

LOWER COLUMBIA BASIN AUDUBON SOCIETY
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Dear Mr. Kaumheimer:

Introduction:

Thank you for this opportunity to comment on the Draft Planning Report / Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study issued in January 2008. We have many concerns with the report and associated projects.

The report has been constructed as a draft plan, draft environmental impact statement and a feasibility study reviewing two major dam and reservoir projects and three state alternatives. The projects and alternatives have little in common except being found in the Yakima River basin. The report does not name a preferred alternative or indicate how a mix of the projects and alternatives will provide sufficient water for fish and agriculture. The reader is left to ponder whether the agency is considering going forward with all the projects and alternatives or a mix. The report falls short on comparing and contrasting these alternatives or how they would impact each other if a mix were selected.

The report attempts to do too much at one time and in the end, fails to adequately address how these projects and alternatives could accomplish the mission of providing water for fish, agriculture and urban areas in the right amount at the right time. The report fails to adequately address the impacts of these projects and alternatives on the environment and our cultural heritage. The report fails to adequately address the impacts of the Black Rock project on Hanford ground water. Serious geological questions remain unanswered. The Black Rock and Wymer dam project's impact on regional electrical supplies has not been addressed. The Recreational report is flawed and grossly exaggerates the potential visitor usage.

We strongly recommend that the report be reclassified as a draft plan and feasibility study only. Additional information is needed on Hanford ground water and geological concerns. More information is needed on the engineering details of the dams. On the ground surveys of wildlife, native plants and cultural resources need to be done. Simply stated the report does not meet the rigorous standards of the National Environmental Policy Act for Environmental Impact Statements. We realize this will be costly in terms of time, labor and printing but a comprehensive, in depth EIS utilizing all available data, subjected to intense peer and public review can save billions of dollars and avoid environmental catastrophes. If you decide to continue viewing this report as a draft environmental impact statement, we insist that the report be submitted to a panel of independent experts in the various disciplines, such as the National Academy of Sciences, to review the report in detail and attempt to resolve these shortcomings, before writing the final report.

The remainder of my comments will focus on the Black Rock proposal.

Ground Water Impacts:

Large plumes of highly contaminated ground water lie beneath the Hanford Reservation, a constant unseen threat to the Columbia River.

For the most part, these contaminated ground waters are stable and contained deep underground. We must not allow highly toxic contaminants to be flushed into the Columbia River.

The Department of Energy is striving to monitor, remediate and shrink these plumes, but they need time. Our first line of defense is to reduce the natural and artificial recharge of Hanford ground water.

The proposed Black Rock dam would be within five miles of Hanford's western boundary. The dam would be 755 feet tall and well over a mile long in length, holding 1.3 million acre feet of water. The dam would overlook Dry and Cold creeks, intermittent stream courses that meander onto the Hanford Reservation.

The study predicts water would seep from the reservoir at the rate of 31 cfs and move onto the Hanford Reservation. The report indicates that this almost quadruples the ground water moving under Dry and Cold creeks. This does not sound like a lot of water, but it amounts to 30,000 acre feet per year – or the equivalent of an underground lake one foot deep covering almost 47 square miles creeping under Hanford. Another underground lake of that dimension would be added every year, relentlessly building and pushing those contaminated pools closer and closer to the Columbia. The report also states in Table ES.6 that the total ground water seepage towards the Columbia River would be 57 cfs. The study does not indicate why only 31 cfs would flow under Hanford, I can only infer from this that there is the distinct possibility that the 31 cfs prediction could climb to 57 cfs or a 84% increase over the present prediction.

The study does not include detailed maps of the Black Rock project or Dry and Cold creek drainages. This is a serious deficiency which inhibits the public's ability to evaluate the proposal.

