

**Draft Planning Report/Environmental Impact Statement**

# **Yakima River Basin Water Storage Feasibility Study**

**Yakima Project  
Washington**



**U.S. Department of the Interior  
Bureau of Reclamation  
Pacific Northwest Region  
Upper Columbia Area Office  
Yakima, Washington**



**State of Washington  
Department of Ecology  
Central Regional Office  
Yakima, Washington  
Ecology Publication No. 07-11-044**

**January 2008**

## **Mission Statements**

The Mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The mission of the Department of Ecology is to protect, preserve and enhance Washington's environment, and promote the wise management of our air, land and water for the benefit of current and future generations.

**Draft Planning Report/Environmental Impact Statement  
Yakima River Basin Water Storage Feasibility Study  
Benton, Yakima, and Kittitas Counties, Washington**

**Co-Lead Agencies:**

U.S. Department of the Interior  
Bureau of Reclamation

State of Washington  
Department of Ecology

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**Cooperating Agencies:**

Yakima County Public Services  
U.S. Army Corps of Engineers – Seattle District  
U.S. Department of the Army – Yakima Training Center  
U.S. Department of Energy – Hanford Site, Office of River Protection

This draft planning report/environmental impact statement (Draft PR/EIS) examines the feasibility, acceptability, and environmental consequences of alternatives to create additional water storage for the Yakima River basin for the benefit of anadromous fish, irrigated agriculture, and future municipal water supply. A No Action Alternative, three alternatives proposed jointly by the Bureau of Reclamation and the Department of Ecology (Joint Alternatives), and three State of Washington alternatives (State Alternatives) were evaluated. The Joint Alternatives consider water storage options as directed under feasibility study authority (Public Law 108-7) while the State Alternatives consider both storage and nonstorage options. A preferred alternative has not been identified.

This Draft PR/EIS was prepared in compliance with the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&Gs)*, the National Environmental Policy Act (NEPA), and the State of Washington Environmental Policy Act (SEPA). It also provides the public review required under Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) and the National Historic Preservation Act. Results of compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act of 1973, as amended, and the Clean Water Act are included in the evaluations contained in this Draft PR/EIS.

This Draft PR/EIS is available for a 60-day public review period. Comments are due to the above Bureau of Reclamation address by March 31, 2008.

## **SEPA FACT SHEET**

### **Brief Description of Proposal:**

The Bureau of Reclamation and Washington State Department of Ecology are studying potential storage options to benefit fish, irrigation, and future municipal water supply in the Yakima River Basin. This document is a combined Draft Planning Report and Environmental Impact Statement (Draft PR/EIS). It examines three Joint Alternatives and three State Alternatives, as well as the No Action Alternative. The Joint Alternatives are storage alternatives being proposed by both Reclamation and Ecology. They include Black Rock, Wymer Dam and Reservoir, and Wymer Dam Plus Yakima River Pump Exchange Alternatives. The three State Alternatives are being evaluated by Ecology under its broader authority to study both storage and nonstorage options. The three alternatives are Enhanced Water Conservation, Market-Based Reallocation of Water Resources, and Groundwater Storage.

### **Proponents:**

Washington State  
Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

U.S. Department of the Interior  
Bureau of Reclamation  
Upper Columbia Area Office  
1917 Marsh Road  
Yakima, Washington 98901-2058

### **Agency Contacts:**

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David Kaumheimer  
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Upper Columbia Area Office  
1917 Marsh Road  
Yakima, Washington 98901-2058  
509-575-5848 ext. 612

### **Permits, Licenses, and Approvals Required for Proposal:**

It is not possible to present a complete list of permits, licenses, and approvals that may be required for the alternatives considered for the Yakima River Basin Water Storage Feasibility Study because additional studies will be undertaken to define the specific nature of the projects identified in the State Alternatives. It is possible, however, to identify a number of the most common types of permits, licenses, and approvals associated with water resources and habitat that would generally be required for the proposed alternatives. These permits, licenses, and approvals are listed below by the jurisdictional agency:

#### **Federal Permits, Licenses, and Approvals**

- Section 401 Permit, Clean Water Act
- Section 402 Permit, Clean Water Act
- Section 404 Permit, Clean Water Act

