

EXECUTIVE SUMMARY

This final environmental impact statement (EIS) for the Capacity Replacement Project has been prepared by the staff of the Federal Energy Regulatory Commission (Commission or FERC) to fulfill the requirements of the National Environmental Policy Act (NEPA), the Commission's implementing regulations (Title 18 Code of Federal Regulations (CFR) Part 380), and the Council on Environmental Quality Regulations for implementing NEPA (Title 40 CFR Parts 1500-1508). The purpose of this document is to inform the public and the permitting agencies about the potential adverse and beneficial environmental impacts of the proposed project and its alternatives, and to recommend mitigation measures to reduce impacts to the maximum extent possible.

The U.S. Army Corps of Engineers (COE) has jurisdictional authority pursuant to section 404 of the Clean Water Act (33 United States Code (USC) 1344), which governs the discharge of dredged or fill material into waters of the United States, and section 10 of the Rivers and Harbors Act (33 USC 403), which regulates any work or structures that potentially affect the navigable capacity of a waterbody. Because the COE must comply with the requirements of NEPA before issuing permits under these statutes, it has elected to participate as a cooperating agency in the preparation of this EIS. The COE would adopt the EIS per Title 40 CFR Part 1506.3 if, after an independent review of the document, it concludes that its comments and suggestions have been satisfied.

The proposed project must also undergo an environmental review pursuant to the State Environmental Policy Act (SEPA) (Chapter 43.21C Revised Code of Washington). The Washington State Department of Ecology (WDOE) has been designated the lead SEPA agency and is responsible for compliance with SEPA procedural requirements as well as for compiling and assessing information on the environmental aspects of the proposal for all agencies with jurisdiction in Washington. As the lead SEPA agency, the WDOE is also responsible for the threshold determination¹ and preparation and content of an EIS when required. NEPA documents may be used to meet SEPA requirements if the requirements of the State of Washington Administrative Code 197-11-610 and 197-11-630 are met and the federal EIS is found to be adequate. To assist the FERC staff in addressing SEPA requirements, the WDOE and the Washington Department of Fish and Wildlife (WDFW) are participating as cooperating agencies in the preparation of this EIS. After the final EIS is issued by the FERC, the WDOE would adopt it if an independent review of the document confirms that it meets the WDOE's environmental review standards.

<p>The vertical line in the margin identifies text that has been modified in this final EIS and differs from the corresponding text in the draft EIS.</p>

PROPOSED ACTION

On November 29, 2004, Northwest Pipeline Corporation (Northwest), a Williams Gas Pipeline company, filed an application with the Commission under sections 7(b) and 7(c) of the Natural Gas Act, as amended, and Part 157 of the Commission's regulations. Northwest is seeking a Certificate of Public Convenience and Necessity (Certificate) to construct, modify, and operate various facilities between Sumas and Washougal, Washington. Northwest is also seeking an Order Permitting and Approving Abandonment of its existing 26-inch-diameter pipeline and related facilities.² Northwest filed an amendment to its application on February 4, 2005. The purpose of the proposed action is to replace the majority of the delivery capacity of Northwest's existing 268-mile-long, 26-inch-diameter pipeline

¹ A SEPA threshold determination is the formal decision as to whether or not the proposal is likely to cause a significant adverse environmental impact that requires review in an EIS.

² In utility law, the term abandonment refers to government authorization for a utility to cease provision of a particular service and/or to shut down a particular facility.

between Sumas and Washougal, Washington in response to an amended Corrective Action Order (CAO) issued by the U.S. Department of Transportation (DOT). Specifically, Northwest proposes to:

- construct and operate 79.5 miles of new 36-inch-diameter pipeline in 4 separate loops³ (referred to as the Sumas, Mount Vernon, Snohomish, and Fort Lewis Loops) in Whatcom, Skagit, Snohomish, King, Pierce, and Thurston Counties, Washington;
- modify 5 existing compressor stations, 1 each in Whatcom, Skagit, Snohomish, Lewis, and Clark Counties for a total of 10,760 net horsepower of new compression;
- install 3 pig⁴ launchers, 1 each at the beginning of the Sumas, Snohomish, and Fort Lewis Loops and collocated with proposed mainline valve (MLV) sites;
- install 3 pig receivers, 1 each at the end of the Sumas, Snohomish, and Fort Lewis Loops and collocated with proposed MLV sites;
- relocate 1 pig receiver from its previous location on the existing Evergreen Expansion Project Mount Vernon Loop to the end of the proposed Mount Vernon Loop and collocated with a proposed MLV site;
- install 5 30-inch and 15 36-inch MLVs along the proposed loops (15 collocated with existing aboveground facilities, 4 collocated with proposed pig receiver sites, and 1 not collocated with other aboveground facilities);
- install 6 30-inch MLVs along the existing Evergreen Expansion Project loops (all collocated with existing aboveground facilities);
- abandon the existing 26-inch-diameter pipeline between Sumas and Washougal with the exception of a short segment within and between the existing Jackson Prairie Meter Station and the Chehalis Compressor Station. The abandonment activities would occur at 24 aboveground facility locations along the proposed loops and at 48 aboveground facility locations along the remainder of Northwest's existing system; and
- use 13 pipe storage and contractor yards on a temporary basis to support construction activities.

PUBLIC INVOLVEMENT AND AREAS OF CONCERN

On April 19, 2004, Northwest filed a request with the FERC to implement the Commission's Pre-Filing Process for the Capacity Replacement Project. At that time, Northwest was in the preliminary design stage of the project and no formal application had been filed with the FERC. On May 12, 2004, the FERC granted Northwest's request and established a pre-filing docket number (PF04-10-000) to place information related to the project into the public record. The purpose of the Pre-Filing Process is to encourage the early involvement of interested stakeholders, facilitate interagency cooperation, and identify and resolve issues before an application is filed with the FERC. The COE, the WDOE, and the WDFW agreed to conduct their environmental reviews of the project in conjunction with the Commission's Pre-Filing Process.

³ A loop is a segment of pipeline that is usually installed adjacent to an existing pipeline and connected to it at both ends. The loop allows more gas to be moved through the system.

⁴ A pig is an internal tool that can be used to clean and dry a pipeline and/or to inspect it for damage or corrosion.

As part of the Pre-Filing Process, Northwest mailed notification letters to landowners, government and agency officials, and the general public informing them about the project and inviting them to attend open houses on June 28, 29, and 30, 2004 and July 12, 13, 14, and 15, 2004 to learn about the project and to ask questions and express their concerns. Notifications of the open houses were also published in local newspapers. The open houses were held in Lynden, Deming, Arlington, Monroe, Redmond, Puyallup, and Yelm, Washington. The FERC staff attended the open houses to explain the environmental review process to interested stakeholders and take comments about the project.

On July 1, 2004, the FERC staff conducted an interagency scoping meeting in the project area to solicit comments and concerns about the project from jurisdictional agencies. Agencies present at the meeting included the COE; the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries); the Fort Lewis Military Reservation (Fort Lewis); the WDOE; the WDFW; the Washington State Department of Natural Resources (WDNR); and the Washington Utilities and Transportation Commission. The Lummi Nation was also represented. Throughout August 2004, the FERC staff conducted additional agency coordination and scoping meetings with many of these same agencies. Specifically, meetings were held with NOAA Fisheries on August 2, the Lummi Nation on August 3, Fort Lewis and the U.S. Fish and Wildlife Service (FWS) on August 4, and the WDOE on August 31, 2004.

On July 19, 2004, the FERC issued a Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Capacity Replacement Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings (NOI). The NOI served as the WDOE's Determination of Significance and Request for Comments on the Scope of the EIS. The NOI described the project and the joint environmental review process, provided a preliminary list of EIS issues, invited written comments on the environmental issues to be addressed in the EIS, and listed the date and location of three public scoping meetings to be held in communities in the project area. These meetings were held in Arlington, Redmond, and Yelm, Washington on August 2, 3, and 4, 2004, respectively. The NOI was mailed to affected landowners; federal, state, and local government agencies; elected officials; Native American tribes; environmental and public interest groups; other interested parties; and local libraries and newspapers. The comment period on the NOI closed on August 18, 2004.

Transcripts of the public scoping meetings, summaries of the interagency scoping meetings, and all written scoping comments are part of the public record for the Capacity Replacement Project and are available for viewing on the FERC Internet website (<http://www.ferc.gov>).⁵ The most frequently raised issue related to impacts on residential areas. Residents expressed concern about the loss of trees and other landscaping, the removal of fences, restricted access to homes, safety during construction and operation of the facilities, and impacts on property values. Numerous comments about impacts on soils, water wells, surface water and aquatic resources, wetlands, vegetation, special status species, cultural resources, safety, and alternatives were also received. The majority of the comments received from landowners regarding alternatives requested consideration of alternatives to avoid residential areas. The jurisdictional agencies were primarily concerned about Northwest's proposed waterbody crossing methods and requested a detailed evaluation of alternative crossing methods at major and sensitive waterbody crossings, including two large wetland complexes. The issues related to these waterbody and wetland crossings, as well as the impacts on residential areas, represent the primary areas of controversy associated with the Capacity Replacement Project.

The draft EIS was filed with the U.S. Environmental Protection Agency (EPA) and mailed to federal, state, and local government agencies; elected officials; Native American tribes; local libraries and

⁵ Using the "eLibrary" link, select "General Search" from the eLibrary menu and enter the docket number excluding the last three digits in the "Docket Number" field (i.e., PF04-10 and CP05-32). Be sure to select an appropriate date range.

newspapers; intervenors⁶ in the FERC's proceeding; and other interested parties (i.e., landowners, miscellaneous individuals, and environmental groups who provided scoping comments or asked to remain on the mailing list). A formal notice indicating that the draft EIS was available for review and comment was published in the Federal Register and sent with a copy of the Executive Summary to the remaining parties on the mailing list. The public was given 45 days after the date of publication in the Federal Register to review and comment on the draft EIS both in the form of written comments and at three public meetings held in the project area.