The increased ground water flows could easily mobilize the contaminated pools under Hanford and push them into the Columbia River initiating an environmental disaster that would be almost impossible to control or clean up. We can not allow this to happen. The Department of Energy is currently studying the possible impacts of seepage from Black Rock on Hanford's ground water. The report will be completed sometime in 2008 and will be included in your Final Report. Your draft Environmental Impact Statement is fatally flawed by the failure to wait a few short months to include the Department of Energy's report in the draft EIS. The public must have the opportunity to make an informed review and comment on this vital issue. You are rushing to a decision without some of the most vital facts.

Seismicity / Geological Threat:

The Black Rock dam would lie in an area of high earthquake potential. The report is vague and difficult to understand as to the extent of the threat. The report states on page 2-9 "at a return period of 10,000 years, the estimated mean PHA is about 0.95g (acceleration of gravity), a level of ground shaking that might be associated with the occurrences of magnitude 6 to 7+ earthquakes....". I have no idea what that means. Is "6 to 7+" the

Richter scale or some other form of measurement? How high is the potential frequency or magnitude of the earthquake threat? The report really does not give the reader any concrete idea of the threat from seismic activity. NEPA requires EIS's to be written in a manner understandable to the general public. Once again the report fails to meet the NEPA standards.

The dam would be constructed on the Black Rock fault and an additional thrust fault. The report provides only a very vague idea as to the exact location of these faults. I would hope this information is available and am disturbed that it has not been released to the public in this report.

The right abutment of the dam would rest on Horsethief Mountain. We are greatly concerned as to the fitness of Horsethief Mountain to function in this important role as the right hand foundation for a 755 foot high dam or its ability to safely hold back 1,300,000 acre feet of water.

The report states on page 4-37:

“Landslides are common in the Yakima Fold Belt and generally form on the over-steepened south limbs of the anticlines. Several ancient landslides have been identified on the Horsethief Mountain anticline, which comprises the right abutment of the proposed Black Rock dam (Columbia Geotechnical Associates, 2004). The steeply dipping orientation and layering of the low-strength sediments and the presence of the Horsethief Mountain Thrust Fault along the southern edge of the reservoir valley present a potentially hazardous combination. Though the slide areas are currently stable, seepage from the reservoir into the presently unsaturated basalts and interbedded sediments would increase pore pressures within those materials and would likely reactivate some of those slides as well as initiate new landslides along the reservoir rim and dam abutments.”

The Bureau of Reclamation's Appraisal Assessment of Geology at Black Rock Damsite, Technical Series No. TS-YSS-5 (December 2004) states on page 32:

“This high level of shaking leads to the potential of causing lower density embankment or foundation saturated soils to experience liquefaction, which is essentially a loss of strength that can result in large slope failures.”

This statement should have been included in the EIS and been easily available to the public and not lost in a supporting document.

The above cited report provides photographs of Horsethief Mountain which indicate the location of some of the landslides, but the photos only vaguely indicate where the dam would abut the mountain. These photographs should have been included in the feasibility study report. The report does not provide a detailed diagram of the proposed dam. We are provided with a very small diagram of the intake structure at Priest Rapids Dam but no drawings of the dam are offered for our review. The report again is severely deficient in this respect. The report should provide detailed diagrams of the dam, and its relationship to Horsethief Mountain and the faults. These diagrams should provide views across the face of the dam, a cross section of the dam and an aerial view of the dam and Horsethief Mountain.

The above cited geology report also states on page 35 concerning the design of the dam: “Large site investigation and materials testing programs will be needed to ensure the site conditions are well understood. Detailed analyses will be critical to ensure a safe design is developed. In addition to these measures, such a design would need to be independently

reviewed by an expert board of consultants.”

The EIS does not indicate if the dam design was ever reviewed by an “expert board of consultants”. We feel it is absolutely essential that this independent expert review be completed and included in a new draft EIS. Once again the draft EIS fails to include critical information. The EIS should be revised, expanded and reissued as a draft.

Columbia River Water Withdrawal:

The report is confusing and inconsistent as to the volume of water to be withdrawn from the Columbia River.

The draft EIS states on page 2-40:

“In years when the maximum water exchange occurs, Black Rock reservoir would release a total of about 600,000 acre feet annually.”

