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MONTANORE PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

RECORD OF DECISION

USDA-FOREST SERVICE

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KOOTENAI NATIONAL FOREST

LINCOLN COUNTY, MONTANA

SEPTEMBER 1993

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RECORD OF DECISION
for the MONTANORE PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

I INTRODUCTION

On July 26, 1989, the Notice of Intent to prepare an environmental impact statement for the proposed Montanore Project was published in the Federal Register. The proposal was Noranda Mineral Corporation's (Noranda's) operating plan for the Montanore Project, a silver-copper mine, mill, tailings storage facility, and electrical power transmission line, on Kootenai National Forest (KNF) and private lands. The proposed plan of operations encompasses a 3,424-acre permit area. The proposal and agency alternatives to the proposal include lands within sections 5, 8, and 9 of T26N, R29W, section 12, T26N, R30W, sections 18 to 20, 29, 30, and 32 of T27N, R29W, sections 7 to 13 and 15 to 24 of T27N, R30W, sections 1 to 3, and 11 to 15, of T27N, R31W, sections 13 to 15, 23, 24, 26, and 35 of T28N, R31W in Lincoln County, Montana. Noranda would construct, operate, monitor, and reclaim the Montanore Project as proposed in Noranda's Application for a Hard Rock Operating Permit and Proposed Plan of Operation with modifications and conditions established by the approving agencies.

The KNF, the Montana Department of State Lands (DSL), the Montana Department of Health and Environmental Sciences (DHES), and the Montana Department of Natural Resources and Conservation (DNRC) determined that the project may significantly affect the quality of the human environment. As a result, the four agencies, as state and federal lead agencies, prepared an environmental impact statement (EIS) pursuant to the National Environmental Policy Act of 1969 (NEPA), and the Montana Environmental Policy Act of 1971 (MEPA). The Notice of Availability of the Final EIS was published in the Federal Register on October 16, 1992.

The Final EIS (FEIS) describes the proposed actions and a number of alternatives to the proposed actions. It also describes the potentially affected environment and discloses the potential environmental consequences of implementing the proposed action and alternatives to the proposed action. The FEIS is on file and available at the KNF Supervisor's offices in Libby, Montana, and at DSL, DNRC, and DHES offices in Helena, Montana. The FEIS was prepared pursuant to the rules and regulations of the National and Montana Environmental Policy Acts (40 CFR 1500-1508 and ARM 26.2.628-663, respectively), the National Forest Management Act, Forest Service locatable mineral regulations (36 CFR 228, Subpart A), the Montana Metal Mine Reclamation Act, (82-4-301, MCA, et seq.), the Montana Water Quality Act (75-5-101, MCA, et seq.) and the Major Facility Siting Act (75-20-301, MCA, et seq.), as well as other applicable statutes.

The following state agencies have adopted the preferred alternatives in the FEIS, and have issued the following decisions. In approving the project, all three state agencies adopted the preferred alternatives that were identified in the FEIS. On November 20, 1992 the Montana Board of Health and Environmental Sciences (BHES) signed an order adopting DHES's recommendations which permit Noranda to change the quality of ambient waters. The Commissioner of State Lands signed the DSL record of decision which approved the operation on November 23, 1992. DSL's Operating Permit No. 00150 was issued to Noranda on May 14, 1993. The Montana Board of Natural Resources and Conservation (BNRC) issued its Certificate of Environmental Compatibility and Public Need for the project's electrical

transmission facility on April 2, 1993, adopting the DNRC's recommendations.

II DECISION

The KNF, along with DSL, DHES, and DNRC, has reviewed Noranda's proposal and several alternatives to Noranda's proposal, and the potential environmental consequences that may occur from implementing the proposal or alternatives. It is my decision to implement alternative 3C and alternative 5, which includes mitigation and monitoring requirements outlined in appendix sections of the FEIS.