The three public meetings were held in Arlington, Redmond, and Yelm, Washington on April 11, 12, and 13, 2005, respectively. The meetings were announced in the draft EIS, in the notice indicating that the draft EIS was available, on the FERC Internet website, and in several local newspapers. Each meeting was recorded. The 45-day comment period for receiving written comments on the draft EIS closed on April 25, 2005. Written comments were received from federal, state, and local agencies; Native American tribes; companies/organizations; individuals; and the project applicant. The transcripts from the public meetings and the written comment letters are available for viewing on the FERC's Internet website (<http://www.ferc.gov>)⁷ and are included in section 6.0 of the final EIS with the FERC staff's response to each comment.

ENVIRONMENTAL ISSUES

The environmental issues associated with construction and operation of the Capacity Replacement Project are analyzed in this EIS using information provided by Northwest and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; contacts with federal, tribal, state, and local agencies; and input from public groups and organizations. The FERC staff has determined that construction and operation of the Capacity Replacement Project and the associated abandonment activities would result in limited adverse environmental impacts.

Northwest would implement the January 17, 2003 versions of the FERC staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) and has prepared or would prepare project-specific plans that include measures to mitigate potential environmental impacts. These plans include:

- Erosion Control and Revegetation Plan (ECR Plan);
- Spill Prevention, Containment, and Countermeasures Plan (SPCC Plan);
- Horizontal Directional Drill Contingency Plan (HDD Plan);
- Groundwater Monitoring and Mitigation Plan;
- Site-specific Waterbody Crossing Plans;
- Mitigation Plan for Waterbody Crossings; and
- Residential Area Work Plans for the Deer Park, Saddleback, and Lake of the Woods Subdivisions.

⁶ Intervenor is an official party to the proceeding and has the right to receive copies of case-related Commission documents and filings by other intervenors. Likewise, each intervenor must provide 14 copies of its filings to the Secretary of the Commission and must send a copy of its filings to all other intervenors. Only intervenors have the right to seek rehearing of the Commission's decision.

⁷ Using the "eLibrary" link, select "General Search" from the eLibrary menu and enter the docket number excluding the last three digits in the "Docket Number" field (i.e., PF04-10 and CP05-32). Be sure to select an appropriate date range.

As part of the environmental analysis, specific mitigation measures were also identified that are feasible and that, when implemented, would reduce potential adverse impacts of project construction and operation. The environmental effects of constructing and operating the project as proposed are summarized below.

Geology

Physiography in the Capacity Replacement Project area consists of flat glacial plains, broad alluvial valleys, gently rolling terrain, and localized areas of moderate relief, particularly where the Sumas Loop would cross the western flank of Sumas Mountain. Construction and operation of the proposed facilities would not materially alter the geologic conditions of the project area. Effects from construction could include disturbances to the natural topography along the right-of-way and at aboveground facilities due to trenching and grading activities. Over most of the project area, natural topographic slope and contours would be temporarily altered by the small-scale grading of the construction right-of-way that is necessary to provide a level and safe work surface for equipment. After construction, Northwest would restore topographic contours and drainage conditions as closely as feasible to their preconstruction condition. Blasting is not expected to be required for project construction. However, if blasting is necessary, Northwest would prepare a detailed Blasting Plan and comply with all applicable federal, state, and local regulations.

Six active gravel pits and one stone quarry were identified within about 800 feet of the proposed loops; however, none of these active mineral recovery operations would be directly crossed. While portions of the proposed loops would be located adjacent to or in close proximity to potentially extractable mineral deposits, 93 percent of the loops would be constructed within Northwest's existing right-of-way, which already precludes surface mining operations. Therefore, construction and operation of the loops would not result in significant additional restrictions to current or future mining operations in the region. No apparent active mineral recovery operations were identified in close proximity to any of the aboveground and abandoned facilities. An active gravel pit is located adjacent to a proposed contractor yard in Pierce County; however, the contractor yard would be used on a temporary basis and no impacts on this gravel pit are anticipated.

Western Washington is a geologically active region characterized by relatively frequent low to moderate magnitude earthquakes, active volcanoes, and locally high relief. These conditions create the potential for geologic hazards such as mass wasting (e.g., landslides); erosion; earthquakes and associated ground shaking, surface faulting, and soil liquefaction; and volcanism to occur throughout the region, threatening the integrity of the Capacity Replacement Project. Shallow groundwater also exists beneath portions of the Capacity Replacement Project, presenting construction challenges and increasing the potential for liquefaction and other potentially detrimental effects to occur.

Northwest conducted a detailed geologic hazards analysis to identify those project areas that could be adversely impacted by geologic events. The geologic hazards analysis was also used to develop specific construction techniques and operation plans to minimize the potential for the project to activate a geologic event, and avoid or minimize damage to the project facilities if a geologic event were to occur. The geologic hazards study included a literature review, examination of aerial photographs and geologic maps, ground reconnaissance of higher risk areas, and review of geologic hazards identified in critical areas ordinances for those counties and cities crossed by the project. The geologic hazards analysis determined that, in general, landslides represent the most significant geologic hazard to the Capacity Replacement Project due in part to their relatively high rate of frequency.

In general, the proposed loops would avoid areas with potential geologic hazards. However, due to routing constraints, the loops cannot avoid some high potential mass wasting, seismic, and volcanic

hazard areas identified by Whatcom, Skagit, Snohomish, King, Pierce, and Thurston Counties in their critical areas ordinances, or other areas identified by Northwest. These geologic hazards have the potential to damage the loops should they become active during construction or operation. The potential for significant damage to the loops from geologic hazards would generally be mitigated through implementation of best management practices (BMPs) and ongoing monitoring that is part of Northwest's formal Geotechnical Hazards Monitoring Program. Northwest would utilize various methods to monitor areas that could pose a risk to the proposed loops, including real-time strain gauges, survey data, and periodic surveillance. Also, by implementing good construction practices and erosion control measures, construction and operation of the loops should not increase the likelihood of damaging geologic events to occur.

Soils

Soils in the project area are diverse and include glacial tills and outwash, river and slope alluvium, colluvium derived from glacial drift and sandstone, volcanic ash, loess, glaciomarine drift, and glaciolacustrine sediment. Construction of the Capacity Replacement Project could result in a number of soil or soil-related impacts including increased erosion, compaction, soil mixing, reduced fertility, poor revegetation, and introducing rocks from deeper horizons to the soil surface due to trenching. In general, potential impacts on soils would be less during construction of the Capacity Replacement Project than for a new pipeline and related surface facilities because the majority of the construction would occur within Northwest's existing permanent right-of-way, which has been previously disturbed.

To reduce the impacts of construction on soils Northwest would implement the mitigation measures outlined in the FERC staff's Plan and Procedures. In addition, Northwest has developed a project-specific ECR Plan that incorporates agency-recommended revegetation and erosion control procedures, and addresses the WDOE's requirements for construction stormwater discharges. Two of the mitigation measures for upland construction included in Northwest's ECR Plan (one related to topsoil segregation and one related to the use of wood chips during restoration) differ significantly from those in the FERC staff's Plan. Because Northwest's proposed measures incorporate the stipulations of the WDOE and the recommendations of the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), the FERC staff believes Northwest's ECR Plan would adequately protect topsoil resources and not hinder revegetation of the right-of-way.

Comments on the draft EIS were received from various agencies requesting that the list of responsibilities of the Environmental Inspector (EI) included in the ECR Plan be expanded. The FERC staff has recommended that Northwest prepare and file a revised ECR Plan incorporating an expanded list of EI responsibilities before construction. Northwest would also file a site-specific ECR Plan for activities on Fort Lewis to address Fort Lewis' specific requirements regarding erosion control and restoration on the military reservation. Soil contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment would be avoided or minimized by implementing a project-specific SPCC Plan. The FERC staff has recommended that Northwest prepare and file a revised SPCC Plan to address comments received from various agencies on the draft EIS.

Of the total distance crossed by the loops, approximately 23.2 miles would be considered prime farmland, either under current conditions or if drained or irrigated. Potential impacts on prime farmland from pipeline construction include interference with and/or damage to agricultural drainage or irrigation systems, the mixing of topsoil and subsoil, the potential loss of topsoil, and compaction/rutting. As described above, Northwest has developed an ECR Plan to minimize these potential impacts. Northwest would probe drain tiles affected by project construction activities beyond the limits of the trench to determine if damage has occurred. Northwest would restore any damaged tiles to their original condition using trained personnel. Northwest would also test for soil compaction in agricultural and residential

areas to determine if additional, site-specific mitigation measures would be required. Most impacts on prime farmland from pipeline construction would be short term and would not result in the permanent conversion of prime farmland to non-agricultural uses.

Approximately 1.5 acres would be permanently added to the Chehalis Compressor Station for operation of the facility (1.4 acres to expand the station's fenced area and 0.1 acre for a gravel road to an existing water supply well). The soils in this area are designated as hydric, and their main limitations would be seasonal wetness and a high perched water table between November and April. Northwest has scheduled the majority of the work at this location with these limitations in mind, which would minimize potential soil-related impacts.

