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Paper Division

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March 9, 2000

Mr. Greg Graham
Project Manager, Lower Snake River Study
U.S. Army Corps of Engineers, Walla Walla District
201 North Third Avenue
Walla Walla, WA 99362-1876

Dear Mr. Graham:

This correspondence comments on the December, 1999, Draft: Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement.

Boise Cascade supports reasonable and constructive efforts to benefit anadromous fish populations in the Columbia River System. Scientifically and economically sound fish restoration projects with recognized potential should receive first priority.

The draft Feasibility Report/Environmental Impact Statement proposes four alternative courses of action. Alternatives 1, 2 and 3 would have little economic effect on the Wallula Paper Mill and associated fiber farms.

1 | Alternative 4, Dam Breaching, would have a highly adverse economic impact on Wallula area operations. Capital costs for relocating water withdrawal points and removing sediment are estimated at \$15-25 million. Operating costs at the Wallula Paper Mill and associated fiber farms are estimated to increase by \$1.24 million per year.

Dam breaching would require constructing a water withdrawal system within the natural channel of the Snake River. Environmental permits for this kind of project may be denied. In fact, simply applying for the necessary water rights amendments would further overload the already profoundly burdened Washington State system.

Dam breaching should be considered only if it is scientifically demonstrated as a tool which will save anadromous fish from extinction. Even then, extreme measures such as dam breaching should not be undertaken unless expected

adverse economic impacts are avoided or substantially reduced through compensation or other methods of mitigation.

Detailed comments are attached, and are organized as follows:

- 1.0 Corporate Position Statement on Columbia River Salmon
- 2.0 Analysis of Dam Breaching – Alternative 4
 - 2.1 Case Description
 - 2.2 Table of Effects
 - 2.3 Capital Scope
 - 2.4 Areas of Critical Concern
 - 2.4.1 Electrical Power Rate Increases
 - 2.4.2 Water Availability at Fiber Farms
 - 2.4.3 Water Quality at Fiber Farms
 - 2.4.4 Water Quality at the Paper Mill
 - 2.4.5 Silt Deposition at the Paper Mill
- 3.0 Block Diagrams and Capital Estimate Summaries
 - 3.1 Block Diagram of Fiber Farm Water Intake Configuration
 - 3.2 Capital Estimate to Replace Fiber Farm Pumping Station
 - 3.3 Capital Estimate to Improve Fiber Farm Water Quality
 - 3.4 Block Diagram of Wallula Paper Mill Water Intake Configuration
 - 3.5 Capital Estimate to Supplement Wallula Paper Mill Water
- 4.0 Discussion of Dam Breaching
 - 4.1 Permitting and Water Rights
 - 4.2 Legal and Legislative Uncertainties
 - 4.3 Technical Uncertainties

Boise Cascade's Wallula area managers are grateful for the opportunity to comment on the U.S. Army Corps of Engineers Draft Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. Please direct any inquiries to me at the indicated address.

Sincerely,



Gene Foster
Mill Manager

Cc: Ben Groce
Guy Hurlbutt
Bob Meek
David New
Jim Kuntz – Port of Walla Walla

1.0 Corporate Position Statement on Columbia River Salmon

Boise Cascade Corporation Position Statement Restoring Columbia River Salmon

Salmon and other anadromous fish in the Columbia River System are a resource worth preserving. To the extent declines in fish populations are caused by manmade conditions, Boise Cascade believes that solutions exist to mitigate the harmful effects so that preserving these species can be accomplished. Decisions relating to preserving salmon runs, however, should depend on understanding the full array of man-made and natural conditions having an impact on the fish. Projects to preserve or hopefully enhance existing salmon runs should not be undertaken if they are futile in light of uncontrollable natural phenomena and/or have a devastating economic impact on an industry or community.

Boise Cascade supports reasonable and constructive efforts to benefit anadromous fish populations in the Columbia River System. These avenues may include exploring opportunities provided through fish hatchery programs; habitat restoration efforts, including correction of adverse impacts resulting from urban and industrial activities, dredge and fill operations, agricultural and forestry activities, and fish predators; reduction or elimination of fish harvest; and altering (including breaching) the four lower Snake River dams currently under review by various federal agencies.