This decision utilizes the recommendations for the preferred alternatives contained in the Final EIS for the Montanore Project and is consistent with DSL, BHES, and BNRC decisions. The following is a description of the actions which will take place by implementing this decision.

Alternative 3C includes the modifications to Noranda's mine proposal that were analyzed under Alternative 2 - modification of Noranda's mine proposal. Additionally, alternative 3C specifies adit and mine water management, and water treatment which would meet the standards established by state law and as described in the BHES decision of November 20, 1992.

Alternative 5 includes the modifications to Noranda's electrical transmission line proposal that were analyzed under Alternative 4 - modification of Noranda's transmission line proposal. Alternative 5 routes a portion of Noranda's transmission line into a different drainage.

My decision modifies the KNF Forest Plan by changing the Management Area designation on about 1350 acres of KNF lands. This decision modifies the KNF project grizzly bear mitigation plan (Appendix C of the FEIS) to adopt the U.S. Fish and Wildlife Service's (FWS) reasonable and prudent alternative

that resulted from the jeopardy biological opinion (see Appendix C1 and C2 of this ROD). My decision also modifies the KNF fisheries mitigation and monitoring plans based on fisheries data received following publication of the FEIS and consultation with the Montana Department of Fish, Wildlife and Parks (Department) (see Appendix A and B of this ROD).

My decision to implement these alternatives does not constitute approval for Noranda to begin implementation of the project. Noranda is required to formally agree to modifications and additions that are described in Section V of this ROD. Noranda must also update their Plan of Operations and transmission line application by submitting replacement pages so that they are consistent with my decision prior being authorized to begin surface disturbing activities.

As part of the modified grizzly bear mitigation plan, which adopts the FWS's reasonable and prudent alternative, Noranda may not conduct surface disturbing activities until a Memorandum of Understanding between the F.S., the FWS, and the Department has been signed and adopted by the agencies (see Appendix C2 of this ROD).

DSL and KNF have calculated an engineering cost estimate for the reclamation performance bond. It is estimated to be \$13,125,303. The agencies have established an initial incremental, or phased, bond of \$827,264 for Noranda's proposed phase one, which is the continued construction of the Libby Creek evaluation adit and water treatment system. Additional phases of the operation will occur only as authorized and only after the agencies receive the revised surety. A surety in the correct amount \$827,264 has been received by DSL, who, under an agreement between the agencies, will hold the bond.

III ISSUES AND PUBLIC PARTICIPATION

Noranda submitted their Plan of Operation to the agencies on March 7, 1989. As stated in the in'

duction, a Notice of Intent to prepare an EIS appeared in the Federal Register on July 26, 1989.

Since starting the analysis of the proposed action in 1989, KNF, DSL, DHES, and DNRC have formally received comments from the public three separate times. In addition, numerous informal meetings have been held. The concerns expressed in the comments, along with the concerns of the agencies, have formed the scope of the EIS analysis. These activities are summarized below.

To identify significant issues related to the proposed action, a public scoping meeting was held in Libby, Montana on August 9, 1989. Comments, suggestions, and concerns about the project were gathered. In addition to the comments received at the public meeting, written comments were also received during the scoping process. The issues raised during scoping were used in the development of alternatives and were addressed in the analysis.

Issue 1 - Changes in wildlife habitat and population, particularly the threatened grizzly bear.

Issue 2 - Changes in the type, quality, and displacement of general forest recreational activity and on the areas's aesthetic qualities.

Issue 3 - Changes in the Cabinet Mountains Wilderness (CMW) character, such as opportunity for solitude, natural integrity, and opportunity for primitive recreation.

Issue 4 - Socioeconomic changes, including employment, income, community services, population, and public finance.

Issue 5 - Concerns about the location and stability of the tailings impoundment.

Issue 6 - Changes in quantity and quality of water resources and effects on aquatic life.