Water Resources

The project would cross various regulatory units that have been established to protect groundwater resources including EPA-designated sole source aquifers, groundwater management areas, wellhead protection areas, and critical areas ordinance-designated aquifer recharge areas. Construction and operation of the Capacity Replacement Project could impact groundwater resources in the area, and the occurrence of shallow groundwater could affect the buoyancy of a pipeline by causing it to float. Construction-related impacts may include temporary alteration of overland flow and groundwater recharge. Most potential impacts on groundwater would be avoided or minimized by the use of standard construction techniques and compliance with the FERC staff's Procedures. In addition, Northwest would comply with all applicable regulations and requirements associated with the critical areas ordinances. To mitigate potential buoyancy concerns and/or flexure of the pipe, Northwest would install concrete-coated or weighted pipe in areas of shallow groundwater, as necessary.

Spills and leaks of petroleum and hazardous material could contaminate aquifers. Northwest developed an SPCC Plan to address preventive and mitigative measures that would be used to avoid or minimize the potential impact of petroleum or hazardous material spills during construction. In addition, unanticipated pre-existing contaminated groundwater could be encountered during construction. To ensure that potential impacts associated with the discovery of pre-existing contamination are minimized, the FERC staff has recommended that Northwest consult with the WDOE and prepare a plan for the discovery and management of contaminated soils, sediments, and groundwater.

A preliminary survey of water supply wells and springs in the project area identified 59 public water supply wells as potentially located within 400 feet of the construction right-of-way. No public water supply wells were identified within 400 feet of the compressor stations. More than 800 private water supply wells were identified as potentially located within 200 feet of the construction right-of-way. However, because the location data within the water well database used for the survey are only specified to within a 1-mile section, the actual number of private water supply wells within 200 feet is likely far fewer. No private water supply wells were identified within 200 feet of the compressor stations. To minimize impacts on water supply wells and springs within 200 feet of the construction right-of-way, Northwest has prepared a Groundwater Monitoring and Mitigation Plan. Northwest would determine the specific locations of wells and springs within the vicinity of the right-of-way through field investigations and contacts with landowners before construction. The FERC staff has recommended that Northwest file the location of all wells and springs within 200 feet of the construction work area and proposed mitigation measures to avoid or minimize potential impacts on these wells and springs with the Secretary of the Commission (Secretary) and the WDOE, and to notify all affected landowners that construction would occur within 200 feet of their well or spring, at least 60 days before the anticipated start of construction.

Construction of the proposed project would require approximately 21,380,000 gallons of water to hydrostatically test the loops. Of this volume, approximately 15,320,000 gallons would be obtained from

municipal sources. Hydrostatic testing activities would make a one-time, temporary demand on these municipal sources. The remaining 6,060,000 gallons of water would be withdrawn from a surface water source (i.e., the Centralia Canal). Northwest would minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in its ECR Plan. These measures include screening intake hoses to prevent the entrainment of fish and other aquatic organisms and regulating the rate of withdrawal of hydrostatic test water to avoid adverse impact on aquatic resources or downstream flows. The specific requirements for pump intake screens, total volume and allowable rate of water withdrawal, and any other provisions would be included in the Hydraulic Project Approval and Temporary Water Use permit that would be issued by the WDFW and WDOE, respectively. Only new pipe would be tested and no chemicals would be added to the water during hydrostatic testing.

All discharges, including testing for potential contaminants, would be conducted in accordance with the requirements for hydrostatic test water discharges included in Northwest's National Pollutant Discharge Elimination System (NPDES) Individual Permit for Stormwater Discharges that would be issued by the WDOE. Northwest would discharge all hydrostatic test water to upland locations at a significant distance from wetlands and waterbodies in a manner that would avoid runoff or erosion into surface waters, and would not discharge test water directly into surface waters or wetlands. No chlorinated water would be released to surface waters or wetlands. WDOE staff would conduct field reviews of Northwest's proposed hydrostatic test water discharge locations, as required, as part of the WDOE's NPDES permit review process. Based on this field review, modifications to the discharge locations would be made as necessary to ensure that the test water would infiltrate the ground before reaching sensitive areas.

The loops associated with the Capacity Replacement Project would cross a total of 154 waterbodies including perennial and intermittent streams and jurisdictional wetland and upland ditches. Work at one abandoned facility would cross an intermittent ditch. The waterbodies that would be affected by the project have been classified according to Washington Water Quality Standards, the State of Washington section 303(d) list, WDNR stream typing classifications, designated shorelines, and critical areas ordinances.

Pipeline construction could affect surface waters in several ways. Clearing and grading of streambanks, in-stream trenching, backfilling, trench dewatering, and in-stream blasting (if required) could affect waterbodies through modification of aquatic habitat, increased sedimentation, increased turbidity, decreased dissolved oxygen concentrations, stream warming, releases of chemical and nutrient pollutants from sediments, or introduction of chemical contamination such as fuel and lubricants. Spoil placed in floodplains could cause an increase in flood levels. The potential impacts of pipeline operation include long-term scour, channel profile changes, and restricted channel migration.

During construction across waterbodies, Northwest would implement the mitigation procedures described in the FERC staff's Plan and Procedures, its ECR Plan, SPCC Plan, site-specific waterbody crossing plans, and Mitigation Plan for Waterbody Crossings. Northwest would also implement additional specific procedures and protective and restoration measures where required by site-specific conditions or federal, state, and local permitting agencies. Northwest would develop and follow BMPs for in-stream work as well as develop and follow BMPs for upland work adjacent to waterbodies. Similarly, Northwest would implement a water quality monitoring strategy for measuring in-stream impacts and upland construction impacts. Northwest's implementation of these mitigation measures would reduce impacts on surface water resources.

At selected waterbodies, Northwest has requested variances to the FERC staff's Procedures relative to the location of temporary extra workspaces and construction right-of-way widths. Northwest depicted these locations on aerial photo-based Environmental Construction Alignment Sheets and site-

specific plans and provided a site-specific explanation of the conditions that would require a wider right-of-way and prevent a 50-foot setback. The FERC staff reviewed the Environmental Construction Alignment Sheets and Northwest's explanations to make determinations whether to approve or deny each variance requested. Based on the FERC staff's review, most of the variances appear to be reasonable and adequately justified. Northwest would also submit these variance requests to other applicable agencies (e.g., the COE, the WDOE, the WDFW, and local authorities) as part of its permit applications. These other agencies may approve, approve with stipulations/modifications, or deny the requests as part of their permit decisions. Northwest's implementation of variances approved by the FERC would need to be consistent with its permits from other jurisdictional agencies.

Of the waterbodies that would be crossed by the loops, 93 percent are expected to be dry at the time of construction and, consequently, are proposed to be crossed using standard upland cross-country techniques or standard dry waterbody crossing methods (i.e., flume or dam and pump). Northwest proposes to cross the remaining waterbodies using the horizontal directional drill (HDD), aerial span, push-pull, or wet open-cut method. Use of the HDD and aerial span methods would avoid or minimize in-stream disturbance and associated impacts; however, aerial spans would have permanent visual impacts, increased operational costs, and increased vulnerability of the pipeline to third-party damage. Flumed crossings would allow water to continue to flow during construction and result in increased turbidity for only short periods of time during the installation and removal of the flume pipe. Water flow would also be maintained during a dam and pump crossing. Use of the flume and dam and pump crossing methods would be limited by water volume and velocity within the waterbody. A push-pull crossing would only be possible in waterbodies with minimal or no flow (i.e., wetland complexes) and would result in temporary increases in turbidity during work within the waterbody. The wet open-cut method would result in increased turbidity downstream but the effects would be temporary and the crossings would be completed relatively quickly. Final crossing methods for all waterbodies would be determined through consultations with the jurisdictional agencies as part of their permit decisions.

Six major waterbodies (i.e., greater than 100 feet wide) would be crossed. These are the North Fork Nooksack River, North Fork Stillaguamish River, South Fork Stillaguamish River, Olson Lake, Evans Creek, and the Nisqually River. All of these waterbodies are considered sensitive because they provide coldwater habitat and essential fish habitat (EFH) and also support special status species.

Northwest proposes to cross two of the major waterbodies, Olson Lake and Evans Creek, using the push-pull method due to the size and low flow (e.g., inundated wetland) characteristics expected at these crossing locations. If these waterbodies/wetland complexes are too dry to cross using the push-pull method, Northwest proposes to use standard wetland crossing techniques. In accordance with the FERC staff's Procedures, Northwest has filed site-specific crossing plans for Olson Lake and Evans Creek.

In the spring of 2004, Northwest completed a geotechnical investigation of the remaining major waterbodies (North Fork Nooksack River, North Fork Stillaguamish River, South Fork Stillaguamish River, and Nisqually River) to determine whether the HDD method would be feasible. Northwest included Pilchuck Creek in its geotechnical investigation due to its relatively large size (75 feet wide at the crossing location) and importance as a coldwater fishery. Based on the results of the geotechnical investigation, Northwest has determined that the probability of completing a successful HDD of the North Fork Nooksack, North Fork Stillaguamish, and South Fork Stillaguamish Rivers is 60 percent, 50 percent, and 80 percent, respectively. Northwest proposes to cross these waterbodies using the HDD method but also proposes to obtain permits for an alternative wet open-cut crossing at each of the three rivers should the HDD fail.

A successful HDD crossing of the North Fork Nooksack, North Fork Stillaguamish, and South Fork Stillaguamish Rivers would minimize impacts on these three waterbodies and their adjacent

wetlands. The primary impact that could occur as a result of an HDD is an inadvertent release of drilling mud (also referred to as a frac-out) directly or indirectly into the waterbody. Northwest's HDD Plan describes how the drilling operations would be conducted and monitored to minimize the potential for inadvertent drilling mud releases as well as procedures for cleanup of drilling mud releases and for sealing the hole if a drill cannot be completed. The criteria for determining whether the HDD could be successfully completed or whether it would be abandoned are also outlined in Northwest's HDD Plan. Due to the width and the volume and velocity of the water at the North Fork Nooksack, North Fork Stillaguamish, and South Fork Stillaguamish Rivers, Northwest proposes to use the wet open-cut method to install these crossings if an HDD is unsuccessful.

