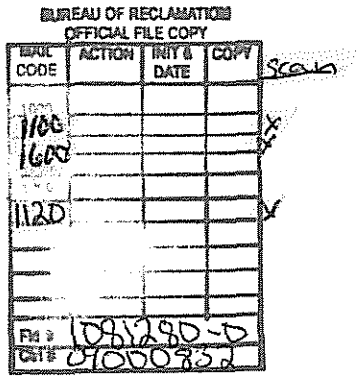
PRJ-8.00

January 4, 2009
3030 Thrall Road
Ellensburg, WA 98926



David Kaumheimer
Bureau of Reclamation
1917 Marsh Road
Yakima, WA 98901-2058

Derek Sandison
State Department of Ecology
15 W. Yakima Avenue, Suite 200
Yakima, WA 98902-3401

Re: Black Rock Dam

Gentlemen:

Some 30 plus years ago, I recall forward looking people working to find solutions for the future of potential water problems in the Yakima River Basin.

Some six years ago our Congress and the State of Washington gave your Departments a mandate to study plans that would create additional "new" water storage in the Yakima River Basin.

Six years ago and 18 million dollars later you both failed. The BOR "No Action" alternate to do nothing begets nothing and adds not one drop of new water to our YRB.

Ecology, your studies and recommendations are true and good, repairing canals, pumping stations, shorelines, and fish ladders are needed and conservation plans help – "But" this adds not one drop of new water to meet our present and future needs.

You both say Black Rock Dam "costs too much," compared to what? Studies show in 1970 BRD would have cost about 2.6 billion dollars. Today 30 years later, BRD will cost some 7.7 billion. 30 years ahead to 2038 BRD will cost some 12.8+ billions plus. Meanwhile, the YR Basin slowly dies from years of lack of decision.

BRD, by your study, is the only site that meet all the criteria set by Congress. You said it could be built, that probable water seepage can be recaptured and reused.

BRD could solve our water problems for years to come, put thousands of people to work, restore our fisheries, and help our junior water right holders get their fair share of available water.

Bureau of Reclamation: Your "No Action" alternate means do nothing, 30 years of time, money, and effort wasted and no water solutions.

My hope is that those who follow you will show the foresight and courage your predecessors had to build the great dams that serves our western states so well even though at that time they "cost too much."

Sincerely,

Joseph Lowatchie Sr.

Joseph Lowatchie Sr.
509-962-3033

Attn: David Kaumheimer

PRS-8.00
Received in Mail Room
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C
A
O
JAN 08 2009
Yakima, WA

BUREAU OF RECLAMATION
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108280-0
0900131

January 3, 2009

Washington State Dept. of Ecology

Re: Black Rock

To Whom It May Concern:

Black Rock Reservoir is the best alternative for future water in this valley. As lifelong residents of this area, my husband and I have seen the ups and downs of water use. We have junior rights in Roza Irrigation and know what drought can do. We have watched as different proposals have been made in the past 30 years but nothing has been done. We need Black Rock and the sooner the better. We feel the following are good reasons for Black Rock:

1. Sustainability - a recent TV news report covered the recession and said Washington State is in a good place because we produce food and it is always in demand. With no water for production, we cannot sustain this advantage.

2. Fish habitat improvements - with Black Rock, we could help restore fish by increasing water supplies.

3. Environment - with Black Rock, we would have more water for everyone - animals and humans. We know there are concerns about resorts damaging the area, but this could be handled in a way to benefit all parties. We realize that conservation is great, but when there is no water there is nothing to conserve. Also, irrigation water adds to surface water which can help domestic wells.

Of course the cost will be great, but the cost of doing nothing will be greater. Let's think about the future and not the past. Our current water supplies were okay for the last century but we need Black Rock for this century.

Sincerely,

Karen Pilon
509 Bittner Rd
Yakima, WA 98901

cc: U.S. Bureau of Reclamation

From: "vivian newman" <newviv@roadrunner.com>
To: <storagestudy@pn.usbr.gov>
Date: Wed, Jan 28, 2009 6:19 AM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Vivian Newman
POB 388
South Thomaston ME 04858
newviv@roadrunner.com

From: "Patrick Parenteau" <pparenteau@vermontlaw.edu>
To: <storagestudy@pn.usbr.gov>
Date: Wed, Jan 28, 2009 3:56 AM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Patrick Parenteau
Professor of Law
Director, Environmental and Natural Resources Law Clinic
Vermont Law School
South Royalton, VT 05068

802 831 1305
802 831 1322 (fax)
pparenteau@vermontlaw.edu

From: "Pastor Steve" <ffalztar@sbcglobal.net>
To: <storagestudy@pn.usbr.gov>
Date: Wed, Jan 28, 2009 9:32 AM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Steve Ratzlaff

6039 N. Roosevelt

Fresno, CA 93704

From: Jimdougherty <jimdougherty@aol.com>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Jan 27, 2009 11:44 PM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

James B. Dougherty, Esq.
709 Third St. SW
Washington DC 20024
202-488-1140 (voice)
202-607-7093 (cell)
202-484-1789 (fax)
www.jimdougherty.org
JimDougherty@aol.com

From: Stan Kaufman <sekfmn@pacbell.net>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Jan 27, 2009 9:19 PM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Stan Kaufman
144 Idora Avenue
San Francisco, CA 94127

ENV-6.00

Received in Mailroom
UCAO JAN 26 2009 YFO
Yakima, Washington

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

January 20, 2009

Reply to
Attn Of: ETPA - 088

Ref.: 06-081-BOR

BUREAU OF RECLAMATION OFFICIAL FILE COPY

SYMBOL CODE	ACTION	INIT & DATE	COPY
1000			
1100			C
1500			X
1700			
5000			
1120			X
File #	1080417-D		
Ctrl #	0900498L		

David Kaumheimer, Environmental Programs Manager
Upper Columbia Area Office
Bureau of Reclamation
1917 Marsh Road, Yakima, WA 98901

Dear Mr. Kaumheimer:

The U.S. Environmental Protection Agency (EPA) has reviewed the Bureau of Reclamation (Reclamation) final Environmental Impact Statement (FEIS) for the proposed **Yakima River Basin Water Storage Feasibility Study** (CEQ No. 20080534) in Washington State in accordance with our authorities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609.

In our comments on the draft EIS in April 2008, EPA expressed environmental objections to the proposed Black Rock Alternative because of potential impacts to groundwater, and subsequent migration of radiological and chemical contaminants to the Columbia River, and a lack of effective mitigation measures. EPA's concerns about the Wymer Dam and Reservoir and Wymer Dam Plus Yakima River Pump Exchange alternatives were the potential adverse effects on wetlands, riparian areas, water quality, and habitat. EPA recommended additional evaluation of the seepage impacts, as well as further examination of proposed State Alternatives, which may help to increase water availability with minimal environmental effects.

The final EIS further evaluates seepage impacts and selects the No Action Alternative as the Preferred Alternative. EPA supports this selection. Our primary concerns have been addressed. EPA believes that success in water supply and use in the Yakima River Basin will depend on continued cooperation and engagement of federal agencies, the State of Washington, local tribes and communities, and other interested stakeholders in Yakima River Basin.

If you have questions about our comments, please feel free to contact Theo Mbabaliye at (206) 553-6322, or me at (206) 553-1601.

Sincerely,

For Christine B. Reichgott, Manager
NEPA Review Unit

cc: Yakama Nation
Washington State Department of Ecology
Department of Energy at Hanford

From: "S. Auchincloss" <sauchincloss@earthlink.net>
To: <storagestudy@pn.usbr.gov>
Date: Wed, Jan 28, 2009 10:47 AM
Subject: Yakima River Basin Final EIS

Dear Madam or Sir,

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money.

I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Thank you for your consideration.

Stuart Auchincloss

Stuart Auchincloss
8 Library Lane
Woodstock, NY 12498-1169
Tel: (845) 679-7002
Fax: (845) 679-7056

From: <akjv1611@verizon.net>
To: <storagestudy@pn.usbr.gov>
Date: Thu, Jan 29, 2009 12:09 PM
Subject: Yakima River Basin Storage Study

I support the NO action alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River.

To help salmon, I support the fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and possibly metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost -effective than new dams, and could vastly improve the efficiency of water use.

Dianna Larson
Allyson Rickets
James Thomas

Landowners in Washington State.

From: K Russel <needtoknow1@gmail.com>
To: <storagestudy@pn.usbr.gov>
Date: Thu, Jan 29, 2009 11:40 AM
Subject: Black Rock Dam, NO

I oppose this site for all the very obvious envionmental reasons.

Kathleen Russell

From: <VMISHA@comcast.net>
To: <storagestudy@pn.usbr.gov>
Date: Thu, Jan 29, 2009 11:34 AM
Subject: Yakima River Basin Storage Stud

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

CC: <*>, <Sen.Murray>, <"http://murray.senate.gov/email/index.cfm">, <*>, <Sen.Cantwell>, <"http://cantwell.senate.gov/contact/">, <*>, <Gov.Gregoire>, <"http://www.governor.wa.gov/contact/">

From: "Jim & Jan McRoberts" <jim4fish@comcast.net>
To: <storagestudy@pn.usbr.gov>
Date: Thu, Jan 29, 2009 9:58 AM
Subject: Yakima River Basin Storage Study

Bureau of Reclamation
Attn: Mr. David Kaumheimer
Environmental Programs Manager
Upper Columbia Area Office
1917 Marsh Road, Yakima
Washington 98901-2058

Dear Mr. Kaumheimer:

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

From: Tim Marchand <marchandster@gmail.com>
To: <storagestudy@pn.usbr.gov>
Date: Wed, Jan 28, 2009 12:08 PM
Subject: Yakima River Basin Final EIS

I support the Bureau of Reclamation's findings that proposed irrigation dams in eastern Washington are a waste of taxpayers' money. I support the preferred alternative (no action) and request that the Bureau focus on water conservation and restoration of in-stream fish flows. I am especially opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

Tim Marchand
912 SW Naismith Pl
Topeka, KS 66606

From: Walter Kloefkorn <wkloefkorn@yahoo.com>
To: <storagestudy@pn.usbr.gov>
Date: Thu, Jan 29, 2009 6:31 PM
Subject: Yakima River Basin Storage Study

I support the NO Action Alternative.

This would be a poor use of our water resources in Washington State. As a small farmer in Stevens County, this project would use my tax money to subsidize my agri-business competition. It would be far more cost-effective, and would nurture local economies, to develop small projects and allow on farm impoundments in NE Washington (the source of much of this water) where it can be used locally to augment our 20+ inches of rain a year. Building huge dams to farm the arid basin is a huge waste of money and water.

In addition, the Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

Walter Kloefkorn
Higher Ground Organic Farm
Springdale, Washington

PRJ 8.00

Attn: David Kaumheimer
Environmental Programs Manager
Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

Dear Mr. Kaumheimer:

I am opposed to development of the Black Rock project. It deserves to be cancelled as soon as possible without any further waste of taxpayer's money. There are many reasons for cancelling this project. Cost, environment damage, etc.

This of vastly increasing the spread of radioactive contamination is too great. This item has not even been studied thoroughly. Suffice to say the assistant secretary of the Department of Energy has come out against the project.

For that reason alone, the Black Rock Project warrants cancelling.

Sincerely yours,

Duane W Faletti

Dr. Duane W. Faletti
Chemical Engineer (ret.)

From: "Debbie Stempf" <dstempf@comcast.net>
To: <storagestudy@pn.usbr.gov>
Date: Fri, Jan 30, 2009 3:09 PM
Subject: Yakima River Basin Storage Study

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River.
To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.
Debbie Stempf
Spokane

From: george <gtphonehome@gmail.com>
To: <senator_murray@murray.senate.gov>, <storagestudy@pn.usbr.gov>
Date: Sat, Jan 31, 2009 3:25 PM
Subject: Yakima River Basin Storage Study

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

From: Bush <trodbush@me.com>
To: <storagestudy@pn.usbr.gov>
Date: Sat, Jan 31, 2009 5:45 PM
Subject: Blackrock Dam

Dear Sir:

I am a transplant from Southern Arizona. I am used to lack of water and the need for desert irrigation. Frankly, there is not much of a public emphasis on proper conservation first, and second this project strikes me as a NW CAP. That would be the Central Arizona Project which was to feed the mines and farms with Colorado River water. It ended up too expensive for the afore mentioned users and so they decided that we would have to drink it.

That project also had to pump water uphill. Sorry, Blackwater just does not seem sustainable from an energy perspective. I've heard a lot about leakage from the lake, but not much about evaporation from the lake. I think the canals should be covered to prevent evaporation as well.

I think this will be a boondoogle. There are other things to be done first, before embarking on this project.

Thankyou for your consideration,

Richard B. Bush

Naturam Expellas Furca *Tamen Usque Recurret*

WISE USE MOVEMENT

P.O. Box 17804, Seattle, WA 98127

January 30, 2009

Bureau of Reclamation
Upper Columbia Area Office
Mr. David Kaumheimer, Environmental Program Manager
1917 Marsh Road
Yakima, WA 98901-2058
Email: storagestudy@pn.usbr.gov

RE: Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Kittitas, Yakima and Benton Counties, Washington

Dear Bureau of Reclamation:

We have reviewed a copy of the Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study (FEIS). The following are the comments of the Wise Use Movement:

The Wise Use Movement strongly supports the Bureau of Reclamation's preferred No Action alternative. *FEIS, Section 2.3.* We also strongly support implementation of water conservation measures proposed as part of Phase II (the Basin Conservation Program) of the 1994 Yakima River Basin Water Enhancement Project (YRBWEP). We also request that the FEIS review and present the water conservation measures taken to date by irrigation district. We also request that the FEIS include a review of Yakima River Basin forest practices on private, state and U.S. Forest Service lands and the impact on water quantity and snowpack runoff.

The Wise Use Movement strongly opposes any new storage projects on the Yakima River and its tributaries, including the Bumping Dam Enlargement (Large or Small Options), Wymer Dam (on Lmuma Creek), and Black Rock Dam. According to the FEIS, the projects reviewed by the Bureau of Reclamation have a large negative cost-benefit ratio. The Black Rock project has a 0.13/1 ratio, the Wymer Dam and Reservoir has a 0.31/1 ratio, while the Wymer Dam Plus Yakima River Pump Exchange has a 0.07/1 ratio. *FEIS, Section 2.9.*

The Bureau of Reclamation selected the no-action alternative because the other alternatives were too expensive, were not economically justified, and did not meet the federal water resource project criteria of completeness, effectiveness, efficiency, and acceptability. *FEIS, Section 2.9.*

We are also concerned that the Black Rock project would result in underground seepage through the Hanford Nuclear Reservation. *FEIS, Section 2.4.1.1.* The Bureau's Technical Report states, "In the absence of mitigation measures, the seepage model indicated that water would seep from the reservoir into underlying sediments and basalts. The majority of this seepage would then emerge on the surface in the Dry Creek drainage downstream of the dam. The water would then flow down Dry Creek drainage until it reached thick sediment layers near Cold Creek where it would reinfiltrate and continue flowing in the subsurface towards Hanford." *Technical Series No. TS-YSS-25, Modeling Mitigation of Seepage from the Potential Black Rock Reservoir, page ix.* The best "mitigation measure" is to not build the Black Rock project in the first place.

The Wise Use Movement remains strongly opposed to the Bumping Lake Enlargement project, which the Bureau previously dropped from its storage study. The FEIS stated: "Over the years, several bills have been introduced in the Congress to authorize the construction and operation of the Bumping Lake Enlargement Alternative. However, no action has been taken. This primarily is due to the concerns expressed by the environmental community through local, State, and national organizations opposed to such action." *FEIS, Section 2.10.1.* As the FEIS correctly noted, the environmental and social issues raised against the Bumping Lake Enlargement proposal ". . .were raised in previous studies and are still of concern today." *FEIS, Section 2.10.1.* Therefore, we support adding the land around the existing Bumping Lake Reservoir to the William O. Douglas Wilderness Area.

The Wise Use Movement also opposes other proposed irrigation dam projects in eastern Washington, including those proposed by the Washington Department of Ecology: the Crab Creek reservoir, Hawk Creek reservoir, and the Pine Hollow reservoir.

In summary, we strongly support the Bureau of Reclamation's selection of the no action alternative as its preferred alternative. It is now time for the Bureau of Reclamation to get serious about real water conservation and fish protection measures.

Sincerely,

John de Yonge
President
Wise Use Movement

From: "Floyd Hodges" <fhodges@bossig.com>
To: <storagestudy@pn.usbr.gov>
Date: Mon, Feb 2, 2009 11:19 AM
Subject: Response to Yakima Basin Water Storage EIS

February 2, 2009

Bureau of Reclamation

Pacific Northwest Region

Upper Columbia Area Office

1917 Marsh Road

Yakima, WA 98901-2058

Dear Sir:

The following comments concerning the Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study are submitted on behalf of Heart of America Northwest.

Early seepage models indicated that seepage from the Black Rock Reservoir would move beneath the Hanford Site and increase mobilization of contaminants at the site. As a result of this concern a seepage mitigation model was developed for the proposed Black Rock Reservoir (TS-YSS-25).

This Technical Report has been appended to the Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study. Unfortunately, the text within the EIS does not adequately address the uncertainties of the seepage remediation model, many of which are addressed within the report.

In the Executive Summary of the EIS it is stated that:

"Model Results suggest these mitigation measures effectively would eliminate nearly all impacts to groundwater conditions at the Hanford Site and eliminate any impacts to the existing contaminants at the site."

In Section 2.4.1.1 of the EIS, which outlines the proposed seepage remediation system, none of the uncertainties in the analysis are presented, simply an assurance that all seepage will be taken care of. However, in the model report, after saying that use of all of the suggested barrier systems it should be possible to reduce groundwater flow onto the Hanford site by 99%, it goes on to say that:

"Additional geologic investigations would also help to refine understanding of key geologic structures that are an integral part of the current Black Rock conceptual model. The additional data would not only improve the Black Rock conceptual model, but also reduce the uncertainty associated with the current model application." (emphasis added)

Data on the structure and hydraulic properties of the system under consideration are inadequate for a definitive answer to the infiltration problem. In addition, it is uncertain, given the heterogeneity probably inherent in local geology, that models, that must use average values over what ever cell size is chosen, are capable of adequately representing system response.

Another serious problem with the analysis of seepage remediation, not addressed in the EIS, is seismic response. In Section 2.2.2 seismic danger to the dam is addressed. The proposed dam would be adjacent to a major fault that may be capable of producing earthquakes of magnitude 6-7+ and an estimated mean PHA of about 0.95 acceleration of gravity (g). The EIS maintains that a properly constructed, compacted rockfill dam would be resistant to this degree of shaking. However, the proposed seepage mitigation structures, which would be composed of cement and grout, would be prone to brittle failure under these conditions, rendering the mitigation structures largely ineffective.

In conclusion:

1. Site characterization and available modeling are inadequate to support the conclusion that seepage will not affect Hanford groundwater; and

2. Seismically induced brittle failure (fracture) of cement and grout components of the seepage mitigation system would render them to a large extent useless; and

3. Statements within the EIS stating with certainty that Hanford groundwater would not be affected by seepage from the proposed Black Rock dam should be removed or modified to express the uncertainties indicated above.

Sincerely yours,

Floyd N. Hodges, Ph.D.

Professional Hydrogeologist

Washington Lic. No. 1715

CC: <gerry@hoanw.org>

From: DAVID E ORTMAN <deortman@msn.com>
To: <storagestudy@pn.usbr.gov>
Date: Fri, Jan 30, 2009 9:27 PM
Subject: Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Kittitas, Yakima and Benton Counties, Washington

Via Email to: <storagestudy@pn.usbr.gov>

Bureau of Reclamation
Upper Columbia Area Office
Mr. David Kaumheimer, Environmental Program Manager
1917 Marsh Road
Yakima, WA 98901-2058

RE: Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Kittitas, Yakima and Benton Counties, Washington

Dear Bureau of Reclamation:

I strongly support the Bureau of Reclamation's findings in the Final Planning Report and Environmental Impact Statement (FPR/EIS) that proposed irrigation dams in eastern Washington, including Black Rock, the Wymer Dam and Reservoir, and the Wymer Dam Plus Yakima River Pump Exchange all have high negative benefit/cost ratios. This should send a strong signal to Congress (and to Governor Gregoire) that these projects would be a massive waste of taxpayers' money.

As someone who has supported clean-up of the Hanford Nuclear Reservation, I am alarmed that the Bureau has taken upon itself to propose that seepage from a Black Rock project through the Hanford site could be prevented. On the contrary, because the Black Rock project is not economically viable, the Bureau should stop spending money trying to solve a seepage problem. The best way to keep seepage out of the Hanford site is not to build the Black Rock project in the first place.

I also support the Bureau's decision in the draft EIS to not study further a new Bumping Lake Enlargement project. The land surrounding the existing reservoir, including old growth forests should be added to the William O. Douglas Wilderness Area.

The Bureau did not provide complete responses to my letter on the DEIS (see: Ind-0091-01 through 05, Vol. II, pages 307-08). Therefore, I request that the Bureau provide a written response to the following, or a reference to where in the voluminous amount of technical studies the information is located:

* Does Table 2.13 "Crops acres by District" in the Economics Technical Report for the Yakima River Basin (TS-YSS-23) depicted irrigated acreage?

