1.3 The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment and upstream and downstream passage (entrainment/recruitment).
- 6.4.1.4 There may be an opportunity to shift a portion of the existing off-site resident fish program to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.
- 6.4.1.5 Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.
- 6.4.1.6 The Wells Project may affect Bull Trout survival and habitat.
- 6.4.1.7 The Wells Project may contribute to the spread of aquatic invasive species.
- 6.4.1.8 The Wells Project should continue resident fish production at the Wells Hatchery.

6.4.2 Recreation RWG

- 6.4.2.1 Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).
- 6.4.2.2 The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.
- 6.4.2.3 The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).
- 6.4.2.4 Water use at city parks may affect the availability of water for future city development.

6.4.3 Terrestrial

- 6.4.3.1 Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different

levels of wildlife impacts/protection, including habitat fragmentation and succession.

- 6.4.3.2 The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.
- 6.4.3.3 The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.
- 6.4.3.4 The reservoir could affect the movements and migration abilities of mule deer.
- 6.4.3.5 The Project could affect winter habitat for mule deer and sharp-tailed grouse.
- 6.4.3.6 The Project could affect terrestrial RTE species.
- 6.4.3.7 Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.
- 6.4.3.8 Public use (recreation) of the Project may affect wildlife and wildlife habitat.
- 6.4.3.9 The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.
- 6.4.3.10 Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

Aquatic RWG Meeting 6
Sign-in Sheet and Meeting Products

July 21, 2006

Appendix B - 428

Aquatic Resource Work Group

Proposed Study Plans, Issue Statements and Issue Determination Statements

Issues for Study

Proposed Study Plan (6.3.1.1)

A Retrospective Analysis of Survival and Rates of Predation for Juvenile Pacific Lamprey Migrating through Columbia River Hydroelectric Projects

Issue Statement (6.2.1.1)

Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.

Issue Determination Statement

It is unknown as to whether there is a Project effect on juvenile lamprey. At this time, there are no studies documenting Project effects on juvenile lamprey. However, dam passage survival can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study for dam passage survival; 1) Tag technology for juvenile macrophthalmia is not currently available nor currently being developed; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable. Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial.

Comment [B1]: Cite Schreck report if available.

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The resource work group agrees that a study is needed during the two-year ILP study period. This study will include an updated literature review on juvenile lamprey survival and predation on juvenile lamprey and will examine the stomach contents of fish. If permits can be obtained, the study will also examine the stomach contents of birds.

Proposed Study Plan (6.3.1.2)

An Assessment of Adult Pacific Lamprey Spawning

Issue Statement (6.2.1.2)

The Wells Project may affect adult Pacific lamprey habitat use.

Issue Determination Statement

There were two types of habitat within the Wells Project identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir, deepwater habitat is plentiful and undisturbed by Project operations.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer

smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depths of 1-2 meters). This type of habitat is generally not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the [Wells Project](#) that ~~provide~~ spawning habitat for adult Pacific lamprey. [An area of specific interest is the lower 1.5 mile portion of the Methow River within Project boundary.](#)

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The resource work group agrees that a study to determine whether adult lamprey are spawning within the [Wells Project](#) should be conducted during the two-year ILP study period.

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Proposed Study Plan (6.3.1.3)

Adult Pacific Lamprey Passage and Behavior Study

Issue Statement (6.2.1.3)

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Issue Determination Statement

Work group members have determined that this issue has a tie to the Project as it relates to lamprey migration through Wells Dam. Preliminary passage information has been collected at Wells Dam; however, the sample size of the study was limited and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, drop back and upstream migration. The results of an adult lamprey passage study would be useful during the development of PME measures.

The resource work group agrees that a radio telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam during the two-year ILP study period.

Proposed Study Plan

TBD

Issue Statement (6.2.1.4)

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.

Issue Determination Statement

The Okanogan River likely contains toxins within the sediment and in the water column. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project boundary. There are numerous reports by the Washington State Department of Ecology and the Colville Tribes documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments

conducted on toxins in the Okanogan River, most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River. Sediments with toxins appear to be accumulating at the mouth of the Okanogan River.

The resource work group agrees that a study is needed during the two-year ILP study period. The study would consider toxic pollutants in the Okanogan River and how those toxins flow into and accumulate in the Wells Project. This study would include a literature review (including existing information) and an assessment of fish tissues, water and sediment. The study would focus on specific recreation areas and sampling in the Okanogan River upstream from the Okanogan delta, within the delta and downstream of the Okanogan delta in the Columbia River.

Proposed Study Plan (6.3.1.5)

An Investigation into the Total Dissolved Gas Dynamics of the Wells Project

Issue Statement (6.2.1.5)

Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.

Issue Determination Statement

Wells Dam can have an effect on compliance with the TDG standard. The resource work group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the two-year ILP study period (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

Proposed Study Plan (6.3.1.6)

Development of a Water Temperature Model Relating Project Operations to Compliance with the Washington State and EPA Water Quality Standards

Issue Statement (6.2.1.6)

Project operations may affect compliance with temperature standards in the Wells Project.

Issue Determination Statement

The Wells Project can have an effect on compliance with the water temperature standard. The resource work group agrees that studies to address this issue are feasible and the results will be meaningful for the 401 Water Quality Certification Process. Douglas PUD is currently collecting temperature data throughout the Wells Project. Furthermore, Douglas PUD has established weather stations to collect meteorological data in key locations of the Wells Reservoir. These data sets will be utilized to develop a temperature model (e.g., CE-QUAL-W2) to assess the Wells Project's effect on water temperatures.

The resource work group believes that a study to develop a temperature model is necessary to determine compliance with the state's water quality standards. The resource work group agrees that this study (development of specific water temperature models) should be implemented during the two-year ILP study period.

Toward this goal, Douglas PUD will continue to collect water temperature and meteorological data during 2006 and 2007 for use in the development of a temperature model to be used in 2008 and/or 2009. Data may continue to be collected in 2008 and 2009, if necessary.

Proposed Study Plan (6.3.1.7)

Continued Monitoring of DO, pH and Turbidity ~~at Wells Dam and Inundated Portion of the Okanogan River~~

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Issue Statement (6.2.1.7)

Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

Issue Determination Statement

The Wells Project may have an effect on compliance with the standards for DO, pH and turbidity. Currently, Douglas PUD has collected water quality data toward the evaluation of meeting the numeric criteria for these parameters. Initial data collected during the 2005 baseline limnological assessment indicates that Douglas PUD is in compliance with the Washington State Standard for these parameters. However, additional monitoring is required to make a final determination.

The resource work group agrees that a study during the two-year ILP study period is necessary. The study will focus on the collection of DO, pH and turbidity in the Wells Project especially focusing on data collection from the Okanogan River and at Wells Dam.

Issues Not for Study

Issue Statement (6.4.1.1)

Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.

Issue Determination Statement

The work group agrees that juvenile lamprey are likely mobile and robust organisms capable of avoiding the fluctuation zone. An evaluation of actual juvenile lamprey use of identified habitats is problematic due to an inability to accurately capture, mark and recapture juvenile ammocoetes within the deep water habitats of the Wells Project. In addition, there are no statistically rigorous methodologies to accurately assess juvenile lamprey abundance and distribution. Lastly, the preferred collection mechanism, electro-shocking, is not advisable within the Wells Project due to the presence of ESA-listed fish, including steelhead, spring Chinook and bull trout.

Accurate population assessment methodologies have not been developed for juvenile lamprey and studies would be limited by available sampling technology. Therefore, a juvenile lamprey habitat assessment would not be sufficiently reliable in the identification of Project effects and would not contribute to the development of future license requirements.

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The resource work group agrees that a study on the effects of the Project on juvenile lamprey rearing habitat cannot be completed during the two-year ILP study period.

Issue Statement (6.4.1.2)

The Wells Project may be affecting white sturgeon habitat and carrying capacity.

Issue Determination Statement

The current estimate of the white sturgeon population in the Wells Project ranges from 20-50 adult fish based on a 2001-2002 assessment. The effect of the Project on these fish and their habitat is unknown. The white sturgeon population in the Wells Reservoir is so small that establishing a habitat suitability curve for white sturgeon is not feasible. Given their low numbers, it is likely that white sturgeon are utilizing only high quality habitat within the Wells Project. Furthermore, little is known about white sturgeon habitat and preference other than their preference for deep water habitats which is not lacking in the Wells Project. Project operations do not affect deepwater habitats and there is little evidence to suggest that white sturgeon habitat is adversely affected.

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A carrying capacity estimate could be developed; however, the accuracy of such an estimate is in question given the dynamic nature of a lotic system. Additionally, there are a multitude of factors which may affect the carrying capacity of a population making it difficult to assess effects directly attributed to Wells Project operations versus other cumulative effects.

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The development of carrying capacity estimates would not be reliable because of low abundance of the subject species, the inability to conduct a statistically meaningful study, and the inability to accurately assess the effects of Wells Project operations on white sturgeon carrying capacity. Additionally, a study on potential habitat alterations is not needed because no alterations are proposed.

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The resource work group does not believe that a carrying capacity and habitat assessment can be completed during the two-year ILP study period. However, other relicensing processes in the mid-Columbia River basin are currently finalizing white sturgeon management plans. These plans propose upfront implementation of augmentation programs. The RWG agrees that the most appropriate time to implement a carrying capacity and habitat assessment would be several years after an augmentation program has boosted sturgeon numbers to a population level that can be effectively captured, tagged and evaluated. The RWG agrees that a proposed white sturgeon augmentation strategy in the Wells Reservoir should be implemented prior to the initiation of studies to

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determine the carrying capacity of the Wells Reservoir for juvenile and adult white sturgeon.

Issue Statement (6.4.1.3)

The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment and upstream and downstream passage (entrainment/recruitment).

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Issue Determination Statement

The Wells Project currently restricts upstream passage of adult sturgeon. Additional passage information is not needed because 8 projects downstream of Wells Dam also block adult sturgeon from migrating from the lower Columbia River to areas upstream of Wells Dam. Further, the population of sturgeon in the Rocky Reach Reservoir is small (less than 50 adults) and not likely limited by habitat within that reservoir.

Sturgeon typically spawn in the tailraces of Columbia River dams. This is also expected to be the case in the Wells tailrace. Because Wells Dam is a run-of-river project, flow and temperature manipulations to assist in sturgeon spawning are not feasible.

The sturgeon population found within the Wells Reservoir is small (20-50 adults fish) and juvenile fish are present within the population. This population is expected to spawn in the Chief Joseph tailrace, which is outside of the Wells Project boundary. Early rearing is expected to take place within the Wells Project; however, because the adult population is relatively small and because spawning is infrequent and sporadic, the ability to study spawning effectiveness and recruitment during the two-year ILP study period is not feasible or meaningful.

Augmentation has been suggested as a means to increase the population size to a level that could provide meaningful study results. The resource work group has discussed the potential to enhance the sturgeon population via the implementation of an augmentation program (during the term of the new license) similar to the other mid-Columbia PUDs (Grant and Chelan County). Longer-term monitoring of recruitment would be conducted after an augmentation program has been initiated and additional adult fish are present within the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period. The group recommends that additional sturgeon information be collected during the new license term.

Issue Statement (6.4.1.4)

There may be an opportunity to shift a portion of the existing off-site resident fish program to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.

Issue Determination Statement

Existing information on the resident fish assemblage from studies published in 1974, 1979, 1983, 1994 and 1999 provides helpful baseline information. The resource work

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group agrees that a study is not needed during the two-year ILP study period because current off-site mitigation is appropriate considering ESA-listed species ([steelhead, spring Chinook, and bull trout](#)) and recovery goals.

Issue Statement (6.4.1.5)

Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.

Issue Determination Statement

The existing aquatic and wetlands plant communities have evolved over the past forty years of Wells Project operations. Douglas PUD is not proposing to change Project operations during the next license term. Aquatic and wetland plant distribution studies conducted in 2005 document the presence of robust communities which are indicative of the long-term effects of reservoir fluctuation on these plant communities. Mobility of fish and macroinvertebrates has allowed these species to adapt to the areas affected by reservoir fluctuations.

Existing information is adequate to assess impacts on aquatic and wetland plant communities to address this issue. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement (6.4.1.6)

The Wells Project may affect bull trout survival and habitat.

Issue Determination Statement

There is consensus by the group that the Bull Trout Monitoring and Management Plan (Plan), which has been approved by FERC and the U.S. Fish and Wildlife Service, is sufficient to address this issue. The Plan was implemented beginning in December 2004 and will continue into 2008. [The Plan consists of the implementation of a 3-year adult bull trout radio-telemetry study to assess bull trout take in association with the operation of Wells Dam, the PIT-tagging and collection of genetic samples from limited numbers of bull trout collected both on and off-site, continued winter fish passage monitoring, and the assessment of potential stranding areas during significant reservoir fluctuations.](#) The group also agrees that the results of the Plan will be meaningful to relicensing in that it will help determine continued measures to protect bull trout during the new license term.

Issue Statement (6.4.1.7)

The Wells Project may contribute to the spread of aquatic invasive species.

Issue Determination Statement

Aquatic Invasive Species (AIS) introductions present a significant risk to the Wells Reservoir and the reservoir could contribute to the spread of AIS into other waters within the state. AIS enter western states' waters from a number of different pathways,

including recreational watercraft. The potential costs in both economic and environmental impacts of an AIS invasion could be significant.

In 2005, Douglas PUD completed a baseline Aquatic Macroinvertebrate Inventory, ~~a species inventory and distribution mapping study~~ of the Wells Project macrophyte communities, ~~and a limnological investigation that inventoried plankton species~~ within the Wells Project. ~~All three studies, in combination with the recent resident fish assemblage study (1999), suggest that the current Wells Project aquatic community is predominantly composed of native flora and fauna with relatively minimal disturbance from non-native species that were not introduced for specific purposes (i.e., fish introduction for recreational purposes).~~ These studies add to our knowledge of non-native species presence and abundance within the Wells Project and ~~provide~~ sufficient baseline ~~information~~. ~~Although existing data from baseline studies is sufficient,~~ AIS should be monitored during the next license term. This future monitoring will be helpful in determining whether new species are being introduced to the Project or if prevention programs are working well.

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The resource work group agrees that this is not an issue that needs further study during the two-year ILP study period. Future needs to monitor and evaluate invasive nuisance species will need to be fully discussed and evaluated along with all other PME's proposed for aquatic species.

Issue Statement (6.4.1.8)

The Wells Project should continue resident fish production at the Wells Hatchery.

Issue Determination Statement

The resource work group agrees that continuing the existing off-site resident fish program is important to mitigate for the ongoing Project effects to resident fish. Rationale for conducting this mitigation off-site is tied to potential conflicts with the Wells HCP and ESA recovery goals for anadromous species. Potential on-site conflicts with ESA-listed species include such things as predation, competition and disease transmission. The existing off-site 20,000 lbs. resident fish program adequately mitigates for the ongoing Project effect to resident fish in the Wells Project.

The resource work group agrees that this is not an issue requiring a study during the two-year ILP study period.

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**A RETROSPECTIVE ANALYSIS OF SURVIVAL AND RATES OF
PREDATION FOR JUVENILE PACIFIC LAMPREY MIGRATING
THROUGH COLUMBIA RIVER HYDROELECTRIC PROJECTS
(AQUATIC ISSUE 6.2.1.1)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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For copies of this study plan, contact:

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Aquatic RWG, through a series of technical meetings, is proposing a study intended to fill gaps in the local knowledge of juvenile Pacific lamprey (*Lampetra tridentata*) survival migrating through the Wells Project.

Although there is a growing body of information on adult Pacific lamprey and their interactions at hydroelectric projects, relatively little information exists related to the survival of outmigrating juvenile lamprey (macrophthalmia) at hydroelectric projects. A review of the recent body of literature related to juvenile lamprey survival passing through hydroelectric projects concludes that there is currently a lack of methodologies and technologies to effectively quantify the level of survival of juvenile lamprey migrating through a hydroelectric facility. In other words, no studies currently exist that document the level of survival attributed to a project's operations, nor does an accepted technology currently exist that would achieve this level of assessment for juvenile lamprey.

In lieu of being able to directly measure survival for juvenile lamprey passing through the Wells Project, the Aquatic RWG proposes to conduct an updated literature review which will compile all of the available information regarding juvenile lamprey survival at hydroelectric projects in the Columbia River Basin. Additionally, a field study will be implemented during the 2-year ILP study period to assess the significance of juvenile lamprey in the diets of predatory fishes and birds present in the Wells Dam tailrace. Stomach samples of both predatory fishes and birds will need to be obtained and an effort will be made to coordinate with pre-existing activities that may already be collecting such specimens (An evaluation of the effects and alternatives to the existing piscivorous bird and mammal control program (Terrestrial Issue 6.2.3.1)).

A technical report summarizing the results of this study will be produced to provide a current state-of-the-science assessment of juvenile lamprey survival to address the issues raised by the Aquatic RWG in order to assist in future Wells Project relicensing decisions.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for the Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

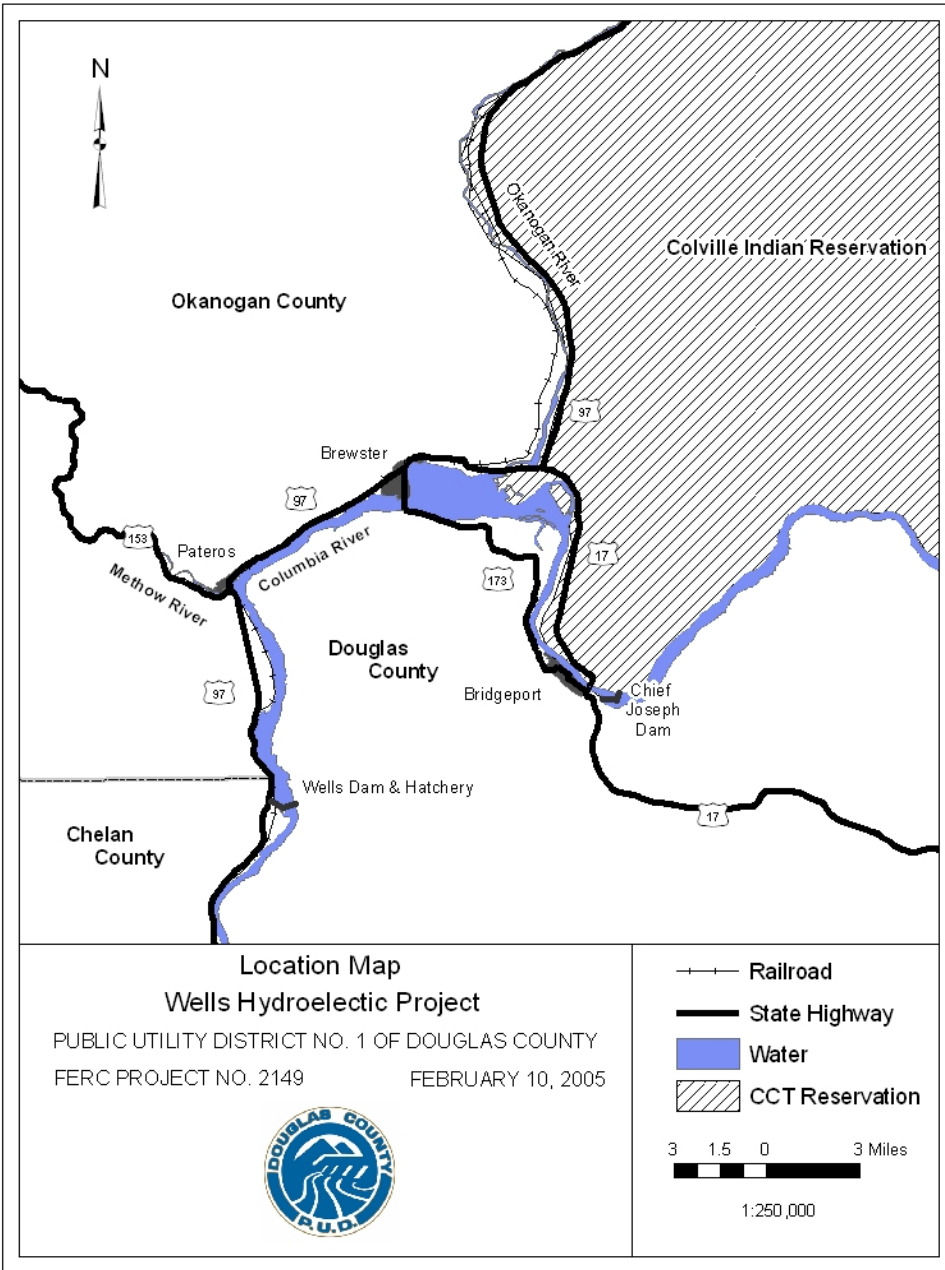


Figure 1.1-1. Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to collect up-to-date information on the survival of juvenile lamprey migrating through the Wells Hydroelectric Project. This information will be used to inform the existing predator control program to reduce predation on macrophthalmia.

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The specific work needed to accomplish this goal is:

- Conduct a literature review on juvenile lamprey survival and predation studies conducted at Columbia River hydroelectric projects.

- Conduct an analysis on the stomach contents of predatory fish and birds (if feasible) to assess the location and level of predation that may be occurring on juvenile Pacific lamprey in the Wells Tailrace.

3.0 STUDY AREA

The study area for field activities will consist of the Wells Dam tailrace which is defined for this study as the waters immediately below Wells Dam downstream to a distance of 3000 feet (Figure 1.1-1).

4.0 BACKGROUND AND EXISTING INFORMATION

Pacific lamprey (*Lampetra tridentata*) are present in most tributaries of the Columbia River and in the mainstem Columbia River during their migration stages. They have cultural, utilitarian and ecological significance including the ceremonial, subsistence and medicinal use of adult lamprey by Native Americans (Close et al. 2002). As an anadromous species, they also contribute marine-derived nutrients to the aquatic and terrestrial ecosystem found in the interior Columbia Basin. Little specific information is available on the life history or status of lamprey in the mid-Columbia River watersheds. They are known to occur in the Methow, Wenatchee and Entiat rivers (NMFS, 2002) and recently have been captured during juvenile trapping operations in the Okanogan River.

In general, adults are parasitic on fish in the Pacific Ocean while ammocoetes (larvae) are filter feeders that inhabit the fine silt deposits in backwaters and quiet eddies of streams (Wydoski and Whitney, 2003). Adults generally spawn in low-gradient stream reaches in the tail areas of pools and in riffles, over gravel substrates (Jackson et al. 1997). Adults die after spawning. After hatching, the ammocoetes burrow into soft substrate for an extended larval period filtering particulate matter from the water column (Meeuwig et al. 2002). The ammocoetes undergo a metamorphosis to macrophthalmia between 3 and 7 years after hatching, and migrate from their parent streams to the ocean from October to April (Close et al., 2002). Adults typically spend 1-4 years in the ocean before returning to freshwater tributaries to spawn.

Pacific lamprey populations of the Columbia River have declined in abundance over the last 40 years according to counts at dams on the lower Columbia and Snake rivers (Close et al. 2002). Starke and Dalen (1995) reported that adult lamprey counts at Bonneville Dam that regularly exceeded 100,000 fish in the 1960's and more recently have ranged between 20,000 and 120,000 for the period 2000-2004 (DART- www.cqs.washington.edu/dart/adult.html).

Close et al. (2002) identified several factors that may account for the decline in lamprey counts in the Columbia River Basin. This includes reduction in suitable spawning and rearing habitat from flow regulation and channelization, pollution and chemical eradication, reductions of prey in the ocean, and juvenile and adult passage problems at dams (Nass et al., 2005).

Although there is a growing body of information on adult Pacific lamprey and their interactions at hydroelectric projects, relatively little information exists describing the effects of hydroelectric plant operations on outmigrating juvenile lamprey (macrophthalmia). Recent juvenile lamprey studies at hydroelectric projects have addressed testing for lamprey macrophthalmia survival

through juvenile bypass facilities (Bleich and Moursund, 2006), impingement by intake diversion screens (Moursund et al., 2000 and 2003), validation of existing screening criteria (Ostrand, 2005), and responses of juvenile Pacific lamprey to simulated turbine passage environments (Moursund et al., 2001; INL, 2006). Results of other studies targeting predaceous birds and fish suggest that juvenile lamprey may compose a significant proportion of the diets of these predators (Poe et al., 1991; Merrell, 1959).

A review of the recent body of work addressing juvenile lamprey at hydroelectric facilities concludes that there is a current lack of a methods and tools to effectively quantify the level of survival for juvenile lamprey migrating through hydroelectric facilities. Furthermore, no studies exist that assign a level of survival attributed to a project's operations. This is due to the lack of miniaturized active tag technologies to overcome two study limitations. Macrophthalmia (juvenile outmigrating lamprey) are relatively small in size and unique in body shape and they tend to migrate low in the water column resulting in the rapid attenuation of active tag signal strength. In an effort to develop a tagging protocol, the Bonneville Power Administration (BPA) annually funds Oregon State University (OSU) to identify and develop tag technologies for lamprey macrophthalmia. Recent reports on this developmental effort have concluded that the smallest currently available radio-tag was still too large for implantation in the body cavity of a juvenile lamprey (Schreck et al., 2000). Additionally, external application was not effective as animals removed tags within the first week and fish performance was affected. This report also concluded that internal implantation of Passive Integrated Transponder (PIT) tags was the most viable option for tagging juvenile lamprey although this method included severe limitations such as the limited range of detection systems and the ability to tag only the largest outmigrating juvenile lamprey (Schreck et al., 2000).

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Aquatic RWG is proposing to include a study plan into the Wells PAD to collect and summarize the existing literature related to juvenile lamprey survival at hydroelectric projects and to assess the level of juvenile lamprey predation taking place within the Wells Tailrace (Issue #1). The need for this study was agreed to by all of

the members of the Aquatic RWG, including Douglas PUD. This study will help to inform future relicensing decisions and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Finalized Issue Statement (6.2.1.1)

Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.

Final Issue Determination Statement (6.2.1.1)

It is unknown as to whether there is a Project effect on juvenile lamprey. At this time, there are no studies documenting Project effects on juvenile lamprey. However, dam passage survival can be broken down into 4 specific areas of concern; survival, route of passage, timing and predation. Currently, there are two limitations to the implementation of a field study for dam passage survival; 1) tag technology for juvenile macrophthalmia is currently being developed; and 2) obtaining macrophthalmia in sufficient numbers within the Project to meet sample size requirements for a statistically rigorous study is not practicable. Reservoir predation on juvenile lamprey is unknown. A review of existing data and literature on predation, including bird predation in the tailrace, would be beneficial.

The resource work group agrees that a study is needed during the two-year ILP study period. This study will include an updated literature review on juvenile lamprey survival and predation on juvenile lamprey and will examine the stomach contents of fish. If permits can be obtained, the study will also examine the stomach contents of birds.

5.0 PROJECT NEXUS

Anadromous lamprey actively migrate from estuarine and marine waters to freshwater spawning areas as adults. Upon metamorphosis, juveniles participate in both active and passive emigration from freshwater rearing areas. In the Columbia River Basin, lamprey may migrate hundreds of kilometers through both mainstem and tributary habitats. Consequently, they encounter a variety of obstacles to passage that could affect their populations. Recent research has indicated that large hydropower dams delay and obstruct adult passage (LTWG, 2005). These facilities may also affect the downstream passage of juvenile lamprey during their outmigration. Specifically, areas of turbulence in the Wells Tailrace could increase the susceptibility of juvenile macrophthalmia to predation.

Currently, little information exists as to the types and levels of impact that may occur to outmigrating juvenile lamprey through hydroelectric facilities. Given the current limitations in technology and methods capable of accurately quantifying impacts to juvenile lamprey migrating through hydroelectric facilities, the proposed study will review and condense the most accurate and scientifically available information related to juvenile lamprey passage through Columbia River dams.

In addition to the literature review, stomach content analysis from predatory birds and fish found within the Wells tailrace will be conducted. Stomach contents will be used to determine whether juvenile Pacific lamprey are being consumed by predators and the location where they are being consumed following passage through Wells Dam. This study plan is not proposing to develop new technologies. The information collected and presented within this study will help to inform the development of license requirements (18 CFR § 5.9(b)(5)).

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6.0 METHODOLOGY

The literature review will consist of a search of all existing information currently available on juvenile lamprey survival and predation at hydroelectric projects in the Columbia River Basin. This search will examine the availability of information from peer-reviewed journals, federal and state publications, academia, private industry, and grey literature. References cited from the initial literature search that are of relevance to the subject matter will also be collected and added to literature database. An annotated bibliography will be produced from the results of the literature search.

The field collection and analysis of stomach contents will consist of the collection of various predators known to be present in the Wells Dam tailrace. Fish species that will be collected are northern pikeminnow (*Ptychocheilus oregonensis*), smallmouth bass (*Micropterus dolomieu*), and walleye (*Stizostedion vitreum*). Fish will be collected via angling and through coordination with other programs that are already capturing such species; i.e., northern pikeminnow removal program and Chelan PUD predation study. An effort will be made to collect 30 samples of each fish species of interest.

In addition to fish species collection, the stomach contents of avian species that are present in the Wells Dam tailrace will also be analyzed pending the ability to secure the appropriate permits. There may be opportunities to coordinate with existing or proposed programs that collect avian predators in the Wells Dam tailrace or Wells Hatchery. Currently, the United States Department of Agriculture (USDA) oversees a piscivorous bird damage management program for the protection of juvenile salmonids on the Mid-Columbia River (USDA, 2003). This program is a potential source of avian predator samples for the study. Furthermore, the Terrestrial RWG has submitted a proposed study to evaluate the effects and alternatives to the existing piscivorous bird and mammal control program. Provided that FERC approves the study plan for the piscivorous bird control study, then there may be an opportunity to secure samples through the implementation of this study. The number of samples and the species of birds to be sampled will be dependent upon the availability of samples from these other studies. At a minimum, an effort will be made to obtain samples from at least 2 of each bird species that are removed from the Wells Project.

Both predatory fish and bird collection will occur from May through July, 2008 to coincide with the juvenile Pacific lamprey outmigration in the mid-Columbia River. Sampling effort during the study will also be segregated in an effort to collect samples throughout the entire outmigration period. General information such as location, date, and time of capture will be recorded in addition to biological information (length, weight, species, sex) of samples collected

independently or through coordinated efforts. All samples collected by Douglas PUD will be sent to an accredited laboratory for analysis. Samples will be preserved according to Quality Assurance/Quality Control specifications of the accredited laboratory.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Based upon discussions with the Aquatic RWG regarding specific study design and study needs, Douglas PUD will secure the assistance of a qualified consultant(s) to conduct the literature review and if necessary, coordinate the field sampling and laboratory analysis of stomach samples.

No special equipment will be necessary to complete this study with the notable exception of a boat capable of safely accessing the Wells tailrace and permits for the collection of stomach samples from birds and fish found within the Wells tailrace. Should the applicable permits be secured prior to the study, the existing USDA contractor will use shotguns to collect stomach samples from birds collected from the Wells Dam tailrace. Stomach samples from predatory fish will be collected through the existing long-line predator control program and may be augmented through other angling efforts.

The technical skills necessary to complete the study literature portion of the study are knowledge of data acquisition and management.

8.0 BUDGET

Study costs for implementation of the study are yet to be determined and will be available upon selection of a qualified consulting firm and a more specific determination of a scope of work.

9.0 SCHEDULE

The literature review will begin shortly after FERC's issuance of the Study Plan Determination in October 2007. The results of the literature review will be detailed in a brief report and annotated bibliography.

If sampling associated with the field portion of the study is necessary, it will occur from May to July of 2008. Laboratory analysis of stomachs collected will occur in late summer 2008. An Initial Study Report will be provided in October 2008. The Initial Study Report will detail the results of the field study and literature review. A final report will be available by October 2009 for use by FERC, the Aquatic RWG and stakeholders in discussions related to the Wells Project relicensing.

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Draft

**ADULT PACIFIC LAMPREY PASSAGE
AND BEHAVIOR STUDY (AQUATIC ISSUE 6.2.1.3)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Aquatic RWG, through a series of technical meetings, is proposing a study to examine the effects of the Wells Project and its operations on the migration of adult Pacific lamprey (*Lampetra tridentata*).

To perform this study, Douglas PUD will undertake a radio-telemetry study to assess migration and passage characteristics of adult lamprey migrating through Wells Dam. Adult lamprey will be captured in the fishways at Wells Dam during August and September 2008. All captured lamprey meeting specific size criteria will be tagged, and released at or below Wells Dam. A combination of fixed-station monitoring at Wells Dam will be used to determine migration and passage characteristics of these tagged fish.

A technical report summarizing the results of this study will provide the resource information needed to inform relicensing decisions related to adult lamprey passage through Wells Dam.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

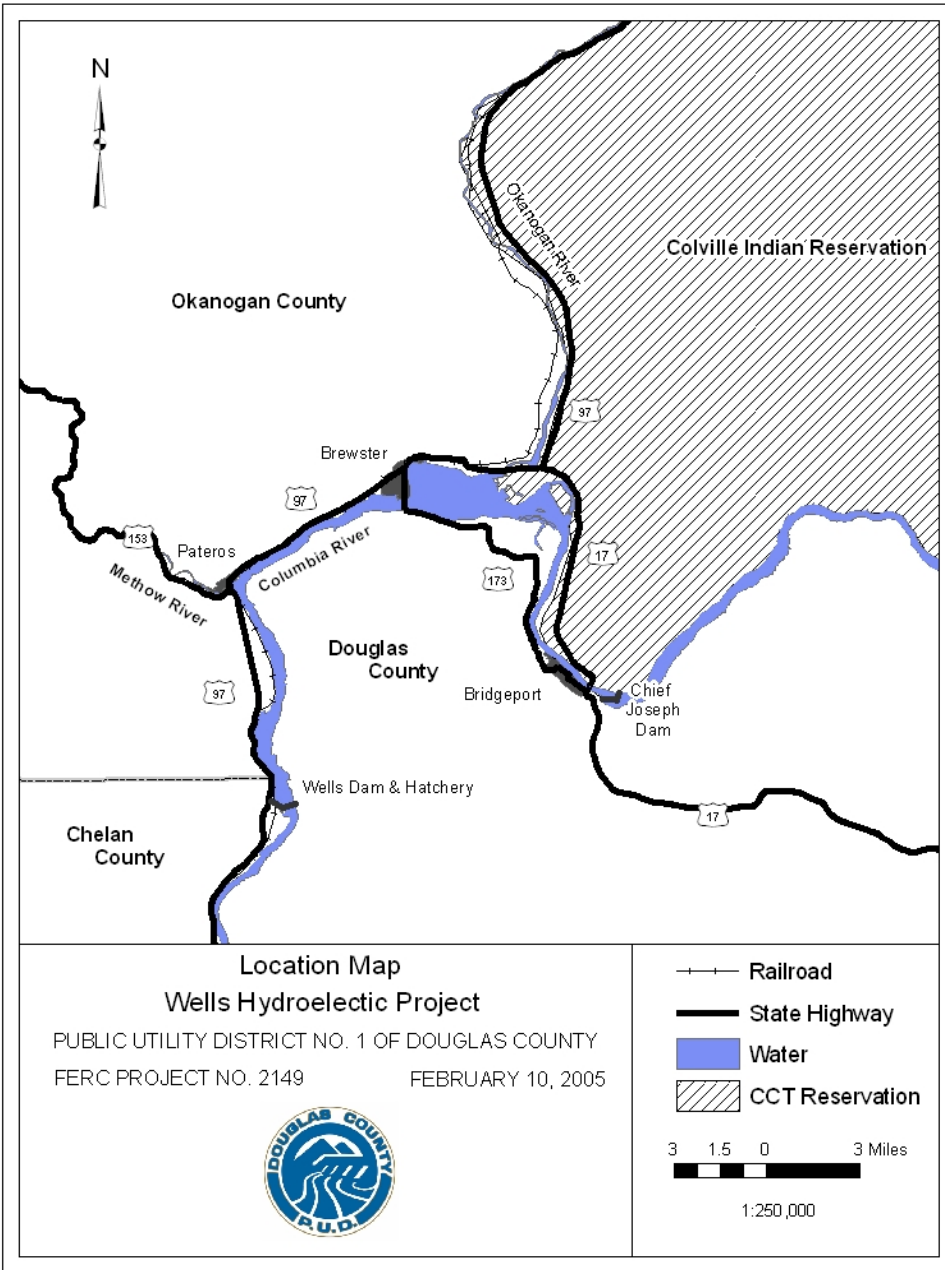


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to evaluate the effect of the Wells Project and its operations on adult Pacific lamprey behavior as it relates to ladder passage, timing, downstream passage events (drop back) through the dam and upstream migration. This information will be used to help identify potential areas of passage impediment within the Wells ladders.

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Specific objectives of the study include:

- Identify methods for capturing adult Pacific lamprey at Wells Dam;
- Document the timing and abundance of radio-tagged lamprey passage through Wells Dam;

- Determine whether adult lamprey are bypassing the adult counting windows at Wells Dam;
- Where sample size is adequate, estimate passage metrics including fishway passage times and efficiencies, residence time between detection zones and downstream passage events ~~s (drop back)~~; and
- If necessary, identify potential areas of improvement to existing upstream fish passage facilities for the protection and enhancement of adult lamprey at the Wells Project.

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3.0 STUDY AREA

The study area includes Wells Dam, the Wells Dam tailrace, and the Wells Dam forebay (Figure 1.1-1).

4.0 BACKGROUND AND EXISTING INFORMATION

Pacific lampreys are present in most tributaries of the Columbia River and in the mainstem Columbia River during their migration stages. They have cultural, utilitarian and ecological significance in the basin since Native Americans have historically harvested them for subsistence, ceremonial and medicinal purposes (Close et al. 2002). As an anadromous species, they also contribute marine-derived nutrients to the basin. Little specific information is available on the life history or status of lamprey in the mid-Columbia River watersheds. They are known to occur in the Methow, Wenatchee and Entiat rivers (NMFS, 2002) and recently have been captured during juvenile trapping operations in the Okanogan River.

In general, adults are parasitic on fish in the Pacific Ocean while ammocoetes (larvae) are filter feeders that inhabit the fine silt deposits in backwaters and quiet eddies of streams (Wydoski and Whitney, 2003). Adults generally spawn in low-gradient stream reaches in the tail areas of pools and in riffles, over gravel substrates (Jackson et al. 1997). Adults die after spawning. After hatching, the ammocoetes burrow into soft substrate for an extended larval period filtering particulate matter from the water column (Meeuwig et al. 2002). The ammocoetes undergo a metamorphosis, between 3 and 7 years after hatching, and migrate from their parent streams to the ocean from October to April (Close et al., 2002). Adults typically spend 1-4 years in the ocean before returning to freshwater tributaries to spawn.

Pacific lamprey populations of the Columbia River have declined in abundance over the last 40 years according to counts at dams on the lower Columbia and Snake rivers (Close et al. 2002). Starke and Dalen (1995) reported that adult lamprey counts at Bonneville Dam that regularly exceeded 100,000 fish in the 1960's and more recently have ranged between 20,000 and 120,000 for the period 2000-2004 (DART- www.cqs.washington.edu/dart/adult.html).

Close et al. (2002) identified several factors that may account for the decline in lamprey counts in the Columbia River Basin. This includes reduction in suitable spawning and rearing habitat from flow regulation and channelization, pollution and chemical eradication, reductions of prey in the ocean, and juvenile and adult passage problems at dams (Nass et al., 2005).

Returning adult Pacific lamprey have been counted at Wells Dam since 1998. Between the years of 1998 and 2005, the numbers of lamprey passing Wells Dam annually has averaged 401 fish and ranged from 73 fish in 1999 to 1,417 fish in 2003 (Table 4.0-1). The relatively small number of adult lamprey observed at Wells Dam can be attributed to fact that the Wells Project is the last passable dam on the mainstem Columbia River and the fact that the Wells Project is over 500 miles upstream from the Pacific Ocean.

Lamprey pass Wells Dam from early July until late November with peak passage times between mid-August and late October (Figures 4.0-1 and 4.0-2). In all years since counting was initiated, Pacific lamprey counts at the east fish ladder are greater than at the west fish ladder. It is important to note that historically, counting protocols were designed to assess adult salmonids and did not necessarily conform to lamprey migration behavior (Moser and Close 2003). Traditional counting times for salmon did not coincide with lamprey passage activity which occurs primarily at night; the erratic swimming behavior of adult lamprey also makes them inherently difficult to count (Moser and Close, 2003). Furthermore, Beamish (1980) noted that lamprey overwinter in freshwater for one year prior to spawning. Consequently, lamprey counted in one year may actually have entered the system in the previous year (Moser and Close, 2003) which confounds annual returns back into the Columbia River Basin. It is unknown to what degree these concerns are reflected in Columbia River lamprey passage data. However, it is important to consider such caveats when examining historic lamprey count data at Columbia River dams including Wells Dam.

Table 4.0-1 Adult Pacific lamprey counts at Wells Dam for east and west fish ladders, 1998-2005

	1998	1999	2000	2001	2002	2003	2004	2005
East Fish Ladder	173	47	96	153	226	723	263	148
West Fish Ladder	170	26	59	106	117	694	140	64
Total	343	73	155	259	343	1417	403	212

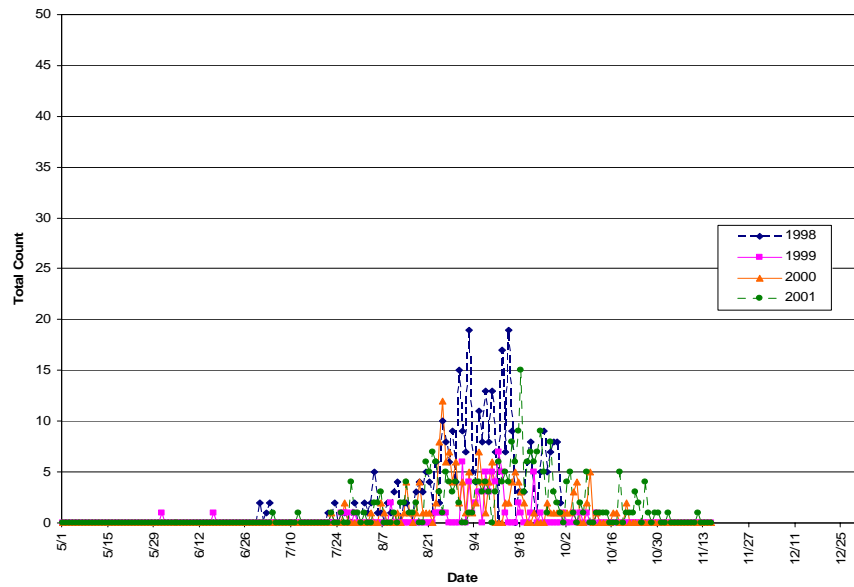


Figure 4.0-1 Daily counts of Pacific lamprey at Wells Dam during the fish counting season, 1998-2001.

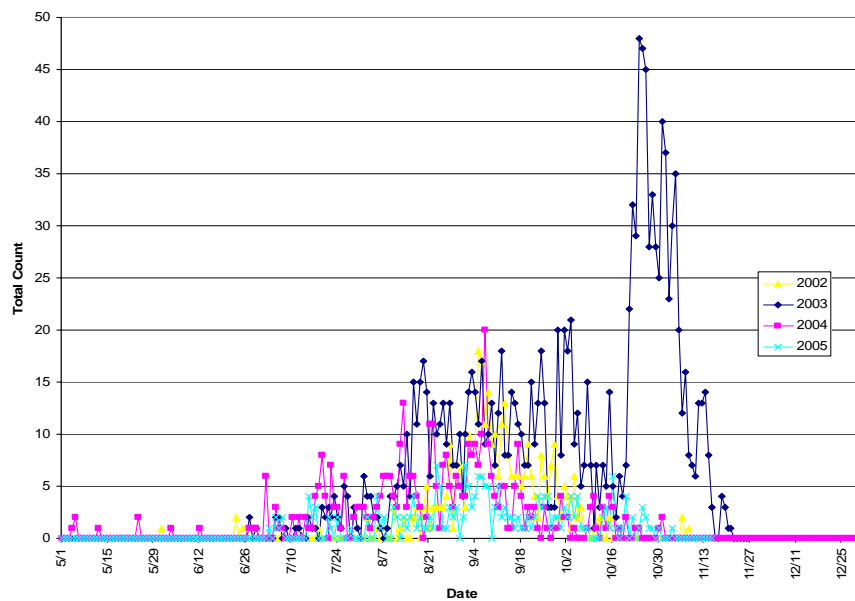


Figure 4.0-2 Daily counts of Pacific lamprey at Wells Dam during the fish counting season, 2002-2005.

Until recently, relatively little information was available on Pacific lamprey in the mid-Columbia River Basin. However, with increased interest in the species coupled with a petition for listing under the ESA, the mid-Columbia PUDs have started to initiate studies to address Pacific lamprey passage and migratory behavior in their respective project areas.

The study of adult Pacific lamprey migration patterns past dams and through reservoirs in the lower Columbia River has provided the first data sets on lamprey passage timing, travel times, and passage success at hydroelectric projects (Vella et al. 2001, Ocker et al. 2001, Moser et al. 2002a, Moser et al. 2002b). These studies have shown that approximately 90% of the radio-tagged lamprey released downstream of Bonneville Dam, migrated back to the tailrace below Bonneville Dam; however, less than 50% of the lamprey which encountered a fishway entrance actually passed through the ladder exit at the dam (Nass et al., 2005).

Similar collection and passage efficiency results were observed at Rocky Reach, Wanapum and Priest Rapids dams during tagging studies conducted at those projects (Nass et al., 2003; Stevenson et al., 2005).

Of the 125 radio-tagged lampreys released approximately 7 kilometers downstream of Rocky Reach Dam, 93.6% were detected at the project, and of those fish, 94.0% entered the fishway. Of the fish that entered the Rocky Reach fishway, 55.5% exited the ladder.

During studies at Wanapum and Priest Rapids dams in 2001 and 2002, a total of 51 and 74 lamprey were radio-tagged and released downstream of Priest Rapid Dam, respectively. Over the two years of study, the proportion of fish that approached the fishway that exited the ladders was 30% and 70% at Priest Rapids and 100% and 51% at Wanapum Dam in 2001 and 2002, respectively.

Two recent reviews of Pacific lamprey (Hillman and Miller 2000; Golder Associates Ltd. 2003) in the mid-Columbia River have indicated that little specific information is known on their status (Stevenson et. al., 2005).

In 2004, Douglas PUD contracted with LGL Limited to conduct a lamprey radio-telemetry study at Wells Dam in coordination with the Public Utility District No. 1 of Chelan County (Chelan PUD) who was conducting a similar study at Rocky Reach Dam. A total of 150 lamprey were radio-tagged and released at or below Rocky Reach Dam. The radio-tags used in this study had an expected operational life of 45 days (Nass et al., 2005). It is important to note that because of the release site of the fish was over 50 miles downstream of Wells Dam the value of the study was limited by the relatively small numbers of tagged fish observed at Wells (n=18) and the fact that many of the radio-tags detected at Wells Dam were within days of exceeding their expected battery life.

With that stated, the 2004 study at Wells was implemented through a combination of fixed-station monitoring at Wells Dam and fixed-stations at tributary mouths. Collectively, these monitoring sites were used to determine migration and passage characteristics of lamprey entering the Wells Project area. Of the 150 adult lamprey released at or below Rocky Reach in 2004, 18 (12% of 150) were detected in the Wells Dam tailrace, and ten (56% of 18) of these were observed at an entrance to the fishways at Wells Dam. Two of the 10 lamprey approached

both fishways to produce 12 total entry events. A total of 3 radio-tagged lamprey passed Wells Dam prior to expiration of the tags, resulting in a Fishway Efficiency estimate of 30% (3 of 10) for the study period. A single lamprey was detected upstream of Wells Dam at the mouth of the Methow River (Nass et al., 2005).

For lamprey that passed the dam, the majority (92%) of Project Passage time was spent in the tailrace. Median time required to pass through the fishway was 0.3 d and accounted for 8% of the Project Passage time (Nass et al., 2005).

Although the 2004 study at Wells provided preliminary passage and behavioral information for migrating adult lamprey, the limited observations due to the small sample size (n=18) is insufficient in addressing the objectives set forth in Section 2.0 with statistical confidence.

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meeting and discussions, the Aquatic RWG is proposing to include a study into the Wells PAD that would include a radio-telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration. The need for this study was agreed to by all of the members of the Aquatic RWG, including Douglas PUD. This study will help to inform future relicensing decisions and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Issue Statement (6.2.1.3)

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Issue Determination Statement (6.2.1.3)

Work group members have determined that this issue has a tie to the Project as it relates to lamprey migration through Wells Dam. Preliminary passage information has been collected at Wells Dam; however, the sample size of the study was limited and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, drop back and upstream migration. The results of an adult lamprey passage study would be useful during the development of PME measures.

The resource work group agrees that a radio-telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam during the two-year ILP study period.

5.0 PROJECT NEXUS

Potential problems facing successful passage of adult Pacific lamprey at dams may be related to their unique method of movement and specific areas within fishways. Typically, lamprey move through an adult fishway in a repeated series of motions consisting of attaching to the ladder floor with their mouths, surging forward, and re-attaching. The physiological response of adult Pacific lamprey to exhaustive exercise may be immediate, sometimes severe, but short-lived (Mesa et al. 2003). This may suggest that lamprey have difficulty negotiating fishways with high current velocities.

Two recent reviews of Pacific lamprey (Hillman and Miller, 2000; Golder Associates Ltd. 2003) in the Mid-Columbia River have indicated that little specific information is known on their status. The 2004 study at Wells Dam provided preliminary information into the migration characteristics of adult Pacific lamprey through Wells Dam. However, it is important to note that the study was compromised by the relatively small numbers of tagged fish observed at the Project (n=18) and the fact that many of the radio-tags detected at Wells Dam were within days of exceeding their expected battery life. Combined, these factors suggest that additional lamprey passage information is needed at Wells Dam.

The proposed lamprey radio-telemetry study will assist in providing the information needed as identified by the Aquatic RWG and will inform the development of future license requirements.

6.0 METHODOLOGY

6.1 Study Period

Adult Pacific lamprey will be collected, sampled and tagged at Wells Dam during the 2008 peak migration period of August and September. To address lamprey passage characteristics, fixed station telemetry monitoring in the Wells Project will occur from August through November 2008.

6.2 Capture, Tagging, and Release of Lamprey

Radio transmitters that will be used during the study are Lotek NTC-4-2L and are similar to those used by NOAA Fisheries, the Public Utility District No. 2 of Grant County (Grant PUD) and Chelan PUD in recent years. The tags are designed for a 45-day operational life.

From August to September 2008, trapping at Wells Dam will target a total of 40 lamprey which will be released post-surgery directly into the Columbia River at two locations. Distribution of tagged lamprey will generally adhere to the following:

- 10 will be released in the Wells Dam fishway; and
- 30 will be released approximately 1 mile below Wells Dam in an area of reduced flow.

6.3 Telemetry Array

6.3.1 Fixed Stations

The movement and passage of radio-tagged lamprey will be determined by combining detection data collected using underwater and aerial antenna arrays (dipoles and yagi antennas) at Wells Dam. The arrays are designed to monitor movements of radio-tagged lamprey from the Columbia River into the fishway entrances and through the exits at Wells Dam, and are also designed to detect downstream passage movements. Aerial antennas will be used in the tailrace, at remote stations on tributary mouths, and during mobile tracking. Underwater antennas will be used in the fishways. A total of 8 Lotek telemetry receivers, monitoring multiple arrays (6 at Wells Dam, 1 at Methow River, and 1 at Okanogan River) will be used during the study.

6.3.2 Mobile Tracking

Mobile tracking will be conducted by boat in a 2 km reach of the river below Wells Dam. Tracking will be recorded using Global Positioning System (GPS) with a built-in data logger. Twin three-element aerial antennas will be mounted to a post and secured in the boat. Surveys will be conducted by transects running upstream and downstream in the river with the aerials pointed in opposite directions, and usually at each bank.

6.3.3 Data Analysis

The data will be analyzed using *Telemetry Manager*, *Ascent* and other computer programs developed in Visual Foxpro by LGL Limited. In order to differentiate detection locations and streamline analyses, individual antennas will be grouped into "zones" that define pivotal areas of interest, such as individual fishway entrances and exits (Nass et al., 2005).

Telemetry Manager imports raw ASCII data files downloaded from the Lotek SRX receivers. After importing the raw files, *Telemetry Manager* constructs an initial database containing records for each logged data transmission from the tagged fish. *Telemetry Manager* then edits the database to remove records that do not meet the criteria identified for valid data records. Examples of invalid data include background noise at the Project, records with a signal strength that are below a given threshold, single records for a given fish-location combination, and records that were recorded before the official release time and date. After filtering the invalid

records, *Telemetry Manager* constructs an operational database that summarizes the time of arrival and departure from each zone of interest ("benchmark times").

6.3.4 Definition of Passage and Residence Times

Strategic deployment of receivers and antennas will make it possible to determine the amount of time that lamprey will be present in the tailrace, fishway entrances, and fishways. Passage times will be calculated from benchmark dates and times corresponding to the first and last detection of a given radio-tagged lamprey at specific locations. At Wells Dam, the benchmark times for lamprey that pass the Project will be:

- first detection in the tailrace,
- first detection at the fishway entrance of passage,
- last detection at the fishway entrance of passage, and
- last detection at the fishway exit.