Because the geotechnical investigation determined that there was a high likelihood of an HDD failure at Pilchuck Creek (75 percent) and an HDD of the Nisqually River would be infeasible, Northwest does not propose to attempt an HDD crossing of either of these waterbodies. Northwest proposes to use the wet open-cut method as the preferred crossing method for these two waterbodies and the aerial span method as the alternative if no other underground options are available.

As discussed above, the HDD and aerial span methods would avoid or minimize in-stream disturbance and associated impacts; therefore, additional mitigation measures are not proposed. The EIS includes a site-specific discussion of the downstream effects of suspended sediments at all five of the proposed or alternative wet open-cut crossings for the project (i.e., North Fork Nooksack River, Pilchuck Creek, North Fork Stillaguamish River, South Fork Stillaguamish River, and Nisqually River). Northwest would minimize impacts associated with a wet open-cut crossing of these rivers by installing the pipe during allowable in-stream construction windows specified by the WDFW. Work areas would be restored as near as practical to preconstruction contours, including replacement of the gravel and cobble streambed. Northwest would plant riparian tree and shrub species across the entire right-of-way within 50 feet of all fish-bearing streams and at other streams where riparian vegetation was present before construction. Fast growing native trees would be planted close to the top of the bank to provide the most rapid canopy recovery possible to shade and overhang the river.

Northwest would install large woody debris (LWD) at appropriate areas in the waterbody within the construction right-of-way to mitigate for potential short-term impacts on aquatic species due to the wet open-cut crossing. In addition, Northwest would participate in projects that specifically target the creation or enhancement of spawning and other requisite habitats for salmonids. Specifically, LWD with attached root wads and tree-trunk lengths and diameters specified by the WDFW or other regulatory agencies that are cleared from the construction right-of-way and temporary extra workspaces would be collected, transported, and stockpiled at designated locations. Northwest would donate these logs for use as LWD. This material would be made available to tribes/organizations conducting in-stream restoration and enhancement projects within the affected Water Resource Inventory Areas (WRIA).

In accordance with the FERC staff's Procedures, Northwest has filed site-specific crossing plans for the proposed and alternative crossing methods for the North Fork Nooksack River, Pilchuck Creek, North Fork Stillaguamish River, South Fork Stillaguamish River, and the Nisqually River. Northwest has also filed a draft Mitigation Plan for Waterbody Crossings. Northwest is still in the process of consulting with other federal, state, and local agencies and applicable Native American tribes to finalize its site-specific crossing plans and additional mitigation requirements that should be included in its Mitigation Plan for Waterbody Crossings. The FERC staff believes these continued consultations will result in the development of acceptable site-specific crossing plans and mitigation requirements for the waterbodies that would be crossed by the Capacity Replacement Project. These final plans would incorporate new information that may become available as Northwest continues consultations with the COE, the WDOE, the WDFW, various county agencies, and Native American tribes. The FWS and NOAA Fisheries may impose additional mitigation as well as part of their Biological Opinions that also should be included in

Northwest's Mitigation Plan for Waterbody Crossings The FERC staff has recommended that Northwest file any revised site-specific waterbody crossing plans and the final Mitigation Plan for Waterbody Crossings with the Secretary for the review and written approval of the Director of the Office of Energy Projects (OEP) before construction at each applicable waterbody.

In the spring of 2004, Northwest conducted an evaluation of scour and erosion potential in the waterbodies that would be crossed by the proposed loops. This evaluation assessed the potential for vertical scour, lateral migration, and stream avulsion to occur, and resulted in the designation of waterbodies as having either low, medium, or high potential for scour and/or lateral erosion. Of the waterbodies crossed by the loops, 2 have high scour potential, 21 have medium scour potential, and the remaining waterbodies have low scour potential. Northwest would design the project to protect the integrity of the loops from erosion hazards, which includes installing the pipeline in waterbodies with a minimum of 5 feet depth of cover from the top of the pipe to the bottom of the streambed. Where warranted by site-specific conditions or required by local regulations, Northwest would increase the depth of cover to more than the 5-foot minimum to accommodate the potential for long-term scour and profile changes, and bank stabilization to deter channel migration. During detailed pipeline design, each waterbody crossing would be evaluated using the information in the scour and erosion assessment. The depth of cover for waterbody crossings that require more than 5 feet of cover, and additional lateral setbacks, would be determined at that time. These measures would minimize the potential for scour of the streambed or banks to expose the pipeline in the future.

In its comments on the draft EIS, the WDFW noted the substandard conditions that exist at some of the waterbody crossings as a result of previous pipeline construction and maintenance, particularly those with medium to high scour potential. The WDFW has recommended that Northwest repair the streambanks and channels that are in substandard condition when streambank and channel reconstruction are being done for the Capacity Replacement Project. Completing the work concurrently would minimize overall disturbance to the waterbody banks and channels as well as to affected landowners. Northwest is working with the WDFW to identify areas where repairs are necessary and, where feasible, would attempt to complete the repairs concurrently with the work associated with the Capacity Replacement Project.

Wetlands

Northwest conducted wetland delineations in the spring of 2004 along the proposed loops, including temporary extra workspaces and temporary and permanent access roads. Proposed pipe storage and contractor yard sites, aboveground facility sites, and sites where abandonment activities would occur were also surveyed for the presence of wetlands. Delineations were conducted in accordance with federal and state regulations and methodologies. Northwest also conducted functional assessments for each wetland and established WDOE wetland category ratings, WDNR wetland types, as well as city and county wetland ratings as established in critical areas ordinances (where applicable) for each wetland.

The proposed loops would cross 264 wetlands, 85 percent of which are classified as palustrine emergent wetlands. Pipeline construction activities would result in a short-term disturbance of 112.8 acres of wetlands, of which 2.0 acres would be located within the proposed operational (permanent) right-of-way. The expansion of the Chehalis Compressor Station would permanently affect approximately 0.4 acre of a disturbed, emergent wetland. Less than 0.1 acre of a previously disturbed emergent wetland would be permanently filled by the expansion of the gravel pad that would surround the MLV at milepost (MP) 1440.1 along an Evergreen Expansion Project loop. Project activities at two facilities where abandonment activities would occur would temporarily affect 0.2 acre of wetland. Project activities at proposed contractor and pipe storage yards would not affect wetlands. The majority of the permanent impacts would be on the structure of the wetlands (i.e., result in more herbaceous vegetation and fewer trees and shrubs), but would not greatly reduce the existing wetland functions or amount of wetlands in

the project area. However, about 0.4 acre of wetland would be permanently filled as a result of the project.

The primary impact of project construction and right-of-way maintenance activities on wetlands would be the temporary and permanent alteration of wetland vegetation. Other types of impacts could include temporary changes in wetland hydrology and water quality, soil mixing, soil compaction, rutting/erosion, and poor revegetation. Northwest's proposal to replace its existing 268-mile-long, 26-inch-diameter pipeline with 79.5 miles of 36-inch-diameter loop and abandon the majority of the 26-inch-diameter pipeline in place would avoid impacting wetlands along 70 percent of the Northwest system. Impacts on wetlands from construction of the Capacity Replacement Project would further be avoided and minimized by Northwest's proposal to install the loops 20 feet east of Northwest's existing 30-inch-diameter pipeline and work over the existing 26-inch- and 30-inch-diameter pipelines. Northwest's existing easement was previously disturbed during installation of the 26-inch- and 30-inch-diameter pipelines and is maintained (periodically mowed) in a general herbaceous state for operation of the facilities. Northwest would use the existing permanent easement for the majority of the project's construction footprint (i.e., construction right-of-way and temporary extra workspaces). Northwest would mitigate construction-related impacts by implementing the FERC staff's Procedures and by complying with the COE's section 404 and the WDOE's section 401 permit conditions.

In addition, Northwest would further avoid wetland impacts by limiting the width of the construction right-of-way to 75 feet in most wetlands and locating extra workspaces at least 50 feet back from most wetland boundaries, consistent with the FERC staff's Procedures. In accordance with the Procedures, Northwest submitted requests for areas where a wider right-of-way and reduced extra workspace setbacks in wetlands would be necessary based on site-specific conditions. Northwest depicted these locations on aerial photo-based Environmental Construction Alignment Sheets and provided a site-specific explanation of the conditions that would require a wider right-of-way and prevent a 50-foot setback for extra workspace in wetlands. The FERC staff reviewed the Environmental Construction Alignment Sheets and Northwest's explanations to make determinations whether to approve or deny each variance requested. Based on this review, most of the variances appear to be reasonable and adequately justified. Northwest would also submit these variance requests to other applicable agencies (i.e., the COE, the WDOE, and local authorities) as part of its permit applications. These other agencies may approve, approve with stipulations/modifications, or deny the requests. Northwest's implementation of variances approved by the FERC would need to be consistent with its permits from the other jurisdictional agencies.

As previously discussed, Northwest proposes to cross Olson Lake and Evans Creek using the push-pull method. Northwest investigated the possibility of using the HDD method to cross these wetland complexes; however, Northwest did not consider this method to be practical at Olson Lake or feasible at Evans Creek. An HDD crossing of Olson Lake would need to be between 2,600 and 3,600 linear feet to avoid the glacial till layer in the area and would require more temporary extra workspace than a push-pull crossing. A new permanent right-of-way would also have to be established. The WDOE and the WDFW, however, consider an HDD crossing of Olson Lake to be a viable option. Northwest states that an HDD crossing of Evans Creek would not be feasible due to the size of the wetland complex and the lack of available workspace on either side of the complex to stage the drill and fabricate the pipe string.