* If so, what is the average annual acre feet of water required in the Yakima

Basin for growing each crop listed?

* Water conservation actions expected to occur in the future are outlined in the No Action Alternative in section 2.3.1.1. What have the Yakima irrigation districts actually done on the ground since 1980 on water conservation?

* What percentage of each irrigation district's water diversion canals are lined? What percentage of each irrigation district's acreage is devoted to drip irrigation?

* What is the amount that the Kittitas, Kennewick, and Roza Irrigation Districts still owe for repayment of capitol costs of existing facilities and for operation and maintenance costs for water delivery?

* Total federal payouts for the Apple Market Loss Assistance Program between 1995 and 2006 is estimated at $133,730,785 in Washington alone. How much of this was paid out to Yakima irrigation districts farmers?

* Isn't wheat considered a surplus crop? Wheat subsidies in Washington State are estimated at $56,068,456 in 2006 alone. How much of this was paid out to Yakima irrigation districts farmers?

* What are the current costs to the irrigators of water (per acre feet) and electricity (are they still subsidized by the BPA)?

Please provide a written response, or a website address where the Bureau has posted responses to the above comments. Thank you for the opportunity to comment.

David E. Ortman
7043 22nd Ave N.W.
Seattle, WA 98117

From: "Robert and Elizabeth Lathrop" <rathburne@harbornet.com>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 9:29 AM
Subject: Yakima Basin Storage Study

As a taxpayer in the United States I strongly support the Bureau's choice of a No Action Alternative. As a grandmother of several current and future residents of Washington State, I support the decision even more. While the low economic return for the investment was the primary reason for rejection, the potential for environmental damages down the road far outweigh the economic considerations. Engineers would be gambling that earthquakes are not a potential despite the presence of two faults and the instability of Horsethief Mountain. They would also be gambling that water from the reservoir would not migrate to the Hanford Reservation and carry radioactive contaminants to the Columbia River. All of these risks and more for a relatively short term employment opportunity, and for irrigation water for a relatively small number of the population.
Please explore other paradigms.

Sincerely yours,

Elizabeth Lathrop
9119 71st Ave NW
Gig Harbor, WA 98332

From: "Nick Gayeski" <nick@wildfishconservancy.org>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 11:58 AM
Subject: Yakima River Basin Storage Study

Mr. Kaumheimer,

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

Sincerely,

Nick Gayeski

Conservation Ecologist

Wild Fish Conservancy

PO Box 402

Duvall, Wa 98019

425-788-1167; ext. 225

ENV-6.00

January 30, 2009

Bureau of Reclamation
Attn: David Kaumheimer, Environmental Program Director
Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

Sir:

I have several extreme concerns regarding the Black Rock water storage project.

The cost of the project along with the habitat destruction is evident even to the casual observer. These are also my concerns. However, my greatest fears are less obvious to the general public.

Seepage from the massive lake created by the dam has a potential of reaching the contaminated ground water under the Hanford Site and as a result speed up the flow of this contamination toward the Columbia River. You do not need me to tell you what an ecological disaster that would be, one of which I think would have NO solution.

The proposed second dam that would supposedly contain the seepage would be constructed on the ALE site that is part of the Hanford Reach National Monument. It is my understanding that it would be illegal to alter part of the Monument. Also, any water that would seep onto ALE would change the ecosystem from shrub steppe to marshland thus changing this important area of the Monument.

Geologists have stated that the area where the massive dam is being planned is located on 2 faults. If an earthquake were to occur and the dam were to be breached a wall of water would flow across the Arid Lands Ecology Reserve, cross the East and West 200 Areas on the Hanford Reservation and on. I feel that this is not a risk the Pacific Northwest wants to take.

It is my greatest hope that this project be abandoned and no further money spent on its study. Water storage is important, however, not at the risks mentioned above.

Thanks you.

Murrel V. Dawson

Murrel Dawson
9614 Vincenzo Drive
Pasco, WA 99301
Phone: (509) 551-9920

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Yakima, Washington

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Jan. 30, 2009

508 Fuller Street
Richland, WA 99354-1817

Bureau of Reclamation
Upper Columbia Area office
1917 Marsh Rd.
Yakima, WA 9801-2058

Dear Mr. David Kaumheimer:

Now that you have released the Planning Report/Environmental Impact Statement Yakima River Basin Water Storage Feasibility Study, I am relieved to see that the preferred recommendation is the No Action Alternative.

I understand your decision was based on a cost benefit ratio at this time but the BOR is still considering the Black Rock Project for the future. Please keep in mind that the US Fish and Wildlife Service, the Department of Energy and concerned citizens still have many concerns with the Black Rock Project.

There is not enough water in the Columbia River during September and October to support both fish and the major draw downs of water.

If Black Rock were built the fragile shrub-steppe habitat would be fragmented and would disrupt the migratory corridors used by large and small animals and the flow alterations in the Yakima River would be harmful to the fish populations.

The 30 to 52 thousand acre feet of water seeping from Black Rock into the aquifer under the Hanford Reservation would push contaminated water into the Columbia. DOE is working very hard to stop this from happening with the current ground water movement. They do not need more to contend with. Diversions and wells are brought up as a solution to the ground water issue, however the US Congress would prohibit those activities on the Hanford Reach National Monument.

The proposed Black Rock Dam would be constructed on two earthquake faults. Horsethief Hill is not a stable area especially if its job is to hold back water that will saturate it to the point of becoming even more unstable.

These concerns are much more important to me than a cost benefit ratio. Should further discussions occur, please consider the above environmental concerns and put a stop to the Black Rock Project once and for all.

Sincerely,
Mary Peters
Mary Peters

From: Buell Hollister <bdholli@icehouse.net>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 3:57 PM
Subject: Yakima River Basin Storage Study

This email is sent in support of the "No Action Alternative" on the Black
Rock Dam proposal because:

Possible seepage from the dam would increase the risk of passage of radioactive material from Hanford to the Columbia River.

A growing concern with salmon migration through other dams in the Yakima basis raises questions about adding another likely encumbrance to fish passages.

The projected cost of the Black Rock Dam($4.95 billion to $7 billion Dollars) is prohibitive related to benefits, aggressive water conservation practices would diminish the practicality of such a massive project.

Sincerely,

Buell Hollister
3411 E. 26th Avenue
Spokane, WA. 99223

509-536-1130

SIERRA CLUB
FOUNDED 1892

CASCADE CHAPTER

180 Nickerson St., Suite 202
Seattle, WA 98109
February 2, 2009

Mr. David Kaumheimer, Environmental Program Manager
Bureau of Reclamation, Upper Columbia Area Office
1917 Marsh Road
Yakima, WA 98901-2058

RE: *Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Kittitas, Yakima and Benton Counties, Washington*

Dear Mr. Kaumheimer:

On behalf of the 30,000 members of the Cascade Chapter of the Sierra Club, I would like to offer comments on the above Final Environmental Impact Statement (FEIS).

General Comments

We generally support the Bureau of Reclamation's preferred alternative (No Action) as set out in Section 2.3 (page 2-27+), which includes implementation of water conservation measures proposed under Title XII of the Act of October 31, 1994. Section 1203 of Title XII authorized Phase II (the Basin Conservation Program) of Yakima River Basin Water Enhancement Project (YRBWEP) for evaluating and implementing measures to improve the availability of water supplies for irrigation and to protect and enhance fish and wildlife resources, including wetlands. Section 1204 of Title XII provides for water conservation on the Yakama Reservation. In addition to water conservation measures taken by irrigation district, water conservation measures should include a review of Yakima River Basin forest practices on private, state and U.S. Forest Service lands.

We oppose any new storage projects on the Yakima River and its tributaries, including the Bumping Dam Enlargement (Large or Small Options), Wymer Dam (on Lmuma Creek), and Black Rock Dam. Section 2.9 (page 2-125+) confirms that the irrigation dam project alternatives reviewed by the Bureau of Reclamation have a negative cost-benefit ratio: Black Rock, 0.13; Wymer Dam and Reservoir, 0.31; and Wymer Dam Plus Yakima River Pump Exchange, 0.07.

According to the Section 2.9, (pages 2-127 to 2-128), the Bureau of Reclamation selected the no-action alternative because the other alternatives:

- Required significant investment of federal funds ($1 billion to $7.7 billion), plus millions of dollars in annual operating costs;
- Did not provide positive benefit-cost ratios required to be considered economically justified;
- Did not have acceptability by the community at large as a stand-alone approach to meeting the Storage Study goals, and
- Did not adequately meet the four criteria, completeness, effectiveness, efficiency, and acceptability, used to evaluate federal water resource projects.

Other Dam Projects

These are the same general conclusions that cover the other irrigation dam projects, such as the proposed Bumping Lake enlargement, Crab Creek reservoir, Hawk Creek reservoir, and the Pine Hollow reservoir, currently proposed by the Washington Department of Ecology.

Bumping Lake Enlargement

We remain in strong opposition to the Bumping Lake Enlargement project. We support the FEIS conclusions in Section 2.10.1 (pages 2-128 to 2-131) regarding why the Bureau of Reclamation rejected the Bumping Lake Enlargement Alternative from further consideration:

> "Enlarging Bumping Lake has been proposed at various times by Reclamation and others in the Yakima River basin since the 1950s. The proposal for Bumping Lake Enlargement consists of a new dam approximately 4,500 feet downstream from the existing dam with an enlarged reservoir capacity of approximately 400,000–458,000 acre-feet. The zoned rockfill dam would be approximately 233 feet high with a crest length of about 3,300 feet. The surface area of the enlarged reservoir would be about 4,100 acres. The existing Bumping Lake Dam would be breached. The Bumping Lake enlargement area lies at the end of a two-lane paved road some 12 miles off the Chinook Pass Highway. Goose Prairie is a small community a short distance downstream from the new damsite and would not be inundated.
>
> "In 1979, Reclamation and the U.S. Fish and Wildlife Service prepared a joint feasibility report which was approved by the Secretary of the Interior; and a *Proposed Bumping Lake Enlargement, Final Environmental Impact Statement,* was filed by Reclamation with the Council of Environmental Quality on August 23, 1979 (Reclamation, 1979). Bumping Lake enlargement also was considered as a part of the Yakima River Basin Water Enhancement Project conducted in the 1980s and early 1990s. In the mid-1980s, a 250,000-acre-foot enlargement also was considered. Over the years, several bills have been introduced in the Congress to authorize the construction and operation of the Bumping Lake Enlargement Alternative. However, no action has been taken. This primarily is due to the concerns expressed by the environmental community through local, State, and national organizations opposed to such action. The following

environmental and social issues were raised in previous studies and are still of concern today.

"The William O. Douglas Wilderness Area, approximately 170,000 acres, is adjacent to the existing Bumping Lake. None of the reservoir enlargement options that have been considered were within the Wilderness Area boundary. However, a common concern voiced was that the enlarged reservoir would be visible from various vantage points and detract from the scenic vistas and aesthetic value of the Wilderness Area through reservoir drawdown and exposure of the reservoir bottom area.

"About 2,800 acres of terrestrial habitat, including approximately 1,900 acres of old-growth timber, would be inundated if Bumping Lake were enlarged to a capacity of 400,000–458,000 acre-feet. Old-growth timber serves as habitat for the spotted owl, an ESA-listed endangered species.

"Enlarging Bumping Lake would inundate approximately 10 miles of perennial and intermittent stream habitat downstream from the existing dam and upstream of the existing reservoir, affecting the aquatic ecosystem and fishery resources. This is compounded by the recent designation of Deep Creek and Bumping River as critical habitat for bull trout. The larger-capacity reservoir would not fill on a regular basis and would not be a reliable source of water. Previous studies identified approximately 14 summer homes within the impact area of the enlarged reservoir. It was proposed that these summer homes would need to be relocated downstream from the new dam. A number of the owners opposed downstream relocation. The enlarged reservoir also would inundate existing recreational facilities and approximately 9 miles of U.S. Forest Service road, plus approximately 17 miles of road that would be closed, terminating all vehicle traffic above the damsite and road access to campgrounds above the existing reservoir. In addition to the roads, about 4 miles of trails would be inundated. These actions would hamper accessibility to areas above the reservoir. Increased traffic associated with construction activities at the new dam, including logging of the enlarged reservoir area, would have an adverse impact on the community of Goose Prairie. Further, increased recreation use at an enlarged reservoir also could adversely affect the community. While the concept of a natural (unregulated) hydrograph was not a primary issue in the past, it has become a significant concern in recent years. Representatives of the Washington Department of Fish and Wildlife and others expressed considerable reluctance at the spring 2007 Storage Study Roundtable discussions to include an enlarged Bumping Lake as a storage alternative to be carried into the planning report and environmental impact statement phase of the Storage Study.

. . .

"The amount of additional stored water available in average water years does not represent a meaningful amount to exchange with the three reservoirs in the upper Yakima River basin to warrant further consideration of this alternative. Because of the reasons stated above, Reclamation has concluded that the proposal for Bumping Lake

> Enlargement Alternative will be eliminated from further consideration in the Storage Study."

We agree that the Bumping Lake Enlargement should be rejected as a feasible dam storage site alternative.

Black Rock and the Hanford Nuclear Reservation

Although we agree that the Black Rock project should also be rejected as a feasible dam storage site alternative, Sec. 2.4.1.1 (pages 2-45+) discusses higher groundwater levels and increased contaminant migration on the Hanford Site resulting from seepage from the proposed Black Rock dam and reservoir. We have grave concerns with the adequacy of the mitigation measures proposed to reduce reservoir seepage and/or to intercept seepage water before it reaches the Hanford Site, and with the effectiveness of those measures in minimizing impacts to the Hanford Site and to the Columbia River beyond. The federal and state governments have already expended many tens of billions of dollars to stabilize and clean up the radioactive waste legacy at Hanford. The nation and the state do not have the resources to deal with further mobilization of underground wastes that could be caused by a new reservoir at the Black Rock site.

In conclusion, we thank the Bureau of Reclamation for reaching its conclusions that none of these dam proposals are worth pursuing. We respectfully request that the Bureau, working with Washington state agencies, local governments, and irrigation districts, proceed with strong and effective water conservation and fish protection measures in the Yakima Basin, such as are authorized in the 1979 Yakima River Basin Water Enhancement Project, and spend precious federal funds on actual conservation rather than on more studies of very expensive and incredibly harmful storage projects. Also, conservation measures can be implemented on much shorter timeframes than can controversial and complex new storage projects.

Please direct future correspondence on this matter to:

Mark Lawler, National Forests Committee Chair
Sierra Club Cascade Chapter
Tel.: 206 632-1550 h / 425 707-5142 w
Email: mark.lawler@sierraclub.org

Yours sincerely,

Michael O'Brien, Chair
Sierra Club Cascade Chapter

From: Rick Glenn <RGlenn@awbank.net>
To: "'storagestudy@pn.usbr.gov'" <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 5:09 PM
Subject: Comments on final BOR storage report.

The findings of the BOR study are extremely important to the citizens of the Yakima Basin. After more than 60 years of need, a solution that works has finally been identified. This is the most important finding of the study. It would have been wonderful to have 2 or 3 solutions to choose from. But I am grateful that BOR was able to identify at least one. Please emphasize in the record of decision that there is a workable solution to our water crisis. Please do not make it more difficult to solve our crisis by declaring that there is no need for action. The 2 reasons cited for the No-action solution are weak and lack support for the reasons listed below:

I. Problems with the benefit/cost analysis. BOR should abandon the benefit/cost analysis as a method of determining the economic benefits of the Yakima Basin storage options for the following reasons:

1. The Principals and guidelines process was developed to measure economic impact of projects that bring new land under irrigation. Adding new land to irrigation was specifically prohibited as one of the conditions of this study.
2. For environmental reasons, no in-stream solutions were considered. The cost of off - stream storage is double or triple the cost of in-stream storage. Yet no adjustments were made in the analysis to compensate for the extra cost of "green solutions."
3. Overhead and contingencies were estimated as percentages of the total cost of the project. With the additional cost of the off-stream storage, it is likely that these expenses will actually be a lower percentage of total project costs.
4. Municipal benefits were calculated using wholesale costs instead of retail costs. If this process was followed for all benefits, then costs should be "wholesale" also.
5. There must be an economic adjustment for the environmental benefits of the project. Normalization of stream-flows was the primary objective listed in the study. Restoring the river has tremendous "green value" and it is essential that monetary values be assigned to that benefit to generate a valid economic analysis.

II. Statement of public support. BOR did not make any formal effort to determine the level of public support for any of the proposed solutions. The public response is not really accurate because a large number of the opposition letters received were form letters that did not even have the correct names of the BOR and DOE authorities. BOR did not poll the public to determine if "there is a lack of acceptability of any of the joint alternatives in the community at large as a stand-alone approach to meeting the Storage Study goals." In addition, many have been advocating cheaper solutions without identifying them. The public is very aware of the need for more storage. BOR must recognize the "universal desire for more storage." If people are given the option of an expensive solution compared to no solution, then the support for storage will yield stronger public support.

This study has demonstrated that there is only one viable solution. Please recognize that everyone in this river basin wants "a solution to the water crisis."

The statement in the study regarding lack of support cannot accurately be made based on the data collected by the storage study. If BOR wants to determine the public interest, then they should make known all of the available solutions that meet the objectives of the study and allow the public to choose from the approved solutions in some organized fashion. There is no disagreement in the Basin that more storage is a critical need. The desire for cheaper solutions has been promised and the public supports that concept. The problem is that uninformed people want to argue for a cheaper solution. There is no cheaper solution.

Seepage Comment. The issue of seepage has been adequately mitigated by the report. The Department of Energy offered no scientific evidence to support their argument against Black Rock. If they had any data to support their claim, they should have made it public for this study. Besides, it is generally assumed that the tens of billions of dollars that have been and will continue to be spent on Hanford cleanup in the next decade should eliminate the radiation problem. If those billions of dollars spent on Hanford cleanup are not cleaning it up, why continue to fund the project?

Rick Glenn

Commercial Loan Officer

AmericanWest Bank

127 W. Yakima Avenue

Yakima, Washington 98902

Fax: (509)-457-0756

Phone: (509)-494-1766

From: Margie Van Cleve <vancleve@charter.net>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 8:30 PM
Subject: Yakima River Basin Storage Study

Dear Sirs

I support the NO Action Alternative. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River. To help salmon, I support fish passage at the Bureau's dams in the Yakima Basin. In the face of climate change, Washington's water future rests with aggressive water conservation, adoption of water efficiency standards and metering, water markets, natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use.

David Van Cleve

From: Margie Van Cleve <vancleve@charter.net>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 8:52 PM
Subject: Comments on Final EIS for the Yakima Basin Water Storage Feasibility Study

272 Mapleway Road

Selah, WA 98942

February 3, 2009

Bureau of Reclamation
Attn: Mr. David Kaumheimer
Environmental Programs Manager
Upper Columbia Area Office
1917 Marsh Road, Yakima
Washington 98901-2058

Dear Mr. Kaumheimer,
Thank you for the opportunity to comment on the final EIS for the Yakima Basin Water Storage Feasibility Study. I fully support the "No Action Alternative" proposed by the Bureau of Reclamation.

However, while I am glad this proposal (finally) includes information on groundwater mitigation in the Hanford area, I am disappointed there was never a chance to comment on it prior to inclusion in this Final EIS (e.g. this portion was added after the draft EIS's comment period closed.). I would like to see the groundwater mitigation proposal removed from the final EIS.

I am concerned that the Bureau of Reclamation has proposed a dam on the Arid Lands Ecology Reserve portion of the Hanford Reach National Monument as part of a groundwater mitigation proposal. Specifically, there is a Congressional prohibition on dams and diversions in the Hanford Reach. Does the proposed dam in the Arid Lands Ecology Reserve violate that prohibition? I would also suggest that building a dam in the Arid Lands Ecology Reserve violates the purpose for which the Hanford Reach Monument was designated.

Regards,

Margie Van Cleve

From: John Osborn <John@WaterPlanet.ws>
To: <storagestudy@pn.usbr.gov>
Date: Tue, Feb 3, 2009 7:56 AM
Subject: Yakima River Basin Final EIS

Bureau of Reclamation
Attn: Mr. David Kaumheimer
Environmental Programs Manager, Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

February 3, 2009

Dear Mr. Kauheimer,

The following comments are submitted on behalf of the Center for Environmental Law and Policy (CELP) regarding the Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study dated December 2008. By reference, I also incorporate the comments of Rick Leaumont (Lower Columbia Basin Audubon Society) and David Ortman (Wise Use Movement).

CELP supports the Bureau's decision to accept the No Action Alternative and requests that the Bureau focus on water conservation and restoration of in-stream fish flows. We oppose the Black Rock Reservoir that could allow seepage through the Hanford Nuclear Reservation and into the Columbia River. We are also opposed to any Bumping Lake Enlargement and request that the Bureau support adding the land surrounding the existing reservoir, including old growth forests, to the William O. Douglas Wilderness Area.

The Bureau rejected the proposed large dam projects on economic grounds, including Black Rock and Wymer. However, the Bureau's decision did not point out environmental risks of these proposals. The Black Rock Dam would be built on unstable geology upstream from the Hanford Nuclear Reservation. Seepage from the dam risks accelerating radioactive contaminants into the Columbia River.