Scientifically and economically sound fish restoration projects with recognized potential (such as fish-friendly turbines, barging, and predator control) should receive first priority. Efforts already underway should be continued, and, if possible, enhanced. Proposals needing further scientific scrutiny or which possess substantial economic disincentives should be delayed for further consideration. Dam breaching should be considered only if it is scientifically demonstrated as a tool which will save anadromous fish from extinction. Even then, extreme measures such as dam breaching, flow augmentation and additional habitat reserves should not be undertaken unless expected adverse economic impacts are avoided or substantially reduced through compensation or other methods of mitigation.

Efforts to save anadromous fish are best accomplished at the state, regional, and local levels, with oversight and financial assistance from the federal government. Federal agencies must formally recognize and support fish recovery plans at these levels.

2.0 ANALYSIS OF DAM BREACHING – ALTERNATIVE 4

2.1 CASE DESCRIPTION

Breaching the four Lower Snake River dams is Alternative 4, the "natural river drawdown" option. Lost hydropower increases electrical rates. Existing lakeside irrigation pumps and diversion points on the Snake River become useless. Sediment trapped by the four dams is released, increasing downstream suspended solids. Ice Harbor Fiber Farms must relocate irrigation water diversion points and upgrade filtration systems. Other Boise Cascade fiber farms are located along the Columbia River and their water sources are not directly affected by breaching the Lower Snake River dams. Suspended solids are expected to redeposit on the south side of the Columbia River at Wallula. The Paper mill must upgrade surface water withdrawal systems and will at least temporarily suspend barge shipments.

2.2 TABLE OF EFFECTS (1999 Dollars)

| NEGATIVE EFFECT | CORRECTIVE ACTION | CAPITAL (\$) | INCREMENTAL EXPENSE (\$/YR) |
|--|--|---------------------|------------------------------------|
| Elimination of the Ice Harbor Pool Removes Water from Irrigation Pumps | Replace/Relocate Ice Harbor Fiber Farms Pumping Stations ⁽¹⁾ | \$13-\$21mm | \$330,000 |
| Excessive Suspended Solids at Ice Harbor (Five Years) | Increase Filtration for Ice Harbor Fiber Farms Irrigation Systems ⁽¹⁾ | \$1.4-\$2.3mm | \$20,000 |
| Power Rate Increases at Regional Fiber Farms | None | \$0 | \$90,000 |
| | Fiber Farm Subtotal | \$14-23mm | \$440,000 |
| Excessive Suspended Solids at Wallula (Five Years) | Supplement Surface Water with New Shallow Wells | \$1.2-\$2.0mm | \$5,000 |
| Excessive Suspended Solids Re-Deposit on Wallula | Suspend Barge Shipments | \$0.1-\$0.2mm | \$300,000 |
| Power Rate Increases at Wallula Paper Mill | None | \$0 | \$500,000 |
| | Paper Mill Subtotal | \$1-2 mm | \$800,000 |
| | Case 1 Total | \$15-\$25mm | \$1,240,000 |

⁽¹⁾Some fiber farm leases require landowners to pay or share costs of protecting endangered species.

2.3 CAPITAL SCOPE

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cont. A new irrigation water pumping station is constructed to serve the Ice Harbor Fiber Farm. Irrigation must be uninterrupted, so most construction takes place prior to dam removal. Salmon smolt concerns are expected to restrict construction in the Ice Harbor Pool, severely limiting construction flexibility. A cofferdam is suitably placed in the Snake River channel and drained. New pumps and motors are installed inside the cofferdam. New underwater piping connects to the existing irrigation water supply line. Power supply and controls are extended from the existing pumping station. After dams are breached the underwater services are secured, the cofferdam inlet is converted to a proper fish screen and permanent piers are placed. Sand bed filters are added at the Ice Harbor Fiber Farm to remove excess suspended solids.

At the Wallula Paper Mill three new shallow wells replace the existing No. 3 Well. Estimates include wells, pumps, piping, motors, power supply and controls. Water quality from new wells will be satisfactory for packaging paper grades.

The Wallula Paper Mill also needs misc. shipping docks, piping and controls to temporarily stop barge shipments and facilitate rail and truck traffic.

2.4 AREAS OF CRITICAL CONCERN

2.4.1 Electrical Power Rate Increases

3 The natural river drawdown eliminates low cost power generation at the four Lower Snake River Dams. These four facilities have a combined peaking capacity of 3033 megawatts. Long term regional power rates will increase if the Lower Snake River Dams are removed. Forecasts vary, but a 5% increase is used in this report as a reasonable long term average. Estimated cost increases for Boise Cascade fiber farms are \$45,000 per year at the Ice Harbor Fiber Farm, \$4,000 per year at the Wallula Fiber Farm, \$35,000 per year at fiber farm near Boardman, Oregon, and \$7,000 at the Sandpiper Fiber Farm. Estimated power rate cost increase for the Wallula Paper Mill is \$500,000 per year.