- Additional Points of Diversion Authorization
- National Environmental Policy Act
- Endangered Species Act
- Secretary's Native American Trust Responsibilities
- National Historic Preservation Act
- Executive Order 11988: Floodplain Management
- Executive Order 11990: Protection of Wetlands
- Executive Order 12898: Environmental Justice
- Executive Order 13007: Indian Sacred Sites

#### State Permits, Licenses, and Approvals

- Water use permit/certificate of water right – Department of Ecology
- Reservoir permit/aquifer storage and recovery – Department of Ecology
- Dam safety permit – Department of Ecology
- National Pollutant Discharge Elimination System permit(s) – Department of Ecology
- Section 401 water quality certification – Department of Ecology
- Shoreline conditional use permit, or variance – Department of Ecology
- Water system plan approval – Department of Health
- Hydraulic project approval – Department of Fish and Wildlife
- Forest practices approval – Department of Natural Resources

#### Local Permits, Licenses, and Approvals

- Critical areas permit or approval – Appropriate local jurisdictional agency
- Floodplain development permit – Appropriate local jurisdictional agency
- Shoreline substantial development permit, conditional use permit, or variance – Appropriate local jurisdictional agency
- Building permit – Appropriate local jurisdictional agency
- Clearing and grading permit – Appropriate local jurisdictional agency

#### **Authors and Contributors:**

A list of authors and contributors is provided following chapter 6.

#### **Date of Issue:**

January 29, 2008

#### **Public Comment Period:**

In accordance with WAC 197-11-455 and the National Environmental Policy Act (NEPA), Ecology and Reclamation will conduct a 60-day public comment period from January 29 to March 31, 2008.

**Submitting Comments:**

Comments on the Draft PR/EIS should be submitted to:

David Kaumheimer  
Bureau of Reclamation  
Upper Columbia Area Office  
1917 Marsh Road  
Yakima, Washington 98901-2058  
509-575-5848 ext. 612

**Timing of Additional Environmental Review:**

This Draft PR/EIS has been prepared to generally address probable significant adverse impacts associated with alternatives proposed for the Yakima River Basin Water Storage Feasibility Study. This Draft PR/EIS is being prepared in accordance with NEPA and the State Environmental Policy Act (SEPA). Individual projects undertaken as part of the State Alternatives may require additional environmental review when they are proposed; these projects may require SEPA compliance, NEPA compliance, or both, depending upon the implementing agency, source of funding, and/or types of permits required. Projects will be evaluated as they are developed and ready for environmental review. This could occur within the next few years for some of the early action items, or as long as several years in the future for other projects.

**Public Hearings:**

Reclamation and Ecology will conduct public hearings to receive public comments on the Draft PR/EIS. Meetings will be held on two days in two locations:

**Wednesday, February 27, 2008, in Yakima, Washington.** An informational open house will occur from 1:00 to 2:00 p.m., followed by a public hearing to receive oral comments from 2:00 to 4:00 p.m. A second informational open house will be held from 6:00 to 7:00 p.m., with a public hearing occurring from 7:00 to 9:00 p.m. The location is the Yakima Convention Center, 10 North 8th Street.

**Thursday, February 28, 2008, in Kennewick, Washington.** An informational open house will occur from 1:00 to 2:00 p.m., followed by a public hearing to receive oral comments from 2:00 to 4:00 p.m. A second informational open house will be held from 6:00 to 7:00 p.m., with a public hearing occurring from 7:00 to 9:00 p.m. The location is the Three Rivers Convention Center, 7016 West Grandridge Boulevard.

**Document Availability:**

The Draft PR/EIS can be viewed on-line at:

[http://www.ecy.wa.gov/programs/wr/cwp/crbwmp\\_yak\\_storage.html](http://www.ecy.wa.gov/programs/wr/cwp/crbwmp_yak_storage.html). The document can be obtained in hard copy or CD by written request to the SEPA Responsible Official listed above, or by calling 509-454-7679. If you need this

publication in an alternate format, please call the Department of Ecology, Columbia River Unit, at 509-575-2490. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

**Location of Background Materials:**

Background materials used in the preparation of this Draft PR/EIS are available online at the following links.