The Notice of Availability for the Draft EIS (DEIS) appeared in the Federal Register on October 12, 1990, starting the official 60 day public comment period on the DEIS. A public meeting was held in Libby, Montana on October 24, 1990 to explain the contents of the agencies' analysis. Following closure of the public comment period, the agencies met with or contacted certain state and federal agencies and advocacy groups to discuss their specific comments. The agencies met with the Clark Fork Coalition, the Cabinet Resources Group, and the Kootenai Indian Tribe. We met with the Environmental Protection Agency to clarify their comments, and to describe how the agencies planned to address their concerns. The KNF met individually with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service.

After reviewing public and agency comments submitted on the DEIS, and after Noranda submitted modifications and additional information on their proposal, the agencies prepared a Supplemental DEIS (SDEIS), which was issued on November 8, 1991 for public comment. The Notice of Availability was published on November 8, 1991 in the Federal Register. A public meeting and open house was held in Libby, Montana on December 9, 1991 to solicit public comments on the supplement. The 45 day public comment period ended on December 23, 1991.

Approximately 260 letters and nearly 1,100 post-cards and petition signatures were received on the DEIS and SDEIS during the public comment periods. These comments were written by citizens, members of advocacy and other groups, Noranda, and local, state, and federal agencies.

Following review of the public comments on the SDEIS, the agencies issued the FEIS. The Notice of Availability was published in the Federal Register on October 16, 1992. The two-volume FEIS integrated the analysis documented in the SDEIS with that contained in the DEIS. Aspects of the analysis con-

tained in either the DEIS or the SDEIS were modified to reflect comments received from the public.

Volume 2 of the of the FEIS discussed public participation, and responded to public comments. The agencies responded to 20 categories of comments, including water quality, aquatic and fisheries, floodplains, wetlands, backfill/subsidence, tailings impoundment, claim validity, air quality, wildlife, old growth, sensitive species, reclamation, recreation, noise/visuals, wilderness, indian tribe concerns, socioeconomics, transportation, transmission line, and miscellaneous.

Copies of the FEIS were distributed to 675 persons, groups, local governments, and agencies that expressed an interest in the Montanore Project. The KNF received comments on the FEIS from the EPA, the Montana Department of Fish, Wildlife and Parks, and two individuals. In response to several of the comments, clarifying information and some additions are included in this ROD.

IV ALTERNATIVES

Development of Alternatives

From the issues identified during the scoping process, alternatives were developed and analyzed to determine the effects of the project and to identify mitigation measures necessary to protect the environment. The intent of these alternatives was to address identified issues and minimize potential negative environmental impacts through modification of planned operations and relocation of the proposed project facilities. The nine alternatives, including the no-action alternative, summarized below are described in detail in Chapter 2 of the Final EIS.

Alternatives Evaluated

Alternative 1 is Noranda's mine and transmission line proposal as described in the plan of operation and applications submitted to the agencies. Devel-

opment of the Montanore Project would require disturbing six areas during construction of project facilities. The mill and mine production adits would be in upper Ramsey Creek, about one-half mile from the Cabinet Mountains Wilderness boundary. An existing evaluation adit on private land along Libby Creek would be used for ventilation. This evaluation adit was permitted under an Exploration License issued by the DSL in 1989 for the purpose of delineating the previously discovered ore body. The adit is partially complete. The term "exploration" as used here stems from the DSL permitting process, where the term "exploration" refers to a spectrum of activities, including those related to early development work prior to production. The use of the term by DSL is not intended to imply the activity is prediscovery, in the context of the Federal mining laws.

A tailings impoundment is proposed in the Little Cherry Creek drainage, and would require the diversion of Little Cherry Creek. Two land application disposal (LAD) areas are proposed to allow for discharge of excess water. Waste rock would be stored temporarily at one land application disposal area, and at the Libby Creek adit area. Permit area boundaries, which includes disturbance areas, would be established around each of these facilities. Noranda would upgrade the Bear Creek Road (#278) and two other KNF roads (#2317 and #4781). The mine is estimated to have a production life of approximately 16 years. Total employment during operations is estimated to be up to 530 employees during construction and 460 employees during operations.