From these benchmark times, passage times will be calculated for the following passage segments:

Segment	Time	Name
A)	1 to 2	Tailrace Passage time
B)	2 to 3	Entrance Passage time
C)	3 to 4	Fishway Passage time
D)	1 to 4	Project Passage time

From the benchmark times at each of the monitored locations, the passage times and passage efficiencies (proportions) will be calculated for each radio-tagged lamprey where,

Passage Efficiency for a section of the fishway =

No. tags at a fishway detection zone (above)/ No. tags at the fishway zone (below), or

No. tags at a fishway detection zone / No. tags at an entrance.

It then follows that:

Fishway Efficiency = No. of tags at an exit / No. of tags at an entrance.

The metrics described above provide a method to evaluate the extent of upstream movement in the fishways. Note that the telemetry array at Wells Dam does not include underwater antennas outside of the fishway entrances to determine when lamprey approach the fishway; antennas will be only located inside the fishway and therefore constitute an entrance to the fishway rather than an approach. This is an important distinction from other studies (e.g., Moser et al. 2002b and Nass et al. 2003) where detections on antennas external to the fishway (approaches) are used as a basis to calculate overall passage efficiency at the dam. Therefore, this particular metric can not be calculated for Wells Dam. However, the other metrics presented above are consistent with those of other studies and can be used for comparative purposes.

In addition to the above standard passage segments, a detailed analyses of the time lamprey spent in and between detection zones (i.e., residence time) in the Wells Dam fishways will be conducted.

The primary residence time analyses include:

- Entrance – at the entrance (first to last detection),
- Between the Entrance and Upper Collection Gallery (last detection to first detection),
- Upper Collection Gallery - the first vertical wall in the fishway (first to last detection),
- Between Upper Collection Gallery and Fishway Transition (last detection to first detection),
- Fishway Transition – first section of orifice weirs which are usually inundated with water depending on the water elevation in the tailrace (first to last detection),
- Between Fishway Transition and Below Trap (last detection to first detection),
- Below Trap - just downstream of the adult trapping facility (first to last detection),
- Between Below Trap and Above Trap (last detection to first detection),
- Above Trap – mid-point in series of orifice weirs between the trap and the video station (first to last detection),
- Between Above Trap and Below Video (last detection to first detection),
- Below Video – just downstream of the video station (first to last detection),
- Between Below Video and Above Video (last detection to first detection),
- Above Video – just upstream of the video station (first to last detection),
- Between Above Video and Exit (last detection to first detection), and
- Exit- fishway exit to forebay (first to last detection).

The residence and passage times for each radio-tagged lamprey will be determined by working backwards through a sequence of detections. The fishway of ultimate passage and the respective passage time is determined by identifying a sequence of detections in the ascent of a fishway, starting with detections in a fishway exit zone.

6.3.5 Definition of Downstream Passage Events and Drop Back

For the purpose of analysis, a downstream passage event is defined as a tag that is detected at a fishway exit and subsequently detected in the tailrace or a fishway entrance without any detections at antennas monitoring the inside fishway zones. Drop back fish will be defined as those tags in a fishway detection zone that are subsequently detected in zones directly downstream in the fishway.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

LGL Limited, a consulting firm located in Ellensburg, WA has been identified as the most likely contractor to conduct the proposed study. LGL Limited has expertise in all phases of radio-telemetry studies (design, implementation, data collection and analysis, equipment maintenance and reporting) for various fish species at mid-Columbia River hydroelectric projects. From implementation of past studies at Wells Dam, LGL is familiar with the Wells Project including

the Wells Dam fishway structures, operations, and staff. LGL is currently conducting a radio-telemetry study at Wells Dam as part of the 2005-2008 Wells Bull Trout Monitoring and Management Plan and was the firm responsible for conducting the 2004 Wells Dam Lamprey Study and the 2002-2004 Wells Bull Trout Radio-telemetry Study.

Due to ongoing radio-telemetry studies at Wells Dam, the monitoring equipment necessary to complete the study will already be in place and operational for the 2008 study. Tags will be purchased by the contractor prior to the study. The level of effort and necessary staff time to conduct all phases of the study will be identified by LGL in consultation with the Aquatic RWG.

Incidental take consultation for ESA listed steelhead and bull trout will need to take place prior to the study. We suggest that this can be expedited through consultation with the HCP Coordinating Committee and associated agency representatives for the USFWS and NMFS. HCP Coordinating Committee members will be provided an opportunity to comment on draft trap designs and on the operation of the lamprey traps which will need to be installed prior to the study.

A Washington State Collector's Permit will be required to collect adult lamprey for the proposed study. LGL Limited will be responsible for securing this permit prior to study implementation.

8.0 BUDGET

Study costs for implementation of the study will be provided by the contractor after review and approval of the proposed study plan by the Aquatic RWG.

9.0 SCHEDULE

Activities related to the fabrication of trapping equipment and attainment of a scientific collector's permit will begin shortly after the issuance of FERC's Study Plan Determination in October 2007. The field portion of the study will be conducted from August to November 2008. During this time period, an Initial Study Report detailing the progress of the ongoing study will be provided to FERC, stakeholders, and members of the Aquatic RWG in October 2008.

All data collected during the field portion of the study will be analyzed and detailed in a technical report provided by the contractor to Douglas PUD. A draft report will be available for review by the Aquatic RWG by March 31, 2009. A final report will be provided to stakeholders and FERC by October 2009.

10.0 REFERENCES

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Aquatic RWG Meeting #6
July 21, 2006
Action Items

1. Provide Schreck report and Domino report to RWG members (Bao).
2. Call Lyle Fox regarding stomach analysis data from Vernita Bar (Bao).
3. Call Tom Dresser regarding stomach analysis work with birds (Bao).
4. Review Chelan PUD bird studies for juvenile lamprey (Bao).
5. Email Molly citations for lamprey studies (Bao).
6. Ask Molly regarding citation of lamprey homing (Carmen).
7. Follow up with Molly about comment on detection of lamprey approaches (Bao).
8. Schedule meeting with DOE to discuss study plans (Bao).
9. Schedule meeting with Bill to discuss toxins study plan (Bao).
10. Email FERC feedback to RWG (Bao).
11. Collect and summarize TMDL/toxins information for meeting with DOE (Bao).
12. Schedule policy meetings (Shane).
13. Check with Steve Lewis and Bob Rose regarding RWG 7 date (Bao).

Cultural RWG Meeting 4
July 27, 2006

From: Scott Kreiter
Sent: Thursday, July 06, 2006 11:58 AM
To: Bob Clubb; Brad Hawkins; Camille Pleasants; Frank Winchell; Gordon Brett; Guy Moura; John Devine; Neal Hedges; Richard Bailey; Rob Whitlam; Scott Kreiter; Shane Bickford; Timothy Bachelder
Subject: Wells Relicensing: Cultural RWG Meeting Agenda
Attachments: Meeting Agenda Cultural RWG 4.pdf

Cultural Resources Work Group,

Attached is the agenda for our next meeting to be held on July 27, from 10 – 12 AM in Nespelem, WA.

Please contact me if you plan to attend the meeting by phone so we can make the appropriate arrangements.

Feel free to contact me if you have any additions to the agenda.

Thanks.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – July 27, 2006**

Meeting Purpose: To discuss the upcoming schedule for Wells Relicensing and potential studies.

Objectives: 1. Provide update on events since the last RWG meeting;
2. Discuss the Wells ILP schedule and potential studies

Meeting called by: Scott Kreiter
(509) 881-2327


Date of meeting: July 27, 2006

Location: Colville Confederated Tribes
Nespelem, Washington

Meeting time: 10:00 AM – 12:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #3	Scott Kreiter
10:10	Update on Wells Cultural Resources Summary	Western Shore
10:30	Wells APE definition status	Group
10:45	Overview of meetings with FERC <ul style="list-style-type: none"> - Initial Tribal Consultation Meeting - Draft PAD overview meeting 	Group
11:00	Wells ILP Study Schedule and Section 106	Group
11:20	Identify information gaps and studies list	Group
11:40	TCP Study Plan	Group
11:50	Action items and next steps.	Scott Kreiter
12:00	Adjourn	

Attendees Invited: Camille Pleasants, Colville Tribes (THPO) Guy Moura, Colville Tribes Rob Whitlam, Washington DAHP (SHPO) Jim Fisher, BLM Rich Bailey, BLM Frank Winchell, FERC	Bob Clubb, Douglas PUD Shane Bickford, Douglas PUD Gordon Brett, Douglas PUD Scott Kreiter, Douglas PUD Tim Bachelder, Devine Tarbell & Assoc.
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Wells ILP – Section 106 Study Timeline				
2006	2007	2008	2009	2010
Pre-ILP Study Planning	ILP Initiation and Study Scoping	Conduct Studies		File License Application
<u>September 1</u> Early start on TCP Inventory <u>November 1</u> Inventory and Evaluation Study Plan due <u>December</u> File Inventory and Evaluation Study Plan with PAD.	<u>May 17</u> File proposed Inventory and Evaluation Study Plan <u>September 14</u> File Final Inventory and Evaluation Study Plan (includes TCP) NOTE: Tri-annual monitoring will take place during summer of 2007. May be able to coordinate with Inventory and Evaluation Study.	<u>May - August</u> Conduct Inventory (cultural survey) <u>August</u> Final TCP Report Due <u>September – November</u> Begin site evaluations where needed (site testing) <u>October 15</u> File Initial Study Report	<u>May – July</u> Continue site evaluations (if not completed in 2008) <u>May – September</u> Determinations of Eligibility Assess adverse effects <u>October 15</u> File Updated Study Report <u>December 31</u> File Preliminary Licensing Proposal (PLP) or Draft License Application	<u>May</u> File HPMP with Final License Application
<div> <div>Develop Historic Properties Management Plan</div>  </div>				

WELLS RELICENSING STEPS FOR SECTION 106 COMPLIANCE

July 21, 2006

TASK		DESCRIPTION	ILP Schedule	Date Accomplished
1	Identify interested parties and stakeholders (36 CFR 800.3(c))	FERC and/or Douglas PUD should identify any tribes, agencies, or other interested parties who have an interest in cultural resources related to the Wells relicensing.	<u>October, 2005</u> Stakeholder outreach	<u>August 8, 2005</u> Information Request Letter <u>October 4, 2005</u> Douglas PUD met with CCT Business Council <u>October 18, 2005</u> ILP Information Meeting <u>November 18, 2005</u> First Work Group Meeting
2	Establish policy-level consultation (36 CFR 800.2(c)(ii))	FERC should initiate policy-level consultation with agencies and tribes. FERC may decide to delegate day-to-day consultation to Douglas PUD.	<u>January, 2007</u> Initial tribal consultation meeting	<u>December 7, 2005</u> FERC sent delegation letter to RWG <u>May 16, 2006</u> FERC Initial Tribal Consultation Meeting in Nespelem
3	Define Area of Potential Effect (APE) (36 CFR 800.4(a))	Define the area where cultural resources may be impacted by ongoing project operations. Seek formal concurrence from SHPO and THPO.	<u>January – March, 2006</u> Pre-ILP consultation	<u>July 18, 2006</u> Concurrence letters to THPO and SHPO
4	Background research to identify the scope of identification efforts (36 CFR 800.4(a)(2, 3, 4))	A professional archaeological/historic consultant conducts research to summarize previously completed studies in the Project area to obtain an understanding of what is known about historic use in the APE. This information is used to scope additional studies.	<u>March – September, 2006</u> Gather information for PAD <u>November, 2006</u> ILP Study Plans Due	
5	Study scoping: Identify historic properties (36 CFR 800.4(b)(1))	Develop scope of work for any studies planned to be implemented during the ILP two year study phase.	<u>September 2006 – October 2007</u> ILP study scoping and FERC Study Plan Determination	
6	Phase I Study – Inventory (if needed) (36 CFR 800.4(b)(1))	The entire APE is assessed and surveyed for cultural resources by walking transects at pre-determined intervals to identify potential sites. A qualified consultant conducts research to determine if any TCPs exist in the APE.	<u>2008</u> Conduct 1 st season of studies <u>October 2008</u> File Initial Study Report	
7	Phase II Study - Evaluation of site eligibility for the National Register of Historic Places (NRHP) (36 CFR 800.4(c))	The Section 106 parties will determine what level of site evaluation is needed to evaluate NRHP eligibility.	<u>2009</u> Conduct 2 nd season of studies <u>October, 2009</u> File Updated Study Report	
8	Assess adverse effects (36 CFR 800.5)	The Section 106 parties will assess the effects of ongoing Project operations on historic properties and develop treatments.	<u>December, 2009</u> Preliminary Licensing Proposal Due	
9	Historic Properties Management Plan (HPMP)	Douglas PUD will consult with the Section 106 parties to develop a Historic Properties Management Plan for incorporation into the new license.	<u>May, 2010</u> License Application Filed	
10	Programmatic Agreement (36 CFR 800.14)	FERC develops and distributes a Programmatic Agreement (PA) for signature that commits the Licensee to implement the HPMP. This also documents FERC's completion of Section 106 and allows the SHPO and THPO to sign off on FERC's assessment of Project effects on historic properties.	<u>February, 2011</u> FERC Issues Draft HPMP with draft NEPA document	

Cultural RWG Meeting 4
Sign-in Sheet and Meeting Products

July 27, 2006

Appendix B - 474

Action Items
Cultural Resources Work Group
Meeting 4 – July 27, 2006

1. Follow up with David Turner regarding the Initial Tribal Consultation Meeting (Frank)
2. Keep in mind the potential use of remote sensing (specifically LIDAR) for monitoring erosion for the Cultural RWG and the Terrestrial RWG (Group)
3. Send out a revised meeting schedule to the RWG (Scott)
4. Update the study timeline and send out to the RWG (Scott)
5. Schedule a Project tour for September (Scott)

Recreation and Land Use RWG Meeting 6
July 14, 2006

From: Scott Kreiter
Sent: Wednesday, June 28, 2006 1:23 PM
To: Andy Lampe; Bill Fraser; Bill Towey; Bob Clubb; Bob Fateley; Brad Hawkins; Brenda Crowell; Chris Parsons; Dennis Beich; Diane Priebe; Gail Howe; George Brady; Gordon Brett; Jean Hardie; Jim Eychaner; Jim Harris; John Devine; Lee Webster; Mary Hunt; Mike McKee; Mike Nickerson; Mike Palmer; Murray McCory; Neal Hedges; Scott Kreiter; Shane Bickford; Susan Rosebrough; Tony Eldred
Cc: Mary Mayo
Subject: Wells Relicensing: Recreation RWG #6 Meeting Announcement
Attachments: Meeting Agenda Recreation RWG 6.pdf; Wells Reservoir Recreational Needs Aanalysis.DOC; Evaluation of Access to the Wells Reservoir.DOC

Hello Recreation and Land Use Work Group!

Please find attached the Agenda for Recreation and Land Use RWG #6 to be held on **July 14**. The objective for this meeting is to review the draft study plans which are attached for your review.

The meeting will be held at the Lake Pateros Café at 9 AM.

Please contact me if you have any comments or additions to the agenda.

Thanks.
-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Recreation and Land Use Work Group
Wells Relicensing
Meeting Agenda – July 14, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans

Objectives: 1. Provide an update on feedback from FERC, upcoming schedule, etc.
2. Discuss and receive feedback on draft proposed study plans.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: July 14, 2006

Location: Lake Pateros Café
180 Pateros Mall
Pateros, WA

Meeting time: 9:00 AM – 2:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #5	Scott Kreiter
9:15	Overview of meeting with FERC; Revised schedule and next steps.	Douglas PUD
9:30	Discuss FERC comments on Issue Statements	Group
10:00	Review and discuss draft study plans. Primary focus will be on objectives and methods.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue study plan review	Group
1:50	Action items and next steps.	Scott Kreiter
2:00	Adjourn	

Attendees Invited:

Gail Howe, City of Pateros
George Brady, City of Pateros
Lee Webster, City of Brewster
Bob Fately, City of Brewster
Jean Hardie, City of Bridgeport
Steve Jenkins, City of Bridgeport
Andy Lampe, Okanogan County
Brenda Crowell, Okanogan County
Mary Hunt, Douglas County
Chris Parsons, WDFW
Tony Eldred, WDFW
Jim Harris, Washington State Parks

Mike Nickerson, Washington State Parks
Bill Fraser, Washington State Parks
Jim Eychaner, Washington IAC
Susan Rosebrough, National Park Service
Bill Towey, Colville Tribes
Mike Palmer, Colville Tribes
Jim Fisher, Bureau of Land Management
Shane Bickford, Douglas PUD
Bob Clubb, Douglas PUD
Scott Kreiter, Douglas PUD
Gordon Brett, Douglas PUD
Brad Hawkins, Douglas PUD
John Devine, Devine Tarbell & Assoc.

Douglas PUD
Pre-Application Document
Outline for Section 6

6.2 Issues for Study

6.2.1 Aquatic

- 6.2.1.1 Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.
- 6.2.1.2 The Wells Project may affect adult Pacific lamprey habitat use.
- 6.2.1.3 The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.
- 6.2.1.4 Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.
- 6.2.1.5 Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.
- 6.2.1.6 Project operations may affect compliance with temperature standards in the Wells Project.
- 6.2.1.7 Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

6.2.2 Recreation and Land Use

- 6.2.2.1 Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.
- 6.2.2.2 The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
- 6.2.2.3 The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.
- 6.2.2.4 Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State

Comprehensive Outdoor Recreation Plan (SCORP), County Shoreline Master Programs as well as local ordinances, laws, regulations and comprehensive plans.

6.2.2.5 Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

6.2.2.6 The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park an Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

6.2.2.7 Wells Dam may be a hindrance to river travel.

6.2.3 Terrestrial

6.2.3.1 Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

6.2.3.2 Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

6.2.3.3 Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

6.2.3.4 Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

6.3 Proposed Study Plans

6.3.1 Aquatic

6.3.1.1 A Retrospective Analysis of Survival and Rates of Predation for Juvenile Pacific Lamprey Migrating through Columbia River Hydroelectric Projects (6.2.1.1).

6.3.1.2 An Assessment of Adult Pacific Lamprey Spawning (6.2.1.2).

6.3.1.3 Adult Pacific Lamprey Passage and Behavior Study (6.2.1.3).

- 6.3.1.4 An Investigation into the effect of Project Operations on the Transport and Accumulation of Toxins within the Sediment of the Okanogan and Columbia rivers (6.2.1.4).
- 6.3.1.5 An Investigation into the Total Dissolved Gas Dynamics of the Wells Project (6.2.1.5).
- 6.3.1.6 Development of a Water Temperature Model Relating Project Operations to Compliance with the Washington State and EPA Water Quality Standards (6.2.1.6).
- 6.3.1.7 Continued Monitoring of DO, pH and Turbidity in the Wells Forebay and Inundated Portion of the Okanogan River (6.2.1.7).

6.3.2 Recreation and Land Use

- 6.3.2.1 Evaluation of Access to and Use of Wells Reservoir as it Relates to Reservoir Fluctuations, Aquatic Plants and Substrate Buildup (6.2.2.1, 6.2.2.2 and 6.2.2.3).
- 6.3.2.2 An Evaluation of Recreational Needs within the Wells Project (6.2.2.4, 6.2.2.5, 6.2.2.6 and 6.2.2.7).

6.3.3 Terrestrial

- 6.3.3.1 An Evaluation of the Effects and Alternatives to the Existing Bird and Mammal Control Programs (6.2.3.1).
- 6.3.3.2 An Evaluation of the Effects of Active, Project Induced Erosion on Wildlife, Botanical, Cultural and RTE Resources (6.2.3.2).
- 6.3.3.3 Plant and Wildlife Surveys and Cover Type Mapping for the Wells Hydroelectric Project 230 kV Transmission Corridor (6.2.3.3 and 6.2.3.4).

6.4 Issues Not for Study

6.4.1 Aquatic RWG

- 6.4.1.1 Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.
- 6.4.1.2 The Wells Project may be affecting white sturgeon habitat and carrying capacity.

- 6.4.1.3 The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment and upstream and downstream passage (entrainment/recruitment).
- 6.4.1.4 There may be an opportunity to shift a portion of the existing off-site resident fish program to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.
- 6.4.1.5 Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.
- 6.4.1.6 The Wells Project may affect Bull Trout survival and habitat.
- 6.4.1.7 The Wells Project may contribute to the spread of aquatic invasive species.
- 6.4.1.8 The Wells Project should continue resident fish production at the Wells Hatchery.

6.4.2 Recreation RWG

- 6.4.2.1 Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).
- 6.4.2.2 The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.
- 6.4.2.3 The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).
- 6.4.2.4 Water use at city parks may affect the availability of water for future city development.

6.4.3 Terrestrial

- 6.4.3.1 Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different

levels of wildlife impacts/protection, including habitat fragmentation and succession.

- 6.4.3.2 The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.
- 6.4.3.3 The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.
- 6.4.3.4 The reservoir could affect the movements and migration abilities of mule deer.
- 6.4.3.5 The Project could affect winter habitat for mule deer and sharp-tailed grouse.
- 6.4.3.6 The Project could affect terrestrial RTE species.
- 6.4.3.7 Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.
- 6.4.3.8 Public use (recreation) of the Project may affect wildlife and wildlife habitat.
- 6.4.3.9 The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.
- 6.4.3.10 Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

**Recreation and Land Use RWG Meeting 6
Sign-in Sheet and Meeting Products**

July 14, 2006

Gov

**Recreation and Land Use Resource Work Group
Proposed Study Plans, Issue Statements and Issue Determination
Statements (From RWG 6 – July 14, 2006)**

Issues for Study

Proposed Study Plan

Evaluation of Access to and Use of Wells Reservoir as it Relates to Reservoir Fluctuations, Aquatic Plants and Substrate Buildup.

Issue Statement (6.2.2.1)

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Issue Determination Statement

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The working group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks. The study should also evaluate how reservoir elevations affect on-water boating experiences (e.g. motorboats vs. man-powered boats).

The resource work group agrees that a site evaluation study will be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue for the term of the next license.

Issue Statement (6.2.2.2)

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Issue Determination Statement

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of the baseline assessments indicated that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage.

The resource work group agrees that a site evaluation study should be completed during the two-year ILP study period to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a map showing where macrophytes occur and focus on identifying where macrophytes restrict or discourage access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir. The study will help identify measures to address this issue for the term of the next license.

Issue Statement (6.2.2.3)

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Issue Determination Statement

The resource work group agrees that a study is needed during the ILP two-year study period. Sediment conditions at public recreation sites will be considered during the site evaluation study discussed in issues above. The resource work group agrees that it is important to continue monitoring the sediment conditions at Wells Project access sites along the Methow and Okanogan rivers.

Proposed Study Plan

An Evaluation of Recreational Needs within the Wells Project.

Issue Statement (6.2.2.4)

Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State Comprehensive Outdoor Recreation Plan (SCORP), [County Shoreline Master Programs](#) as well as local ordinances, laws, regulations and comprehensive plans.

Issue Determination Statement

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. These should be applied at existing and future recreation sites. The resource work group agrees that no additional information is needed and a study is not recommended during the two-year ILP study period.

Issue Statement (6.2.2.5)

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Issue Determination Statement

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project conducted in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The resource work group agrees that additional information is needed and that a Recreational Needs Assessment should be conducted during the two-year ILP

study period. This study should assess the condition of existing facilities and evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey and the WDFW fishermen survey and additional recreation information from the Project area.

Issue Statement (6.2.2.6)

The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park and Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Issue Determination Statement

The resource work group agrees that a Recreational Needs Assessment is needed during the two-year ILP study period. The results of this study will help identify potential enhancements that may be needed to meet current, future and potential recreation needs within the Project, including the possibility of trails and trail linkages between communities. The study will help to determine whether adequate demand exists to justify the construction of new recreation facilities and will consider existing and future plans for recreation sites in the Project vicinity. Enhancements to existing facilities outside the Project will be considered if recreation needs cannot be met within the Project Boundary.

Issue Statement (6.2.2.7)

Wells Dam may be a hindrance to river travel.

Issue Determination Statement

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future.

The resource work group agrees that a study is needed during the two-year ILP study period. An evaluation of portage options to address this issue should be considered in the Recreation Needs Assessment.

Issues Not for Study

Issue Statement (6.4.2.1)

Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).

Issue Determination Statement

Douglas PUD owns the reservoir shoreline; this is unique among Columbia River hydroelectric projects as most hydro development on the Columbia River has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with its FERC License and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as trespassing, the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Douglas PUD has no plans to divest ownership of any project land holdings within the Wells Project boundary. The resource work group agrees that no additional information is needed to address this issue and a study is not recommended during the two-year ILP study period. Douglas PUD's land management practices will be examined through the license application development process. Further measures to protect the existing recreation and land use resources may be warranted.

Issue Statement (6.4.2.2)

The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.

Issue Determination Statement

According to stakeholders, the existing process is overly cumbersome and delays implementation of various actions. A new process should be developed to address these concerns. The new planning process should focus on improving communication between stakeholders, the FERC and Douglas PUD. The current recreation action planning process is a component of the existing license. Recreation planning under the new license, if required by FERC, may be significantly different than the current process.

The resource work group agrees that no new information is needed to address this issue during the two-year ILP study period. However, Douglas PUD will work with stakeholders to examine areas for potential improvements to the current recreation action planning process.

Issue Statement (6.4.2.3)

The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).

Issue Determination Statement

There are many variables that could affect the economic health of a city or county. Studying effects on municipal and business infrastructure, tax base, emergency services and community services, with all possible variables considered, does not have a readily discernible linkage to the Wells Project. Specific individual components of this issue do have an association with the project and its operation, including Operations and Maintenance (O&M) support for recreation facilities located within the counties and within each of the three cities.

The resource work group agrees that a study is not needed during the two-year ILP study period. However, Douglas PUD proposes to work with stakeholders on the issue of O&M funding for existing and potential recreation facilities through the development of Protection, Mitigation and Enhancement (PME) measures.

Issue Statement (6.4.2.4)

Water use at city parks may affect the availability of water for future city development.

Issue Determination Statement

Under the terms of the original FERC operating license for Wells Dam, Douglas PUD constructed recreational facilities in the cities of Pateros, Brewster and Bridgeport. Douglas PUD has continued to provide funding for major maintenance and improvements to these facilities. Each of the respective Cities provides routine operation and maintenance funding for ongoing operation of the facilities located within their respective communities. One component of this responsibility is to provide water for drinking and for irrigation. Because water rights in the communities are limited, the Cities would like to utilize the water rights being used for the public recreation facilities for other potential development needs.

The parks were originally constructed to provide access to Project lands and waters. Douglas PUD is responsible for maintaining these facilities to a level that allows continued access to the Project.

The resource work group agrees that a study is not needed during the two-year ILP study period. Douglas PUD proposes to work with the Cities during the relicensing process to develop options for addressing this issue.

Draft

**AN EVALUATION OF RECREATIONAL NEEDS WITHIN THE
WELLS PROJECT
(RECREATION AND LAND USE 6.2.2.4, 6.2.2.5, 6.2.2.6, 6.2.2.7)
WELLS HYDROELECTRIC PROJECT
FERC NO. 2149**

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Recreation and Land Use Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Recreation RWG, through a series of technical meetings, is proposing an analysis of future recreation needs associated with operation of the Wells Project.

The purpose of the Recreation Needs Analysis is to evaluate recreational use information and identify current and future recreation needs within the Wells Project boundary. The needs analysis will identify recreation needs within the Project that recreation resource managers should strive to address during the term of the new license.

The needs analysis will evaluate existing recreation use data, assess the current condition of existing facilities, and identify potential enhancements to meet current and future recreation needs. The results of this study will be used to help Douglas PUD identify existing and future recreation needs so that protection, mitigation, and enhancement measures can be developed for the new license term.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides of the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet.

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;

- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to research, describe, and quantify recreation and access needs in the Wells Project that should be addressed over the term of the next 50-year FERC license. Specific objectives include:

- Summarize study findings to evaluate recreational use and demand within the Wells Project. This summary will be based on results of the 2005 Wells Project Recreation Visitor Use Assessment and existing information from FERC Form 80s for the Wells Project, Interagency Committee for Outdoor Recreation outdoor recreation participation survey, WDFW fisherman surveys, WDFW hunter surveys, City of Bridgeport's Marina Park information and other relevant recreational survey information.
- Assess the adequacy of existing Wells Project recreation facilities to accommodate current and future recreation demand.
- Assess the adequacy of public access and safety at Wells Project recreation facilities.
- Assess the adequacy of operations and maintenance at Wells Project recreation facilities.
- Develop a prioritized list of potential actions to address Wells Project recreation issues. The list should include criteria such as demand, effectiveness, feasibility and cost.

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The needs analysis should provide information to Douglas PUD, as well as recreation resource managers, for making decisions regarding recreation planning in the Wells Project.

3.0 STUDY AREA

The study area includes recreation and access facilities within and adjacent to the Wells Project boundary. The Wells Project boundary extends from the tailrace of Wells Dam (River Mile [RM] 514.7) upstream to the tailrace of Chief Joseph Dam (RM 544.5). The boundary also extends to RM 15.5 on the Okanogan River and RM 1.5 on the Methow River. Recreation and access facilities within the Project boundary include parks, boat launches, trails, parking areas, fishing access sites, and wildlife lands access sites (Figure 3.0-1).

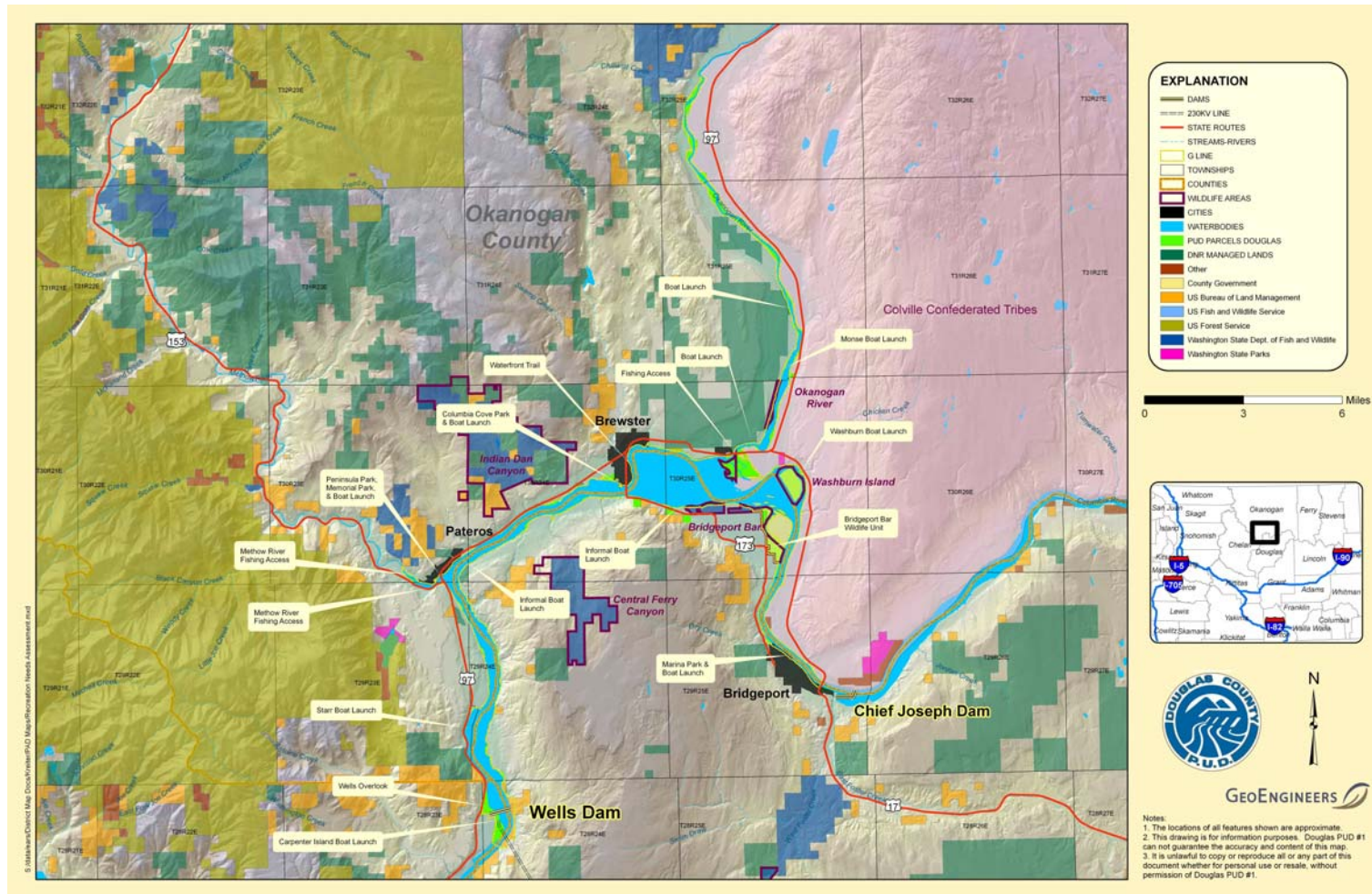


Figure 3.0-1 Location Map of the Wells Project

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Recreation and Land Use Resource Work Group

As part of the Wells Project relicensing, Douglas PUD established a Recreation and Land Use Resource Work Group (RWG) which began meeting in August, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to identify potential resource issues and to develop preliminary study plans to be included into the Wells Pre-Application Document (PAD).

Through a series of seven meetings, the RWG identified a set of resource issues that, in their judgment, matched with FERC's ILP study request criteria. The RWG then reviewed the existing project information and determined that several of these issues require additional information.

Based upon these discussions, the RWG is proposing to include two studies into the Wells PAD. These two studies will help to inform future relicensing decisions and will fill data gaps identified by the RWG. The two studies proposed by the RWG include: 1) An Evaluation of Access to the Wells Reservoir as it Relates to Reservoir Fluctuations, Aquatic Plants and Sedimentation and 2) An Evaluation of Recreation Needs within the Wells Project. The proposed Recreation Needs Assessment will focus on collecting information pertinent to Issues No. 5, 6, 7 and 11 identified by the RWG.

4.2 Issue Statements

Issue Statement (6.2.2.4)

Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State Comprehensive Outdoor Recreation Plan (SCORP), [County Shoreline Master Programs](#) as well as local ordinances, laws, regulations and comprehensive plans.

Issue Determination Statement (6.2.2.4)

Douglas PUD agrees that proposals under the new license need to consider all of the above-mentioned laws, plans and regulations. These should be applied at existing and future recreation sites. The resource work group agrees that no additional information is needed and a study is not recommended during the two-year ILP study period.

Issue Statement (6.2.2.5)

Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

Issue Determination Statement (6.2.2.5)

Douglas PUD completed a Recreation Visitor Use Assessment for the Wells Project conducted in 2005. This assessment will be useful in answering questions related to the current use of existing recreation facilities.

The existing Wells Project recreation sites were developed under the original license to provide safe and efficient access to Project lands and waters. Safe and efficient access to Project land and waters is a requirement of the original FERC license and is expected to be a requirement under the new long-term FERC license. Enhancements to existing facilities or the installation of new sites/facilities will be considered based upon projected use and capacity ratings, consistent with FERC recreation policies.

The current condition of existing recreation facilities and their ability to meet future needs is unknown. The resource work group agrees that additional information is needed and that a Recreational Needs Assessment should be conducted during the two-year ILP study period. This study should assess the condition of existing facilities and evaluate the ability of existing facilities to meet future recreation demands within the Wells Project. The Recreation Needs Assessment should also consider results from the Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey and the WDFW fishermen survey and additional recreation information from the Project area

Issue Statement (6.2.2.6)

The new license should consider new facilities or enhancements to existing facilities (e.g. Chief Joe Hatchery, Fort Okanogan State Park and Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

Issue Determination Statement (6.2.2.6)

The resource work group agrees that a Recreational Needs Assessment is considered necessary during the two-year ILP study period. The results of this study will help identify potential enhancements to meet current, future and potential recreation needs within the Project, including the possibility of trails and trail linkages between communities. The study will help to determine whether adequate demand exists to justify the construction of new recreation facilities and will consider existing and future plans for recreation sites in the Project vicinity. Enhancements to existing facilities outside the Project will be considered if recreation needs cannot be met within the Project boundary.

Issue Statement (6.2.2.7)

Wells Dam may be a hindrance to river travel.

Issue Determination Statement (6.2.2.7)

Douglas PUD is not aware of an ongoing need for human river travel past Wells Dam. Wells Dam operators have identified only three instances where the public has requested portage either upstream or downstream of the dam in the past five years. In each instance, Douglas PUD has been able to adequately accommodate these individuals and transport their equipment. This issue may have a tie to the Project if a significant need is identified in the future.

The resource work group agrees that a study is not needed during the two-year ILP study period. An evaluation of portage options to address this issue should be considered in the Recreation Needs Assessment.

4.3 Recreation Visitor Use Assessment (2005)

Douglas PUD completed a Recreation Visitor Use Assessment during May to December of 2005 in an effort to collect information related to visitor use at Wells Project recreation sites (DTA, 2006). The primary goals of this study were to assist in the preparation of the PAD and to describe use levels, preferences, attitudes and characteristics of the Wells Project's primary recreation user groups. Specific objectives included:

- Describing recreation respondents' characteristics;
- Describing user preferences for recreation settings and facilities;
- Identifying possible recreation conflicts, crowding, or personal safety issues;
- Describing users' attitudes toward management actions;
- Describing recreation respondents' activities; and
- Identifying the amount, activity type and spatial and temporal distribution of existing recreation use.

A stratified systematic sampling strategy was chosen for the Recreation Visitor Use Assessment. To ensure that diversity in types of recreation users and variation in type of days visited, sampling was conducted at designated recreation sites and on the Wells Reservoir from May 24, 2005 through December 13, 2005, months that together account for the majority of use.

4.4 Recreation Action Plan

Ongoing recreation needs within the Wells Project are addressed through the Wells Recreation Action Planning process. The Wells Recreation Plan (1967), Wells Recreation Plan Supplement (1974), Public Use Plan (1982) and Recreation Action Plans (1987, 1992, 1997 and 2002) were established as part of compliance with Article 44 of the original FERC license. This long-term and ongoing planning and implementation process has helped in the development and maintenance of the sites previously described.

Following a two-foot pool raise amendment in 1982, Douglas PUD developed a Public Use Plan for the Wells Project. The plan analyzed the types of public recreation facilities that the Wells Reservoir can reasonably accommodate and discussed how those facilities can be developed and maintained. The information presented in the 1982 Public Use Plan included an analysis of recreation facilities within a 100-mile radius of the Wells Project.

In response to the 1982 Public Use Plan, the National Park Service (NPS) and State Parks recommended periodic updates (every five years) to the 1982 Public Use Plan. By FERC Order dated August 12, 1987, 40 FERC 62,157, this recommendation was made part of the Wells Project license resulting in updates to the 1982 Public Use Plan every five years. Douglas PUD's 1987 Recreation Action Plan, which is a supplement to the 1982 Public Use Plan, was supported by the NPS, Washington State Parks and Recreation Commission and the cities of Pateros, Brewster and Bridgeport. Douglas PUD has also published subsequent updates to the 1982 Public Use Plan in 1992, 1997 and 2002. The next update is scheduled to be completed in 2007.

4.5 FERC Form 80

The FERC Form 80, "Licensed Hydropower Development Recreation Report" is a brief summary of the existing recreation conditions and facilities associated with the Wells Project. Based on FERC regulations, the forms were submitted every two years from 1967 – 1984, every four years from 1984 – 1996 and every six years since 1996. The most recent Form 80 was submitted to FERC in 2002.

FERC's Form No. 80 is used to gather information necessary for the Commission and other agencies to know what recreational facilities are located at licensed projects, whether public recreational needs are being accommodated by the facilities, and where additional efforts could be made to meet future needs.

5.0 PROJECT NEXUS

The Wells Project has direct and indirect effects on recreation activities within the Project Boundary. The effects include providing public access to Project lands and waters, and the potential effects of Wells Project operations on recreational activities.

Douglas PUD has developed and provides major maintenance at numerous public recreation facilities on Wells Reservoir. These facilities were developed to provide safe and reasonable access to Project lands and waters. Access to the Project will continue to be needed under the new license and this proposed study will help to determine whether additional facilities are needed to meet the demand in recreational use. In addition, Project recreation facilities may not currently be ADA compliant which could limit access for public use. It is unknown whether the existing facilities, in their current condition, can continue to adequately fulfill the expected level of recreation demand during the next license term.

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The results of this study will be used to help identify existing and future recreation needs and will be useful during the development of protection, mitigation, and enhancement measures for the new long-term FERC license to operate Wells Dam.

6.0 METHODOLOGY

Assess Existing Unmet Demand

Existing recreation use does not always represent the total existing recreation demand because there may be constraints that limit participation. While there are many potential constraints on recreation use (e.g., lack of free time, cost, geographic distance, lack of skills or equipment), a subset of participation constraints may be closely associated with site-specific management (e.g., limited access to lands or water, use limits or full occupancies at facilities, Project operations that diminish the quality of opportunities, or the lack of information about available recreation opportunities). To assess the general level of unmet demand for Project recreation resources, Douglas PUD will perform the steps described below:

- Step 1: Assess statewide and regional unmet recreation demand information
Review and summarize relevant information from the 2002-2007 SCORP and other relevant local recreation data. In addition, a review of the SCORP Local Government Survey results, Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey, which include regionalized recreation issues and needs from local agencies involved in outdoor recreation management, will be reviewed.
- If available, other sources of Project area and region information will be reviewed. The focus of this assessment will be to identify possible recreation activities with substantial unmet demand with a qualitative discussion of participation constraints and whether these constraints are likely affected by Project operations.
- Step 2: Collect unmet Project Area recreation demand information from visitor surveys
Douglas PUD will utilize additional unmet demand information from the Recreation Visitor Use Assessment survey, conducted in 2005. These surveys asked visitors if there are any reservoir or river recreation activities they are interested in participating in, but cannot because of some form of barrier.
- Step 3: Identify potential activities with high unmet demand within the Project Area
Based on the review of unmet demand information derived from the Washington SCORP, the 2005 Recreation Use Assessment, and Project monitoring data, Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey, potential activities with high unmet demand at the Project will be identified. The analysis will also

attempt to identify likely barriers or constraints on participation, and whether those are related to Project operations or recreation management decisions.

Assess Future Recreation Demand

This element of the study will project future recreation use at the Project over the estimated period of the new license (30 to 50 years). Obviously, projecting the future is a speculative activity, especially over a 30 to 50 year period. These projections, though, can be useful for general planning purposes to identify potential management issues that may occur in the future. This approach will include the following steps:

- Step 1: Review existing recreation use trends
Past use often helps predict future use. Douglas PUD will review trends of actual Project recreation use from Project monitoring reports for Wells Reservoir, Interagency Committee for Outdoor Recreation's (IAC) statewide outdoor recreation participation survey, WDFW fishermen survey, Washington fishing license sales, ORV green stickers and boating vessel registrations for the counties where the majority of Project visitors originate from; local fishing guide activity; and recreation equipment sales.

- Step 2: Review existing population and recreation activity participation projections
Douglas PUD will summarize existing information on future projections from the Washington Office of Financial Management on population growth rates for the counties where the majority of the Project visitors originate; U. S. Census statistics for growth within and adjacent to the Project and other appropriate state sources on existing and future population growth.

- Step 3: Review reasonably foreseeable events that may influence future use
Reasonably foreseeable events in the watershed may be expected to influence recreation use in the watershed over the license period. If an event is determined to be reasonably foreseeable, a qualitative assessment will be made of its potential affect on future recreation use.

- Step 4: Estimate future recreation use over the License Period
Based on historical trends, future growth projections, and likely foreseeable actions in the watershed, professional judgment will be used to estimate recreation use and facility utilization over the expected term of the new license (i.e. 30 to 50 years). These estimates must be considered very speculative and will only provide a general indication of how recreation use is expected to change over the license period.

Regional Uniqueness and Significance Assessment

The following steps are focused on an assessment of regional uniqueness of the Project's primary recreation opportunities in three steps.

- Step 1: Review results of visitor questionnaires
Douglas PUD will review the results of the recreation visitor use assessment to confirm the Project's primary recreation activities. It is anticipated that fishing, boating, hiking, picnicking and swimming will likely be among the top water-related recreation activities in the Project area.
- Step 2: Identify regional recreational opportunities
Douglas PUD will identify the geographic draw of the Project's top primary recreation opportunities. This will be done by assessing the geographic extent of visitors' origins and location of the alternative recreation resource areas where visitors participate in their primary recreation activities.
- Step 3: Assess uniqueness of the Project-related recreation opportunities
For the Project's most popular primary recreation activities, Douglas PUD will identify if these recreation opportunities are of local, regional or state significance. In addition, text will describe what is unique and special about the most popular recreation opportunities based on information from regional resource information.

Public Access Analysis

Access to public use areas within the Project by both land and water will be assessed. Existing access features will be rated as high, medium, or low quality. Opportunities and constraints within the Project will also be identified, including compatibility with ADA. Public access (land and water) in the Project area will be identified and assessed by:

- Reviewing ownership maps, topographic maps, and aerial photography;
- Boating to dispersed sites and use sites along the shoreline, driving roads to access sites, and walking formal and informal user trails on lands designated as Project access sites or wildlife areas;
- Defining existing water trail routes along the reservoir, current shoreline watercraft launch sites, constraints to watercraft access along the reservoir, and overnight stop-over sites, and;
- Displaying public access sites and routes within the Project on GIS maps.

The final analysis will include tables and maps summarizing locations where: 1) current facilities for access to the Project are safe and efficient; 2) access is highly constrained; 3) future improvements could be implemented. Viable options for potential new or enhanced public access will be identified for further consideration.

Needs Assessment

The needs assessment will provide a qualitative assessment, utilizing professional judgment, of the recreation needs based on integrating the findings from the other recreation components of this study and other related studies. The assessment will involve a four-step process in which relevant Project recreation opportunities are described, relevant Project recreation issues are identified, potential actions to address Project-related issues identified, and PME measures are proposed, if appropriate. These steps are discussed below.

Step 1: Summarize Project-related recreation opportunities at recreation resource areas

The first step in the needs assessment is to integrate recreation study findings into a summary of Project-related recreation opportunities at recreation resource areas. The existing condition of the recreation opportunity as well as the likely condition of the opportunity over the license term will be described. Parameters likely discussed include such items as activity participation rates, satisfaction levels, facility needs, regional significance, resource impacts, and existing and likely future capacity availability.

Step 2: Summarize major recreation issues for each recreation resource area

Based on the projected license term and the conditions of recreation opportunities within recreation resource areas, the recreation issues within the recreation resource area will be confirmed. This may include such items such as crowding, conflicts between user groups, likely facility needs over the license term, or various types of impacts resulting from recreation use. Recreation needs issues will be assessed by comparing recreation supply and demand study results.

Step 3: Develop a list of actions to address Project-related issues

A list of prioritized actions that address Project-related recreation issues will be developed for consideration. In some cases, several alternative actions are likely to be developed to address the same issue.

Effectiveness, feasibility and costs will be used to identify actions and to prioritize these actions.

Step 4: Identify appropriate additional recreation measures for the Project

The last step of the process is to consult with relicensing participants to review study results and to identify Project mitigation and enhancement measures to be included with the new FERC license.

Assessing existing recreation use through a combination of observation and questionnaire surveys is a common practice for large geographic areas that contain multiple accesses to desired recreation use areas (Malvestuto 1996, Pollock et. al. 1994). In addition, assessing future

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<#>**Effectiveness:** How effective is the proposal at addressing issues? For example, will a new trail or semi-trail at Wells Reservoir concentrate use away from unauthorized access on private lands? Will the provision of hardening and vehicle barriers minimize impacts from vehicles or unauthorized parking?¶

Deleted: <#>**Appropriateness:** How appropriate is the proposal for the given management setting (i.e. Recreation Opportunity Spectrum (ROS) class setting)? For example, creating a river trail might solve residential access issues, soil compaction and erosion issues but might not be consistent with adjacent wildlife habitat and ESA listed fish habitat conditions. The trail might also encourage additional residential development in the area which may or may not be compatible with associated land uses and zoning ordinances.¶

¶
<#>**Public Acceptability:** How likely is it that recreation users will support the actions? For example, expanding RV camping facilities might diminish the community sense of place, but might not find broad support from some user groups.¶

<#>**Feasibility and Cost:** How feasible is it to implement the proposal given administrative policies, laws, land ownership, and cost? Such actions could potentially fit into categories such as new developments improvements to existing developments, and public information (i.e. about project operations, interpretation, and/or education and regulations to reduce impacts or conflicts).¶

¶

recreation demand through an evaluation of existing use, demographic data and participation trends and projections in the region is common practice (Kelly & Warnick, 1999).

Integrating study results, comparing supply and demand study findings, and identifying resource impacts is standard practice on many relicensing processes. The proposed methods are also consistent with assessing needs approaches utilizing visitor frameworks such as the Visitor Impact Management (Graefe, Kuss, & Vaske, 1990) and Limits of Acceptable Change processes. In addition, the proposed methods incorporate concepts from the Recreation Opportunity Spectrum (ROS) (Clark and Stankey, 1979), and subsequent Water Recreation Opportunity Spectrum (WROS) frameworks (Haas, Aukerman, Lovejoy, & Welch, 2004).

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

No special equipment is needed to conduct this study. Staff time required to complete this study is estimated to be approximately 300 hours.

The consultants hired to conduct this study must have prior experience in conducting Recreation Needs Assessments and should be well versed in recreation issues and planning.

Several trips to the Project area will be required.

8.0 BUDGET

Study costs for implementation of the study are yet to be determined and will be available upon selection of a qualified consulting firm and a more specific determination of a scope of work.

9.0 SCHEDULE

The proposed study plan will take into account data collected during 2005 and 2006 during baseline studies.

Planning for the recreation needs analysis will begin in late 2007, shortly after the issuance of FERC's Study Plan Determination in October 2007. Field efforts will take place during the spring and summer of 2008 with an Initial Study Report due to stakeholders by October 2008. An initial study report will be filed with FERC in October 2008.

Data analysis and a draft report for the study will be completed by January 2008. A final report will be provided to FERC and the stakeholders by October 2009.

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Draft

**EVALUATION OF ACCESS TO AND USE OF WELLS RESERVOIR AS
IT RELATES TO RESERVOIR FLUCTUATIONS, AQUATIC PLANTS
AND SUBSTRATE BUILDUP
(RECREATION AND LAND USE 6.2.2.1, 6.2.2.2, 6.2.2.3)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Recreation and Land Use Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The RWG, through a series of technical meetings, is proposing a study intended to evaluate whether the Wells Project recreation facilities such as docks, boat launches and swimming areas, can be reasonably accessed under various reservoir operating scenarios. The study will analyze accessibility to boat docks and launches during low reservoir elevations, evaluate how reservoir elevations affect on-water boating experiences and will evaluate whether aquatic plant growth and substrate buildup at public access sites is restricting public use of Project waters.

The results of this study will be used to help Douglas PUD and recreation management entities to identify existing access issues that should be addressed during the development of protection, mitigation and enhancement measures.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides of the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project Boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet.

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;

- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to evaluate whether Wells Project recreation facilities (public access facilities) such as docks, boat launches and swimming areas, can be reasonably utilized under various reservoir operating scenarios and conditions. Specific objectives include:

- Evaluate accessibility to boat docks and launches during low reservoir elevations.
- Evaluate how reservoir elevations affect on-water boating experiences.
- Evaluate the effect of aquatic plant growth on accessibility to boat docks, launches and designated swimming areas within the Wells Project (reservoir and tailrace).
- Evaluate whether river substrate is restricting access to boat docks, boat launches and designated swimming areas within the Wells Project (reservoir and tailrace).
- Develop a map showing general types of aquatic plants and where they occur.
- Develop a map showing areas of the reservoir that may be inaccessible during low reservoir elevations.
- Identify measures to improve boat docks and launches and swimming areas as they relate to reservoir fluctuations, aquatic plants and substrate buildup.

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3.0 STUDY AREA

The study area includes water oriented access facilities and areas within the Wells Project boundary. This includes the Wells Reservoir which extends from Wells Dam (River Mile [RM] 515.8) upstream to the tailrace of Chief Joseph Dam (RM 544.5) and includes the lower 1.5 miles of the Methow River and the lower 15.5 miles of the Okanogan River. This also includes the Wells tailrace which extends from the base of Wells Dam to a point 1.2 miles downstream (RM 515.8 – 514.6). Public recreation and access areas include boat launches and boat docks along the Wells Reservoir and Wells tailrace (Figure 3.0-1).