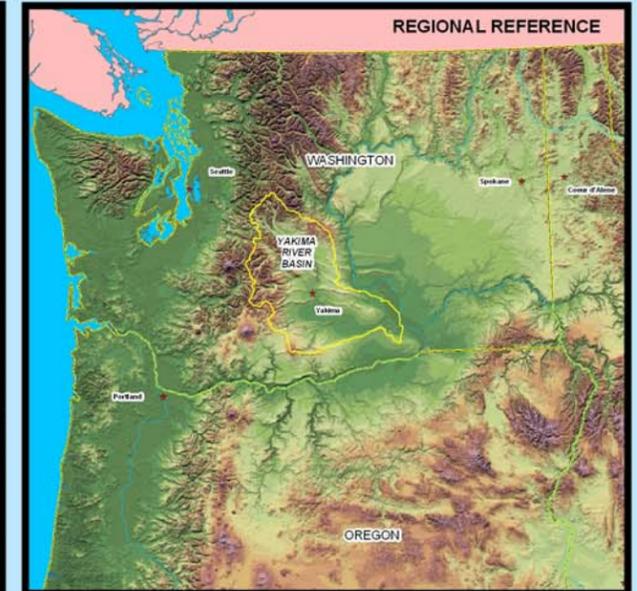
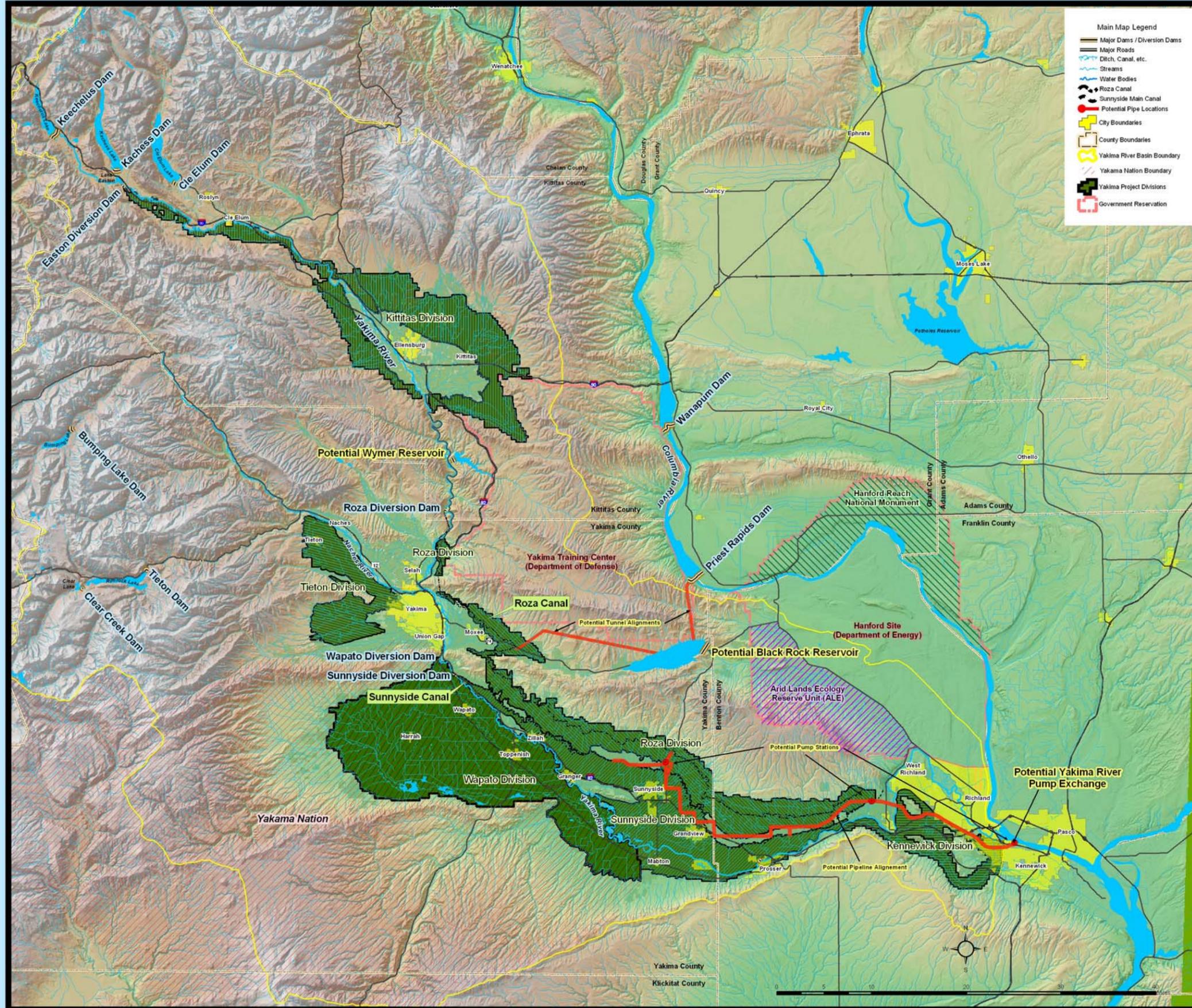
Columbia River Basin Storage Options – Yakima Basin Water Storage