2.4.2 Water Availability at the Ice Harbor Cottonwood Farms

The natural river drawdown option will require relocation of irrigation water diversion points along the Lower Snake River. Boise Cascade's Ice Harbor Cottonwood Farms draw water from the Ice Harbor Pool, and will be severely disadvantaged by this expensive requirement.

4 Boise Cascade operates hybrid cottonwood farms to supply fiber to the Wallula Paper Mill. There are four groups of farms in the region. The Ice Harbor Fiber Farms irrigate 8600 acres with up to about 76,000 gallons per minute of water from the Ice Harbor Pool of the Lower Snake River. The Wallula Fiber Farm irrigates 1100 acres with up to about 9400 gallons per minute of water from shallow wells adjacent to the McNary Pool of the Columbia River. The Sandpiper Farm irrigates 2700 acres with up to about 23,000 gallons per minute of water from the John Day Pool of the Columbia River. The Boardman Farm irrigates 6000 acres with up to about 50,000 gallons per minute of

water from the John Day Pool of the Columbia River. The Ice Harbor farms would be severely disadvantaged by breaching the four Lower Snake River dams.

Boise Cascade's Ice Harbor Cottonwood Farms are located south of the Ice Harbor Dam. Hybrid cottonwood trees are grown on 8600 acres. The trees are raised as a fiber crop to supply Boise Cascade's Wallula Paper Mill. The cottonwoods are superior hybrids designed for fast growth and good papermaking properties. Irrigation requirements for the Ice Harbor Farms peak in July and August at 76,000 gallons per minute. Cottonwood trees can not tolerate even brief interruptions of water. Drought periods as short as three days during July or August will severely damage trees. Younger trees will die. Irrigation water is currently supplied by a lakeside pumping station on the south shore of the Ice Harbor Pool. The dam breaching option requires relocation of this irrigation water diversion point to the future river channel. The incremental distances involved are estimated at 1500 lineal feet and 100 vertical feet.

Construction costs are high for relocating the Ice Harbor Fiber Farm irrigation water diversion point. To ensure no interruption of flow the new pumping station and supply pipe must be at least partially constructed prior to the natural river drawdown. In addition, salmon smolt concerns are expected to restrict construction in the Ice Harbor Pool to roughly three months per year. Final electrical connections will be completed after the drawdown to avoid expensive underwater power service.

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Costly, time consuming permits will be required. Agencies may resist granting permits for permanent structures within the Snake River channel. Backlogs for Washington State Water Rights applications and modifications are extensive. The current water rights process is nearly at standstill, and a huge permitting load will result if the natural river drawdown option is selected. Affected water rights and environmental permit applications will need special consideration. Administrative or statutory changes may be required.

The construction project will be complicated. Site selection depends on forecasts of the future Snake River channel under natural river drawdown conditions. A cofferdam will be built to house the new pumping station. New pumping systems will be installed. The pipeline extension will involve some underwater construction, possibly including anchoring and backfill. After the natural river drawdown is established the cofferdam will be linked to the river shore with a permanent dock. Power will be extended to the pumps and any remaining piping will be completed prior to the start of the irrigation season. Construction costs for this project are estimated in the range \$13-21 million.

Operating cost increases result from added energy and maintenance requirements. The elevation lift of 100 vertical feet plus additional pipeline head loss are estimated to increase power costs by at least \$300,000 per year. Incremental maintenance and riverside dock upkeep are expected to easily add costs of \$30,000 per year.

The natural river drawdown option will have similar effects on water availability for other irrigators along the Lower Snake River. Some irrigators may skip a growing year to reduce construction costs of relocating diversion points. Some irrigators may switch to

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cont. | dry-land crops. Row crop irrigators have year to year flexibility. The Ice Harbor Fiber Farm, like orchards and vineyards, must maintain seamless irrigation. Trees die in desert conditions.

2.4.3 Water Quality at the Ice Harbor Cottonwood Farms

The quality of irrigation water along the Lower Snake River will deteriorate under the natural river drawdown option. High levels of silt will require expensive filtering systems to prevent fouling of drip irrigation systems.