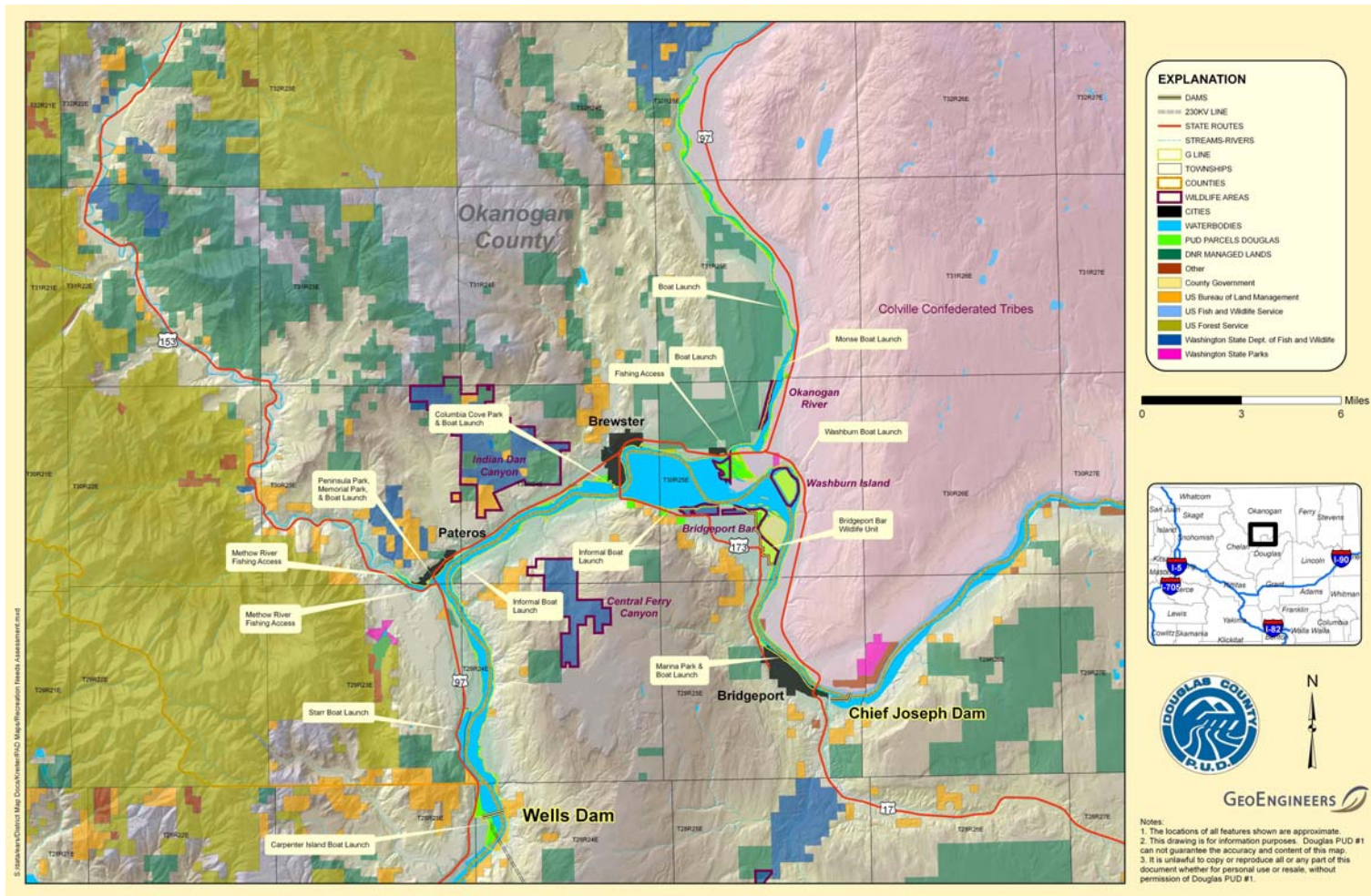


Figure 3.0-1 Wells Reservoir access sites

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Recreation and Land Use Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Recreation and Land Use Resource Work Group (RWG) which began meeting in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included into the Wells Pre-Application Document (PAD).

Through a series of meetings, the Recreation and Land Use RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decision. Agreed Upon Study Plans are the finished projects of the informal RWG process.

Based upon these meetings and discussions, the Recreation and Land Use RWG is proposing to include a study plan into the Wells PAD which addresses the need to evaluate whether reservoir fluctuations, aquatic plant growth or substrate buildup limits access and recreational use of the waters contained within the Wells Project. This study will also help to identify whether site specific measures are needed to improve public access to the Wells Reservoir and Douglas PUD-funded recreation facilities.

4.2 Issue Statements

Issue Statement (6.2.2.1)

Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.

Issue Determination Statement

There may be some scenarios where Project operations, notably reservoir fluctuations, affect access to and use of public boat launches and docks. The work group recommends that a site evaluation study be completed to determine which recreation facilities are rendered inaccessible at various reservoir elevations. The study should provide options for improving access to public boat launches and docks. The study should also evaluate how reservoir elevations affect on-water boating experiences (e.g. motorboats vs. man-powered boats).

The resource work group agrees that a site evaluation study should be completed during the two-year ILP study period. This study will help to determine whether new measures are needed to address this issue for the term of the next license.

Issue Statement (6.2.2.2)

The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.

Issue Determination Statement

The Wells Project may have enhanced the growth of aquatic vegetation in the Wells Reservoir. Douglas PUD has completed baseline assessments of macrophyte distribution in the reservoir. Results of the baseline assessments indicated that most of the aquatic vegetation in the reservoir is native vegetation which may provide important fish habitat and waterfowl forage.

The resource work group agrees that a site evaluation study should be completed during the two-year ILP study period to determine where and to what degree public access to and use of the reservoir is restricted by aquatic vegetation. The proposed site evaluation study should include a map showing where macrophytes occur and focus on identifying where macrophytes restrict or discourage access to public recreation facilities. The study should also include options to address the issue should it be determined that aquatic vegetation is impacting access to and use of the reservoir. The study will help identify measures to address this issue for the term of the next license.

Issue Statement (6.2.2.3)

The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.

Issue Determination Statement

The resource work group agrees that a study is not needed during the ILP two-year study period. Sediment conditions at public recreation sites will be considered during the site evaluation study discussed in Issues No. 1 and 2 above. The resource work group agrees that it is important to continue monitoring the sediment conditions at Wells Project access sites along the Methow and Okanogan rivers.

4.3 Recreation Visitor Use Assessment

Douglas PUD completed a Recreation Visitor Use Assessment during May to December of 2005 in an effort to collect information related to visitor use at Wells Project recreation sites (DTA, 2006). The primary goals of this study were to assist in the preparation of the PAD and to describe use levels, preferences, attitudes and characteristics of the Wells Project's primary recreation user groups. Specific objectives included:

- Describing recreation respondents' characteristics;
- Describing user preferences for recreation settings and facilities;
- Identifying possible recreation conflicts, crowding, or personal safety issues;
- Describing users' attitudes toward management actions;

- Describing recreation respondents' activities; and
- Identifying the amount, activity type and spatial and temporal distribution of existing recreation use.

A stratified systematic sampling strategy was chosen for the Recreation Visitor Use Assessment. To ensure that diversity in types of recreation users and variation in type of days visited, sampling was conducted at designated recreation sites and on the Wells Reservoir from May 24, 2005 through December 13, 2005; months that together account for the majority of use.

4.4 Recreation Action Plan

Ongoing recreation needs within the Wells Project are addressed through the Wells Recreation Action Planning process. The Wells Recreation Plan (1967), Wells Recreation Plan Supplement (1974), Public Use Plan (1982) and Recreation Action Plans (1987, 1992, 1997 and 2002) were established as part of compliance with Article 44 of the FERC license. This long-term and ongoing planning and implementation process has helped in the development and maintenance of the recreation sites along the Wells Reservoir.

Following a two-foot pool raise amendment in 1982, Douglas PUD developed a Public Use Plan for the Wells Project. The plan analyzed the types of public recreation facilities that the Wells Reservoir can reasonably accommodate and discusses how those facilities can be developed and maintained. The information presented in the 1982 Public Use Plan included an analysis of recreation facilities within a 100-mile radius of the Wells Project.

In response to the 1982 Public Use Plan, the National Park Service (NPS) and State Parks recommended periodic updates (every five years) to the 1982 Public Use Plan. By FERC Order dated August 12, 1987, 40 FERC 62,157, this recommendation was made part of the Wells Project license resulting in updates to the 1982 Public Use Plan every five years. Douglas PUD's 1987 Recreation Action Plan, which is a supplement to the 1982 Public Use Plan, was supported by the NPS, Washington State Parks and Recreation Commission and the cities of Pateros, Brewster and Bridgeport. Douglas PUD has published subsequent updates to the 1982 Public Use Plan in 1992, 1997 and 2002. The next update is scheduled to be completed in 2007.

4.5 Aquatic Macrophyte Identification and Distribution Study

In August and September of 2005, Douglas PUD conducted a study to address the species composition, relative abundance and spatial distribution of macrophyte beds within the waters of the Wells Project. The estimated location of aquatic plant beds were mapped using a Geographic Information System (GIS). The study found that in general, macrophyte communities in the Wells Project were patchy and were distributed by depth.

In general, macrophyte communities did not recruit to depths of less than 4 feet in the Wells Project. Depths between 5 and 15 feet were characterized by a species composition where native species were dominant. In locations where Eurasian water milfoil was present, this species was most often sub-dominant and present at relatively low densities (less than 10% milfoil). From depths of 15 to 24 feet, species composition consisted exclusively of native species. From 24

feet to 30 feet, macrophyte communities were absent most likely due to the limited availability of light at these depths. Overall, the study identified a total of 2,379 acres of macrophyte beds out of a total surface area of 9,740 acres.

4.6 Bathymetric Mapping

In March of 2005, Douglas PUD contracted with GeoEngineers to conduct a detailed bathymetric survey of the Wells Reservoir and tailrace using multibeam sonar and GPS technology. Contour maps of the reservoir bottom were produced at 1-foot contour intervals. The bathymetry provides a seamless representation of the riverbed surface. The bathymetric mapping can be used to identify potential shallow areas within the Wells Reservoir when its elevation is lowered.

5.0 PROJECT NEXUS

The Wells Project and its operations may affect access to boat launches and boat docks located along the Wells Reservoir. Fluctuations of the Wells Reservoir may render portions of the reservoir and some of the public access sites along the reservoir inaccessible. Additionally, the Wells Project may enhance the growth of aquatic vegetation in the Wells Reservoir and also affect sediment transport and deposition. Aquatic vegetation growth and buildup of substrates near boat launches, boat docks and swimming areas could restrict access to and from the Wells Reservoir. The results of this study will help Douglas PUD and the RWG members determine whether new measures are needed to address this issue for the term of the next license.

6.0 METHODOLOGY

6.1 Evaluate Access Related to Reservoir Fluctuations

The Wells Project is a “run-of-the-river” hydroelectric project meaning that on average, daily inflow to the Wells Reservoir equals daily outflow. The limited active storage capacity of the Wells Project is only sufficient to regulate flow on a daily basis. Wells Reservoir fluctuations and power generation are largely driven by the discharge of water from Chief Joseph Dam and Grand Coulee Dam. The Wells Project is authorized to maintain its reservoir level between elevation 781 and 771 feet. It is important to determine whether reservoir elevations, specifically low elevations, affect access to the Wells Reservoir. To evaluate access related to reservoir fluctuations, Douglas PUD will perform the steps described below:

- Step 1: Analyze Wells Reservoir elevations from 2001 to 2005
Review and summarize hourly elevation data from the Wells Forebay to determine how often fluctuations occur in the Wells Reservoir. Develop headwater duration curves for the years 2001-2005 to better understand the relationship between reservoir fluctuations and elapsed time.

Step 2: Document access sites at various Wells Reservoir elevations
Document and evaluate accessibility to boat docks and launches. Measure
depths at boat launches and docks to determine at what elevations access
sites could become inaccessible due to low water or buildup of substrates.

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Step 3: Develop a map showing areas of the Wells Reservoir that may be
inaccessible during low reservoir elevations
Using GIS and the existing reservoir bathymetry data, identify potential
shallow areas during low reservoir operations. Utilize these maps to
evaluate how reservoir fluctuations may affect on-water boating
experiences.

6.2 Evaluate Access Related to Substrate Buildup

Active bed load movement, erosion and the deposition of suspended sediment can limit the usability of public access facilities located along the Methow and Okanogan rivers. The proposed reservoir access study will evaluate whether public access facilities around the Wells Reservoir are being impacted by the build up of substrate. Examples might include substrate filling in a boat launch or swimming area. The evaluation of the effects of substrate on access to the reservoir and water related public facilities in these areas will be conducted in connection with steps 1-3 found in Section 6.1 (above).

6.3 Evaluate Access Related to Aquatic Plants

Douglas PUD's Aquatic Macrophyte Identification and Distribution Study conducted in 2005 found a varying amount of aquatic macrophyte communities present near the boat launches and docks along the Wells Reservoir. Most of the aquatic macrophyte communities in the Wells Reservoir are comprised of native vegetation, which provides a source of important fish and waterfowl habitat. However, aquatic plant growth near boat launches and docks may affect accessibility to the Wells Reservoir for recreational purposes. To evaluate access related to aquatic plants, Douglas PUD will perform the steps described below:

Step 1: Review aquatic macrophyte communities and sediment near access areas
Conduct a field survey to evaluate the density and distribution of aquatic plants in relation to specific sites to determine if aquatic plants in these areas adversely impact access to the Wells Reservoir. Assess how aquatic plant growth impacts the use of public use sites.

Step 2: Identify measures for addressing plant growth at public access sites
If results from Step 1 indicate that aquatic plants in certain areas are restricting access to the Wells Reservoir, identify and describe potential options to improve access.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

The access study will be conducted by Douglas PUD staff with assistance at various stages by consultants. Measurements related to access at various reservoir elevations will be collected by professional surveyors.

Bathymetric maps and detailed macrophyte inventories, at public access sites, will be collected and analyzed by Douglas PUD staff utilizing a Douglas PUD boat.

No permits will be needed to conduct the study.

8.0 BUDGET

No budget has been developed for this study.

9.0 SCHEDULE

Planning for the access study will begin shortly after the issuance of FERC's Study Plan Determination in October 2007. Field measurements at boat launches and access sites will take place during the spring of 2008. An Initial Study Report will be filed in October 2008. The draft report for all three components of the access study will be completed by April 2009. The final report will be available by October 2009.

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Hellstrom, L.K. 1967. Wells Recreation Plan. Wells Hydroelectric Project FERC No. 2149. Prepared by L. Keith Hellstrom for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

Hellstrom & Associates. 1982. Public Use Plan. Wells Hydroelectric Project FERC No. 2149. Prepared by Hellstrom and Associates for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

Johnson, A. R. 1974. Wells Recreation Plan Supplement. Prepared by A. R. Johnson for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

Action Items
Recreation and Land Use Work Group
Meeting 6 – July 14, 2006

1. Provide paper copy documents of Recreation Visitor Use Assessment to RWG (Brad).
2. Send copy of Douglas PUD's Land Use Policy to Kurt Danison, Highlands and Associates, Okanogan County Shoreline Master Plan (Scott).
3. Obtain and distribute copy of FERC's favorite Recreation Management Plan and associated license article to better understand how the plan and actions may be implemented (Scott).
4. Develop and send timeline to RWG, including Recreation Action Plan, FERC Form 80, ILP (Brad and Scott).
5. Mail paper copies of all revised study plans to RWG (Scott).

Terrestrial RWG Meeting 6
July 20, 2006

From: Scott Kreiter
Sent: Monday, June 26, 2006 2:37 PM
To: Beau Patterson; Bill Towey; Bob Clubb; Brad Hawkins; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dennis Beich; Dinah Demers; Gordon Brett; James Rees; Jim McGee; John Devine; Marc Hallett; Mary Hunt; Matt Monda; Neal Hedges; Scott Kreiter; Shane Bickford; Steve Lewis; Tony Eldred
Subject: Wells Relicensing: Terrestrial RWG #6 Meeting Agenda
Attachments: Meeting Agenda Terrestrial RWG 6.pdf

Hello again Terrestrial Resources Work Group!

Please find attached the Agenda for Terrestrial RWG #6 to be held on **July 20**. Note that the objective for this meeting is to review draft study plans which we will send out soon.

Please let me know if you have any comments or additions to the agenda.

-Scott

Scott Kreiter
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA, 98802
509-881-2327

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – July 20, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: 1. Provide an update to the RWG on feedback from FERC, upcoming schedule, etc.
2. Discuss and receive feedback on draft proposed study plans.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: July 20, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 9:30 AM – 2:30 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda; Review action items from RWG #5	Scott Kreiter
9:45	Policy review of issue statements; Overview of meeting with FERC; Revised schedule and next steps	Group
10:00	Review FERC comments on Issue Statements	Group
11:00	Review and discuss draft study plans. Primary focus will be on objectives and methods.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue study plan review.	Group
2:15	Action items and next steps.	Scott Kreiter
2:30	Adjourn	

Attendees Invited: Bill Towey, Colville Tribes Dinah Demers, Colville Tribes Neal Hedges, BLM James Rees, BLM Brenda Crowell, Okanogan County Marc Hallett, WDFW Matt Monda, WDFW Tony Eldred, WDFW Carmen Andonaegui, WDFW	Beau Patterson, WDFW Steve Lewis, USFWS Dan Trochta, USFWS Mary Hunt, Douglas County Bob Clubb, Douglas PUD Jim McGee, Douglas PUD Shane Bickford, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc.
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Douglas PUD
Pre-Application Document
Outline for Section 6

6.2 Issues for Study

6.2.1 Aquatic

- 6.2.1.1 Operations of the Project may affect juvenile Pacific lamprey dam passage and reservoir survival (survival, route of passage and timing) during their downstream migration.
- 6.2.1.2 The Wells Project may affect adult Pacific lamprey habitat use.
- 6.2.1.3 The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.
- 6.2.1.4 Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.
- 6.2.1.5 Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells Tailrace and Rocky Reach Forebay.
- 6.2.1.6 Project operations may affect compliance with temperature standards in the Wells Project.
- 6.2.1.7 Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

6.2.2 Recreation and Land Use

- 6.2.2.1 Reservoir fluctuations during high recreation use days may limit access and use of the reservoir and recreation facilities.
- 6.2.2.2 The reservoir has resulted in the growth of aquatic vegetation at recreation sites, which may restrict access and use of the reservoir.
- 6.2.2.3 The reservoir and Project operations may affect sediment transport and deposition, which may restrict access to and use of the reservoir.
- 6.2.2.4 Recreation proposals under the license need to consider Endangered Species Act (ESA), Americans with Disabilities Act (ADA), Electric Consumers' Protection Act (ECPA), State

Comprehensive Outdoor Recreation Plan (SCORP), County Shoreline Master Programs as well as local ordinances, laws, regulations and comprehensive plans.

6.2.2.5 Existing recreation facilities may not meet future recreation needs through the duration of the next license term. Recreation plans under the new license should consider recreation trends and an analysis of the condition and capacity at recreation facilities.

6.2.2.6 The new license should consider new facilities or enhancements to existing facilities (eg. Chief Joe Hatchery, Fort Okanogan State Park an Interpretive Center, Fort Okanogan Overlook Site, Wells Visitor Center, Pateros Visitor Center, Alta Lake State Park and Wells Tracts off Pit Road) and should consider trails and trail linkages between communities.

6.2.2.7 Wells Dam may be a hindrance to river travel.

6.2.3 Terrestrial

6.2.3.1 Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

6.2.3.2 Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

6.2.3.3 Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

6.2.3.4 Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

6.3 Proposed Study Plans

6.3.1 Aquatic

6.3.1.1 A Retrospective Analysis of Survival and Rates of Predation for Juvenile Pacific Lamprey Migrating through Columbia River Hydroelectric Projects (6.2.1.1).

6.3.1.2 An Assessment of Adult Pacific Lamprey Spawning (6.2.1.2).

6.3.1.3 Adult Pacific Lamprey Passage and Behavior Study (6.2.1.3).

- 6.3.1.4 An Investigation into the effect of Project Operations on the Transport and Accumulation of Toxins within the Sediment o the Okanogan and Columbia rivers (6.2.1.4).
- 6.3.1.5 An Investigation into the Total Dissolved Gas Dynamics of the Wells Project (6.2.1.5).
- 6.3.1.6 Development of a Water Temperature Model Relating Project Operations to Compliance with the Washington State and EPA Water Quality Standards (6.2.1.6).
- 6.3.1.7 Continued Monitoring of DO, pH and Turbidity in the Wells Forebay and Inundated Portion of the Okanogan River (6.2.1.7).

6.3.2 Recreation and Land Use

- 6.3.2.1 Evaluation of Access to and Use of Wells Reservoir as it Relates to Reservoir Fluctuations, Aquatic Plants and Substrate Buildup (6.2.2.1, 6.2.2.2 and 6.2.2.3).
- 6.3.2.2 An Evaluation of Recreational Needs within the Wells Project (6.2.2.4, 6.2.2.5, 6.2.2.6 and 6.2.2.7).

6.3.3 Terrestrial

- 6.3.3.1 An Evaluation of the Effects and Alternatives to the Existing Bird and Mammal Control Programs (6.2.3.1).
- 6.3.3.2 An Evaluation of the Effects of Active, Project Induced Erosion on Wildlife, Botanical, Cultural and RTE Resources (6.2.3.2).
- 6.3.3.3 Plant and Wildlife Surveys and Cover Type Mapping for the Wells Hydroelectric Project 230 kV Transmission Corridor (6.2.3.3 and 6.2.3.4).

6.4 Issues Not for Study

6.4.1 Aquatic RWG

- 6.4.1.1 Operations of the Project may affect juvenile Pacific lamprey habitat including availability of habitat at various juvenile life stages.
- 6.4.1.2 The Wells Project may be affecting white sturgeon habitat and carrying capacity.

- 6.4.1.3 The Wells Project may affect white sturgeon genetics and productivity related to spawning, rearing, recruitment and upstream and downstream passage (entrainment/recruitment).
- 6.4.1.4 There may be an opportunity to shift a portion of the existing off-site resident fish program to enhance recreational fishing opportunities within the Wells Reservoir without conflicting with the current fish assemblage, ESA-listed species and recovery goals.
- 6.4.1.5 Fluctuations in the Wells Reservoir, including those caused by system-wide energy requirements, may affect the ecosystem (i.e., allochthonous inputs into the system). This may include impacts on aquatic and wetland plant communities, fish use and macroinvertebrates.
- 6.4.1.6 The Wells Project may affect Bull Trout survival and habitat.
- 6.4.1.7 The Wells Project may contribute to the spread of aquatic invasive species.
- 6.4.1.8 The Wells Project should continue resident fish production at the Wells Hatchery.

6.4.2 Recreation RWG

- 6.4.2.1 Ownership of Project lands and Douglas PUD's Land Use Policy may affect the use and development of the waterfront, adjacent properties and recreational use (eg. hunting, fishing, dock permitting and vegetation management).
- 6.4.2.2 The development of recreation plans in the new license will consider improvements to the current Recreation Action planning process.
- 6.4.2.3 The Wells Project may affect the economics of the cities, counties and Colville Tribes adjacent to the reservoir (eg. O&M funds for recreation facilities, municipal and business infrastructure, tax base, emergency services, community services and water table).
- 6.4.2.4 Water use at city parks may affect the availability of water for future city development.

6.4.3 Terrestrial

- 6.4.3.1 Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different

levels of wildlife impacts/protection, including habitat fragmentation and succession.

- 6.4.3.2 The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.
- 6.4.3.3 The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.
- 6.4.3.4 The reservoir could affect the movements and migration abilities of mule deer.
- 6.4.3.5 The Project could affect winter habitat for mule deer and sharp-tailed grouse.
- 6.4.3.6 The Project could affect terrestrial RTE species.
- 6.4.3.7 Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.
- 6.4.3.8 Public use (recreation) of the Project may affect wildlife and wildlife habitat.
- 6.4.3.9 The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.
- 6.4.3.10 Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

**Terrestrial RWG Meeting 6
Sign-in Sheet and Meeting Products**

July 20, 2006

NAME	ORGANIZATION	TELEPHONE NO.	EMAIL ADDRESS
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MARC HALLET	WDFW	509 686 4305	hallemh@dfw.wa.gov
Jim McCre	Douglas PUD	509 881 2248	jmcgree@dcapud.org

Terrestrial Resource Work Group

Proposed Study Plans, Issue Statements and Issue Determination Statements

Issues for Study

Proposed Study Plan

An Evaluation of the Effects and Alternatives to the Existing Bird and Mammal Control Programs.

Issue Statement (6.2.3.1)

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Issue Determination Statement

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of bird and mammal predators is an important part of reducing predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

Deleted: is not the preferred solution to this problem but has become

Deleted: controlling

Deleted: bird and mammal

Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on sensitive or recreationally important species.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate existing practices, evaluate alternatives and inform future management decisions.

Proposed Study Plan

An Evaluation of the Effects of Active, Project Induced Erosion on Wildlife, Botanical, Cultural and RTE Resources.

Issue Statement (6.2.3.2)

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Issue Determination Statement

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

There is no demonstrated impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005.

The resource work group has determined that a study is needed during the two-year ILP study period. A series of Project maps with RTE species, sensitive botanical cover-types, designated wildlife areas and National Register eligible cultural sites should be overlaid with known areas of active erosion. This comparison will determine whether erosion areas are having an adverse effect on these resources.

Proposed Study Plan

Plant and Wildlife Surveys and Cover Type Mapping for the Wells Hydroelectric Project 230 kV Transmission Corridor.

Issue Statement (6.2.3.3)

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Issue Determination Statement

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence -- whether raptors, corvids and prairie grouse are found within or adjacent to the transmission corridor. A literature review will also be completed to specifically identify potential effects on raptors and prairie grouse.

Issue Statement (6.2.3.4)

Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Issue Determination Statement

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

Issues Not for Study

Issue Statement (6.4.3.1)

Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

Issue Determination Statement

Douglas PUD owns land within the Project boundary in fee title. This is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all

activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what is provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's plan to retain ownership of lands within the Project boundary.

Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Measures to protect the existing terrestrial resources will be addressed in the Land Management Plan.

Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement (6.4.3.2)

The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.

Issue Determination Statement

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project but its Land Use Policy does restrict the ability of adjacent landowners to develop and make improvements to Project lands. Douglas PUD owns the shoreline and is required to regulate development within the Project boundary. Douglas PUD actively patrols the reservoir to monitor compliance with the Land Use Policy. Monitoring needs will be considered in the development of the Land Management Plan.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of

other nearby lands, proximity to social infrastructure (e.g. schools and hospitals) and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

Additional information will not resolve this issue or produce results meaningful to relicensing. The resource work group agrees that Douglas PUD should retain ownership in fee title of Project lands and continue implementing its Land Use Policy. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement (6.4.3.3)

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Issue Determination Statement

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RTE plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. Reservoir fluctuations also limit the establishment of emergent and shoreline vegetation, reducing habitat for dabbling ducks, geese and other wildlife that utilize riparian and wetland habitat. The resource work group also expressed concerns that future changes to how the project is operated could negatively affect the high quality macrophyte beds located within the Wells Reservoir. These beds are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands during extended reservoir draw down. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. [Impacts to riparian and wetland habitats for dabbling ducks, geese and other wildlife are mitigated through the ongoing management and operation of the Wells Wildlife Area.](#)

The resource work group agrees that a study is not needed during the two-year ILP study period because changes in operations are not being proposed and because good baseline information exists.

Issue Statement (6.4.3.4)

The reservoir could affect the movements and migration abilities of mule deer.

Issue Determination Statement

There is sufficient information pertaining to mule deer movements, migrations and populations in the region. Mule deer are a common and abundant game species in the region, including within the Wells Project, and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.5)

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Issue Determination Statement

Evidence of Project related adverse impacts to mule deer or sharp-tailed grouse have not been identified.

Sharp-tailed grouse populations have declined state-wide and are currently a state-threatened species. Riparian habitat for game and non-game species has increased since the project was built. The Wells Wildlife Area and other lands managed for wildlife purposes have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

No Project operational impacts have been identified on these species. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.6)

The Project could affect terrestrial RTE species.

Issue Determination Statement

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

The following RTE species have been documented in the Wells Reservoir:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

Future land management, recreation planning and operational decisions will avoid, minimize or mitigate impacts to federal RTE species. Future land management, recreation planning and operational decisions will consider impacts to state RTE species.

The resource work group agrees that a study is not needed during the two-year ILP study period related to federal RTE species on the Wells Reservoir.

Issue Statement (6.4.3.6)

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

Issue Determination Statement

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife habitat due to the construction and operation of the Wells Project. Specifically, the wildlife mitigation agreement was intended to benefit wildlife in close proximity to the Wells Reservoir. The mitigation program was initially focused on providing upland game bird recreation (e.g. quail and pheasant hunting). Originally, the program included the planting of game birds for harvest purposes. The scope of WDFW's program has changed to emphasize habitat improvements for natural production of game birds. This management direction shift has provided additional benefits to a wide assemblage of game and non-game species.

Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PME development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.8)

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Issue Determination Statement

The Project is one of many factors that could attract recreational use. Recreation development activities within the Wells Project are controlled through Douglas PUD's Land Use Policy. Douglas PUD strives to provide safe and efficient access to appropriate Project land and waters. Douglas PUD cannot control recreational use within the Wells Reservoir. The group agrees that recreation activities, including but not limited to, water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project. Any Land Management Plan in the new license will consider potential impacts of recreational use on wildlife and wildlife habitat. Further measures to protect the existing terrestrial resources may be warranted.

Existing information provided in the baseline studies is sufficient for making future land management decisions. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.9)

The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.

Issue Determination Statement

The Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue could become important if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification, distribution and abundance and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.10)

Periodic draw downs of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

Issue Determination Statement

When Methow River flows are predicted to be above 14,000 cfs, Douglas PUD periodically draws down the Wells Reservoir to allow sediment to pass through the Methow River confluence. This occurs approximately every 8-10 years. This is done to prevent sediment buildup at the boat launches and swimming areas and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including operations, reservoir drawdown and fluctuations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

DRAFT

**AN EVALUATION OF THE EFFECTS AND ALTERNATIVES TO THE
EXISTING BIRD AND MAMMAL CONTROL PROGRAMS
(TERRESTRIAL ISSUE 6.2.3.1)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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For copies of this study plan, contact:

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Relicensing
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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Terrestrial Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Terrestrial RWG, through a series of technical meetings, is proposing a study intended to evaluate the effects and develop alternatives to the existing bird and mammal control programs.

Douglas PUD currently implements several bird and mammal control programs that are primarily related to fish survival goals within the Wells Habitat Conservation Plan (HCP).

The Wells HCP requires Douglas PUD to implement a predator control program. The study goal of the predator control program is to reduce the number of juvenile salmon and steelhead that are consumed by predators. Both the hatchery and predator control programs are important in meeting the No Net Impact (NNI) survival goals in the Wells HCP.

The primary objectives of the study are:

- Identify and count the current and historic number and species of birds and mammals feeding on fish at the Project hatcheries and in the Wells Tailrace;
- Assess the potential impacts of mortality caused by piscivorous birds and mammals to ESA listed, sensitive and recreationally important species;
- Describe each of the existing nuisance wildlife control measures, including species targeted, reason for control, frequency of control and effectiveness of the control method;
- Evaluate alternatives, including the costs and benefit of each measure recommended. The study will provide alternative methods of preventing predation of fish at the Wells Project and in hatchery rearing ponds.

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<#>Assess the potential impacts of tree removal by beavers on ESA listed, sensitive and recreationally important species, and erosion;¶

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

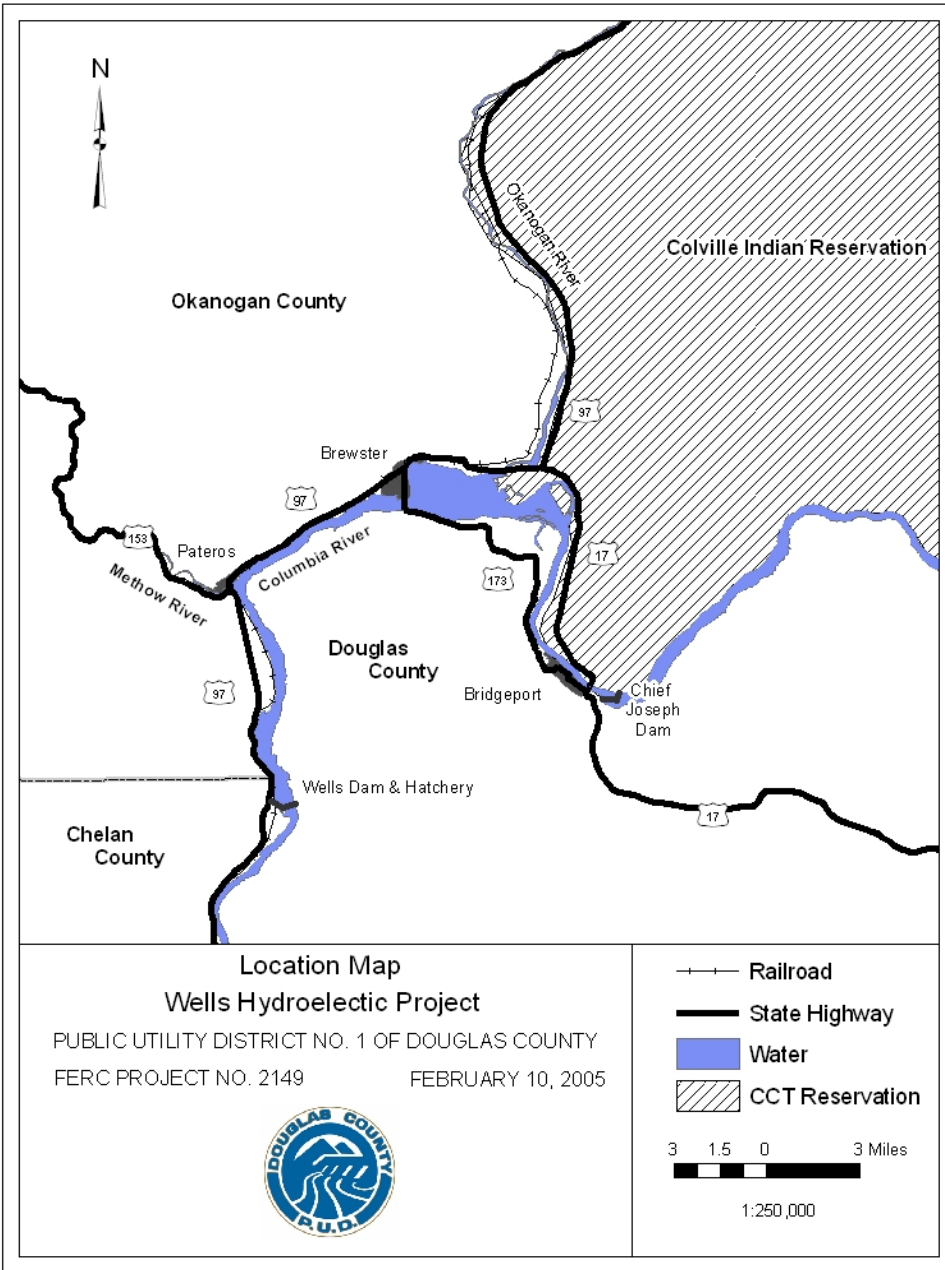


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of the study is to evaluate the effectiveness of the ongoing predator control programs and identify potential alternatives where appropriate.

The objectives of the study include the following:

- Identify and count the current and historic number and species of birds and mammals feeding at the Project hatcheries and in the Wells tailrace;

- Assess the potential impacts of mortality caused by piscivorous birds and mammals to ESA listed, sensitive and recreationally important species.
- Describe each of the existing nuisance wildlife control measures, including species targeted, reason for control, frequency of control, and effectiveness of the control method.
- Collect and analyze the historic counts of beaver removed from the Wells Reservoir;
- Assess the potential impacts of tree removal by beavers on ESA listed, sensitive and recreationally important species, and erosion.
- Evaluate alternatives, including the costs and benefit of each measure recommended. The study will provide alternative methods of preventing predation of fish at the Wells Project and in hatchery rearing ponds.

3.0 STUDY AREA

The study area includes the Wells Reservoir and tailrace and adjacent Project related lands (Figure 1.1-1), the approximately 15 acre Wells Hatchery in Chelan County (Figure 3.0-1) and the 19 acre Methow Hatchery, including the Twisp (2.6 acres) and Chewuch (0.7 acres) acclimation pond sites, located in Okanogan County (Figure 3.0-2). The Methow Hatchery and associated acclimation ponds are located outside of the Wells Project boundary. The Wells Hatchery is located on the west bank of the Columbia River immediately downstream of the Wells Dam and is entirely contained within the boundary of the Wells Project.



Figure 3.0-1 Air Photo of Wells Hatchery



Figure 3.0-2 **Location map for the Methow Hatchery and associated off-site acclimation ponds**

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Past and Current Activities to Reduce Fish Predation

The Wells and Methow hatcheries raise steelhead (*Oncorhynchus mykiss*) and spring Chinook (*Oncorhynchus tshawytscha*) that are listed as threatened and endangered, respectively, under the federal Endangered Species Act. The Washington Department of Fish and Wildlife (WDFW) estimates that 7 to 14 percent (depending on rearing pond) of the steelhead and summer Chinook reared at Wells Dam in 2005 were eaten by birds and mammals. The hatcheries have a goal for the number of yearling steelhead and Chinook smolts released each spring. To reach these goals, additional brood stock must be trapped to compensate for the mortality due to predation, thereby impacting the number of ESA listed fish left to spawn naturally.

Methods of controlling avian predation at Wells Hatchery have changed over the years. Until the mid-1980's, Washington State hatchery policy encouraged hatchery employees to kill piscivorous birds feeding on fish reared in its hatcheries along with hazing to reduce fish mortality. More recently, hatchery staff has relied solely on hazing, pyrotechnic shotgun shells (cracker shells) and exploding rockets along with propane cannons, to reduce bird predation. Hazing efforts were marginally successful.

In 1993, Douglas PUD hired the U. S. Department of Agriculture (USDA) Wildlife Services to reduce the bird predation at Wells Dam tailrace. The USDA installed bird exclusion wires to reduce access by flying birds in the tailrace. In 1994, USDA installed bird exclusion wires over the hatchery rearing ponds. They also used hazing methods listed above and shot a few birds as a dispersal technique to reduce bird densities, enforcing hazing techniques.

Information that can be used in the study can be found from two sources. WDFW has information that estimates the number of fish consumed by piscivorous birds and mammals at each of the hatcheries. USDA has information on the number of birds hazed and/or shot at Wells Hatchery and in the Wells tailrace.

4.2 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD)

Through a series of meetings, the Terrestrial RWG cooperatively identified a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria ([see Section 1.2](#)) and would be useful in

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<#>Past and Current Activities for
Beaver Control¶

Historically, non-project related trappers regulated the number of beaver found on the Wells Reservoir which limited the damage to riparian habitat and orchards. When the price of beaver pelts no longer reimbursed trappers for their efforts, the trappers stopped harvesting beaver. Beaver populations in the tributaries to the Wells Reservoir expanded. Many young beaver leave their families territory each spring and travel downstream to the reservoir looking for their own territory.¶

¶ In the past, WDFW removed beaver that were damaging trees in orchards along the reservoir when requested by the adjacent landowner. WDFW stopped trapping beaver in the past few years. Beaver damage to riparian areas has increased each year after WDFW control efforts ended. In 2004, Douglas PUD hired a Nuisance Wildlife Control Operator (NWCO) to prevent damage to large trees and other riparian tree and shrub species along Wells Reservoir. In particular, the beaver control program was initiated to protect large riparian trees that are used by bald eagles and other raptors for perching and that provide habitat for the many neotropical birds that nest along the reservoir.¶

¶ Information on the number of beaver taken since 2004 is available from Douglas PUD files. The Washington Department of Fish and Wildlife may have information on the number of beaver removed from the reservoir before 2004.¶

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making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study plan into the Wells PAD which addresses the need to evaluate the effects of and alternatives to the piscivorous bird and mammal control programs (6.2.3.1). The need for this study was agreed to by all of the members of the Terrestrial RWG, including Douglas PUD. This study will help inform future relicensing, wildlife and fisheries management decisions and will fill data gaps that have been identified by the Terrestrial RWG.

4.3 Issue Statements

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Issue Statement (6.2.3.1)

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Issue Determination Statement (6.2.3.1)

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown.

Removal of bird and mammal predators ~~is~~ an important part of ~~reducing~~ predation on ESA listed steelhead and spring Chinook at the Wells Project and associated hatchery facilities. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

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Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on sensitive or recreationally important species.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate existing practices, evaluate alternatives and inform future management decisions.

5.0 PROJECT NEXUS

Fish Predation

Douglas PUD owns and pays for the operation of the Wells and Methow hatcheries and acclimation ponds as mitigation for unavoidable losses of juvenile anadromous salmonids resulting from the existence and operation of the Wells Hydroelectric Project. The fish raised at these facilities are an important component in meeting the No Net Impact (NNI) survival requirements contained within the Wells HCP. The subject hatcheries raise spring Chinook,

summer/fall Chinook, steelhead, and rainbow trout. Spring Chinook and steelhead are listed as endangered and threatened under the federal Endangered Species Act.

Section 4.3.3 of the Wells HCP includes the requirement that Douglas PUD implement a control program to reduce the level of predation at Douglas PUD's two salmon hatcheries and in the tailrace and reservoir surrounding Wells Dam. Douglas PUD hires the USDA to employ various techniques to harass piscivorous birds at hatcheries and in the tailrace below Wells Dam. In the past, USDA has also conducted limited control activities on the Wells Reservoir.

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Existing avian harassment techniques include aerial pyrotechnics, propane cannons, and the physical presence of humans in the area. The USDA has also installed wires over the hatchery ponds and over the Wells Dam tailrace to deter piscivorous birds from feeding, and has installed electric fencing around the hatchery ponds to reduce the level of mammalian predation on hatchery fish. The Methow Hatchery rearing ponds are enclosed with canvas covers. The Methow Basin acclimation ponds are surrounded by cyclone fencing and are protected from avian predators through the installation of overhead wires.

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6.0 METHODOLOGY

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Fish Predation

Wells Hatchery, Methow Hatchery and USDA personnel will document observations of bird and mammal predation. Each bird or group of birds recorded will be identified by species, number, type of activity, time of observation and weather condition. Hatchery personnel will count and identify birds when they arrive in the morning and every 2 hours until they leave each night. USDA personnel will count and identify birds during their shifts when hatchery personnel are not available. Species name and number will be recorded along with raceway or pond number and time of day. Daily bird feeding information will be collected for one year. All evidence of piscivorous mammals near the ponds will also be noted. The bird sighting data will be compiled in a database.

¶ The relatively stable water levels have enhanced the riparian vegetation growing on land within and adjacent to the Wells Project. Douglas PUD owns and manages the land within the Project boundary. These lands are managed through Douglas PUD's Land Use Policy. One of the goals of the Land Use Policy is to sustain the existing natural systems on Project lands. The existing riparian community provides shade, cover, food and nesting habitat for numerous game and non-games species. Tree and shrubs along the reservoir also greatly reduces erosion from wind and wave action and enhance the general aesthetics of the reservoir. At designated recreation sites, trees provide shade and cover and therefore enhance the recreational experience within the Wells Project.¶

To make control methods more effective it must be determined which bird species cause the highest predation loss and when those losses are occurring. Due to their special status, raptors will be excluded from the study. Five birds of each species known to feed at the hatchery ponds and in the Wells tailrace will be collected. The esophagous, proventriculus and gizzard will be excised from the collected birds and food items removed. All identifiable food items will be collected, counted, weighed and recorded.

¶ The Terrestrial RWG requested Douglas PUD evaluate existing practices, and alternatives to inform future management decisions for the control of piscivorous birds and mammals at the hatcheries, as well as control of other nuisance wildlife such as beavers.¶

A literature review of life histories of all bird species known to feed at the hatcheries and in the tailrace, during the year, will be conducted. The life history information will include information on the number, size and weight of prey items identified at other salmon and trout hatcheries. Information on regional species population levels will also be compiled. The literature review will also be conducted on the current technology for hazing birds and excluding birds and mammals from hatchery raceways and ponds.

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The report will quantify the impact of bird and mammal predation on fish within the Wells Project and associated hatcheries. The report will also detail the control methods used, effectiveness of each method and literature reviewed. It will provide recommendations (with estimated cost) to reduce bird and mammal predation at the hatcheries, reservoir and tailrace.

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7.0 STAFFING AND EQUIPMENT REQUIREMENTS

A contractor will be hired to do the literature search for life histories and predation control methods. The contractor will also be responsible for determining the population status of known predators found throughout the Wells Project and associated hatchery facilities.

The staff of the Wells and Methow hatcheries and USDA staff will conduct bird counts as part of their daily work assignments.

The staff of the Wells and Methow hatcheries and USDA staff will document the presence of known piscivorous mammals. The collection of these data will be part of their daily work assignments.

The USDA staff will work with the contractor toward the collection of bird diet samples.

The report summarizing the results of the study will be written by the contractor.

8.0 BUDGET

Cost of the piscivorous bird and mammal study will be developed after approved by the RWG or before the document is inserted into the final PAD.

9.0 SCHEDULE

The field work related to this proposed study will be initiated after FERC's issuance of the Study Plan Determination in October 2007. An Initial Study Report will be provided to the Terrestrial RWG, stakeholders and FERC in October 2008 with a final report summarizing the processes of model development, analyses, and results by October 2009.

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The contractor will provide a detailed description of Douglas PUD's current methods for beaver control and will collect records of the number of beaver removed from Wells Reservoir in the past.

The contractor will conduct a literature review of methods to control beaver depredation on riparian vegetation on the Wells Reservoir.

The consultant will identify and document potential impacts of tree removal by beavers on ESA listed, sensitive and recreationally important species.

A report will be written summarizing potential control methods and will provide an estimate for the cost to implement each measure.

Draft

**PLANT AND WILDLIFE SURVEYS AND COVER TYPE MAPPING
FOR THE WELLS HYDROELECTRIC PROJECT 230 kV
TRANSMISSION CORRIDOR**

(TERRESTRIAL ISSUES 6.2.3.3 AND 6.2.3.4)

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). A Terrestrial Resource Work Group (RWG), which is composed of stakeholders and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Hydroelectric Project. The Terrestrial RWG, through a series of technical meetings, has identified the need for a study to assess the effects of the Project's 230kV transmission line and associated corridor on wildlife.

This proposed study is intended to fill the gaps in local knowledge of botanical resources, including rare, threatened and endangered (RTE) plants, invasive plant species, and vegetation communities within the 230-foot Wells Project 230 kV transmission line corridor. The study will also provide bird species presence, identify if bird collision, with the line and structures, is a problem and provide information on the extent of use and dependency on the transmission corridor by sage grouse (*Centrocercus urophasianus*) and sharp-tailed grouse (*Tympanuchus phasianellus*), both RTE species. Surveys will also be conducted for Washington ground squirrel (*Spermophilus washingtoni*), an RTE mammal, and visual surveys will be completed for striped whipsnake (*Contia tenuis*), an RTE reptile. The study plan outlines methods that will be used to collect information on these plants and animals.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned, and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas county (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

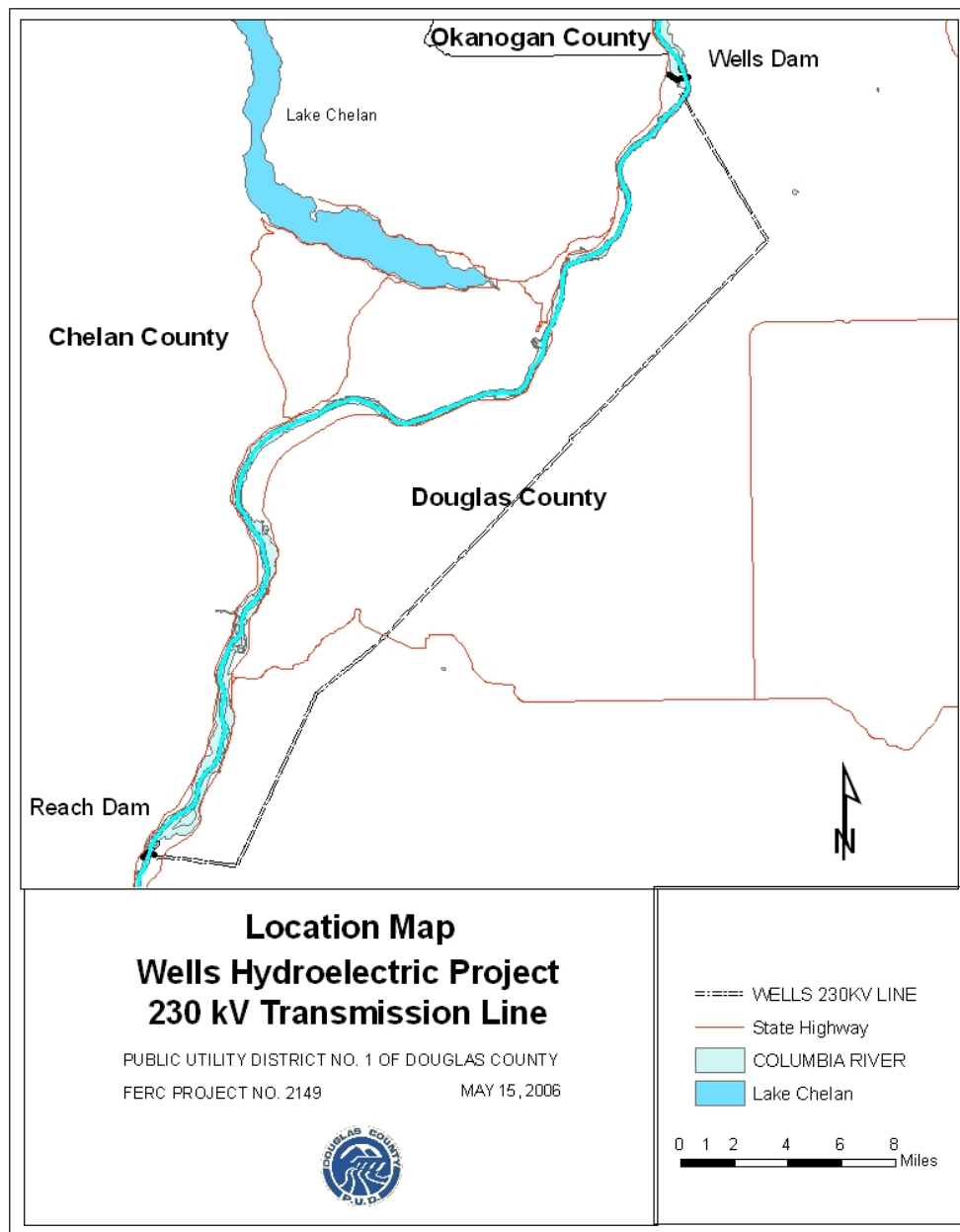


Figure 1.1-1 Location Map – Wells Dam 230 kV Transmission Line Corridor

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
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- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
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- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The overall goal of the wildlife and botanical surveys along the Project transmission lines is to provide information needed to inform land management decisions, avoid damage to valuable habitat during future transmission corridor management activities and minimize the spread of invasive weeds. The study will provide baseline data on birds found near the corridor and information on the presence of RTE plant or animal species in the corridor. In addition, this study will provide information needed to meet the FERC requirements during the Wells ILP. The study objectives are divided into botanical and wildlife resource categories.

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2.1 Botanical Resources

The main objectives of the botanical study are:

- (1) Identify RTE plant species that may reside within the transmission line corridor. RTE species are defined as listed rare, threatened and endangered, candidate or special status species (CFR 18.5.6 (vii)). In Washington State, the term RTE is typically defined to include the following species:
 - Federally listed as threatened or endangered;
 - Proposed for federal listing as threatened or endangered;
 - State listed as threatened or endangered;
 - State listed as sensitive plants.
- (2) Identify and classify the specific vegetation cover types in the study area.
- (3) Generate detailed information on the species composition and classification of these plant communities, and their structures.
- (4) Create a detailed GIS cover type map of the study area showing the locations of these plant communities, their distribution, areas of coverage (acres), and note locations of habitats of special of concern or unique areas observed.
- (5) Identify any infestations of invasive plant species on project lands. For this transmission line corridor study, invasive species are Washington State Class A and B-designate noxious weeds.

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2.2 Wildlife Resources

2.2.1 Avian

The main objectives of the avian study are:

- (1) Identify federal and state RTE avian species that may use the study area.
- (2) Document the presence of various avian species and provide relative abundance for birds using the study area.
- (3) Describe the habitat features used by RTE avian species.
- (4) Document raptor and corvid nesting and sharp-tailed and sage grouse use within the study area.
- (5) Document any evidence under the transmission line of avian collisions.

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2.2.2 Mammal

The main objectives of the mammal study are:

(1) Identify federal and state RTE mammal species that may use the study area.

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(2) Document the presence of Washington ground squirrels and jackrabbits and document their habitat use.

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(3) Document the presence of various mammal species in the study area.

2.2.3 Reptile

The main objectives of the reptile study are:

(1) Identify federal and state RTE reptile species that may use the study area.

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(2) Document the presence of various reptile species in the study area.

(3) Document the presence of striped whipsnake (*Masticophis taeniatus*) in the study area and document their habitat use, if observed.

3.0 STUDY AREA

Two 230 kV transmission lines connect Wells Dam with the Douglas switchyard next to Rocky Reach Dam (Figure 1.1-1). The transmission lines occupy a 230-foot corridor that is 41 miles long. The transmission lines begin at Wells Dam, cross the Columbia River from Carpenter Island in Chelan County to Douglas County. The transmission lines travel southeast to the Boulder Park area then turn southwest across wheat fields, past the town of Waterville and over Badger Mountain. The lines descend the west slope of Badger Mountain and end at Douglas Switchyard. The study area is the 230-foot transmission line corridor.