As another federal agency (the Dept. of Energy) noted, “DOE believes that the development of the Black Rock Reservoir has the potential to cause severe environmental injury to the Hanford Site and the Columbia River that has not been fully evaluated. Therefore, DOE believes that the Black Rock Alternative should not be selected.”

Many people and organizations in Washington State are concerned about the adverse impacts of the Bureau's water program and oppose the construction of new dams and reservoirs in areas that include wildlife and fisheries habitat and family farms and ranches. Despite decades in which water conservation irrigation measures should have been carried out, the Bureau spent years and millions of dollars studying new dams. Each of these dam and reservoir projects threatens

habitat and/or water quality. Each is exorbitantly expensive, unneeded in view of alternative water supply options, and represents significant waste of taxpayer funds.

In the face of climate change and set against a history of overallocating water (that continues today), we face a water crisis. For Washington State, the water frontier is over.

Our water future rests with an end to giving away more water -- coupled with aggressive water conservation, adoption of water efficiency standards and metering, water markets, low-impact storage projects (e.g., aquifer storage and recovery), natural storage through forest and flood-plain protection and restoration and other techniques that are much more cost-effective than new dams, and could vastly improve the efficiency of water use in the Yakima Basin.

We strongly urge the Bureau to focus on future water projects that fix existing problems, not cause new ones. We recommend that the Bureau fully redirect its staff and resources to water solutions that are sensible, sustainable, and affordable.

Thank you for the opportunity to comment.

Sincerely,

John Osborn, MD
CELP

Yakima Basin Storage Alliance

Mr. David Kaumheimer
Environmental Programs Manager
Bureau of Reclamation
Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

Re: Yakima River Basin Water Storage Feasibility Study, Benton, Yakima and Kittitas Counties, Washington, Final Planning Report/Environmental Impact Statement, December 2008

Dear Mr. Kaumheimer:

Thank you for providing the opportunity for comment on the Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement which was released by the Bureau of Reclamation December 19, 2008 (Final PR/EIS). Our comments are contained in the attached document. Our comments are intended to be constructive and are offered with the objective of improving Reclamation's work, which we appreciate. We also offer several recommendation pertaining to timing and next steps:

Columbia River Water Quality

Reclamation recently released its determination that seepage from a Black Rock Reservoir should not affect Columbia River water quality because mitigation measures would be constructed to intercept and convey most of the seepage away from the Hanford Site to the Yakima River. We appreciate Reclamation's response to the Department of Energy's concerns regarding Columbia River water quality. Nevertheless, we feel that Columbia River water quality is an important concern and therefore recommend that it would be appropriate to permit the Department of Energy to comment on this matter before Reclamation moves forward.

Least Cost Alternative

Reclamation's benefit-cost analysis contained in the feasibility study does not, in our opinion, seek to maximize water supply availability using the least-cost alternative. We are concerned that the "appraisal level" project cost estimates utilized in the benefit-cost analysis may not have been sufficient to identify a least-cost alternative, and that additional time and resources may be required to gather information needed to meet feasibility-level design and cost estimate standards (see, Final PR/EIS, ES, p.xiii). We would recommend that Reclamation redirect its efforts and resources so as to perform a least-cost alternative analysis of the outstanding water supply alternatives, using feasibility-level information.

Principles and Guidelines (P&Gs)

The Final PR/EIS states that it was prepared in a manner consistent with *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (*P&Gs*). The *P&Gs* were originally published as *Principles and Standards for Planning Water and Related Land Resources* on September 10, 1973 (38 Fed. Reg. 24778-24862). They were revised on August 14, 1974 (39 F.R. 29242-29243) and December 14, 1979 (44 F.R. 72978-72990). The *P&Gs* were again published in 18 CFR Part 711, on September 29, 1980, by the U.S. Water Resources Council pursuant to the authority of the Water Resources Planning Act of 1965 (Pub. L. 89-90) as amended (42 U.S.C. 1962a-2 and d-1). On March 10, 1983, the *P&Gs* were amended and republished by Secretary of the Interior James Watt as *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*.

On November 8, 2007, the 2007 Water Resources Development Act (WRDA) became law (Pub. L. 110-114). Congress stated in section 2031(a) of WRDA that:

> It is the policy of the United States that all water resources projects should reflect national priorities, encourage economic development, and protect the environment by—
>
> (1) seeking to maximize sustainable economic development;
> (2) seeking to avoid the unwise use of floodplains and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and
> (3) protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems.

Section 2031(b)(4) of WRDA requires the Secretary of the Army,[1] a statutory member of the Water Resources Council established by 42 U.S.C. 1962a, to revise the 1983 Principles and Guidelines by November 8, 2009. Proposed revisions to the *P&Gs* were published in the Federal Register on May 8, 2008, 73 F.R. 26086, and September 12, 2008, 73 F.R. 52960, 52961.

Revision of *P&Gs* should apply to all the same agencies to which the 1983 *P&Gs* had applied. Section 1.1.1 of the 1983 *P&Gs* requires the Corps of Engineers, Bureau of Reclamation, Tennessee Valley Authority and National Soil Conservation Service to use them. Section 2031 (b)(4) of WRDA requires the Secretary of the Army to consult with the Secretaries of Interior, Agriculture, Housing and Urban Development, Transportation, Homeland Security, National Academy of Sciences and Council on Environmental Quality when revising the *P&Gs*. Congress likely intended that revised *P&Gs* be as broadly applied as are the 1983 *P&Gs*. The Department of the Army's September 12, 2008, Federal Register notice, requesting comments regarding its proposed *P&Gs*, observed that the *P&Gs* published for comment had been drafted

[1] The Secretary must also solicit and consider public and expert comments and thereafter submit the revised *P&Gs* to the Senate Committee on Environment and Public Works and the House of Representatives Committee on Transportation and Infrastructure together with an explanation of the intent of each revision, how each revision is consistent with the enabling act, and the probable impact of each revision on water resources projects. Pub L. 110-114, Section 2031 (b)(4). 10 Stat. 1082.

broadly in order "to allow for the possibility that they can be applied to the other Federal water resource agencies currently covered by the P&G." Comments were invited on suggested changes in language that might enable other water resources agencies to use the proposed Principles. On October 22, 2008, the Department of the Interior presented comments including the following:

> If a comprehensive set of principles and standards for planning and development of Federal water resource projects that would meet the needs of all Federal water resource agencies is determined to be an appropriate objective, Interior would be very willing and able to collaborate with the Corps and other appropriate agencies to develop these. The attached markup of the proposed revisions represents minimum concerns Interior believes must be addressed to ensure that future efforts to apply the proposed revisions to the other Federal water resource agencies would not significantly hinder its ability to plan and evaluate Federal water projects under its existing authorities.[2]

Congress required that revised *P&Gs* address:

> (A) The use of best available economic principles and analytical techniques, including techniques in risk and uncertainty analysis.
> (B) The assessment and incorporation of public safety in the formulation of alternatives and recommended plans.
> (C) Assessment methods that reflect the value of projects for low-income communities and projects that use nonstructural approaches to water resources development and management.
> (D) The assessment and evaluation of the interaction of a project with other water resources projects and programs within a region or watershed.
> (E) The use of contemporary water resources paradigms, including integrated water resources management and adaptive management.
> (F) Evaluation methods that ensure that water resources projects are justified by public benefits.[3]

We recommend that Reclamation review its feasibility study to ensure that it addresses those components established by Congress' action.

Requested Action

We hereby request that the record of decision anticipated in this case be delayed. Reclamation should respond to any comments received from the Department of Energy regarding Columbia River water quality. Reclamation should await revision of the *P&Gs* required by Pub. L. 110-114, and then reevaluate the large Black Rock Reservoir. Meanwhile, Reclamation should identify and analyze a least-cost alternative for supplying required additional water supplies, and

[2] Letter from Kameran Onley, Assistant Secretary for Water and Science, U.S. Department of the Interior, to Larry J. Prather, Assistant Director of Civil Works., U.S. Army Corps of Engineers, October 22, 2008, Enclosure 1, p. 2.

[3] Pub L. 110-114, Section 2031 (b)(3). 10 Stat. 1082.

a more complete watershed analysis of the Black Rock Reservoir as a component of an integrated Yakima River system. We believe this approach will better realize the three-fold objective of improving anadromous fish habitat by restoring natural Yakima and Naches River flow regimes to better approximate the natural (unregulated) hydrograph, improving the water supply for proratable (junior) irrigation entities by providing at least 70-percent irrigation water supply for irrigation districts during dry years, and meeting future municipal water supply needs.

Sincerely,

Sidney Morrison

Enclosure: Comments Regarding the Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement Released by the Bureau of Reclamation on December 19, 2008.

cc (with enclosure):

Senator Patty Murray
Senator Maria Cantwell
Congressman Doc Hastings
Governor Chris Gregoire
Gerald Kelso, USBR
Tim Personius, USBR
Hon. Ken Salazar, Dept. of Interior
Ralph Sampson, Jr. Yakama Nation
Mose Squeochs Yakama Nation
Senator Jim Honeyford
Senator Curtis King
Representative Dan Newhouse
Representative Bruce Chandler
Speaker of the House Frank Chopp
Jay Manning, Depatment of Ecology
Benton County Commissioners
Kittitas County Commissioners
Klickitat County Commissioners
Yakima County Commissioners
Derek I. Sandison, DOE
Jeff Tayer, WDFW

Comments

Regarding the Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement

Comments
Regarding the Yakima River Basin Water Storage Feasibility Study
Final Planning Report/Environmental Impact Statement
Released by the Bureau of Reclamation on December 19, 2008

I. Affirmative Conclusions

The Final PR/EIS published by the Bureau of Reclamation on December 19, 2008,[4] identified the goals for the Storage Study:

> Improve anadromous fish habitat by restoring the flow regimes of the Yakima and Naches Rivers to resemble more closely the natural (unregulated) hydrograph.
>
> Improve the water supply for proratable (junior) irrigation entities by providing a not-less-than 70-percent irrigation water supply for irrigation districts during dry years, relying on diversions subject to proration. This 70-percent goal equates to 896,000 acre-feet of proratable entitlements.
>
> Meet future municipal water supply needs by maintaining a full municipal water supply for existing users and providing additional surface water supply of 82,000 acre-feet for population growth to the year 2050.[5]

The Bureau of Reclamation's statement of need was clear:

> The need for the study is based on the finite existing water supply and limited storage capability of the Yakima River basin. This finite supply and limited storage capability do not meet the water supply demands in all years and result in significant adverse impacts to the Yakima River basin's economy, which is agriculture-based, and to the basin's aquatic resources—specifically those resources supporting anadromous fish.[6]

The Final PR/EIS reaches some important affirmative conclusions:

> The Black Rock Alternative adds 1.3 million acre-feet of active storage capacity to the Yakima Project to bring the total storage capacity to 2.37 million acre feet. Model results also show an improvement in the Yakima Project water supply over the 25-year period of record (1981–2005) when compared to the No Action Alternative; the dry-year proratable irrigation water supply goal is met in all

[4] *Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement*, December 2008, hereafter "Final PR/EIS."

[5] *Id.*, Executive Summary, p. xi.

[6] *Id.*, Executive Summary, p. ix.

years. In general, the Black Rock Alternative also provides the greatest increase in spring flows at the Parker gage and the greatest reduction in summer flows in the upper Yakima River compared to the two Wymer Alternatives. Winter flows are generally higher under the Black Rock Alternative than under all the other alternatives.[7]

Reclamation also has concluded that the Black Rock Alternative is technically viable, including the ability to withstand expected seismic activity. The dam design has been selected to withstand anticipated ground shaking and maintain the ability to contain the reservoir behind it. Although additional study of site seismicity is warranted to better understand the response of the damsite, Reclamation's preliminary seismic hazard analysis is conservative and is consistent with the present scientific understanding of earthquake activity associated with the Yakima Fold Belt. [8]

Seepage from Black Rock reservoir should not affect Columbia River water quality because mitigation measures would be constructed to intercept and convey most of the seepage away from the Hanford Site to the Yakima River. The seepage would be conveyed to the Yakima River via pipeline and would not adversely affect Yakima River water quality due to the relatively small percentage of seepage water compared to the Yakima River flows. Modeling results show that the only seepage from Black Rock reservoir that would reach the Hanford Site would be in deep basalt layers. Seepage in those layers could not mobilize contaminants in the vadose zone and carry them to the Columbia River.

The Black Rock Alternative meets all the desired Spring, Summer and Winter seasonal flow volume objectives (acre-feet) and modeled seasonal flow volumes (acre-feet) at the Umtanum and Parker gages in an average water year. The No Action Alternative fails to meet any of them. [9]

In the Yakima River, higher flows in the lower river during the summer should provide improved water quality conditions relative to nutrients, dissolved oxygen, and dichlorodiphenyltrichloroethane (DDT).[10]

Compared to the No Action Alternative, differences in flow in the Yakima River under the Black Rock Alternative are the greatest of the three Joint Alternatives. Spring flows are greater throughout the system, while summer flows in the middle and lower Yakima River are substantially greater as a result of being able to meet higher target flows at the Parker gage because of a greater available water supply

[7] *Id.*, Executive Summary, pp. xx, xxi.

[8] *Id.*, Executive Summary, p. xvi.

[9] *Id.*, Executive Summary, p. xv, Table ES.2

[10] *Id.*, Executive Summary, pp. xx, xxi.

for instream flow augmentation. These differences generally would benefit anadromous fish.

Of the Joint Alternatives, the Black Rock Alternative would provide the greatest increase in steelhead and spring Chinook summer rearing habitat in the Easton reach, which potentially would equate to an increase in juvenile survival and the ability to accommodate more summer rearing fish. For similar reasons, the Black Rock Alternative appears most beneficial to steelhead yearlings in the Ellensburg reach. [11]

The fishery models estimated approximate increases of 20–60 percent in anadromous fish populations for the Black Rock Alternative compared to the No Action Alternative, which, of all the Joint Alternatives, affords the greatest modification of the current flow regime in the Yakima River basin. [12]

Natural resource benefits, primarily for anadromous fish, including the threatened Mid-Columbia River steelhead, would accrue under each of the Joint Alternatives.[13]

Under the Black Rock Alternative, the four anadromous fish stocks would increase 21–61 percent; steelhead would increase 51 percent. Under the Wymer Dam and Reservoir Alternative, the four stocks would increase 1–3 percent; steelhead would increase 1 percent. Under the Wymer Dam Plus Yakima River Pump Exchange Alternative, the four stocks would increase 11–35 percent; steelhead would increase 24 percent. [14]

Only the Black Rock Alternative consistently would meet the irrigation water supply goal. [15]

Municipal water supply needs could be met under each of the Joint Alternatives.[16]

Notwithstanding Reclamation's conclusions that the Black Rock Reservoir best meets its objectives, Reclamation reaches the conclusion that no action is warranted. This conclusion is based on its determination that the conclusion of its "National Economic Development" (NED) analysis precludes consideration of any of the benefits provided by Black Rock or the other water supply alternatives.

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[11] *Id.*, Executive Summary, pp. xxiii, xxiv.

[12] *Id.*, Executive Summary, p. xxiv.

[13] *Id.*, Executive Summary, p. xxix.

[14] *Id.*, Executive Summary, pp. xxix, xxx.

[15] *Id.*, Executive Summary, pp. xxix, xxx.

[16] *Id.*, Executive Summary, pp. xxix, xxx.

The Bureau of Reclamation finds that the Black Rock project would result in positive effects on regional income and regional employment, anadromous fish habitat improvements, and improved urban and community attributes under three of the analytic methods utilized by the Bureau of Reclamation. Nevertheless, because the Black Rock project does not "meet the requirements to be identified as a NED Alternative, the Bureau of Reclamation has proposed to take no action.

The Final PR/EIS actually studies three measures of project performance in addition to National Economic Development. The document explains that:

> The Joint Alternatives addressed in this document were developed via processes that conform to the *Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies* (*P&G*s). The alternatives are then compared using the four accounts— National Economic Development (NED), Regional Economic Development (RED), Environmental Quality (EQ), and Other Social Effects (OSE)—to facilitate evaluation and to display effects of the alternatives. [17]
>
> However, none of the alternatives developed in this feasibility study meet the requirements to be identified as the NED Alternative. The alternatives do, however, result in positive effects in regional income and regional employment, anadromous fish habitat improvements, and improved urban and community attributes as shown in the RED, EQ, and OSE accounts, respectively. [18]
>
> However, economic justification is determined for each alternative solely by the benefit-cost analysis and must be demonstrated on the basis of NED benefits exceeding NED costs. [19]
>
> Reclamation does not consider the benefits provided by each Joint Alternative, when weighed against the respective impacts and costs, to provide justification for moving forward with any of these three alternatives. [20]

As discussed in the following section, Reclamation's disregard for values identified within its Regional Economic Development Account, Environmental Quality Account and Other Social Effects Account is inconsistent with the Principles and Guidelines.

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[17] *Id.*, Executive Summary, pp. xiii, xiv.

[18] *Id.*, Executive Summary, p. xiv.

[19] *Economics Technical Report for the Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement, A Component of Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS 27, December 2008 (hereafter "Economic Study"), p. 3.

[20] *Op. Cit* , Executive Summary, pp. xxix, xxx.

II. Reclamation's Chosen "NED Plan" Is Inconsistent with the 1983 Principles and Guidelines

The 1983 *P&Gs* explain the National Economic Development Account:

> (1) The NED account describes that part of the NEPA human environment, ad defined by 40 CFR 1408.14, that identifies beneficial and adverse effects on the economy.[21]

The *P&Gs* define "the NED Plan" as:

> A plan that reasonably maximizes net national economic development benefits, consistent with the Federal objective, is to be formulated. This plan is to be identified as the national economic development plan. (Emphasis supplied). [22]

The "Federal objective" is also clearly defined:

> The Federal objective of water and related resource planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. (Emphasis supplied.) [23]

> The Federal objective for the relevant planning setting should be stated in terms of an expressed desire to alleviate problems and realize opportunities related to the output of goods and services or to increased economic efficiency. (Emphasis supplied.) [24]

The Bureau of Reclamation's choice of a "no action" alternative as "the NED Plan" is not consistent with Reclamations findings in the Final PR/EIS Executive Summary, pp. xxiii, xxiv, xxix, xxx, and therefore fails to meet the Federal objective as stated in the 1983 Principles and Guidelines. While a water resource projects have traditionally been evaluated only by an exclusive NED analysis, the environmental and social environmental values of the Black Rock

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[21] Principles and Guidelines (1983), Section 1.7.2 (a) (1). 40 C.F.R. Sec. 1508.14 Human environment.

> Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment. (See the definition of ``effects'' (Sec. 1508.8).) This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment.

[22] Principles and Guidelines (1983), Section 1.6.3.

[23] *Id.*, Section II. (a).

[24] *Id.*, Section II. (c).

project are too important to choose an action alternative without considering them. We recognize that *P&Gs* II(a) and (c) have traditionally been interpreted in cases where water resource project development and environmental protection objectives may have militated in opposite directions. But here, where development of the water resources project and the environmental ends militate in the same direction, where water resource development aids environmental objectives, *P&Gs* II (a) and (c) recommend affirmative action.

Reclamation's chosen "no action" alternative, supported by its NED Analysis, is also likely to be inconsistent with revisions of the 1983 Principles and Guidelines, now in process, which must comply with Congress' statutory requirements. Congress required that revised *P&Gs* address:

> (A) The use of best available economic principles and analytical techniques, including techniques in risk and uncertainty analysis.
> (B) The assessment and incorporation of public safety in the formulation of alternatives and recommended plans.
> (C) Assessment methods that reflect the value of projects for low-income communities and projects that use nonstructural approaches to water resources development and management.
> (D) The assessment and evaluation of the interaction of a project with other water resources projects and programs within a region or watershed.
> (E) The use of contemporary water resources paradigms, including integrated water resources management and adaptive management.
> (F) Evaluation methods that ensure that water resources projects are justified by public benefits.[25]

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[25] Pub L. 110-114, Section 2031 (b)(3). 10 Stat. 1082.

Section 2031(b)(4) of WRDA requires the Secretary of the Army, a statutory member of the Water Resources Council established by 42 U.S.C. 1962a, to revise the 1983 Principles and Guidelines by November 8, 2009. Proposed revisions to the *P&Gs* were published in the Federal Register on May 8, 2008, 73 F.R. 26086, and September 12, 2008, 73 F.R. 52960, 52961.