Table 2.19 indicates the average water pumped into Black Rock at 640,693 acre feet annually, with a maximum of 1,077,510 acre feet. The table predicts the annual amounts that would be pumped over a 25 year period. Two of those years would pump over 1,000,000 acre feet, five of those years would pump between 730,000 and 1,000,000 acre feet and nine years the total would be between 618,000 and 730,000 acre feet annually. The Bureau of Reclamation’s Appraisal assessment of the Black Rock Alternative Facilities and Field Cost Estimates, Technical Series No. TS-YSS-2 states in Table 1, the water exchange in wet and average years at 810,400 acre feet and 662,000 acre feet in dry years. Clearly, the maximum water exchange exceeds 600,000 acre feet.

The report must be consistent in this vital respect. Once again the report does not meet the NEPA standard for an EIS.

Columbia River / Hanford Reach Impacts:

The report only vaguely alludes to the impacts of withdrawing water from the Columbia River above Priest Rapids dam. The Columbia’s Hanford Reach lies just below Priest Rapids dam and above the confluence of the Yakima and Columbia Rivers. The Hanford Reach contains the very best spawning grounds on the main stem of the Columbia River and adequate water flows are absolutely critical to the successful spawning, rearing and passage of these fish.

The Black Rock project would withdraw, on average 396,847 acre feet of water from the Columbia at Priest Rapids dam in September and October. This is 62% of the average annual withdrawal according to Table 2.19. The project would divert this water from the Hanford Reach at the most critical time for spawning and exactly when flows are significantly declining. The report must provide detailed information as to the anticipated impact these withdrawals will have on the Reach.

The report should also acknowledge that three additional off channel storage reservoirs for Columbia River water above Priest Rapids are in the planning stage. What would the cumulative impact to the Hanford Reach be from all these projects?

Fish – False Attraction:

We have great concerns over the mixing of Columbia and Yakima River waters and the confusion it could cause migrating fish.

The report states Columbia River water entering the Yakima River from the project would range from .34% to 1.62% which is well under the 10% threshold laboratory experiments have indicated sockeye salmon can tolerate before discriminating between water sources. This is encouraging but we feel more testing should be done using Columbia and Yakima water on migrating fish native to these streams.

We recommend that feasibility studies be conducted to determine if Black Rock project waters from the Columbia Rivers could be diverted to create wetlands and completely avoid entering the Yakima River. These wetlands could be very beneficial to fish and wildlife and provide recreational opportunities.

Wildlife:

The wildlife section of the report quotes numerous studies but does not indicate if any on the ground wildlife and native plant surveys were done specifically for this project by Interior Department biologists. The report should be clear on this point and if these surveys were not done, they should be and the results published in a new revised draft EIS. The project would disrupt wildlife migration between the Hanford Reach National Monument and Yakima Firing Center and extending on to the Cascades. Land should be acquired linking the Yakima Firing Center to the Hanford Reach National Monument along the Columbia River. These lands should be added to the Hanford Reach National Monument. A second wildlife corridor should be established along the Rattlesnake Hills to assist wildlife in their movement.

The reservoir as designed would be of minimal value to fish and wildlife. The Black Rock reservoir should be redesigned to include a number of dikes, gates and pumps to maintain shallow wetlands as the reservoir is drawn down during the irrigation season. These wetlands would be beneficial to fish, wildlife and migratory birds. Maintaining these wetlands would enhance the scenic view as well as fishing and hunting opportunities.

Recreation:

The report foresees Black Rock Reservoir as a sportsman's paradise and outdoor recreation Mecca. The 8,640 acre lake and narrow band of shoreline that would be acquired are expected to attract boat and shore fishing, swimming, picnicking, water skiing, jet skiing, hiking, wildlife viewing, horseback riding and off road vehicles. The report estimates annual visitor days starting at 200,000 and quickly climbing to 700,000. We believe these projections are grossly exaggerated.