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Botanical Resources

The US Fish and Wildlife Service (FWS) maintains a list of all plants that are listed or proposed as threatened or endangered under the Endangered Species Act. In addition to the federal list, Washington Department of Natural Resource's Natural Heritage Program (WNHP) maintains a database on the known locations of federally listed and proposed, as well as state listed threatened, endangered, and sensitive plants in Washington. Historic rare plant information is also available at both Washington State University and University of Washington. Invasive plant species potentially occurring in the study transmission line corridor are available from the Washington State Weed Board and Washington State Extension Service.

4.2 Wildlife Resources

The FWS maintain a list of all wildlife listed or proposed as threatened or endangered under the Endangered Species Act. The Washington Department of Fish and Wildlife (WDFW) maintains a list of all wildlife species listed or proposed for listing under the Washington State Endangered Species Act. WDFW also maintains a list of sensitive species and a database with locations of all recorded sightings. Cassidy et.al. (1997) also provides species range information for all wildlife that may be found in the transmission line corridor.

4.3 Transmission Corridor Maintenance

Douglas PUD conducts an ongoing maintenance program on the 230 kV transmission corridor. Maintenance activities include noxious weed control at transmission corridor structures and along access roads in the spring and fall. Target weed species are primarily diffuse knapweed (*Centaurea diffusa*) and Dalmatian toadflax (*Linaria dalmatica*). Transline® herbicide is applied in the spring as a contact herbicide with a limited residual, and is also used for spot applications in the fall. Transline® is used because it has minimal impacts on native grass species and sagebrush shrub species. Douglas PUD releases the biological control insect *Calophasia lunula* to control Dalmatian toadflax. Weedar-64® and Curtail® are also used to control broadleaf weeds.

The maintenance program also includes an overall inspection for damaged roads or structures. Tower structures are inspected on foot or using a four-wheeled all terrain vehicles (ATV) with low pressure tires. At the request of land owners, maintenance roads were not constructed across approximately 25 miles of wheat fields, on the Waterville Plateau, when the transmission lines were built. Existing roads require periodic maintenance if there is damage to the road from storms or rock falls or if the road requires grading for repairs to the 230 kV lines.

4.4 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Terrestrial RWG collaboratively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study plan into the Wells PAD which addresses the need to collect baseline botanical information for the existing 230 kV transmission line running from Wells Dam to Douglas Switchyard.

This proposed study is intended to fill data gaps in local knowledge of botanical resources including RTE and invasive plant species. This study will also provide information on bird species presence, identify if bird collision is a problem and provide information on the possible use of the transmission corridor by sharp-tailed or sage grouse. The study will also provide information on Washington ground squirrel and striped whipsnake which are both RTE species, that have a range that overlaps with the study area.

4.5 Issue Statements

Issue Statement (6.2.3.3)

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Issue Determination Statement (6.2.3.3)

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The RWG agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence -- whether raptors, corvids and prairie grouse are found within or adjacent to the transmission corridor. A literature review will also be completed to specifically identify potential effects on raptors and prairie grouse.

Issue Statement (6.2.3.4)

Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Issue Determination Statement (6.2.3.4)

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by

Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

There is some existing information on botanical and avian resources in the study area as described below.

5.0 PROJECT NEXUS

The two Wells 230 kV transmission lines ~~were included in the FERC order issuing the Wells Project~~ license (issued: July 12, 1962). Exhibit K maps of the transmission line corridor transmitted copies of as build Exhibits J and K showing the route of the transmission line of the Wells Project 2149. FERC approved the Exhibit J and K drawings and amended the license by order (issued: January 5, 1979).

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The results of the RTE botanical and wildlife surveys will be used for Section 7 consultation under the ESA. Direct effects of the transmission corridor and/or maintenance of the corridor on RTE species or habitats are unknown. Ongoing maintenance of the transmission corridor could adversely affect RTE plants or wildlife, if any are present. The avian and botanical surveys will also be used to help ~~inform future corridor management activities and to determine whether~~ additional measures are needed to reduce the spread of noxious weeds and bird collisions.

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6.0 METHODOLOGY

The methods for conducting the botanical and terrestrial surveys described in the goals and objectives are each described below.

6.1 Botanical

6.1.1 RTE Plant Surveys

The surveys for RTE plants will comprise the following tasks: (1) pre-field review; (2) field surveys; and (3) documentation and mapping of results. Each task is described below.

6.1.1.1 Pre-field Review

The pre-field review task consists of developing a “target” list of RTE plant species to guide field surveys. The pre-field review task ~~will be~~ initiated by sending letters to the FWS and WHNP requesting the latest information on RTE plant species known to occur or potentially occurring in or near the Wells Project area. The target list of RTE species potentially occurring

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in the Wells Project area will be developed based on input from the FWS and WNHP. Information on habitat requirements, such as elevation, soils, and associated vegetation community, will be used to refine the list to those species most likely to be found in or near the Project area. This information will also be used to identify the habitats to be surveyed, with an emphasis on those that support RTE species with federal or state status as threatened or endangered. Botanists from the WNHP will also be asked for any additional information related to RTE species that may occur in the area.

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Prior to beginning field surveys, project botanists will review the morphological characteristics of target RTE plant species to develop a search image, which improves detection and recognition abilities. This process will include reviewing herbarium specimens and collecting information on vegetative, floral, and fruit characteristics for each target species and other species that are closely related or otherwise difficult to distinguish from the target RTE species.

6.1.1.2 Field Surveys

Surveys for RTE plants in the transmission line corridor will involve visually searching suitable habitat. RTE plant surveys will be conducted on foot using a random meander approach described in Nelson (1985). Surveys will be conducted by botanists experienced in conducting RTE plant surveys.

The RTE species on the target list will determine the habitats to be searched and the level of survey effort. Habitats with a high probability of supporting one or more RTE plants that are federally or state listed as threatened or endangered or that are candidate species for listing will receive thorough coverage. Habitats with a lower likelihood of supporting these species will be surveyed less intensively. Habitats that do not appear suitable for any RTE species will not be searched. RTE species that are state-listed sensitive plant species will be recorded and mapped when encountered, but surveys will not be focused on these species.

The timing of RTE plant surveys is critical to the success and validity of the survey. The number of surveys to be conducted in 2008 will be determined by the blooming period of each RTE plant species.

6.1.1.3 Documentation

RTE plants will be identified in the field using the Flora of the Pacific Northwest (Hitchcock and Cronquist 1973) and the Field Guide to Selected Rare Plants of Washington (WNHP 2004). A variety of sources will be utilized to verify tentative species identification including other floras, published papers, herbarium specimens, and consultation with appropriate taxonomic specialists. A list of all plant species identified during field surveys will be compiled and provided in the final report.

WNHP sighting forms will be completed for each RTE plant population found in the transmission line corridor. Data collected will include population size and area, phenology, habitat, slope, aspect, elevation, soils, and associated species. Factors affecting survival of RTE species (e.g., deer browse, disturbance, etc.) will be noted if applicable. The population locations will be mapped on survey maps and Global Positioning System (GPS) coordinates will

be collected to verify the mapped location. Photographs will be taken of the RTE plants and habitats where they are growing.

Population size for RTE species will be visually estimated (for large populations) or counted (for small populations). For large RTE plant populations (and with agency permission), a voucher specimen will be collected, pressed, and dried for deposition at the University of Washington Herbarium. Where collection poses a risk to the population, photographs will aid in verification by taxonomic specialists.

6.1.2 Invasive Species Surveys

The surveys for invasive plants will comprise the following tasks: (1) pre-field review; (2) field surveys; and (3) documentation and mapping of results. Each task is described below.

6.1.2.1 Pre-field Review

Invasive species surveys will be focused on plants listed in Washington State as Class A and Class B Designate weeds. Class A weeds are non-native species with a limited distribution in the state; eradication of all Class A weeds is required by state law. Class B weeds are non-native species whose distribution is limited to portions of Washington State and control requirements vary between counties. A list of weed species will be developed of all Class A and B weeds found in Douglas County. Prior to beginning field season surveys, botanists will review the morphological characteristics of Class A and B weeds to develop a search image, which improves detection and recognition abilities.

6.1.2.2 Field Surveys

Surveys for invasive plant species will be conducted in the transmission line corridor. These surveys will be conducted in conjunction with RTE plant surveys and field verification of the Vegetation Cover Type Map. Since many invasive species are easiest to see and identify later in the growing season, these surveys will be conducted in the June to August time period. All class A or B species will be mapped.

6.1.2.3 Documentation

Infestations of invasive species will be mapped on project maps and GPS coordinates will be collected to verify the mapped location. Each infestation will be mapped as accurately as possible, to a resolution of 0.1 acre. Data gathered for each infestation will include the estimated total number of plants and the aerial cover and density by cover by class, as developed by the North American Weed Management Association (NAWMA 2003): trace (T=<1%), low (L=1-5%), moderate (M=5.1-25%), and high (H=25.1-100%).

6.1.3 Cover Type Mapping

The vegetation mapping study will involve three phases of work. The first two phases will identify general cover types through photo interpretation and field verification. The third phase will be the production of the final cover type map.

6.1.3.1 Draft Cover Type Map

Douglas PUD received digitized color aerial photography of Douglas County from Natural Resources Conservation Service. The color digital orthophotos have a pixel resolution of one meter. Using these digital orthophotos, general vegetation types will be delineated by heads-up digitizing in ArcView Geographic Information system (GIS). Vegetation types and land use classifications will also be assigned.

6.1.3.2 Field Verification of Cover Type Maps

ArcView GIS will be used to generate field maps containing the color orthophotography and the cover type polygons. Preliminary maps of vegetation cover types will be verified in the field by a botanist. This work will be completed while conducting RTE and invasive plant surveys. Field verification will involve checking a subset of the boundaries of the cover type polygons and correcting the assigned cover type classification and reassigning correct classifications as needed. Corrections to the boundaries and cover type designations will be made directly on field copies of the maps.

Additional data will be collected during the field verification to describe the characteristics of each mapped cover type including species composition, stand structure, habitat quality and land use. Information collected will include:

- Plant species composition, including the dominate and more prominent associated species in each vegetation layer (tree, shrub and herbaceous layers);
- Structural data, including estimates of average heights and aerial cover of each vegetation layer;
- Predominant land use(s) associated with each cover type;
- Rare, unique and particularly high quality vegetation/habitat will be noted.

6.1.3.3 Preparation of Final Cover Type Map.

The contractor will use ArcView GIS to change any cover type polygons found to be in error during the field verification of the cover type map. The contractor will provide Douglas PUD with copies of all map products.

The contractor will be responsible for all equipment necessary to complete the field verification work.

6.2 Wildlife

Surveys to be conducted include spring and fall avian surveys, raptor and corvid nesting surveys and identify any RTE bird species present. A survey of sage grouse and sharp-tailed grouse use of habitat in the vicinity of the transmission line corridor will also be conducted. Surveys will also be conducted to identify mammals and reptiles present in the study area.

6.2.1 Avian Surveys

6.2.1.1 Field Surveys

Avian surveys will be conducted to gather data on bird species that use various habitat types in the vicinity of the Wells Project 230 kV transmission line corridor. Surveys will be conducted four times from the first of May through the end of June, which is considered the peak of breeding season in North Central Washington. Four fall surveys will be conducted from September to October to capture the variability of the fall avian migration.

Assessing avian use during the breeding season will involve the use of point count stations (Bibby et al. 1992, Ralph et al. 1995) and transects (Leukering et al. 2000, Altman and Bart 2001). Because of the high degree of ecological variability associated with “special species” which are those species that: (1) are in habitats that are not well monitored, (2) are too rare or erratic to be sampled effectively, or (3) have an ecology that is not conducive to standard methodologies (e.g., inconspicuous, colonial, nocturnal, low densities), Altman and Bart (2001) recommend using a combination of monitoring methods to gather occurrence and relative abundance data. Thus, a combination of point count stations and transects distributed throughout the study area will be sampled to maximize the probability of detecting the less common species as well as collecting adequate data on all species. This approach is termed a “point transect” (Altman and Bart 2001) and involves conducting standard 5-minute point count surveys at stations (Bibby et al. 1992, Ralph et al. 1995) and recording all detections of special species while walking routes between point count stations (Altman and Bart 2001). Point count stations will be a minimum of 820 ft (250 m) apart to avoid double-counting individual birds.

Avian surveys during the breeding season will take place between sunrise and 10:00 am (Altman and Bart 2001) and fall surveys will also start at sunrise and be completed by noon. Each bird detected via visual sighting or auditory call will be recorded, as well as the primary habitat type and the estimated distance from station center in 16 ft. (5 m) increments. All mammals or reptiles seen will also be recorded. Data will also be recorded to gather information on likely nesting or foraging behaviors or signs. Detections at point count stations will be divided into two time periods: 0-3 minutes and 3-5 minutes. For each detection made along survey transects, biologists will record species, number of individuals, habitat, and behavior. GPS will be used to document the point count and transect locations and to estimate the linear length of the transect survey. All biologists conducting the avian surveys will have expertise in auditory as well as visual identification of birds.

To provide a general description of the land surveyed, biologists will record habitat data at each survey station/transect. Habitat parameters will be estimated qualitatively and will include:

- Tree layer cover, height, and average diameter at breast height (DBH),
- Shrub layer height and cover,
- Herbaceous layer height and canopy cover,
- Snag and Large Woody Debris (LWD) abundance, and
- Dominant species.

Locations of avian survey stations and transects will be stratified based on: (1) study area zone, (2) vegetation cover type, and (3) adjacent land use immediately outside of the study area. The actual number of point-transects and point count stations will be determined following further review of aerial photography. However, based on study area size, it is anticipated that approximately 50-70 stations will be established along the point-transects, which will be distributed among the five study area zones in proportion to their relative land base and river length.

6.2.1.2 Analysis

All data will be entered into and stored in a database. Analysis of avian data will involve calculation of species richness and species relative abundance (number per station per survey period) for each of the five habitats and for the five study area zones. Data collected during the walking and boat transect portions of the surveys will be analyzed independently from the point count stations. ArcView GIS will be used to develop report maps that display survey locations and significant findings.

6.2.2 Prairie Grouse Surveys

6.2.2.1 Field Surveys

Grouse transects will be placed randomly within large continuous blocks of native habitat in the study area along the transmission line corridor. A biologist will walk the transect looking for indirect evidence (feathers and feces) of sage grouse or sharp-tailed grouse. All indirect evidence of grouse use will be recorded and feathers collected for verification. Geographic coordinates of the location of any grouse feathers or feces will be established with a GPS receiver and recorded for later mapping.

6.2.2.2 Analysis

All data will be stored in a database and mapped using ArcView GIS.

6.2.3 Raptor and Corvid Nest Surveys

6.2.3.1 Field Surveys

The raptor and corvid nest surveys will be conducted along the length of the transmission line corridor. A helicopter will be used during the surveys to search the transmission line lattice towers and the surrounding large conifer and deciduous trees, within 1/4 mile, for nests. The helicopter will travel at a speed that allows the observer to scan each tower and all the likely trees. The helicopters will remain far enough away from the nest to prevent the adults from

flushing. A biologist familiar with raptor and corvids nesting will accompany the pilot and conduct the nest surveys and record data. The survey will be conducted in late May.

6.2.4 **Mammal**

6.2.4.1 Field Surveys

Large mammals using the project area will be documented by recording visual observations or sign incidental to all field surveys (Call 1986). Washington ground squirrels are the only RTE small mammal with a species range that overlaps the study area. The presence of Washington ground squirrels will be determined by conducting walking surveys in suitable habitat and listening for alarm calls. The location where each alarm call was heard will be documented by GPS. All ground squirrel surveys will be conducted in the spring.

6.2.5 **Reptiles**

6.2.5.1 Field Surveys

The use of the study area by striped whipsnake and other reptiles will be documented by visual encounter surveys (VES). Surveys will be conducted in representative native habitat, within the study area. VES surveys will be conducted only during warm weather. The VES method involves searching habitat in a defined area, examining ground vegetation and under large objects (large rocks and woody debris) that may provide cover. A cover objects will be returned to their original position to avoid degradation of habitat. All reptiles will be identified without capturing them, if possible. If necessary, attempts will be made to capture individuals for identification, which will be followed by immediate release. All survey sites will be documented using GPS.

6.2.6 **Documentation**

Results of the surveys will be documented in a single report. The report will also summarize the methods used for each of the surveys. The results section of the report will include information on the wildlife species documented in the Project area. It will also include a matrix of wildlife species by habitat type and results of analyses of species richness and relative abundance. Maps of survey locations and the distribution of RTE species will also be part of the report. Two versions of a draft report will be produced for review prior to preparing the final report.

6.2.7 **Transmission Corridor Maintenance Program**

A description of the transmission corridor maintenance program will be prepared describing all routine maintenance activities. Potential impacts of the maintenance program to native habitat and RTE wildlife will be identified and summarized in the report.

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Results of the avian surveys will be documented in a single report. The report will also summarize the methods used for each of the surveys. The results section of the report will include information on the wildlife species documented in the Project area. It will also include a matrix of wildlife species by habitat type and results of analyses of species richness and relative abundance. Maps of survey locations and the distribution of RTE species will also be part of the report. Two versions of a draft report will be produced for review prior to preparing the final report.¶

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7.0 STAFFING AND EQUIPMENT REQUIREMENTS

The botanical and wildlife studies will require 1-2 botanists familiar with RTE plants in the study area and 1-2 wildlife biologists with experience with identifying avian species and in particular experience with sage and sharp tailed grouse scat and raptor nest surveys.

The contractors will be responsible to hire a helicopter for the raptor surveys.

The contractors will be responsible for all field data sheets, notebooks, binoculars, flora and other personal field equipment.

The contractors will be responsible for obtaining any permits required for the study.

8.0 BUDGET

No budget has been developed for this project.

9.0 SCHEDULE

Planning for plant surveys will begin shortly after the issuance of FERC's Study Plan Determination in October 2007, with a pre-field research to refine a list of potential RTE plants and invasive species. Applications for permits that may be required for the botanical studies will be sent in during late 2007. Plant collections in the University of Washington herbarium will be studied to develop a sight picture of the RTE plants. Botanical field work is scheduled between May and the end of August 2008 and is dependent on the time RTE species bloom.

Planning for the wildlife surveys will begin in late 2007 with the application for a Scientific Collection Permit from WDFW. The wildlife field studies will begin in May 2008 and continue through the end of October 2008.

An Initial Study Report will be provided to the Terrestrial RWG, stakeholders and FERC in October 2008 with a final report summarizing the study results provided by October 2009.

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Draft

**AN EVALUATION OF THE EFFECTS OF ACTIVE EROSION ON
WILDLIFE, BOTANICAL AND RTE RESOURCES
(TERRESTRIAL ISSUE 6.2.3.2)**

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WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). The Terrestrial Resource Work Group (RWG), which is composed of stakeholders and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Hydroelectric Project. The Terrestrial RWG, through a series of technical meetings, is proposing a study to assess the impacts of erosion on critical natural resource areas within the Wells Project.

The majority of Wells Project shoreline is stable and vegetated, while other areas have varying degrees of erosion ranging from areas where erosion is active, inactive or nearly stabilized. A portion of the observed erosion is likely to be Project-related and a portion is likely to be related to other causes including wind action, human activity and normal riverine processes. Douglas PUD has actively monitored shoreline erosion found within the Wells Project. Estimates of erosion potential and 50-year erosion projections have been developed for the entire Okanogan River portion of the Project and on specific sites found along the mainstem Columbia River. The most recent set of erosion projections have been used to identify areas along the reservoir that need to be acquired by the Douglas PUD in order to maintain appropriate rights for control of Project waters and shorelines.

The Terrestrial Resource Work Group developed a study to provide information needed to evaluate shoreline erosion impacts on critical wildlife, botanical, RTE and cultural resources and develop methods where appropriate to control erosion that threatens these important resources. This study will help inform the development of potential relicensing and land management decisions. The goals of the study are to:

- Identify important natural resource (wildlife, botanical and RTE) and cultural sites contained within the Wells Project boundary;
- Map and determine whether these sites are threatened by erosion;
- Distinguish active erosion areas from all other types of erosion;
- Identify potential impacts of erosion on critical natural resources (wildlife lands, RTE species, and sensitive botanical species and habitats) and National Register eligible cultural resources sites;
- Identify potential measures to address Project-caused impacts to natural and cultural resources, and evaluate the cost and benefit of each of the proposed remediation measures.

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1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

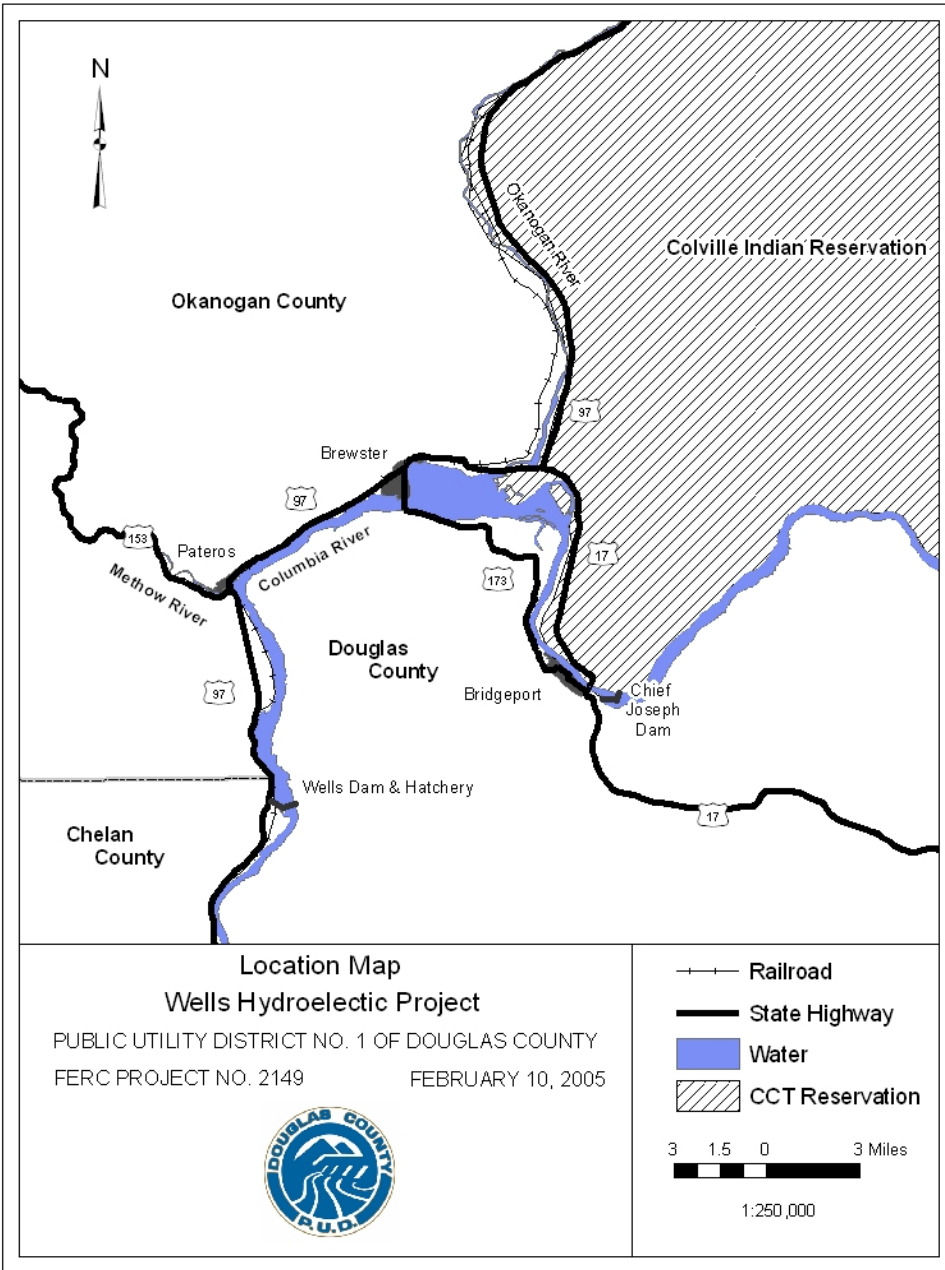


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goals of the study include:

- Identify important natural resource (wildlife, botanical and RTE) and cultural sites contained within the Wells Project;
- Map and determine whether these sites are threatened by erosion;
- Delineate active, project induced erosion from all other types of erosion at each site;
- Identify potential impacts of Project-caused erosion on natural resources (wildlife lands, RTE species, and sensitive botanical species and habitats) and National Register eligible cultural resources sites.

- Identify potential measures to address Project-caused impacts to natural and cultural resources, and evaluate the cost and benefit of each of the proposed remediation measures.

3.0 STUDY AREA

The study area encompasses the Wells Project reservoir and adjacent project related lands. Wells Dam is located at River Mile (RM) 515.8. The project extends 1.2 miles downstream of the dam. The Wells Reservoir extends 29.5 miles upriver to the Chief Joseph Dam tailwater and 15.5 and 1.5 miles upstream on the Okanogan and Methow rivers, respectively. The study area is located in Chelan, Douglas and Okanogan counties.

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Past and Current Activities

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion ranging from areas where erosion is active, inactive or nearly stabilized. Varying amounts of erosion of the Wells Reservoir banks have occurred throughout the reservoir perimeter since the Wells Project was constructed. The greatest amount of erosion has occurred along the left bank (looking downstream) of the Columbia River between Pateros and Wells Dam, on the left bank downstream from the Brewster Bridge, on the right bank downstream from the mouth of the Okanogan River and along the banks of the lower Okanogan River (Bechtel 1970).

Historically, Douglas PUD has addressed shoreline erosion on a case-by-case basis through a combination of shoreline erosion protection methods or through acquisition of the affected property. The shoreline along the railroad right-of-way, between Wells Dam and Brewster, was protected with rip-rap during construction of Wells Dam. Between 1967 and 1995, additional rip-rap was placed along the reservoir shoreline where erosion threatened to go beyond the existing Project boundary or when requested by adjacent land owners. No shoreline protection has occurred since 1995.

Douglas PUD has actively monitored shoreline erosion within the Wells Project. Estimates of erosion potential and 50-year erosion projections have been developed for the entire Okanogan River portion of the Project and on specific sites found along the mainstem Columbia River. These projections were developed by Jacobs, Inc. and GeoEngineers, Inc. The most recent set of erosion projections was used to identify areas along the reservoir that need to be purchased and brought into the Project boundary in order to maintain control over Project waters and shoreline.

4.2 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to

relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Terrestrial RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study to be conducted in the two year ILP study period to evaluate the impacts of active, project induced shoreline erosion on natural and cultural resources and to develop methods to limit the impact of project induced erosion on natural and cultural resources.

4.3 Issue Statement

Issue Statement (6.2.3.2)

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Issue Determination Statement (6.2.3.2)

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (avian, amphibian, reptile, and small mammal surveys).
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys).

There is no demonstrated impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005.

The resource work group has determined that a study is needed during the two-year ILP study period. A series of Project maps with RTE species, sensitive botanical cover-types, designated wildlife areas and National Register eligible cultural sites should be overlaid with known areas of active erosion. This comparison will determine whether erosion areas are having an adverse effect on these resources.

5.0 PROJECT NEXUS

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. Some of the observed erosion is project related (reservoir fluctuations) while erosion in other areas is not related to project operations (wind action and human activity). Most of the shorelines along the Wells Project appear to be stable. Any ongoing erosion appears to be progressing relatively slowly. Most eroding areas are gaining some protection from riparian vegetation and armoring by cobbles along the toe of eroding faces.

Erosion on the reservoir shoreline may have a number of causes. Wind driven waves build up over long fetches of open water, crashing into banks and sometimes overtopping the bank. Erosion can be caused by the wind, blowing sand across an open soil surface. Hydraulic pressure can also cause erosion when the reservoir is drawn down rapidly. Tractive forces on shorelines, caused by flowing water, are also a frequent cause of erosion particularly during flood flows. Erosion along the reservoir shoreline causes damage to shoreline vegetation and may deposit silt and debris into the reservoir.

6.0 METHODOLOGY

Step 1 – Identify Critical Natural Resource Areas

Douglas PUD will create a Geographic Information System (GIS) map layer depicting sensitive sites around the reservoir that could be impacted by erosion. Sensitive areas will include important wildlife habitats, designated wildlife areas, RTE plant or animal locations, or National Register eligible cultural resources. The consultant will utilize existing cover type mapping and RTE survey results (EDAW 2006a, EDAW 2006b), wildlife area designation maps from Douglas PUD, and cultural resources maps provided by Douglas PUD. Care will be taken to ensure that sensitive site locations will be kept confidential where appropriate.

Step 2 – Map and Characterize Erosion at Sensitive Sites

Douglas PUD has some erosion data for portions of the reservoir. Existing erosion data and erosion projection data for those areas identified in Step 1 as sensitive sites will be compiled.

After all existing information is mapped; a boat survey of sensitive sites will be conducted. Readily noticeable erosion sites will be marked on an aerial photograph (orthophoto) provided by Douglas PUD. Each end point will be recorded using hand-held Global Position System (GPS). The site will also be photographed.

Classification of sites will be relatively basic. Erosion sites will be classified as active, moderately active or inactive. If the erosion is active, more detailed information will be collected such as site length, material type, slope angle, degree of activity, vegetation characteristics, and other relevant observations. The source of the erosion (e.g. wave action, wind, development, etc.) shall also be assessed.

Step 3 – Assess Potential Impacts of Erosion on Sensitive Sites

The consultant will make a general assessment of whether sensitive sites are at risk from ongoing Project-caused erosion. Sites will be categorized in terms of the degree of risk to the sensitive site, based on the severity of erosion and potential threat to site features. Recommendations will be made regarding the need for remedial action, and potential options for remedial action will be identified.

Step 4 Identify Potential Measures to Address Impacts to Sensitive Sites

The consultant will identify potential measures to address Project-caused impacts to natural and cultural resource sites. This analysis will also include an evaluation of the cost and benefit of each of the proposed remediation measures and will propose alternative protection measures for each site.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

A contractor will be hired to compile the existing erosion data. The contractor will be responsible for conducting the erosion assessment and consolidating the available erosion data. The contractor will also be responsible for establishing a prioritized list of sites that threaten various natural and cultural resources. The contractor will also be responsible for designing alternative erosion control methods and writing the draft and final reports.

The contractor will be required to provide a boat and all equipment required to complete the field work.

8.0 BUDGET

A budget will be developed later.

9.0 SCHEDULE

The study will begin after the FERC's issuance of the Study Plan Determination in October 2007. Field work will be conducted in the spring or early summer of 2008. By October 2008, Douglas PUD will distribute the Initial Study Report to the Terrestrial and Cultural RWG, FERC and interested stakeholders. The final report will be available to the RWGs, FERC and stakeholders by October 2009.

10.0 REFERENCES

EDAW, Inc. 2006a. Cover Type Mapping, Rare Threatened and Endangered Plant Surveys and Invasive Plant Surveys. Report by EDAW, Inc. Consultants for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

EDAW, Inc. 2006b. Avian, Amphibian, Reptile and Small Mammal Surveys. Report by EDAW, Inc. Consultants for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

Action Items
Terrestrial Resources Work Group
Meeting 6 – July 20, 2006

1. Distribute PAD Section 6 outline to RWG members when finalized (Scott).
2. Enhance PAD Section 5 to include terrestrial effects from operations (Scott).
3. Talk to Steve Lewis regarding Methow River sediment flushing/toxins issue (Dan).
4. Remove references to federal species of concern in PAD (Brad).
5. Review the PHS List for nightsnake (Jim).
6. Email updated study plans to RWG, including erosion study plan with Tony's comments (Scott).
7. Provide copies of erosion reports to RWG (Jim).
8. Summarize existing erosion data for RWG 7 (Scott).
9. Quantify bitterbrush habitat at tract 4 (Jim).

**Letter to Douglas PUD from DAHP concurring with
Project Area of Potential Effect – July 24, 2006**



SK
file

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

July 24, 2006

Mr. Scott Kreiter
PUD No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, Washington 98802-4497

Log No.: 093005-12-FERC
Re: Wells Hydroelectric Project No. 2149

Dear Mr. Kreiter:

Thank you for contacting our department. We have reviewed the maps for the proposed Wells Hydroelectric Project No. 2149 in Douglas, Chelan and Okanogan Counties, Washington. Thank you for your description of the Area of Potential Effect (APE). We concur with the definition of the APE. We look forward to participating in your cultural resources protection efforts and learning of your consultation with the concerned tribes.

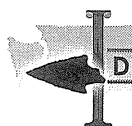
We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4) and the reports when they are available.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360)586-3080
email: rob.whitlam@dahp.wa.gov

cc: C. Pleasants



DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

Protect the Past, Shape the Future

RECEIVED

JUL 28 2006

DOUGLAS PUD

**Letter to BIA from Douglas PUD regarding
Section 106 Consultation – July 25, 2006**



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

Preston A. Sleeper
500 NE Multnomah Street
Suite 356
Portland, Oregon 97232-2036

July 25, 2006

Subject: Wells Project Relicensing – Section 106 Consultation

Dear Mr. Sleeper:

The current Federal Energy Regulatory Commission (FERC) license to operate the Wells Hydroelectric Project (FERC Project No. 2149) expires May 31, 2012. By law and by regulation, the Notice of Intent (NOI) to relicense the Wells Project and the Wells Pre-Application Document (PAD) must be filed with FERC between five and five and one-half years prior to the expiration of the FERC operating license. Public Utility District No. 1 of Douglas County (Douglas PUD) plans on filing the NOI and PAD with FERC in December of 2006, five and one-half years prior to the expiration of the existing FERC license.

By regulation, the newly formed Integrated Licensing Process (ILP) is the default licensing process and thus will be utilized for relicensing the Wells Project. In order to ensure that all of the timelines are met for the Wells Project ILP and to provide stakeholders a broader opportunity for interaction in this process, Douglas PUD has initiated consultation with interested parties on issues related to cultural resources and Section 106 of the National Historic Preservation Act.

By letter dated December 7, 2005, FERC granted permission to Douglas PUD to initiate Section 106 consultation on their behalf (enclosed). To date, three Cultural Resource Work Group meetings have been held which included the Colville Tribe, Washington Department of Archaeology and Historic Preservation, Bureau of Land Management, FERC and Douglas PUD. During the third meeting, it was suggested that Douglas PUD should invite the Bureau of Indian Affairs (BIA) to participate in the Section 106 consultation process. Following that meeting, we contacted Chuck James, who suggested that Douglas PUD send a letter to you regarding BIA participation in future cultural resource meetings.

Please consider whether or not your agency is interested in participating in future cultural resource meetings related to the relicensing of the Wells Project. If you have any questions or concerns regarding this notification, we encourage BIA staff to contact Scott Kreiter at scottk@dcpud.org or (509) 881-2327 for more information.

Sincerely,

Shane Bickford
Relicensing Coordinator

Enclosure

Aquatic RWG Meeting 7
August 29, 2006

From: Bao Le
Sent: Thursday, August 24, 2006 9:32 AM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Brad James; Bryan Nordlund; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Molly Hallock; Pat Irle; Shane Bickford; Steve Lewis; Steve Parker
Cc: Mary Mayo
Subject: Aquatic RWG Meeting #7
Attachments: Meeting Agenda Aquatics RWG 7.pdf

Aquatic RWG Members, attached is an agenda for the upcoming meeting on Tuesday, August 29th. The main objective of this meeting is to continue to work towards finalizing the proposed study plans that we would like to present to FERC as a group in our Pre-Application Document. To avoid overwhelming any of your servers, I've placed the draft study plans on the relicensing FTP site along with the issues and issue determination statements document. Below is a brief summary of where we are at with each document.....

1. **Adult Lamprey Passage Study:** This plan had minor edits but nothing substantive. It has been approved by WDFW and is near final.
2. **Lamprey Spawning Assessment Study:** This plan had no changes since RWG meeting #6. It has been approved by WDFW and is also near final.
3. **Lamprey Predation Study:** This plan had some changes related to presenting this study as a way to inform our existing predator control programs to better benefit lamprey. We are hoping that this language is more palatable for FERC. It has been approved by WDFW and is near final.
4. **Temperature Model Study:** This plan had minor edits but nothing substantive. It has been approved by Ecology and is near final.
5. **TDG Study:** This plan had minor edits related to the timing of a feasibility analysis. Changes were made based on comments from Pat Irle. Besides these edits, there were no substantive comments or changes. It has, for all intents and purposes, been approved by Ecology and is near final.
6. **Toxins Study:** This plan was developed in coordination with Bill Towey and Pat Irle. It proposes to address two issues: the human health concerns of fishing and recreational use in the Project boundary portion of the Okanogan River and an examination into whether Project operations contribute to the concentrations of toxins in waters entering the Wells Project area. This will be accomplished via fish tissue sampling and sediment sampling at select recreation sites and other sites just above and within Project boundary.
7. **DO, pH, and Turbidity Study:** **There is no plan currently available for this issue.** We are awaiting feedback from Pat Irle re: the scope of a future Ecology DO study in the Okanogan watershed. We hope to coordinate on sampling of DO if we can agree upon a level of sampling that meets Ecology's needs and is reasonable to the District.
8. **Issues/Issue Determination Statements Document:** This supplemental document is the source of all 7 draft study plans. It needs to remain consistent with language in the study plans and may have changes pending changes within individual study plans.

As always, below is information on how to access the FTP site. Please let me know if you will be attending this meeting either in person or by phone so that I can make the necessary arrangements. Feel free to give me a call if you have any questions. Thanks. Bao

FTP Instructions

Point your browser to <ftp://relicensingftp.dcpud.org>

User login: wellsftp

Password: Fishing (With a capital "F")

The FTP site is organized first by resource workgroup and then by meeting date, with a general supporting documents folder for each group.

Bao Le
Sr. Aquatic Resource Biologist
Douglas PUD
1151 Valley Mall Pkwy.

**Aquatic Resources Work Group
Wells Relicensing
Meeting #7 Agenda – August 29, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: 1. Continue to review draft proposed study plans towards finalizing documents for integration into the Pre-Application Document (PAD).

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: August 29, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:00 AM – 3:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #6	Bao Le
9:20	Review and discuss draft study plans. Primary focus will be on objectives and methods.	Group
12:00	Lunch - Douglas PUD will provide box lunches	Group
12:30	Continue study plan review.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited: Pat Irle, WDOE John Merz, WDOE Bryan Nordlund, NMFS Steve Lewis, USFWS Joe Miller, WDFW Bob Jateff, WDFW Carmen Andonaegui, WDFW Art Viola, WDFW Bob Rose, Yakama Nation	Bill Towey, Confederated Tribes of the Colville Reservation Jerry Marco, Confederated Tribes of the Colville Reservation Bao Le, Douglas PUD Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD Brad Hawkins, Douglas PUD John Devine, Devine, Tarbell, and Associates
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Aquatic RWG Meeting 7
Sign-in Sheet and Meeting Products

AQUATIC
SOURCE WORK GROUP
SIGN IN SHEET
AUGUST 29, 2006

[illegible]

Draft

**ADULT PACIFIC LAMPREY PASSAGE
AND BEHAVIOR STUDY (AQUATIC ISSUE 6.2.1.3)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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For copies of this study plan, contact:

Public Utility District No. 1 of Douglas County
Relicensing
Attention: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497
Phone: (509)884-7191, Ext. 2488
E-Mail: mmayo@dcpud.org

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Aquatic RWG, through a series of technical meetings, is proposing a study to examine the effects of the Wells Project and its operations on the migration of adult Pacific lamprey (*Lampetra tridentata*).

To perform this study, Douglas PUD will undertake a radio-telemetry study to assess migration and passage characteristics of adult lamprey migrating through Wells Dam. Adult lamprey will be captured in the fishways at Wells Dam during August and September 2008. All captured lamprey meeting specific size criteria will be tagged, and released at or below Wells Dam. A combination of fixed-station monitoring at Wells Dam will be used to determine migration and passage characteristics of these tagged fish.

A technical report summarizing the results of this study will provide the resource information needed to inform relicensing decisions related to adult lamprey passage through Wells Dam.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

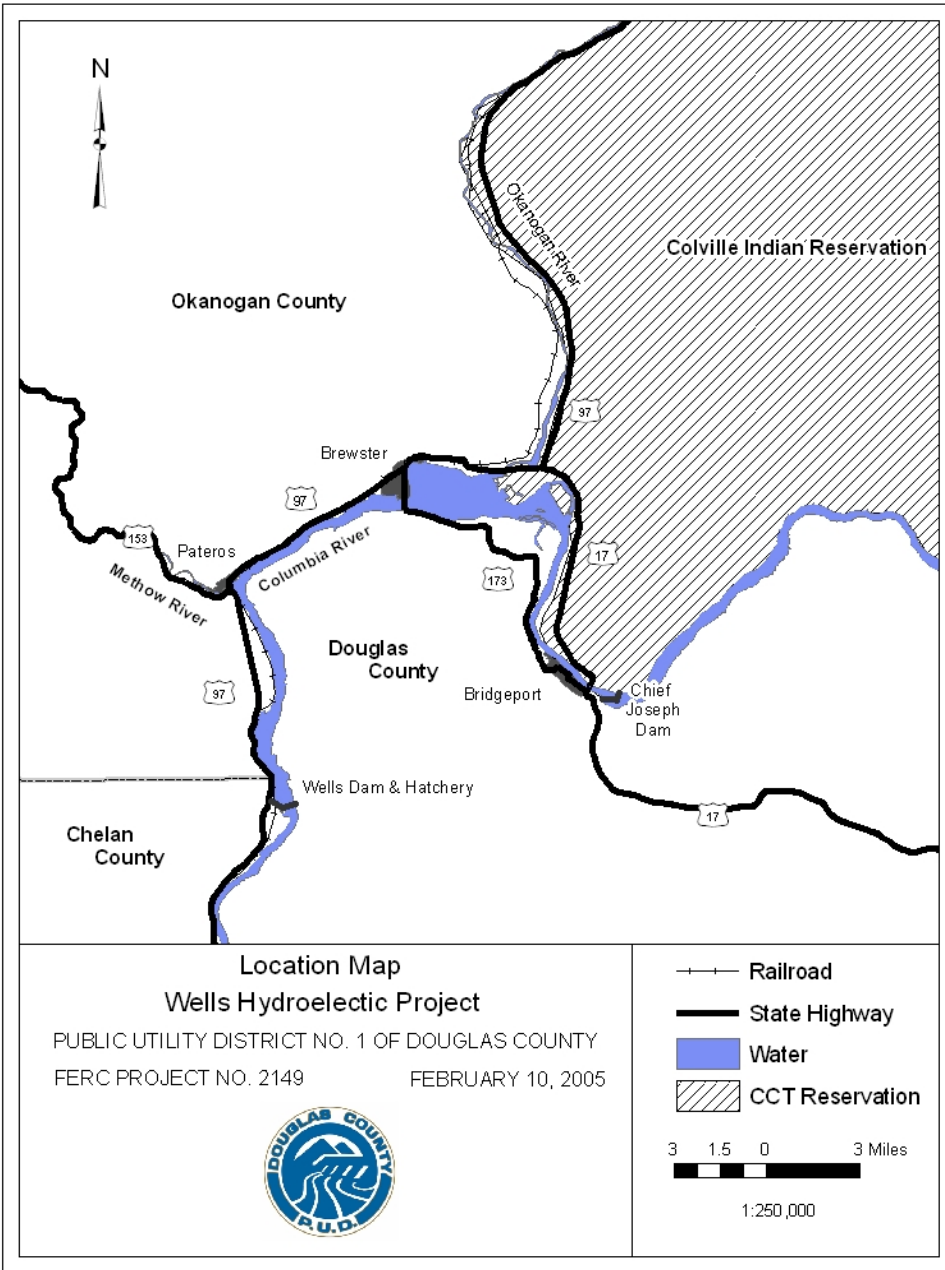


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to evaluate the effect of the Wells Project and its operations on adult Pacific lamprey behavior as it relates to ladder passage, timing, downstream passage events (drop back) through the dam and upstream migration. This information will be used to help identify potential areas of passage impediment within the Wells ladders.

Specific objectives of the study include:

- [Conduct a literature review of existing adult Pacific lamprey passage studies at Columbia and Snake river dams;](#)
- Identify methods for capturing adult Pacific lamprey at Wells Dam;

- Document the timing and abundance of radio-tagged lamprey passage through Wells Dam;
- Determine whether adult lamprey are bypassing the adult counting windows at Wells Dam;
- Where sample size is adequate, estimate passage metrics including fishway passage times and efficiencies, residence time between detection zones and downstream passage events (drop back); and
- If necessary, identify potential areas of improvement to existing upstream fish passage facilities for the protection and enhancement of adult lamprey at the Wells Project.

3.0 STUDY AREA

The study area includes Wells Dam, the Wells Dam tailrace, and the Wells Dam forebay (Figure 1.1-1).

4.0 BACKGROUND AND EXISTING INFORMATION

Pacific lampreys are present in most tributaries of the Columbia River and in the mainstem Columbia River during their migration stages. They have cultural, utilitarian and ecological significance in the basin since Native Americans have historically harvested them for subsistence, ceremonial and medicinal purposes (Close et al. 2002). As an anadromous species, they also contribute marine-derived nutrients to the basin. Little specific information is available on the life history or status of lamprey in the mid-Columbia River watersheds. They are known to occur in the Methow, Wenatchee and Entiat rivers (NMFS, 2002) and recently have been captured during juvenile trapping operations in the Okanogan River.

In general, adults are parasitic on fish in the Pacific Ocean while ammocoetes (larvae) are filter feeders that inhabit the fine silt deposits in backwaters and quiet eddies of streams (Wydoski and Whitney, 2003). Adults generally spawn in low-gradient stream reaches in the tail areas of pools and in riffles, over gravel substrates (Jackson et al. 1997). Adults die after spawning. After hatching, the ammocoetes burrow into soft substrate for an extended larval period filtering particulate matter from the water column (Meeuwig et al. 2002). The ammocoetes undergo a metamorphosis, between 3 and 7 years after hatching, and migrate from their parent streams to the ocean from October to April (Close et al., 2002). Adults typically spend 1-4 years in the ocean before returning to freshwater tributaries to spawn.

Pacific lamprey populations of the Columbia River have declined in abundance over the last 40 years according to counts at dams on the lower Columbia and Snake rivers (Close et al. 2002). Starke and Dalen (1995) reported that adult lamprey counts at Bonneville Dam that regularly exceeded 100,000 fish in the 1960's and more recently have ranged between 20,000 and 120,000 for the period 2000-2004 (DART- www.cqs.washington.edu/dart/adult.html).

Close et al. (2002) identified several factors that may account for the decline in lamprey counts in the Columbia River Basin. This includes reduction in suitable spawning and rearing habitat

from flow regulation and channelization, pollution and chemical eradication, reductions of prey in the ocean, and juvenile and adult passage problems at dams (Nass et al., 2005).

Returning adult Pacific lamprey have been counted at Wells Dam since 1998. Between the years of 1998 and 2005, the numbers of lamprey passing Wells Dam annually has averaged 401 fish and ranged from 73 fish in 1999 to 1,417 fish in 2003 (Table 4.0-1). The relatively small number of adult lamprey observed at Wells Dam can be attributed to fact that the Wells Project is the last passable dam on the mainstem Columbia River and the fact that the Wells Project is over 500 miles upstream from the Pacific Ocean.

Lamprey pass Wells Dam from early July until late November with peak passage times between mid-August and late October (Figures 4.0-1 and 4.0-2). In all years since counting was initiated, Pacific lamprey counts at the east fish ladder are greater than at the west fish ladder. It is important to note that historically, counting protocols were designed to assess adult salmonids and did not necessarily conform to lamprey migration behavior (Moser and Close 2003). Traditional counting times for salmon did not coincide with lamprey passage activity which occurs primarily at night; the erratic swimming behavior of adult lamprey also makes them inherently difficult to count (Moser and Close, 2003). Furthermore, Beamish (1980) noted that lamprey overwinter in freshwater for one year prior to spawning. Consequently, lamprey counted in one year may actually have entered the system in the previous year (Moser and Close, 2003) which confounds annual returns back into the Columbia River Basin. It is unknown to what degree these concerns are reflected in Columbia River lamprey passage data. However, it is important to consider such caveats when examining historic lamprey count data at Columbia River dams including Wells Dam.

Table 4.0-1 Adult Pacific lamprey counts at Wells Dam for east and west fish ladders, 1998-2005

	1998	1999	2000	2001	2002	2003	2004	2005
East Fish Ladder	173	47	96	153	226	723	263	148
West Fish Ladder	170	26	59	106	117	694	140	64
Total	343	73	155	259	343	1417	403	212

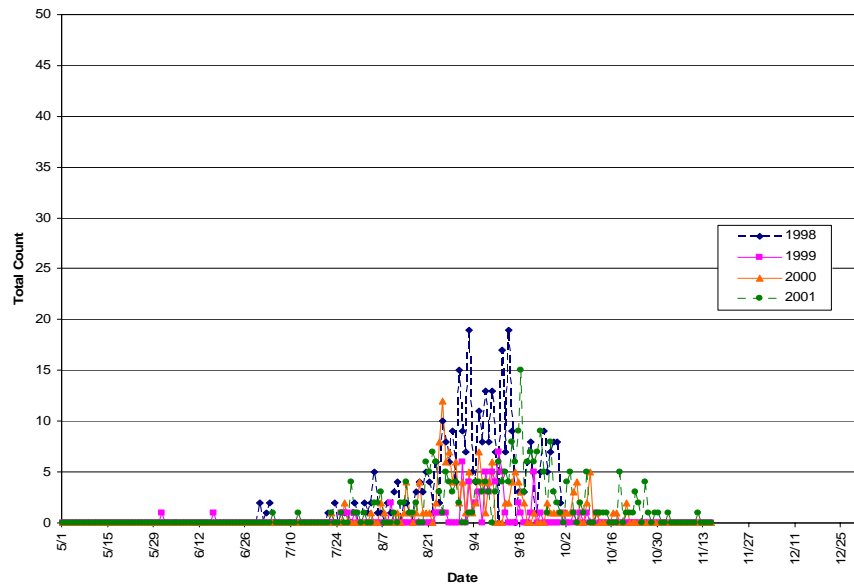


Figure 4.0-1 Daily counts of Pacific lamprey at Wells Dam during the fish counting season, 1998-2001.

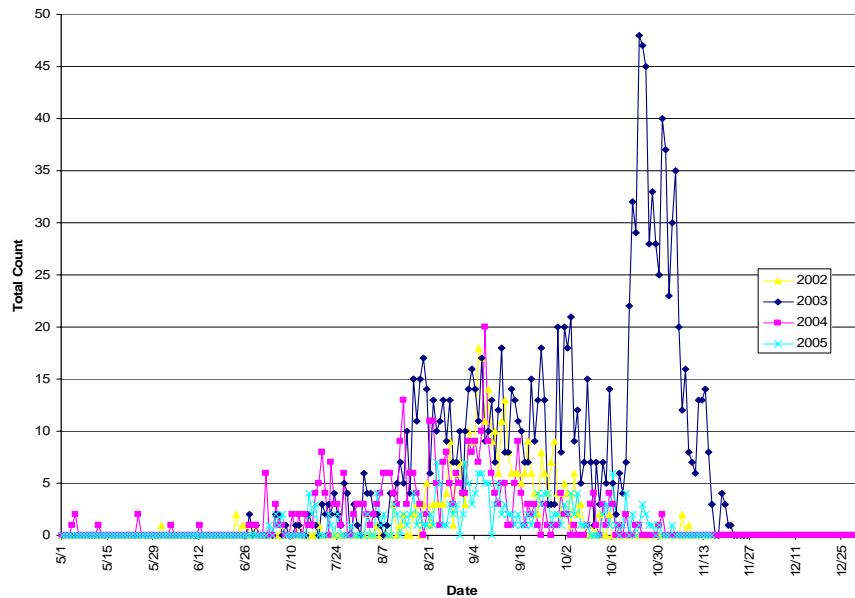


Figure 4.0-2 Daily counts of Pacific lamprey at Wells Dam during the fish counting season, 2002-2005.

Until recently, relatively little information was available on Pacific lamprey in the mid-Columbia River Basin. However, with increased interest in the species coupled with a petition for listing under the ESA, the mid-Columbia PUDs have started to initiate studies to address Pacific lamprey passage and migratory behavior in their respective project areas.

The study of adult Pacific lamprey migration patterns past dams and through reservoirs in the lower Columbia River has provided the first data sets on lamprey passage timing, travel times, and passage success at hydroelectric projects (Vella et al. 2001, Ocker et al. 2001, Moser et al. 2002a, Moser et al. 2002b). These studies have shown that approximately 90% of the radio-tagged lamprey released downstream of Bonneville Dam, migrated back to the tailrace below Bonneville Dam; however, less than 50% of the lamprey which encountered a fishway entrance actually passed through the ladder exit at the dam (Nass et al., 2005).

Similar collection and passage efficiency results were observed at Rocky Reach, Wanapum and Priest Rapids dams during tagging studies conducted at those projects (Nass et al., 2003; Stevenson et al., 2005).