A 230-Kv transmission line to supply electrical power would be constructed from Sedlak Park, adjacent to U.S. Highway 2, to the Ramsey Creek plant site, approximately 16 miles away. As is the case with the mine portion of the proposal, the KNF will consider approval of only those portions of the transmission line that are on National Forest System lands. For a comparison of transmission line alternatives on affected resources, refer to Table 5-4 on pages 401 to 402 in the FEIS.

Noranda's proposal contains very specific mitigation and monitoring plans intended to lessen the environmental impact of the project. They include surface water control, waste management, ongoing and post-operational reclamation, erosion control, economic impact mitigation, wetlands and fisheries mitigation, grizzly bear mitigation, northern beechferm mitigation, and water and aquatics interim, operational and post-operational monitoring. (Interim monitoring is monitoring that occurs between initial baseline data collection and project implementation.)

Alternative 2 consists of the agencies' proposed modifications to Noranda's mine proposal as described under Alternative 1. These modifications consist of mitigation measures intended to reduce or avoid potential impacts, and monitoring measures intended to verify predictions made in the FEIS, assess Noranda's conformance to requirements, and to further quantify the effects of the Montanore project on the existing environment. Proposed modifications include requirements to reduce impacts on water quality and quantity; mitigation for impacts to grizzly bears and their habitat; additional mitigations to reduce visual and noise effects; development and implementation of an air quality monitoring program; a requirement to develop a KNF-approved traffic and road management plan, development of additional recreational opportunities if found to be necessary at the Libby Creek Recreational Gold Panning Area; development of local hiring policies; additional impoundment pre-final design subsurface studies; and alternative impoundment construction measures. Modifications also address additional impoundment monitoring, water monitoring, inventory of northern beechferms and other monitoring measures.

Since the release of the Final EIS the KNF has modified its grizzly bear mitigation plan to adopt the U.S. Fish and Wildlife Service's (FWS) reasonable and prudent alternative. The KNF has also modified its fisheries mitigation and monitoring plans in consultation with the Montana Department of Fish, Wildlife

and Parks (MDFWP) after receiving the results of additional genetic studies on the redband trout. These modifications are in Section V of this document.

Alternative 3 includes alternative water treatment and water management plans to address the issue of impacts on water resources and aquatic life. Three different water management or treatment options were evaluated, including 3A - full lining of the impoundment and mechanical treatment of all excess water; 3B - mechanical treatment of some excess water and land application treatment of remaining excess water; and, 3C - alternative water management, land application of all excess water, and additional monitoring (this is the selected mine alternative). Mitigations and monitoring described under Alternative 2 would be incorporated into Alternative 3.

Alternative 4 consists of alternative transmission line construction methods and minor transmission line relocations. Under alternatives 4, 5, and 6, Noranda would use a helicopter rather than a crawler tractor during initial transmission line construction operations to string the wire and transmission line conductors. Under these three alternatives, DNRC has modified the Environmental Specifications (Appendix F of the Final EIS) to incorporate additional detailed measures to control potential for erosion and sedimentation. Transmission line alternatives 4, 5, and 6 incorporate the KNF's modified grizzly bear mitigation plan that was described under alternative 2.

Alternative 5 (the selected transmission line alternative) is an alternative transmission line route along North Miller Creek. Alternative 5 would realign the transmission line route from the upper Miller Creek drainage to the mouth of Ramsey Creek. As a result, the issue of visibility from the Howard Lake recreational area would be resolved. Alternative 5 would also incorporate the modifications identified in Alternative 4 as well as those identified in Appendix H, Identified Mitigation for Sensitive Areas

Crossed by the Transmission line Alternatives (pages 618 to 623 of the Final EIS). The least amount of tree clearing would occur under this alternative. This alternative would also avoid having to cross private property other than Champion International Corporation lands.