Revision of *P&Gs* should apply to all the same agencies to which the 1983 *P&Gs* had applied. Section 1.1.1 of the 1983 *P&Gs* requires the Corps of Engineers, Bureau of Reclamation, Tennessee Valley Authority and National Soil Conservation Service to use them. Section 2031 (b)(4) of WRDA requires the Secretary of the Army to consult with the Secretaries of Interior, Agriculture, Housing and Urban Development, Transportation, Homeland Security, National Academy of Sciences and Council on Environmental Quality when revising the *P&Gs*. The Secretary must also solicit and consider public and expert comments and thereafter submit the revised *P&Gs* to the Senate Committee on Environment and Public Works and the House of Representatives Committee on Transportation and Infrastructure together with an explanation of the intent of each revision, how each revision is consistent with the enabling act, and the probable impact of each revision on water resources projects. Pub L. 110-114, Section 2031 (b)(4). 10 Stat. 1082.Congress likely intended that revised *P&Gs* be as broadly applied as are the 1983 *P&Gs*. The Department of the Army's September 12, 2008, Federal Register notice, requesting comments regarding its proposed *P&Gs*, observed that the *P&Gs* published for comment had been drafted broadly in order "to allow for the possibility that they can be applied to the other Federal water resource agencies currently covered by the P&G." Comments were invited on suggested changes in language that might enable other water resources agencies to use the proposed Principles. On October 22, 2008, the Department of the Interior presented comments including the following:

> If a comprehensive set of principles and standards for planning and development of Federal water resource projects that would meet the needs of all Federal water resource agencies is determined to

III. Reclamation's Feasibility Study Should Use a Watershed Approach

In order to solve water resources problems comprehensively, all major aspects of the natural and human systems need to be considered. A "watershed" framework facilitates evaluation of a range of project options simultaneously in order to determine the best combination of projects to achieve multiple goals over the entire watershed. "Many studies have indicated that ecosystem-level resource management provides greater opportunities for efficiency, synergy, and cooperation between stakeholders which then result in greater overall benefits."[26] A watershed analysis permits examination of each potential project, viewing each from a least-cost alternative perspective, in light of the general benefits accruing within the watershed.

> Packaging these elements into an integrated alternative is also considered the best opportunity to implement successful water storage projects in the Yakima basin to help meet water use needs during drought years. An integrated approach that contains water storage and facility improvement projects that also meet fish management needs will have the highest likelihood of implementation and success over the long-term. [27]

One essential component of a watershed approach is application of a "least-cost alternative" analysis. A "least-cost alternative" is discovered, in water-supply evaluations, by first identifying the amount of water supply that must be developed and then seeking the alternative appropriate to providing that supply which can be accomplished with the least cost.[28]

The analysis chosen by Reclamation presumes the costs of creating 1.3 million acre feet of useful water each year, but presumes that only 868, 000 acre feet per year of it has economic value.[29] Where is the value of the 432,000 acre-feet per year? Reclamation's NED analysis incorrectly presumes that this latter volume of water has no value (except as reservoir-oriented recreation spending). Its value is indeed soft, and perhaps difficult to quantify or measure, but it does exist.

> be an appropriate objective, Interior would be very willing and able to collaborate with the Corps and other appropriate agencies to develop these. The attached markup of the proposed revisions represents minimum concerns Interior believes must be addressed to ensure that future efforts to apply the proposed revisions to the other Federal water resource agencies would not significantly hinder its ability to plan and evaluate Federal water projects under its existing authorities.

Letter from Kameran Onley, Assistant Secretary for Water and Science, U.S. Department of the Interior, to Larry J. Prather, Assistant Director of Civil Works., U.S. Army Corps of Engineers, October 22, 2008, Enclosure 1, p. 2.

[26] Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. S-2.

[27] *Id.*, p. S-3.

[28] See discussion of the "sizing problem" at pp. 18-20 below.

[29] See, *Preliminary Appraisal Assessment of Columbia River Water Availability for a Potential Black Rock Project, Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS-1, Bureau of Reclamation, March 18, 2004 (hereafter "Water Availability Appraisal"), pp. 1-12.

Its value exists in the improvement of the environmental quality of the Yakima River's riparian system. Its value exists in the improvement of the fishery resource, which later manifests itself in the enhanced value of the Pacific Northwest's commercial fishery. Its value exists in the accomplishment of United States social goals regarding the environment, particularly in accomplishing objectives of the Endangered Species Act.[30] Its value exists in developing a stronger water management system with which to address anticipated changes in natural resource supply due to climate change. Its value exists in the increase in firmness of water supply upon which municipal and agricultural investment risk determinations (infrastructure development, capital investment) can be more confidently based. Its value exists in enhanced real property values in properties with firmer water supplies. Its value exists in the development of products available for sale in the international marketplace, thereby to enhance United States balance of trade.

Reclamation's current conclusion adopts a "do nothing" or disqualification approach, i.e., if the single NED analysis recommends against adopting any affirmative course of action, then "doing nothing" becomes the preferred alternative. A "watershed approach" with a "least-cost alternative" component would determine the "net beneficial effects" of various alternative affirmative courses of action. A watershed approach would permit positive consideration of all aspects and permit due consideration of non-economic motivations which warrant consideration, and which may be influenced by larger, national, public policy objectives.

Application of a strict benefit-cost equation, as has been done in this case under the rubric of "National Economic Development," ignores the importance of seeking the best-cost approach while also realizing social, as well as economic, values. Moreover, it dooms the selection prospects of any project which provides desirable environmental or other non-economic assets, but is not strictly "economic."

The NED analysis used by the Bureau is not sensitive to socially, politically and legally important public policies of species enhancement, as evident by the existence of the Endangered Species Act. Nor is the analysis sensitive to policies of regional or national economic development, unemployment and underemployment, or ethnic diversity and opportunity improvement. Because the existing methodology, ensconced within NED analysis, is not capable of evaluating important social policies, particularly those incorporated in existing law, it should not have been used exclusively in this case.

[30] See discussion of "nonuse" fishery values at pp. 34-36 below.

IV. Unwarranted Limitation of Reclamation's Authority

The Final PR/EIS clearly declares Reclamation's unnecessary constraint of its authority:

> The Joint Alternatives consider water storage options as directed under feasibility study authority (Public Law 108–7). The Washington State Department of Ecology (Ecology) and the Bureau of Reclamation (Reclamation) prepared the draft planning report/environmental impact statement (Draft PR/EIS) (released in January 2008) as joint lead agencies. Some comments received on the Draft PR/EIS suggested that the water supply alternatives could not be evaluated adequately without considering fish habitat and fish passage needs as part of the alternatives analysis. Because the Reclamation could focus only on storage alternatives due to the Congressional authorization, Ecology has separated from the joint National Environmental Policy Act/State Environmental Policy Act (NEPA/SEPA) process and will proceed with a separate evaluation of water supply and management alternatives. Ecology continues to participate in this PR/EIS as a cooperating, rather than a joint lead, agency. (Emphasis supplied.) [31]

Reclamation thus relies on the limits imposed by its own interpretation of Pub. L. 108-7. [32] But that interpretation ignores Reclamation's broader authorization, created by Section 1203 (a)(1) of Pub. L. 103-434, the general authorization for the Yakima River Basin Water Enhancement Project. Under that authorization Reclamation has clear congressional direction to "evaluat[e] and implement[ ] measures to improve the availability of water supplies for irrigation and the protection and enhancement of fish and wildlife resources" in the Yakima River Basin:

> (1) The Secretary, in consultation with the State of Washington, the Yakama Indian Nation, Yakima River basin irrigators, and other interested parties, shall establish and administer a Yakima River Basin Water Conservation Program for the purpose of evaluating and implementing measures to improve the availability of water supplies for irrigation and the protection and enhancement of fish and wildlife resources, including wetlands, while improving the quality of water in the Yakima Basin.[33]

When the two Public Laws are read together, it is clear that Congress' 2003 statement, that the current feasibility study should emphasize "benefits of additional storage to endangered and

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[31] Final PR/EIS, p. Cover Memorandum.

[32] Pub. L. 108-7, February 20, 2003, Sec. 214.

> The Secretary of the Interior, acting through the Bureau of Reclamation, shall conduct a feasibility study of options for additional water storage in the Yakima River Basin, Washington, with emphasis on the feasibility of storage of Columbia River water in the potential Black Rock Reservoir and the benefit of additional storage to endangered and threatened fish, irrigated agriculture, and municipal water supply. There are authorized to be appropriated such sums as may be necessary to carry out this Act.

[33] Pub. L. 103-434, Title XII, Section 1203 (a)(1).

threatened fish, irrigated agriculture and municipal water supply," is a reiteration of its 1994 authorization. Congress' 2003 phrase "options for additional water storage" can clearly be read to encompass storage options integrated with non-storage options. Reclamation should have included study of "fish habitat restoration, fish passage, or other nonstorage water supply or management issues" in its feasibility study.[34]

The feasibility study was not written in a vacuum, but in the context of significant Yakima River planning activities authorized by Washington State legislative and congressional action regarding the Yakima River.[35] The Washington State Department of Ecology recognized that Reclamation's interpretation was too limited and concluded that the alternatives under consideration by Reclamation should be expanded.

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[34] The Bureau of Reclamation's constrained interpretation of its authority even rejected the view of the State of Washington, Department of Ecology which " suggested that all reasonable water supply alternatives could not be adequately evaluated without considering fish habitat and fish passage needs." Final PR/EIS, Executive Summary, p. ix.

See, Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. FS-1.

> A number of the comments received on the Draft Planning Report/EIS asserted that Reclamation and Ecology failed to evaluate an adequate range of reasonable alternatives and that the alternatives that had been evaluated were analyzed outside of the context of fish habitat and passage needs for the Yakima River basin. Ecology consulted with Reclamation concerning whether additional alternatives should be evaluated. Ecology concluded that the scope of the EIS should be expanded; however, Reclamation concluded that its congressional authorization precluded it from expanding its analysis under the National Environmental Policy Act (NEPA).

[35] In 1979, the Washington State Legislature authorized $500,000 for "preparation of feasibility studies related to a comprehensive water supply project designed to alleviate water shortage in the Yakima River basin." In 1979, Congress authorized, provided funds for, and directed the Department of the Interior to conduct a feasibility study of the Yakima River Basin Water Enhancement Project (YRBWEP) in cooperation with the State (Act of December 28, 1979, Pub. L. 96-162). Phase 1 of YRBWEP, initiated in the early 1980s, resulted in a cooperative Federal, State, Tribal, and local undertaking to construct state-of-the-art fish ladders and fish screens at water diversion points throughout the Yakima River basin. In 1984, Congress authorized nonstorage elements of the Yakima River Basin Water Enhancement Project in "Phase II of YRBWEP" (Title II of the Act of October 31, 1994, Pub. L. 103-434), including the Basin Conservation Plan prepared by the Yakima River Basin Conservation Advisory Group (1998) (Plan sets forth the mechanism for implementing water conservation measures, including eligibility requirements for Federal- and State-sponsored grants, standards for the scope and content of water conservation plans, criteria for evaluating and prioritizing conservation measures for implementation and administrative procedures. In 1999, Reclamation published the *Yakima River Basin Water Enhancement Project, Washington, Final Environmental Impact Statement*. In May 1999, the System Operation Advisory Committee, consisting of Yakima River basin biologists representing Federal, State, Tribal, and irrigation agencies provided biologically based "target flows" for the Yakima River to the Secretary of the Interior. In 2002, Reclamation completed the *Interim Comprehensive Basin Operating Plan for the Yakima Project.* In 2007, the National Marine Fisheries Service published its *Yakima Steelhead Recovery Plan* for listed Middle Columbia river steelhead that spawn in the Yakima River Basin, which was later incorporated into the *National Marine Fisheries Service's Columbia Steelhead Recovery Plan.* See summary of previous watershed approach: Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. 1-9.

> The on-going water problems in the basin have suggested that none of the problems can be resolved with isolated projects that address only irrigation supply or fish habitat enhancement. Water managers have called for a comprehensive, integrated program that provides water for anadromous and resident fish, irrigated agriculture, and municipal water needs. [36]
>
> Ecology concluded that the scope of the EIS should be expanded; however, Reclamation concluded that its congressional authorization precluded it from expanding its analysis under NEPA. Therefore, Ecology decided to separate from the joint NEPA/SEPA process for the study and to pursue completion of a stand-alone SEPA EIS. [37]

The Yakama Indian Nation and the Roza Irrigation District saw the same problem and registered their frustration with the limited scope of Reclamation's feasibility study:

> It now seems clear that an overly restrictive congressional authorization for the storage study has precluded assembling an appropriate package of measures. It is quite clear that storage alone cannot solve the range of problems facing the resources. . . . .
>
> Given that any mutually acceptable solution to the resource problems of the basin will require a package of measures, it is impractical to analyze the potential benefits of storage alone, as has been done in the Storage Study. Effective fish utilization of any improved flow regime depends on concomitant enhancement of habitat access and quality in the mainstem and tributaries. Failure to consider all components of the package together artificially inflates the relative value of some storage alternatives while underestimating the value of flow enhancement in general.[38]

Reclamation's Final PR/EIS nevertheless holds to its interpretation that "Because Public Law 108–7 only authorized storage as a means to augment the water supplies, Reclamation focused its analyses on storage alternatives only and did not address fish habitat restoration, fish passage, or other nonstorage water supply or management issues."[39] This opinion limits Reclamation's scope of inquiry, ultimately skews its conclusions, is not required by the language of Pub. L. 108-7, and is inconsistent with Reclamations general authorization granted by Pub. L. 103-434.

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[36] Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. 1-11.

[37] *Id.*, p. 1-12.

[38] Final PR/EIS, Vol. 2, p. 31,. Comment TRB-0002, Letter from Confederated Tribes and Bands of the Yakama Nation and Roza Irrigation District Board of Directors to David Kaumheimer, March 31, 2008.

[39] *Id.*, Executive Summary, p. ix.

V. Reclamation's Feasibility Study Does Not Address Climate Change

Reclamation's feasibility study fails to adequately consider the effects of global climate change, nor its effect on the availability of water supplies. Nor does the feasibility study consider the mitigative benefits of additional available water storage facilities. Reclamation's failure to evaluate the anticipated effects of climatological change upon water supplies and municipal and agricultural uses of water in the study area cause the environmental impact statement to be legally insufficient.[40]

> The effects of climate change could alter runoff and precipitation in the Yakima River basin and affect water management throughout the region. Changes in runoff and precipitation would require Ecology, Reclamation, and other agencies to adapt water management to respond to changing conditions as they occur. [41]

The study does not explore or report climate information available from the Office of Washington State Climatologist's research conducted with the use of federal funding from the U.S. Department of Energy. That information demonstrates that, for the past 50 years, the freezing elevation in the Cascades has been gradually rising, meaning that 2/3 of the water storage capacity needed from slow-melting high mountain snows is being lost. Nor does the study refer to or report climate information from the National Oceanic and Atmospheric Administration (NOAA) Earth Sciences Research Laboratory or Western Regional Climate Center.

It is generally accepted that the effect of climate change will likely be that precipitation will fall more in the form of rain, and less in the form of snow. In the Cascade Mountains, rainwater will runoff more quickly, making the Cascade Mountain reservoirs less able to accept and store the same volumes of water necessary for later delivery during the irrigation season. Reclamation recognizes that :

[40] A recent Ninth Circuit case interpreting the National Environmental Policy Act and California Superior Court decisions interpreting California's Environmental Quality Act have found that environmental impact statements must evaluate the effect of the action under consideration upon climate change. See, *Center for Biological Diversity v. National Highway Traffic Safety Administration,* 508 F. 3d 508, 550 (9th Cir. 2007) (cumulative impact of GHG emissions is "precisely the kind of cumulative impact analysis that NEPA requires agencies to conduct."); *Center for Biological Diversity v. City of Perris,* Riverside County Superior Court, Case. No. RIC 477632, consolidated with *Coalition for Honest Environmental Evaluation in Perris v. City of Perris*, Case No. 477811 (May 9, 2008), on appeal, Fourth Appellate District, Division Two (Case No. E046237); *Center for Biological Diversity v. City of Desert Hot Springs*, Riverside County Superior Court, Case No. RIC464585 (August 6, 2008; no appeal pending); *Environmental Council of Sacramento v. California Department of Transportation*, Sacramento County Superior Court, Case No. 07CS00967 (July 15, 2008); *Westfield v. City of Arcadia*, Los Angeles County Superior Court, Case No. BS108923 (July 23, 2008); *Natural Resources Defense Council, Inc. v. South Coast Air Quality Management District*, Los Angeles County Superior Court Case No. BS 110792 (July 29, 2008). It is not unreasonable to assume that the environmental impact statements must evaluate the effect of climate change upon the availability of natural resources when considering the environmental merits of proposed actions.

[41] Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. S-11.

> Reduced mountain snowpack, earlier snowmelt, and reductions in spring and summer streamflow volumes originating from snowmelt would likely affect surface water supplies and could trigger heavier reliance on groundwater resources (Scott, et al. 2006).[42]

Nevertheless, Reclamation elected not to take into account the regional precipitation projections resulting from temperature change on the basis that "credible projections of temperature changes now can be made, but the credibility of contemporary regional precipitation projections remains questionable."[43] A quantitative analysis of the effect of climate change on Yakima River Basin water resources and its effects on fish, irrigation, and future municipal water supplies should be conducted.

Climate studies show that snow-holding capacity is being lost at an ever increasing pace. In the 1980s climate change studies predicted that the effect of climate on water supply was one drought year out of ten years. Climate studies now predict that the effect of climate on water supply is one drought year out of four years. The Washington State Climatologist now anticipates that the effect of climate on water supply may be one drought year out of two years. Two drought years back-to-back will spell the end of many perennial crops, including high-value vineyards and tree fruits.

The effect of climate change on the Yakima River system could be modeled by discounting, within the YAK/RW model, the maximum storage capacity of the total Yakima River reservoir system by a factor, perhaps growing with time, that reflects the effect of climate warming. Alternately, the "Flood Control Rule Curve," February 25, 1974, used by Reclamation to establish winter and spring operating guidelines for each Yakima River reservoir,[44] which establishes the required system storage space data to be utilized by the 25 year model, could be revised to anticipate change in snowpack conditions.

The YAK/RW model does not distinguish between, evaluate or compare the firmness of the water supply of the respective sources of the Yakima River, in the east slope of the Cascade Mountains, or Columbia River in the west slope of the Rocky Mountains The two sources may differ enough with respect to the effect of climate change upon them to provide alternative sources as freezing elevations rise.

The Yakima River water supply depends significantly on snowpack as a natural storage component.

> Annual precipitation ranges from 100 inches in the Cascades to less than 10 inches in the eastern portion of the basin. Most of the precipitation occurs as snowfall in the Cascades from October through January; less than five percent of

[42] Final PR/EIS, Vol. 1, p. 4-30.

[43] Final PR/EIS, Vol. 1, p. 4-28.

[44] *System Operations Technical Document for the Yakima River Basin, A Component of Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS-21, January 2008., p. 2-14.

> the precipitation falls during July and August. Approximately 25 percent of the average annual precipitation is discharged by the Yakima River at the basin outlet. The Yakima River average annual discharge is approximately 3,700 cubic feet per second (2,700,000 acre-ft per year) near the basin outlet at Kiona, and 2,500 cubic feet per second (1,800,000 acre-ft per year) near the City of Yakima (USGS 1993).[45]
>
> The Columbia River originates at Columbia Lake on the west slope of British Columbia's Rocky Mountains.[46]
>
> Tributaries to the Columbia River basin are primarily snow-fed (i.e., precipitation falls mainly as snow). These tributaries typically have low winter flows and strong spring and summer peaks with snowmelt, which concentrates about 60 percent of the natural runoff to the Columbia River during May, June, and July. Tributaries that are fed by glacial melt in addition to snow pack along the Cascade Range or in Canada exhibit a different flow pattern. Glaciers contribute a considerable amount of flow to rivers during late summer and early fall after the snow has melted and when precipitation is normally low. [47]

Inflow from precipitation above Columbia River mile 335 (where the Snake and Yakima Rivers meet the Columbia) is derived from west slope Rocky Mountain precipitation in Montana, Idaho and British Columbia (above Grand Coulee Dam) and east slope Cascade Mountain precipitation in Washington, via the Okanogan, Methow, Chelan, Entiat, and Wenatchee Rivers (below Grand Coulee Dam). The total active capacity of Roosevelt Lake is 9,386,000 acre-feet.[48] Just as the upper Yakima River and Naches River are "flip-flopped" for fishery enhancement purposes in the Yakima River system, so might the Yakima (relying exclusively on the east slope Cascade Mountain snow pack) be "flip-flopped" with the Columbia River (relying on the west-slope Rocky Mountain snow pack and greater storage capacity) for climate impact mitigation purposes. Although Reclamation recognized the difference between the two riparian systems with respect to available water supply in 2004, [49] no discussion of this subject is contained in the Final PR/FEIS.

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[45] Upper Yakima River Comprehensive Flood Hazard Management Plan, January 2007 Update p. 2-1.

[46] *The Columbia River System Inside Story*, Federal Columbia River Power System, Bonneville Power Administration, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, April 2001.

[47] Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. 3-25.

[48] http://www.usbr.gov/pn/grandcoulee/pubs/factsheet.pdf

[49] "[T]he proratable water delivery criteria are set based on water conditions in the Yakima River. Weather patterns vary geographically, and water supply conditions in the Yakima basin may be different from those in the Columbia Basin. While the Yakima River water supply may be plentiful, water supply conditions in the Columbia Basin, as a whole, may be below average and not always available for diversion to a Black Rock project." Water Availability Appraisal, p. 10.