Of the 125 radio-tagged lampreys released approximately 7 kilometers downstream of Rocky Reach Dam, 93.6% were detected at the project, and of those fish, 94.0% entered the fishway. Of the fish that entered the Rocky Reach fishway, 55.5% exited the ladder.

During studies at Wanapum and Priest Rapids dams in 2001 and 2002, a total of 51 and 74 lamprey were radio-tagged and released downstream of Priest Rapid Dam, respectively. Over the two years of study, the proportion of fish that approached the fishway that exited the ladders was 30% and 70% at Priest Rapids and 100% and 51% at Wanapum Dam in 2001 and 2002, respectively.

Two recent reviews of Pacific lamprey (Hillman and Miller 2000; Golder Associates Ltd. 2003) in the mid-Columbia River have indicated that little specific information is known on their status (Stevenson et. al., 2005).

In 2004, Douglas PUD contracted with LGL Limited to conduct a lamprey radio-telemetry study at Wells Dam in coordination with the Public Utility District No. 1 of Chelan County (Chelan PUD) who was conducting a similar study at Rocky Reach Dam. A total of 150 lamprey were radio-tagged and released at or below Rocky Reach Dam. The radio-tags used in this study had an expected operational life of 45 days (Nass et al., 2005). It is important to note that because of the release site of the fish was over 50 miles downstream of Wells Dam the value of the study was limited by the relatively small numbers of tagged fish observed at Wells (n=18) and the fact that many of the radio-tags detected at Wells Dam were within days of exceeding their expected battery life.

With that stated, the 2004 study at Wells was implemented through a combination of fixed-station monitoring at Wells Dam and fixed-stations at tributary mouths. Collectively, these monitoring sites were used to determine migration and passage characteristics of lamprey entering the Wells Project area. Of the 150 adult lamprey released at or below Rocky Reach in 2004, 18 (12% of 150) were detected in the Wells Dam tailrace, and ten (56% of 18) of these were observed at an entrance to the fishways at Wells Dam. Two of the 10 lamprey approached

both fishways to produce 12 total entry events. A total of 3 radio-tagged lamprey passed Wells Dam prior to expiration of the tags, resulting in a Fishway Efficiency estimate of 30% (3 of 10) for the study period. A single lamprey was detected upstream of Wells Dam at the mouth of the Methow River (Nass et al., 2005).

For lamprey that passed the dam, the majority (92%) of Project Passage time was spent in the tailrace. Median time required to pass through the fishway was 0.3 d and accounted for 8% of the Project Passage time (Nass et al., 2005).

Although the 2004 study at Wells provided preliminary passage and behavioral information for migrating adult lamprey, the limited observations due to the small sample size (n=18) is insufficient in addressing the objectives set forth in Section 2.0 with statistical confidence.

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meeting and discussions, the Aquatic RWG is proposing to include a study into the Wells PAD that would include a radio-telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration. The need for this study was agreed to by all of the members of the Aquatic RWG, including Douglas PUD. This study will help to inform future relicensing decisions and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Issue Statement (6.2.1.3)

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration.

Issue Determination Statement (6.2.1.3)

Work group members have determined that this issue has a tie to the Project as it relates to lamprey migration through Wells Dam. Preliminary passage information has been collected at Wells Dam; however, the sample size of the study was limited and additional information is needed. A radio-telemetry study would be feasible to address passage, timing, drop back and upstream migration. The results of an adult lamprey passage study would be useful during the development of PME measures.

The resource work group agrees that a radio-telemetry study to assess lamprey behavior as it relates to passage, timing, drop back and upstream migration should be conducted at Wells Dam during the two-year ILP study period.

5.0 PROJECT NEXUS

The Wells Project may affect adult Pacific lamprey behavior related to ladder passage, timing, drop back and upstream migration. This issue has a tie to the Project as it relates to lamprey migration through Wells Dam. Potential problems facing successful passage of adult Pacific lamprey at dams may be related to their unique method of movement and specific areas within fishways. Specifically, adult Pacific lamprey at other projects have experienced difficulty passing over diffusion gratings, areas of high velocity, areas of bright light and through orifices with squared, un-rounded edges. Typically, lamprey move through an adult fishway in a repeated series of motions consisting of attaching to the ladder floor with their mouths, surging forward, and re-attaching. The physiological response of adult Pacific lamprey to exhaustive exercise may be immediate, sometimes severe, but short-lived (Mesa et al. 2003). This may suggest that lamprey have difficulty negotiating fishways with high current velocities.

Two recent reviews of Pacific lamprey (Hillman and Miller, 2000; Golder Associates Ltd. 2003) in the Mid-Columbia River have indicated that little specific information is known on their status. The 2004 study at Wells Dam provided preliminary information into the migration characteristics of adult Pacific lamprey through Wells Dam. However, it is important to note that the study was compromised by the relatively small numbers of tagged fish observed at the Project (n=18) and the fact that many of the radio-tags detected at Wells Dam were within days of exceeding their expected battery life. Combined, these factors suggest that additional lamprey passage information is needed at Wells Dam.

The proposed lamprey radio-telemetry study will assist in providing the information needed as identified by the Aquatic RWG and will inform the development of future license requirements.

6.0 METHODOLOGY

6.1 Literature Review

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6.2 Study Period

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Adult Pacific lamprey will be collected, sampled and tagged at Wells Dam during the 2008 peak migration period of August and September. To address lamprey passage characteristics, fixed station telemetry monitoring in the Wells Project will occur from August through November 2008.

6.3 Capture, Tagging, and Release of Lamprey

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Radio transmitters that will be used during the study are Lotek NTC-4-2L and are similar to those used by NOAA Fisheries, the Public Utility District No. 2 of Grant County (Grant PUD) and Chelan PUD in recent years. The tags are designed for a 45-day operational life.

From August to September 2008, trapping at Wells Dam will target a total of 40 lamprey which will be released post-surgery directly into the Columbia River at two locations. Distribution of tagged lamprey will generally adhere to the following:

- 10 will be released in the Wells Dam fishway; and
- 30 will be released approximately 1 mile below Wells Dam in an area of reduced flow.

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6.4 Telemetry Array

6.4.1 Fixed Stations

The movement and passage of radio-tagged lamprey will be determined by combining detection data collected using underwater and aerial antenna arrays (dipoles and yagi antennas) at Wells Dam. The arrays are designed to monitor movements of radio-tagged lamprey from the Columbia River into the fishway entrances and through the exits at Wells Dam, and are also designed to detect downstream passage movements. Aerial antennas will be used in the tailrace, at remote stations on tributary mouths, and during mobile tracking. Underwater antennas will be used in the fishways. A total of 8 Lotek telemetry receivers, monitoring multiple arrays (6 at Wells Dam, 1 at Methow River, and 1 at Okanogan River) will be used during the study.

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6.4.2 Mobile Tracking

Mobile tracking will be conducted by boat in a 2 km reach of the river below Wells Dam. Tracking will be recorded using Global Positioning System (GPS) with a built-in data logger. Twin three-element aerial antennas will be mounted to a post and secured in the boat. Surveys will be conducted by transects running upstream and downstream in the river with the aerals pointed in opposite directions, and usually at each bank.

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6.4.3 Data Analysis

The data will be analyzed using *Telemetry Manager*, *Ascent* and other computer programs developed in Visual Foxpro by LGL Limited. In order to differentiate detection locations and streamline analyses, individual antennas will be grouped into "zones" that define pivotal areas of interest, such as individual fishway entrances and exits (Nass et al., 2005).

Telemetry Manager imports raw ASCII data files downloaded from the Lotek SRX receivers. After importing the raw files, *Telemetry Manager* constructs an initial database containing records for each logged data transmission from the tagged fish. *Telemetry Manager* then edits the database to remove records that do not meet the criteria identified for valid data records. Examples of invalid data include background noise at the Project, records with a signal strength that are below a given threshold, single records for a given fish-location combination, and records that were recorded before the official release time and date. After filtering the invalid records, *Telemetry Manager* constructs an operational database that summarizes the time of arrival and departure from each zone of interest ("benchmark times").

6.4.4 Definition of Passage and Residence Times

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Strategic deployment of receivers and antennas will make it possible to determine the amount of time that lamprey will be present in the tailrace, fishway entrances, and fishways. Passage times will be calculated from benchmark dates and times corresponding to the first and last detection of a given radio-tagged lamprey at specific locations. At Wells Dam, the benchmark times for lamprey that pass the Project will be:

- first detection in the tailrace,
- first detection at the fishway entrance of passage,
- last detection at the fishway entrance of passage, and
- last detection at the fishway exit.

From these benchmark times, passage times will be calculated for the following passage segments:

Segment	Time	Name
A)	1 to 2	Tailrace Passage time
B)	2 to 3	Entrance Passage time
C)	3 to 4	Fishway Passage time
D)	1 to 4	Project Passage time

From the benchmark times at each of the monitored locations, the passage times and passage efficiencies (proportions) will be calculated for each radio-tagged lamprey where,

Passage Efficiency for a section of the fishway =

No. tags at a fishway detection zone (above)/ No. tags at the fishway zone (below), or

No. tags at a fishway detection zone / No. tags at an entrance.

It then follows that:

Fishway Efficiency = No. of tags at an exit / No. of tags at an entrance.

The metrics described above provide a method to evaluate the extent of upstream movement in the fishways. Note that the telemetry array at Wells Dam does not include underwater antennas outside of the fishway entrances to determine when lamprey approach the fishway; antennas will be only located inside the fishway and therefore constitute an entrance to the fishway rather than an approach. This is an important distinction from other studies (e.g., Moser et al. 2002b and Nass et al. 2003) where detections on antennas external to the fishway (approaches) are used as a basis to calculate overall passage efficiency at the dam. Therefore, this particular metric can not be calculated for Wells Dam. However, the other metrics presented above are consistent with those of other studies and can be used for comparative purposes.

In addition to the above standard passage segments, a detailed analyses of the time lamprey spent in and between detection zones (i.e., residence time) in the Wells Dam fishways will be conducted.

The primary residence time analyses include:

- Entrance – at the entrance (first to last detection),
- Between the Entrance and Upper Collection Gallery (last detection to first detection),
- Upper Collection Gallery - the first vertical wall in the fishway (first to last detection),
- Between Upper Collection Gallery and Fishway Transition (last detection to first detection),
- Fishway Transition – first section of orifice weirs which are usually inundated with water depending on the water elevation in the tailrace (first to last detection),
- Between Fishway Transition and Below Trap (last detection to first detection),
- Below Trap - just downstream of the adult trapping facility (first to last detection),
- Between Below Trap and Above Trap (last detection to first detection),
- Above Trap – mid-point in series of orifice weirs between the trap and the video station (first to last detection),
- Between Above Trap and Below Video (last detection to first detection),
- Below Video – just downstream of the video station (first to last detection),
- Between Below Video and Above Video (last detection to first detection),
- Above Video – just upstream of the video station (first to last detection),
- Between Above Video and Exit (last detection to first detection), and
- Exit- fishway exit to forebay (first to last detection).

The residence and passage times for each radio-tagged lamprey will be determined by working backwards through a sequence of detections. The fishway of ultimate passage and the respective passage time is determined by identifying a sequence of detections in the ascent of a fishway, starting with detections in a fishway exit zone.

6.4.5 Definition of Downstream Passage Events and Drop Back

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For the purpose of analysis, a downstream passage event is defined as a tag that is detected at a fishway exit and subsequently detected in the tailrace or a fishway entrance without any detections at antennas monitoring the inside fishway zones. Drop back fish will be defined as

those tags in a fishway detection zone that are subsequently detected in zones directly downstream in the fishway.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

LGL Limited, a consulting firm located in Ellensburg, WA has been identified as the most likely contractor to conduct the proposed study. LGL Limited has expertise in all phases of radio-telemetry studies (design, implementation, data collection and analysis, equipment maintenance and reporting) for various fish species at mid-Columbia River hydroelectric projects. From implementation of past studies at Wells Dam, LGL is familiar with the Wells Project including the Wells Dam fishway structures, operations, and staff. LGL is currently conducting a radio-telemetry study at Wells Dam as part of the 2005-2008 Wells Bull Trout Monitoring and Management Plan and was the firm responsible for conducting the 2004 Wells Dam Lamprey Study and the 2002-2004 Wells Bull Trout Radio-telemetry Study.

Due to ongoing radio-telemetry studies at Wells Dam, the monitoring equipment necessary to complete the study will already be in place and operational for the 2008 study. Tags will be purchased by the contractor prior to the study. The level of effort and necessary staff time to conduct all phases of the study will be identified by LGL in consultation with the Aquatic RWG.

Incidental take consultation for ESA listed steelhead and bull trout will need to take place prior to the study. We suggest that this can be expedited through consultation with the HCP Coordinating Committee and associated agency representatives for the USFWS and NMFS. HCP Coordinating Committee members will be provided an opportunity to comment on draft trap designs and on the operation of the lamprey traps which will need to be installed prior to the study.

A Washington State Collector's Permit will be required to collect adult lamprey for the proposed study. LGL Limited will be responsible for securing this permit prior to study implementation.

8.0 BUDGET

Study costs for implementation of the study will be provided by the contractor after review and approval of the proposed study plan by the Aquatic RWG.

9.0 SCHEDULE

Activities related to the fabrication of trapping equipment and attainment of a scientific collector's permit will begin shortly after the issuance of FERC's Study Plan Determination in October 2007. The field portion of the study will be conducted from August to November 2008. During this time period, an Initial Study Report detailing the progress of the ongoing study will be provided to FERC, stakeholders, and members of the Aquatic RWG in October 2008.

All data collected during the field portion of the study will be analyzed and detailed in a technical report provided by the contractor to Douglas PUD. A draft report will be available for

review by the Aquatic RWG by March 31, 2009. A final report will be provided to stakeholders and FERC by October 2009.

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Draft

**AN ASSESSMENT OF ADULT PACIFIC LAMPREY SPAWNING
WITHIN THE WELLS PROJECT (AQUATIC ISSUE 6.2.1.2)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Aquatic RWG, through a series of technical meetings, is proposing a study intended to examine the effects of Wells Project operations on adult Pacific lamprey (*Lampetra tridentata*) habitat, specifically spawning habitat.

Currently, the information available in the mid-Columbia River on adult Pacific lamprey addresses only their migration through hydroelectric projects. No studies have been conducted to examine the presence of spawning within a Project area and further whether Project operations impact lamprey spawning.

The study proposes to identify sites within the Wells Project where suitable spawning habitat may be available through an analysis using Geographic Information Systems (GIS). These sites will be field verified for suitability prior to the implementation of a field study. The field study will consist of spawning surveys throughout the lamprey spawning period (typically May to July) in 2008. If spawning activity is observed, an analysis will be conducted to examine whether Wells Dam operations have an effect on lamprey spawning habitat.

A technical report summarizing the results of this study will be produced to help fill the information gap identified by the Aquatic RWG. The results of the study will assist the Aquatic RWG in future Wells Project relicensing decisions.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

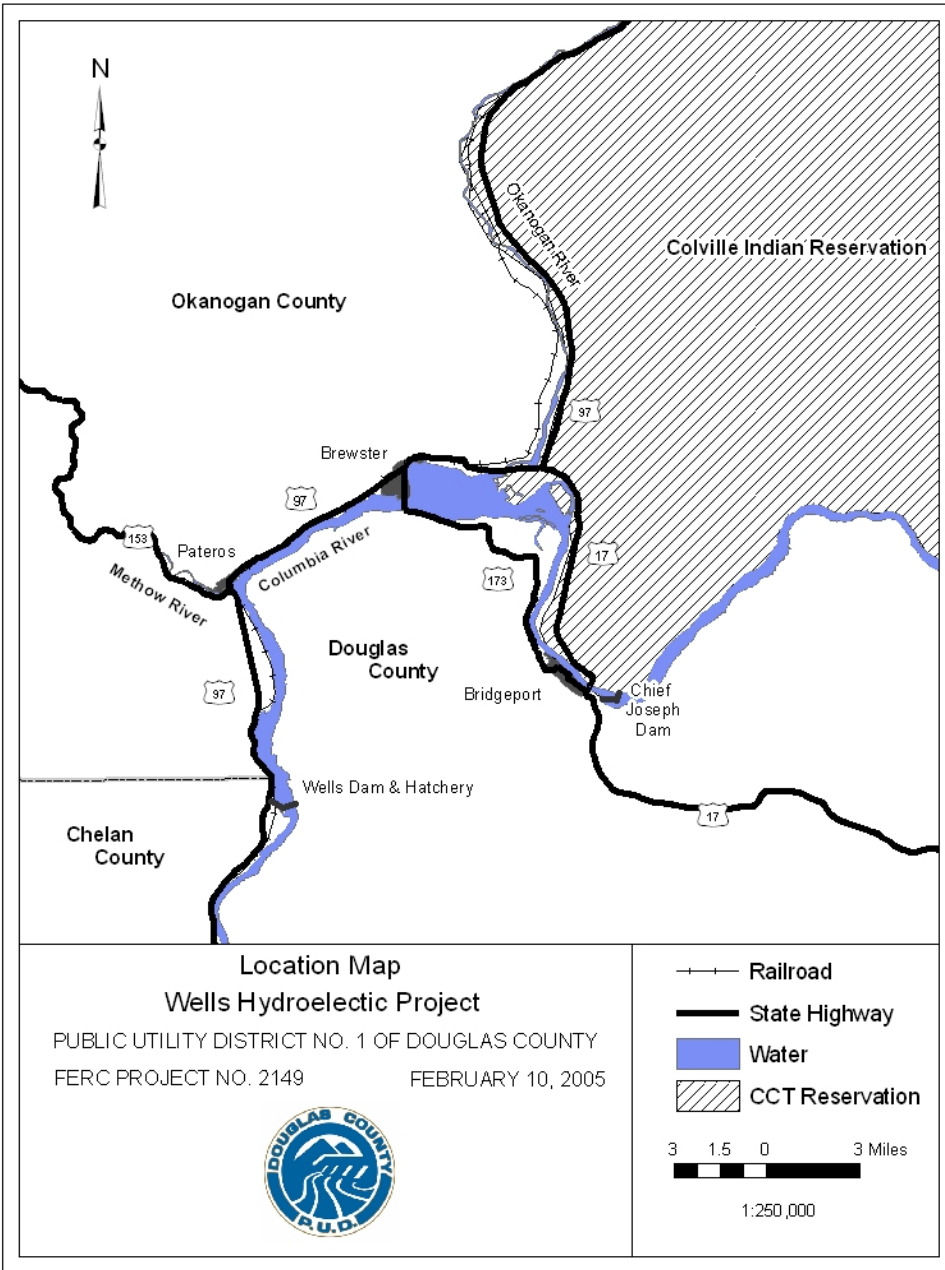


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The primary objective of this study is to assess the level of spawning activity by adult Pacific lamprey in the Wells Project and whether Wells Dam operations are affecting this activity.

Specific objectives of the study include:

- Identify areas within the Wells Project where suitable spawning habitat may exist for adult Pacific lamprey,
- Survey these areas of spawning habitat for use by lamprey to confirm suitability, and
- Assess whether the operations of Wells Dam are having adverse effects on these spawning areas (i.e., dewatering, flow alterations, scour, etc.).

3.0 STUDY AREA

The study area is defined as the waters within the Wells Reservoir and Wells Tailrace. This consists of the mainstem Columbia River upstream of Wells Dam to the tailrace of Chief Joseph Dam, and the Okanogan (to RM 15.5) and Methow (to RM 1.5) rivers within Project boundary (Figure 1.1-1).

Comment [B1]: Add Wells Tailrace to other areas in the study plan (if needed).

4.0 BACKGROUND AND EXISTING INFORMATION

Pacific lamprey are present in most tributaries of the Columbia River and in the mainstem Columbia River during their migration stages. They have cultural, utilitarian and ecological significance in the basin since Native Americans have historically harvested them for subsistence, ceremonial and medicinal purposes (Close et al., 2002).

Pacific lamprey are cartilaginous, jawless, anadromous fish that develop morphologically and physiologically in three primary stages. First, lamprey begin as larvae that hatch after approximately 19 days at 15°C (Close et al., 2002). After hatching, they remain a larvae (also known as ammocoete) for 4 to 6 years (10-200 mm body length). Ammocoetes reside burrowed in fine sediment (Close et al. 2002) during this time filter feeding on diatoms, algae, and detritus by pumping water through their branchial chamber (Beamish and Levings, 1991). Lamprey then enter a transformation phase (ocean-migrating macrophthalmia) and migrate from their parent streams to the ocean. Pacific lamprey transform from ammocoetes to macrophthalmia from July to November (Hammond, 1979 and Close et al., 2002). During transformation, the shape and angle of the head and mouth changes, and the gut develops to allow consumption of flesh and fluids (Hart, 1973). The macrophthalmia migrate to the ocean between late fall and spring and are physiologically capable of handling life in salt water. They spend 1 to 4 years as adults feeding as external parasites on marine fish and mammals before returning to freshwater to spawn (Beamish, 1980 and Close et al., 2002).

Upstream migrating Pacific lamprey are likely heading to tributaries or mainstem holding and/or spawning areas to over-winter. Though their exact timing likely varies among locations, upstream migration has been documented to cease in mid-September (Beamish, 1980), and resume in mid-March of the following spring if the final spawning destination has not been reached (Bayer et al., 2001). Somewhat like salmon, adult lamprey dig depressions in the gravel of freshwater streams. Spawning occurs in the spring and early summer (May to July) following the upstream migration year (Lê et al., 2004). Lamprey prefer low-gradient reaches, with gravel-pebble-sand substrate for spawning (Mattson, 1949 and Close, 1995). Adults generally spawn in low-gradient stream reaches in the tail areas of pools and in riffles, over gravel substrates (Jackson et al., 1997). Lamprey die after spawning (Hart, 1973).

Pacific lamprey populations of the Columbia River have declined in abundance over the last 40 years according to counts at dams on the lower Columbia and Snake rivers (Close et al., 2002). Starke and Dalen (1995) reported that adult lamprey counts at Bonneville Dam that regularly exceeded 100,000 fish in the 1960's and more recently have ranged between 20,000 and 120,000 for the period 2000-2004 (DART- www.cqs.washington.edu/dart/adult.html).

Close et al. (1995, 2002) identified several factors that may account for the decline in lamprey counts in the Columbia River Basin. This includes reduction in suitable spawning and rearing habitat from flow regulation and channelization, pollution and chemical eradication, reductions of prey in the ocean, and juvenile and adult passage problems at dams.

Little specific information is available on the life history or status of lamprey in the mid-Columbia River watersheds. They are known to occur in the Methow, Wenatchee and Entiat rivers (NMFS, 2002) and recently have been captured during juvenile trapping operations in the Okanogan River above Project boundary. In the mid-Columbia River basin, available information exclusively addresses adult lamprey passage and behavior through hydroelectric projects via radio-telemetry studies and dam counts (Nass et al., 2003 and 2005; Stevenson et al., 2005). Similarly in the Wells Project, adult passage information is available through a preliminary radio-telemetry study (Nass et al., 2003) and counts at Wells Dam (since 1998). Currently, no studies have been conducted on adult Pacific lamprey related to spawning within the Wells Project.

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these discussions, the Aquatic RWG is proposing to include a study plan into the Wells PAD to determine whether adult Pacific lamprey are spawning within the Wells Project and if so, whether the operation of Wells Dam is affecting this habitat. The need for this study was agreed to by all of the members of the Aquatic RWG, including Douglas PUD. This study will help to inform future relicensing decisions and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Issue Statement (6.2.1.2)

The Wells Project may affect adult Pacific lamprey habitat use.

Issue Determination Statement (6.2.1.2)

There were two types of habitat identified by the group (spawning and overwintering habitat). It is unlikely that there is a Project effect on adult lamprey overwintering habitat. Literature suggests that overwintering habitat for adult Pacific lamprey consists of deep pools. In the Wells Reservoir deepwater habitat is plentiful and undisturbed by Project operations.

There is no information currently available related to adult lamprey spawning habitat within the Wells Project. Existing literature (Beamish) suggests that adult lamprey prefer smaller tributaries that are characterized by suitable spawning substrate and velocities (pool-tailouts, large gravel to small cobble substrate, depth of 1 meter). This type of habitat is generally not available within the Wells Project.

Adult Pacific lamprey spawning has not been documented within the Wells Project; however, there may be areas within the Wells Project that may have marginal spawning habitat for adult Pacific lamprey.

The resource work group agrees that a study to determine whether adult lamprey are spawning within the Wells Project and if so, whether the operation of Wells Dam is affecting this habitat. This study should be conducted during the two-year ILP study period.

5.0 PROJECT NEXUS

Two recent reviews of Pacific lamprey (Hillman and Miller, 2000 and Golder Associates Ltd., 2003) in the mid-Columbia River have indicated that little specific information is known on their status. Within the Wells Project waters, no studies have been conducted to address the level of spawning that may be occurring and whether Project operations affect lamprey spawning habitat. Pacific lamprey spawning has been observed in the Lower Columbia River from May to July (Lê et al., 2004) and habitat preferences consist of the tail-outs of pools and riffles over gravel substrate (Jackson et al., 1997). This type of habitat is characteristic of the upper reaches of tributary streams in the mid-Columbia River system, however within the Wells Project boundary, there may be patches of habitat meeting these criteria. If adult lamprey are utilizing these areas of suitable habitat, it is important to assess whether Wells Project operations have any adverse effects on these areas during periods of lamprey spawning. Potential adverse effects attributed to Project operations may include flow fluctuations or dewatering of lamprey nests. The proposed lamprey spawning study will assist in filling the information gap identified by the Aquatic RWG and in the development of licensing requirements for the Wells relicensing process.

6.0 METHODOLOGY

Implementation of the study will consist of three separate components:

- The use of detailed bathymetry, high resolution orthophotographic information, and knowledge of Douglas PUD staff to identify areas within the Wells Project that are consistent with spawning habitat requirements of Pacific lamprey (Beamish, 1980),

- Conduct spawning surveys of these identified potential spawning areas when the probability of adult lamprey spawning is highest (May to July), and
- If spawning is observed, assess whether Wells Dam operations affect habitat in such a way to adversely impact spawning or spawning success.

In order to develop a map of sites that may be suitable for lamprey spawning, an analysis utilizing a Geographic Information System (GIS) will be conducted. A GIS will be used to integrate bathymetric data and high resolution orthophotography to better refine potentially suitable spawning areas within the Wells Project. This information will be coupled with the knowledge of Douglas PUD staff to identify suitable spawning habitat. A map will be produced identifying the areas within the Wells Project that consist of depths (approximately 1 meter), habitat type (low gradient riffles and pool-tailouts), and substrate (large gravel) typical of lamprey spawning habitat. Sites on this map will be field verified prior to field surveys to ensure that the identified habitat is consistent with the spawning requirements of adult lamprey.

Foot and boat surveys of the potential spawning areas will occur, beginning in May, 2008 or when flows allow. All field sites will be visited once a week by two field biologists with training in Pacific lamprey nest identification. Physical characteristics of nests will be measured, including: habitat type (riffle, pool-tail out, run, pool), nest dimensions, substrate (dominant, sub-dominant and % fines), and flow. If applicable, presence of adults on the nest will be noted as well as number and sex of fish. When possible, locations of each nest will be recorded with global positioning system (GPS) technology. Nests will be marked with weighted flagging to determine nest longevity and to avoid counting nests twice upon subsequent surveys. Weighted flags will be removed on subsequent surveys if the nest no longer appears viable. Lamprey in the lower Columbia River basin typically spawn from May to July and as such, spawning ground surveys will be conducted in the Wells Project during this time period. If activity continues to be observed past this period of time, spawning surveys will continue at the identified reaches until no activity is observed.

If spawning is observed in any of the identified reaches, an assessment of the Wells Project operations and its potential effects on these areas will need to be conducted. This portion of the study will be integrated into the spawning surveys and will likely be conducted between May and July 2008 with analysis and report preparation taking place prior to October 2008. A combination of GPS locations of observed lamprey nests, detailed bathymetry of the spawning reach, historical river flow information and typical Wells Project operations during this time period can be used to develop a backwater curve to assess the likelihood of nest dewatering or scour events induced by Project operations and the magnitude of this effect to spawning lamprey.

Facilities and equipment necessary to complete the habitat assessment portion of the study will consist of a computer with GIS software and the associated data sets. Field equipment consisting of flow meters, staff gauges, waders, GPS unit, camera, flagging, and weights will be required to conduct the spawning surveys. Use of vehicles and possibly motorboats will also be necessary to access possible survey sites. If an assessment of Project effects is required, access to current and historical databases of river flow, Project operations, and data collected during the field surveys will be necessary to assess whether Wells Project operations affect spawning lamprey.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Douglas PUD will provide the necessary equipment and staff to conduct all phases of the study based upon discussions with the Aquatic RWG regarding specific study design and study needs.

The technical skills necessary to complete the study are knowledge of Pacific lamprey life history and general biology, biological sampling methods including nest identification, data acquisition and management, GPS and GIS technology, hydrologic modeling (if necessary), and motor boat operation and safety.

No permits are required to complete the study.

8.0 BUDGET

Study costs for implementation of the study will be provided by the contractor after review and approval of the proposed study plan by the Aquatic RWG.

9.0 SCHEDULE

Planning for this study will begin shortly after the issuance of FERC's Study Plan Determination in October 2007, with an initial analysis of potential spawning areas in the Wells Project. Results of this analysis will be used to develop the field survey portion of the study which is scheduled to take place between May and July 2008. Results of the 2008 spawning survey will be provided to the Aquatic RWG and filed with FERC in the form of an Initial Study Report due in October 2008. A final report will be provided to FERC and stakeholders by October 2009.

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Draft

**AN INVESTIGATION INTO THE TOTAL DISSOLVED GAS DYNAMICS
OF THE WELLS PROJECT (ISSUE 6.2.1.5)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). As part of the Wells relicensing process, Douglas PUD is required to obtain a water quality certificate in accordance with section 401 of the Clean Water Act. The Washington State Department of Ecology (WDOE) is responsible for the issuance of a 401 certificate as well as administering the state's Water Quality Standards. As part of the 401 certification process, WDOE must determine that the Wells Project is in compliance with state water quality standards for total dissolved gas (TDG).

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (including WDOE) and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Aquatic RWG, through a series of technical meetings, is proposing a study intended to further examine the TDG production dynamics at the Wells Project. The specific objectives of this study are contingent upon the results from TDG studies scheduled for 2006 and 2007.

TDG may become a water quality concern when gases supersaturate a river, lake or stream. The plunging water caused by spill at hydroelectric facilities may elevate TDG to levels that result in impaired health or even death for aquatic life residing or migrating within the affected area. Since 2003, Douglas PUD has been engaged in the assessment of TDG production dynamics at Wells Dam.

In spring of 2006, Douglas PUD examined whether or not operational scenarios (i.e. spill shaping) were able to minimize TDG production to a level that is capable of meeting the Washington State water quality standard for TDG production at Wells Dam during high flows up to 7Q10 flows (246 kcfs at Wells Dam). The 7Q10 flow is defined as the highest average flow which occurs for seven consecutive days in a once-in-ten-year period. At 7Q10 flows and above, water quality standards for TDG do not apply. Preliminary results of the study (EES et al., 2006) suggest that at 7Q10 flows specific operating scenarios that concentrate spill flows (crowned spill and full gate shapes) produce significantly lower levels of TDG in the Wells Dam tailrace. Further analysis of the data will provide a logical framework in which to base decisions focusing on the scope of continued TDG activities (i.e., more spill studies, modeling,) at Wells Dam during the 2-year ILP study period. Contingent upon the results of the 2006 and 2007 TDG studies, additional research into TDG at Wells Dam may or may not be needed.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam (Figure 1.1-1).

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

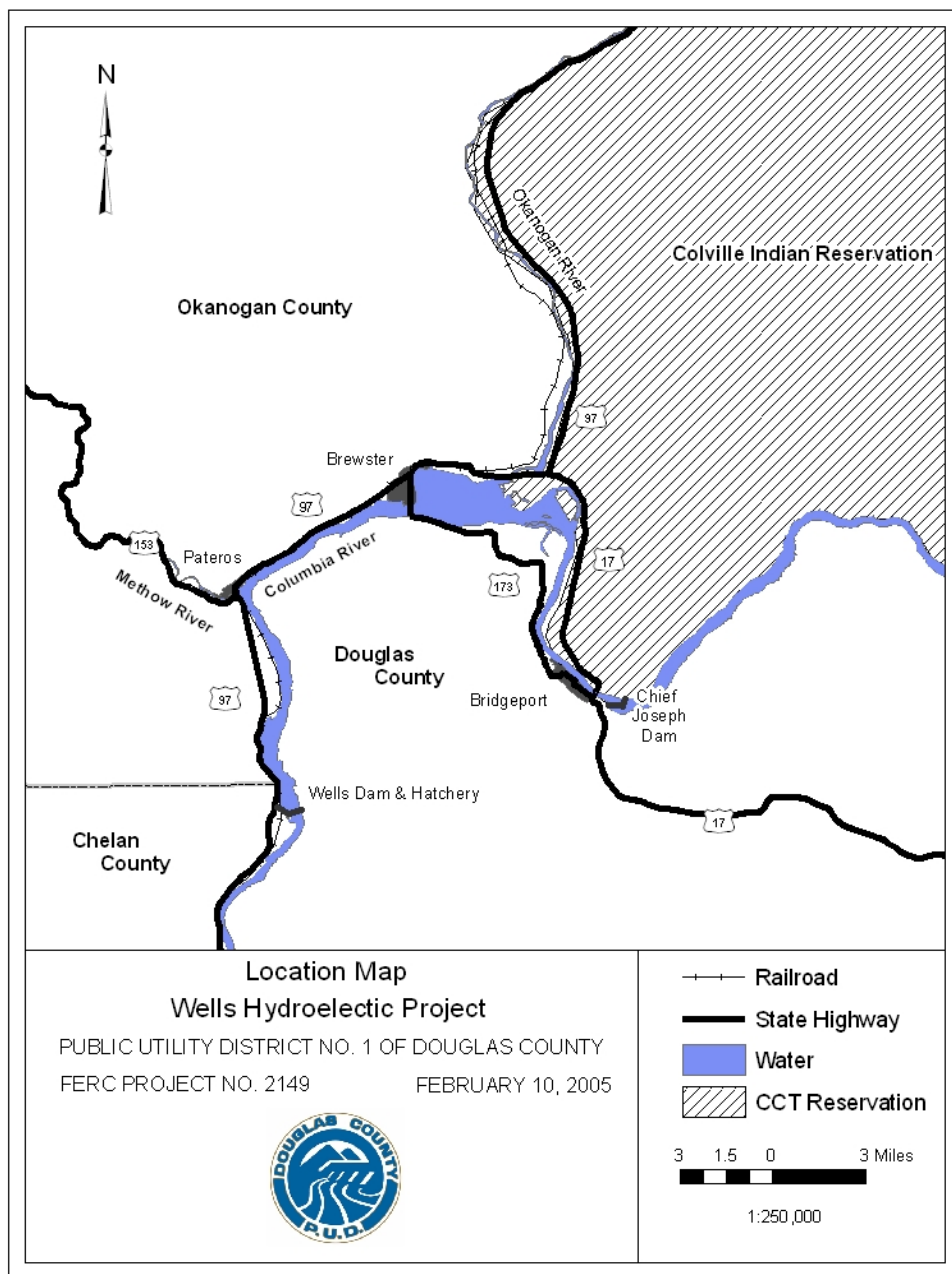


Figure 1.1-1 Location Map of the Wells Project.

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of the study is to better define the relationship between spill operations at Wells Dam and resultant downstream total dissolved gas pressures and, if needed, identify possible measures to improve operational performance related to TDG.

The Washington State Department of Ecology (WDOE) is the agency responsible for administering the State Water Quality Standards and for the issuance of 401 water quality certificates for hydroelectric relicensing processes in Washington. The information gathered from this study will assist WDOE in determining the extent to which a Project's spill operations affect TDG in excess of the specified numeric criteria. This determination will also assist

WDOE in the development of an implementation schedule as it applies to the 401 certification process.

3.0 STUDY AREA

The study area will consist of Wells Dam (RM 515.8) including the Wells Dam forebay and tailrace area. Additional total dissolved gas (TDG) information may be collected in the Rocky Reach forebay (Figure 1.1-1).

4.0 BACKGROUND AND EXISTING INFORMATION

WDOE has established water quality standards in an effort to protect the beneficial uses of State water and water bodies. The Washington standards include both numeric and narrative criteria. The narrative standards address beneficial uses that include, but are not limited to, the ecological significance of water quality to aquatic biota. The importance of water quality to the health of rare, threatened, and endangered populations is also described in the narrative standards.

Dissolved gasses in water occur when gases in the atmosphere come into contact with water and when biological activity, such as photosynthesis or respiration, place metabolized gases into solution. Optimal water quality conditions of dissolved gas for fish are considered to be close to the barometric pressure seen at the air-water interface. Dissolved gas may become a water quality issue when gasses supersaturate a river, lake or stream (Klinge 2005). Plunging water may cause an increase in total dissolved gas of a body of water as air bubbles become entrained, pushed to depth and forced into solution due to increased pressure. This phenomenon occurs naturally at waterfalls or artificially at dams. Spill at hydroelectric projects occur when river flows exceed the hydraulic capacity of the dam due to limited generation capacity or a lack of demand for power. Hydroelectric dams on the Columbia River also provide safe passage routes for migrating juvenile salmonids through spill. High levels of TDG have been shown to cause air embolisms (gas bubble trauma) in fish that result in impaired health or even death. Many variables contribute to dissolved gas supersaturation, including existing forebay gas concentrations, spill flow rates, tailwater bathymetry, air entrainment, spill plunge depths, entrainment flows, and temperature of the water (Klinge 2005).

Based upon the Washington state water quality standards developed by WDOE, TDG measurements shall not exceed 110 percent at any point of measurement in any state water body. However, water quality standards for TDG do not apply during natural flood flow conditions. Natural flood conditions are defined as any event which exceeds the highest flow that occurs for seven consecutive days in a ten-year period. These natural flood condition flows are termed 7Q10 flows.

In addition to allowances for natural flood flows, dams on the Columbia and Snake rivers, have an exception to the 110 percent TDG standard to allow for passage of juvenile fish downstream over the dams rather than through the turbines through the issuance of a waiver by WDOE. On the Columbia and Snake rivers there are three separate standards. First, in the tailrace of a dam, TDG shall not exceed 125 percent as measured in any one-hour period. Further, TDG shall not

exceed 120 percent in the tailrace of a dam and shall not exceed 115 percent in the forebay of the next dam downstream as measured as an average of the 12 highest consecutive hourly readings in any one day (24-hour period). This exception is based on a risk analysis study conducted by National Marine Fisheries Service (NMFS). The study weighed the benefits of spilling water to assist juvenile salmon in avoiding turbine mortalities against the mortalities of fish exposed to harmful levels of dissolved gas.

Starting in 1998 Douglas PUD initiated a rigorous TDG monitoring program at Wells Dam including the installation of forebay and tailrace fixed station sensors and regular maintenance and calibration of the two stations. Since initiating the monitoring program, a more accurate description of the TDG dynamic at Wells Dam has been developed. During normal fish bypass operations (7-11% spill of total discharge), TDG values in the immediate Wells tailrace are only elevated above ambient levels by 1-2%. The fish bypass spill equation for Wells Dam indicates that for every 4% of water spilled, TDG values are elevated above ambient conditions by one percent (Klinge, 2001, 2002, 2003, 2004 and 2005).

In order to gain a better understanding of the TDG generation dynamic at Wells Dam, Douglas PUD has recently initiated a series of assessments aimed at gaining a better understanding of TDG production dynamics resulting from spill operations at Wells Dam. The District undertook studies to evaluate spill at Wells Dam during the 2003 and 2004 fish passage seasons (CBE 2003 and 2004). Both studies employed an array of data loggers arranged in a grid throughout the Wells Dam tailrace. The studies indicated that the tailrace fixed monitoring stations exhibited a delayed response to operational changes by Wells Dam when compared to mid- and upstream locations. Despite this delay, averages of the twelve highest daily TDG saturations (the compliance measure used by the State of Washington) varied little between stations.

The 2003 study also attempted to determine the fate of powerhouse released water by comparing upstream and downstream volume weighted TDG saturations. The results of these efforts were limited by the range of tested flow conditions, but implied that the TDG pressures of powerhouse released water may have been influenced by spillway operation. The 2004 study generally supported previous findings, indicating that Wells Powerhouse released water was gassed by spilled water.

In 2005, Douglas PUD initiated several spill tests to examine the relationship between water spilled over the dam and the production of TDG (CBE, 2006). The two objectives of the study were to determine the degree to which Wells Powerhouse released water is influenced by spillway operation, i.e., dilution or absorption and to explore ameliorative operational scenarios to reduce TDG production. A variety of scenarios were examined during this spill study, including spill over loaded and unloaded units and flat versus crowned spill configurations. Due to the low snow pack experienced during the 2005 water-year, only low and medium spill volumes were examined (spill Q was between 34 and 50 kcfs with total river Q between 106 and 178 kcfs).

In spring of 2006, Douglas PUD examined TDG production at Wells Dam during high flows up to 7Q10 flows (246 kcfs at Wells Dam) and whether or not operational scenarios (i.e. spill shaping) were able to minimize TDG production to a level that is capable of meeting the

Washington state water quality standard for TDG. Preliminary results of the study (EES et al., 2006) suggest that at 7Q10 flows, specific operating scenarios that concentrate spill flows (crowned spill and full gate shapes) produce significantly lower levels of TDG in the Wells Dam tailrace. Further analysis of the data will provide a logical framework in which to base decisions focusing on the scope of continued TDG activities (i.e., more spill studies, physical modeling, computational fluid dynamics model, etc.) at Wells Dam.

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Aquatic RWG is proposing to include a study plan into the Wells PAD which addresses the expected need for continued investigations into the TDG dynamics of the Wells Project. This study will help to inform future relicensing decisions through the 401 water quality certification process and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Finalized Issue Statement (Issue 6.2.1.5)

Wells Dam may affect compliance with Total Dissolved Gas (TDG) standards in the Wells tailrace and Rocky Reach Forebay.

Final Issue Determination Statement (Issue 6.2.1.5)

Wells Dam can have an effect on compliance with the TDG standard. The resource work group believes that additional information is necessary in the form of continued monitoring and that these data will be meaningful with respect to 401 Water Quality Certification. Douglas PUD has been implementing studies at Wells Dam to address TDG production dynamics. The need for future studies during the two-year ILP study period (2008-2009) is dependent upon TDG studies scheduled for 2006 and 2007.

5.0 PROJECT NEXUS

TDG may become a water quality concern when gases supersaturate a river, lake or stream. The plunging water caused by spill at hydroelectric facilities may elevate TDG to levels that result in impaired health or even death for aquatic life residing or migrating within the affected area.

The WDOE is responsible for the protection and restoration of the state's waters. WDOE has adopted water quality standards that set limits on pollution in lakes, rivers, and marine waters in order to protect water quality. On July 1, 2003, WDOE completed the first major overhaul of the state's water quality standards in a decade. A significant revision presented in the 2003 water quality standards classifies fresh water by actual use, rather than by class as was done in the 1997 standards. These revisions were adopted in order to make the 2003 standards less complicated to interpret and provide future flexibility as the uses of a water body evolve.

Congress passed the Clean Water Act in 1972, and designated the US Environmental Protection Agency (EPA) as the administering federal agency. This federal law requires that a state's water quality standards protect the surface waters of the US for beneficial uses, such as recreation, agriculture, domestic and industrial use, and habitat for aquatic life. State water quality standards, or amendments to these standards, do not take regulatory effect for the purposes of the Clean Water Act until they have been approved by EPA. EPA is currently reviewing the water quality standards adopted by the State of Washington in 2003 and partial approval has occurred. Full approval is expected before Douglas PUD files its license application (2010) and Section 401 certification is issued (2012). Due to this, the 2003 standards, as they apply to temperature in the Wells Project, will be used.

The new water quality standard for TDG for the Columbia River at a hydroelectric project is:

- Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.

However, as discussed in Section 4.0, an exception to the above standard is allowed through the issuance of a TDG waiver by WDOE. The information resulting from continued activities associated with TDG at Wells Dam will assist the Aquatic RWG in the development of licensing requirements through the 401 water certification process.

6.0 METHODOLOGY

Given that TDG assessments at hydroelectric projects are often a multi-year, stepwise approach where future actions are based upon knowledge gained from past studies, Douglas PUD's future actions with regards to TDG production at Wells Dam will be dependent upon the information collected during the 2006 and 2007 spill studies. Based upon the results of these studies and based upon discussions with the Aquatic RWG, Douglas PUD will implement one or more of the following predetermined studies. Currently, there are several different studies that may be implemented pending the results of the 2006 and 2007 studies:

Option 1 If the 2006 and 2007 studies results show that Wells Dam can maintain TDG levels below the levels specified by the TDG waiver issued by WDOE at flow levels at and below the 7Q10 flow of 246 kcfs (120% in the tailrace and 115% in the Rocky Reach forebay), given that incoming TDG levels also meet these parameters, Douglas PUD will include this information in its 401 water quality certificate application to demonstrably support that it is able to meet the state water quality standard for TDG. In this case, no additional TDG studies are needed to inform the development and approval of the 401 water quality certificate.

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Option 2 If the 2006 study results show that Wells Dam cannot maintain TDG levels below the levels specified by the TDG waiver issued by WDOE, during flow levels that are at or below the 7Q10 flow of 246 kcfs (120% in the tailrace and 115% in the Rocky Reach forebay), provided that incoming TDG levels also meet these parameters, Douglas PUD, in cooperation with WDOE, will begin working on strategies, within an adaptive management framework, towards compliance of the TDG state standard. These adaptive management strategies will begin during the 2008-2009 relicensing study period and may include:

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2a. If results of the 2006 and 2007 studies show that specific Wells Dam operations at or below 7Q10 flows produce TDG levels within a reasonable deviation (120% + 2%) of WDOE's TDG waiver, Douglas PUD, in cooperation with the Aquatic RWG and FERC, may conduct the following studies:

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1. Develop and implement a TDG model for the Wells Project. The output of the model will be used to determine whether compliance with the water quality standard can be achieved through strictly operational means.

If the models shows that compliance can be achieved through operational means, Douglas PUD will initiate additional spill tests at the Project, utilizing lessons learned from the model, toward verifying compliance with the TDG standard.

If the model shows that compliance cannot be achieved through operational means, Douglas PUD will initiate activities specified in 2b.

2b. If results of the 2006 and 2007 studies show that specific Wells Dam operations at or below 7Q10 flows produce TDG levels that are considerably above WDOE's TDG waiver by more than 2%, then Douglas PUD, in cooperation with the Aquatic RWG and FERC, may conduct the following studies:

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1. Develop and implement a hydraulic model(s) to address possible operational and/or structural solutions toward compliance with the TDG standard.

If the hydraulic model shows that compliance can be achieved through operational and/or structural solutions, Douglas PUD will conduct a feasibility analysis to evaluate the cost of the measures and the potential

negative impact on existing fish passage and survival. If a reasonable and feasible measure is identified from this exercise, Douglas PUD will implement and test this measure toward compliance with meeting the standard.

If there are no reasonable and feasible operational and/or structural modifications that can improve or meet TDG levels specified by the TDG waiver, issued by WDOE, Douglas PUD *may* initiate biological monitoring to determine whether excess TDG in the Wells tailrace is having a meaningful impact on species found downstream of the Project, as part of a [Use Attainability Analysis \(UAA\)](#) or site-specific study.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Based upon results of the 2006 and 2007 TDG studies and based upon discussions with the Aquatic RWG regarding study design and study needs, Douglas PUD will begin acquiring the necessary field equipment and/or the assistance of consultant services to complete the study. Existing Wells Dam infrastructure and planned operational scenarios will also be necessary for study implementation and will be coordinated between consultants and Wells Project staff.

The technical skills necessary to complete the study are knowledge of water quality monitoring instrumentation, field techniques consistent with WDOE's preliminary guidance manual, motor boat operation and safety, TDG data acquisition and management, and the Washington State water quality standards and 401 certification process.

If biological monitoring is required, a take permit to sample and examine ESA listed species may be required. In this event, the consultants selected to implement the biological monitoring will work with Douglas PUD staff toward obtaining the necessary permits, in a timely manner.

8.0 BUDGET

Study costs for implementation of the study are yet to be determined and will be contingent upon which of the two adaptive management strategies is selected based upon the results of the 2006 study. Following the selection of the most appropriate strategy, a qualified consulting firm will be selected. This consultant will work with Douglas PUD to better refine the specific scope of work and budget for the 2007-2009 TDG study.

9.0 SCHEDULE

The need for this study and the study scope, objectives, and timing are entirely dependent upon the results of the 2006 and 2007 TDG studies. Should Wells Dam be capable of meeting the standard then Option 1, Section 6.0 will be implemented (no additional studies needed for TDG).

However, should Wells Dam remain out of compliance with the standard, then one of the two study paths identified by Option 2, Section 6.0 will be implemented following FERC's issuance of the Study Plan Determination in October 2007. Results from the 2008 study will be provided

in the form of an Initial Study Report in October 2008. A final report of all of the TDG related studies will be provided to FERC and the Aquatic RWG by October 2009.

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Draft

**ASSESSMENT OF DDT AND PCB IN FISH TISSUE AND SEDIMENT IN
THE LOWER OKANOGAN RIVER (AQUATIC ISSUE 6.2.1.4)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). As part of the Wells Project relicensing process, Douglas PUD is required to obtain a water quality certificate pertinent to section 401 of the Clean Water Act. The Washington State Department of Ecology (WDOE) is responsible for the issuance of a 401 certificate as well as administering the state's Water Quality Standards. As part of the 401 certification process, Ecology must assess the effect of a hydroelectric project's operations on the concentration of toxins within waterbodies of concern as they apply to the numeric and narrative criteria of the state standard.

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (including WDOE) and Douglas PUD staff, was formed for the purposes of identifying issues that may require study during the Wells Project relicensing, identified the need to collect more information with regards to DDT and PCB in the lower Okanogan River within the Wells Project boundary. Specifically, the RWG was interested in the collection of sediment, fish tissue and water samples from areas within the lower Okanogan River. In order to satisfy this request, Douglas PUD proposes a study to measure the concentrations of DDT and PCBs from fish tissue and sediment collected from the lower Okanogan River. These samples will be collected in an effort to address the human health concerns brought forth by the RWG. Additionally, Douglas PUD will collect sediments to assess whether Wells Project operations negatively affect the concentrations of DDT and PCBs within the Lower Okanogan River.

In 2001-2002, WDOE conducted a technical assessment in support of the development of a Total Maximum Daily Load (TMDL) for 1,1,1-trichloro-2,2-bis[*p*-chlorophenyl]ethane (DDT) and polychlorinated biphenyls (PCBs) in the Lower Okanogan River. For the purposes of the 2001-2002 assessment, the Lower Okanogan River was defined as the portion of the river from the U.S./Canadian border at Lake Osoyoos (RM 80.2) downstream to the town of Monse (RM 5.0). During this assessment, various mediums (water, sediment, and fish tissue) at various locations in the Okanogan River were assessed for concentrations of DDT and PCB. This study will augment the previous information collected during the development of the TMDL and will be consistent with the recommendations of the Water Quality Implementation Plan (WDOE, 2006) submitted by WDOE which provides recommendations to assure that DDT and PCB concentrations in the waters and fish tissues from the Okanogan River and its tributaries continue to improve with the goal of meeting the regulatory standards for these persistent bioaccumulative toxins.

Sampling locations for fish will include various sites within the inundated portion of the Okanogan River. Sampling sites for sediment will include recreational sites of concern (e.g. swimming areas) from the Okanogan River mouth up to RM 15.5. To address whether Wells Project operations negatively affect concentrations of DDT and PCBs in the inundated portions of the lower Okanogan River, additional DDT and PCB sediment sampling sites will be located at RM 15.5 and at RM 5.0, for comparative purposes. Study implementation is planned for the

2-year ILP study period (2008-2009) with sampling occurring in May 2008. Sampling frequency, timing, and methodology as well as sample analysis will be consistent with the 2001-2002 WDOE TMDL Technical Assessment as outlined in Serdar (2003) and WDOE's "Water Quality Certification for Existing Hydropower Dams: Preliminary Guidance Manual (September 2004)."