Alternative 6 would realign the transmission line route from the Fisher River to the mouth of Ramsey Creek along Swamp Creek. Construction and operation would also incorporate the modifications identified under Alternative 4. This alignment would resolve the issue of visibility from the Gold Panning Area along Libby Creek, and would avoid big game winter range. The least amount of wetlands would be affected by this alternative; however, slightly more tree clearing would occur.

Analysis of Alternative 7, the no action alternative or permit denial, is required by MEPA and NEPA. Under this alternative Noranda would not develop the Montanore Project. The effects of denying the proposal were evaluated. Existing baseline conditions and trends would be maintained. Evaluations at the Libby Creek evaluation adit could proceed only if Noranda submitted to the KNF a plan of operations for adit/mine water management related to that operation.

A more detailed comparison of alternatives is presented in the Final EIS in Tables S-1 and S-2 and the supporting narrative, and in Chapter 5. Other alternatives considered but dismissed are also described in Chapter 2 of the Final EIS.

Environmentally Preferred Alternative

The identification of the environmentally preferred alternative is required by NEPA regulations. Economic, social, technical, and agency policy factors are not considered in the identification of this alternative. Alternative 7, the no-action alternative, is the environmentally preferable alternative because it would have no impact on the physical and biological environment.

V MITIGATION AND MONITORING REQUIREMENTS

My decision to approve the Montanore Project will require Noranda to fully implement all aspects of their proposed Plan of Operation, as documented in Noranda's Application for a Hard Rock Operating Permit and Proposed Plan of Operation, and in their Application for a 230 kV Transmission Line, except as modified by Alternative 3C and Alternative 5, and in the Record of Decision. Noranda will be required to submit a revised Plan of Operations that fully includes all agency requirements.

The following mitigation and monitoring requirements to the Montanore Project will be included as conditions to my approval of Noranda's proposal to construct and operate the Montanore Project. Except where modified, these include Noranda's proposed mitigation measures and monitoring plans. The purpose of my requiring these stipulations is to reduce, eliminate or mitigate environmental effects of the project.

These mitigation and monitoring requirements are required by the KNF. In many cases they are also required by, and will be monitored by other agencies. Some of the other agencies that are involved are the Montana Department of State Lands, Department of Health and Environmental Sciences, Department of Natural Resources and Conservation, and U.S. Corps of Engineers.

Documentation

My approval of the Montanore Project will include very specific documentation requirements of Noranda. These requirements will be designed to ensure that documents (studies, plans, designs, specifications, etc) will be submitted for the agencies' review and approval prior to implementation, and to ensure that Noranda will conduct its operations in accordance with these documents when approved by the agencies. The documentation requirements will also ensure that approved measurements and

rates will not be exceeded without agency analysis and authorization. Finally, these requirements will ensure that final designs or plans include only additional details of the preliminary design or plan. Deviations from the preliminary designs or plans will be evaluated by the agencies and may require additional NEPA analysis.

Monitoring

Noranda must implement their proposed monitoring plans except where modified or superseded by additional requirements. Noranda must implement monitoring requirements identified in Appendix A of this ROD. These include the monitoring plans for hydrology, aquatic life, air quality, and the tailing dam and tailing impoundment. These monitoring plans may be modified jointly by the KNF, DHES, and the DSL as the data indicates a need for change. In addition, if monitoring data reveal unanticipated effects on water quality, aquatic life, or tailing impoundment stability, Noranda must immediately proceed, in consultation with the KNF, DHES, and the DSL, to develop additional mitigations to assure compliance with standards and to assure effective reclamation. Additional monitoring requirements are discussed in several of the following subsections.

Wildlife

Noranda must implement the revised KNF grizzly bear mitigation plan (see Appendix C2 of this ROD).