Comparison of the hydrologic records of the two river systems would indicate whether dry years coincide or vary between the two systems. The 50-year (1928-1978) Columbia River Model used by Reclamation identified four dry years (1931, 1937, 1945, and 1973).[50] A comparison and analysis of regulated and unregulated flows in the Yakima River at Union Gap and near Parker, at the Parker Gage, over a fifty year period (1926-1977), estimates the statistical relationship between greater or lesser Yakima River flow volumes to mean Yakima River flows.[51] That data set could be compared against the Columbia River data set to determine whether there is coincidence or variance in hydrologic conditions.

VI. Reclamation's Benefit-Cost (NED) Analysis

The conclusion of Reclamation's feasibility study is bleak:

> Reclamation has selected the No Action Alternative of the Yakima River Basin Water Storage Feasibility Study as the Preferred Alternative for this planning report/environmental impact statement. There are a number of factors that contribute to the choice of the No Action Alternative as the Preferred Alternative. Each of the Joint Alternatives would require a significant investment of Federal funds ($1 billion to $7.73 billion) and annual operating costs of millions of dollars. None of the Joint Alternatives provides a positive benefit-cost ratio (or net National Economic Development [NED] benefit), and none of them are considered to be economically justified under Federal water resource planning guidelines. The benefit-cost ratios for each Joint Alternative are Black Rock, 0.13; Wymer Dam and Reservoir, 0.31; and Wymer Dam Plus Yakima River Pump Exchange, 0.07. In addition, there is a lack of acceptability of any of the Joint Alternatives in the community at large as a stand-alone approach to meeting the Storage Study goals. [52]

A. The Data Sufficiency Problem

Reclamation acknowledges that the information available to it at this time, particularly regarding cost estimates for construction of various alternatives is only of "appraisal-level" quality and is not sufficient to meet its "feasibility-level design and cost estimate standards."

> Reclamation considers the total project cost estimates provided for the Black Rock, Wymer Dam and Reservoir, and Wymer Dam Plus Yakima River Pump Exchange Alternatives to be at an appraisal level. The cost estimate level is defined by the amount and detail of the design data collected for the designs, such as geologic, survey, and groundwater information. Current Reclamation standards

[50] Water Availability Appraisal.

[51] J.J. Vaccaro, *Comparison of Unregulated and Regulated Streamflow for the Yakima River at Union Gap and Near Parker, Washington*, U.S.G.S., Water Resource Investigations, Open File Report, 82-646 (1986), p. 27, Table 4.

[52] Final PR/EIS, Executive Summary, p. xxix.

> require more information to confirm assumptions made about existing conditions and design parameters before Reclamation will label these cost estimates as feasibility-level estimates. Reclamation determined that time and resources were not available to gather the information needed to meet its feasibility-level design and cost estimate standards. To adequately define the costs required to construct the alternatives evaluated in this Final PR/EIS, Reclamation conducted a Monte Carlo cost-risk simulation to identify the cost-risk and critical cost drivers for the Black Rock and Wymer Dam and Reservoir Alternatives. Reclamation did not calculate a range of costs for the Wymer Dam Plus Yakima River Pump Exchange Alternative because, while it does provide some additional fish benefits when compared to the Wymer Dam and Reservoir Alternative, it does not provide more irrigation benefits than the Wymer Dam and Reservoir Alternative and it has a much higher construction cost. Additional studies and design work required to meet Reclamation standards for feasibility and final designs are outlined in this Final PR/EIS. (Emphasis supplied.) [53]

B. Length of Study

Both the costs and benefits anticipated in Reclamation's NED benefit-cost analysis are projected over a 100 year planning period. The 1983 *P&Gs* permit a shorter period of analysis.

> The period of analysis is the time required for implementation plus the lesser of (1) the period of time over which any alternative plan would have significant beneficial or adverse effects; or (2) a period not to exceed 100 years. Appropriate consideration should be given to environmental factors that may extend beyond the period of analysis. (Emphasis supplied.) [54]

A shorter period, perhaps 50 years, may be more appropriate. Water resources projects typically require renewed capitalization within 50 years, due to normal wear and tear, demands of growth or other concerns.[55] It is normal to amortize initial capitalization over a 50 year period. Initial contracts for delivery of water from the Yakima Project, which contained requirements for payments necessary to retire the capital costs of the Project's construction, were for a period of 50 years.[56] The environmental impact statement and feasibility study only projects future municipal water needs through 2050[57] Consistent with the *P&G's*. however, environmental benefits could be valued beyond that period.

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[53] *Id.*, Executive Summary, p. xiii.

[54] Principles and Guidelines (1983), Section 1.4.12, Section 12.1.2 (c).

[55] For example, Keechelus Dam, which was originally constructed in *circa* 1928, required reconstruction because of structural failure which was identified in the 1990s, a seventy year period.

[56] The construction costs of Hoover Dam were also capitalized over 50 years, and contracts for purchase of hydropower from Hoover Dam were established for the period of 50 years in order to retire capital costs.

[57] "The projected municipal and domestic water needs in year 2050 from Yakima River basin surface water and groundwater sources is about 186,000 acre-feet, an increase of 82,000 acre-feet from year 2000." Final PR/EIS, Vol. 1, p. 2-6.

A shorter, 50 year, study would exclude OM&R and Energy costs accruing in the 51st to 100th year of the study. When the present value of those costs are removed from the project costs, an approximately 10% reduction of OM&R and Energy costs can be achieved.

C. Reclamation's Cost Analysis: Appraisal-Level Data and Uncertainties

Reclamation's NED analysis is premised on an Economic Study.[58] Risk-based models of project cost estimates were developed for the economic study by "Crystal Ball" software produced by the "Oracle Corporation."[59] The uncertainty of those estimates is forthrightly addressed by Reclamation.

The 1983 Principles and Guidelines establish "NED cost categories." These include "implementation outlays", "associated costs," and "other direct costs." Implementation outlays are:

> Financial outlays (including operation, maintenance and replacement costs) incurred by the responsible Federal entity and by other Federal or non-Federal entities for implementation of the plan in accordance with sound management principles. [60]

"Other direct costs" are:

> The costs of resources directly required for a project or plan, but for which no implementation outlays are made. These costs are uncompensated, unmitigated NED losses caused by the installation, operation, maintenance or replacement of project or plan measures. Examples of other direct costs include increased downstream flood damages caused by channel modifications, dikes, or the drainage of wetlands, increased water supply treatment costs caused by irrigation return flows, and displaced public recreation. [61]

The cost analysis for each alternative is broken down into two primary subsections: 1) up-front NED construction costs including interest during construction (IDC); and 2) annual NED OMR&E costs.[62]

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[58] *Economics Technical Report for the Yakima River Basin Water Storage Feasibility Study Final Planning Report/Environmental Impact Statement, A Component of Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS 27, December 2008.

[59] *Cost-Risk Analysis for the Black Rock and Wymer Dam and Reservoir Alternatives, A Component of Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS-26, December 2008, (hereafter "Cost-Risk Analysis") p. 43

[60] Principles and Guidelines (1983), Section 1.7.2 (g).

[61] *Id.*, Section 1.7.2 (g).

[62] Economic Study, p. 8.

The total project cost is the amount required from Federal and non-Federal funding sources to construct the alternative. To summarize:

- Construction Contract Cost = Itemized Pay Items + Mobilization Costs + Design Contingencies
- Field Cost = Construction Contract Cost + Construction Contingencies
- Total Project Cost = Field Cost + Noncontract Cost

1. Field Costs

a. The "Sizing" Problem

Reclamation has conducted its benefit-cost analysis presuming that the Black Rock Reservoir is a fixed size without first adequately determining its optimum size given what is known about costs of construction and operation. In order to analyze the least-cost alternative, Reclamation should now reconsider the project sizing. Construction and operation cost of the Black Rock Alternative is a direct function of the amount of water Reclamation proposes to deliver and the size of the reservoir and water delivery system Reclamation proposes to build. Energy costs are a direct function of the amount of water required to be pumped from the Columbia River in order to delivery water and maintain the reservoir at optimum water levels. Optimum water levels are a direct function of recreation benefits secured through reservoir operation, irrigation benefits secured through water delivery, and municipal economies enhanced by water supply security.

Reclamation has established the size of the Black Rock facilities with a maximum water surface elevation of 1,778 feet; an active storage capacity of 1,300,000 acre-feet; an elevation top of active storage as 1,775 feet; a surface area of 8,640 acres; an inactive storage capacity 157,610 acre-feet; an elevation top of inactive storage as 1,500 feet; and an outflow conveyance system design flow capacity if 2,500 cfs.[63] The first step in cost estimation is to establish the "itemized pay items" which make up the physical structure. The feasibility study estimates these, under the "most probable" prediction scenario, as totaling to $3,152,384,856.[64] However,

> The designs are based mostly on available design data from past Reclamation work. The amount of data collected to adequately define major cost drivers and technical adequacy is not considered to be at the level required for a feasibility level assessment of project features. (Emphasis supplied.)[65]

Reclamation performed appraisal-level level analysis of Black Rock Reservoir performance in 2004 and 2008. That appraisal identified that perennial large reservoir contents would be exist. In March 2004, Reclamation explored the costs of reservoir systems sized at 1.3 million acre-feet and 800,000 acre-feet, but considered no sizes greater or in-between. The appraisal study found

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[63] Final PR/EIS, Vol. 1, p. 2-51

[64] Cost-Risk Analysis, p. 40, Table 7.

[65] *Id.*, p. 37.

that a 1,300,000-acre-foot active capacity reservoir would be full on June 1 in 16 out of 50 years; and would be more than half full by the end of August in 36 out of 50 years. With an 800,000-acre-foot active capacity reservoir, the appraisal study found that it would be full on June 1 in 19 of 50 years; and it would be more than half full by the end of August in 31 of 50 years.[66] In 2008, Reclamation estimated end of month contents of a 1.3 million acre-foot Black Rock Reservoir.[67] Perennially large reservoir volumes suggest that some lesser-volume storage design may be adequate to meet water delivery objectives.

On the other hand, construction of a Black Rock Reservoir with the same size (1.3 million acre feet), but with less perennial reservoir volumes, could be presumed to deliver greater amounts of water. The YAK/RW model presumes a total of 2,501,000 afy of nonproratable (1.217,000 afy) and proratable (1,284,000 afy) entitlements.[68] This assumption causes the model to deliver only that amount of water in future years as had been unused by proratable entitlements in previous years. Were more flexible assumptions built into the YAK/RW model (assuming more flexible water exchange or pooling agreements and additional delivery contracting by Reclamation), Reclamation could better establish an optimum size for the Black Rock Reservoir project.

Optimum system size could also be controlled by the design of water delivery systems. That system is now described as follows:

> Stored water would be released through the reservoir's single-level screen intake at elevation 1,500 feet to a 17-foot-diameter tunnel with a capacity of 2,500 cfs on the northern side of the reservoir. The tunnel would parallel Yakima Ridge for about 14 miles to a 40-foot-diameter surge shaft. At that point, the tunnel would turn to the southwest and extend about 3 miles to the north side of SR–24. From there, water would be conveyed in a 3,000-foot-long, 17-foot-diameter buried steel pipeline that would cross under SR–24 to MP 22.6 of the Roza Canal. At this point, the pipeline would split; 885 cfs would be carried to the 23-megawatt (MW) Black Rock powerplant and into the Roza Canal; and up to 1,200 cfs would be carried in a 12-foot-diameter buried steel pipeline to the Sunnyside Canal. The Sunnyside pipeline would extend from the vicinity of MP 22.6 of the Roza Canal about 6.5 miles over Konnowac Pass to the Sunnyside Canal at MP 3.83. At this point, most of the water would be discharged through a new Sunnyside powerplant (29.5 MW) into the Sunnyside Canal for downstream delivery. However, a small number of Sunnyside water users upstream of this point would receive delivery of 17–20 cfs by a pumping plant and a buried polyvinyl chloride pipeline about 3.2 miles long, located on the right embankment of the Sunnyside Canal. Roza would continue to obtain its water supply from the Yakima River by diverting at the Roza Diversion Dam (RM 127.9.) to MP 22.6. This diversion

[66] Water Availability Appraisal, p. D.

[67] *System Operations Technical Document for the Yakima River Basin, A Component of Yakima River Basin Water Storage Feasibility Study, Washington*, Technical Series No. TS-YSS-21, January 2008 (hereafter "System Operations Study"), p. 3-30, Table 3.15.

[68] Final PR/EIS. Vol. 1, p. 2-6.

would continue to provide flows (up to 1,075 cfs) for the operation of the existing Roza Powerplant and the approximately 180–200 cfs required for irrigation by Roza of lands upstream of MP 22.6. Sunnyside would continue to receive some water from the Yakima River in wet water years, as discussed in the operations criteria. In addition, both Roza and Sunnyside would continue to divert mid-March to late-March "flood flow waters" for "priming" their canal systems prior to the beginning of the irrigation season.[69]

Black Rock reservoir releases would begin in April with the start of the Yakima Project irrigation season and continue through late October. During the months of April–June, reservoir depletions could, to some extent, be replaced by pumping if Columbia River flows were available in excess of the instream target flows. As such, reservoir drawdown during this period would be relatively slow. However, during the peak demand months of July and August when the release volume is generally about 110,000 acre-feet per month, the reservoir contents would be depleted rapidly without subsequent refill. The rapid depletion would occur because pumping from the Columbia River is not permitted during July and August. (See figure 4.19 in chapter 4.) The maximum volume that can be pumped by the Priest Rapids pumping plant in any month is about 215,000 acre-feet, and maximum pumping generally would occur in September and October to refill this depleted storage space.

In years when the maximum water exchange occurs, Black Rock reservoir would release a total of about 600,000 acre-feet annually. Reservoir contents generally would be at maximum pool prior to the beginning of the irrigation season and at minimum pool at the end of August.[70]

b. Construction Cost—Mobilization Cost

Mobilization - Mobilization costs include mobilizing contractor personnel and equipment to the project site during initial project startup. The assumed 5 (+/-) percent of the subtotal cost used in the MPL, MP, and MPH cost estimates is based on past experience. [71]

At the current level of design, mobilization costs, design contingencies, construction contingencies, and noncontract costs typically are estimated as a percentage of the pay items, construction contract cost, or field cost . . . . [72]

Black Rock Mobilization costs were estimated at 5% of Itemized Pay Items[73] or $157,500,000.[74]

[69] *Id.*, Vol. 1, p. 2-44.

[70] *Id.*, Vol. 1, p. 2-50.

[71] Cost-Risk Analysis, p. 37.

[72] *Op. Cit.*, Vol. 1, p. 2-17.

c. Construction Cost—Design Contingencies

> Design Contingencies (formerly Unlisted Items) - Design contingencies are a means to recognize the confidence level in the estimates and the level of detail and knowledge that was used to develop the estimated cost. This line item may be considered as a contingency for minor design changes and also as an allowance to cover minor pay items that have not been itemized but will have some influence on the total cost. The design contingency line item is a percentage of the subtotal cost plus mobilization. This percentage was varied between 10 and 20 percent across the MPL, MP, and MPH cost estimates to account for the level of detail and anticipated cost risk. [75]

Black Rock Design Contingencies were estimated at 10% to 15% of Itemized Pay Items [76] or $367,115,144.[77] The Design Contingencies percentage compounds the Mobilization Cost expense.

d. Construction Contingencies

> Construction Contingencies (formerly contingencies) – Construction contingencies are considered funds to be used after construction starts and not for design changes during project planning and design stage. The purpose of construction contingencies is to identify funds to pay contractors for overruns on quantities, changed site conditions, change orders, etc. Construction contingencies also account for a lack of specific geologic information that would have a greater impact on tunnel and dam construction than on pipeline and pumping plant construction. This percentage was varied between 15 and 30 percent across the most probable low, most probable, and most probable high cost estimates to account for the anticipated cost risk. [78]

Black Rock Construction Contingencies were estimated at 20%-25% of Construction Contract Costs, or $883,000,000. [79] The Construction Contingency compounds the Design Contingency, and the already compounded Mobilization Cost expense. At this point in the cost estimation method, a full 30% of the construction cost is composed of estimated multipliers applied to

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[73] Cost-Risk Analysis, p. 40, Table 7.

[74] *Id.*, p. 38, Table 4.

[75] *Id.*, p. 37.

[76] *Id.*, p. 38, Table 4.

[77] *Id.*, p. 40, Table 7.

[78] *Id.*, p. 37.

[79] *Id.*, p. 40, Table 7.

appraisal-level cost estimation data. The "Field Cost" is now established at $4,560,000, 000 ($3,152,384,856 in "itemized pay items" and $1,407,614,144 in contingencies).

2. Noncontract Costs

> Noncontract costs are funds for engineering designs and specifications, regulatory compliance and permitting activities, environmental mitigation and monitoring, construction contract administration and management, and costs associated with land acquisition and relocation or rights-of-way that may be required for construction of the project features. A percentage of the field cost, typically ranging from 25–35 percent, often is used to identify funds for noncontract items. Lower percentages were used for the Black Rock Alternative because not all contract costs vary linearly with the size of the features. . . .[80]

Reclamation next adds Non-Contract Costs, again a percentage (25%), this time applied against total Field Costs, thus compounding again the already compounded Mobilization Cost expense, Design Contingencies and Construction Contingencies. The added Non Construction Cost of $1,130,000,000, when added to the Field Cost, brings the project total to $5,690,000,000. All contingencies taken together now constitute 45% of the total project cost.

3. Interest During Construction (IDC)

Reclamation next presumes that interest would be incurred during construction and that it must be included as a cost:

> Using construction cost estimates allocated across the 10-year construction period as provided by Reclamation cost engineers, IDC was calculated using Reclamation's fiscal year 2007 planning rate of 4.875 percent.[81]

The construction period is presumed to last ten years, with some construction cost occurring in each of the ten years. The "interest during construction" (IDC) element presumes that each year's cost is borrowed at the outset of each year and not repaid until the end of the ten year period. As it is assumed to remain unpaid, interest is charged upon previously unpaid interest, thereby compounding each year's previous interest charge for the remainder of the ten year period. This interest compounding approach assumes that Congress would not authorize and provide sufficient appropriations so that funds were available each year—no interest therefore being necessary. Since no funding details can be assumed that this time, the interest during construction component is speculative.

Reclamation's "Interest during construction" calculation determines that IDC will equal $1,394,800,000 (45 % of the "original itemized pay items," 25 % of the construction cost including the previously compounded contingencies) is 20% of the now-total estimated cost of

[80] *Id.*, p. 37.

[81] Economic Study, p. 8.

$7,084,800,000). Contingencies and interest now constitute 125% of Identified Pay Items, and 55% of total estimated cost.

4. Reclamation's Cost Analysis Conclusions are Uncertain and Require More Work

The appraisal-level data initially used in the cost estimate, the large contingencies used to accommodate uncertainties, and the lopsided relationship between contingencies and initial costs make the cost estimate conclusion unreliable Where there is a significantly large component of risk and uncertainty in the total cost estimate, the *P&Gs* suggest that:

> (b) The planner's primary role in dealing with risk and uncertainty is to identify the areas of sensitivity and describe them clearly so that decisions can be made with knowledge of the degree of reliability of available information. [82]

The feasibility study does adequately describe the contingencies and charges which Reclamation inserts in order to address risks and uncertainties. The obvious conclusion, however, particularly when the "appraisal-level" competence of the basic costing information is taken into account, is that the overall estimate is too imprecise, and may be unnecessarily large. What should be done? The *P&Gs* suggest a course of action:

> (d) Risk and uncertainty arise from measurement errors and from the underlying variability of complex natural, social. and economic situations. Methods of dealing with risk and uncertainty include:
> (1) Collecting more detailed data to reduce measurement error.
> (2) Using more refined analytic techniques.
> (3) Increasing safety factors in design.
> (4) Selecting measures with better known performance characteristics.
> (5) Reducing the irreversible or irretrievable commitments of resources.
> (6) Performing a sensitivity analysis of the estimated benefits and costs of alternative plans. [83]

More work needs to be done.

D. Reclamation's Benefits Analysis

Reclamation's benefits analysis is segmented into several benefit categories which are aggregated into total NED benefits. These include:

1) agriculture
2) municipal
3) recreation (both at the proposed reservoirs and at existing reservoirs and

[82] Principles and Guidelines (1983), Section 1.4.13 (b).

[83] *Id.*, Section 1.4.13 (d).

> rivers)
> 4) hydropower (Black Rock and Sunnyside powerplants plus lost hydropower benefits from Federal and non-Federal facilities, e.g., Priest Rapids powerplant)
> 5) fisheries use values (i.e., commercial, sport, Tribal subsistence). While these benefit categories were included in the BCA, the valuation of threatened and endangered (T&E) fish was not included in the analysis; as a result, the fishery benefits may be considered understated. [84]

Some benefit categories are not listed or evaluated. These include: municipal needs and benefits beyond 2050, benefits to unemployed or underemployed labor, renewable energy opportunities, slack-water recreation benefits, habitat benefits for species, benefits to security of water supply resources, and others discussed below.