A technical report of the study will be produced to assist the Aquatic RWG in determining the concentration of DDT and PCBs in recreational fish species and in swimming areas of the lower Okanogan River within Project boundary. The information may inform the development of an appropriate information and education program to address the human health risks towards recreational use by the public in the lower Okanogan River as well as the development of a 401 water quality certification.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides of the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

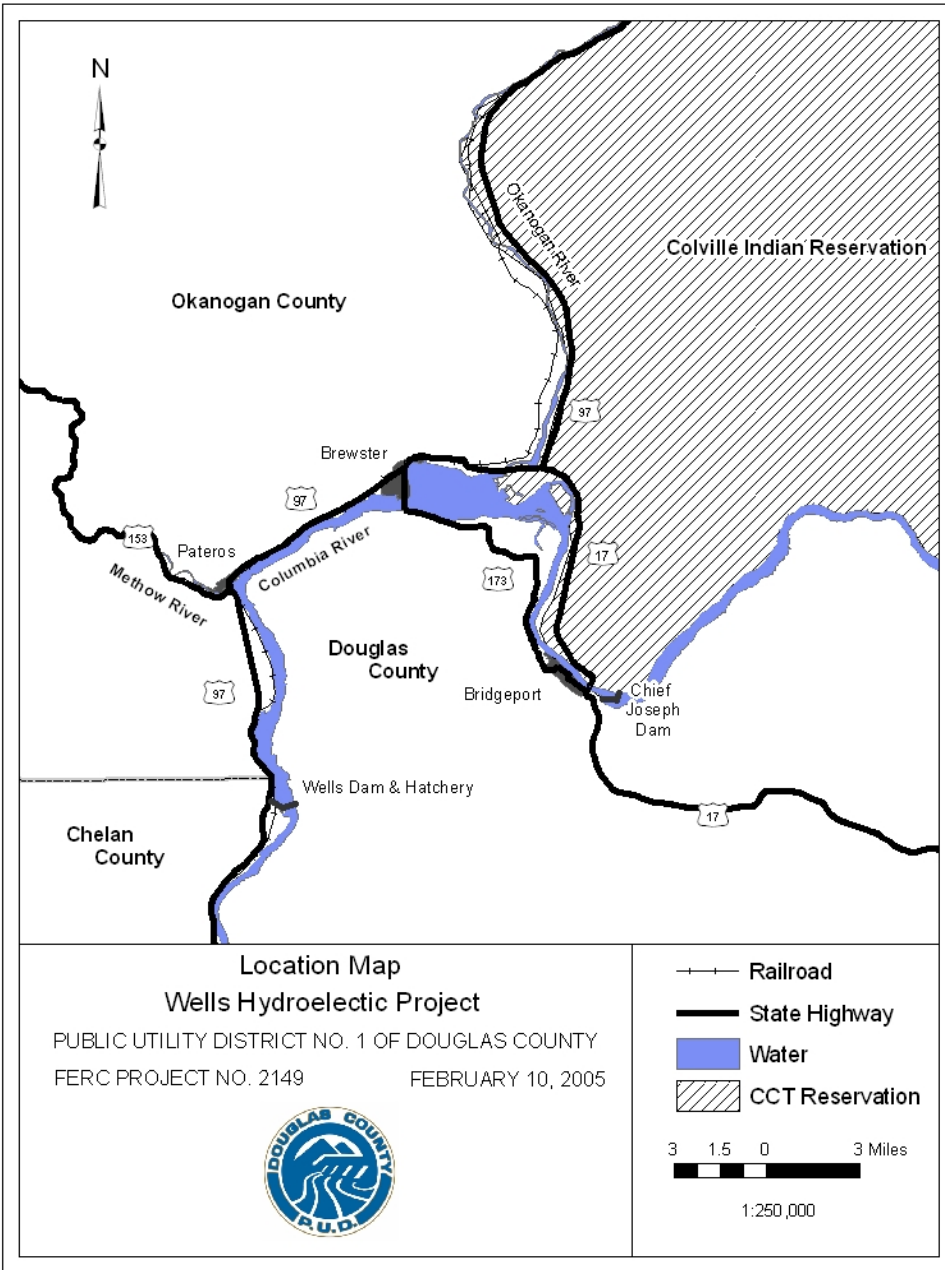


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The objective of the study is to determine concentrations of DDT and PCBs in recreational fish species and in sediments from various select sites of the lower Okanogan River (up to RM 15.5) within the Wells Project boundary.

Tasks to be completed toward the achievement of the goal include:

- Collect and analyze sediment samples for DDT and PCBs from specific recreational sites (i.e., swim areas) in the lower Okanogan River up to RM 15.5.
- Collect and analyze sediment samples for DDT and PCBs at sites located at RM 15.5 and RM 5.0 in the lower Okanogan River.

- Collect and analyze fish tissue for DDT and PCBs from recreational fish species of interest consumed by tribal and recreational anglers. All of the fish tissue samples will be collected from within the lower Okanogan River.
- Identify areas of potential human health concern related to toxins in fish tissue and, if needed, develop educational options to raise awareness of issue for recreation users.

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The information gathered from this monitoring effort will assist the Aquatic RWG in determining the concentration of DDT and PCBs in recreational fish species and in swimming areas of the lower Okanogan River within the Wells Project boundary. Furthermore, this information will assess whether Wells Project operations are contributing additional DDT and PCBs to waters entering into the Wells Project boundary. The information may inform the development of an appropriate information and education program to address the human health risks towards recreational use by the public in the lower Okanogan River as well as the development of a 401 water quality certification.

3.0 STUDY AREA

The study area consists of waters within the Okanogan River from its confluence with the Columbia River up to RM 15.5.

4.0 BACKGROUND AND EXISTING INFORMATION

The Okanogan River originates in the Cascade Mountains north of the international border in British Columbia. The Okanogan River is characterized by a series of lakes north of international boundary and a free flowing river flowing out of Osoyoos Lake, which straddles the boundary; 78 miles to its confluence with the Columbia River (WDOE, 2004). The lower 15.5 miles of the Okanogan River before it joins with the Columbia River is considered within the Wells Project boundary.

Beginning in the early 1970s, Canadian investigators began documenting high levels of the insecticide 1,1,1-trichloro-2,2-bis[*p*-chlorophenyl]ethane (DDT) in fish collected from British Columbia lakes along the mainstem Okanogan River (Northcote et al., 1972). In 1983, WDOE collected data which revealed DDT and polychlorinated biphenyl (PCB) contamination in fish from the Okanogan River below the Canada border (Hopkins et al., 1985). Since then a number of WDOE surveys have verified DDT and PCB contamination in the basin (Johnson and Norton, 1990; Davis and Serdar, 1996; Johnson et al., 1997; Serdar et al., 1998, Serdar, 2003).

The WDOE Environmental Assessment Program prepared an assessment of total maximum daily loads (TMDLs) of DDT and PCBs in the lower Okanogan River basin, including Osoyoos Lake. For the purposes of the WDOE assessment, the Lower Okanogan River was defined as the portion of the river from the U.S./Canadian border at Lake Osoyoos (RM 80.2) downstream to the town of Monse (RM 5.0). Sampling conducted during 2001-2002 examined DDT and PCB concentrations in the water column of the mainstem Okanogan River, water in tributary streams, sewage treatment plant (STP) effluent and sludge, and cores of bottom sediments. Composite samples of three species of fish – carp (*Cyprinus carpio*), mountain whitefish (*Prosopium williamsoni*), and smallmouth bass (*Micropterus dolomieu*) also were analyzed for DDT and

PCBs. Data from these samples were used in conjunction with historical data to develop the TMDLs (Serdar, 2003).

Results of the 2001-2002 sampling (Serdar, 2003) suggest that:

1. DDT concentrations in the mainstem water column typically decreased from upstream sites (Okanogan River at Zosel Dam) to downstream sites (Okanogan River at Malott). PCB's were not detected in the mainstem.
2. Only small loads of DDT and PCBs are delivered to Osoyoos Lake and the lower Okanogan River through tributary streams and STPs.
3. Generally, lipid-normalized t-DDT and t-PCB concentrations in fish tissue decreased from sites upstream to downstream (Oroville, Riverside-Omak, Monse) with the exception of large-sized smallmouth bass which had higher concentrations downstream at the Monse site.
4. t-DDT and t-PCB concentration trends decreased in the 1980's followed by steady concentrations in the last decade in the lower Okanogan system.
5. DDT concentrations in the Osoyoos Lake core sediments were an order of magnitude higher than core sediments of approximately equal age from the Okanogan River near the mouth (Monse).
6. PCB concentrations in core samples were low, with concentrations around 1 ng/g t-PCB. Concentrations from both sites (Osoyoos Lake and lower Okanogan River: Monse) were similar suggesting that low-level PCB sources such as STP's between the lake and the river mouth keep depositional areas enriched with low levels of PCBs. Little is known about sources of PCB contamination in the lower Okanogan River basin, except that no major sources appear evident. It is notable that while PCBs in edible fish tissues may be a human health concern at the levels reported, it is not uncommon to find similar levels in other Washington waters where no discernible sources of PCB exist (Davis and Johnson, 1994).
7. Re-suspended Osoyoos Lake sediments account for nearly all of the measured DDT loads in the lower Okanogan River which may explain the disparity between DDT load delivery and measured loads in the water column of the lower mainstem Okanogan River.
8. The Colville Tribe conducted a longitudinal transect of DDT in 40 lower Okanogan River sediments from Osoyoos Lake outlet to the mouth in 2001 (Hurst and Stone 2002). Aside from two locations, little DDT was found. 60% of sites had t-DDT less than the detection limit (0.5 ng/g) and another 35% had a concentration of 1-10 ng/g (mostly less than 2 ng/g). Two sites with significant concentrations were found just below the Osoyoos Lake outlet and just downstream of Elgin Creek (RM 28.4).
9. Acute toxicity is not considered to be a concern at concentrations in the lower Okanogan River basin.
10. According to the report, there are few realistic options for obtaining meaningful reductions in DDT and PCB loading to Osoyoos Lake and the lower Okanogan River. It appears that most loading to fish occurs internally through direct or indirect exposure to sediments. Natural attenuation will eventually reduce levels through dilution and capping, especially downstream of the Similkameen River confluence.

In conjunction with the TMDL technical assessment (2003) and TMDL (2004), WDOE submitted a Detailed Implementation Plan (WDOE, 2006) to EPA as required by the Clean Water Act in July 2006. This report provides direction to assure that DDT and PCB concentrations in the waters and fish tissues from the Okanogan River and its tributaries continue to improve with the goal of meeting the regulatory standards. The report's main recommendations are the continued monitoring of fish tissues at 5 year intervals and preventative measures that would minimize the amount of contaminants entering the river from the surrounding watershed.

Currently, there is no monitoring program for toxins (DDT and PCB) in the Okanogan River watershed. WDOE's long-term monitoring station, located near Malott (RM 17) just upstream of the Wells Project boundary, samples monthly for conventional parameters and metals; however, water samples, fish tissue and sediment cores are not collected for analysis of toxins.

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meeting and discussions, Douglas PUD is proposing to include a study plan into the Wells PAD which will determine the concentration of DDT and PCBs in recreational fish species and in swimming areas of the lower Okanogan River within the Wells Project boundary. This study will help to inform future relicensing decisions through the 401 water quality certification process and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Finalized Issue Statement (6.2.1.4)

Project operations may affect the input, movement, accumulation and retention of toxins (sediment dynamics and water column) originating from the Okanogan River subbasin and their potential effects on aquatic organisms and humans.

Final Issue Determination Statement (6.2.1.4)

The Okanogan River likely contains toxins within the sediment and in the water column. These pollutants are discharged into the river from mining, industrial and agricultural activities upstream of the Project boundary. There are numerous reports by the Washington State Department of Ecology and the Colville Tribe documenting the presence and levels of toxins within the Okanogan Basin. Of the five assessments conducted on toxins in the Okanogan River most have focused on the presence of toxins within the water column, sediment and within the fish found in the Okanogan River.

The Lower Okanogan DDT PCB Detailed Implementation Plan (WDOE, 2006) submitted to and approved by the Environmental Protection Agency for the purpose of providing direction to assure that DDT and PCB concentrations are reduced to a level that meet regulatory standards recommends continued monitoring of fish tissues from the lower Okanogan River.

The resource work group agrees that a study is needed during the two-year ILP study period. The study would assess the concentration of DDT and PCBs found within fish tissues collected from the lower Okanogan River which is consistent with WDOE's DIP recommendation. This study would also collect sediment samples from select locations between the mouth of the Okanogan River upstream to RM 15.5 (within the Project boundary) to address the human health concerns at recreation sites and to assess whether Project operations negatively affect the concentration of DDT and PCBs found in lower Okanogan River.

5.0 PROJECT NEXUS

The WDOE is responsible for the protection and restoration of the state's waters. WDOE has adopted water quality standards that set limits on pollution in lakes, rivers, and marine waters in order to protect water quality. WDOE's water quality assessment of the state's waterbodies lists the status of water quality for a particular location in one of 5 categories (Category 1-5) recommended by the Environmental Protection Agency (EPA). This assessment represents the integrated report for Sections 303(d) and 305(b) of the Clean Water Act. Categories 1-4 represent the status of waters for the 305(b) report, while Category 5 represents those waters placed on the 303(d) list. Waters placed on Category 5 require the preparation of TMDLs, which are an integral tool in the work to clean up polluted waters.

The lower Okanogan River within the Project boundary was 303(d) listed for high levels of total PCB's, 4,4'-DDE and 4,4'-DDD in fish tissues in 1998. As a result of this listing, a TMDL (WDOE, 2004) was developed to address these impaired parameters in this location. Currently, the EPA-approved 303(d) list submitted in 2004 no longer includes these parameters for the lower Okanogan River as they have been re-assessed as Category 4a (impaired waters with a TMDL) waters in the Washington State Water Quality Assessment 305(b) report. The information resulting from an assessment of fish tissue and sediments in the lower Okanogan

River will assist the Aquatic RWG in the development of licensing requirements through the 401 water quality certification process.

6.0 METHODOLOGY

In order to collect information that will be informative of the health risks from recreational activities within the lower Okanogan River sampling stations for fish tissue will be located in the following locations:

- Okanogan River immediately downstream of Project boundary (RM 15.5)
- Okanogan River near Monse (RM 5.0)
- Okanogan River upstream of the confluence with the Columbia River (RM 0.5)

In addition to the sites specified above, other specific recreation areas may also be considered for sampling. Field sampling will consist of one sampling event in May of 2008 during the spring run-off to be consistent with the 2001-2002 WDOE assessment (sampling during high water).

Dependent upon the sample site, either sediment cores and/or fish tissue (Okanogan River at RM 15.5, 5.0, and 0.5) will be collected in order to meet the objectives of the study. All methods implemented including sampling equipment and protocols, numbers of samples, and QA/QC procedures will be consistent with the 2001-2002 WDOE TMDL Technical Assessment as outlined in Serdar (2003). Additionally, any components of the study not clearly specified in Serdar (2003) will be consistent with WDOE's "Water Quality Certification for Existing Hydropower Dams: Preliminary Guidance Manual (September 2004)." Quality assurance plans will meet State and Federal guidelines.

Sediment cores (50 cm depth) will be collected using a Wildco stainless steel box corer. Layers (horizons) will be collected from the top (2 cm), middle (25 cm), and bottom (50 cm) of the core to determine the level of toxicity at varying horizons. Fish for fish tissue analysis will be collected either via electrofishing or angling, when appropriate, throughout the lower 15.5 miles of the Okanogan River. Fish species of interest will be determined by the Aquatic RWG but should be fish normally consumed by either tribal or local recreational anglers and consistent with WDOE's Detailed Implementation Plan (2006). Biological data (species, length, weight and age) will be collected for all fish samples.

Data obtained from sediment cores at various recreation sites and fish tissue may help to inform the development of an appropriate human health related education program. Data obtained from sediment cores at the Wells Project boundary (RM 15.5) and near Monse (RM 5.0) will help to determine whether Project operations negatively affect concentrations of DDT and PCBs in the lower Okanogan River.

All core sediments and fish tissue samples will be stored to meet quality specifications prior to transport and delivery to a qualified laboratory for analysis. Parameter analysis will also be consistent with Serdar (2003) and will consist of tests to determine the concentrations of all DDT analogs and PCBs per each sample.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Based upon discussions with the Aquatic RWG regarding specific study design and study needs, Douglas PUD will secure the assistance of a qualified consultant to conduct the field portion of the study in addition to a qualified water quality and toxicology laboratory to analyze samples.

The technical skills necessary to complete the study are knowledge of aquatic toxicology with an emphasis on transport and accumulation, water quality sampling equipment and protocol consistent with WDOE's preliminary guidance manual, motor boat operation and safety, data acquisition and management, and Washington State water quality standards.

A Washington State Collection Permit will be required for fish sampling. The consulting firm contracted to implement the field sampling portion of the study will be responsible for obtaining this permit prior to the start of the study.

8.0 BUDGET

Study costs for implementation of the study are yet to be determined and will be available upon selection of a qualified consulting firm and a more specific determination of a scope of work.

9.0 SCHEDULE

Planning for this study will begin in late 2007, shortly after the issuance of FERC's Study Plan Determination in October 2007. Activities to obtain a Washington State Scientific Collectors Permit will be implemented during late 2007. Field sampling will take place during the spring of 2008 with an Initial Study Report due to stakeholders by October 2008. A final report will be provided to FERC and the stakeholders by October 2009.

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Aquatic RWG Meeting #7
August 29, 2006
Action Items

1. Add literature review information to adult Pacific lamprey passage study (Sec 6.1) and send to RWG members for review (Bao).
2. Send Schedule for Policy Meetings to RWG members (Bao).
3. Contact Ryan Anderson from WDOE regarding DO, pH and toxins and possible coordination for model development and study plans (Bao).
4. Review historical and present bathymetric data related to the Okanogan River as they may relate to the toxins study plan (Bao/Shane).
5. Schedule September 14 meeting to discuss Water Quality Study Plans (Bao).

Aquatic RWG Meeting 8
September 14, 2006

From: Bao Le
Sent: Monday, September 11, 2006 4:16 PM
To: Art Viola; Bill Towey; Bob Clubb; Bob Jateff; Bob Rose; Brad Hawkins; Brad James; Bryan Nordlund; Carmen Andonaegui; Dennis Beich; Joe Miller; Joe Peone; John Devine; Jonathan Merz; Keith Kirkendall; Mark Miller; Mary Mayo; Molly Hallock; Pat Irle; Shane Bickford; Steve Lewis; Steve Parker
Subject: Aquatic RWG Meeting #8
Attachments: Meeting Agenda Aquatics RWG 8.pdf

RWG members,

Attached is the agenda to this Thursday, Sept. 14th's Aquatic RWG Meeting #8. As you all already know, we've made tremendous progress on many of the study plans and currently have three (out of the seven) study plans yet to be agreed upon and finalized by members. Posted to the FTP site under the Aquatic folder and in the Meeting 8 Agenda and Handouts folder are these three study plans. The TDG study plan has had some minor language changes per comments from Pat Irle however, I think that this plan looks very good and is likely final. Also on the FTP site are proposed study plans for DO, pH, and turbidity monitoring as well as for the DDT/PCBs in the Okanogan River. I suspect that these two plans will be the focus of this upcoming meeting so please note this detail as you determine whether you will attend or not. Regardless, please let me know whether you plan to attend this week's meeting so that I can make the necessary arrangements. Thanks to all of you for your participation. Cheers, Bao

As always, information to access the FTP site below:

FTP Instructions

Point your browser to [ftp://relicensingftp.dcpud.org](http://relicensingftp.dcpud.org)

User logon: wellsftp

Password: Fishing (With a capital "F")

Bao Le
Sr. Aquatic Resource Biologist
Douglas PUD
1151 Valley Mall Pkwy.
East Wenatchee, WA 98802
509-881-2323 (Direct)
509-884-0553 (FAX)

**Aquatic Resources Work Group
Wells Relicensing
Meeting #8 Agenda – September 14, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: 1. Continue to review draft proposed study plans towards finalizing documents for integration into the Pre-Application Document (PAD).

Meeting called by: Bao Le
(509) 881-2323

Date of meeting: September 14, 2006

Meeting location: Douglas PUD
1151 Valley Mall Pkwy
East Wenatchee, WA

Meeting time: 9:00 AM – 3:00 PM

Time	Agenda Topic	Lead
9:00	Review objectives and agenda Review action items from RWG #7	Bao Le
9:20	Review and discuss draft study plans. Primary focus will be on objectives and methods of the two remaining study plans not yet finalized (Toxins and DO, pH, and turbidity study plans)	Group
12:00	Lunch - Douglas PUD will provide box lunches	Group
12:30	Continue study plan review.	Group
2:45	Action items and next steps.	Bao Le
3:00	Adjourn	

Attendees Invited: Pat Irle, WDOE John Merz, WDOE Bryan Nordlund, NMFS Steve Lewis, USFWS Joe Miller, WDFW Bob Jateff, WDFW Carmen Andonaegui, WDFW Art Viola, WDFW Bob Rose, Yakama Nation	Bill Towey, Confederated Tribes of the Colville Reservation Jerry Marco, Confederated Tribes of the Colville Reservation Bao Le, Douglas PUD Shane Bickford, Douglas PUD Bob Clubb, Douglas PUD Brad Hawkins, Douglas PUD John Devine, Devine, Tarbell, and Associates
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Aquatic RWG Meeting 8
Sign-in Sheet and Meeting Products

AQUATIC
RESOURCE WORK GROUP
SIGN IN SHEET
SEPTEMBER 14, 2006

[illegible]

Draft

**CONTINUED MONITORING OF DO, pH, AND TURBIDITY IN THE
WELLS FOREBAY AND LOWER OKANOGAN RIVER (AQUATIC ISSUE
6.2.1.7)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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For copies of this study plan, contact:

Public Utility District No. 1 of Douglas County
Relicensing
Attention: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497
Phone: (509)884-7191, Ext. 2488
E-Mail: mmayo@dcpud.org

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). As part of the Wells Project relicensing process, Douglas PUD is required to obtain a water quality certificate pertinent to section 401 of the Clean Water Act. The Washington State Department of Ecology (WDOE) is responsible for the issuance of a 401 certificate as well as administering the state's Water Quality Standards. As part of the 401 certification process, WDOE must determine that the Wells Project is in compliance with state water quality standards for dissolved oxygen (DO), pH, and turbidity.

The Aquatic Resource Work Group (RWG), which is composed of stakeholders (including WDOE) and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Hydroelectric Project. The Aquatic RWG, through a series of technical meetings, is proposing a study to collect additional DO, pH, and turbidity data from within the Wells Project.

Douglas PUD and other state and federal agencies have monitoring programs in place that collect water quality information related to these parameters at various scopes and frequencies. This study will augment the established sampling regimes and will provide additional information related to DO, pH and turbidity from within the Wells Project.

Sampling locations for the study are the Lower Okanogan River within Project boundary and the Wells Dam forebay. Study implementation is planned for 2008 with sampling occurring during periods where the probability of exceedance with the water quality standard is highest (between mid-July and mid-September).

A technical summary of the monitoring study will be produced to assist the Aquatic RWG in determining whether the Wells Project is in compliance with the state's water quality standards for these parameters which are a necessary component of the 401 water quality certification process.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

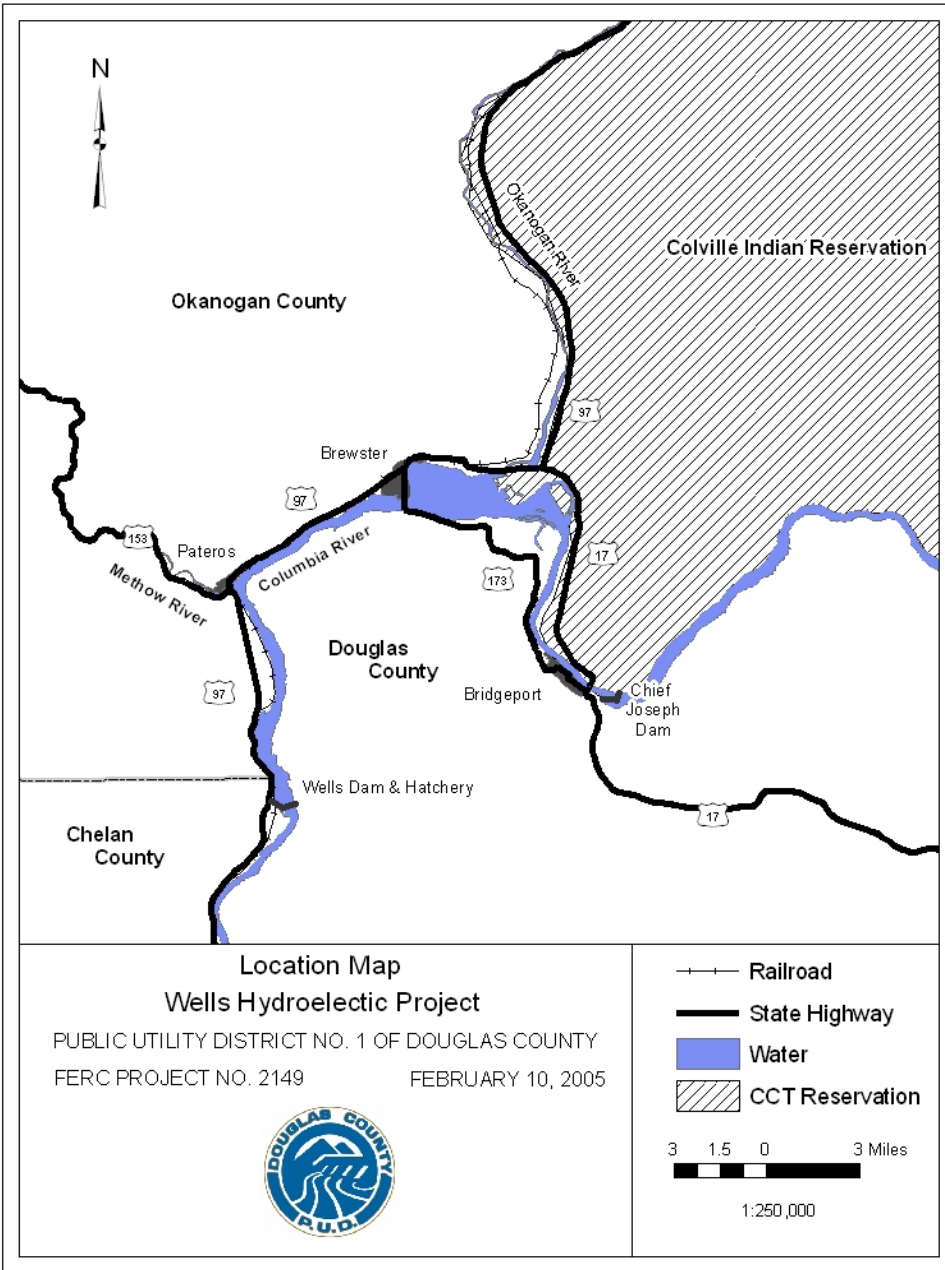


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods that cannot be reconciled with stakeholders will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The objective of the study is to continue monitoring dissolved oxygen (DO), pH, and turbidity in the Wells Dam forebay and Lower Okanogan River within the Wells Project boundary.

The Washington State Department of Ecology (WDOE) is the agency responsible for administering the State Water Quality Standards and for the issuance of 401 water quality certificates for hydroelectric relicensing processes in Washington. The information gathered from this monitoring effort will assist WDOE in determining the extent to which Project operations have an affect on compliance with the specified numeric criteria for DO, pH and turbidity. This determination will also assist WDOE in the development of an implementation schedule as it applies to the 401 certification process.

3.0 STUDY AREA

The study area consists of waters within the Wells Project with a particular emphasis on the Wells forebay and the Lower Okanogan River from its confluence with the Columbia River up to river mile (RM) 15.5 (Figure 1.1-1).

4.0 BACKGROUND AND EXISTING INFORMATION

WDOE has established water quality standards in an effort to protect the beneficial uses of State water and water bodies. The Washington standards include both numeric and narrative criteria. The narrative standards address beneficial uses that include, but are not limited to, the ecological significance of water quality to aquatic biota. The importance of water quality to the health of rare, threatened, and endangered populations is also described in the narrative standards.

DO levels are an extremely important variable for aquatic life and govern the chemical dynamics of a water body. DO levels are influenced by a suite of factors including the level of biological activity in the water, turbulence, and temperature (EES Consulting, 2006).

Turbidity is the measure of the light scattering from suspended particles in water. After light enters water, it is absorbed, reflected or refracted by dissolved organic substances, pigmented (phytoplankton) and colored particulates and by the water itself. Light is scattered by inorganic particulates. Turbidity is a good indicator of a waterbodies trophic status when combined with nutrient and chlorophyll data. Transparency also regulates primary productivity and trophic dynamics which ultimately can affect fish populations. There is a direct relationship between turbidity, water transparency and the depth at which macrophytes grow (EES Consulting, 2006).

The term pH is used to describe the acidity or hydrogen ion level of a liquid. Factors influencing the pH of a water body include the chemical composition of soils in the watershed, photosynthetic activity, pollutants, and respiration of organisms (EES Consulting, 2006). pH levels which are extremely acidic or basic can adversely impact aquatic life and may be representative of metals and other pollutants present within a watershed.

Factors and activities affecting water quality in the Wells Project include 1) nonpoint source pollution from agricultural runoff and irrigation return flow, 2) point source pollution from mines, municipal and industrial sources upstream and outside of the Wells Project boundary, 3) depletion of instream flows from water diversions and consumptive uses, 4) watershed management in the tributaries and Upper Columbia River above Wells Dam, 5) the operation of large water storage facilities located upstream of Wells Dam on the mainstem Columbia and in the Okanogan watershed, and 6) effects related to operations of the Wells Project.

Under section 303(d) of the 1972 Clean Water Act, States are required to list all water body segments that do not meet the state water quality standards. Within the Wells Project boundary, specific water reaches have been put on the State's 303(d) list in the past for various parameters. However, the lower Okanogan River within Project boundary as well as all other areas within the Wells Project is not on the 2004 303(d) list with respects to the parameters of interest.

Comment [B1]: Check date.

Douglas PUD and state and federal agencies have implemented monitoring programs to collect information within or adjacent to the Wells Project at various scopes and frequencies. The programs collect a variety of biological, chemical, and physical water quality parameters and typically include the three parameters of interest (DO, pH, and turbidity). Data collected from these monitoring activities suggest that waters within the Wells Project are generally in compliance with the state standards. During times when Wells Project waters are in exceedance of the stated numeric criteria for these parameters, waters entering the Wells Project are also out of compliance.

Douglas PUD Monitoring Activities

In August, 2005, Douglas PUD began monitoring DO and pH in the Wells Dam forebay when the probability of low DO levels was highest. The results of this monitoring effort indicated that DO levels were not below 8.0 mg/L and pH levels were not outside of the specified range of 6.5 to 8.5, which are the state water quality numeric criteria (WAC 173-201A as amended July 1, 2003). In response to requests made by WDOE, Douglas PUD has continued implementing seasonal monitoring, for the summer months of 2006, for these parameters at the Wells Dam forebay. At Wells Dam, Secchi disk readings are taken to measure water transparency which is inversely correlated to turbidity. Sampling occurs daily during the adult fish passage assessment period of May 1st to November 15th. Measurements are recorded in feet of visibility and reliable information adhering to a standard protocol has been collected since 1998. During the monitoring period, Secchi disk readings ranged from 2 feet during spring run-off to 16 feet by late summer (Douglas PUD, 2006).

In 2005, Douglas PUD contracted with EES Consulting to conduct a comprehensive limnological investigation of Wells Project waters (EES Consulting, 2006). The year long study was conducted at nine sites in order to characterize water quality and seasonal trends in the Wells Project. Sampling was conducted during the following months: Results of the study found DO levels at 1m depth increased from upriver to downriver; the average difference (May through October) was 1.07 mg/L. All surface water measurements had DO values greater than 8.0 mg/L. pH for Wells Project waters generally varied between 7.5 and 8.25, which is slightly above neutral. There were no measured exceedances of the water quality standard for pH. Turbidity in the Wells Reservoir showed relatively little seasonal variation with an annual average of 0.98 Nephelometric Turbidity Units (NTU). Longitudinal variation in turbidity was also minimal. Low turbidity in the reservoir is partially due to the large upstream storage reservoir capacity that allows fines to settle out. Turbidity in the Okanogan River was consistently higher than in the Wells Reservoir. Turbidity in the Methow River was higher than in the Wells Reservoir in May (due to sediment load) and in August due to phytoplankton growth. The only turbidity reading over 5 NTU was in the Methow River during May (EES Consulting, 2006).

Comment [B2]: Add specific months for clarification.

Comment [B3]: Clarify the sampling locations. Does this apply to entire reservoir or just Columbia River portion? Be more specific.

WDOE Monitoring Activities

WDOE has conducted monthly water quality monitoring at locations on the Okanogan River near Malott (station 49A070) upstream of the Wells Project boundary at approximately RM 17 and on the Methow River near Pateros (station 48A070) upstream of the Wells Project boundary at approximately RM 5. Both stations are considered “long-term” stations by WDOE and

provide the most reliable information for the quality of water entering the Wells Reservoir from tributary inflow. It is important to note that data collected from these stations are representative of water quality conditions outside of the Wells Project boundary. Data are typically collected as grab samples on a monthly basis. A variety of water quality parameters including DO, pH, and turbidity information as well as site compliance are available at http://www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html. Table 4.0-1 provides the range of values for the parameters of interest observed at these two long-term monitoring stations since 2001.

Table 4.0-1. The range of DO, pH and turbidity values observed from monthly grab samples collected upstream of the Wells Project on the Okanogan (RM 17) and Methow rivers (RM 5). Data from WDOE long-term monitoring stations 2001-2005.

Okanogan River (RM 17)	2001	2002	2003	2004	2005
DO (mg/L)	7.32-13.87	8.8-13.63	8.32-13.3	8.16-14.08	7.24-14.11
pH	7.87-8.45	7.83-8.39	7.81-8.35	7.48-8.55	7.85-8.44
Turbidity (NTU)	0.8-5.5	1.0-19.0	0.8-22.0	0.9-75.0	0.8-7.8
Methow River (RM 5)					
DO (mg/L)	9.56-14.48	9.8-13.8	9.34-14.2	9.18-14.69	9.28-14.36
pH	8.04-8.74	7.46-8.53	7.71-8.48	7.73-8.58	7.78-8.38
Turbidity (NTU)	0.5-2.9	0.5-3.8	0.5-6.0	0.5-8.8	0.9-5.7

United States Geological Survey (USGS) Monitoring Activities

The USGS studies surface-water quality in cooperation with local and state governments and with other federal agencies. Monitoring programs consist of collection, analysis and data archiving and dissemination of data and information describing the quality of surface water resources. Similar to WDOE, the USGS has monitoring stations on both the Okanogan (12447200) and Methow (122449950) rivers near Malott and Pateros, respectively; however, the data collected at these stations appear to be incomplete and therefore less reliable in providing representative data for tributary water quality than data furnished by WDOE (Douglas PUD, 2006). Data can be accessed via the Internet at: <http://nwis.waterdata.usgs.gov/wa/nwis/qwdata>

4.1 Aquatic Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established an Aquatic Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Aquatic RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these discussions, the Aquatic RWG is proposing to include a study plan into the Wells PAD which addresses the continued monitoring of DO, pH, and turbidity in the Wells forebay and inundated portion of the Okanogan River. The need for this study was agreed to by all of the members of the Aquatic RWG, including Douglas PUD. This study will help to inform future relicensing decisions through the 401 water quality certification process and will fill data gaps that have been identified by the Aquatic RWG.

4.2 Issue Statement

Finalized Issue Statement (6.2.1.7)

Project operations may affect compliance with DO, pH and turbidity standards in the Wells Project.

Final Issue Determination Statement (6.2.1.7)

The Wells Project may have an effect on compliance with the standards for DO, pH and turbidity. Currently, Douglas PUD has collected water quality data toward the evaluation of meeting the numeric criteria for these parameters. Initial data collected during the 2005 baseline limnological assessment indicates that Douglas PUD is in compliance with the Washington State Standard for these parameters. However, additional monitoring is required to make a final determination.

The resource work group agrees that a study during the two-year ILP study period is necessary. The study will focus on the collection of DO, pH and turbidity in the Wells Project especially focusing on data collection from the Okanogan River and at Wells Dam.

5.0 PROJECT NEXUS

The WDOE is responsible for the protection and restoration of the state's waters. WDOE has adopted water quality standards that set limits on pollution in lakes, rivers, and marine waters in order to protect water quality. On July 1, 2003, WDOE completed the first major overhaul of the state's water quality standards in a decade. A significant revision presented in the 2003 water quality standards classifies fresh water by actual use, rather than by class as was done in the 1997 standards. These revisions were adopted in order to make the 2003 standards less complicated to interpret and provide future flexibility as the uses of a water body evolve.

Congress passed the Clean Water Act in 1972, and designated the U.S. Environmental Protection Agency (EPA) as the administering federal agency. This federal law requires that a state's water

quality standards protect the surface waters of the U.S. for beneficial uses, such as recreation, agriculture, domestic and industrial use, and habitat for aquatic life. State water quality standards, or amendments to these standards, do not take regulatory effect for the purposes of the Clean Water Act until they have been approved by EPA. EPA is currently reviewing the water quality standards adopted by the State of Washington in 2003 and partial approval has occurred. Full approval is expected before Douglas PUD files its license application (2010) and Section 401 certification is issued (2012). Due to this, the 2003 standards will be used for the purposes of this study.

Deleted: ,

Deleted: as they apply to temperature in the Wells Project,

The new water quality standards for DO, pH, and turbidity include a number of numerical and narrative criteria. Those most pertinent to the Wells Project are:

- Freshwater – dissolved oxygen shall exceed 8.0 mg/L in waters that have a designated aquatic life use of salmonid spawning, rearing and migration. Dissolved oxygen shall exceed 6.5 mg/L in waters that have a designated aquatic life use of salmonid rearing and migration only.
- pH shall be within the range of 6.5 to 8.5 (freshwater with human-caused variation within the above range of less than 0.5 units.
- Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

Whether it is by the reduction in the level of oxygen available for aquatic life, low pH levels indicative of heavily polluted waters, or increased sediment transport, which can reduce transparency and affect productivity at varying trophic levels, DO, pH, and turbidity are environmental variables critical to the health of a waterbody and therefore the aquatic life that live there.

The information resulting from continued monitoring of DO, pH, and turbidity will assist the Aquatic RWG in the development of licensing requirements through the 401 water certification process.

6.0 METHODOLOGY

In order to collect information that will be informative of the effects of Wells Project operations on the water quality parameters of interest and whether these parameters are in compliance with the Washington State water quality standards, sampling stations will be located in the following locations:

- Okanogan River at Project boundary (RM 15.5),
- Okanogan River near Monse (RM 5.0),
- Okanogan River upstream of the confluence with the Columbia River (RM 0.5),
- Wells Dam forebay (RM 516).

Data will also be available from the WDOE monitoring station (station 49A070) located near Malott on the Okanogan River (RM 17) to supplement the collected information. A review of

the current Wells forebay monitoring program will be conducted for its suitability to the study objectives. Any agreed upon modifications to this existing Wells forebay monitoring program will be implemented during the first year of the 2-year ILP study period (2008).

Currently, WDOE is proposing to conduct continued DO monitoring in the Lower Okanogan River in 2008. Although study methodology is currently being developed, Douglas PUD will coordinate with WDOE in order to maintain consistent sampling practices so that DO information collected during this time period will be comparable between all sites where information is collected. Monitoring will occur between mid-July and mid-September when the probability of exceedances for these parameters is highest. Although WDOE is not proposing to monitor pH and turbidity during this time period, Douglas PUD will continue to monitor these parameters to meet Washington State's credible data criteria.

At each of the three stations located in the Lower Okanogan River and at the station in the Wells Dam forebay, dissolved oxygen (DO), pH, and turbidity will be measured continuously using a Hydrolab minisonde or other appropriate instrumentation. Instruments will be calibrated prior to each field visit according to the manufacturer's specifications. Winkler titrations will be performed at appropriate intervals to ensure the dissolved oxygen probe is functioning properly. The probe will be re-calibrated if the result of the Winkler titration and probe reading differed by more than 0.2 mg/L. At each monitoring site, instrumentation will be placed so as to best represent the overall river condition.

Quality assurance plans will meet State and Federal guidelines. Based upon the data collected and discussions with the Aquatic RWG, a determination will be made as to whether the information collected in 2008 is sufficient or whether a second year of data collection is necessary.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Based upon discussions with the Aquatic RWG regarding study design and study needs, Douglas PUD will begin acquiring the necessary field equipment and/or the assistance of consultant services to complete the study.

The technical skills necessary to complete the study are knowledge of water quality monitoring instrumentation, field techniques consistent with WDOE's preliminary guidance manual, motor boat operation and safety, data acquisition and management, and Washington State water quality standards.

No permits will be required in order to complete this study.

8.0 BUDGET

Study costs for implementation of the study are yet to be determined and will be available upon selection of a qualified consulting firm and a more specific determination of a scope of work.

9.0 SCHEDULE

Planning for this study will begin shortly after the issuance of FERC's Study Plan Determination in October 2007. Equipment will be purchased during 2007 depending upon FERC's Study Plan Determination. Preliminary results of monitoring in late 2007 and 2008 will be provided in an Initial Study Report and will be filed with FERC along with the Initial Study Report due in October 2008. A technical summary of the processes, data collected, and results will be produced for use by the Aquatic RWG in discussions related to the Wells Project relicensing and 401 certification process. A final study report detailing the results of the study will be provided by October 2009.

10.0 REFERENCES

EES Consulting (EES Consulting, Inc.). 2006. Comprehensive Limnological Investigation, Wells Hydroelectric Project, FERC NO. 2149. Prepared by EES Consulting Inc., Kirkland, WA for Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

Aquatic RWG Meeting #8
September 14, 2006
Action Items

1. Scan in Bathymetric pages from Okanogan River transect and email to Pat (Bao).
2. Call Bill Towey regarding finalizing fish tissue study (Bao).
3. Send finalized study plans to RWGs (Bao).
4. Finalize meeting for Monday, October 2 at WDOE (Bao).

Cultural RWG Meeting 5
September 7, 2006

From: Scott Kreiter
Sent: Thursday, August 31, 2006 10:17 AM
To: Bob Clubb; Brad Hawkins; Camille Pleasants; Frank Winchell; Gordon Brett; Guy Moura; John Devine; Neal Hedges; Richard Bailey; Rob Whitlam; Scott Kreiter; Shane Bickford; Timothy Bachelder
Subject: Wells Relicensing: Cultural RWG Meeting Agenda
Attachments: Meeting Agenda Cultural RWG 5.pdf

Cultural Resources RWG:

Please find attached the agenda for the next meeting scheduled for September 7, 10 AM – 12 PM in Nespelem. The dial up number for those attending by phone is: (360) 709-4803.

See you then.

-Scott

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – September 7, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: 1. Review the Wells Data Review;
2. Identify potential study needs and review draft study plan

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: September 7, 2006

Location: Colville Confederated Tribes
Nespelem, Washington

Meeting time: 10:00 AM – 12:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #4	Scott
10:10	Overview of the Wells Cultural Resources Data Review	Western Shore / Group
10:30	Identification of information gaps / Overview and Discussion of Draft Study Plan	Scott / Group
11:45	Policy Meeting Schedule	Shane
11:50	TCP Study Update	Scott
11:55	Action Items and Next Steps	Scott
12:00	Adjourn	

Attendees Invited:

Camille Pleasants, Colville Tribes (THPO)
Guy Moura, Colville Tribes
Rob Whitlam, Washington DAHP (SHPO)
Jim Fisher, BLM
Rich Bailey, BLM
Frank Winchell, FERC

Bob Clubb, Douglas PUD
Shane Bickford, Douglas PUD
Gordon Brett, Douglas PUD
Scott Kreiter, Douglas PUD
Tim Bachelder, Devine Tarbell & Assoc.

Cultural RWG Meeting 5
Sign-in Sheet and Meeting Products

CULTURAL
RESOURCE WORK GROUP
SIGN IN SHEET
SEPTEMBER 7, 2006

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Action Items
Cultural Resources Work Group
Meeting 5 – September 7, 2006

1. Locate the following documents for the Cultural Resource Data Review:
 - a. Summary of 45OK420 and 45DO373, Chatters, 9/4/03 (Margaret)
 - b. Osteology and Mortuary Practices, Chatters 12/31/02 (Margaret)
 - c. The Wells Reservoir, Volume III, Chatters, 1986 (Scott)
 - d. Locate recommendations from the Gang of Three (Margaret)
 - e. Allotment map, Clair Hunt/GLO 1916 (Guy/Margaret)
2. Revisit Data Review scope of work with Western Shore Heritage Services (Scott)
3. Revise and distribute study plan (Scott)

Terrestrial RWG Meeting 7
September 12, 2006

From: Scott Kreiter
Sent: Wednesday, September 06, 2006 10:59 AM
To: Beau Patterson; Bill Towey; Bob Clubb; Brad Hawkins; Brenda Crowell; Carmen Andonaegui; Dan Trochta; Dennis Beich; Dinah Demers; Gordon Brett; James Rees; Jim McGee; John Devine; Marc Hallett; Mary Hunt; Mary Mayo; Matt Monda; Neal Hedges; Scott Kreiter; Shane Bickford; Steve Lewis; Tony Eldred
Subject: Wells Relicensing: Terrestrial RWG Meeting Materials
Attachments: Meeting Agenda Terrestrial RWG 7.pdf; 230kV RTE Survey Study Plan Outline.DOC; An Evaluation of the Effects of the Predator Control Program.DOC; An Evaluation of the Effects of Active, Project Induced Erosion.DOC

Terrestrial RWG:

Please find attached the agenda and study plans for our RWG meeting on September 12, starting at 9:30. The attached study plans reflect changes from our last meeting, with all changes tracked.

The focus of this meeting will be primarily on the issue of erosion. We will also take any final comments on the other two study plans.

See you Tuesday.

-Scott

**Terrestrial Resources Work Group
Wells Relicensing
Meeting Agenda – September 12, 2006**

Meeting Purpose: To review and comment on draft proposed ILP study plans.

Objectives: Discuss and receive feedback on draft proposed study plans.

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: September 12, 2006

Location: Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, Washington

Meeting time: 9:30 AM – 2:30 PM

Time	Agenda Topic	Lead
9:30	Review objectives and agenda; Review action items from RWG #6	Scott Kreiter
9:45	Review and discuss draft Erosion study plan. Primary focus will be on objectives and methods.	Group
12:00	Lunch – Douglas PUD will provide box lunches	
12:30	Continue study plan review. Final comments on all terrestrial study plans.	Group
2:00	Upcoming schedule and policy meetings	Shane
2:15	Action items and next steps.	Scott Kreiter
2:30	Adjourn	

Attendees Invited: Bill Towey, Colville Tribes Dinah Demers, Colville Tribes Neal Hedges, BLM James Rees, BLM Brenda Crowell, Okanogan County Marc Hallett, WDFW Matt Monda, WDFW Tony Eldred, WDFW Carmen Andonaegui, WDFW	Beau Patterson, WDFW Steve Lewis, USFWS Dan Trochta, USFWS Mary Hunt, Douglas County Bob Clubb, Douglas PUD Jim McGee, Douglas PUD Shane Bickford, Douglas PUD Scott Kreiter, Douglas PUD John Devine, Devine Tarbell & Assoc.
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Terrestrial RWG Meeting 7
Sign-in Sheet and Meeting Products

SEPTEMBER 12, 2006

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Terrestrial Resource Work Group Proposed Study Plans, Issue Statements and Issue Determination Statements

Issues for Study

Proposed Study Plan

An Evaluation of the Effects and Alternatives to the Existing Bird and Mammal Control Programs.

Issue Statement (6.2.3.1)

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Issue Determination Statement

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown. Douglas PUD also conducts a nuisance wildlife control program on beavers. This effort is intended to reduce beaver depredation on riparian vegetation used to stabilize the shorelines of the Wells Reservoir.

Removal of bird and mammal predators is an important part of reducing predation on ESA listed steelhead and spring chinook at the Wells Project and associated hatchery facilities. In 2005, WDFW estimated loss due to predation at the Wells Hatchery at 7-14 percent. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on sensitive or recreationally important species.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate existing practices, evaluate alternatives and inform future management decisions.

Proposed Study Plan

Plant and Wildlife Surveys and Cover Type Mapping for the Wells Hydroelectric Project
230 kV Transmission Corridor.

Issue Statement (6.2.3.2)

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Issue Determination Statement

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence (whether raptors, corvids and prairie grouse are found within or adjacent to the transmission corridor). A literature review will also be completed to specifically identify potential effects on raptors and prairie grouse.

Issue Statement (6.2.3.3)

Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Issue Determination Statement

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

Issues Not for Study

Issue Statement (6.4.3.1)

Ownership or transfer of Project lands and the implementation of Douglas PUD's Land Use Policy could affect wildlife habitat and species diversity. Project land management activities, such as issuing permits, conducting weed and/or erosion control and other activities may result in different levels of wildlife impacts/protection, including habitat fragmentation and succession.

Issue Determination Statement

Douglas PUD owns land within the Project boundary in fee title. This is unique among Columbia River hydroelectric projects as most hydro development has taken place through the acquisition of flowage easements. Douglas PUD's Land Use Policy limits use of Project lands to activities that are consistent with the policy and have received the applicable local, state, federal and tribal permits. The Land Use Policy governs all activities on Project lands such as the installation of boat docks, water systems, fences, landscaping and agriculture (see Land Use Policy). In addition to the Land Use Policy, the "Reservoir As Habitat" section of the Wells HCP allows resource agencies and tribes to comment on pending permit applications.

Ownership of Project lands has produced greater benefits for wildlife and wildlife habitat compared to what is provided by flowage easements. Therefore, ownership of Project lands is preferred over flowage easements. The group also agrees that Douglas PUD's Land Use Policy effectively regulates impacts to wildlife and wildlife habitat. The group supports Douglas PUD's plan to retain ownership of lands within the Project boundary.

Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventories (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

Cultural resource assessments, to be conducted during relicensing, will further refine areas to be protected.

Douglas PUD's land management practices will be examined through the license application development process. Measures to protect the existing terrestrial resources will be addressed in the Land Management Plan.

Information provided by the baseline studies is sufficient for development of relicensing measures to address this issue. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement (6.4.3.2)

The presence of the Project, specifically the reservoir, is one factor of many that could attract development adjacent to Project lands. Additional development could result in more people using the reservoir and, therefore, could increase disturbances to wildlife and wildlife habitat within the Project.

Issue Determination Statement

Douglas PUD has no legal authority to restrict private development adjacent to the Wells Project but its Land Use Policy does restrict the ability of adjacent landowners to develop and make improvements to Project lands. Douglas PUD owns the shoreline and is required to regulate development within the Project boundary. Douglas PUD actively patrols the reservoir to monitor compliance with the Land Use Policy. Monitoring needs will be considered in the development of the Land Management Plan.

Development activity on adjacent private lands is a function of a myriad of factors including general national and regional economic conditions, demographic trends in public preferences for leisure and recreation, interest rates, property taxes, availability of other nearby lands, proximity to social infrastructure (e.g. schools and hospitals) and numerous other factors. In addition, municipal and county zoning ordinances can significantly affect land development.

Additional information will not resolve this issue or produce results meaningful to relicensing. The resource work group agrees that Douglas PUD should retain ownership in fee title of Project lands and continue implementing its Land Use Policy. The resource work group agrees that a study is not needed during the two-year ILP study period.

Issue Statement (6.4.3.3)

The frequency, timing, amplitude and duration of reservoir fluctuations may affect wildlife and wildlife habitat.

Issue Determination Statement

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Macrophyte Identification and Distribution Study
- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources (Cover type mapping, RTE plant surveys, and invasive species surveys)

In addition, Douglas PUD has provided information depicting the past operation of the Project related to reservoir fluctuations.

Based on prior studies of wildlife and the recent baseline studies, impacts to wildlife and wildlife habitat due to reservoir fluctuations appears to be limited to waterfowl nesting, specifically Canada goose nesting on the Bridgeport Bar Islands. Reservoir fluctuations also limit the establishment of emergent and shoreline vegetation, reducing habitat for

dabbling ducks, geese and other wildlife that utilize riparian and wetland habitat. The resource work group also expressed concerns that future changes to how the project is operated could negatively affect the high quality macrophyte beds located within the Wells Reservoir. These beds are vital to overwintering waterfowl. Overwintering waterfowl are an important food base for bald eagles and are important to outdoor recreation, principally waterfowl hunting.

There is no evidence of negative effects to RTE wildlife species, including bald eagles and white pelicans, which appear to be thriving along the Wells Reservoir.

Canada goose nesting may be impacted on Bridgeport Bar Islands when the Wells Reservoir elevation is lowered during the spring. During low reservoir elevations, predatory mammals are provided easier access to the goose nesting islands adjacent to the Bridgeport Bar Wildlife Area. Canada geese are very abundant in the area, and in some public places, such as parks and golf courses, geese are considered a nuisance. Canada geese are also actively hunted during the fall and winter months and provide an important form of recreational hunting within the Project.

Douglas PUD is not proposing to change future operations of the Wells Project. Douglas PUD recently signed an agreement to continue to participate in the Hourly Coordination Agreement which is the main influence on reservoir fluctuations. The wildlife conditions on Wells Reservoir have evolved under the existing operating regime and will continue under the future regime. Future changes to existing project operations should include an assessment of potential impacts to aquatic vegetation.

The group concludes that the 2005 aquatic vegetation distribution assessment is adequate in documenting the existing aquatic vegetation community. However, periodic monitoring of macrophytes in the reservoir may be beneficial during the term of the new license. Impacts to riparian and wetland habitats for dabbling ducks, geese and other wildlife are mitigated through the ongoing management and operation of the Wells Wildlife Area.

The resource work group agrees that a study is not needed during the two-year ILP study period because changes in operations are not being proposed and because good baseline information exists.

Issue Statement (6.4.3.4)

The reservoir could affect the movements and migration abilities of mule deer.

Issue Determination Statement

There is sufficient information pertaining to mule deer movements, migrations and populations in the region. Mule deer are a common and abundant game species in the region, including within the Wells Project, and are actively hunted during fall months.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.5)

The Project could affect winter habitat for mule deer and sharp-tailed grouse.