Noranda must pay 100% of the costs associated with a Law Enforcement specialist and an Information and Education specialist. The two specialists will fill new positions, with duties aimed directly at minimizing effects on grizzly bears in the Cabinet portion of the Cabinet-Yaak Ecosystem. The Montana Department of Fish, Wildlife and Parks has agreed to fill the LE position. The I&E position will be filled by either the Department, FWS, or KNF. The cost of this mitigation is estimated to be approxi-

mately \$100,000 per year, or about \$2,000,000 over the life of the project, in today's dollars.

Noranda must purchase 2,826 acres of private land or purchase new conservation easements on an equal number of acres. Noranda must obtain KNF approval of all purchases prior to purchase. These lands will be within the Cabinet portion of the Cabinet-Yaak Ecosystem. To ensure compliance with this requirement, Noranda must submit a bond, or other approved surety, in the amount of \$6,217,200 prior to construction activities.

Noranda must agree to manage any lands it might obtain through the mining claim and/or mill site patent process (that are associated with the Montanore Project) in a manner that protects the land for grizzly bear use following closure of the project.

Specific details of these mitigation requirements are discussed in Appendix C2 of this ROD.

Additionally, Noranda must remove road kill from project roads on a daily basis, use bear-proof containers for garbage, and prohibit employees and subcontractor personnel from carrying firearms within the project permit area (except for security officers and other designated personnel), leaving food or other bear attractants in the field, or feeding bears or other wildlife.

The KNF will manage lands and roads as stated in Appendix C2 of this ROD.

Traffic

Noranda must submit transportation plans to KNF for the construction and operation phases that reduces mine-related vehicular traffic and minimizes parking availability at the plant site. The plan must be submitted for the agencies' review and approval.

Ore concentrate trucks may not use the Bear Creek access road (FSR #278) during major shift change periods. All concentrate trucks must be equipped

with radios to provide communication in the event of a breakdown. Warning signs for oncoming traffic must be posted for any disabled truck.

When Noranda plows the Bear Creek and Libby Creek roads in the winter, it must also snowplow turnouts.

Visuals

Waste rock stockpiles and land application disposal areas must be designed to minimize impacts to visual resources. Waste rock stockpiles may be no higher than 15 feet below the top of the adjacent forest canopy.

Where conflict would not occur with other applicable statutes and regulations, Noranda must use earth-tone paints on the exterior of structures.

Noise

Noranda must properly maintain all equipment mufflers and noise control equipment to assure Mine Safety and Health Administration noise standards are met.

Backup beepers on surface equipment must be supplemented with strobe light-type warning devices and the sound level of the backup beepers must be reduced to the minimum level necessary to comply with safety regulations.

Northern Beechfern

The KNF has completed broad-scale inventories for the northern beechfern on the KNF. These inventories were funded by Noranda as mitigation for the loss of one of several known populations of the sensitive plant. Noranda is no longer obligated to fund additional inventories of the plant.

The KNF has compiled this data and conducted genetic studies of all known KNF populations. The

results indicate that all of the KNF populations are genetically similar to each other, and that they are genetically similar to at least one nearby Canadian population (where the species is considered secure). The Forest has written and adopted a Conservation Assessment (Strategy) for the long term protection of remaining northern beechfern populations, a copy of which is available at the Kootenai National Forest Supervisors Office in Libby, Montana.

Tailings Impoundment

Noranda must institute the tailings dam and impoundment monitoring program that is attached to this ROD as Appendix A.

Before final design, Noranda must collect and submit to KNF additional subsurface data downstream of the dam alignment to identify existing water-bearing strata. If, based on the agencies' review of the data, additional studies are required, Noranda must complete those studies and submit the data to KNF prior to submittal of the final design.

Noranda must install a ground water monitoring system of multiple nested, open-well piezometers and/or pore pressure transducers downstream of the starter dam embankment, at the perimeter of the final embankment "footprint," in order to define artesian pressures. This information must be included in the final pressure relief system design and monitoring must continue until construction of the final lift is initiated.