[http://www.ecy.wa.gov/programs/wr/cwp/crbwmp\\_yak\\_storage.html](http://www.ecy.wa.gov/programs/wr/cwp/crbwmp_yak_storage.html)

Yakima River Basin Water Storage Feasibility Study, Upper Columbia Area Office

[http://www.usbr.gov/pn/programs/storage\\_study/index.html](http://www.usbr.gov/pn/programs/storage_study/index.html)

# Yakima River Basin Water Storage Feasibility Study



This reference graphic is intended for informational purposes only. It is meant to assist in feature location relative to other landmarks. Geographic features have been intentionally simplified in an attempt to provide a more readable product. No representation is made as to accuracy of this document. Current as of January 2008.

**RECLAMATION**  
Managing Water in the West

REFERENCE GRAPHIC

## **ACRONYMS AND ABBREVIATIONS**

# ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	micrograms per liter
1-D	one-dimensional
2-D	two-dimensional
AACE	Association for the Advancement of Cost Engineering
ACHP	Advisory Council on Historic Preservation
<i>Acquavella</i>	<i>State of Washington Department of Ecology v. James J. Acquavella et al.</i>
AHA	All H: Habitat, Hatcheries, Harvest, and the Hydroelectric Analyzer
ALE	Arid Lands Ecology
APE	area of potential effect
ASR	Aquifer Storage and Recovery
ATV	all-terrain vehicle
BCA	benefit-cost analysis
BCAA	Benton County Air Authority
BIA	Bureau of Indian Affairs
Biology TWG	Biology Technical Work Group
BIOP	Biological Opinion
<i>Black Rock Summary Report</i>	<i>Summary Report, Appraisal Assessment of the Black Rock Alternative</i>
BLM	Bureau of Land Management
BMP	Best Management Practice
BOD	biochemical oxygen demand
BPA	Bonneville Power Administration
CBP	Columbia Basin Project
CCD	County Census Division
CDC	Centers for Disease Control
CDP	Census Designated Place
CFO	Conditional Final Order
CFR	Code of Federal Regulations
cfs	cubic feet per second
CID	Columbia Irrigation District
cm	centimeters
CO	carbon monoxide
CPOM	coarse-particulate-organic-matter
CR	contingent ranking/conjoint analysis
CRBG	Columbia River Basalt Group
CRBWMP	Columbia River Basin Water Management Program

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CRMP	Cultural Resources Management Plan
CV	contingent valuation
DAHP	Washington State Department of Archaeology and Historic Preservation
dB	decibels
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
DM	Departmental Manual
DO	dissolved oxygen
DOC	dissolved organic carbon
DOE	Department of Energy
Draft PR/EIS	Draft Planning Report/Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study
DSS	decision support system
Ecology	Washington State Department of Ecology
EDT	Ecosystem Diagnostics and Treatment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPT	Ephemeroptera Plecoptera and Trichoptera
EQ	Environmental Quality
ESA	Endangered Species Act of 1973, as amended
ESU	evolutionarily significant unit
ET	evapotranspiration
FAR	Fourth Assessment Report
FCRPS	Federal Columbia River Power System
FERC	Federal Energy Regulatory Commission
FWCA	Fish and Wildlife Coordination Act
g	acceleration of gravity
gpm	gallons per minute
Hanford Site	Hanford Nuclear Reservation
HEC-RAS	Hydraulic Engineering Center – River Analysis System
HEP	Habitat Evaluation Procedures
HSI	Habitat Suitability Index
HU	Habitat Units
HUD	Housing and Urban Development
I	Interstate
ICC	Indian Claims Commission
IDC	interest during construction
IMPLAN	IMpact Analysis for PLANning