Boise Cascade's Ice Harbor Fiber Farms operate drip irrigation systems. Suspended solids plug drip irrigation systems. Existing dams allow silt to settle upstream. Current filtration at the fiber farms is adequate for existing raw water quality in the Ice Harbor Pool. The natural river drawdown option will transport suspended solids downstream to the confluence of the Snake and Columbia Rivers. Suspended solids will be particularly problematic during spring runoff. The increased suspended solids will require expensive sand bed filters for the Ice Harbor Fiber Farm irrigation system. Construction costs for sand bed filters are estimated in the range \$1.4-2.3 million. Incremental maintenance and operating costs are expected to be at least \$20,000 per year.

The natural river drawdown option will have similar effects on water quality for other irrigators along the Lower Snake River. Drip systems will need expensive filtration upgrades.

2.4.4 Water Quality at the Wallula Paper Mill

6 | The natural river drawdown option will result in high levels of silt in the McNary Pool. Silt problems will cause surface water on the east shore of Lake Wallula to have very high levels of suspended solids.

Boise Cascade operates a fully integrated pulp and paper mill on the east shore of the McNary Pool at Wallula Washington. This facility produces 1300 tons per day of corrugating medium, white paper and bleached market pulp. Boise Cascade Wallula employs 720 workers. Annual salary and benefits are \$50 million. Property taxes are \$2.8 million per year. Purchased materials and services total \$50 million per year. Purchased transportation services total \$57 million per year. Wallula is the host site for Ponderosa Fibers of Washington. Ponderosa is a wastepaper recycling facility with 58 employees and an annual tax bill of \$1.4 million. The Boise Cascade also operates a box plant at Wallula which produces 1.5 billion square feet of corrugated box board per year.

The Wallula Mill complex requires high quality water. Approximately 22,000 gallons per minute of water are drawn directly from the Columbia River. A significant volume is withdrawn from the surface of the McNary Pool at the Wallula mill site. The natural river drawdown option will result in high levels of silt in the McNary Pool, especially at the paper mill shoreline. Poor water quality will require expensive replacement of surface water with new shallow wells. Water clarification is an alternative option, but construction costs are expected to be higher for clarification than for supplemental wells.

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cont.

Costly, time consuming permits will be required. Backlogs for Washington State Water Rights applications and modifications are extensive. The current water rights process is nearly at standstill, and a huge permitting load will result if the natural river drawdown option is selected. Affected water rights and environmental permit applications will need special consideration. Administrative or statutory changes may be required.

Construction costs for three new shallow wells at the Wallula Paper Mill are estimated in the range of \$1.2-2.0 million. Incremental operating and maintenance costs are expected to be at least \$5,000 per year.

2.4.5 Silt Deposition at the Wallula Paper Mill

As previously mentioned, the natural river drawdown option is expected to result in high levels of silt in the McNary Pool. Silt deposition is expected to be most severe in eastern portions of the McNary Pool – the site of Boise Cascade's Wallula paper mill.

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cont.

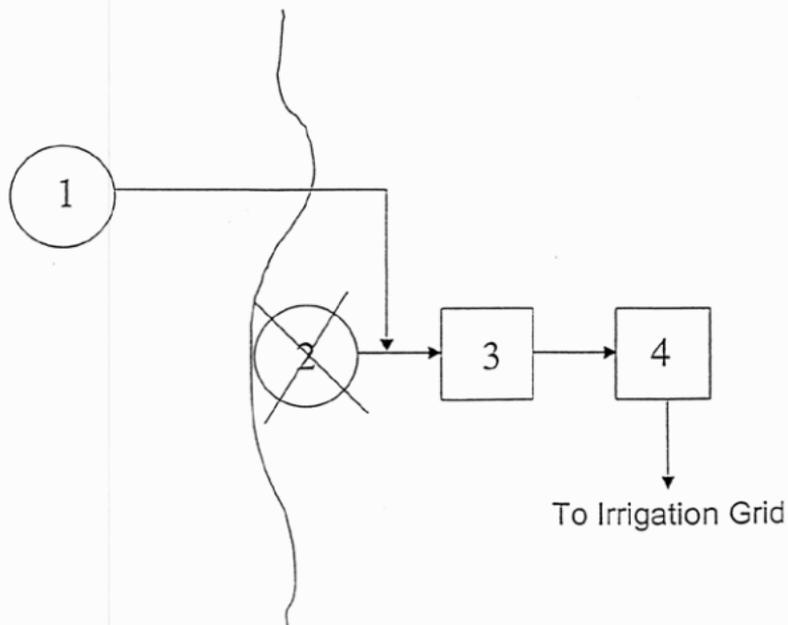
The Wallula Paper Mill ships products and receives raw materials by river barge. The McNary Pool is shallow for over one mile between the eastern shore and the Columbia River channel. Dredging is periodically required to maintain barge access to the mill. Dredging is expensive. Severe silt deposition immediately following the natural river drawdown will make dredging impractical for at least five years. Alternatives to barge transportation are required. Traffic loads on railroads and highways will increase. Construction costs to allow increased rail and truck shipments are estimated in the range \$0.1-0.2 million. Incremental operating and maintenance costs are expected to be at least \$300,000 per year.