Noranda must construct gravel drains or modify the final design of its pressure relief system to minimize the quantity of tailing impoundment seepage entering ground water. If Noranda uses the pressure relief system, the final design must provide functionally equivalent seepage collection as the gravel drain system. The final design for this system must be submitted for agency review prior to implementation.

Water Resources

Noranda may not initiate mine-related disturbances until supporting final designs for water disposal and treatment, which provide additional detail, and are consistent with (1) preliminary designs, (2) the BHES November 20, 1992, decision on Noranda's petition to modify ambient quality and (3) Appendix A of this ROD, are submitted to KNF prior to resumption of adit construction. If any changes from the preliminary design are necessary, Noranda must apply for KNF approval of the changes. In addition to the Ramsey Creek LAD areas, Noranda may also land apply excess waters at the LAD sites in the tailing impoundment area, as described in Nitrogen Attenuation By Forest Ecosystems under Land Application, by Schafer & Assoc. (July 1992, 24 pages) using conventional irrigation techniques.

Adit water unaffected by blasting and segregated from waters affected by blasting may be discharged to any LAD area year-round provided this is approved by DHES. All other water must be stored during winter months and discharged to any LAD area except Libby Creek, during the growing season. Water must be stored in a water storage facility constructed within the "footprint" of the tailing impoundment area. The storage facility must remain in place until construction of the tailing impoundment starter dam is completed.

Noranda must install a year-round gaging station at LB 2000 to monitor flow and suspended sediment continuously.

Noranda must implement Best Management Practices identified in Appendix G of the FEIS for all construction activities. All construction activities must be conducted with the objective of minimizing sediment discharge.

If a temporary bridge is used at Ramsey Creek to provide vehicular access during adit construction, Noranda must size the bridge to allow for the passage of, at a minimum, the 50-year flow event.

If long-term withdrawals of surface water are necessary, Noranda must first notify KNF and must modify the aquatic monitoring program to take into account such withdrawals. Withdrawals may not proceed prior to KNF approval of an updated aquatic monitoring plan. Noranda may not withdraw any surface water for operational use when flows at the point of withdrawal are less than the average annual low flow. In lieu of measured annual low flows, calculated low flows at the point of withdrawal, using data from similar drainages, are acceptable.

Noranda must submit to the KNF final LAD plans and designs for approval prior to construction. The map delineating the Little Cherry Creek LAD sites and delineating the transport and irrigation pipelines must be submitted at 1:500 scale prior to resumption of adit construction.

Noranda must extend the Little Cherry Creek diversion channel to the Little Cherry Creek outlet to Libby Creek. Noranda must design a riprapped tailings pond overflow channel to Bear Creek. The designs must incorporate features which provide for stability of this transition zone so that sediment loading is not increased. Noranda must design the Little Cherry Creek diversion channel, to the extent practicable, for fish habitat and passage. These designs must be submitted for the agencies' approval.

In addition to the operational monitoring analytical list defined in Appendix A, Noranda must analyze adit and mine water for barium, thallium, beryllium, nickel, selenium, and antimony during the initial construction year. During the first year of operations, Noranda must analyze tailings pond water for the same metals. This data must be included in the annual report and will be reviewed by KNF to determine if additional monitoring is necessary.

As the mine continues to be developed, Noranda must take representative materials samples from adits, ore zones, above and below the ore zone, the interzone, as well as tailing. Static and kinetic testing must be conducted on these samples to evalu-

ate the acid producing potential. Acid-base accounting results, total sulfur analyses and pH measurements along the interior mine and adit walls must be documented.

Annual reports documenting sample locations, methodology, detection limits and testing results must be submitted to KNF. Acid-base-accounting (ABA) results must be correlated with lithology and total sulfur analyses.