<i>IOP</i>	<i>Interim Comprehensive Basin Operating Plan for the Yakima Project</i>
IPCC	Intergovernmental Panel on Climate Change
ITA	Indian trust asset
KID	Kennewick Irrigation District
kV	kilovolt
kWh	kilowatthour
LWD	large woody debris
maf	million acre-feet
MCL	Maximum Concentration Level
mg/L	milligrams per liter
MOA	Memorandum of Agreement
MP	mile post
mph	miles per hour
MW	megawatts
MWh	megawatthour
MOU	Memorandum of Understanding
N	nitrogen
NAAQS	National Ambient Air Quality Standards
NASS	National Agricultural Statistics Service
<i>National Register</i>	<i>National Register of Historic Places</i>
NED	National Economic Development
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act, as amended
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NO <sub>x</sub>	nitrogen oxide
NPPC	Northwest Power Planning and Conservation Council
NRC	National Research Council
NTU	nephelometric turbidity unit
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
OHV	off-highway vehicle
OM&R	operations, maintenance, and replacement
Omnibus Act	Omnibus Appropriations Act of 2003
OMR&E	operations, maintenance, replacement, and energy
OSE	Other Social Effects
P	precipitation
P	phosphorus

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<i>P&amp;Gs</i>	<i>Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies</i>
P.L.	Public Law
PCB	polychlorinated bi-phenols
PCE	primary constituent elements
PEM	palustrine emergent wetlands
PFO	palustrine forested wetlands
PHA	Peak Horizontal Acceleration
PIA	Practicably Irrigable Acreage
PM10	particulate matter nominally 10 microns or less
PNNL	Pacific Northwest National Laboratory
PSD	Prevention of Significant Deterioration
PSHA	Probabilistic Seismic Hazard Assessment
PSS	palustrine scrub-shrub wetlands
PUD	Public Utility District
RCW	Revised Code of Washington
Reclamation	Bureau of Reclamation
RED	Regional Economic Development
RM	river mile
ROW	right-of-way
RV	recreational vehicle
SCS	Soil Conservation Service
SEPA	State Environmental Policy Act
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMA	Washington State Shoreline Management Act of 1972
SOAC	System Operation Advisory Committee
SPCC	Spill Prevention Control and Countermeasures
SR	State Route
SRH-SIAM	Sediment Impact Analysis Methods
SSTWG	Storage Study Technical Work Group
Storage Study	Yakima River Basin Water Storage Feasibility Study
SWE	snow water equivalent
T	temperature
TCP	traditional cultural property
TDG	total dissolved gas concentrations
TDS	total dissolved solids
the Authorization	Public Law 108-7
TMDL	total maximum daily load

TP	total phosphorus
TPN	total persulfate nitrogen
TSS	total suspended solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
TWRP	Trust Water Rights Program
TWSA	total water supply available
UCAO	Upper Columbia Area Office
USGS	U.S. Geological Survey
VOC	volatile organic compounds
VRA	voluntary regional agreements
WAC	Washington Administrative Code
Watershed Council	Yakima River Watershed Council
WCRP	World Climate Research Programme
WDFW	Washington Department of Fish and Wildlife
WDOT	Washington Department of Transportation
WHO	World Health Organization
WIP	Wapato Irrigation Project
WNF	Wenatchee National Forest
WSAI	water supply available for irrigation
WSU	Washington State University
WTWG	Water Transfer Working Group
YAI	Yakima Agricultural Impact
<i>Yakima Appraisal Assessment</i>	<i>Yakima River Basin Storage Alternatives Appraisal Assessment</i>
Yak-RW	Yakima Project RiverWare
YBSA	Yakima Basin Storage Alliance
YRBWEP	Yakima River Basin Water Enhancement Program
YSFWRB	Yakima Subbasin Fish and Wildlife Recovery Board
YTC	U.S. Department of the Army, Yakima Training Center