Issue Determination Statement

Evidence of Project related adverse impacts to mule deer or sharp-tailed grouse have not been identified.

Sharp-tailed grouse populations have declined state-wide and are currently a state-threatened species. Riparian habitat for game and non-game species has increased since the project was built. The Wells Wildlife Area and other lands managed for wildlife purposes have significantly contributed to the preservation and enhancement of game and non-game species within the Project. Both mule deer and sharp-tailed grouse occur on the Wells Wildlife Area, which is funded by Douglas PUD.

No Project operational impacts have been identified on these species. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.6)

The Project could affect terrestrial RTE species.

Issue Determination Statement

In 2005, Douglas PUD completed the following studies that are relevant to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)

The following RTE species have been documented in the Wells Reservoir:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal threatened/State threatened
- Sharp-tailed grouse (*Tympanuchus phasianellus*) – State threatened
- American White Pelican (*Pelecanus erythrorhynchos*) – State endangered
- Little bluestem (*Schizachyrium scoparium*) – State threatened

Future land management, recreation planning and operational decisions will avoid, minimize or mitigate impacts to federal RTE species. Future land management, recreation planning and operational decisions will consider impacts to state RTE species.

The resource work group agrees that a study is not needed during the two-year ILP study period related to federal RTE species on the Wells Reservoir.

Issue Statement (6.4.3.7)

Changes in funding for operations and maintenance of the Wells Wildlife Area may affect wildlife habitat, wildlife abundance and species diversity.

Issue Determination Statement

The intent of the Wells Wildlife Area was to mitigate for the loss of wildlife habitat due to the construction and operation of the Wells Project. Specifically, the wildlife mitigation agreement was intended to benefit wildlife in close proximity to the Wells Reservoir. The mitigation program was initially focused on providing upland game bird recreation (e.g. quail and pheasant hunting). Originally, the program included the planting of game birds for harvest purposes. The scope of WDFW's program has changed to emphasize habitat improvements for natural production of game birds. This management direction shift has provided additional benefits to a wide assemblage of game and non-game species.

Since 1996, Douglas PUD has provided supplemental annual funding for the operation of the Wells Wildlife Area. Wildlife and wildlife habitat would be adversely impacted if funding for the Wells Wildlife Area is reduced.

Funding for the Wells Wildlife Area expires with the existing license. The level and adequacy of operations and maintenance funding will need to be determined during the PME development phase of relicensing.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.8)

Public use (recreation) of the Project may affect wildlife and wildlife habitat.

Issue Determination Statement

The Project is one of many factors that could attract recreational use. Recreation development activities within the Wells Project are controlled through Douglas PUD's Land Use Policy. Douglas PUD strives to provide safe and efficient access to appropriate Project land and waters. Douglas PUD cannot control recreational use within the Wells Reservoir. The group agrees that recreation activities, including but not limited to, water skiing, boating, fishing, camping and hunting, may have an effect on wildlife within the Project. Any Land Management Plan in the new license will consider potential impacts of recreational use on wildlife and wildlife habitat. Further measures to protect the existing terrestrial resources may be warranted.

Existing information provided in the baseline studies is sufficient for making future land management decisions. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.9)

The Project, as presently operated, contains significant waterfowl habitat that should be protected during the next license. In particular, the Wells Reservoir provides regionally-important winter habitat for waterfowl.

Issue Determination Statement

The Wells Reservoir, under its current operational regime, will continue to provide habitat for waterfowl and other wildlife. This issue could become important if Douglas PUD were to change Project operations. Any significant changes to the operations would require FERC approval and input from state and federal agencies. Douglas PUD is not proposing to change operations under the new license.

Existing baseline information (Macrophyte identification, distribution and abundance and Wildlife inventories) provides sufficient information regarding the need to preserve the existing waterfowl habitat contained within the Wells Project. The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.10)

Periodic operations of the Wells Reservoir to remove the buildup of sediment at the mouth of the Methow River may affect the development of sand bars, cobble bars and wildlife habitat.

Issue Determination Statement

When Methow River flows are predicted to be above 10,000 cfs, Douglas PUD operates the Wells Reservoir to allow sediment to pass through the Methow River confluence. This occurs approximately every 8-10 years. This is done to prevent sediment buildup at the boat launches and swimming areas and to allow navigation in the confluence of these two rivers. There is no evidence that this practice is impacting specific wildlife species.

The Wells Wildlife Area serves as mitigation for the impacts of the Wells Project on wildlife species including reservoir fluctuations and sediment control operations. Any potential impacts from this activity could be addressed through continued funding of the Wells Wildlife Area program.

The resource work group agrees that a study is not needed during the two-year ILP study period to address this issue.

Issue Statement (6.4.3.11)

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Issue Determination Statement

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Douglas PUD has completed the following studies related to this issue:

- Wildlife and RTE Inventory (Avian, amphibian, reptile, and small mammal surveys)
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys)
- Lower Okanogan River Erosion Evaluation Project Report

The resource work group has determined that the impacts to wildlife species due to project induced erosion are scattered and, in total, are nominal. The group also has determined that existing information is adequate and a study is not warranted during the two-year ILP study period. Identified occurrences of concern to terrestrial resources will be addressed on a case-by-case basis.

Study Deleted per Terrestrial RWG

Draft

**AN EVALUATION OF THE EFFECTS OF ACTIVE EROSION ON
WILDLIFE, BOTANICAL AND RTE RESOURCES
(TERRESTRIAL ISSUE 6.2.3.2)**

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WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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For copies of this study plan, contact:

Public Utility District No. 1 of Douglas County
Relicensing
Attention: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497
Phone: (509)884-7191, Ext. 2488
E-Mail: mmayo@dcpud.org

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). The Terrestrial Resource Work Group (RWG), which is composed of stakeholders and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Hydroelectric Project. The Terrestrial RWG, through a series of technical meetings, is proposing a study to assess the impacts of erosion on critical natural resource areas within the Wells Project.

The majority of Wells Project shoreline is stable and vegetated, while other areas have varying degrees of erosion ranging from areas where erosion is active, inactive or nearly stabilized. A portion of the observed erosion is likely to be Project-related and a portion is likely to be related to other causes including wind action, human activity and normal riverine processes. Douglas PUD has actively monitored shoreline erosion found within the Wells Project. Estimates of erosion potential and 50-year erosion projections have been developed for the entire Okanogan River portion of the Project and on specific sties found along the mainstem Columbia River. The most recent set of erosion projections have been used to identify areas along the reservoir that need to be acquired by the Douglas PUD in order to maintain appropriate rights for control of Project waters and shorelines.

The Terrestrial Resource Work Group developed a study to provide information needed to evaluate shoreline erosion impacts on critical wildlife, botanical, RTE resources and develop methods where appropriate to control erosion that threatens these important resources. This study will help inform the development of potential relicensing and land management decisions. The goals of the study are to:

- Identify important natural resource (wildlife, botanical and RTE) sites contained within the Wells Project boundary;
- Map and determine whether these sites are threatened by erosion;
- Distinguish active erosion areas from all other types of erosion;
- Identify potential impacts of erosion on critical natural resources (wildlife lands, RTE species, and sensitive botanical species and habitats) sites;
- Identify potential measures to address Project-caused impacts to natural resources, and evaluate the cost and benefit of each of the proposed remediation measures.

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1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

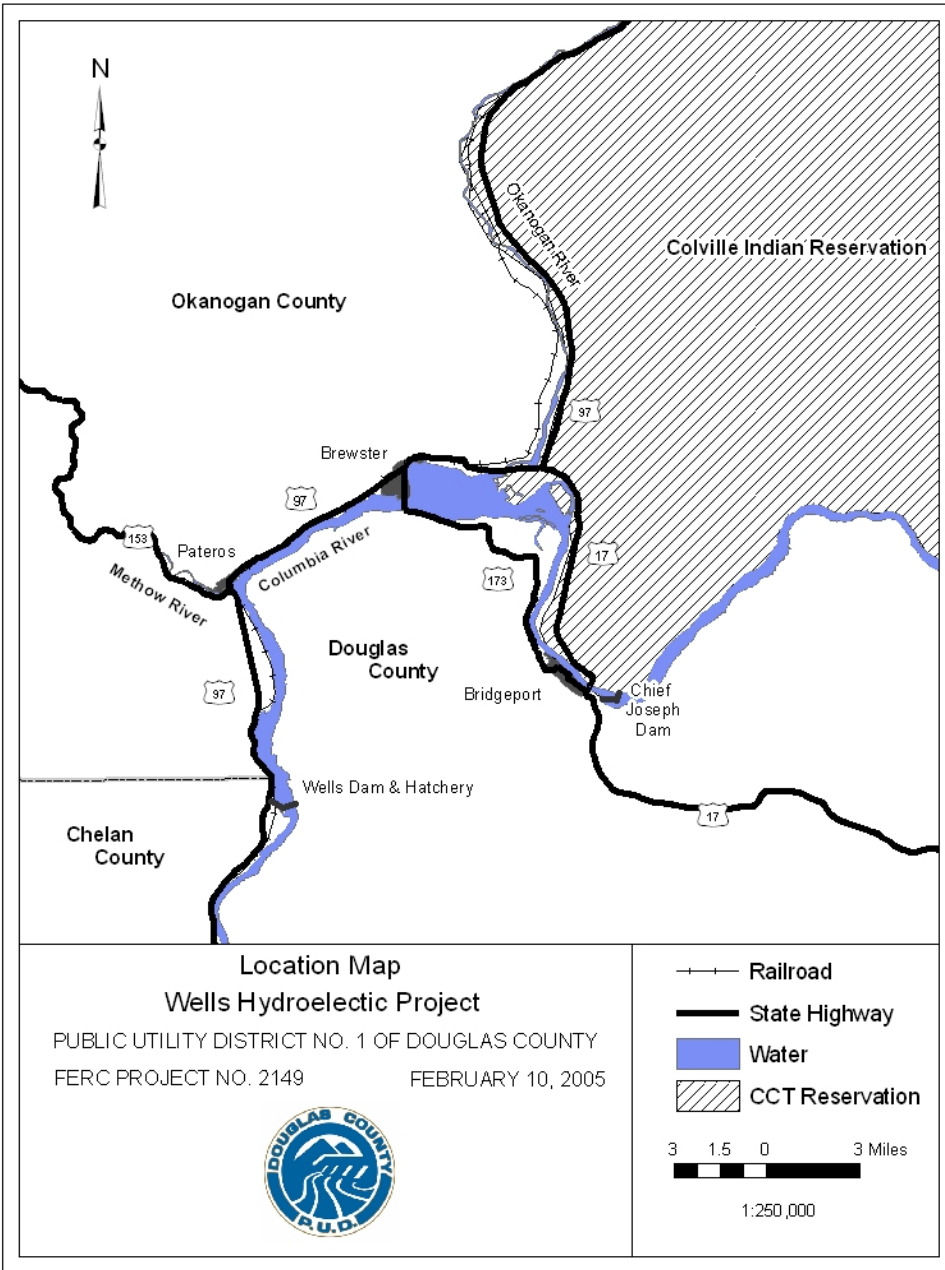


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goals of the study include:

- Identify important natural resource (wildlife, botanical and RTE) sites contained within the Wells Project;
- Map and determine whether these sites are threatened by erosion;
- Delineate active, project induced erosion from all other types of erosion at each site;
- Identify potential impacts of Project-caused erosion on natural resources (wildlife lands, RTE species, and sensitive botanical species and habitats) sites.

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- Identify potential measures to address Project-caused impacts to natural and cultural resources, and evaluate the cost and benefit of each of the proposed remediation measures.

3.0 STUDY AREA

The study area encompasses the Wells Project reservoir and adjacent project related lands. Wells Dam is located at River Mile (RM) 515.8. The project extends 1.2 miles downstream of the dam. The Wells Reservoir extends 29.5 miles upriver to the Chief Joseph Dam tailwater and 15.5 and 1.5 miles upstream on the Okanogan and Methow rivers, respectively. The study area is located in Chelan, Douglas and Okanogan counties.

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Past and Current Activities

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion ranging from areas where erosion is active, inactive or nearly stabilized. Varying amounts of erosion of the Wells Reservoir banks have occurred throughout the reservoir perimeter since the Wells Project was constructed. The greatest amount of erosion has occurred along the left bank (looking downstream) of the Columbia River between Pateros and Wells Dam, on the left bank downstream from the Brewster Bridge, on the right bank downstream from the mouth of the Okanogan River and along the banks of the lower Okanogan River (Bechtel 1970).

Historically, Douglas PUD has addressed shoreline erosion on a case-by-case basis through a combination of shoreline erosion protection methods or through acquisition of the affected property. The shoreline along the railroad right-of-way, between Wells Dam and Brewster, was protected with rip-rap during construction of Wells Dam. Between 1967 and 1995, additional rip-rap was placed along the reservoir shoreline where erosion threatened to go beyond the existing Project boundary or when requested by adjacent land owners. No shoreline protection has occurred since 1995.

Douglas PUD has actively monitored shoreline erosion within the Wells Project. Estimates of erosion potential and 50-year erosion projections have been developed for the entire Okanogan River portion of the Project and on specific sites found along the mainstem Columbia River. These projections were developed by Jacobs, Inc. and GeoEngineers, Inc. The most recent set of erosion projections was used to identify areas along the reservoir that need to be purchased and brought into the Project boundary in order to maintain control over Project waters and shoreline.

4.2 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to

relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Terrestrial RWG cooperatively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study to be conducted in the two year ILP study period to evaluate the impacts of active, project induced shoreline erosion on natural and cultural resources and to develop methods to limit the impact of project induced erosion on natural and cultural resources.

4.3 Issue Statement

Issue Statement (6.2.3.2)

Project caused erosion may influence wildlife habitat and wildlife species abundance and diversity.

Issue Determination Statement (6.2.3.2)

Shoreline conditions vary throughout Wells Reservoir. The majority of shoreline is stable and vegetated, while other areas have varying degrees of erosion.

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. However, there is no evidence that important wildlife species or wildlife habitats are being affected by Project induced erosion.

Baseline studies that may help to alleviate concerns related to this issue include:

- Wildlife and RTE Inventory (avian, amphibian, reptile, and small mammal surveys).
- Botanical Resources Studies (Cover type mapping, RTE plant surveys, and invasive species surveys).

There is no demonstrated impact to wildlife species due to Project induced erosion. Specific impacts may be identified by reviewing the results of the Wildlife and Botanical RTE Inventories and the Cover Type Mapping efforts completed in 2005.

The resource work group has determined that a study is needed during the two-year ILP study period. A series of Project maps with RTE species, sensitive botanical cover-types, designated wildlife areas and National Register eligible cultural sites should be overlaid with known areas of active erosion. This comparison will determine whether erosion areas are having an adverse effect on these resources.

5.0 PROJECT NEXUS

Erosion is an ongoing natural process, making the influence of the Wells Project difficult to determine. Some of the observed erosion is project related (reservoir fluctuations) while erosion in other areas is not related to project operations (wind action and human activity). Most of the shorelines along the Wells Project appear to be stable. Any ongoing erosion appears to be progressing relatively slowly. Most eroding areas are gaining some protection from riparian vegetation and armoring by cobbles along the toe of eroding faces.

Erosion on the reservoir shoreline may have a number of causes. Wind driven waves build up over long fetches of open water, crashing into banks and sometimes overtopping the bank. Erosion can be caused by the wind, blowing sand across an open soil surface. Hydraulic pressure can also cause erosion when the reservoir is drawn down rapidly. Tractive forces on shorelines, caused by flowing water, are also a frequent cause of erosion particularly during flood flows. Erosion along the reservoir shoreline causes damage to shoreline vegetation and may deposit silt and debris into the reservoir.

6.0 METHODOLOGY

Step 1 – Identify Critical Natural Resource Areas

Douglas PUD will create a Geographic Information System (GIS) map layer depicting sensitive sites around the reservoir that could be impacted by erosion. Sensitive areas will include important wildlife habitats (wetlands and riparian habitat, large ponderosa pines, large cottonwoods and snags), designated wildlife areas, RTE plant or animal locations. The consultant will utilize existing cover type mapping and RTE survey results (EDAW 2006a, EDAW 2006b), wildlife area designation maps from Douglas PUD, and cultural resources maps provided by Douglas PUD. Care will be taken to ensure that sensitive site locations will be kept confidential where appropriate.

Deleted: , or National Register eligible cultural resources

Step 2 – Map and Characterize Erosion at Sensitive Sites

Douglas PUD has some erosion data for portions of the reservoir. Existing erosion data and erosion projection data for those areas identified in Step 1 as sensitive sites will be compiled.

After all existing information is mapped; a boat survey of sensitive sites will be conducted. Readily noticeable erosion sites will be marked on an aerial photograph (orthophoto) provided by Douglas PUD. Each end point will be recorded using hand-held Global Position System (GPS). The site will also be photographed.

Classification of sites will be relatively basic. Erosion sites will be classified as active, moderately active or inactive. If the erosion is active, more detailed information will be collected such as site length, material type, slope angle, degree of activity, vegetation characteristics, and other relevant observations. The source of the erosion (e.g. wave action, wind, development, etc.) shall also be assessed.

Step 3 – Assess Potential Impacts of Erosion on Sensitive Sites

The consultant will make a general assessment of whether sensitive sites are at risk from ongoing Project-caused erosion. Sites will be categorized in terms of the degree of risk to the sensitive site, based on the severity of erosion and potential threat to site features. Recommendations will be made regarding the need for remedial action, and potential options for remedial action will be identified.

Step 4 Identify Potential Measures to Address Impacts to Sensitive Sites

The consultant will identify potential measures to address Project-caused impacts to natural and cultural resource sites. This analysis will also include an evaluation of the cost and benefit of each of the proposed remediation measures and will propose alternative protection measures for each site.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

A contractor will be hired to compile the existing erosion data. The contractor will be responsible for conducting the erosion assessment and consolidating the available erosion data. The contractor will also be responsible for establishing a prioritized list of sites that threaten various natural and cultural resources. The contractor will also be responsible for designing alternative erosion control methods and writing the draft and final reports.

The contractor will be required to provide a boat and all equipment required to complete the field work.

8.0 BUDGET

A budget will be developed later.

9.0 SCHEDULE

The study will begin after the FERC's issuance of the Study Plan Determination in October 2007. Field work will be conducted in the spring or early summer of 2008. By October 2008, Douglas PUD will distribute the Initial Study Report to the Terrestrial and Cultural RWG, FERC and interested stakeholders. The final report will be available to the RWGs, FERC and stakeholders by October 2009.

10.0 REFERENCES

EDAW, Inc. 2006a. Cover Type Mapping, Rare Threatened and Endangered Plant Surveys and Invasive Plant Surveys. Report by EDAW, Inc. Consultants for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

EDAW, Inc. 2006b. Avian, Amphibian, Reptile and Small Mammal Surveys. Report by EDAW, Inc. Consultants for Public Utility District No. 1 of Douglas County, East Wenatchee, Washington.

DRAFT

**AN EVALUATION OF THE EFFECTS AND ALTERNATIVES TO THE
EXISTING BIRD AND MAMMAL CONTROL PROGRAMS
(TERRESTRIAL ISSUE 6.2.3.1)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Terrestrial Resource Work Group (RWG), which is composed of stakeholders (resource agencies and tribes) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The Terrestrial RWG, through a series of technical meetings, is proposing a study intended to evaluate the effects and develop alternatives to the existing bird and mammal control programs.

Douglas PUD currently implements several bird and mammal control programs that are primarily related to fish survival goals within the Wells Habitat Conservation Plan (HCP).

The Wells HCP requires Douglas PUD to implement a predator control program. The study goal of the predator control program is to reduce the number of juvenile salmon and steelhead that are consumed by predators. Both the hatchery and predator control programs are important in meeting the No Net Impact (NNI) survival goals in the Wells HCP.

The primary objectives of the study are:

- Identify and count the current and historic number and species of birds and mammals feeding on fish at the Project hatcheries and in the Wells Tailrace;
- Assess the potential impacts of mortality caused by piscivorous birds and mammals to ESA listed, sensitive and recreationally important species;
- Describe each of the existing nuisance wildlife control measures, including species targeted, reason for control, frequency of control and effectiveness of the control method;
- Evaluate alternatives, including the costs and benefit of each measure recommended. The study will provide alternative methods of preventing predation of fish at the Wells Project and in hatchery rearing ponds.

Deleted: Douglas PUD also has an ongoing beaver control program related to management of the shoreline along Wells Reservoir.

Deleted: is peffort

Deleted: The recent expansion of the native beaver (*Castor canadensis*) population is impacting the riparian community. Beavers are also impacting shade trees in the parks and fruit trees in orchards surrounding the reservoir. Efforts to control the removal of desirable shoreline vegetation by beavers have included putting wire around the base of trees and using traps to excess numbers of beaver.¶

Deleted: goals

Deleted: <#>Collect and analyze the historic counts of beaver removed from the Wells Reservoir;¶
<#>Assess the potential impacts of tree removal by beavers on ESA listed, sensitive and recreationally important species, and erosion;¶

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project.

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

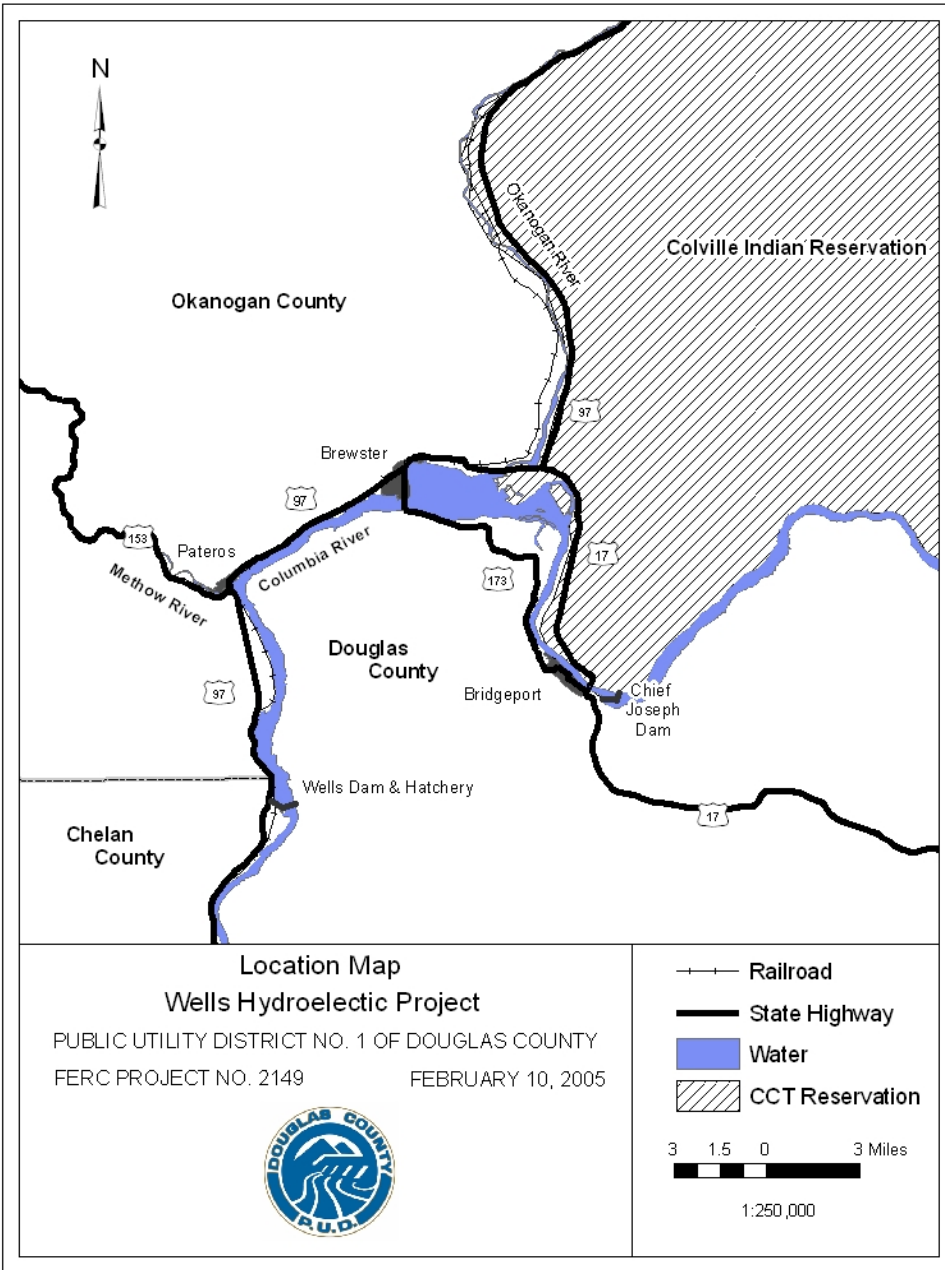


Figure 1.1-1 Location Map of the Wells Project

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of the study is to evaluate the effectiveness of the ongoing predator control programs and identify potential alternatives where appropriate.

The objectives of the study include the following:

- Identify and count the current and historic number and species of birds and mammals feeding at the Project hatcheries and in the Wells tailrace;

- Assess the potential impacts of mortality caused by piscivorous birds and mammals to ESA listed, sensitive and recreationally important species.
- Describe each of the existing nuisance wildlife control measures, including species targeted, reason for control, frequency of control, and effectiveness of the control method.
- Evaluate alternatives, including the costs and benefit of each measure recommended. The study will provide alternative methods of preventing predation of fish at the Wells Project and in hatchery rearing ponds.

3.0 STUDY AREA

The study area includes the Wells Reservoir and tailrace and adjacent Project related lands (Figure 1.1-1), the approximately 15 acre Wells Hatchery in Chelan County (Figure 3.0-1) and the 19 acre Methow Hatchery, including the Twisp (2.6 acres) and Chewuch (0.7 acres) acclimation pond sites, located in Okanogan County (Figure 3.0-2). The Methow Hatchery and associated acclimation ponds are located outside of the Wells Project boundary. The Wells Hatchery is located on the west bank of the Columbia River immediately downstream of the Wells Dam and is entirely contained within the boundary of the Wells Project.



Figure 3.0-1 Air Photo of Wells Hatchery



Figure 3.0-2 **Location map for the Methow Hatchery and associated off-site acclimation ponds**

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Past and Current Activities to Reduce Fish Predation

The Wells and Methow hatcheries raise steelhead (*Oncorhynchus mykiss*) and spring Chinook (*Oncorhynchus tshawytscha*) that are listed as threatened and endangered, respectively, under the federal Endangered Species Act. The Washington Department of Fish and Wildlife (WDFW) estimates that 7 to 14 percent (depending on rearing pond) of the steelhead and summer Chinook reared at Wells Dam in 2005 were eaten by birds and mammals. The hatcheries have a goal for the number of yearling steelhead and Chinook smolts released each spring. To reach these goals, additional brood stock must be trapped to compensate for the mortality due to predation, thereby impacting the number of ESA listed fish left to spawn naturally.

Methods of controlling avian predation at Wells Hatchery have changed over the years. Until the mid-1980's, Washington State hatchery policy encouraged hatchery employees to kill piscivorous birds feeding on fish reared in its hatcheries along with hazing to reduce fish mortality. More recently, hatchery staff has relied solely on hazing, pyrotechnic shotgun shells (cracker shells) and exploding rockets along with propane cannons, to reduce bird predation. Hazing efforts were marginally successful.

In 1993, Douglas PUD hired the U. S. Department of Agriculture (USDA) Wildlife Services to reduce the bird predation at Wells Dam tailrace. The USDA installed bird exclusion wires to reduce access by flying birds in the tailrace. In 1994, USDA installed bird exclusion wires over the hatchery rearing ponds. They also used hazing methods listed above and shot a few birds as a dispersal technique to reduce bird densities, enforcing hazing techniques.

Information that can be used in the study can be found from two sources. WDFW has information that estimates the number of fish consumed by piscivorous birds and mammals at each of the hatcheries. USDA has information on the number of birds hazed and/or shot at Wells Hatchery and in the Wells tailrace.

4.2 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD)

Through a series of meetings, the Terrestrial RWG cooperatively identified a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria (see Section 1.2) and would be useful in

making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study plan into the Wells PAD which addresses the need to evaluate the effects of and alternatives to the piscivorous bird and mammal control programs (6.2.3.1). The need for this study was agreed to by all of the members of the Terrestrial RWG, including Douglas PUD. This study will help inform future relicensing, wildlife and fisheries management decisions and will fill data gaps that have been identified by the Terrestrial RWG.

4.3 Issue Statements

Issue Statement (6.2.3.1)

Ongoing control of nuisance wildlife may influence wildlife species abundance and diversity.

Issue Determination Statement (6.2.3.1)

Douglas PUD conducts a nuisance wildlife control program to reduce predation on fish. The effect of this program on wildlife populations found within the Wells Project is unknown.

Removal of bird and mammal predators is an important part of reducing predation on ESA listed steelhead and spring Chinook at the Wells Project and associated hatchery facilities. In 2005, WDFW estimated loss due to predation at the Wells Hatchery at 7-14 percent. Douglas PUD, through the U.S. Department of Agriculture and WDFW's nuisance species trapping program, has developed and continues to employ many alternatives to lethal removal and only uses removal actions when non-lethal measures have failed. Hazing consists of noise makers, propane cannons, decoy predators, electric fence, tailrace and hatchery wires, fencing, hatchery covers and the hiring of hazing personnel. As a last resort, removal techniques, including the use of traps and shot guns, would be utilized.

Project operations related to wildlife control may have an effect on terrestrial resources and additional information is needed to determine which species may be significantly affected under this program and if there is a significant impact on sensitive or recreationally important species.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate existing practices, evaluate alternatives and inform future management decisions.

5.0 PROJECT NEXUS

Douglas PUD owns and pays for the operation of the Wells and Methow hatcheries and acclimation ponds as mitigation for unavoidable losses of juvenile anadromous salmonids resulting from the existence and operation of the Wells Hydroelectric Project. The fish raised at these facilities are an important component in meeting the No Net Impact (NNI) survival requirements contained within the Wells HCP. The subject hatcheries raise spring Chinook,

summer/fall Chinook, steelhead, and rainbow trout. Spring Chinook and steelhead are listed as endangered and threatened under the federal Endangered Species Act.

Section 4.3.3 of the Wells HCP includes the requirement that Douglas PUD implement a control program to reduce the level of predation at Douglas PUD's two salmon hatcheries and in the tailrace and reservoir surrounding Wells Dam. Douglas PUD hires the USDA to employ various techniques to harass piscivorous birds at hatcheries and in the tailrace below Wells Dam. In the past, USDA has also conducted limited control activities on the Wells Reservoir.

Existing avian harassment techniques include aerial pyrotechnics, propane cannons, and the physical presence of humans in the area. The USDA has also installed wires over the hatchery ponds and over the Wells Dam tailrace to deter piscivorous birds from feeding, and has installed electric fencing around the hatchery ponds to reduce the level of mammalian predation on hatchery fish. The Methow Hatchery rearing ponds are enclosed with canvas covers. The Methow Basin acclimation ponds are surrounded by cyclone fencing and are protected from avian predators through the installation of overhead wires.

6.0 METHODOLOGY

A random, stratified sampling protocol will be implemented throughout the study period. Observations of bird and mammal predation will be documented. Each bird or group of birds recorded will be identified by species, number, type of activity, time of observation and weather condition. . Bird feeding information will be collected for one year. All evidence of piscivorous mammals near the ponds will also be noted. The bird sighting data will be compiled in a database.

To make control methods more effective it must be determined which bird species cause the highest predation loss and when those losses occur. Due to their special status, raptors will be excluded from the study. A sufficient number of birds, as recommended by permitting agencies, of each species known to feed at the hatchery ponds and in the Wells tailrace will be collected. The esophagus, proventriculus and gizzard will be excised from the collected birds and food items removed. All identifiable food items will be collected, counted, weighed and recorded.

A literature review of life histories of all bird species known to feed at the hatcheries and in the tailrace, during the year, will be conducted. The life history information will include information on the number, size and weight of prey items identified at other salmon and trout hatcheries. Information on regional species population levels will also be compiled. The literature review will also be conducted on the current technology for hazing birds and excluding birds and mammals from hatchery raceways and ponds.

The report will quantify the impact of bird and mammal predation on fish within the Wells Project and associated hatcheries. The report will also detail the control methods used, effectiveness of each method and literature reviewed. It will provide recommendations (with estimated cost) to reduce bird and mammal predation at the hatcheries, reservoir and tailrace.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

A contractor will be hired to do the literature search for life histories and predation control methods. The contractor will also be responsible for determining the population status of known predators found throughout the Wells Project and associated hatchery facilities.

A contractor will conduct bird counts and will document the presence of known piscivorous mammals.

The contractor will work toward the collection of bird diet samples.

The report summarizing the results of the study will be written by the contractor.

8.0 BUDGET

Cost of the piscivorous bird and mammal study will be developed after approved by the RWG or before the document is inserted into the final PAD.

9.0 SCHEDULE

The field work related to this proposed study will be initiated after FERC's issuance of the Study Plan Determination in October 2007. An Initial Study Report will be provided to the Terrestrial RWG, stakeholders and FERC in October 2008 with a final report summarizing the processes of model development, analyses, and results by October 2009.

Draft

**PLANT AND WILDLIFE SURVEYS AND COVER TYPE MAPPING
FOR THE WELLS HYDROELECTRIC PROJECT 230 kV
TRANSMISSION CORRIDOR**

(TERRESTRIAL ISSUES 6.2.3.2 AND 6.2.3.3)

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

July, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

For copies of this study plan, contact:

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ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5). A Terrestrial Resource Work Group (RWG), which is composed of stakeholders and Douglas PUD staff, was formed for the purposes of identifying issues and information gaps that may require study during the relicensing of the Wells Hydroelectric Project. The Terrestrial RWG, through a series of technical meetings, has identified the need for a study to assess the effects of the Project's 230kV transmission line and associated corridor on wildlife.

This proposed study is intended to fill the gaps in local knowledge of botanical resources, including rare, threatened and endangered (RTE) plants, invasive plant species, and vegetation communities within the 230-foot Wells Project 230 kV transmission line corridor. The study will also provide bird species presence, identify if bird collision, with the line and structures, is a problem and provide information on the extent of use and dependency on the transmission corridor by sage grouse (*Centrocercus urophasianus*) and sharp-tailed grouse (*Tympanuchus phasianellus*), both RTE species. Surveys will also be conducted for RTE mammals and reptiles. The study plan outlines methods that will be used to collect information on these plants and animals.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Hydroelectric Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project, owned, and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas county (Douglas PUD). It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet in height.

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781. The normal maximum water surface elevation of the reservoir is 781 feet (Figure 1.1-1).

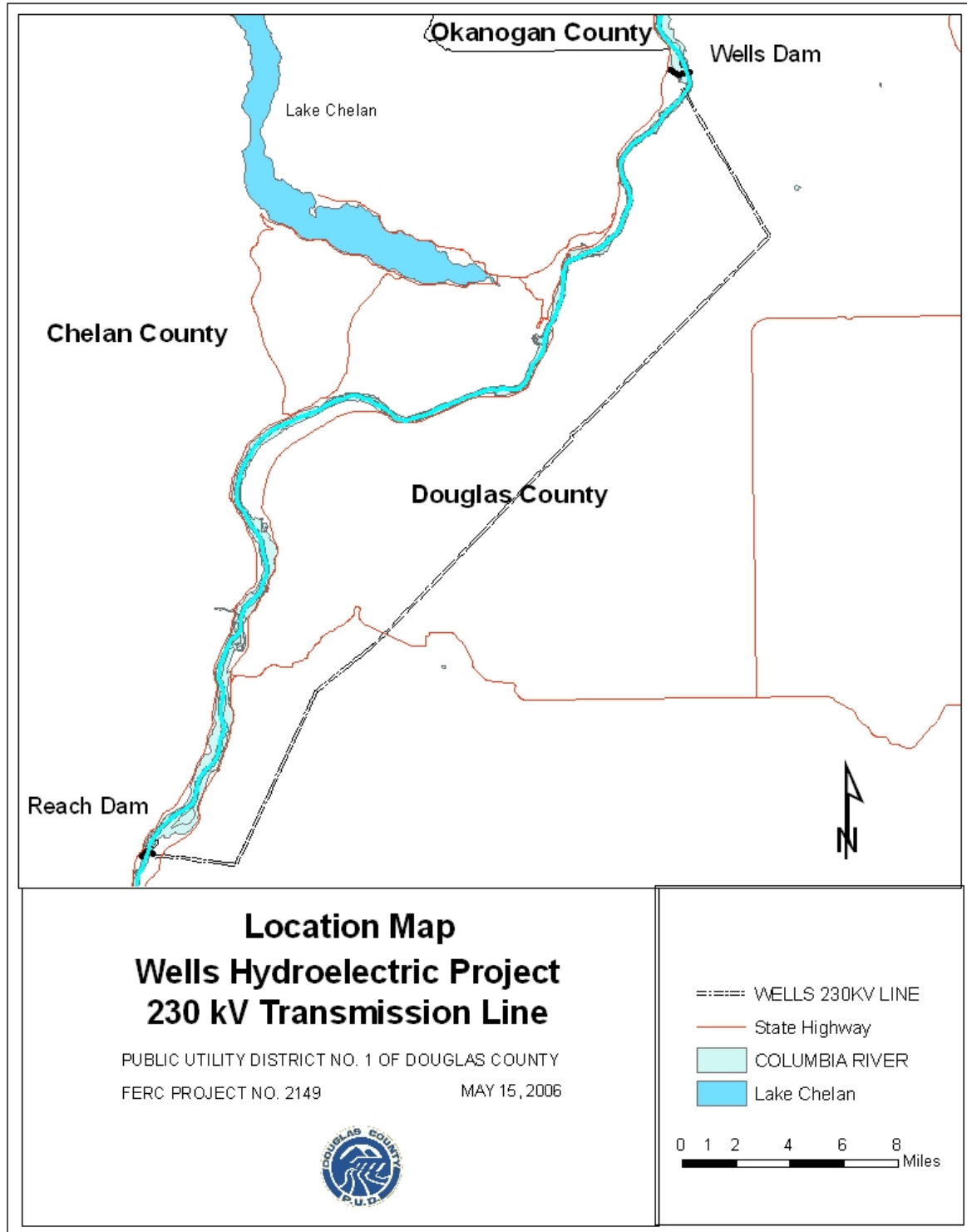


Figure 1.1-1 Location Map – Wells Dam 230 kV Transmission Line Corridor

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required seven FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The overall goal of the wildlife and botanical surveys along the Project transmission lines is to provide information needed to guide land management decisions, avoid damage to valuable habitat during future transmission corridor management activities and minimize the spread of invasive weeds. The study will provide baseline data on birds found near the corridor and information on the presence of RTE plant or animal species in the corridor. In addition, this study will provide information needed to meet the FERC requirements during the Wells ILP. The study objectives are divided into botanical and wildlife resource categories.

Pursuant to CFR 18.5 (vii), RTE species in this study plan include:

- Federally listed as threatened, endangered, proposed or candidates under the ESA;
- State listed as threatened or endangered;
- State listed as candidate (wildlife only);
- State listed as sensitive (plants only); or
- State listed as Review List 1 (plants only).

2.1 Botanical Resources

The main objectives of the botanical study are:

- (1) Identify and document the location of RTE plant species that occur within the transmission line corridor.
- (2) Identify and classify the specific vegetation cover types in the study area.
- (3) Generate detailed information on the species composition and classification of these plant communities, and their structures.
- (4) Create a detailed GIS cover type map of the study area showing the locations of these plant communities, their distribution, areas of coverage (acres), and note locations of habitats of special of concern or unique areas observed.
- (5) Identify any invasive plant species in the transmission corridor. For this transmission line corridor study, invasive species are Washington State Class A and B-designate noxious weeds.

2.2 Wildlife Resources

2.2.1 Avian

The main objectives of the avian study are:

- (1) Identify and document the location of any federal and state RTE avian species that use the study area.
- (2) Describe the habitat features used by RTE avian species observed within the corridor.
- (3) Document the presence of other avian species and provide relative abundance for birds using the study area.
- (4) Document raptor and corvid nesting and sharp-tailed and sage grouse use within the study area.
- (5) Document any evidence under the transmission line of avian collisions.

2.2.2 Mammal

The main objectives of the mammal study are:

- (1) Identify and document the location of federal and state RTE mammal species that use the study area.
- (2) Describe the habitat features used by RTE mammals observed within the corridor.
- (3) Document the presence of other mammal species in the study area.

2.2.3 Reptile

The main objectives of the reptile study are:

- (1) Identify and document the location of federal and state RTE reptile species that use the study area.
- (2) Describe the habitat features used by RTE reptiles observed within the corridor.
- (3) Document the presence of other reptile species in the study area.

3.0 STUDY AREA

Two 230 kV transmission lines connect Wells Dam with the Douglas switchyard next to Rocky Reach Dam (Figure 1.1-1). The transmission lines occupy a 230-foot corridor that is 41 miles long. The transmission lines begin at Wells Dam, cross the Columbia River from Carpenter Island in Chelan County to Douglas County. The transmission lines travel southeast to the Boulder Park area then turn southwest across wheat fields, past the town of Waterville and over Badger Mountain. The lines descend the west slope of Badger Mountain and end at Douglas Switchyard. The study area is the 230-foot transmission line corridor, excluding all actively cultivated fields.

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Botanical Resources

The US Fish and Wildlife Service (FWS) maintains a list of all plants that are listed or proposed as threatened or endangered under the Endangered Species Act. In addition to the federal list, Washington Department of Natural Resource's Natural Heritage Program (WNHP) maintains a database on the known locations of federally listed and proposed, as well as state listed threatened, endangered, sensitive and Review List 1 plants in Washington. Historic rare plant information is also available at both Washington State University and University of Washington. Invasive plant species potentially occurring in the study transmission line corridor are available from the Washington State Weed Board and Washington State Extension Service.

4.2 Wildlife Resources

The FWS maintain a list of all wildlife listed or proposed as threatened or endangered under the Endangered Species Act. The Washington Department of Fish and Wildlife (WDFW) maintains a list of all wildlife species listed or proposed for listing under the WAC-232-12-297. WDFW also maintains a list of RTE species and a database with locations of all recorded sightings. Cassidy et.al. (1997) also provides species range information for all wildlife that may be found in the transmission line corridor.

4.3 Transmission Corridor Maintenance

Douglas PUD conducts an ongoing maintenance program on the 230 kV transmission corridor. Maintenance activities include noxious weed control at transmission corridor structures and along access roads in the spring and fall. Target weed species are primarily diffuse knapweed (*Centaurea diffusa*) and Dalmatian toadflax (*Linaria dalmatica*). Transline[®] herbicide is applied in the spring as a contact herbicide with a limited residual, and is also used for spot applications in the fall. Transline[®] is used because it has minimal impacts on native grass species and sagebrush shrub species. Douglas PUD releases the biological control insect *Calophasia lunula* to control Dalmatian toadflax. Weedar-64[®] and Curtail[®] are also used to control broadleaf weeds.

The maintenance program also includes an overall inspection for damaged roads or structures. Tower structures are inspected on foot or using a four-wheeled all terrain vehicles (ATV) with low pressure tires. At the request of land owners, maintenance roads were not constructed across approximately 25 miles of wheat fields, on the Waterville Plateau, when the transmission lines were built. Existing roads require periodic maintenance if there is damage to the road from storms or rock falls or if the road requires grading for repairs to the 230 kV lines.

4.4 Terrestrial Resource Work Group

As part of the preparation for the relicensing of the Wells Project, Douglas PUD established a Terrestrial Resource Work Group (RWG) which began meeting informally in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to collaboratively identify potential resource issues related to Project operations and relevant to relicensing, and to develop preliminary study plans to be included in the Wells Pre-Application Document (PAD).

Through a series of meetings, the Terrestrial RWG collaboratively developed a list of Issue Statements, Issue Determination Statements and Agreed Upon Study Plans. An Issue Statement is an agreed upon definition of a resource issue raised by a stakeholder. An Issue Determination Statement reflects the RWGs' efforts to review the existing project information and to determine whether an issue matches with FERC's seven criteria and would be useful in making future relicensing decisions. Agreed Upon Study Plans are the finished products of the informal RWG process.

Based upon these meetings and discussions, the Terrestrial RWG is proposing to include a study plan into the Wells PAD which addresses the need to collect baseline botanical information for the existing 230 kV transmission line running from Wells Dam to Douglas Switchyard.

This proposed study is intended to fill data gaps in local knowledge of botanical resources including RTE and invasive plant species. This study will also provide information on bird species presence, identify if bird collision is a problem and provide information on the possible use of the transmission corridor by sharp-tailed or sage grouse. The study will also provide information on Washington ground squirrel and striped whipsnake which are both RTE species, that have a range that overlaps with the study area.

4.5 Issue Statements

Issue Statement (6.2.3.2)

Presence of the transmission lines could kill or injure birds and the presence of the transmission towers could affect wildlife behavior and use of adjacent habitat.

Issue Determination Statement (6.2.3.2)

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

The transmission lines and towers could have impacts on wildlife, including bird collisions and raptor nesting. Baseline studies have not been completed to assess these potential impacts. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The RWG agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife and RTE inventories along the transmission corridor. In addition to documenting baseline conditions, this study would be used to document presence (whether raptors, corvids and prairie grouse are found within or adjacent to the transmission corridor). A literature review will also be completed to specifically identify potential effects on raptors and prairie grouse.

Issue Statement (6.2.3.3)

Maintenance of the transmission corridor could affect wildlife and/or botanical species (e.g. weed control and road maintenance).

Issue Determination Statement (6.2.3.3)

The Wells Project license includes two 230 kV single-circuit transmission lines. The lines run 41 miles in length from the switchyard at Wells Dam to the Douglas Switchyard operated by

Douglas PUD. The lines run parallel to each other on 45-85 foot steel towers along a common 235-foot wide corridor.

Maintenance activities along the transmission corridor could have an impact on wildlife and botanical resources. Wildlife and botanical species inventories have not been completed along the transmission corridor.

The resource work group agrees that a study is needed during the two-year ILP study period and is proposing to complete baseline wildlife, botanical and RTE inventories along the transmission corridor.

There is some existing information on botanical and avian resources in the study area as described below.

5.0 PROJECT NEXUS

The two Wells 230 kV transmission lines were included in the FERC order issuing the Wells Project license (issued: July 12, 1962). Exhibit K maps of the transmission line corridor transmitted copies of as build Exhibits J and K showing the route of the transmission line of the Wells Project 2149. FERC approved the Exhibit J and K drawings and amended the license by order (issued: January 5, 1979).

The results of the RTE botanical and wildlife surveys will be used for Section 7 consultation under the ESA. Direct effects of the transmission corridor and/or maintenance of the corridor on RTE species or habitats are unknown. Ongoing maintenance of the transmission corridor could adversely affect RTE plants or wildlife, if any are present. The avian and botanical surveys will also be used to help guide future corridor management activities and to determine whether additional measures are needed to reduce the spread of noxious weeds and bird collisions.

6.0 METHODOLOGY

The methods for conducting the botanical and terrestrial surveys described in the goals and objectives are each described below.

6.1 Botanical

6.1.1 RTE Plant Surveys

The surveys for RTE plants will comprise the following tasks: (1) pre-field review; (2) field surveys; and (3) documentation and mapping of results. Each task is described below.

The pre-field review task consists of developing a “target” list of RTE plant species to guide field surveys. The pre-field review task will be initiated by sending letters to the FWS and WNHP requesting the latest information on RTE plant species known to occur or potentially occurring in or near the Wells Project area. The target list of RTE species potentially occurring in the Wells Project area will be developed based on input from the FWS and WNHP.

Information on habitat requirements, such as elevation, soils, and associated vegetation community, will be used to refine the list to those species most likely to be found in or near the Project area. This information will also be used to identify the habitats to be surveyed, with an emphasis on those that support RTE species with federal or state status as threatened or endangered. Botanists from the WNHP will also be asked for any additional information related to RTE species that may occur in the area.

Prior to beginning field surveys, project botanists will review the morphological characteristics of target RTE plant species to develop a search image, which improves detection and recognition abilities. This process will include reviewing herbarium specimens and collecting information on vegetative, floral, and fruit characteristics for each target species and other species that are closely related or otherwise difficult to distinguish from the target RTE species.

Surveys for RTE plants in the transmission line corridor will involve visually searching suitable habitat. RTE plant surveys will be conducted on foot using a random meander approach described in Nelson (1985). Surveys will be conducted by botanists experienced in conducting RTE plant surveys.

The habitat requirements of RTE species will be used to refine survey efforts. Habitats with a high probability of supporting one or more RTE plants will receive thorough coverage. Habitats with a lower likelihood of supporting these species will be surveyed less intensively. Actively cultivated fields will not be surveyed. RTE species will be recorded and mapped when encountered and habitats will be described.

The timing of RTE plant surveys is critical to the success and validity of the survey. The number of surveys to be conducted in 2008 will be determined by the blooming period of each RTE plant species.

RTE plants will be identified in the field using the Flora of the Pacific Northwest (Hitchcock and Cronquist 1973) and the Field Guide to Selected Rare Plants of Washington (WNHP 2004). A variety of sources will be utilized to verify tentative species identification including other floras, published papers, herbarium specimens, and consultation with appropriate taxonomic specialists. A list of all plant species identified during field surveys will be compiled and provided in the final report.

WNHP sighting forms will be completed for each RTE plant population found in the transmission line corridor. Data collected will include population size and area, phenology, habitat, slope, aspect, elevation, soils, and associated species. Factors affecting survival of RTE species (e.g., deer browse, disturbance, etc.) will be noted if applicable. The population locations will be mapped on survey maps and Global Positioning System (GPS) coordinates will be collected to verify the mapped location. Photographs will be taken of the RTE plants and habitats where they are growing.

Population size for RTE species will be visually estimated (for large populations) or counted (for small populations). For large RTE plant populations (and with agency permission), a voucher specimen will be collected, pressed, and dried for deposition at the University of Washington

Herbarium. Where collection poses a risk to the population, photographs will aid in verification by taxonomic specialists.

6.1.2 Invasive Species Surveys

The surveys for invasive plants will comprise the following tasks: (1) pre-field review; (2) field surveys; and (3) documentation and mapping of results. Each task is described below.

Invasive species surveys will be focused on plants listed in Washington State as Class A and Class B Designate weeds. Class A weeds are non-native species with a limited distribution in the state; eradication of all Class A weeds is required by state law. Class B weeds are non-native species whose distribution is limited to portions of Washington State and control requirements vary between counties. A list of weed species will be developed of all Class A and B weeds found in Douglas County. Prior to beginning field season surveys, botanists will review the morphological characteristics of Class A and B weeds to develop a search image, which improves detection and recognition abilities.

Surveys for invasive plant species will be conducted in the transmission line corridor. These surveys will be conducted in conjunction with RTE plant surveys and field verification of the Vegetation Cover Type Map. Since many invasive species are easiest to see and identify later in the growing season, these surveys will be conducted in the June to August time period. All class A or B species will be mapped.

Infestations of invasive species will be mapped on project maps and GPS coordinates will be collected to verify the mapped location. Each infestation will be mapped as accurately as possible, to a resolution of 0.1 acre. Data gathered for each infestation will include the estimated total number of plants and the aerial cover and density by cover by class, as developed by the North American Weed Management Association (NAWMA 2003): trace ($T < 1\%$), low ($L = 1-5\%$), moderate ($M = 5.1-25\%$), and high ($H = 25.1-100\%$).

6.1.3 Cover Type Mapping

The vegetation mapping study will involve three phases of work. The first two phases will identify general cover types through photo interpretation and field verification. The third phase will be the production of the final cover type map.

Douglas PUD received digitized color aerial photography of Douglas County from Natural Resources Conservation Service. The color digital orthophotos have a pixel resolution of one meter. Using these digital orthophotos, general vegetation types will be delineated by heads-up digitizing in ArcView Geographic Information system (GIS). Vegetation types and land use classifications will also be assigned.

ArcView GIS will be used to generate field maps containing the color orthophotography and the cover type polygons. Preliminary maps of vegetation cover types will be verified in the field by a botanist. This work will be completed while conducting RTE and invasive plant surveys. Field verification will involve checking a subset of the boundaries of the cover type polygons and correcting the assigned cover type classification and reassigning correct classifications as needed. Corrections to the boundaries and cover type designations will be made directly on field copies of the maps.

Additional data will be collected during the field verification to describe the characteristics of each mapped cover type including species composition, stand structure, habitat quality and land use. Information collected will include:

- Plant species composition, including the dominate and more prominent associated species in each vegetation layer (tree, shrub and herbaceous layers);
- Structural data, including estimates of average heights and aerial cover of each vegetation layer;
- Predominant land use(s) associated with each cover type;
- Rare, unique and particularly high quality vegetation/habitat will be noted.

The contractor will use ArcView GIS to change any cover type polygons found to be in error during the field verification of the cover type map. The contractor will provide Douglas PUD with copies of all map products.

The contractor will be responsible for all equipment necessary to complete the field verification work.