1. Effect of Anticipated Conservation Benefits

The No Action alternative includes conservation improvements in the Yakima irrigation sector.[85] The same conservation improvements have apparently been taken into account in the YAK/RW model of the Black Rock Alternative, which presupposes the delivery of Columbia River water in lieu of Yakima River water.[86]

> The No Action Alternative for the Storage Study includes implementation of water conservation measures proposed under Title XII of the Act of October 31, 1994. Section 1203 of Title XII authorized Phase II (the Basin Conservation Program) of YRBWEP for evaluating and implementing measures to improve the availability of water supplies for irrigation and to protect and enhance fish and wildlife resources, including wetlands. Section 1204 of Title XII provides for water conservation on the Yakama Reservation.
>
> Yakima River basin irrigation entities developed and submitted water conservation plans for evaluation and approval by Reclamation in the late 1990s to early 2000s. The water conservation measures included in the No Action Alternative are those currently being constructed or considered for future implementation with funding from the Basin Conservation Program or from other sources. It should be noted that implementation does not require additional congressional authorization but, rather, completion of the processes established for the Basin Conservation Program. The No Action Alternative includes construction of new facilities such as reregulation reservoirs, pumping plants,

[84] Economic Study, p. 7.

[85] The YAK/RW model of the No Action Alternative represents this conservation supply enhancement at 170,000 acre-feet per year. System Operations Study, p. A-5, Table 3.

[86] The YAK/RW model of the Black Rock Alternative is not sufficiently transparent to illustrate where the additional 170,000 acre feet per year conservation supply has been integrated into the model. See, Systems Operations Study, pp. A-9, A-10, Tables 7, 8.

> pipelines, etc., along the alignment of the existing facilities. Site-specific NEPA compliance would be completed as projects are identified. [87]
>
> Because conservation is achieved by improving efficiency that reduces return flow, the effects are limited to the reaches where conservation occurs. Downstream from those reaches, there is no effect. [88]

The modeled No Action alternative also presumes that all of the conservation actions contemplated by the YRBWEP were in place throughout the hypothetical twenty-five year period (1981-2005), even though some of them have not, as yet, been constructed or put in service. As no economic analysis is conducted for the no-action alternative, the costs related to the benefits of the conservation actions cannot not be evaluated independently of the benefits of the several action alternatives.

2. Secondary or Indirect Effects: The Multiplier Problem

Reclamation finds that Regional Economic Development (RED) analysis, which incorporates secondary and indirect effects, produces an affirmative conclusion for the Black Rock Reservoir. But Reclamation conversely finds that the National Economic Development (NED), which Reclamation argues cannot consider secondary and indirect effects, produces a negative determination for the Black Rock Reservoir. Reclamation gives as its reason for excluding secondary and indirect effects from its NED analysis that NED analysis "focuses on economic benefits to the entire Nation," and that the NED analysis purportedly "take[s] into account potential offsetting effects occurring outside the region."[89] Reclamation thus determines that NED analysis does not include "secondary or indirect effects on those industries providing inputs to the directly affected industries (referred to as the multiplier effect)."

> The RED analysis focuses on economic impacts to the local region, whereas the NED analysis focuses on economic benefits to the entire Nation. Economic impacts measure total economic activity within a given region using such indicators as output (sales or gross receipts), income, and employment. Economic impacts stem from changes in expenditures within the region. The RED evaluation recognizes the NED benefits accruing to the local region plus the transfers of income into the region. However, since the RED analysis focuses purely on the local region, it does not take into account potential offsetting effects occurring outside the region as does the NED analysis. In addition to the geographic differences between the analyses, the RED analysis includes not only the initial or direct impact on the primary affected industries (as does the NED analysis) but also the secondary or indirect effects on those industries providing inputs to the directly affected industries (referred to as the multiplier effect). This

[87] Final PR/EIS, Vol. 1, p. 2-27. See, System Operations Study, p. 3-1.

[88] *Op. Cit.*, Executive Summary, p. xx.

[89] Reclamation does not identify any outside-the-region potential offsetting effects.

> multiplier effect is not included in the NED analysis. See table ES.7 at the end of this Executive Summary for results of the RED analysis. [90]
>
> The RED analysis includes not only the initial or direct impact on the primary affected industries, but also the secondary impacts resulting from those industries providing inputs to the directly affected industries as well. This also includes the changes in economic activity stemming from household spending of income earned by those employed in the sectors of the economy impacted either directly or indirectly. These secondary impacts are often referred to as "multiplier effects." [91]

Secondary or indirect effects, the so-called "multiplier effects," are an essential component of any valid description of economic conditions and the contribution of new uses to an existing economy. If applied evenly in multiple regional cases, multiplier effects can be compared to objectively estimate their relative contribution to a national economic effect.

Secondary and indirect effects are not "transfers" from one region to another. Rather, they contribute to the national economy, albeit that they are located within a specific geographic region. Dollars newly generated by economic activity get re-spent several times over in the local economy. This re-spending does not distract or take away from other regions' economies. Any analysis which clips off the economic value contained within the "multiplier" has not considered real economic value.

Industrial or agricultural production anywhere in the United States benefits the national economy throughout the United States. The modern American national economy is a broad, interconnected, integrated system, which is part of a now-global international economic system. Agricultural products produced in the Yakima Valley are marketed throughout the U.S. and the world. The national economy, which is now primarily a consumption economy, consumes products grown or manufactured either domestically or from some foreign source. The more domestic production which is consumed, the healthier the economy.

The NED analysis utilized by the Bureau fails to take this important consideration into account. Any economic benefit inuring to a regional economy, either by virtue of direct investment or multiplier effect from that direct investment, inures to the national economy as well. Reclamation's exclusion of secondary and indirect effects would be appropriate in an enterprise benefit-cost evaluation. But where evaluation of the "national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements" is the objective, exclusion of secondary and indirect effects is inappropriate.

Secondary and indirect effects which occur as a consequence of direct effects should be included within the NED analysis.

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[90] Final PR/EIS, Executive Summary, p. xxvii.

[91] Economic Study, p.139.

3. Reclamation's Agricultural Benefits Analysis

a. Water Supply Optimization

The YAI Model used to estimate agricultural production, relies on the Yakima Project RiverWare model (YAK/RW) to estimate the water supply available from the Columbia River. The analysis assumes that future dry years will follow the same pattern as occurred over the entire period of record (1981-2005). [92]

The goal of Reclamation's study is to firm the agricultural proratable water supply to at least 70 percent (i.e., equal to or greater than 70 percent) [93] On the other hand, Reclamation's economic study evaluates the benefits deriving from a water supply firmed to "less than 70 percent" (i.e., equal to or less than 70 percent).

Agricultural benefits for each alternative are realized only in drought years when the proration level is 70 percent or less.[94] This 70-percent goal equates to 896,000 acre-feet of proratable entitlements. The YAK/RW model of "current operations" indicates that are 6 years (1987, 1992, 1993, 1994, 2001, 2005) where proration levels would have been less than 70 percent. The YAK/RW model of "no action" (taking credit for YRBWEB conservation measures) indicates that there are 5 years (1987, 1993, 1994, 2001, 2005) where proration levels would have been less than 70 percent. One would have been just 70 percent (1992)[95] The YAK/RW model of the Black Rock Alternative indicates that there are no years, where proration levels would have been less than 70 percent. The proration level would have been just 70 % in three years (1995, 2001, 2005). [96]

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[92] *Op. Cit.*, Vol. 1, p. 2-94. This assumption may be incorrect if climate change causes less water supply because of loss of snow-pack.

[93] "No technical justification is presented for this goal in the supporting documents for the Final PR/EIS. "A water supply goal of providing no less than 70 percent of the proratable rights in dry years historically has been used in the Yakima River basin for planning purposes. This goal is also used in this appraisal assessment and is applicable to potential water exchange participants. A full water supply thus consists of the sum of all authorized nonproratable water and (a) 100 percent of the proratable water in wet and normal water years, and (b) a minimum of 70 percent of proratable water in Yakima River basin dry years." (Emphasis supplied.)

"To determine how often proration would occur in the Yakima Project, simulated diversion data for 1926-1994 was obtained from the 1999 *Yakima River Basin Water Enhancement Project, Washington, Final Programmatic Environmental Impact Statement (EIS)*. These data also match data presented in the September 2001 *Keechelus Dam Safety of Dams Modification Final EIS*. The model used to calculate the percent of proratable water rights met each year is based on historic streamflow and the current reservoir and diversion configurations. Based on the EIS data, proratable water rights will receive less than their full entitlement in 12 years between 1929 - 1978."
Water Availability Appraisal, p. 10.

[94] Economic Study, p. 29. Final PR/EIS, Vol. 1, p. 2-94.

[95] Final PR/EIS, Vol. 1, p. 2-42. Although the language of the Final PR/EIS is a bit unclear, oral confirmation from Reclamation represents that all six years of 70% or less were used in the YAI Model to estimate agricultural economic benefits.

[96] Systems Operations Study, p. A-9, Table 7, p. A-10, Table 8.

In effect, the YAI Model only gives credit to that agricultural growth which is presumed to occur between the hypothetical "no action" water supply and the hypothetical Black Rock Alternative water supply. The YAI Model gives no credit for the growth in agricultural production that would result from growth in the water supply which the YAK/RW Black Rock Alternative Model indicates would be delivered at a proration level greater than 70%, notwithstanding the 70% delivery constraint. Nor does the YAI Model give credit for the additional water supply that could be hypothetically presumed if the YAK/RW Black Rock Alternative Model were not constrained by the 70 % delivery constraint.

b. The "Exchange Effect" Problem

The YAK/RW model constructs a hypothetical record of twenty five years (1981-2005) as though those historical years had been lived with the various alternatives under consideration already in place. The data record for that period, although more complete than various data sets for the Yakima River,[97] required production of some synthetic data. The data set includes the water use data of the proratable entitlement and non-proratable entitlement water use during the period 1981-2005.[98]

The YAK/RW model begins with an assumption that an "exchange" is involved, i.e., that Sunnyside Irrigation District will exchange water supply from its Yakima River diversion entitlement for a water supply from a Columbia River (Black Rock Reservoir) diversion entitlement.[99] This assumption carries with it the assumption that the Columbia River supply will be limited to the same extent that the Yakima River water supply would have been limited. The rules for the YAK/RW model thus limit the hypothetical Columbia River supply to Yakima River users in each of its hypothetical historical years in the amount of proratable water that

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[97] Compare, J.J. Vaccaro, *Comparison of Unregulated and Regulated Streamflow for the Yakima River at Union Gap and Near Parker, Washington*, U.S.G.S., Water Resource Investigations, Open File Report, 82-646 (1986).

[98] A twenty five year period of record is relatively short for the purpose of managing natural resource systems dependant upon variable climatic conditions. By comparison, the Bonneville Power Administration's Hyd-Sim model used to support operational decisions in the Columbia River and its major tributaries utilizes a seventy year data set (1929-1998) The Preliminary Appraisal Assessment of Columbia River Water Availability for a Potential Black Rock Project used a 50 year period of data (1929-1978) for its model simulation period. The model of Colorado River flows, which utilizes the same RiverWare software as used in this case, and which was used in support of revision of operating rules for operation of Lake Mead and Lake Powell in 2007, relied upon a data set extending one hundred years which had been calibrated against historic tree-ring measurement data extending several hundred years longer. *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead, Final Environmental Impact Statement*, November 2007. The Yakima Project RiverWare (Yak-RW) model utilizes a daily time-step, causing the computer model to recalculate its values for each day of the operating season from April through October, throughout the entire 25 year period.

[99] "This analysis assumes the water exchange for Roza and Sunnyside divisions is delivered entirely from a Black Rock project. The exchange is, therefore, dependent on the available Columbia River water supply." Water Availability Assessment, p. 10.

would have been available in those years, as if the Yakima River exchange had been in effect.[100] This limitation plays out in the YAK/RW model as an "exchange effect."[101]

The "exchange effect" inherent in the YAK/RW mode assumes that the same amount of water would be used in the future (when supply is more ample) as had been used in the past (when supply was less available), i.e., that proratable future use can only be enhanced by the extent of non-proratable users' historical nonuse. When the model determines how much of the Roza Division's future use is limited by the Sunnyside Division's historical nonuse, the model then presumes that all other proratable entitlements' future use is similarly limited.[102] When these assumptions are adopted by the YAI Model's hypothetical construction of economic improvement, evaluation of the economic benefits of greater water supplies is cut off.

The availability of actual water supply, after construction of a Black Rock Reservoir, will be determined by the physical limitations of water supply in the Columbia River and the physical constraints of the engineered system designed for the delivery in each of the hypothetical future years of water from the Reservoir to the Roza and Sunnyside Canals.[103] If that supply is greater than the supplies presumed under the model as limited by the "exchange effect" imposed by the model's assumptions, then the model merely leaves the modeled Columbia River water in the modeled Black Rock Reservoir. If the model had merely assumed that an additional contract was put in place for delivery of the otherwise available water, the "exchange effect" would have been removed from the model.

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[100] "Beginning in April during prorated water years, the diversions are limited to the nonprorated demand curve adjusted by the Natural Runoff Proportion (NRP) or entitlements adjusted by the proration level. However, at no time between April and September are diversions set greater than the nonproration daily diversions sown in Figure 2.1. Further, in years of proration, October diversions at no time are set greater than the October irrigation demand curve shown in Figure 2.2." System Operations Report, p. 2-7.

[101] Congress' authorization for the Yakima River Basin Water Storage Feasibility Study, Pub. L. 108-7, Section 214, does not limit the study with an "exchange effect." Although the Bureau of Reclamation has interpreted the study as evaluating an "exchange supply," even that interpretation does not impose the "exchange effect" imposed by the computer model. "As guided by the authorization, the purpose of the Storage Study is to identify and examine the viability and acceptability of alternate projects by: (1) diversion of Columbia River water to a potential Black Rock reservoir for further water transfer to irrigation entities in the lower Yakima River basin <u>as an exchange supply, thereby reducing irrigation demand on Yakima River water and improving Yakima Project stored water supplies</u>; and (2) creation of additional water storage within the Yakima River basin. In considering the benefits to be achieved, study objectives are to modify Yakima Project flow management operations to improve the flow regime of the Yakima River system for fisheries, provide a more reliable supply for existing proratable water users, and provide water supply for future municipal demands." (Emphasis supplied.) Cost Risk Analysis, p. i.

[102] "Prior to using the proration level to limit irrigation diversions, an estimate of daily natural runoff to meet irrigation demands is made. The natural runoff is adjusted for Parker target flows. If the day's natural runoff is large enough to meet up to 75 percent of the irrigation demands, then diversions are limited to this amount. However, once 75 percent of the demands cannot be met from the natural runoff, proration is declared and the proration level is used to limit the demands." System Operations Report, p. 2-14.

[103] See, Final PR/EIS. Vol. 1, p. 2-44.

(a) Other alternative plans should be formulated to adequately explore opportunities to address other Federal, State, local, and international concerns not fully addressed by the NED plan.

(f) Nonstructural measures should be considered as means for addressing problems and opportunities. effects outweigh the corresponding NED losses. [104]

The consequence of the "exchange effect" in the YAK/RW model, as it plays out in the YAI Model and the economic analysis, is that it charges the project with all of the costs of construction of the new supply, but does not take the advantages of all of the benefits of the new supply. Viewed conversely, the manner in which the two models are constructed and rely one upon the other causes for payment of the oversizing of the project, including its initial capital and operation and maintenance costs, as well as additional energy costs of pumping more water than is needed to meet a limited demand.

Removal of the "exchange effect" from the model would not change the amount of water available for service of the Yakima River's natural environment, or fishery resource, as those uses rely on unregulated Yakima River flow volumes, as would be enhanced by Yakima River water which becomes available by substitution of Columbia River water. Removal of the "exchange effect" from the model would also not necessarily change the amount of water actually used in the future by either nonproratable or proratable entitlements, as these are constrained by numerous other real world factors (e.g., urbanization, financing, market availability, socioeconomic preference for farming, political constraints on of Bureau of Reclamation willingness to modify contracts). But removal of the "exchange effect" from the model would permit costs and benefits to be evaluated under the same assumptions.

The YAK/RW model applies the proration levels imposed by the "exchange effect" on proratable entitlement holders in Kittitas County. If the "exchange effect" was removed from the YAK/RW model, the benefits accruing to in Kittitas County would also become evident, and the economic benefit there would also be shown in the YAI model. The Yakima River System gains over 600,000 acre feet of "saved" water that is managed for a variety of uses and flows primarily from and through Kittitas County. Water will be diverted in that County to guarantee 70% of proratable acreage (about half of their total existing irrigated acreage) and the full entitlement to those acres with more senior right, just as it does in Yakima and Benton Counties. While only Roza and Sunnyside Irrigation Districts will use Columbia River stored water directly, the Yakima Project benefit for fish, irrigation, municipal and industrial uses is exactly the same in all three counties, and meets all the requirements proposed by Congress.

c. Reclamation's Agricultural Economic Benefits Estimates Are Understated

The only means by which to compare the economic benefits of a 70% proration level with other proration levels is to run the YAK/RW model under different rules. However, comparison of the total water delivered (over the entire hypothetical 25 year period) under three model runs

[104] Principles and Guidelines (1983), Section 1.6.4 (a), (f).

(Current Operations, No Action, and Black Rock Alternative) suggests that the economic benefit derived from a 70% proration level is understated. The three model runs provide 70,415,300 af, 70,919,100 af, and 72,389,700, respectively, over the twenty five year modeled period (2,816,612 afy, 2836,764 afy, and 2,895,588 afy on average, respectively). If water supply and economic vitality are functionally related in any way, then economic value should go up proportionately with water supply. The economic value produced by the YAI Model should estimate the "most likely expected [economic] condition expected to exist" with the Black Rock Reservoir in place.

> (b) *With-project condition*. The with-project condition is the most likely condition expected to exist in the future with the Federal water supply plan under consideration. [105]

The economic benefit should be considered with and without the plan. Comparing between the No Action and Black Rock Alternatives of the irrigation proration levels in the six short water years identified by Table 2-23 of the Economic Study,[106] water supply is modeled to grow by a factor of 43 %. Comparing between the two alternatives of the average irrigation proration levels over the total twenty five year period of record identified by Tables 7 and 8 of the Economic Study,[107] water supply is modeled to grow by a factor of 8%. The 2002 market value of crop production in Yakima, Benton and Kittitas Counties was $913,028,000 (Yakima County, $508,254,000; Benton County, $366,342,000; Kittitas County $38,432,000, respectively).[108] Table 2-27 of the Economic Study[109] projects the annual agricultural benefit in Yakima and Kittitas Counties at $4,160,097, only .8 % (.008) of the value of regional crop production, not counting the effect of growth in regional production value since 2002. This comparison raises the question whether the YAI Model has understated the economic benefits of construction of the Black Rock Reservoir.

The approach utilized by Reclamation omits a number of important factors in Yakima County's agricultural economy. It gives no value to the increase in agricultural product processing, a major component of Yakima County's economy. Agricultural product processing, packaging, storage and shipping generates income for both processing laborers and business owners. These are direct impacts which have not been measured or included in the economic study. The study also gives no value to increases in agricultural land values due to increase in demand for property with firmer water rights.

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[105] Principles and Guidelines (1983), Section 2.2.3 (b).

[106] *Id.*, p. 34, Table 2-23.

[107] System Operations Study, pp. A-9. A-10, Tables 7, 8.

[108] NASS 2002 Census of Agriculture County Profile; United States Department of Agriculture, http://www.agcensus.usda.gov/Publications/2002/County_Profiles/Washington/cp53077.PDF

[109] Economic Study, p.37, Table 2-27.

Reclamation's economic study is also geographically exclusive, omitting economic benefit in Kittitas and Benton Counties. No economic benefit was attributed to additional proratable water supplies that were utilized in the Kennewick Division by the Kennewick Irrigation District on the basis that "The Yak-RW model and the operation studies conducted for the various alternatives indicate the Kennewick Division's water supply is greater than the 70-percent proratable irrigation goal in all years of the 25-year period of record."[110] This unfounded exclusion of the Kennewick area ignores that the improvement of water supply in the Kennewick Irrigation District will have a significant effect upon Washington state's agricultural economy, as its status as a premier wine-producing area with unique soil and climatic conditions portend significant out-of-region demand potential. The economic benefit within the Kennewick Division should have been included.

4. Municipal Benefits

> Residential development and population have been increasing in the Yakima River basin in the last two decades, especially around Ellensburg, Yakima, and the Tri-Cities. Resort and second home developments have also increased in the areas around Cle Elum and Roslyn. Because water rights are fully appropriated in most areas of the Yakima basin, acquiring water rights for expanding municipalities and for housing developments is often difficult. Many of the housing developments rely on exempt wells for domestic water supplies. In recent years, there has been increased pressure to reduce growth of the number of exempt wells. [111]

Reclamation acknowledges municipal population growth, but does not contemplate how the water needs of that population will be served from any of the alternatives it studies.

> Planned Growth in Yakima, Benton, and Kittitas Counties. Planned growth will continue in these counties. This growth currently involves expansion into underdeveloped areas potentially affecting fish and wildlife resources. Similar growth patterns will continue and could affect resources potentially affected by actions taken as a result of this Final PR/EIS. For example, the expanded growth could generate a need for additional water supplies. [112]

Reclamation's feasibility study estimates the need for additional water supplies by 2050, forty years in the future. But the cost analysis and economic study use a 100 year planning horizon, projecting to 2109. Reclamation should lengthen its planning horizon for municipal demand, or shorten its planning horizon for costs and benefits of the evaluated alternatives.