The report includes a recreational survey of existing lake and river recreational opportunities in the Yakima basin. These recreational opportunities are concentrated in the Cascade Mountains and have little in common with Black Reservoir which would be located in a treeless semi-arid area. The recreation report indicates the annual visitor count for the seven lakes and five rivers in the Yakima basin survey at only 108,012. It is hard to conceive how the construction of an 8,640 acre lake in an area with summer temperatures climbing to 110 degrees would attract seven times the current number of visitors in the study area. The report foresees 245,000 annual fishing days per year. Black Rock, as designed, would be deep and have steep slopes and virtually no shallow wetlands so critical to fish. We believe the potential for developing an attractive fishery in the reservoir are very small. The report forecasts 175,000 boat fishing visitor days and 175,000 water skiing and jet skiing visitor days. We believe the lake is far too small to support this number of boats, particularly when we take into consideration that the lake surface will shrink as the irrigation season progresses. The shrinking lake surface and steep slopes will also leave boat

launches and docks high and dry.

The report and survey ignores other recreational facilities virtually on the doorstep of Black Rock such as the Hanford Reach, Lake Wallula, Priest Rapids Lake, Moses Lake, the Columbia National Wildlife Refuge, Scooteny Lake, Potholes reservoir and the many parks along the Lower Snake River. We already have an abundance of slake water reservoirs which are far from being over crowded. Desert Aire, a small vacation community located at Priest Rapids dam has struggled to survive for many years and has never attracted the visitors predicted for Black Rock.

Electrical Supply Impacts:

The draft EIS's Table 4.12 portrays the costs and volume of electrical power required to pump water into Black Rock reservoir. The electrical costs are estimated to range from \$33 to \$93 million per year with an average of \$50 million. The report does not indicate what price rate these estimates are based on. We requested this information and were unable to secure an answer. We fear the rate is a highly discounted bulk rate fare below that paid by residents, businesses and irrigators. Rate information is a critical component in determining the true costs of the pumping operation and must be available for public comment.

The majority of the annual pumping will be done in September and October, when Columbia and Yakima River flows are declining. The table shows that on average 511 MW and 430 MW will be required in September and October respectively. How will this impact the supply of electricity available to other consumers? We must remember that the 396,847 acre feet of water pumped out of the Columbia during September and October to begin refilling Black Rock will not be available to generate electricity at Priest Rapids dam or the four other dams downriver. The market value of this foregone power generation should be computed in the actual cost of the project as well as the cost benefit ratio.

How will the large consumption of power in September and October for pumping coupled with the associated lost power generation impact the supply of electricity? Will this require BPA to buy expensive power out of the area, driving up the rates paid by local consumers.

Table 4.12 shows the average annual power required to supply Black Rock at 132 MW. The table also gives the average monthly power required for each of the twelve months. The total average MW for the twelve months listed on the table is 1649 MW's. How can the sum of the monthly averages be so many times higher than the annual average? It is hard to understand how the table could list the annual average at 132 MW when the monthly average for September is 511 MW and 430 for October. Obviously the table is in error. The table provides critical information and should be corrected and included in a new draft EIS and submitted to public review.

Cultural Impacts:

We are concerned that sufficient research and field study has not been done on historic properties and Native American sacred sites. Table ES.6 in the draft EIS states under Historic Properties and Indian Sacred Sites indicates that the number of properties and sites is "unknown". This is unacceptable. The presence of Sacred Sites can and rightly should bring a multi billion dollar project to a screaming stop. The question of impacts to historic and sacred sites must be answered and provided in the draft EIS. Once again critical information is missing and a new draft EIS must be done and submitted for public review.

Inadequacy of EIS:

It should be noted that the Bureau of Reclamation's Yakima River Basin Reservoir and

River Recreation Survey Report of Findings, Technical Series No TS-YSS-15 describes the Yakima River basin as encompassing Benton, Franklin, Yakima and Kittitas counties. It should be noted that Franklin County is east of the Columbia River and not in the Yakima Basin. Figure 4.11 on page 4-60 of the draft EIS portrays a map of the Yakima basin. The Figure erroneously places the Horn Rapids Irrigation Pump on the Columbia River and not its true location on the Yakima River. These are insignificant errors but they dampen our faith in the accuracy of the reports.