3.0 DAM BREACHING – BLOCK DIAGRAMS AND CAPITAL ESTIMATES

Block diagrams and capital estimate summaries follow.

3.1 Block Diagram of Fiber Farm Water Intake Configuration

- 1 - New Pumping Station
- 2 - Existing Pumping Station
- 3 - Existing Water Filters
- 4 - New Water Filters



3.2 Capital Estimate to Replace Fiber Farm Pumping Station

Title:

Replace Ice Harbor Fiber Farm Pumping Station

Scope:

Divert water from new river channel with no irrigation interruption.
Build new pumping station inside a cofferdam. Link discharge line to existing piping. Provide permanent pier for safe access.

| | <u>\$ Thousands</u> |
|---|---------------------|
| Estimated Direct Costs, less new pumps - Cosmopolitan | 3100 |
| Estimated Direct Costs for New Pumps/Motors/Power Supply Original Cottonwood estimate - adapted by dpk | 1600 |
| Allowance for New Electrical Power Supply @9000 hp includes \$500k for 1500 ft power line | 3700 |
| Indirect Costs (45%) | 3780 |
| | Subtotal 12180 |
| Contingency (25%) | 3045 |
| | Total 15225 |
| Lower Range of Estimated Construction Costs (-15%) | 12,900 |
| Upper Range of Estimated Construction Costs (+40%) | 21,000 |

Incremental Expenses:

Pumping Power

120 ft head@80,000gpm@0.8eff.@220days

| | |
|--------------|--------|
| HP= | 2826 |
| \$/((HP-YR)= | 175 |
| Days/YR= | 220 |
| \$/YR= | 298063 |

Misc Incremental Expense Allowances

Mtc @ 2 % of pumps and motors \$32,000

3.3 Capital Estimate to Improve Fiber Farm Water Quality

Title:

Improve Water Quality at Ice Harbor Fiber Farm

Scope:

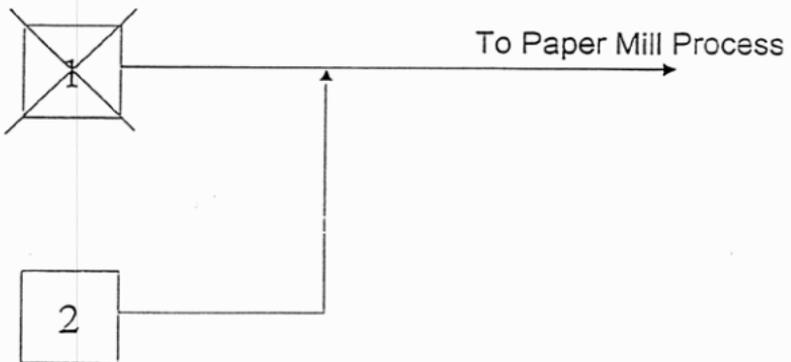
Build new sand media filtration system to adequately clarify river water for irrigation.

| | <u>\$ Thousands</u> |
|--|------------------------------------|
| Estimated Direct Costs - 2X Equipment | 900 |
| Indirect Costs (45%) | 405 |
| | Subtotal 1305 |
| Contingency (25%) | 326.25 |
| | Total 1631.25 |
| Lower Range of Estimated Construction Costs (-15%) | 1,400 |
| Upper Range of Estimated Construction Costs (+40%) | 2,300 |
| <u>Incremental Expenses:</u> | |
| Opn & Mtc Costs @ | 2 % of equipment per year \$18,000 |

3.4 Block Diagram of Wallula Paper Mill Water Intake Configuration

1 - Existing No. 3 Well

2 - New Shallow Wells



3.5 Capital Estimate to Supplement Wallula Paper Mill Water

Title:

Supplement Wallula Paper Mill Water Supply

Scope:

Drill three new wells to replace unusably dirty water from No. 3 Well.