To comply with the COE's policy of "no net loss" of wetlands in the United States, Northwest contacted various agencies, organizations, conservation groups, and trusts in the various basins (i.e., WRIs) crossed by the project to identify potential mitigation opportunities and has developed a proposed compensatory wetland mitigation plan. To compensate for the wetland impacts associated with the loops, 33.7 acres of mitigation for enhancement/restoration projects or 202.7 acres of mitigation for

preservation projects would be required. Northwest is proposing a combination of 33.3 acres of mitigation for enhancement projects and 46.6 acres of mitigation for preservation projects, which would exceed Northwest's mitigation requirements for the loops. For the permanent fill associated with the aboveground facilities, Northwest proposes two wetland enhancement projects.

As an alternative to Northwest's proposed compensatory mitigation plan for the portion of the project in King County on the Snohomish Loop, Northwest is working with King County, the COE, the WDOE, and the WDFW to develop a plan proposed by the county. As part of the plan, Northwest would contribute funds to King County's mitigation reserve program and the county would select the mitigation site, design and implement the mitigation plan, and maintain and monitor the site. As an alternative to Northwest's proposed compensatory mitigation plan for the Fort Lewis Loop, Northwest is working with the Nisqually Tribe, the COE, the WDOE, and the WDFW to develop a plan proposed by the tribe. The plan would involve creation of an escrow account funded by Northwest to purchase land for preservation and restoration projects in the Nisqually Basin through the Nisqually Land Trust or other non-profit organization. The plan would also compensate for in-water construction impacts, including the proposed wet open-cut crossing of the Nisqually River.

Because the compensatory wetland mitigation plan is still under development, the FERC staff has recommended that Northwest continue to consult with the COE, the WDOE, other applicable agencies, and appropriate Native American tribes to finalize the plan. The FERC staff has recommended that Northwest file the final compensatory wetland mitigation plan with the Secretary before construction.

Vegetation

Northwest's proposed pipeline facilities would disturb a total of about 878.3 acres of upland vegetation. The most common vegetation cover types occurring along the loops, shrubland (307.4 acres), agricultural (209.5 acres), and landscape (207.2 acres), account for over 80 percent of the vegetation that would be cleared or affected by construction. The next most common cover types that would be disturbed are mixed forest (71.2 acres), evergreen forest (36.7 acres), and grassland/herbaceous (35.4 acres). Disturbance to deciduous forest and oak woodland cover types would total 10.7 acres and 0.4 acre, respectively.

The expansion of the Chehalis Compressor Station would affect a total of 7.7 acres of vegetation. The majority of the vegetation (5.1 acres) consists of the grassland/herbaceous cover type. Pig receivers and MLVs not collocated with other aboveground facilities along the proposed loops would be constructed within Northwest's existing right-of-way but would permanently convert about 0.7 acre of the vegetation within the right-of-way because the sites would be graveled and fenced. The remaining pig launchers/receivers and MLVs along the proposed loops would be collocated with existing facilities within Northwest's existing permanent easement; however, they would require minor expansions of the graveled footprints of each site and would affect a total of about 1.7 acres of grassland/herbaceous cover type and less than 0.1 acre of shrubland cover type. The installation of six MLVs along the existing Evergreen Expansion Project loops would affect a total of 1.7 acres of land consisting primarily of the grassland/herbaceous cover type. Approximately 14.4 acres within Northwest's existing easement would be temporarily affected by work associated with the abandoned facilities. The temporary use of 13 pipe storage and contractor yards would affect 128.4 acres of the landscape vegetation cover type, 36.7 acres of the shrubland cover type, and 25.5 acres of the agricultural cover type.

The primary impact of the project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. The degree of impact would depend on the type and amount of vegetation affected, the rate at which the vegetation would regenerate after construction, and the frequency of vegetation maintenance conducted during operation. Secondary effects associated

with disturbances to vegetation could include increased soil erosion, increased potential for the introduction and establishment of invasive weedy species, and a local reduction in available wildlife habitat. In addition, trees located on the edge of the construction right-of-way may be subject to mechanical damage and root impacts, which could result in decreased health and viability of edge trees.

In general, the swath of vegetation that would be disturbed during construction would be 95 feet wide for the length of the Sumas, Mount Vernon, and Fort Lewis Loops and 60 to 75 feet wide for the Snohomish Loop. By working over its existing pipelines, Northwest would reduce the area of new disturbance and, therefore, would reduce impacts on vegetation. About 68 percent of the vegetation disturbance associated with construction of the loops would be within Northwest's existing, previously disturbed right-of-way. The remaining 32 percent of the vegetation disturbance would be outside Northwest's existing right-of-way.

To reduce impacts on vegetation within the construction and permanent rights-of-way and improve revegetation potential, Northwest would implement the FERC staff's Plan. In addition, Northwest would implement the measures for upland construction that are included in its ECR Plan. Northwest's ECR Plan incorporates many of the mitigation measures outlined in the FERC staff's Plan as well as agency-recommended revegetation and erosion control procedures. These measures would include, among others: topsoil segregation over the pipeline trenchline; providing temporary erosion control measures; recontouring disturbed areas as needed; testing for soil compaction in agricultural and residential areas and relieving compaction where necessary; fertilizing and reseeding all upland areas following NRCS and WDNR recommendations; and monitoring the revegetation of the right-of-way the year following construction and again during the second growing year. Additional revegetation efforts would be conducted until revegetation is deemed successful. In addition, Northwest would implement the measures in its site-specific ECR Plan for Fort Lewis for construction activities on the military reservation.

Northwest has consulted with the NRCS, the WDNR, and local counties regarding noxious weeds and Northwest's proposed treatments and has included their recommendations in its ECR Plan. Northwest would implement the measures in its ECR Plan to prevent the spread of noxious weeds during construction and control noxious weeds that develop after construction.

To ensure the health and viability of trees located along the edge of the construction right-of-way, the FERC staff has recommended that Northwest retain the services of an arborist or registered professional forester to conduct a safety assessment of edge trees that are in close proximity to residences or high use areas within 10 days of construction on a property. The FERC staff has recommended that Northwest file a report of the tree safety assessment and a description of any corrective actions implemented with the Secretary no later than 60 days after placing the facilities in service.

Wildlife and Aquatic Resources

The impact of the project on wildlife species and their habitats would vary depending on the requirements of each species and the existing habitat present along the loops. Direct impacts of construction on wildlife would include the displacement of wildlife on the right-of-way and direct mortality of some individuals. Depending on the season, construction could also disrupt bird courting or nesting and breeding of other wildlife on and adjacent to the right-of-way. The cutting, clearing, and/or removal of existing vegetation would also affect wildlife by reducing the amount of available habitat. The degree of impact would depend on the type of habitat affected and the rate at which vegetation regenerates after construction. The effect on forested areas would be much greater than for other habitats affected because forest lands would take the longest amount of time to regenerate and would be prevented from reestablishing over the permanent right-of-way due to periodic vegetation maintenance during

operation of the loops. In general, these effects are not expected to have an impact on wildlife populations because the amounts of the habitats that would be affected are relatively minor and would be adjacent to an existing maintained utility corridor. Furthermore, Northwest's implementation of its ECR Plan, which includes measures to reseed disturbed areas with seed mixes prescribed by the local NRCS offices and the WDNR, and its proposal to replant forest areas with tree seedlings would improve the potential for successful revegetation of the right-of-way after construction.

Of the 154 waterbodies that would be crossed by the loops, 56 are known or presumed to be inhabited by fish and an additional 19 are classified as fish bearing but for which species' occurrence has not been documented by the WDFW, the Northwest Indian Fisheries Commission (NWIFC), or other sources. The waterbody that would be crossed by the abandonment activities does not have a fishery classification. In-stream construction across these waterbodies would directly affect aquatic resources. In addition, construction of the loops across waterbodies would remove vegetation and habitat and increase the sedimentation and turbidity of the water, the potential for streambank erosion, and the potential for fuel or chemical spills. Construction-related impacts on aquatic resources could also result from hydrostatic testing or an inadvertent release of drilling mud during HDDs. The degree of impact would depend on the proposed crossing method, the existing conditions at each crossing location, the mitigation measures employed, and the timing of construction.

In general, Northwest would attempt to reduce or eliminate potential impacts on most aquatic resources first through impact avoidance, then minimization, and then habitat restoration and enhancement. Northwest would comply with a number of regulatory requirements and programs designed specifically to protect aquatic resources, including adherence to the FERC staff's Plan and Procedures and its project-specific ECR Plan. In addition, conditions of approval incorporated into permits and/or authorizations would help to minimize project-related impacts on aquatic resources. To minimize impacts on aquatic resources associated with the wet open-cut crossing method, Northwest would cross the waterbodies within allowable in-stream construction windows specified by the WDFW. Restoration measures, including the installation of LWD in waterbodies within the construction right-of-way, as well as Northwest's plan to donate LWD to Native American tribes and other conservation organizations for off-site habitat creation, are discussed above in the water resources section. As discussed above, Northwest is continuing to consult with the COE, the FWS, NOAA Fisheries, the WDOE, the WDFW, other applicable agencies, and appropriate Native American tribes to finalize its site-specific waterbody crossing plans and mitigation requirements. Northwest would file any revised site-specific waterbody crossing plans and the final Mitigation Plan for Waterbody Crossings with the Secretary for the review and written approval of the Director of OEP before construction at each applicable waterbody.