6.2 Wildlife

Assessments to be conducted include avian point counts, prairie grouse, raptor and corvid nesting surveys. In addition, surveys will be conducted for reptiles and mammals. Incidental to all wildlife and botanical surveys, avian mortalities will be located, recorded and collected. Special emphasis will be made to documenting the presence of RTE species and their habitat during these surveys.

6.2.1 Avian Surveys

6.2.1.1 Point Counts

Avian surveys will be conducted to gather data on bird species that use various habitat types in the vicinity of the Wells Project 230 kV transmission line corridor. Surveys will be conducted four times from the first of May through the end of June, which is considered the peak of breeding season in North Central Washington. Four fall surveys will be conducted from September to October to capture the variability of the fall avian migration.

Assessing avian use during the breeding season will involve the use of point count stations (Bibby et al. 1992, Ralph et al. 1995) and transects (Leukering et al. 2000, Altman and Bart 2001). Because of the high degree of ecological variability associated with “special species” which are those species that: (1) are in habitats that are not well monitored, (2) are too rare or erratic to be sampled effectively, or (3) have an ecology that is not conducive to standard methodologies (e.g., inconspicuous, colonial, nocturnal, low densities), Altman and Bart (2001) recommend using a combination of monitoring methods to gather occurrence and relative abundance data. Thus, a combination of point count stations and transects distributed throughout the study area will be sampled to maximize the probability of detecting the less common species as well as collecting adequate data on all species. This approach is termed a “point transect” (Altman and Bart 2001) and involves conducting standard 5-minute point count surveys at stations (Bibby et al. 1992, Ralph et al. 1995) and recording all detections of special species while walking routes between point count stations (Altman and Bart 2001). Point count stations will be a minimum of 820 ft (250 m) apart to avoid double-counting individual birds.

Avian surveys during the breeding season will take place between sunrise and 10:00 am (Altman and Bart 2001) and fall surveys will also start at sunrise and be completed by noon. Each bird detected via visual sighting or auditory call will be recorded, as well as the primary habitat type and the estimated distance from station center in 16 ft. (5 m) increments. All mammals or reptiles seen will also be recorded. Data will also be recorded to gather information on likely nesting or foraging behaviors or signs. Detections at point count stations will be divided into two time periods: 0-3 minutes and 3-5 minutes. For each detection made along survey transects, biologists will record species, number of individuals, habitat, and behavior. GPS will be used to document the point count and transect locations and to estimate the linear length of the transect survey. All biologists conducting the avian surveys will have expertise in auditory as well as visual identification of birds.

To provide a general description of the land surveyed, biologists will record habitat data at each survey station/transect. Habitat parameters will be estimated qualitatively and will include:

- Tree layer cover, height, and average diameter at breast height (DBH),
- Shrub layer height and cover,
- Herbaceous layer height and canopy cover,
- Snag and Large Woody Debris (LWD) abundance, and
- Dominant species.

Locations of avian survey stations and transects will be stratified based on: (1) study area zone, (2) vegetation cover type, and (3) adjacent land use immediately outside of the study area. The actual number of point-transects and point count stations will be determined following further review of aerial photography. However, based on study area size, it is anticipated that approximately 50-70 stations will be established along the point-transects, which will be distributed among the five study area zones in proportion to their relative land base and river length.

All data will be entered into and stored in a database. Analysis of avian data will involve calculation of species richness and species relative abundance (number per station per survey period) for each of the five habitats and for the five study area zones. Data collected during the walking and boat transect portions of the surveys will be analyzed independently from the point count stations. ArcView GIS will be used to develop report maps that display survey locations and significant findings.

6.2.1.2 Prairie Grouse Surveys

Field surveys will be conducted during two time periods (late winter after snow melts and in September). Grouse transects will be placed randomly within large continuous blocks of native habitat in the study area along the transmission line corridor. A biologist will walk the transect looking for evidence of sage grouse or sharp-tailed grouse. All evidence of grouse use will be recorded and feathers collected for verification. Geographic coordinates of the location of any grouse observations will be established with a GPS receiver and recorded for later mapping.

All data will be stored in a database and mapped using ArcView GIS.

6.2.1.3 Raptor and Corvid Nest Surveys

The raptor and corvid nest surveys will be conducted along the length of the transmission line corridor. A helicopter will be used during the surveys to search the transmission line lattice towers and the surrounding large conifer and deciduous trees, within 1/4 mile, for nests. The helicopter will travel at a speed that allows the observer to scan each tower and all the likely trees. The helicopters will remain far enough away from the nest to prevent the adults from flushing. A biologist familiar with raptor and corvids nesting will accompany the pilot and conduct the nest surveys and record data. The survey will be conducted in late May.

6.2.2 Mammal Surveys

Mammals using the project area will be documented by recording visual observations or sign, including scats, tracks and calls incidental to all field surveys (Call 1986). All observations of RTEs mammals will be recorded, habitat characteristics identified and locations mapped.

6.2.3 Reptile Surveys

The use of the study area by striped whipsnake and other reptiles will be documented by visual encounter surveys (VES). Surveys will be conducted in representative native habitat, within the study area. Surveys will be conducted only during warm weather. The VES method involves searching habitat in a defined area, examining ground vegetation and under large objects (large

rocks and woody debris) that may provide cover. All cover objects will be returned to their original position to avoid degradation of habitat. All reptiles will be identified without capturing them, if possible. If necessary, attempts will be made to capture individuals for identification, which will be followed by immediate release. All observations of RTEs reptiles will be recorded, habitat characteristics identified and locations mapped.

6.3 Documentation

Results of the botanical and wildlife surveys will be documented in a single report. The report will also summarize the methods used for each of the surveys. The results section of the report will include botanical information and wildlife species documented in the Project area. It will also include a matrix of wildlife species by habitat type and results of analyses of species abundance and distribution. Maps of survey locations and the distribution of RTE species will also be part of the report. A draft report will be produced for review prior to preparing the final report.

The report will also include a description of the transmission corridor maintenance program. Potential impacts of the maintenance program to native habitat and RTE wildlife will be identified and summarized in the report.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

The botanical and wildlife studies will require botanists and biologists with requisite experience to conduct all surveys described above.

The contractors will be responsible to provide a helicopter for the raptor surveys.

The contractors will be responsible for all field data sheets, notebooks, binoculars, flora and other personal field equipment.

The contractors will be responsible for obtaining any permits required for the study.

8.0 BUDGET

No budget has been developed for this project.

9.0 SCHEDULE

Planning for plant surveys will begin shortly after the issuance of FERC's Study Plan Determination in October 2007, with a pre-field research to refine a list of potential RTE plants and invasive species. Applications for permits that may be required for the botanical studies will be sent in during late 2007. Plant collections in the University of Washington herbarium will be studied to develop a sight picture of the RTE plants. Botanical field work is scheduled between May and the end of August 2008 and is dependent on the time RTE species bloom.

Planning for the wildlife surveys will begin in late 2007 with the application for a Scientific Collection Permit from WDFW. The wildlife field studies will begin in May 2008 and continue through the end of October 2008.

An Initial Study Report will be provided to the Terrestrial RWG, stakeholders and FERC in October 2008 with a final report summarizing the study results provided by October 2009.

10.0 REFERENCES

- Altman, B., and J. Bart. 2001. Special species monitoring and assessment in Oregon and Washington: land bird species not adequately monitored by breeding bird survey. Report prepared for: Oregon-Washington Partners in Flight.
- Bibby, C. J., N. D. Burgess, and D. A. Hill. 1992. Bird census techniques. Academic Press Limited. London.
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- Cassidy, K. M., C. E. Grue, M. R. Smith, and K. M. Dvornich, eds. 1997. Washington State Gap Analysis – Final Report. Washington Cooperative Fish and Wildlife Research Unit, University of Washington, Seattle, Volumes 1-5.
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- Leukering, T., M.F. Carter, A. Panjabi, D. Faulkner, and R. Levad. 2000. Monitoring Colorado's birds: the plan for count-based monitoring. Colorado Bird Observatory, Brighton, CO.
- Nelson, J.R. 1985. Rare plant survey techniques for impact assessment. Pages 159-166 *In* Thomas S. Elias (ed.). Conservation and management of rare and endangered plants. Proceedings of a conference of the California Native Plant Society. Sacramento, California.
- Nichols, J.D. and C.R. Dickman. 1996. Capture-recapture methods. Pp. 217-218 *In*: Wilson, D. E., F. R. Cole, J. D. Nichols, R. Rudran and M. S. Foster, editors. 1996. Measuring and monitoring biological diversity, standard methods for mammals. Smithsonian Institution Press, Washington D.C and London. 409pp.
- Ralph, C.J., J.R. Sauer, S. Droege et al. (tech. eds.). 1995. Monitoring bird populations by point counts. Gen. Tech. Rept. PSW-GTR-149. USDA Forest Service, Pacific Southwest Research Station. Albany, CA. 187pp.

September 22, 2006

TO: Jim McGee, Douglas PUD

FROM: Beau Patterson, WDFW

SUBJECT: Potential pygmy rabbit habitat along Transmission Line corridor

At the Wells Relicensing Terrestrial resources Working Group Meeting September 12, 2006, I was tasked with reviewing WDFW data for potential pygmy rabbit habitat along the Wells 230kV transmission line corridor for the RTE Survey Study Plan. I have since reviewed our 2005 1:100,000 scale maps showing shrubsteppe habitat overlayed with soils data. We use these as a "first cut" at identifying potential pygmy rabbit habitat. Suitable habitat at this scale is shrubsteppe vegetation types with suitable soils: loam and mixed loam types. In the field, finer scale partitioning can be conducted by excluding areas lacking dense sagebrush required by pygmy rabbits.

Potentially suitable habitats occur at the north and south ends of the line. Beginning at Wells dam, the ROW transverses shrubsteppe habitat from the Columbia River for the first three miles of the line. Based on my recollection of this section of the ROW, much of the habitat lacks dense sagebrush, however there may be areas of potentially suitable dense sagebrush. The next area of potentially suitable habitat is found in Boulder Park, specifically T27R24E Sec. 4, and T28R24E Sec. 34. From there south, no suitable potential habitat occurs until T25R21E Sec. 36, where some areas of loam and mixed loam soils with shrubsteppe habitat occur.

In T24R21E, the ROW crosses extensive loam/shrubsteppe and mixed loam/shrubsteppe types in the S1/2 Sec. 10, all of Secs. 15 and 21, and most of Sec. 28. From there to Rocky Reach and the ROW terminus, shrubsteppe types are predominantly unsuitable stony loam, however there are a few lenses of potentially suitable loam/shrubsteppe.

As we have discussed in previous meetings, the ROW is outside of the presumed historical range, which was identified by mapping confirmed historical occurrences and buffering that polygon by a Township width (6 miles). However, given the extremely imperiled status of the Washington pygmy rabbit (no wild occurrences documented since 2004, federally listed as endangered); the proximity to the historic range; and the paucity of surveys for the species in potential habitat along the ROW, the TRWG felt it prudent to include the species in the survey targets for the ROW study. I am comfortable that surveyors can conduct evidence searches for active pygmy rabbit burrows, in conjunction with other wildlife surveys along the ROW in these potentially suitable habitats, and that specific, separate surveys for the species are not required. Potential that pygmy rabbits occur along the ROW is remote.

Action Items
Terrestrial Resources Work Group
Meeting 7 – September 12, 2006

1. Provide Tony with River Mile of bitterbrush habitat (Scott).
2. Check PAD for description of erosion and cite Lower Okanogan River Erosion Evaluation Report, if needed (Brad).
3. Review WDFW shrub steppe and soils map for Pigmy Rabbit habitat (Beau).
4. Check APLIC website for collision literature (Jim).
5. Distribute PAD Section 6 to RWG members (Scott).

**Letter regarding Wells Project Relicensing Update –
2006 Policy Meetings – September 20, 2006**



Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553

To:
Address:
Address
City, State, Zip

September 20, 2006

Subject: Wells Project Relicensing Update – 2006 Policy Meetings

Dear:

The current Federal Energy Regulatory Commission (FERC) license to operate the Wells Hydroelectric Project (FERC Project No. 2149) expires May 31, 2012. By law and by regulation, the Notice of Intent (NOI) to relicense the Wells Project and the Wells Pre-Application Document (PAD) must be filed with the FERC between five and five and one-half years prior to the expiration of the FERC operating license. The Public Utility District No. 1 of Douglas County (Douglas PUD) plans on filing the NOI and PAD with FERC in December 2006, five and one-half years prior to the expiration of the existing FERC license.

The Integrated Licensing Process (ILP) is the default licensing process and will be utilized for relicensing the Wells Project. The ILP is a schedule driven process with numerous deadlines and milestones within each stage. In order to familiarize stakeholders with the existing environment and operations of the Wells Project and to provide stakeholders with a broader opportunity for interaction and resolution of resource issues, Douglas PUD invited you and members of your staff to attend a series of voluntary Resource Work Group (RWG) meetings.

Based upon feedback from the stakeholders that attended the relicensing kick-off meeting in October 2005, four RWGs were formed to discuss relevant relicensing issues and to scope studies for the upcoming Wells ILP. To date, 26 technical RWG meetings and seven organized project tours have been completed toward the goal of developing studies to be conducted during the formal relicensing process. Currently, we are working toward final agreement on 12 study plans for inclusion into the PAD. The list of study plans include: 7 aquatic and water quality related study plans, one cultural study plan, two recreation and land use study plans and two wildlife and botanical study plans.

Now that the RWGs are winding down for 2006, Douglas PUD would like to once again meet with the Policy leads from the various agencies, tribes, cities and counties that have been participating in the RWG Process for the Wells Project. The goal of the outreach meetings is to discuss any remaining relicensing issues, briefly describe the agreed upon study plans developed by the RWGs, touch on some of the more important upcoming relicensing milestones and

discuss expectations regarding future communications and participating during the formal process.

I would like to thank you and your staff for participating in this past year's voluntary issue identification and study scoping process. Thanks to you and your organization it has been a success. We encourage you to continue dedicating appropriate resources to the upcoming formal relicensing process and in particular, we urge you to review the pending filing of the NOI and PAD in December of this year.

For additional information on the ILP, the Wells Project or the Wells Relicensing process and schedule, please feel free to contact Shane Bickford, Supervisor of Relicensing, at sbickford@dcpud.org or (509) 881-2208. Additional information can be viewed and downloaded from the Wells Project Relicensing website at: <http://relicensing.douglaspud.org/>

Sincerely,

A handwritten signature in blue ink, appearing to read "W.C. Dobbins".

William C. Dobbins
Manager

Enclosures: (1) Schedule for Meetings
(2) Policy Meeting Agenda
(3) List of Relicensing Study Plans
(4) Wells Integrated Licensing Process Deadlines

Copy: **USFWS** – Susan Martin, Mark Miller, Steve Lewis, Dan Trochta
NMFS – Bob Lohn, Keith Kirkendall, Bruce Suzumoto, Bryan Nordlund, Ritchie Graves, Dale Bambrick, Kristine Petersen
DOI – Preston Sleeper
BLM – Barron Bail, Neal Hedges, Sally Sovey
National Park Service – Susan Rosebrough
WDFW – Jeffery Koenings, Dennis Beich, Carmen Andonaegui, Matt Monda, Tony Eldred, Beau Patterson
WDOE – Jay Manning, Derek Sandison, Tom Tebb, Denise Mills, Jonathan Merz, Pat Irle
State Parks – Rex Derr, Bill Koss, Eliot Scull, Jim Harris, Bill Fraser
CCT – Business Council Chairman Michael Marchand, Deb Louie, Joe Peone, Camille Pleasants, Bill Towey, Jerry Marco, Dinah Demers, Mike Palmer
YN – Council Chairman Jerry Meninick, Phillip Rigdon, Steve Parker, Tom Scribner, Bob Rose
Bridgeport – Mayor Steven Jenkins, Jean Hardie
Brewster – Mayor Lee Webster
Pateros – Mayor Gail Howe, George Brady
Okanogan County – Commissioners
Douglas County – Commissioners
Chelan County – Commissioners
IAC – Jim Eychaner
DAHP – Allyson Brooks, Rob Whitlam

SCHEDULE FOR RELICENSING POLICY MEETINGS
WELLS HYDROELECTRIC PROJECT
FERC NO. 2149

OCTOBER

<u>ORGANIZATION</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>PLACE</u>
Colville Tribes Contact: Joe Peone Deb Louie	Tues.	3-Oct-06	1:00 PM	Nespelem
WDOE Contact: Derek Sandison	Thur.	5-Oct-06	11:00 AM	Yakima
Yakama Nation Contact: Steve Parker			2:00 PM	Yakima
Cities Contact: Gail Howe Lee Webster Jean Hardie	Fri.	6-Oct-06	9:30 AM 11:00 AM 1:30 PM	Pateros Brewster Bridgeport
Wash. State Parks Contact: Jim Harris	Fri.	13-Oct-06	9:00 AM	Wenatchee
NMFS Contact: Bryan Nordlund	Tues.	17-Oct-06	10:30 AM 1:00 PM	Portland/B. Nordlund Portland/Group
Department of Interior (BIA-FWS-BLM-NPS) Contact: Preston Sleeper	Wed.	25-Oct-06	9:30 AM	Portland

SCHEDULE FOR RELICENSING POLICY MEETINGS
WELLS HYDROELECTRIC PROJECT
FERC NO. 2149

NOVEMBER

<u>ORGANIZATION</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>PLACE</u>
WDFW Contact: Jeff Koenigs	Tues.	7-Nov-06	11:00 AM	Olympia
DAHP Contact: Allyson Brooks Rob Whitlam			1:30 PM	Olympia
IAC Contact: Jim Eychaner			3-3:30 PM	Olympia
FWS Contact: Susan Martin	Tues.	14-Nov-06	11:00 AM	Spokane (Maybe Wenatchee)
Commissioners Contact: Commissioners	Tues.	28-Nov-06	9:00 AM 11:30 AM 3:00 PM	Wenatchee Waterville Okanogan
BLM Contact: Sally Sovey	Wed.	29-Nov-06	9:30 AM	Wenatchee

Stakeholder Policy Meeting
October – November 2006
Meeting Agenda
2006-01

Posted: September 5, 2006

1. Welcome, Introductions and Agenda Review.
2. Overview of FERC's Integrated Licensing Process (Handout).
 - New Default Process.
 - Lots of Filing Deadlines (FERC train).
 - Criteria for Studies.
 - Study Dispute.
 - Project Nexus required for PM&Es and Settlements.
3. Wells Baseline Studies 2005 – 2006 (Handout).
 - Baseline Studies (2005).
 - Interim Studies (2005-2006).
 - HCP and Compliance Studies (2005-2007).
4. Resource Work Groups (2005-2006).
 - Rationale for RWGs.
 - RWG Scope (terrestrial, aquatic, cultural and recreation/land use).
 - RWG Goals and Schedule.
 - Participation.
 - Identification of Resource Issues.
 - Development of Agreed Upon Study Plans.
 - Study Plans Submission Schedule.
5. List of Agreed Upon Baseline Studies (Handout).
 - List of 12 agreed upon studies.
6. Wells Integrated Relicensing Process (2006-2012) (Handout).
 - Schedule.
 - Goals.
 - Major Milestones and Filing Dates.
7. Expectations during Relicensing.
 - Support for Study Plans.
 - Anadromous Fish Issues.
 - HCP Signing Parties.
 - Resolution of Future Issues.
 - Settlement.

LIST OF RELICENSING STUDY PLANS
September 2006

AQUATIC AND WATER QUALITY STUDY PLANS

1. Juvenile Lamprey Predation Study
2. Adult Lamprey Spawning Assessment
3. Adult Lamprey Passage Study
4. Okanogan River Toxins Study
5. Total Dissolve Gas Investigation
6. Temperature Model
7. pH, DO and Turbidity Monitoring

TERRESTRIAL STUDY PLANS

1. Nuisance Species Control Study
2. Transmission Lines Wildlife and Botanical Resources Study

RECREATION AND LAND USE STUDY PLANS

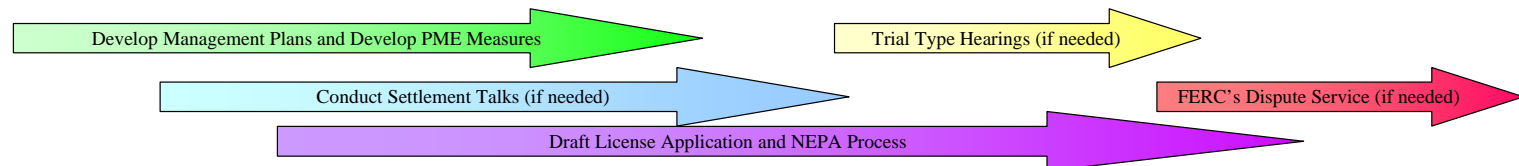
1. Recreation Needs Assessment
2. Facility Access Study

CULTURAL STUDY PLAN

1. Cultural Resource Investigation

**Wells Hydroelectric Project
Integrated Licensing Process Deadlines¹**

2006	2007	2008	2009	2010		2011	2012
File NOI and PAD	ILP Initiation and Study Scoping	Conduct Studies		File License Application		Environmental Assessment	License Issuance
December File Notice of Intent (NOI) and Pre-Application Document (PAD)	No later than 30 days after filing NOI/PAD Initial Tribal Consultation Meeting January 30 Notice of NOI/PAD and issuance of Scoping Document 1 March 1 Scoping Meetings and site visit April 2 Comments on PAD, SD1, and Study Requests May 17 File Proposed Study Plan FERC Issues SD2 (if necessary) June 18 (no later than) Study Plan Meeting August 15 Comments on Proposed Study Plans September 14 File Revised Study Plan Agency reply comments due in 15 days October 15 FERC Issues Study Plan Determination November 5 – January 14, 2008 Dispute Resolution (if necessary)	January – December Conduct First Season of Study October 15 Initial Study Report October 30 Initial Study Report Meeting November 14 File Initial Study Report Meeting Summary December 15 File Meeting Summary Disagreements (if necessary) Agencies may file request for study plan modifications	January 14 File Responses to Meeting Summary Disagreements (if necessary) February 13 Resolution of Disagreements (if necessary) January – December Conduct Second Season of Study October 15 File Updated Study Report October 30 Updated Study Report Meeting November 16 File Updated Study Report Meeting Summary December 16 File Meeting Summary Disagreements (if necessary) December 31 File Preliminary Licensing Proposal (PLP)	January 15 File Responses to Meeting Summary Disagreements (if necessary) February 15 Resolution of Disagreements (if necessary) March 31 Comments on PLP Due Additional Information Requests (AIR) (if necessary) May 31 Final License Application (FLA) Filed Within 60 days of Filing FLA Request for 401 Water Quality Certification Filed (401 Request) Within 14 days after FLA Tendering Notice (TN) Within 30 days after FLA Commission decision on any outstanding pre-filing AIRs Within 60 days after TN or within 60 days after AIR decision Notice of Acceptance (NOA) and Ready for Environmental Analysis	Within 60 days after NOA FLA Comments and Interventions Due including 10(a), 10(j) Recommendations and 4(e) Preliminary Terms and Conditions (PT&C) Within 30 days after PT&C Filed Parties submit alternatives to PT&C (if necessary); or Parties request trial-type hearing for PT&C (if necessary) Trial Type Hearings (if needed) October 2010 – April 2011 Within 45 days after FLA Comments and within 15 days after Parties Submit Alternatives to PT&C FLA and PT&C Reply Comments due	Within 75 days after FLA and PT&C Comments due FERC Issues non-draft Environmental Assessment (EA); or Within 135 days after FLA and PT&C Comments due FERC Issues Draft EA (DEA) or Draft Environmental Impact Statement (DEIS) Within one year after Filing 401 Request Water Quality Certificate Issued Within 30 or 45 days following Issuance of non-draft EA Comments on EA due Within 30 or 60 days following Issuance of DEA or DEIS DEA or DEIS Comments due Within 60 Days Following EA, DEA or DEIS Comments Modified Mandatory Terms and Conditions due including any hearing decisions, comments, and proposed alternatives Within 90 Days Following Mandatory Terms and Conditions FERC Issues Final EA	September 2011 – May 2012 FERC May Refer any Modified Terms and Conditions to FERC's Dispute Resolution Service May 31 FERC Issues License Order



¹ This document does not include all ILP deadlines. See the Wells Project Process Plan and Schedule for a more detailed timeline. If the due date falls on a weekend or holiday, the deadline is the following business day.

Cultural RWG Meeting 6
September 28, 2006

From: Scott Kreiter
Sent: Monday, September 25, 2006 3:10 PM
To: Bob Clubb; Brad Hawkins; Camille Pleasants; Frank Winchell; Gordon Brett; Guy Moura; John Devine; Mary Mayo; Neal Hedges; Richard Bailey; Rob Whitlam; Sally Sovey; Scott Kreiter; Shane Bickford; Timothy Bachelder
Subject: Wells Relicensing: Cultural RWG Meeting Materials
Attachments: Meeting Agenda Cultural RWG 6.pdf; Cultural Work Group Action Items from RWG 5.pdf; OkanoganReconnaissance.pdf; Wells Reservoir Cultural Resources Investigation Study Plan.DOC

Cultural RWG:

Please find attached the materials for the RWG conference call on Thursday, September 28, at 10AM.

1. Agenda;
2. Action Items from September 7;
3. Summary of our September 14 boat trip on the Okanogan River;
4. Draft Cultural Resources Investigation Study Plan with changes tracked.

Please see the agenda for conference call dial-in numbers.

Thanks!

-Scott

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – September 28, 2006**

Meeting Purpose: To review and comment on draft study plan.

Objectives: Provide comments on the draft Cultural Resources Investigation study plan

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: September 28, 2006

Location: CONFERENCE CALL

Meeting time: 10:00 AM – 12:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #5	Scott
10:30	Discuss Cultural Resources Investigation Study Plan	Group
11:50	Action Items and Next Steps	Scott
12:00	Adjourn	

Attendees Invited:

Camille Pleasants, Colville Tribes (THPO)
Guy Moura, Colville Tribes
Rob Whitlam, Washington DAHP (SHPO)
Sally Sovey, BLM
Rich Bailey, BLM
Frank Winchell, FERC

Bob Clubb, Douglas PUD
Shane Bickford, Douglas PUD
Gordon Brett, Douglas PUD
Scott Kreiter, Douglas PUD
Tim Bachelder, Devine Tarbell & Assoc.

Cultural RWG Meeting 6
Sign-in Sheet and Meeting Products

CULTURAL
RESOURCE WORK GROUP
SIGN IN SHEET
SEPTEMBER 28, 2006

[illegible]

Action Items
Cultural Resources Work Group
Meeting 6 – September 28, 2006

1. Provide the URL to the Clair Hunt allotment map (Margaret)
2. Complete a map of areas surveyed (part of the Data Review) (Glenn)
3. Consider utilizing an internal data review for the Wells Section 106 process (Scott)
4. Revise study plan and distribute with the Data Review for discussion at the October 19 meeting.

Cultural RWG Meeting 7
October 19, 2006

From: Scott Kreiter
Sent: Wednesday, October 11, 2006 3:00 PM
To: Bob Clubb; Brad Hawkins; Camille Pleasants; Frank Winchell; Gordon Brett; Guy Moura; John Devine; Mary Mayo; Neal Hedges; Richard Bailey; Rob Whitlam; Sally Sovey; Scott Kreiter; Shane Bickford; Timothy Bachelder
Subject: Wells Relicensing: Cutlural RWG Meeting Materials
Attachments: Meeting Agenda Cultural RWG 7.pdf; Wells Reservoir Cultural Resources Investigation Study Plan.DOC

Cultural RWG,

Please find attached the agenda and draft study plan which we will discuss at our meeting on October 19.

The study plan reflects edits from our last meeting as well as comments received from the Confederated Tribes of the Colville Reservation. Note that the Data Review material has been deleted, and will be included as an Appendix. The Appendix (Data Review) will be sent tomorrow.

Dial in numbers for those who will attend by conference call are included in the Agenda.

-Scott

**Cultural Resources Work Group
Wells Relicensing
Meeting Agenda – October 19, 2006**

Meeting Purpose: To review, comment and finalize the draft cultural resources study plan.

Objectives: Finalize the draft Cultural Resources study plan

Meeting called by: Scott Kreiter
(509) 881-2327

Date of meeting: October 19, 2006

Location: Nespelem, WA

Meeting time: 10:00 AM – 12:00 PM

Time	Agenda Topic	Lead
10:00	Review objectives and agenda Review action items from RWG #6	Scott
10:15	Finalize Cultural Resources Study Plan	Group
11:50	Action Items and Next Steps	Scott
12:00	Adjourn	

Attendees Invited: Camille Pleasants, Colville Tribes (THPO) Guy Moura, Colville Tribes Rob Whitlam, Washington DAHP (SHPO) Sally Sovey, BLM Rich Bailey, BLM Frank Winchell, FERC	Bob Clubb, Douglas PUD Shane Bickford, Douglas PUD Gordon Brett, Douglas PUD Scott Kreiter, Douglas PUD Tim Bachelder, Devine Tarbell & Assoc.
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Cultural RWG Meeting 7
Sign-in Sheet and Meeting Products

[illegible]

**CULTURAL RESOURCES INVESTIGATION
(CULTURAL RESOURCES 6.2.4.1)**

WELLS HYDROELECTRIC PROJECT

FERC NO. 2149

December, 2006

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

For copies of this study plan, contact:

Public Utility District No. 1 of Douglas County
Relicensing
Attention: Mary Mayo
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497
Phone: (509)884-7191, Ext. 2488
E-Mail: mmayo@dcpud.org

ABSTRACT:

The current Wells Hydroelectric Project (Wells Project) license will expire on May 31, 2012. The Public Utility District No. 1 of Douglas County (Douglas PUD) owns and operates the Wells Project and is using the Integrated Licensing Process (ILP) for relicensing as promulgated by Federal Energy Regulatory Commission (FERC) regulations issued July 23, 2003 (18 CFR Part 5).

The Cultural Resources Work Group (CRWG), which is composed of stakeholders (resource agencies, tribes and FERC) and Douglas PUD staff, was formed for the purpose of identifying issues and information gaps that may require study during the relicensing of the Wells Project. The CRWG, through a series of technical meetings, is proposing to conduct a Cultural Resources Investigation to resolve existing gaps in knowledge of cultural resources in the Area of Potential Effect (APE).

The Cultural Resource Investigation will identify and revisit all previously recorded historic properties within the APE, update the current location and condition of each site, update the site forms for each site, develop a prioritized list of sites and evaluate whether they are eligible for the National Register of Historic Places (NRHP), and evaluate the Project's effects on historic properties identified within the FERC Project Boundary.

The results of this study will be used to develop protection, mitigation, and enhancement (PME) measures for historic properties in the Wells Project APE. The PME measures will be incorporated into the Historic Properties Management Plan which will be filed with FERC along with the final license application in May, 2010.

1.0 INTRODUCTION

1.1 General Description of the Wells Hydroelectric Project

The Wells Hydroelectric Project (Wells Project) is located at river mile (RM) 515.8 on the Columbia River in the State of Washington. Wells Dam is located approximately 30 river miles downstream from the Chief Joseph Project, owned and operated by the United States Army Corps of Engineers (COE), and 42 miles upstream from the Rocky Reach Hydroelectric Project owned and operated by Public Utility District No. 1 of Chelan County (Chelan PUD). The nearest town is Pateros, Washington, which is located approximately 8 miles upstream from the Wells Dam.

The Wells Project is the chief generating resource for Public Utility District No. 1 of Douglas County (Douglas PUD). Construction of the Wells Project began in the fall of 1963 and commercial operation began on September 1, 1967. It includes ten generating units with a nameplate rating of 774,300 kW and a peaking capacity of approximately 840,000 kW. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. Fish passage facilities reside on both sides of the hydrocombine, which is 1,130 feet long, 168 feet wide, with a crest elevation of 795 feet mean sea level (MSL).

The Wells Reservoir is approximately 30 miles long. The Methow and Okanogan rivers are tributaries of the Columbia River within the Wells Reservoir. The Wells Project boundary extends approximately 1.5 miles up the Methow River and approximately 15.5 miles up the Okanogan River. The normal maximum surface area of the reservoir is 9,740 acres with a gross storage capacity of 331,200 acre-feet and usable storage of 97,985 acre feet at elevation of 781 MSL. The normal maximum water surface elevation of the reservoir is 781 feet. The Wells Project is licensed to operate between elevations 781 and 771 feet MSL. In the last 15 years, the Project has operated between 777 and 781 MSL 95% of the time.

1.2 Relicensing Process

The current Wells Project license will expire on May 31, 2012. Douglas PUD is using the Integrated Licensing Process (ILP) as promulgated by FERC regulations issued July 23, 2003 (18 CFR Part 5). Various state and federal agencies, tribes, local governments, non-governmental organizations and the general public will participate in the Wells Project ILP. During the ILP, information needs related to the relicensing of the Wells Project will be identified. All study plans intended to meet these information needs will be prepared in a manner that addresses each of the required FERC criteria described in 18 CFR § 5.9(b).

18 CFR § 5.9(b) Content of study request. Any information or study request must:

- (1) Describe the goals and objectives of each study and the information to be obtained;
- (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;

- (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
- (5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration;
- (7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

All study plans submitted to FERC will be reviewed by Douglas PUD and the applicable Resource Work Group(s) to determine if studies proposed will fill the information needs related to the Wells Project Relicensing. Any dispute over alternative study methods, that cannot be reconciled with stakeholders, will be decided by FERC.

2.0 GOALS AND OBJECTIVES

The goal of this study is to establish sound baseline information about cultural resources within the Wells Project boundary for the development of a Historic Properties Management Plan.

Specific objectives for meeting this goal are as follows:

- Update the current location and condition of all known cultural resource locations within the Area of Potential Effects (APE);
- Update site forms for all sites identified within the APE;
- Determine whether or not localized intensive surveys are needed for portions of the APE;
- Develop a list of priority sites for Determinations of Eligibility (DOE);
- Complete DOEs for priority sites; and
- Evaluate the Project's effects on historic properties identified within the APE.

The results of the Confederated Tribes of the Colville Reservation Traditional Cultural Property (TCP) study will be incorporated into the above goals and objectives.

3.0 STUDY AREA

The Wells Project APE was defined by the CRWG as follows:

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary. The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license (e.g. the Wells HCP Tributary Conservation Program).

For the purposes of this study, the APE includes those lands within the FERC Project boundary. The Wells Project boundary extends from the tailrace of Wells Dam (River Mile [RM] 514.7) upstream to the tailrace of Chief Joseph Dam (RM 544.5). The boundary also extends to RM 15.5 on the Okanogan River and RM 1.5 on the Methow River (Figure 3.0-1). The Wells Project also includes a 41 mile 230kV transmission right of way which will be included as part of the APE in this study (Figure 3.0-2).

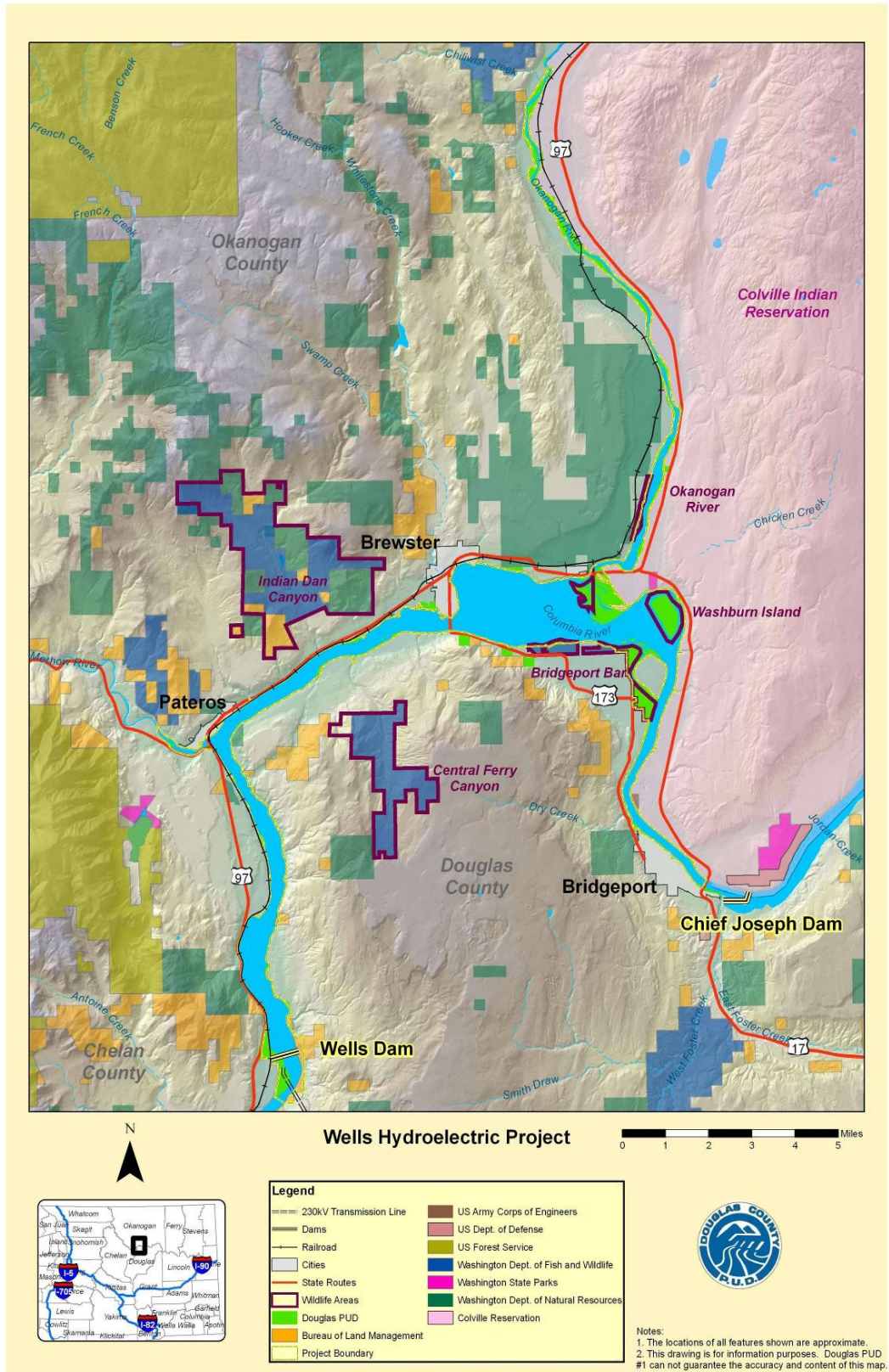


Figure 3.0-1 Location Map of the Wells Project

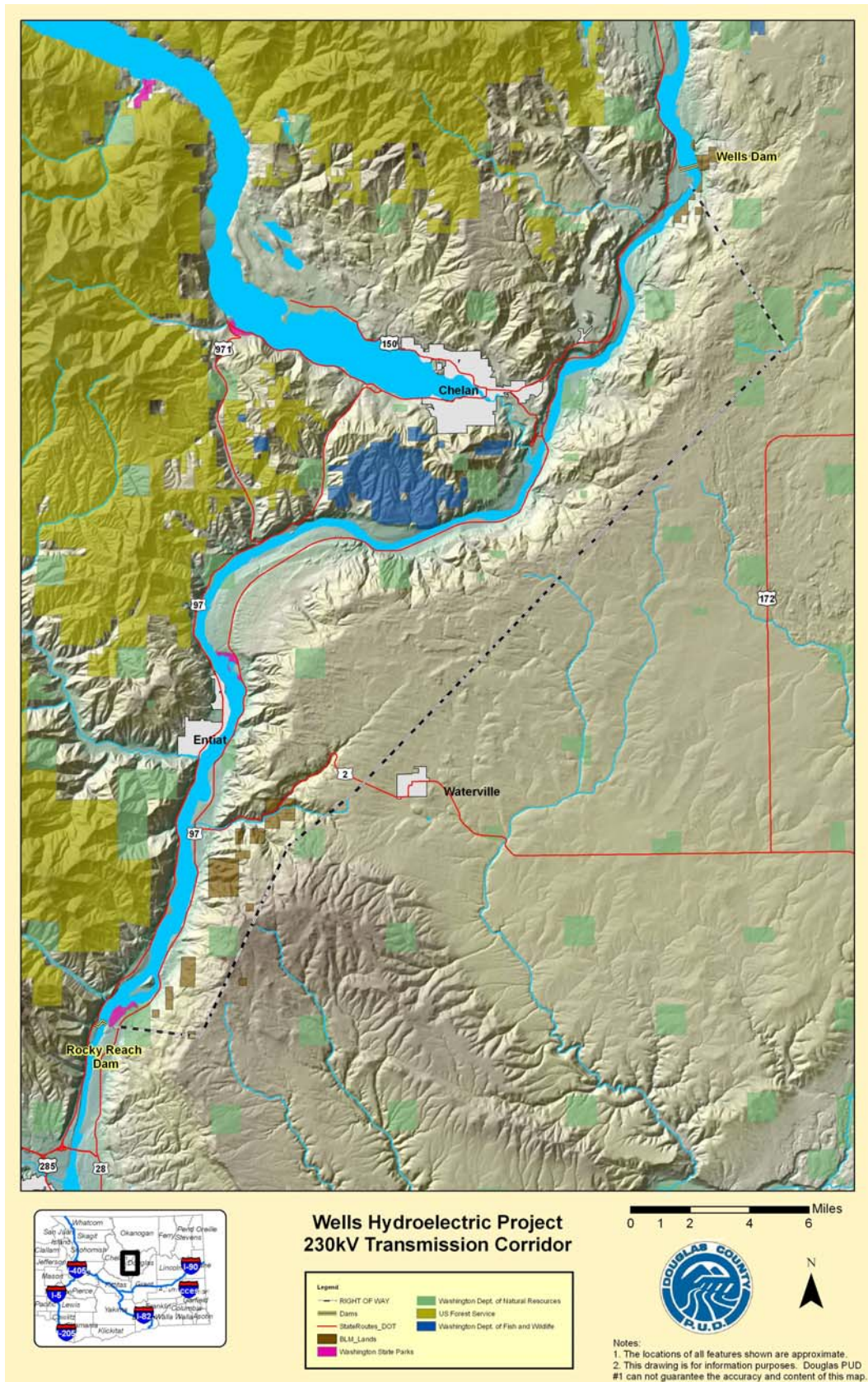


Figure 3.0-2 Location Map of the 230kV Transmission Corridor

4.0 BACKGROUND AND EXISTING INFORMATION

4.1 Cultural Resource Work Group

As part of the Wells Project relicensing, Douglas PUD established a Cultural Resource Work Group (CRWG) that began meeting in November, 2005. This voluntary effort was initiated to provide stakeholders with information about the Wells Project, to identify potential resource issues and to develop preliminary study plans to be included into the Wells Pre-Application Document (PAD).

Through a series of seven meetings, the CRWG identified resource issues that, in their judgment, matched with FERC's ILP study request criteria. The CRWG then reviewed the existing project information and determined that several of these issues require additional information.

Based upon these discussions and based upon agreement within the CRWG, Douglas PUD has included this study in the Wells PAD. This study will help to inform future relicensing decisions and will fill data gaps identified by the CRWG.

4.2 Issue Statement

Issue Statement (6.2.4.1)

Continued operation of the Wells Project affects cultural resources that are listed or considered eligible for inclusion in the National Register of Historic Places.

Issue Determination Statement (6.2.4.1)

Section 106 of the National Historic Preservation Act requires federal agencies having the authority to license any undertaking to take into account the effect of the undertaking on historic properties. Because the Wells Project is licensed by FERC, the relicensing process is considered a federal undertaking and the National Historic Preservation Act (NHPA) and its implementing regulations are applicable.

There are a number of Project effects that might harm cultural resources. Erosion of the shoreline caused by Project operation could expose buried cultural resources or damage traditional cultural properties (TCPs). Other ground disturbing activities related to ongoing Project license compliance activities could also impact cultural resources.

Starting in early 2006, a cultural resource data review was implemented in an effort to understand what archeological and historical property information is currently available for the Wells Project. This effort is being conducted jointly by Douglas PUD, the Confederated Tribes of the Colville Reservation and Western Shore Heritage Services. Douglas PUD has also agreed to fund the Confederate Tribes of the Colville Reservation to conduct a TCP study starting in 2006.

The resource work group agrees that a study is needed during the two-year ILP study period to evaluate potential project related impacts to cultural resources. Most, if not all, of the Wells Project has been surveyed for cultural resources. Archaeological monitoring is conducted every three years. Additional archeological surveys may not be required. However, site forms need to be updated for existing sites, and some sites may need to be evaluated for National Register Eligibility.

4.3 Wells Cultural Resources Data Review (2006)

Over the last 50 years, numerous archaeological investigations have been carried out within and adjacent to the Wells Project area. A total of 171 archaeological sites have been identified in the APE. One hundred sixty are pre contact sites, nine are historic, and two have historic and pre contact components. Because of the volume of information on cultural resources within the Wells Project, Douglas PUD hired Western Shore Heritage Services (WSHS) to conduct a cultural resources data review. With the assistance and guidance of the CRWG, WSHS reviewed archaeological site forms, reports of cultural resources investigations, ethnographic literature, and Indian Allotment data within and adjacent to the Wells Project area¹. The draft report is currently being reviewed by the CRWG (WSHS, 2006 draft).

5.0 PROJECT NEXUS

Section 106 of the National Historic Preservation Act requires federal agencies having the authority to license any undertaking to take into account the effect of the undertaking on historic properties. Because the Wells Project is licensed by FERC, the relicensing process is considered a federal undertaking and the NHPA and its implementing regulations are applicable.

There are a number of Project related activities that affect cultural resources. Erosion of the shoreline caused by Project operation could expose buried cultural resources or damage TCPs. Other ground disturbing activities related to ongoing Project license compliance activities may include issuance of permits for developments within Project boundary; construction of docks, parks, or roads; recreation; vandalism; and inundation and saturation of sites.

6.0 METHODOLOGY

Step 1: Identify historic properties within the APE

The Wells Project has been the subject of repeated cultural resources surveys, extensive testing and data recovery at several sites. Shoreline monitoring has taken place at many archaeological sites every three years since 1989. Monitoring of archeological site protection measures occurs annually. Monitoring surveys also examined new shoreline exposures for archaeological deposits. Therefore, the nature and geographic distribution of archaeological sites within the Project is well documented; and, it is not probable that an archaeological inventory of the entire Project would identify many new, previously unrecorded sites. However, because the quality of site inventory information within the Project APE is variable, sites in the APE where information

¹ The term "Wells Project area" or "project area" refers to locations both within and adjacent to the FERC Project boundary (APE).

is lacking will be revisited to update locational information, to assess site condition, and to identify project impacts.

Step 2: Identify those portions of the APE where cultural resources inventories may be needed

The CRWG will evaluate previously conducted cultural resource surveys and monitoring efforts to determine the need for additional inventory within the APE, or portions of the APE. The evaluation process will include field visits for interested CRWG members to assess the current conditions and ongoing processes that may have the potential to affect cultural resources. The CRWG will use this information to make recommendations on where additional survey efforts may be necessary within the APE. The rationale for the CRWG recommendations will be documented in the study report.

Step 3: Update Site Forms, Site Condition and Locations

Consistent baseline data are not currently available for each archaeological site in the APE. For example, information for 68 sites has not been updated since the sites were first recorded in the 1950s and 1960s. It is possible not all previously recorded sites in the APE (approximately 171) are still extant; some sites have been inundated or may have lost integrity. In addition, comprehensive up-to-date data about the kinds and degree of effects of the Wells Project on archaeological sites is not currently available. Site revisits will provide a comprehensive data set to document site conditions and location. Locations will be updated using Global Positioning System (GPS) as well as orthophotographic field maps, and will be incorporated into a revised Geographical Information System (GIS) database. The updated data set will be used to update the site forms.

Step 4: Development of a Prioritized List of Sites

Based on the results of Steps 1 and 2, the contractor will propose and the CRWG will refine and recommend a list of priority sites that will be evaluated further to determine their potential eligibility for the NRHP or whether they are contributing elements to the Wells Archaeological District. Priority sites will be those that are near areas of erosion, recreation sites, or other locations that have a high probability of being adversely impacted.

Step 5: Site Evaluations and Determinations of Eligibility

The identification effort will assemble currently available data for each site in the APE and identify which sites could be recommended as NRHP-eligible based on existing information. Sufficient information for a portion of the known sites may exist to develop DOEs, or to determine if they are contributing elements to the Lake Pateros Archaeological District. The PUD will develop DOEs for those sites for which sufficient information is available to support the determination. This effort would follow site revisits and probably could be accomplished during the remainder of the 2008 field season or during the spring of 2009.

Accurate site boundaries presently are not available for most archaeological sites. And, most of the sites in the APE have not been formally evaluated for NRHP eligibility. The CRWG will develop a prioritized list of sites that will require additional work in order to prepare DOEs. This effort would follow site revisits and might be accomplished during the remainder of the 2008 field season or during the spring of 2009.

Step 6: Evaluate Project Effects

Once all sites have been revisited and a determination of eligibility developed, it will be possible to identify project effects on historic properties determined to be eligible. The nature and degree of effects will be consistently documented using a series of protocols developed in concert with the Wells CRWG. Information regarding project effects on historic properties would be used in developing PMEs. The information collected from the above steps will be used in developing a Historic Properties Management Plan that will be issued with the Draft License Application which will be filed in December of 2009.

7.0 STAFFING AND EQUIPMENT REQUIREMENTS

Cultural resources investigations for this study will be conducted by professional archaeologists who meet the standards issued by the U. S. Department of the Interior through the National Park Service (Code of Federal Regulations, 36 CFR Part 61; Secretary of the Interior's Standards and Guidelines, Federal Register, Vol. 48, No. 190, Thursday, Sept. 29, 1983, pp. 44738-39).

The field component of this study will require a small survey crew and a boat. This study requires no other specialized equipment.

8.0 BUDGET

Based on presently available information, this study is estimated to cost between \$140,000 and \$180,000. This budget includes field time to visit all existing sites, assumes some minimal field survey, time to prepare DOE assessments and documentation for all sites, and participation in the CRWG.

9.0 SCHEDULE

Planning for the cultural resources study will begin in late 2007, shortly after the issuance of FERC's Study Plan Determination. Field efforts will take place during the spring and summer of 2008 with an Initial Study Report due to stakeholders by October 2008. A final report will be provided to FERC and the stakeholders by October 2009. Opportunities for coordinating this study with the triennial monitoring scheduled for 2007 will also be considered.

October 16, 2007: Begin study (if dispute resolution is not needed)

November 2007: Traditional Cultural Properties Study complete

October 15, 2008: ILP deadline for Initial Study Report

October 15, 2009: ILP deadline for Final Study Report

December 31, 2009: Draft Historic Properties Management Plan due with Preliminary License Proposal or draft License Application

10.0 REFERENCES

Hartmann, Glenn. D., and M. Berger. 2006. Cultural Resources Data Review for the Wells Relicensing Project, Douglas and Okanogan Counties, Washington. Western Shore Heritage Services, Inc.

Action Items
Cultural Resources Work Group
Meeting 7 – October 19, 2006

1. Revise study plan based on comments and send to CRWG. (Scott)
2. Convert Data Review map from one map to five maps for better use with black and white printers (Scott)
3. Data Review Edits
 - a. Add “Confidential” to cover;
 - b. Summarize findings and conclusions in Abstract;
 - c. Move legal descriptions from Study Area to the map;
 - d. Include a study area map(s);
 - e. Remove recommendations from page 19;
4. Create maps showing all site locations along with site types based on categories in the Data Review.

Carry-over Action Items

1. Consider utilizing an internal data review for the Wells Section 106 process (Scott)
2. Consider use of LIDAR for cultural resources management under new license.

**Letter to Douglas PUD from CCT concurring with
Project Area of Potential Effect – October 25, 2006**



The Confederated Tribes of the Colville Reservation

History/Archaeology Program (509) 634-2693
P.O. Box 150, Nespelem, WA 99155 FAX: (509) 634-2694



October 25, 2006

Scott Kreiter
Natural Resources Relicensing Specialist
Douglas County PUD
1151 Valley Mall Parkway
East Wenatchee, WA 98802-4497

FERC Project No. 2149

Re: Wells Relicensing – Project Area of Potential Effect Wells Hydroelectric Project

Dear Mr. Kreiter,

Your letter of July 18, 2006 requested concurrence on the area of potential effect (APE) for the Wells Hydroelectric Project relicensing from the Tribal Historic Preservation Officer of the Confederated Tribes of the Colville Reservation. You letter defined the APE as:

The Wells Project area of potential effect (APE) includes all lands within the FERC Project boundary (Figure 1). The APE also includes any lands outside of the Project boundary where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license (e.g. the Wells HCP Tributary Conservation Program) (Figure 2).

Figures 1 and 2 had previously been delivered to our office.

Based on the information before us at this time, we concur with the APE as detailed in the July 18 letter, in the referenced figures, or lands associated with any attendant transmission lines specifically included in the relicensing effort.

Thank you; we look forward to continued cooperation related to FERC Project No. 2149. If you have any questions or concerns regarding this letter, please contact me at (509) 634-2654.

Sincerely,

Camille Pleasants
Tribal Historic Preservation Officer

CC Doug Seymour, CBC Culture Committee Chairman
John Sirois, Cultural Preservation Administrator
Chrono
File (GM)

RECEIVED
1
OCT 30 2006

DOUGLAS PUD