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Date: **1 March 2000**

From: **David A Lauer, Director**

To: **National Marine Fisheries Service**

RE: **Opposition to dam breaching because of adverse air quality.**

Summary of Comment:

On 17 February 2000 the Benton Clean Air Authority Board of Directors in a minute action at a regular monthly Board meeting declared a position of opposing the breaching of the lower Snake River dams as a possible mitigation measure for salmon recovery. The basis for this opposition is the negative effects on air quality that are associated with effects of dam breaching on transportation, materials handling, electrical generation, and land use changes. The juxtaposition of the increased air pollution and its concentration in the populated area of the Tri-Cities intensifies the negative impacts.

Breaching of the lower Snake River dams will have negative effects on regional air quality and will especially impact the Tri-Cities because of its expanded role as a commodity terminal and distribution point. Air pollution increases will accrue from truck and rail transportation needed to replace barge transport and increased traffic congestion in the Tri-Cities. Major increases in materials handling, principally from terminal facilities for grain, wood products, and petroleum will also add to air pollution in the Tri-Cities. 1

Impacts on regional air pollution will also occur from increased truck and rail transportation, electrical generation to replace lost hydropower, and changes in land use from lost irrigated lands. Accurate estimates of the quantities of air pollution were beyond the scope of this comment because detailed information necessary to quantify the amounts of air pollutants from these changed activities was unavailable at the time this comment was written. Further investigation of air pollution impacts is urged.

Transportation Effects

In February 1999, Lund Consulting, Inc. with technical analysis by HDR Engineering, Inc. reported the transportation impacts of dam breaching to the Washington State Legislative Transportation Committee. Replacement of barge traffic with increased semi-truck and/or railroad traffic will increase air pollutants principally from burning of diesel fuel necessary to transport materials that would have been moved by barge. Following breaching of the dams, the Tri-Cites would assume a greater role as a major terminal for materials previously transported by barges on the Snake River,

2 Truck, barge, and rail traffic would converge on terminal facilities in the Tri-Cities for continued transport to Portland and Seattle terminal facilities. In effect, a significant amount of barge loading would be transferred from Portland to the Tri-Cities. The air pollutants of principal concern include small particulate (PM_{10} and $PM_{2.5}$), sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compounds. The quantities of all these major air pollutants would increase and impact the human population in the Tri-Cities from the truck, rail, and barge traffic congestion. This congestion would also increase air pollution from existing local traffic. In addition to the air pollutants coming directly from internal combustion engines, generation of particulate matter from tire wear and wear and re-entrainment of dust from road surfaces would increase as well. In addition to these pollutants, the burning of fossil fuels would also generate carbon dioxide (CO_2), which is a greenhouse gas that contributes to global warming.

The HDR report estimates that truck traffic alone would increase 700 trucks per day in the Tri-Cities. Peak times of activity will be concentrated around harvest, which will intensify air pollution effects during the harvest period from mid-Summer through early Fall. The detailed information needed to quantify air pollution from increased transportation activity and congestion was unavailable at the time this comment was written.

Materials Handling Effects

3 Particulate matter air pollution would significantly increase and directly impact populations from the increased tonnage handled in Tri-Cities-based terminals. The HDR report estimates that grain handling alone, which comprises 75% of all commodities shipped on the Snake River, would increase three to four times with a total increase of 100 million bushels at the Tri-Cities. Particulate air pollution from this grain handling would be 100 to 300 tons per year. Peak times of activity will be concentrated around harvest, which will intensify air pollution effects during the harvest period from mid-Summer through early Fall.

Additional particulate would come from handling of 590,000 tons of wood products and 33,123 tons of fertilizer. Air pollution from release of volatile organic compounds (VOC) would also result from increased handling of 114,980 tons of petroleum at the Tri-Cities. Detailed

3 cont. information necessary to quantify the amounts of air pollutants from this source was unavailable at the time this comment was written.

Other Regional Air Quality Effects.

This section deals generally with potential air pollution impacts outside the immediate Tri-Cities vicinity. Transportation related air pollution would also be generated in the region from which the grain is being brought to the Tri-Cities terminals but is much more dispersed and concentrated mostly along the major road corridors identified in the HDR report. Potentially more critical impacts could result from increased traffic through the Columbia River Gorge Scenic area and from traffic in the Interstate 90 corridor to Seattle terminal points. The following sources of air pollutants are also of a regional nature and depend on variables such as facility location or land use conversion options. Detailed information necessary to quantify the amounts of air pollutants from these source was unavailable at the time this comment was written.

Replacement of Hydro-Electrical Generation

4 Replacement of the lost electrical energy would be the next most inexpensive alternative to hydropower, which would most likely call for burning fossil fuel either natural gas or coal. Replacement of loss hydroelectric power with either natural gas or coal would generate increased air pollutants that would not otherwise exist with hydropower generation. The air pollutants of principal concern include small particulate (PM_{10} and $PM_{2.5}$), sulfur dioxide, nitrogen oxides, and carbon monoxide. In addition to these pollutants the burning of fossil fuels would also generate carbon dioxide (CO_2), which is a greenhouse gas that contributes to global warming. The amounts of air pollutants would be those associated with burning fossil fuels replacing approximately 1300 megawatts of electrical power.

Land Use

Air pollution coming from transportation, materials handling, and non-hydro electrical power generation would all be on-going continuous sources air pollutants following the dam breaching . Air pollution effects from changing land use, principally re-conversion of irrigated lands back to dryland could have varying effects depending on the nature of the conversion. These effects would be characterized by an initial flush of increased wind erosion during the early stages of the transition, which would then diminish as the new land use pattern became established.

Conversion to dryland farming increases the potential for wind erosion, windblown dust, and small particulate air pollution. The overall impact depends on the magnitude of the change relative to the total dryland area presently under cultivation. State of the art conservation farming practices would minimize the small particulate emissions. Reclamation of the land to a more natural state would stabilize the land to a greater degree than it would be under dryland farming.

Extremely sandy soil types that are frequently used for sprinkler irrigation development could be more problematic as they would not be suited for conversion to dryland farming because of

limitations of soil water holding capacity. Extraordinary reclamation efforts would be required to restore these lands to something approximating the original desert landscape. With such soil and landscape conditions reclamation could be impractical or infeasible under certain circumstances and lead to permanent sources of windblown dust.

4 cont.

There is also some concern about windblown dust arising from exposed sediments deposited on the former dam pool bottom. While these areas would most likely eventually be re-stabilized as natural vegetation becomes established there would an initial period during this process in which there would be a potential for severe and concentrated windblown dust air pollution from these exposed areas. The time required for re-stabilization would vary with weather, nature of the sediments, geographic and topographic location, and with any anthropogenic intervention in the reclamation process.

Carbon sequestration of agricultural crop production has been mentioned by some as a mitigating effect on CO_2 build-up and global warming. Because of the nature of most irrigated cropping systems and the ultimate use of the crops grown, net carbon immobilization or sequestration is most likely of small magnitude.