Special Status Species

The FWS identified 10 federally listed threatened and endangered species, 7 candidate species, and 31 species of concern that could occur in the counties crossed by the Capacity Replacement Project. Designated critical habitat for two of the listed species (marbled murrelet and northern spotted owl) is also present in the project area. In addition, the FWS has recently proposed critical habitat for the Coastal-Puget Sound Distinct Population Segment of bull trout that includes some of the major watersheds crossed by the project. To preclude the need for further consultation in the event the Capacity Replacement Project is authorized and the proposed designation is finalized before construction, potential impacts on proposed critical habitat for the bull trout have been addressed.

Consultation with NOAA Fisheries identified one additional federally listed species that could occur in the counties crossed by the project. The chinook salmon Puget Sound Evolutionarily Significant Unit (ESU) is listed as threatened and is the only federally listed species under NOAA Fisheries' purview.

Critical habitat for this ESU was designated in a final rule in 2000. NOAA Fisheries subsequently withdrew the critical habitat designation after it was challenged in District Court (Washington, DC), and the court vacated the designation in 2002. However, in 2003, NOAA Fisheries published an advance notice that critical habitat was to be proposed for various ESUs, including the chinook salmon Puget Sound ESU. The proposed rule has not yet been published in the Federal Register. Nevertheless, potential impacts on the former chinook salmon critical habitat are discussed to preclude the need for further consultation in the event the proposed project is authorized and the designation is finalized before construction.

Based on the analysis of information regarding these species, the FERC staff has determined that, with implementation of Northwest's proposed minimization and conservation measures and its additional recommendations, the project would have no effect on seven species, would not likely adversely affect two species, and is likely to adversely affect two species (bull trout and chinook salmon). In addition, the FERC staff has determined that the project would have no effect on critical habitat for the marbled murrelet, would not likely adversely modify critical habitat for the northern spotted owl, would not likely adversely modify proposed critical habitat for the bull trout, and would not likely adversely modify former (and potential future) critical habitat for the chinook salmon.

In compliance with section 7 of the Endangered Species Act, on March 1, 2005, the FERC staff submitted to the FWS and NOAA Fisheries under separate cover a Biological and EFH Assessment for the Capacity Replacement Project with a request to initiate formal consultation. The Biological and EFH Assessment details environmental baselines for EFH, federally listed species, and critical habitat; direct, indirect, interdependent and interrelated, and cumulative effects; proposed conservation measures; and the FERC staff's determinations of effect. In response, the FWS and NOAA Fisheries would issue Biological Opinions as to whether or not the federal action would likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat. The FWS and NOAA Fisheries have not yet issued their Biological Opinions.

Consultation with the WDFW identified 16 state-listed threatened and endangered species, 18 candidate species, 8 sensitive species, and 1 monitor species that could occur in the counties crossed by the project. All of these species also have federal status. Northwest's general and species-specific conservation measures would avoid, minimize, or compensate for project impacts on these species.

Land Use, Recreation and Special Interest Areas, and Visual Resources

Approximately 99 percent of the pipeline route would be constructed within or adjacent to Northwest's existing right-of-way. Of this total, about 93 percent of the proposed loops would be constructed within Northwest's existing right-of-way and would not require any additional permanent right-of-way for operation. Construction of the loops would affect a total of about 1,024.1 acres of land. Developed land would be the primary land use affected totaling about 550.8 acres (54 percent). The remaining land uses that would be disturbed consist of 209.5 acres (20 percent) of agricultural land, 140.9 acres (14 percent) of open land, 119.3 acres (12 percent) of forest land, and 3.6 acres (less than 1 percent) of open water. About 9.4 acres of land would be disturbed by construction of the aboveground facilities. Of this total, 1.5 acres would be retained during operation. The abandonment activities at the 24 locations along the proposed loops would occur within the construction right-of-way associated with each loop and would not require any additional land. Activities at the 48 abandoned facility sites located outside of the proposed loops would disturb about 14.4 acres of land within Northwest's existing permanent easement. The pipe storage and contractor yards would temporarily affect about 190.6 acres of land.

Northwest's proposed construction work area (i.e., construction right-of-way and temporary extra workspaces) would be located within 50 feet of 222 residences and 23 other structures, including shops,

barns, garages, trailers, a batting cage, and commercial buildings. The majority of these residences and structures are on the Snohomish Loop. Temporary construction impacts on residential areas could include inconvenience caused by noise and dust generated by construction equipment, personnel, and trenching of roads or driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences and/or adjacent rights-of-way; potential damage to existing septic systems or wells; and removal of aboveground structures, such as fences, sheds, or trailers from within the right-of-way. Northwest has developed several measures it would implement to reduce impacts on residences, including the preparation of a Residential Area Work Plan for the Deer Park Subdivision on the Snohomish Loop. Other residential areas of concern on the Snohomish Loop include the Saddleback Subdivision and a portion of the Lake of the Woods Subdivision. The FERC staff has recommended that Northwest prepare similar Residential Area Work Plans for the Saddleback Subdivision and the portion of the Lake of the Woods Subdivision between MPs 1389.4 and 1389.6 and file them with the Secretary for the review and written approval of the Director of OEP before construction in those areas.

In addition, Northwest has prepared and would follow site-specific residential construction mitigation plans to minimize disruption and to maintain access to the 245 residences and structures located within 50 feet of the construction work area for all the loops. The plans show the proposed centerline of the loop, the limits of the construction work area, each residence or associated structure located within 50 feet of the construction work area, the existing pipelines, existing fences, the general tree line in the area, and the location of safety fencing that would be installed during construction. Although the plans show the general tree line surrounding the residences within 50 feet of the construction work area, they do not specifically show the trees and other landscaping that would need to be removed during construction. In order to provide this information, Northwest has retained an arborist to survey the right-of-way and prepare a report on the quantity, type, and size of trees that would be removed during construction. Northwest has also retained landscaping specialists to review properties and provide estimates to replace landscaping features that would be affected during construction. Northwest would meet with each landowner to discuss any special features on their property, including landscaping, fencing, and retaining walls. The treatment of these features would be included as stipulations in the easement agreements. Northwest would provide the arborist report and landowner stipulations to the FERC before construction. Northwest may also submit the site-specific residential construction mitigation plans, arborist report, and landowner stipulations to applicable local agencies as required by local regulations.

Facilities associated with the Capacity Replacement Project in Whatcom, Skagit, Snohomish, King, Pierce, and Thurston Counties would be located within the coastal zone of the State of Washington. The loops would also cross or be located adjacent to several recreation and/or special interest areas, including Fort Lewis. In addition, activities associated with the abandonment of the existing 26-inch-diameter pipeline could affect recreational uses in two locations.

No National Priority List sites were identified within 0.25 mile of any of the proposed loops. The WDFW identified one closed landfill within 0.25 mile of the Mount Vernon Loop that could potentially be a source of groundwater contamination. In addition, the WDOE has expressed concern over possible contamination at some existing aboveground facility sites. Northwest provided the WDOE with a list of 78 aboveground facility sites that are associated with the Capacity Replacement Project. Northwest reviewed its records for these 78 sites and determined that 28 of the sites are known or suspected to have used mercury. Ten of these 28 sites are included on the WDOE's Confirmed and Suspected Contaminated Sites List (i.e., are considered state-listed hazardous waste sites). In addition to mercury, the WDOE is concerned that there is a potential for PCBs and petroleum hydrocarbons contamination at some of the compressor stations as well as the potential for asbestos contamination at some meter stations that currently contain or historically contained sheds constructed of corrugated asbestos board.

Northwest would conduct sampling at each of the 28 sites to determine whether contamination is present within the planned construction work area where soils would be disturbed. If contaminants are not present within these work areas, any additional assessment and potential remedial actions would be deferred to a later date. Northwest would provide the WDOE with a schedule for addressing such deferred issues by early 2006. If the planned construction work area includes areas of potential residual contaminants, Northwest would assess and, if necessary, remediate residual contaminants in advance of soil-disturbing construction activities at these locations. To ensure that the requirements of the WDOE's Toxics Cleanup Program are met, the FERC staff has recommended that Northwest file a report of the remedial action completed at each of the 28 sites or documentation of concurrence from the WDOE that no further action is needed with the Secretary before ground-disturbing activities at these locations.

Visual impacts associated with the loops would be greatest where the pipeline route parallels or crosses roads and the pipeline right-of-way may be seen by passing motorists, on residents where vegetation used for visual screening of existing utility rights-of-way or for ornamental value would be removed, and in forested areas. Generally, construction within or adjacent to existing rights-of-way typically reduces impacts on visual resources because it minimizes vegetation clearing for the construction work areas and permanent right-of-way and also minimizes new fragmentation of vegetation. As previously discussed, about 99 percent of the proposed loops would be located within or adjacent to Northwest's existing right-of-way. Modification activities at the Chehalis Compressor Station would require expansion of the existing footprint of the station to install the additional compression needed for the project and construction of a gravel road to an existing water supply well. The modifications and expansion would have a permanent impact on visual resources; however, the new building and road would be seen in the context of the existing industrial facility, thereby minimizing visual impacts. The pig launchers and receivers and MLVs that would be collocated with existing aboveground facilities would only slightly expand the footprint of the existing facilities and would not result in additional permanent impacts on visual resources. The two pig receivers and MLVs that would not be collocated with existing facilities would permanently affect visual resources. To minimize impacts on visual resources associated with these facilities, the FERC staff has recommended that Northwest paint them to blend with the surrounding landscape and add slats of a compatible color to the fencing around the facilities.

Socioeconomics

Construction of the project would result in a temporary increase in population and the demand on temporary housing and public services in the area. Given the brief construction period (between 3 to 8 months), the large geographical extent of the work area, and the adequacy of existing infrastructure and services, these impacts are not considered significant.