In view of the lack of information, pending reports and conflicting information contained in the study, we strongly recommend that the report be reviewed by an independent body of experts such as the National Academy of Science and a new draft EIS be developed and submitted for public review.

Conclusion:

We recommend that the Black Rock project be dropped from further consideration. The cost / benefit ratio of .16 to 1 is totally unacceptable and renders the project financially unsound. We believe that when costs of foregone power generation due to water diversions, scaling back recreational benefits projections to a reasonable level and the costs of attempting to prevent ground water incursion onto the Hanford Reservation are figured into the equation the cost / benefit ratio will drop far below the present .16 to 1. We believe the impacts to migratory fish using the Hanford Reach alone make this project unacceptable.

Most importantly we believe the geological conditions at Black Rock coupled with the problem of ground water incursion on Hanford render the project unsafe. We do not believe these conditions can be fixed or mitigated. You can not fix a fault line and we are dealing with two fault lines on this project. The threat of major earthquakes is high. Horsethief Mountain, the critical right abutment of the dam is very unstable and prone to liquefaction which means we could completely lose Horsethief Mountain during an earthquake releasing the entire reservoir in a massive wave across Hanford. The threat of 30,000 or more acre feet of ground water per year pushing, building and forcing contaminated ground water under Hanford into the Columbia River is also unacceptable.

In spite of all this, if the decision is made to pursue the Black Rock project we recommend the following:

- i. The current draft EIS is unacceptable, it must be redone and reissued to the public for comment
- ii. Convene a group of third party, disinterested experts, such as the National Academy of Science to thoroughly peer review the draft EIS.
- iii. State and federal legislation must be passed granting a water right to fish for the 440,000 acre feet of water the project supposedly will leave in the Yakima River for fish. The water right should be held in trust by the US Fish & Wildlife Service, US Marine Fisheries Service and Washington Department of Fish & Wildlife.
- iv. Establish wetlands to prevent the mixture of Columbia & Yakima River waters entering the Yakima River.
- v. Establish dikes, flood gates and pumps to maintain shallow wetlands in the reservoir as irrigation draws down the reservoir water level.
- vi. Fully mitigate impacts to the Hanford Reach by increasing Columbia River flows to compensate for water diverted to Black Rock.

Alternatives:

What would we propose doing to manage water in the Yakima basin if the Black Rock project were dropped?

First of all the objective of Black Rock is not to expand irrigation in the lower Yakima valley but to increase Yakima River flows and provide a minimum of 70 % of the water commitments in dry years – which have been found to be around 6 out of every 25 years. We recommend studying the possibility of diverting water out of the Yakima River during the high spring runoff into artificially constructed wetlands along the Yakima River. Allow these waters to gradually seep into the aquifer, storing them as ground water, far from Hanford. These waters could then be tapped in dry years by pumps managed by the Bureau of Reclamation. Based on past history we would have 19 out of every 25 years to build up our ground water supply and then only tap it in dry years by carefully managed wells.

The wetlands created by these diversions would be extremely valuable to fish and wildlife and provide recreational opportunities far superior to those envisioned at Black Rock. This alternative would be far cheaper to construct and use only a fraction of the electrical power Black Rock would require.

We also believe an insurance or subsidy system should be in place to compensate Yakima valley farmers growing annual crops thus enabling them to let their fields lay fallow during drought years while concentrating the available water on permanent crops such as orchards and vineyards.

We also recommend pursuing water conservation and refitting irrigation systems to use the available water as effectively as possible.

We believe these measures could provide the water needed by fish, wildlife, agriculture and urban communities in the right amount at the right time.

Thank you for this opportunity to comment on these reports. We appreciate the hard work you and your staff have done over many months to produce the report.

Sincerely,

Richard J. Leumont
Chair
Conservation Committee