| | |
|---|--------------------|
| Estimated Direct Costs of Three Wells at 60 feet Nelson Drilling estimates \$15,000@60ft Jim Nelson claims water would be available in vicinity of No. 4 Well (?). | \$ 45000 |
| Estimated Direct Costs for new pumps/motors (3@\$17k*3) pump+motor by Goulds | 153000 |
| Allowance for 600 HP Power Supply, W/ Extras | 285000 |
| Allowance for Piping/Valves | 300000 |
| Indirect Costs (45%) | 352350 |
| | Subtotal 1,135,350 |
| Contingency (25%) | 283,838 |
| | Total 1,400,000 |
| Lower Range of Estimated Construction Costs (-15%) | 1,200,000 |
| Upper Range of Estimated Construction Costs (+40%) | 2,000,000 |
| Incremental Expenses: | \$0 |
| Pumping Power - Assume no significant increase as total gpm to mill does not change. | |
| Misc Incremental Expense Allowances | \$0 |
| Mtc @ 10% of pump/motor cost per year | \$5,100 |

4.0 DISCUSSION OF DAM BREACHING

4.1 PERMITTING AND WATER RIGHTS

- 7
- Environmental permits and water rights are timeline critical. Construction must proceed on schedule to allow uninterrupted water supplies to fiber farms and the paper mill. Juvenile salmon concerns may severely restrict construction access to the Ice Harbor and, if necessary, McNary Pools. Water rights and environmental permits must be approved soon enough to allow timely construction projects. No permit means no construction, which means no water, which means dead trees and an idle paper mill.
 - Water Rights in Washington State are hard to get processed. Current backlogs are years long. Relocation of water diversion points will require modified water rights. A large number of applications will be submitted if dam breaching or drawdown options are selected. Administrative or possibly statutory changes will be needed for Washington State to evaluate and grant modified water rights. Timely response will be critically important.
 - New water supply system for the Ice Harbor Farms is cofferdam-based pumping station located within the Snake River channel. Regulators may resist or deny permits for this kind of structure.

4.2 LEGAL AND LEGISLATIVE UNCERTAINTIES

- Final Corps of Engineers recommendations on salmon recovery options are not known.
- National Marine Fisheries Service may or may not follow the Corps recommendations. NMFS may direct breaching or no breaching regardless of Corps recommendations.
- Congress commissioned the federal hydroelectric power projects. For dams to be breached, Congress must vote to decommission the dams and authorize funds for their "deconstruction." Congress may not decide to breach the dams even if Federal Agencies recommend that course of action.
- Law suits have already started. Potlatch has enlisted the aid of NWPPA. At least one environmental group is suing the Corp of Engineers for violating water quality standards through dam operations. The suits will continue and are as likely to add confusion as clarity.
- Federal reimbursement, tax credits, etc. require Congressional decisions. The counter measures for dam breaching will be very expensive. Federal compensation for disadvantaged water users is fair.

4.3 TECHNICAL UNCERTAINTIES

- Uninterrupted water supplies require complex construction projects. Virtually complete systems must be installed in river channels prior to drawdowns. Construction access to the Ice Harbor and, if necessary, McNary Pool may be restricted to a few months per year. Underwater and river channel work will be slow, difficult and subject to unexpected costs.
- Timeline management will be critical. Engineering, permits and construction must happen on schedule or dam breaching will remove water from existing systems.
- Capital estimates in this report are preliminary and conceptual. Allowances were commonly used. Boise Cascade experience is that final construction costs are frequently greater than first estimated.
- Estimates of power rate increases include uncertainty. Removing the Lower Snake River Dams is estimated to increase regional power rates by 5%. Higher rate increases are certainly possible.
- Shallow wells are proposed to supplement surface water sources in the Wallula Paper Mill area. Ultimate water production and quality from proposed wells are not known. An experienced local driller reports reasonably good prospects for productive shallow wells just south of the paper mill.
- Snake River channel locations after breaching are not certain. Geological studies will be needed to forecast most likely "natural" river channel location. Construction projects will need to allow for some meandering.
- Snake River water quality following breaching is expected to be poor. Ranges of suspended solids in the Snake River are important for irrigation and paper mill water supplies. Historic reports suggest the free-flowing Snake River will be especially high in suspended solids.
- Water quality in the main Columbia River channel at Wallula is expected to be good unless the McNary Dam is breached. However, water quality at the east shore of the McNary Pool is expected to deteriorate if Lower Snake River dams are breached.