Construction of the Capacity Replacement Project could affect transportation and traffic in the project area during construction across roads and highways, the commuting of the construction workforce to the project area, and the movement of construction vehicles and delivery of equipment and materials to the construction work area. Construction across roads and highways would result in short-term impacts on public transportation while construction activities pass through the project area. Northwest would apply for the permits necessary for road crossings and would comply with all permit stipulations. To minimize potential effects on traffic associated with the construction workforce, Northwest would require that construction workers use pipe storage and contractor yards and compressor station sites as the primary parking area for employees' personal vehicles. Workers would then be transported to the construction site in buses provided by the contractor. The construction equipment would be initially staged at a pipe storage or contractor yard and then transported to the construction right-of-way. Equipment would be dropped off in one location and would then move in a linear direction along the

right-of-way. As a result, most equipment would be located on the pipeline right-of-way and would not affect traffic on local roads after its initial delivery to the construction site.

Construction and operation of the project would have a beneficial impact on local tax revenue and economies. Some of these benefits may be offset by a net increase in the rates paid by customers of the natural gas carried by Northwest's system.

Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA), as amended, requires that federal agencies take into account the effects of their undertakings (including the issuance of permits or Certificates) on properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP) and to provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. Northwest, as a non-federal party, is assisting the FERC in meeting its obligations under section 106 and the implementing regulations in Title 36 CFR Part 800.

Northwest generally surveyed a 220-foot-wide corridor along the proposed loops. The survey corridor was centered on the existing 30-inch-diameter pipeline, which is offset 20 feet to the west of the centerline of the proposed loops. Portions of the loops had been previously surveyed by Northwest or other parties. In areas where extra workspace would be needed during construction, the survey corridor width was expanded to cover the larger area. In addition, surveys were completed at the five compressor stations, along all but one of the proposed access roads, and at the proposed pipe and contractor yards. A total of 46 cultural resources sites were identified, of which 39 are recommended as not eligible for listing on the NRHP. Of the remaining seven cultural resources sites, additional work is recommended at one of the sites and six sites would be avoided or not affected by construction activities.

Northwest provided its Unanticipated Discovery Plan to be used in the event that cultural resources or human remains are discovered during construction. Northwest's Unanticipated Discovery Plan includes contact information for the FERC, the Washington State Historic Preservation Office (SHPO), Fort Lewis, the Bureau of Indian Affairs, the state police, and the offices of the county sheriffs. In addition, Northwest has indicated that it would work with the Native American tribes in the project area to develop a list of appropriate contacts and alternate contacts to be included in its Unanticipated Discovery Plan before construction.

The FERC NOI dated July 19, 2004 was sent to individuals from 22 Native American tribes and the NWIFC. The NOI described the proposed project and the environmental review process, listed the potential environmental effects, and requested tribal comments on issues and concerns that should be addressed in the EIS. The FERC staff also sent consultation letters on September 13 and 15, 2004 to 76 individuals from the 22 tribes and the NWIFC. These consultations were conducted in accordance with section 101(d)(6)(B) of the NHPA regarding consultation with Native American tribes and identified the FERC as the lead federal agency and the COE as a cooperating federal agency for the project. These consultations included additional representatives (e.g., cultural resources, natural resources, and fisheries program representatives) of the tribes that had been previously contacted by Northwest and its cultural resources consultant. The FERC letters provided a description of the project and requested comments regarding its potential effects on religious or cultural properties, as well as natural resources concerns (e.g., usual and accustomed uses). As a follow-up to these letters, FERC representatives contacted the natural resources and fisheries departments of tribes that had not yet provided comments on the project. These contacts occurred in late October and early November 2004 and were made to discuss the project's potential impacts on waterbodies, fisheries, and other usual and accustomed use areas.

On June 9, 2005, the FERC sent letters to tribal members inviting them to a meeting in Seattle, Washington to be held on June 23, 2005 to discuss the draft EIS and tribal comments on the document. Representatives of the FERC, the COE, the WDOE, the WDFW, and Northwest were present at this meeting, which was attended by the Nisqually Tribe and the Lummi Nation. The FERC staff is continuing consultations with Native American tribes regarding Northwest's waterbody crossing and compensatory wetland mitigation plans.

In order to complete the process of complying with section 106 of the NHPA for the proposed facilities, Northwest would need to conduct cultural resources surveys along portions of the proposed loops where project design changes have occurred or landowner permission has not been obtained. In addition, further work is recommended at one cultural resources site (a cemetery) to identify its boundaries. Once cultural resources surveys and evaluations are complete, the FERC, in consultation with the SHPO, the COE, and Fort Lewis if applicable, will make determinations of NRHP eligibility and project effects. For affected traditional cultural properties, the appropriate Native American tribes would also be consulted. The FERC, as the lead federal agency, would comply with section 106 of the NHPA and the implementing regulations in Title 36 CFR Part 800 by notifying the ACHP of adverse effects to afford it an opportunity to participate in consultation. If it has been determined that any historic properties would be affected by the proposed project, Northwest would be required to prepare a treatment plan, in consultation with the appropriate parties, to mitigate adverse effects. Once a treatment plan is approved, a Memorandum of Agreement would be executed by the appropriate parties. Northwest would implement the specific treatment measures before notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after certification of the proposed project.

Air Quality and Noise

Emissions from construction of the pipeline and aboveground facilities are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard at the property boundaries or the nearest residence. The proposed turbines and fuel gas heater would operate on natural gas. Therefore, the primary pollutants emitted by these units would be nitrogen oxides (NO_x) and carbon monoxide. The proposed modifications at the Chehalis and Washougal Compressor Stations would not be subject to Prevention of Significant Deterioration review. However, during the state permitting process, the modifications would be required to meet currently prescribed Best Available Control Technology requirements, quantitatively assess the ambient air impacts associated with the proposed project, and demonstrate that the project would not cause or significantly contribute to a violation of an applicable air quality standard. Currently, the use of dry low-NO_x technology and good combustion practices have been identified as the emission reduction measures for the proposed turbines that would be installed at the Chehalis and Washougal Compressor Stations.

Noise would be generated during construction of the pipeline, the activities associated with the abandonment of the existing facilities, and during the construction and operation of the modified aboveground facilities. Construction equipment would be operated on an as-needed basis during this period. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Nighttime noise is not expected to increase during construction because most construction activities would be limited to daytime hours. Northwest would comply with all local noise ordinances during construction of the proposed facilities.

The modified compressor stations would generate noise on a continuous basis once operating (i.e., 24 hours per day). The noise impact associated with the operation of these aboveground facilities would be limited to the vicinity of the facilities. The predicted operational noise levels at the modified Chehalis and Washougal Compressor Stations are below the FERC guideline of 55 decibels of the A-

weighted scale (dBA) day-night equivalent sound level (L_{dn}) at the nearest noise-sensitive areas (NSAs). The predicted property boundary noise level at the Chehalis Compressor Station is below the Washington state noise limit of 70 dBA at an agricultural property boundary. In addition, the predicted property boundary noise level at the Washougal Compressor Station is below the Washington state noise limit of 50 dBA for a residential property boundary at night. Northwest would perform post-construction noise surveys to ensure that the actual noise resulting from operation of the Chehalis and Washougal Compressor Stations does not exceed 55 dBA L_{dn} at any nearby NSAs and is in compliance with Washington state noise limits. The FERC staff has recommended that Northwest make all reasonable efforts to assure its predicted noise levels are not exceeded at nearby NSAs and file noise surveys showing this with the Secretary no later than 60 days after placing the modified compressor stations into service.

Reliability and Safety

The pipeline and aboveground facilities associated with the Capacity Replacement Project would be designed, constructed, operated, and maintained in accordance with or to exceed the DOT Minimum Federal Safety Standards in Title 49 CFR Part 192. These regulations, which are intended to protect the public and to prevent natural gas facility accidents and failures, include specifications for material selection and qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion.

Cumulative Impacts

Existing conditions in the vicinity of the proposed Capacity Replacement Project reflect the extensive past changes brought about by long-term human occupancy and use of the project area. For example, native vegetation communities in the project area have been substantially altered from their pre-Euro-American settlement condition by timber harvest, agricultural practices, introduction of non-native species, and commercial/industrial and residential developments, while fisheries have been affected by commercial harvest and physical alteration of rivers and streams used by anadromous species. When the impacts of the Capacity Replacement Project are considered additively with the impacts of other past, present, or reasonably foreseeable future projects, there is some potential for cumulative effect on resources such as wetlands, vegetation and wildlife (including special status species), land use, visual resources, socioeconomics, cultural resources, air quality, and noise. For the Capacity Replacement Project, mitigation has been developed or recommended to avoid, minimize, or compensate for adverse impacts on each of these resources. Consequently, the Capacity Replacement Project would not contribute significantly to a cumulative adverse effect on the region's environment.

ALTERNATIVES CONSIDERED

The No Action or Postponed Action Alternative was considered. If the FERC were to deny or postpone action on Northwest's application, Northwest would not be able to comply with the DOT's CAO unless it were to replace the entire existing 26-inch-diameter pipeline with a new 26-inch-diameter pipeline according to the phased schedule outlined in the CAO (to be completed by 2013). The entire 26-inch-diameter pipeline could be replaced without obtaining a FERC Certificate if Northwest were to

either phase its construction into multiple, small projects that would remain within the provisions of Title 18 CFR Part 2.55⁸ of the FERC's regulations or replace the entire 268 miles under those provisions.