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[110] Economic Study, p. 35.

[111] Washington State Department of Ecology, Supplemental Draft Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Publication Number: 07-11-044A, December 10, 2008. p. 1-9.

[112] Final PR/EIS, Vol. 1, p. 1-28.

5. Recreation Benefits

Reclamation concluded that private expenditures for residential, resort, and commercial development located at a Black Rock Reservoir could not be included in its NED analysis, nor counted as a benefit, as that development was not authorized by federal legislation.[113] Reclamation also did not consider the large recreational benefit from managing the Kittitas County reservoirs and streams primarily for fish production.

The economic benefits of slack-water recreation opportunities and residential and commercial site development stimulating future economic well-being of Benton, Yakima, and Kittitas Counties should also be addressed.

6. Hydropower and Other Energy Benefits

Reclamation's economic analysis includes 100 years of the costs of pumping water to fill Black Rock Reservoir, but does not consider a "pump-generation" option recommended to Reclamation. "Pump-generation" is the concept of pumping water into a reservoir while power is relatively inexpensive, and then when power demand increases and is likely to be more expensive, releasing the water to generate power.[114] The power market in the Northwest has changed. Pumping at the times of the day when power costs are relatively inexpensive and releasing water when prices skyrocket will make the operation more cost effective. This plan has the potential to significantly reduce or eliminate the projected cost of pumping.

The demand for wind power is planned to dramatically increase and with it the need for “wind integration”. Wind integration would place a premium on the “storage battery” value of controllable generation from Black Rock to offset the fact that the wind only blows around 30% of the time.

The Black Rock Reservoir project includes a power plant at Roza and Sunnyside Canal. Also, water can be returned to the Columbia River through a plant at Priest Rapids Dam to generate electricity and add to the flow of the Columbia River when needed. Power plants at the western facility at Roza Canal and Sunnyside Canal and the eastern facility at the Columbia River can produce a cash flow to help defray the operating cost of pumping from the Columbia River.

Energy sales based on cash flow analysis and reduce to NPV, the 40 year revenues can bring a total value of $412 million at the western power plants and the P/G power benefits from the eastern power plant is estimated to be $25.7 million/year.

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[113] *Id.*, Vol. 1, p. 6-3.

[114] *Id.*, Vol. 1, p. 6-3.

7. Benefits to Fisheries

a. Economic Value of Improved Species Habitat

The *P&Gs* require that "other direct benefits" be quantified.

> (d) *Other direct benefits*. The other direct benefits in the NED benefit evaluation are the incidental direct effects of a project that increase economic efficiency and are not otherwise accounted for in the evaluation of the plan or project. They are incidental to the purposes for which the water resources plan is being formulated. They include incidental increases in output of goods and services and incidental reductions in production costs. For example, a project planned only for flood damage reduction and hydropower purposes might reduce downstream water treatment costs; this reduction in costs would be shown as another direct benefit in the NED account. [115]

Improvement of species habitat in the Yakima and Columbia River systems are obvious "incidental direct effects"

The Benefits analysis does not evaluate the synergistic effects of a comprehensive habitat restoration coupled with enhanced flow regimes for anadromous fishery. A study should be conducted of the economic benefits accruing as a result of improvement in the anadromous fishery, reflecting the least-cost alternative of achieving similar accomplishments.

b. "Nonuse" Values

> The fisheries benefits reflect harvest-based use values only and do not include controversial nonuse values related to the threatened and endangered fish. See table ES.7. [116]

Section 2.3.5.2 of the Economic Study[117] explains that Reclamation could not measure nonuse values with certainty, as only opportunity cost could be used as the basis for pricing information upon which to rest its economic analysis. Reclamation observes that "the *P&Gs* appear to be flexible enough to allow for the inclusion of new benefit measures within Reclamation BCA's [benefit-cost analyses]." Reclamation also observed that "If environmental issues are a primary objective or driving force behind a particular project, nonuse values may prove to be a critical component of the BCA."[118] Nevertheless, Reclamation elected not to collect the only information upon which Reclamation was prepared to rely in order to measure nonuse values of fishery resources or threatened or endangered species.

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[115] Principles and Guidelines (1983), Section 1.7.2 (d).

[116] *Op. Cit.*, Executive Summary, p. xxvii.

[117] Economic Study, pp.119-138.

[118] *Id.*, p.126.

> With the controversy over nonuse values in general and nonuse value estimation approaches in particular, questions about the applicability of nonuse values to the range of fishery resources associated with the Storage Study, and the apparent insensitivity of the appraisal-level benefit-cost result to the inclusion of nonuse values, the decision was made to forego pursuing a site- and study-specific nonuse value survey and simply exclude quantification of nonuse values from the feasibility-level BCA. Instead, a qualitative discussion of nonuse values is included in the Final PR/EIS.[119]
>
> From early on in the Storage Study planning process, nonuse values were identified as a potentially significant benefit category. As a result, the concept of nonuse values could be considered fairly well known to the "publics" following these studies. While the best technical solution for measuring nonuse values would have been to conduct a site- and study-specific survey early on, for various legitimate reasons (e.g., cost, time required, lack of necessary fish population estimates at the time to construct the willingness-to-pay questions), the decision was made not to go in that direction for the appraisal-level and Draft PR/EIS analyses. [120]

Instead, Reclamation pursued a methodology called "benefits transfer," "reapplication of the results of existing studies to the current study under consideration," utilizing three options: meta analysis, model transfer, and value transfer. All were later rejected as unreliable valuation methodologies. Because Reclamation found no valuation methodology upon which to form a valuation conclusion, Reclamation established the value at zero. Reclamation acknowledges that its failure to ascribe any economic value to the social value of the enhancement of the condition of threatened species "understates" the fishery benefits.[121]

An alternative to establishing value of "nonuse" by investigation of opportunity cost is establishing value based on "avoidance cost," the amount a purchaser would pay to avoid another anticipatable greater cost. In the case of threatened and endangered species, the listing of a species as threatened or endangered precludes numerous economic choices which, if elected, would "take" the species. Removal of species from listing, through species repopulation or habitat health, makes these economic choices re-available. Where species are likely headed for listing, maintenance of species or habitat health keeps alternative economic choices available. The amount that "purchasers" (e.g., agricultural and municipal water users, foresters, commercial fishermen, governments, etc.) are prepared to invest in order to avoid the loss of alternative economic choices is a reasonable proxy for the "value" of nonuse alternatives.

The Colorado River Multi-Species Conservation Program, for example, is intended to protect the lower Colorado River environment while ensuring the certainty of existing river water and power

[119] *Id.*, p. 138.

[120] *Id.*, p.127.

[121] *Id.*, p. 7.

operations, address the needs of threatened and endangered wildlife under the Endangered Species Act, and reduce the likelihood of listing additional species along the lower Colorado River.[122] The total program cost for the CRMSCP's 50 year program, in 2003 dollars, is $626 million, which amount is split in a 50-50 cost share between the Federal and non-Federal entities. The indexed annual program cost for 2009 is estimated at $13,568,940.[123] Comparisons between the size, geographic scope,[124] habitat creation agenda, and threatened and endangered species protection objectives of the CRMSCP and Middle Columbia/Yakima River environmental programs could be used to adjust the CRMSCP's avoidance cost to an avoidance cost which could be used to evaluate the economic benefit derived from a Black Rock Alternative.

In the case of the Columbia River, expenses incurred in order to avoid "take" of threatened and endangered species have been suggested to include removal of hydropower dams, a prospect with major cost consequences including the cost of physical removal and loss of hydropower (measured either at its replacement value or its contribution value to municipal and industrial economies). The avoidance cost of dam removal is thus very large.

8. Benefit of Use of Unemployed and Underemployed Workers.

The 1983 *P&Gs* require that, when performing NED analysis, the effects from the use of unemployed and underemployed workers should be treated as a benefit:

> (e) Use of otherwise unemployed or underemployed labor resources.
> (1) The opportunity cost of employing otherwise unemployed and underemployed workers is equal to their earnings under the without-plan conditions.
> (2) Conceptually, the effects of the use of unemployed or underemployed labor resources should be treated as an adjustment to the adverse effects of a plan on national economic development. Since this approach leads to difficulties in cost allocation and cost sharing calculations, the effects from the use of such labor resources are to be treated as an addition to the benefits resulting from a plan.
> (3) Beneficial effects from the use of unemployed or underemployed labor resources are limited to labor employed on site in the construction or installation of a plan. This limitation reflects identification and measurement problems and the requirement that national projections are to be based on a full employment economy.
> (4) If the planning region has substantial and persistent unemployment and these labor resources will be employed or more effectively employed in installation of

[122] http://www.lcrmscp.gov/ The MSCP covers areas up to and including the full-pool elevations of Lakes Mead, Mohave and Havasu and the historical floodplain of the Colorado River from Lake Mead to the United States-Mexico Southerly International Boundary, a distance of about 400 river miles. Conservation measures currently focus on the area from Hoover Dam to the border, but may include Grand Canyon in the future.

[123] http://www.lcrmscp.gov/workplans/Implementation2008.pdf

[124] Priest Rapids Dam is located 397 miles from the mouth of the Columbia. The area of its reservoir's full pool elevation to the mouth of the Columbia, is, on its face, roughly equivalent to the area covered by the Lower Colorado River MSCP.

> the plan, the net additional payments to the unemployed and underemployed labor resources are defined as a benefit.[125]

Reclamation's NED analysis does not take into account the opportunity cost of employing otherwise unemployed or underemployed workers as an addition to the benefits resulting from construction of the Black Rock Reservoir.[126]

There is a higher percentage of unemployed and underemployed workers in the Yakima county labor market than in either the nation or Washington state. According to the U.S Bureau of Labor Statistics, the national unemployment rate in November 2008 was 6.4 %. The unemployment rate for the state of Washington was the same (6.4%). But the unemployment rate for the Yakima Metropolitan Area was 7.7 %. This increased unemployment rate reflects, in part, significant unemployment on the Yakama Indian Reservation, where the unemployment rate is 58%.[127]

There is a significant problem in training and development of underemployed workers in Yakima County, and particularly within the Yakama Indian Reservation. Employment opportunities seldom exist which have sufficient duration to permit trainees to work through steps of apprenticeship to skilled labor positions. Larger and longer employment projects permit development of the labor force, acquisition of greater skill, enhancement of laborer certification and improvement of earning power. When overall earning power is increased, net economic benefit occurs. Construction of Black Rock Reservoir would have a significant positive impact on the Yakima County and Yakama Indian Reservation labor pool. This impact should be assessed, measured and counted as an economic benefit.

9. Benefit to Water Resource Protection

The stability (reliability) of water resource supply is a fundamental element of capital investment decisions in municipal, industrial, and agricultural infrastructure development. A Black Rock Reservoir would provide a baseline water supply with a fixed shortage risk and an alternative water resource with potentially varying climate conditions, building coverage against risk of temporary climate impairment of Cascade snowpack conditions.[128] Reclamation's hydrologic model, YAK-RW indicates that the average September 30 Yakima River basin reservoir contents would be 43% greater under the Black Rock Alternative than is the case under the No Action

[125] Principles and Guidelines (1983), Section 1.7.2 (e) Use of Otherwise Unemployed or Underemployed Labor Resources.

[126] Economic Study (No mention of unemployed or underemployed labor.)

[127] Concern for unemployed persons on the Yakama Indian Reservation is addressed by the Yakama Nation Tribal Employment Rights Ordinance, Resolution T-101-02 (TERO). The ordinance establishes a preference for hiring Indian persons who reside on or near the Yakama Indian Reservation in a manner consistent with Executive Order 11246 (1977), Title VII, Section 703 (i) of 1964 Civil Rights Act, and the Indian Self Determination Act, Pub. L. 93-638. (1975), Section 7 (b).

[128] See discussion of Climate Change at pp. 13-16 above.

Alternative.[129] Strengthened reliability of the water resource in the Yakima, Kittitas, and Benton Counties, would induce more agricultural investment, and permit enhanced municipal water resource planning.

VII. Reclamation's Environmental Quality Account Analysis

The 1983 Principles & Guidelines describe the Environmental Quality Account:

> (1) the EQ account is a means of displaying and integrating into water resources planning that information on the effects of alternative plans on significant EQ resources and attributes of the NEPA human environment, as defined in 40 CFR 1507.14, that is essential to a reasoned choice among alternative plans. Significant means likely to have a material bearing on the decisionmaking process.
> (2) Beneficial effects in the EQ account are favorable changes in the ecological, aesthetic, and cultural attributes of natural and cultural resources.
> (c) Adverse effects in the EQ account are unfavorable changes in the ecological, aesthetic, and cultural attributes of natural and cultural resources. [130]

Reclamation's conclusion that the NED Account alone is determinative of the choice of appropriative action overlooks the *P&Gs* suggestion that such a choice is not "reasoned" unless environmental values are taken into account.

VIII. Reclamation's Other Social Effects Account Analysis

The 1983 *P&Gs* explain how social effects should be considered:

> (a) *General.*
>
> (1) The OSE account is a means of displaying and integrating into water resource planning information on alternative plan effects from perspectives that are not reflected in the other three ac counts. The categories of effects in the OSE account include the following: Urban and community impacts; life, health, and safety factors; displacement; long-term productivity; and energy requirements and energy conservation.
>
> (2) Effects may be evaluated in terms of their impacts on the separate regions and communities affected.
>
> (3) Effects on income, employment, and population distribution, fiscal condition, energy requirements, and energy conservation may be reported on a positive or negative basis. Effects on life, health, and safety may be reported as either

[129] System Operations Report, p. 3-34, Table 3.18. Final PR/EIS Vol. 1, p. 2-63, Table 2.26.

[130] Principles and Guidelines (1983), Section 1.7.3 (a).

beneficial or adverse. Other effects may be reported on either a positive negative basis or a beneficial adverse basis.

. . . .

(b) *Urban and community impacts.*
(1) A formal treatment of urban related impacts is not required for implementation studies. However, types and locations of significant impacts, broken down by salient population groups and geographic areas, may be reported in the OSE account.
(2) The principal types of urban and community impacts are—
(i) Income distribution;
(ii) Employment distribution, especially the share to minorities;
(iii) Population distribution and composition;
(iv) The fiscal condition of the State and local governments; and
(v) The quality of community life.
(c) *Life, health, and safety*. Effects in this category include such items as risk of flood, drought, or other disaster affecting the security of life, health, and safety; potential loss of life, property, and essential public services due to structural failure; and other environmental effects such as changes in air or water quality not reported in the NED and EQ accounts. [131]

Section 2031 (b)(3) of the 2007 Water Resources Development Act identifies that it is important that feasibility studies use:

> (C) Assessment methods that reflect the value of projects for low-income communities and projects that use nonstructural approaches to water resources development and management. [132]

Reclamation's Final PR/EIS unfortunately fails to consider any of the important components set forth in the 1983 *P&Gs* or in Congress' policy statement.

a. Omission of Social Effects Analysis

Reclamation's Draft PR/EIS, January 2008, Section 5.14, purported to discuss the socioeconomic impacts of "all alternatives" set forth in the Draft PR/EIS.[133] "Water and related resources are economically important when, as part of an ecosystem, they produce goods and services that benefit people, impose costs on them, or both."

[131] *Id.*, Section 1.7.5 (a).

[132] Pub L. 110-114, Section 2031 (b)(3). 10 Stat. 1082.

[133] Draft Planning Report/Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, January 2008, p. 5-60.

Reclamation's Draft PR/EIS discusses effects upon the value of goods and services, jobs and incomes, distribution of costs and benefits, socioeconomic structure and other issues relevant to several, but not all of the proposed alternatives. The Final PR/EIS omits any discussion of any of the socioeconomic effects of any of the proposed alternatives remaining in the Final PR/EIS. The Final PR/EIS is legally inadequate in this omission. Washington State Department of Ecology's inclusion in its Draft Supplemental EIS of discussion of the socioeconomic effects of its state alternatives, now removed from the Final PR/EIS is no excuse for Reclamation's omission of discussion of socioeconomic effects of its federal alternatives. Reclamation may not dodge the mandates of the National Environmental Policy Act merely because its constrained view of its congressional authorization has caused the State of Washington to withdraw from its heretofore cooperative environmental analysis.

The project area of all the alternatives considered in the Final PR/EIS contains a population which is significantly Hispanic, and also includes a significant population of members of the Yakama Indian Nation. According to the U.S. Bureau of the Census, the Hispanic population in America grew from 35.3 million in 2000 (12.5 % of the American public) to 41.3 million people as of July 1, 2005 (14.1 % of the American public), 33.9 % of whom were below the age of 18, and 60 % from ages 18-64. The 2000 census showed that 8.8 % of Washington State's population was Hispanic. By comparison, in both Yakima County and Franklin County, 30.1% to 47% of the population was Hispanic. Washington's 1999 per capita income was $22,973. By comparison 1999 per capita income in Yakima County was $15,606. Franklin County's 1999 per capita income was $15,459. In Washington state, 10.6 % of the population falls within the statistical definition of poverty. 27.2% of the population of Yakima County falls within the definition of poverty. 26% of the population of Franklin County falls within that definition. The Final PR/EIS adequately identifies the whereabouts and describes the low income populations in Yakima County,[134] but fails to evaluate the benefits to those populations of the respective alternatives.

Reclamation's Final PR/EIS does not address the relationship of existing water entitlements under Washington State law and rights to additional water that may created through any of the evaluated alternatives. The Yakama Nation contends that any newly available water supply within the reaches of the regulatory jurisdiction of the Nation must be managed by the Nation as part of its 1855 Treaty Right for instream flow for fish and other aquatic life. The effect of the evaluated alternatives on the Yakama Nation's existing rights must be discussed.

b. Inadequate Analysis of Environmental Justice

Section 1-101 of Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low income populations and communities as well as the equity of the distribution of the benefits and risks.

[134] Final PR/FEIS, p. 4-301 through 4-303, Tables 4.53, 4.54.

> To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

In many instances, analysis of the environmental justice impacts of a project balance the benefits of affirmative action, versus the negative impact upon traditionally disenfranchised populations. In this case however, as with the analysis of effect on fisheries, an analysis of environmental justice impacts should balance the detrimental effects of no action versus the positive effects of action upon traditionally disenfranchised populations. Inaction obviously affects these populations adversely. Positive action, construction of the Black Rock Reservoir alternative, for example, affects them positively.

But the benefits of Black Rock Reservoir construction do not inure only to minority or traditionally disenfranchised populations. Those benefits also inure to the general population, improving the general economic stability and lifestyle of the population. Where the population is as significantly Hispanic as is Yakima County, this general social effect can be observed to raise the overall standard of living of a broad minority population. More generally, the availability of more water in municipal and agricultural contexts affects the productivity of resources, including both urban and agricultural land. It stimulates economic activity, creates greater income, greater purchasing, and greater taxation potential.

Reclamation's feasibility study should study and compare the negative social effects of the No Action alternative and the positive effects of the Black Rock Reservoir alternative on nearby populations.

IX. Conclusion

Reclamation should not proceed to a record of decision based on its Final PR/EIS. The document is unnecessarily constrained by Reclamation's interpretation of its authorizing statute. The document is inadequate under the National Environmental Policy Act in that it does not consider climate change or the socioeconomic impacts of its proposed inaction. The document's economic studies artificially inflate cost, relying on imprecise data and very large contingency assumptions necessary because of imprecise data, and artificially underestimate benefits, relying on artificial computer modeling assumptions and failing to consider full economic values. The hydrologic models on which the document relies are inadequate in design, as they do not integrate the hydrology of the Yakima and Columbia River systems. The economic model on which the document relies is unreasonably constrained by adopting the conclusions, and therefore assumptions, of the hydrologic model. The document is also inadequate in that it ignores the full watershed approach required by Pub. L. 103-434, an approach heretofore followed in good faith by the State of Washington, the Yakama Nation, affected local irrigation districts, counties and communities.

YPRJ-3.00

❖ PORT OF SUNNYSIDE ❖
P.O. BOX 329 ❖ SUNNYSIDE, WA 98944 ❖ PH: 509-839-7678 FAX: 509-839-7462

Mr. Gerald Kelso
Bureau of Reclamation
Upper Columbia Area Office Manager
1917 Marsh Road
Yakima, WA 98901-2058

February 2, 2009

RE: COMMENTS ON THE YAKIMA RIVER BASIN WATER STORAGE FEASIBILITY STUDY

Dear Mr. Kelso;

The Port of Sunnyside is a municipal corporation, and its statutory authority and duty is to provide economic and industrial development within the Port District. Our district is predominately agricultural and the industries which the Port serves are primarily related to agriculture. Water shortages affect not only farmers, but also the related industries. The Port strives to also develop industries not directly related to agriculture. The Port has long felt that recreation is an underdeveloped industry within the District, and the Port desires to promote feasible recreational opportunities. Most, if not all, of the land within the proposed Black Rock Reservoir project is within the boundaries of the Port District. The Black Rock Reservoir would provide excellent recreational opportunities with potentially great economic benefits to our district and surrounding communities.

