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Clark Fork River Operable Unit

of the Milltown Reservoir/Clark Fork River Superfund Site

Record of Decision

Appendix F:

Concurrence Letter from the State of Montana

U.S. Environmental Protection Agency
Region 8

10 West 15th Street
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Helena, Montana 59626

April 2004

Montana Department of
ENVIRONMENTAL QUALITY
Judy Martz, Governor
P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

April 22, 2004

Max H. Dodson
Assistant Regional Administrator
US EPA Region
One Denver Place
999 18th Street
Denver, CO 80202-2405

Re: The Montana Department of Environmental Quality's Concurrence in the Record of Decision for the Clark Fork River Operable Unit of the Milltown Reservoir NPL Site in Montana

Dear Mr. Dodson:

The Montana Department of Environmental Quality (DEQ) concurs in the Record of Decision (ROD) for the Clark Fork River Operable Unit of the Milltown Reservoir NPL Site in Montana. DEQ fully supports EPA's determination that there are present and potential human health and environmental risks in the Operable Unit that must be addressed pursuant to CERCLA and the NCP. In concurring, however, DEQ does not necessarily agree with all statements and opinions expressed in the ROD. While DEQ generally supports EPA's determination of the areas where these risks must be addressed, DEQ has reservations concerning certain issues, including those discussed below. In addition, the Department wishes to identify certain concerns that it believes should be addressed in designing and implementing the remedy and in evaluating the effectiveness and protectiveness of the remedy in EPA's five-year reviews.

Limitations on the Effectiveness of In-situ Treatment

DEQ has concerns about the extensive use of in-situ treatment within the floodplain. Specific limitations of in-situ treatment that DEQ commented on in the development of the remedy for the Clark Fork River included: the continued migration of metals into groundwater and surface water; increased mobility of arsenic and increased migration of arsenic into both surface water and groundwater; the inability of in-situ treatment to meet human health action levels in certain circumstances; the limitations of in-situ treatment where materials are too deep or too wet to be treated in place; the difficulty of calculating and applying the correct lime amendment amount; the lack of certainty as to the permanence of in-situ treatment; and the continued re-entrainment of contaminants into the river system.

These limitations have to a large extent been acknowledged in the ROD. However, DEQ believes these limitations will play an important role in the development of the remedial design and the implementation of the remedial action. In addition, these limitations should be explicitly addressed in each five-year review, although DEQ notes that additional removal of materials from the floodplain may occur as part of the State of Montana's Natural Resource Damage Program's (NRD) restoration efforts in the Clark Fork River Operable Unit.

Surface Water Arsenic Concentrations

DEQ is concerned with the arsenic concentrations that have been reported in the Clark Fork River from Warm Springs Ponds to Turah Bridge. Arsenic concentrations here often exceeded both the EPA Maximum Contaminant Level (MCL) of 10 μg/L and the State WQB-7 standard of 18 μg/L. These concentrations are a concern because of potential human health effects and because arsenic has been identified as a significant chronic stress risk to trout. These high levels of arsenic need to be recognized and addressed during the remedial design, in future monitoring, and in each five-year review.

Significance of Chronic Stress on Fish

In the Ecological Risk Assessment, EPA determined unacceptable acute risk to fish from pulse events causing the release of copper. Major fish kills have been attributable to sudden precipitation events that wash copper and other mining wastes into the river. EPA also found that metals and arsenic in the aquatic environment are also imposing a low-level chronic stress on trout and other fish and that the most likely manifestation of this stress is decreased growth.[1] The State of Montana believes that chronic stress is even a more important risk factor. Recently, Stratus Consultants conducted a trout feeding study for the NRD program that showed reduced growth in rainbow trout fed a diet of aquatic invertebrates that bioaccumulated arsenic and metals from Clark Fork River sediments.[2] Research scientists at EPA's Duluth office, as well as others, have documented similar growth effects in rainbow trout resulting from arsenic contamination in trout diets.[3]

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[1]Ecological Risk Assessment for the Clark Fork River Operable Unit, EPA December 1999.

[2]The Stratus study showed a diet of aquatic invertebrates containing 129 mg As/kg caused a 44% reduction in growth rate of rainbow trout. "Reduced Growth of Rainbow Trout Fed a Live Invertebrate Diet Pre-exposed to Metal Contaminated Sediments Collected from the Clark River Basin, Montana," Dec. 5, 2002, Hansen, James, et al. (accepted for publication).

[3]Drs. Dave Mount and Russ Erickson observed an average 40% reduction in growth in fish consuming 100 mg As/kg diet, and 10% reduction in growth (LOEC) in fish consuming 35 mg As/kg.

Cockell, Hilton, and Bettger, 1991, "Chronic Toxicity of Dietary Disodium Arsenate Heptahydrate to Juvenile Rainbow Trout," Arch. Environ. Contam. Toxicol., 21:518-527, (Found significant reduced growth [LOEC] at 33 mg As/kg in diet.)