However, if Northwest were to replace the 26-inch-diameter pipeline under Title 18 CFR Part 2.55 of the FERC's regulations, it would still need to obtain other federal, state, and local approvals. The cumulative environmental impact of a phased replacement of the entire 268 miles of 26-inch-diameter pipeline over a 10-year period would be greater than the impact of the 79.5-mile-long Capacity Replacement Project because it would involve more than three times the length of right-of-way and would be constructed in more than 1 year. Therefore, the likely outcome of the FERC, the COE, the WDOE, and the WDFW denying or postponing action on Northwest's applications for the Capacity Replacement Project would be the replacement of the entire 26-inch-diameter pipeline causing greater environmental impacts. Alternatively, if Northwest were to abandon the 26-inch-diameter pipeline without replacing its capacity, Northwest would not be able to meet its contractual obligations and Washington would lose a significant amount of its natural gas supply.

Northwest is currently the sole provider of interstate natural gas in the Interstate 5 corridor in western Washington. If Northwest could not meet its delivery contracts, its customers would likely seek natural gas from other sources. This could necessitate the construction of additional and/or new pipeline facilities in other locations (system alternatives) to transport natural gas to the markets Northwest serves. If other new natural gas pipeline facilities are approved and constructed, each project would result in specific environmental impacts that could be less than, similar to, or greater than those associated with the current proposal.

An insufficient supply of natural gas could cause many of Northwest's customers to use other fossil fuels, such as coal or oil, for its energy supplies. Compared to other fossil fuels, natural gas is a relatively clean and efficient fuel. Combustion of fuels, such as oil or coal, can generate 60 to 110 percent more carbon dioxide than natural gas. Other emissions from oil or coal combustion, including greenhouse gases, are also significantly higher than those from natural gas. The use of other fossil fuels in place of natural gas would not only increase atmospheric pollution, but would also result in secondary impacts associated with production (e.g., coal mining and oil drilling), transportation (e.g., oil tankers, rail cars, and pipelines), and refining.

Alternatives involving the use of other existing pipeline systems were evaluated. However, because Northwest is the sole provider of interstate natural gas in the western Washington area, there are no other companies or existing systems that could meet Northwest's contractual delivery requirements without constructing significant new transmission facilities.

Northwest system alternatives including new pipeline corridor alternatives and alternative configurations of the Northwest system were evaluated. Because of the significant advantages afforded by collocating with Northwest's existing corridor, an alternative using a new pipeline corridor was eliminated from further consideration.

Alternative configurations of the Northwest system evaluated included permanently returning the existing 26-inch-diameter pipeline to service, like-kind replacement of the 26-inch-diameter pipeline, a pipeline looping-only alternative, compression-only alternatives, alternative pipeline sizes, alternative

⁸ Title 18 CFR Part 2.55 includes (a) auxiliary installations and (b) replacement of facilities. Auxiliary installations are defined as installations (excluding gas compressors) that are merely auxiliary or appurtenant to an authorized or proposed transmission pipeline system and are installations only for the purpose of obtaining more efficient or more economical operation of the authorized or proposed transmission facilities (e.g., valves; drips; pig launchers and receivers; yard and station piping; cathodic protection equipment; gas cleaning, cooling, and dehydration equipment; residual refining equipment; water pumping, treatment, and cooling equipment; electrical and communication equipment; and buildings). Replacement of facilities is defined as facilities that constitute the replacement of existing facilities that have or will soon become physically deteriorated or obsolete, to the extent that replacement is deemed advisable.

pipeline loop locations, replacement of the 26-inch-diameter pipeline with the 36-inch-diameter loop in the same trench, use of the existing 30-inch-diameter pipeline, inserting a liner or smaller pipe inside the existing 26-inch-diameter pipeline, and a no turn back capacity alternative. These alternatives were found to either be infeasible or not environmentally preferable to the proposed action.

Northwest's standard design calls for installation of the new loops at a 20-foot offset to the east of the existing 30-inch-diameter pipeline. Several non-standard parallel offsets and three minor route variations from the existing 30-inch-diameter pipeline that are proposed by Northwest were analyzed to determine whether they would be environmentally preferable to a route adjacent to Northwest's existing 30-inch-diameter pipeline. All of these offsets and minor route variations were determined to be warranted and environmentally acceptable.

As part of the Capacity Replacement Project, Northwest has proposed to retain as much of the existing 26-inch-diameter pipeline in place as possible for potential future use. Because removing the 26-inch-diameter pipeline in the 188.5-mile-long unlooped portion of Northwest's existing 268-mile-long system would result in significant environmental impact, it was not determined to be environmentally preferable to abandoning the existing 26-inch-diameter pipeline in place.

Alternative construction methods were evaluated, including the use of an HDD to avoid residential impacts on the Deer Park Subdivision on the Snohomish Loop. This alternative was found to be neither a technically feasible nor environmentally preferable alternative. Northwest has filed a Residential Area Work Plan for the Deer Park Subdivision. Alternatives to avoid the use of the proposed temporary extra workspaces, access road, and an expanded aboveground facility site in the Saddleback Subdivision on the Snohomish Loop were also evaluated. In some cases, these alternatives were either not technically feasible, resulted in more overall disturbance, and/or would merely shift impacts from one set of landowners to another. However, based on a June 22, 2005 site visit, the FERC staff believes Northwest's proposed temporary extra workspaces in this area could be reduced and reconfigured to avoid the subdivision's well and minimize tree clearing. The FERC staff has recommended that Northwest file a Residential Area Work Plan for the Saddleback Subdivision for review and approval before construction in this area. Alternatives to minimize impacts on landowners in the Lake of the Woods Subdivision were also evaluated. The FERC staff reviewed this area on June 22, 2005 and believes Northwest could reconfigure some of the temporary extra workspaces on these landowners' properties to minimize impacts. The FERC staff has recommended that Northwest file a Residential Area Work Plan for the portion of the Lake of the Woods Subdivision between MPs 1389.4 and 1389.6 for review and approval before construction in this area.

The use of the wet open-cut method at the North Fork Nooksack River, North Fork Stillaguamish River, and South Fork Stillaguamish River was evaluated if the proposed HDD crossings fail. The use of the aerial span method at Pilchuck Creek and the Nisqually River was evaluated if the proposed wet open-cut crossing method is not approved at these two waterbodies and no other underground options are available. The key differences in these methods are discussed above in the water resources section. As previously discussed, Northwest has filed site-specific crossing plans for the proposed and alternative crossing methods for the North Fork Nooksack River, Pilchuck Creek, North Fork Stillaguamish River, South Fork Stillaguamish River, and the Nisqually River. Northwest has also filed a draft Mitigation Plan for Waterbody Crossings. Northwest is still in the process of consulting with other federal, state, and local agencies and applicable Native American tribes to finalize its site-specific waterbody crossing plans and additional mitigation requirements that should be included in its Mitigation Plan for Waterbody Crossings. The FERC staff has recommended that Northwest continue to consult with the COE, the FWS, NOAA Fisheries, the WDOE, the WDFW, other applicable agencies, and appropriate Native American tribes to finalize its site-specific waterbody crossing plans and mitigation requirements. Northwest would file any revised site-specific waterbody crossing plans and the final Mitigation Plan for

Waterbody Crossings with the Secretary for the review and written approval of the Director of OEP before construction at each applicable waterbody.

MAJOR CONCLUSIONS

The conclusions presented in this section are those of the environmental staff of the FERC. These conclusions were developed with input from the COE, the WDOE, and the WDFW as cooperating agencies in the preparation of this EIS. However, these agencies will present their own conclusions as part of their permit decisions.

The FERC staff has determined that construction and operation of the Capacity Replacement Project and the associated abandonment activities would result in limited adverse environmental impacts. These limited impacts would be most significant during the period of construction. The FERC staff has concluded that if the project is constructed and operated in accordance with applicable laws and regulations, Northwest's proposed mitigation, and the FERC staff's additional mitigation recommendations, it would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 99 percent of the proposed loops would be within or adjacent to Northwest's existing right-of-way and 93 percent of the proposed loops would be within Northwest's existing permanent easement;
- Northwest would abandon the existing 26-inch-diameter pipeline in place in the locations along the non-looped portions of its system, which would eliminate disturbance to 188.5 miles of the right-of-way with the exception of the activities that would occur to isolate the 26-inch-diameter pipeline from other system components;
- Northwest would submit documentation of concurrence from the WDOE that the project is consistent with the Washington Coastal Zone Management Program before construction;
- the project would be consistent with or in conformance with all identified comprehensive plans and critical areas ordinances;
- Northwest would implement the FERC staff's Plan and Procedures; its ECR Plan; SPCC Plan; HDD Plan; Groundwater Monitoring and Mitigation Plan; Mitigation Plan for Waterbody Crossings; and Residential Area Work Plans for the Deer Park, Saddleback, and Lake of the Woods Subdivisions to protect natural resources and residential areas during construction and operation of the project;
- use of the HDD method would avoid disturbances to the beds and banks of the North Fork Nooksack, North Fork Stillaguamish, and South Fork Stillaguamish Rivers and associated wetlands/riparian areas. If the HDD method fails and the alternative wet open-cut method were used to cross these waterbodies, the short-term impact of a wet open-cut crossing would be environmentally acceptable;
- Northwest would implement approved waterbody crossing and compensatory wetland mitigation plans to minimize and compensate for unavoidable stream and wetland impacts;

- the appropriate consultations with the FWS, NOAA Fisheries, the SHPO, Fort Lewis, and Native American tribes, and any appropriate compliance actions resulting from these consultations, would be completed before Northwest would be allowed to begin construction in any given area; and
- an environmental inspection and compliance monitoring program would ensure | compliance with all mitigation measures that become conditions of certification.