The Port is disappointed in the outcome of this study, it did not fairly consider all the impacts. Its conclusion of "No Action" is the worst possible alternative. The recreational component of this project was completely ignored as was the value of agricultural products not being produced, due to lack of water on an annual basis. This type of study does not present a fair and unbiased representation of the benefits of this type of project. Yakima Basin Storage Alliance completed the "Recreation & Economic Development Analysis of Lands Around Black Rock Reservoir" in January 2007. This report was submitted to BOR for consideration and inclusion into BOR's Yakima River Basin Storage Assessment. With regard to this study, it was because of encouragement from BOR that the study was completed. We are confused that after encouragement from BOR, the information was not implemented. However, while we understand that recreation was outside the scope of what the BOR was permitted to consider, it could very well have been referenced. This is very disappointing. The Port continues to believe the recreation component of this project would have a great and positive impact on the surrounding communities.

Thank you for considering our comments.

Sincerely,

Amber A. Hansen,
Executive Director

cc:
Commissioner Mike Leita
Yakima County Commission
Yakima County Courthouse
128 N. Second Street
Yakima, WA 98901

Commissioner Max Benitz, Jr.
Benton County Commission
PO Box 190
Prosser, WA 99350

Charlie de la Chapelle
3206 Home Dr.
Yakima, WA 98902

X:\Black Rock\BOR Recreation Letter 2 .wpd

ENV-6.00

BOARD OF YAKIMA COUNTY COMMISSIONERS

☆ District One
Michael D. Leita

☆ District Two
Kevin J. Bouchey

☆ District Three
Rand Elliott

February 3, 2009

Bureau of Reclamation
Upper Columbia Area office
Attention: Mr. David Kaumheimer
Environmental Program Manager
1917 Marsh Road
Yakima, WA 98901-2058

Subject: Final Planning Report and Environmental Impact Statement, Yakima River Basin Water Storage Feasibility Study, Kittitas, Yakima and Benton Counties, Washington

Dear Sir,

We urge the Bureau of Reclamation (BOR) to postpone a federal Record of Decision on Reclamation's "No Action Alternative" (NAA) recommendation contained in the above report.

The Planning Report/Environmental Impact Statement (PR/EIS) is substantively and procedurally flawed, and is not inclusive of basin water manager input or supported by the basin dynamics at large. The NAA will adversely constrain and prevent future efforts to improve water supply and habitat within the Yakima River Basin. The NAA constraints will have an acute impact on this basin given its historical water dependence for irrigated agriculture, existing over allocation of surface water, and shrinking groundwater resources to meet present production demands plus future municipal growth. Additionally, the NAA does not give adequate recognition of shrinking water supplies due to global warming.

As a Cooperating Partner in the PR/EIS, Yakima County's involvement was limited to review of the pre-public review draft which the Bureau calls Administrative Draft.

We reiterate our constructive comments on the draft PR/EIS below. Unfortunately, our previous comments along with others did not result in any substantive change in the final document.

The analysis of the Agricultural economy of the Yakima Basin seriously underestimates the inefficiencies and damages associated with pro-rationing of irrigation water and droughts. This underestimation of the economic effect is so skewed that the prospect for change or relief in the pro-rationing system, the Storage Capacity of the Yakima Project, or the rationale for increased conservation are all equally set back by the PR/EIS.

It is important to note that no agricultural dams built in the last century had a benefit to cost ratio of one or more. This has only been achieved by multi-purpose dams which include hydroelectric generation. The economic difficulties faced by agricultural related proponents were recognized by Congress in 1902 with the failure of the Desert Land Reclamation Act to achieve Congress's goals for organized and efficient management of the water resources in the western United States. As a result the Bureau of Reclamation was formed. The Yakima Basin was the centerpiece of early actions by Reclamation, which have fostered the social and economic development of the Yakima Basin we see today. Therefore, the use of a BCA ratio as the major justification for accepting or rejecting alternative actions is an inappropriate consideration for agricultural dams and improved habitat restoration achievements.

Our reviews of the chapters and drafts indicate a "pre-decisional bias" against large storage alternatives or operational modifications of the current project existed in Chapter 2 before a complete analysis was performed for the subsequent chapters in the PR/EIS.

The PR/EIS does not follow the recommendations in the P&Gs for consistently dealing with risk and uncertainty, and is therefore substantively and procedurally deficient.

The PR/EIS draws an artificial line at the mouth of the Yakima River and does not consider beneficial effects downstream of that point, as required by the P&Gs and in furtherance of the policy of the State of Washington for the Columbia River Water Supply Development Account, which funded the State portion of the PR/EIS.

The PR/EIS fails to adequately address the effects on the Endangered Species Act listed species in the context of the Steelhead DPS as a whole, and this information should be included.

The PR/EIS flow management scenarios were developed in the absence of the evaluation and analysis tools that now exist and were funded for this purpose. Conclusions were drawn while these results or analyses were unavailable. All alternatives, including the no action alternative, should have their flow management scenarios optimized in light of these new tools. This is necessary, not only to meet the goal of the PR/EIS relative to anadromous fisheries and water supply, but also from the standpoint of mitigation for the infrastructural elements of each alternative.

In summary, the PR/EIS fails to adequately incorporate existing and future impacts to the Yakima River Basin and is negligent to the basin's future vitality at all levels. Therefore, we urge the BOR to postpone a federal Record of Decision on Reclamation's "No Action Alternative" recommendation. The PR/EIS must conform better to the P&Gs, include appropriate NEPA elements, and provide an integrative basin approach to habitat and water supply future needs.

The following comments are additional and are in relation to the Final PR/EIS:

A number of comments have been deferred from Bureau consideration to the State Supplemental EIS. This includes the Columbia River water management scenario inclusive of Yakima basin. We consider that these issues cannot be dismissed without Reclamation treatment because the comments apply equally to both, and are required by NEPA.

After review of the responses to our prior comments regarding the agricultural economic analysis, we have concluded that the analysis has more shortcomings than we originally thought. The data used in the EIS is State-wide tree fruit production and not specific to the Yakima basin, so that the effect of basin drought is lost in the continuing increase in tree fruit production for other areas of the state, which were unaffected by drought conditions in the Yakima Basin. The increase in State-wide production is especially true for the Yakima drought period 1992 through 1994. Also, employment growth from 1990 to present in Western Washington, and in Central Washington locations adjoining Yakima, has ranged from 30 to 40 percent according to the Bureau of Statistics. Yakima growth was less than 10 percent for the same period. Therefore, the conclusions reached in the Economics Technical Report for the Yakima River Basin selection that drought effects are not severe in the Yakima basins is not surprising based on their data, and cannot be supported.

The P&Gs are clear that the economic effects of a project or action under consideration should be analyzed using two separate accounts – damage reduction and increases in efficiency. The economic analysis in the Final PR/EIS has only one account and appears to use neither method prescribed in the P&Gs. This has resulted in underestimation of drought effects or benefits of increased water supply reliability.

The comments received by the Bureau and available in this draft indicate that many reviewers had similar comments to those submitted by Yakima County, yet these comments were dismissed without document changes or substantive rationale. There were significant comments on climate change, future supplies and

demands, economics, groundwater and limits to fisheries evaluation. We find the response to the comments submitted by Dr. Jack Stanford on water transfer to be especially inadequate given Dr. Stanford's long history of involvement in the Yakima Basin through studies funded by Reclamation, and his intimate knowledge of the limiting factors on the Columbia River through his tenure on the Northwest Power Planning Council's Independent Scientific Review Panel. He was one of the primary authors of Return to the River which drives salmonid restoration of the Columbia System to this day. This reinforces the conclusion that the Final PR/EIS does not include the concerns of the basin, nor take advantage of the expertise of individuals or organizations which are best suited to comprehensively address the known constraints of both river systems.

The pattern of "pre-decisional bias" against changes to the physical structure or operation of the existing Yakima Project are apparent in tables 2.62 through 2.66. There is no rationale given for why the Category and Subcategory weights were changed from the Draft. The Water Resources weight was substantially decreased from 0.28 to 0.20 and the water quality weight increased from 0.32 to 0.36, which includes a very high weighting of 0.73 for seepage. This was maintained after the seepage study results were released with almost no impact – only cost, which should be accounted elsewhere. The reduction of the Water Resources weight reduces the value of water for all uses, including habitat and the needs to offset climate change, so that all basin storage or water supply reliability options are penalized by Reclamation committee decisions. For example, if the weights would have remained the same as earlier, the Black Rock EQ total would have been positive at 1.1312. The changes in weighting have reduced the EQ total for Wymer, due to decreased beneficial effect from Water Storage, and we disagree.

To summarize, we consider that the PR/EIS has substantial shortcomings noted above and we cannot support the PR/EIS or the NAA. Further, we ask for postponement of a Record of Decision that would be based on this study as it will have a debilitative effect on public discussion of water supply and habitat alternatives and the attainment of a comprehensive solution. The ROD will remove substantive solutions from the table such as storage and water transfer. Instead, we are calling for a renewed discussion on the suite of options based on mutually and publically agreed upon selection criteria. We recommend an integrative resource-based approach which includes these criteria and truly incorporates habitat and water supply future conditions.

Board of Yakima County Commissioners

J. Rand Elliott, Chairman

Michael D. Leita, Commissioner

Kevin J. Bouchey, Commissioner

cc: Board of County Commissioners – Benton County
Board of County Commissioners – Klickitat
Board of County Commissioners – Kittitas
Honorable Congressman Doc Hastings
Honorable Senator Pat Murray
Honorable Senator Maria Cantwell
Jeff Tayer – WDFW
Alex Conley, Executive Director, YBFWRB
Jim Milton, Director, YBWRA
Chuck Klarich, YBSA
Derek Sandison, DOE
Secretary of the Interior

ENV-6.00

Floyd N. Hodges, Ph.D.
5403 South Olympia St.
Kennewick, Washington 99337
509-582-6748 fhodges@3-cities.com

February 2, 2009

Bureau of Reclamation
Pacific Northwest Region
Upper Columbia Area Office
1917 Marsh Road
Yakima, WA 98901-2058

Dear Sir:

The following comments concerning the Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study are submitted on behalf of Heart of America Northwest.

Early seepage models indicated that seepage from the Black Rock Reservoir would move beneath the Hanford Site and increase mobilization of contaminants at the site. As a result of this concern a seepage mitigation model was developed for the proposed Black Rock Reservoir (TS-YSS-25).

This Technical Report has been appended to the Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study. Unfortunately, the text within the EIS does not adequately address the uncertainties of the seepage remediation model, many of which are addressed within the report.

In the Executive Summary of the EIS it is stated that:

> "Model Results suggest these mitigation measures effectively would eliminate nearly all impacts to groundwater conditions at the Hanford Site and eliminate any impacts to the existing contaminants at the site."

In Section 2.4.1.1 of the EIS, which outlines the proposed seepage remediation system, none of the uncertainties in the analysis are presented, simply an assurance that all seepage will be taken care of. However, in the model report, after saying that use of all of the suggested barrier systems it should be possible to reduce groundwater flow onto the Hanford site by 99%, it goes on to say that:

> "Additional geologic investigations would also help to refine understanding of key geologic structures that are an integral part of the current Black Rock conceptual model. The additional data would not only improve the Black Rock conceptual model, but also ***reduce the uncertainty associated with the current model application."*** (emphasis added)

Data on the structure and hydraulic properties of the system under consideration are inadequate for a definitive answer to the infiltration problem. In addition, it is uncertain, given the heterogeneity probably inherent in local geology, that models, that must use average values over what ever cell size is chosen, are capable of adequately representing system response.

Another serious problem with the analysis of seepage remediation, not addressed in the EIS, is seismic response. In Section 2.2.2 seismic danger to the dam is addressed. The proposed dam would be adjacent to a major fault that may be capable of producing earthquakes of magnitude 6-7+ and an estimated mean PHA of about 0.95 acceleration of gravity (g). The EIS maintains that a properly constructed, compacted rockfill dam would be resistant to this degree of shaking. However, the proposed seepage mitigation structures, which would be composed of cement and grout, would be prone to brittle failure under these conditions, rendering the mitigation structures largely ineffective.

In conclusion:

1. Site characterization and available modeling are inadequate to support the conclusion that seepage will not affect Hanford groundwater; and

2. Seismically induced brittle failure (fracture) of cement and grout components of the seepage mitigation system would render them to a large extent useless; and

3. Statements within the EIS stating with certainty that Hanford groundwater would not be affected by seepage from the proposed Black Rock dam should be removed or modified to express the uncertainties indicated above.

Sincerely yours,

Floyd N. Hodges

Floyd N. Hodges
Professional Hydrogeologist
Washington Lic. No. 1715

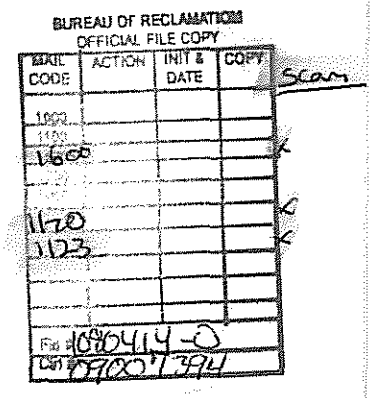
Submitted electronically Feb 2, 2009.

Leo Bowman
District 1
Max Benitz, Jr.
District 2
James Beaver
District 3

Board of County Commissioners
BENTON COUNTY

David Sparks
County Administrator

Loretta Smith Kelty
Deputy County Administrator



02 February 2009

David Kaumhaimer, Environmental Program Manager
United States Bureau of Reclamation – Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

Re: Yakima River Basin Water Storage Feasibility Study – Final Planning Report and EIS

Dear Mr. Kaumhaimer:

Benton County appreciates the work by the US Bureau of Reclamation (Reclamation) in developing the *Yakima River Basin Water Storage Feasibility Study* (Study) recently issued by your office. As you are aware, the County has been an active participant in this dialogue throughout; and we thank you for the opportunity to review and comment on this report.

Reclamation oversees substantial water storage and conveyance infrastructure that was built as part of the "Yakima Project" during the first third of the 20th Century. However, while the Project's facilities ceased to expand after 1933 (Cle Elum Lake); agriculture, industry, and communities have continued to grow. The Yakima Project's capacity to meet all water needs has been surpassed; and growth and accelerating drought cycles are combining to put strains on the system that the region can no longer absorb the way it could previously. As such, Benton County's primary goal is development of a comprehensive, regionally-supported program of storage and non-storage measures that assure a reliable Yakima River Basin water supply for current and future needs. We have been consistent and forceful in pursuing this goal for many years.

Evaluation and Conclusions

Through its process of creating the Study, Reclamation developed three guiding goals:

- Improve anadromous fish habitat by restoring the flow regimes of the Yakima and Naches Rivers to more closely resemble the natural hydrograph. Through a collaborative process with the Storage Study Technical Work Group (SSTWG) Reclamation developed nonbinding flow objectives to assist in measuring goal achievement.

- Improve the water supply for proratable (junior) irrigation entities by providing a not less than 70-percent irrigation water supply for irrigation districts during dry years relying on diversions subject to proration. This 70-percent goal equates to 896,000 acre-feet of proratable entitlements.

- Meet future municipal water supply needs by maintaining a full municipal water supply for existing users and providing additional surface water supply of 82,000 acre-feet for population growth to the year 2050.

When reviewing the four alternatives presented in the Study, we used these three goals as the primary criteria. In its decision-making process, it appears that Reclamation has also added positive benefit-cost ratio as a criterion. The Study finds that "natural resource benefits" (guiding goal #1, essentially) would positively accrue under all three of the Joint Alternatives. It also found that all three Joint Alternatives would be able to satisfy municipal needs (guiding goal #2). However the Study concludes that only the Black Rock Alternative would also be able to consistently meet the irrigation supply goal (#3). We therefore summarize this analysis as concluding that Reclamation finds the Black Rock Alternative to be the best chance to most successfully meet or exceed all three guiding goals collectively.

It therefore appears that monetary cost is alone, or at least is the prevailing reason why Reclamation defers to the No Action Alternative as its Preferred Alternative in this Study. However, we do not believe that enough inputs have been taken into account in contemplating the benefit-cost analysis. In our Recommendations below, we ask that more variables be considered.

Conclusions

Benton County concludes that the current water supply goals cannot be achieved by any single or combination of Alternatives currently being evaluated internal to the Yakima Basin, and most certainly cannot be achieved through the No Action Alternative. Either importation of water from the Columbia River via a project such as the Black Rock Alternative is required, or the goals must be significantly modified/reduced with respect to water supply needs. Benton County supports continued study of the Black Rock Alternative with emphasis on refining cost numbers and including all ancillary and corollary habitat and economic benefits of Black Rock in the benefit-cost analysis.

As we have stated previously, we further urge Reclamation [and Ecology] not to be constrained to limiting the final decision to a single stand alone alternative. Combinations of alternatives should be evaluated in the context of this study being an element of the on-going Yakima River Basin Water Enhancement Project (YRBWEP) program.

Recommendations

Based on our conclusions, Benton County recommends:

- That the goals of the Study should be considered as a sub-set of the YRBWEP goals; and that the Study should be considered a part of and a continuation of the YRBWEP.
- That the proposed Black Rock Alternative be fully-examined and not merely cast-aside as being 'too expensive'. A more complete examination would include:
    - The synergistic effects of a comprehensive program of habitat restoration coupled with enhanced flow regimes for anadromous fisheries. This should include an estimate of the economic benefits of such fisheries, reflecting the least cost alternative of achieving similar accomplishments.

- A quantitative analysis of climate change on the Yakima Basin's water resources and its effects on the three "guiding goals".
- An analysis of integrating pump-generation as a renewable energy component of the Black Rock Alternative.
- The economic benefits of recreation that would accompany a large reservoir such as Black Rock.

In order for this additional work to be completed, and for the results to be properly melded with the parallel work of the Washington Department of Ecology, we request an appropriate extension of the time limit for the work on the order of 12-18 months, during which time final decisions will be made.

Benton County appreciates the work of the planning team that developed the Study, and the opportunity to provide comment. We commend the collaborative effort involving federal and state agencies, tribal nations, stakeholders, and the public at large. The County looks forward to continuing to work with you to find creative solutions for complex problems in the Yakima Basin.

Sincerely,

BOARD OF COUNTY COMMISSIONERS

Max E. Benitz Jr., Chairman

cc: Board of County Commissioners, Kittitas County
Board of County Commissioners, Klickitat County
Board of County Commissioners, Yakima County
Derek I. Sandison, Central Region Director, Washington Department of Ecology
Jeff Tayer, Region Three Director, Washington Department of Fish and Wildlife
Yakima Basin Fish and Wildlife Recovery Board
Yakima Basin Storage Alliance

ajf

Yakima County Auditor

Corky Mattingly, Auditor
Diana Soules, Assistant Auditor

February 2, 2009

Mr. David Kaumheimer
Environmental Programs Manager
Bureau of Reclamation
Upper Columbia Area Office
1917 Marsh Road
Yakima, Washington 98901-2085

Re: Final PR/EIS Yakima River Basin Water Storage Feasibility Study

Dear Mr. Kaumheimer:

In my March 31, 2008, letter to you regarding the draft PR/EIS for the Storage Feasibility Study, I commented that:

> The BOR has not taken into consideration the full economic and ecological impact that Black Rock would have on this area, Washington State and the United States. The presence of Black Rock would provide for dependable and abundant agricultural production and the expansion of tourism in the Yakima River Basin.

The Final PR/EIS acknowledges my comment, but makes no effort to improve or expand consideration of the full economic and ecological benefits of the Black Rock alternative. Rather, the Final PR/EIS inflates cost estimates for the project and artificially minimizes its benefits, while at the same time finding that significant improvements to Yakima and Middle Columbia River fisheries could be realized through transfer of Columbia River water through the lower reaches of the Yakima River.

I am a native of the Yakima Valley. My grandparents were pioneer farmers in this area. I am gravely concerned about the future availability of water to this valley. While "no action" may be acceptable to the Bureau of Reclamation, it is not acceptable to me, nor I believe to the people who live and work in Yakima County. In my opinion, it would be better for the Bureau of Reclamation to merely postpone indefinitely any record of decision relying upon the Final PR/EIS, so as not to interfere negatively in a more constructive conversation about how we are going to solve this problem. Reclamation's affirmatively taking "no action" helps no one and merely avoids the obvious need for action.

Sincerely yours,

Corky Mattingly
Yakima County Auditor

128 North Second Street • Room 117 • Yakima, Washington 98901 • (509) 574-1400 • FAX (509) 574-1341

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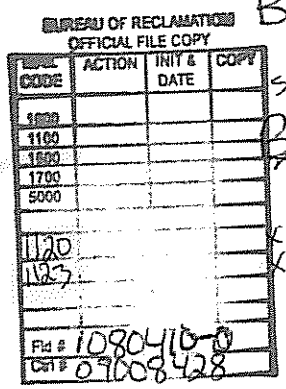
Princeton.
B.C. V0X 1W0



29-1-09

Dear Sir,

I am writing to you on behalf of the Vermilion Forks Field Naturalists in Princeton, British Columbia, the Similkameen and Tulameen Rivers flow through Princeton and thence down into the Columbia, we are pleased that the Bureau have rejected the plans for the Black Rock & the Wymer Dam developments, the effects on the environment and the fish population in particular would have been terrible besides the fact that seepage from the dam would risk accelerating radioactive contaminants into the Columbia River.

Yours sincerely,
Trish Reid
(Regional Director)
B.C. Nature