Cockell, Hilton, and Bettger, 1992, "Hepatobillary and Hematological Effects of Dietary Disodium Arsenate Heptahydrate in Juvenile Rainbow Trout," Comp. Biochem. Physiol., 103C: 453-458, (Found significant growth reduction [LOEC] at 55 and 60 mg As/kg in diet.)

Scientists working for the NRD program determined that overall trout populations in the Upper Clark Fork River are approximately one-sixth of reference stream populations and found that this reduced population is not due to differences in available habitat or other non-contaminant-related factors.[4] These depressed trout populations can be explained, at least in part, by chronic stress and decreased growth resulting from metals and arsenic in the trout diet. The evidence also suggests avoidance of metals and arsenic may be responsible, in part, for the depressed trout populations, including the absence of bull trout, in the upper Clark Fork River. Therefore, post-remedy concentrations must be closely monitored.

Floodplain Stability, Streambank Stabilization and Width of the Riparian Buffer Zone

EPA, in the ROD and Responsiveness Summary, recognizes that floodplain stability is a significant issue. This is consistent with the State's finding that terrestrial resources in the river's riparian zone, including, soils, vegetation, wildlife and wildlife habitat, have suffered significant injuries.[5] In a substantial part of Reach A, vegetation, affected by soil phytotoxicity, is absent or very sparse in areas of exposed and nearly exposed tailings, and there is decreased abundance and diversity in other areas containing contaminated soils. EPA also determined that soil organisms are adversely affected, and wildlife is potentially affected by the contaminants of concern (COCs).[6] As EPA's and the State's scientists have recognized, this has resulted in an unstable floodplain which may be subject to unraveling during overbank floods.

As stated in the Responsiveness Summary, Dr. Dungan Smith indicated that the width of riparian buffer zone to be revegetated should be greater than 50 feet in order to adequately protect floodplain stability and prevent unraveling.[7] Also, a large number of public comments supported a wider riparian buffer zone. DEQ believes that the implementation of a wider buffer zone is feasible, and efforts should be made to increase the zone's width where practicable during remedy implementation.

DEQ also has reservations about certain aspects of the streambank component of the proposed remedy. The Department of Fish, Wildlife and Parks and other Montana streambank experts feel that some of the streambank stabilization techniques proposed in the ROD may not be sufficient to decrease erosion and stabilize the banks. However, this component can be evaluated in the remedial design and the best streambank stabilization techniques can be implemented during construction.

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[4]Aquatic Resources Injury Assessment Report, Upper Clark Fork River Basin, State of Montana, 1995.

[5]Terrestrial Resources Injury Assessment Report, Upper Clark Fork River Basin, State of Montana, 1995.

[6]Ecological Risk Assessment for the Clark Fork River Operable Unit, EPA, December 1999.

[7]Letter to Scott Brown from J. Dungan Smith dated October 29, 2001

Protection of Human Health

DEQ has concerns regarding the level of protectiveness of human health in the ROD. The arsenic cleanup levels selected are based on a 1.499×10^{-4} risk. The least stringent cleanup level considered acceptable under CERCLA and the NCP is 1×10^{-4}. More protective levels, using a 1×10^{-6} risk as the point of departure, are encouraged under the law. Although the cleanup levels selected by EPA represent a 1.499×10^{-4} risk, the 1.499 was rounded down to 1 for purposes of finding that the risk was within the acceptable risk range. No corresponding adjustment was made in the cleanup levels. Use of a true 1×10^{-4} risk level would have resulted in more protective cleanup levels.

Moreover, the cleanup levels chosen in the ROD are based on risks to the general population and are not necessarily protective of all sensitive subgroups. Under the NCP and EPA guidance, the levels should be set to be protective of all subgroups. EPA proposes to address the risk to pica children (defined as children with a medical condition that makes them prone to eat dirt) through an educational program, as part of the remedy. For arsenic, protective levels for pica children may represent levels below arsenic background concentrations. An aggressive educational program offers the best option for protecting this sensitive subgroup.

The Atlantic Richfield Company, in its comments on the Clark Fork River Proposed Plan, asserts that it cannot be required to fund such an educational program. In the event that educational programs are, for any reason, not successful in ensuring that all sensitive subgroups are protected, cleanup levels should be adjusted and additional action implemented to make the remedy more protective. This also can and should be evaluated as part of each five-year review.

The State of Montana looks forward to working closely with EPA, the responsible party, and landowners along the Clark Fork in designing and implementing this remedy and any related restoration actions to ensure a clean and healthful environment for the citizens of the State, especially for those who live or work along the Clark Fork River.

Sincerely,

Tom Livers

for Jan P. Sensibaugh
Director
Montana Department of Environmental Quality