Based on this sampling, Noranda must also produce a base map characterizing the acid-producing potential of the mine.

Using baseline results, fixed sample points must be located in the interior of the mine in representative geologic zones. These points must be sampled annually throughout mine life, to document changes in the pH of the adit walls and floors. These results must be compared to the baseline pH to determine if changes in pH are occurring through time. Results must be submitted with the annual report.

All data must then be correlated with water monitoring data in order to determine whether changes in water quality may be a result of acid or sulfate production.

Acid-generating materials must be segregated for special handling as they are mined and must be placed to minimize the potential for acid mine drainage. No rock materials may be used for construction purposes prior to KNF review of data documenting its acid-producing potential and approval of rock quality.

If the KNF, in consultation with DHES and DSL, determines that the data indicate a modification in closure plans is necessary to provide for assurance that long-term water quality will be maintained, the current closures plans must be updated and submitted for approval 12 months prior to closure. If Noranda closes prematurely due to unforeseen circumstances Noranda must inform KNF, DHES, and

DSL immediately and submit revised standby or closure plans for KNF, DHES, and DLS approval.

Noranda must implement monitoring at Rock Lake to provide data to estimate a baseline net groundwater seepage for the lake that will allow subsequent detection of small changes in net seepage due to possible dewatering effects of the project. All major water budget variables must be accounted for and/or estimated for, including evaporation, precipitation, surface water inflows and outflows, groundwater inflows and outflows and continuous lake levels. The lake monitoring system design and evaluation must be coordinated with KNF and DSL. Monitoring data and evaluation must be submitted to the KNF with the annual reports. If substantial increased mine inflows occur in the vicinity of Rock Lake, Noranda must submit continuous lake level data, weather permitting, and any other lake level data accumulated during the year, within 5 working days and must provide data and evaluation at an increased frequency as determined by KNF, in consultation with DSL.

Wetlands

Noranda must replace the existing forested and herbaceous wetlands affected by the project on a 2:1 basis (2 acres must be replaced for every acre disturbed). The 5.9 acres of the waters of the U.S. must be replaced on a 1:1 basis. Herbaceous/shrub wetlands must be replaced on a 1:1 basis, as proposed by Noranda.

Noranda will create or expand on existing wetlands at the following agreed to sites:

Little Cherry Creek Site	2.2 acres
North Poorman Site	3.4 acres
South Poorman Site	9.7 acres
Ramsey Site	6.7 acres

Noranda must extend the time for monitoring newly created wetlands. Intensive monitoring must be conducted every year as proposed by Noranda

through Year 5. Less intensive monitoring must be conducted every 2 years thereafter through the end of production. Monitoring methods must be those described for wetlands mitigation monitoring under Alternative 1 of the Final EIS (Noranda's proposal) and must include a field review during late summer to ensure constructed berms or channels are functioning properly, to evaluate the vegetative health of wetland plant communities, and to make general hydrologic observations. More intensive investigations must be conducted if wetlands are not functioning properly, and remedial actions taken in consultation with KNF and Corps of Engineers (COE). The biannual monitoring must be documented in a report to the agencies. Noranda must also monitor existing wetlands downstream of the tailings impoundment. As proposed in Noranda's wetland mitigation plan, an inter-agency (COE, EPA, DSL, FS, and Noranda) meeting will be convened if mitigation appears unsuccessful. If the functions and values of downstream wetlands are adversely affected Noranda must develop and implement additional KNF and COE approved wetlands mitigation.

The COE, in its role as regulator under the Clean Water Act and "404" permit process, will determine what will constitute successful, viable, and self sustaining wetlands. Success of the created wetlands remains the responsibility of Noranda until such time as COE determines them to be viable and self sustaining.

Aquatics

Following publication of the FEIS, new fisheries data for redband trout and wetlands impacts triggered an interagency recommendation to modify KNF's fisheries mitigation and aquatics life monitoring plans. In consultation with the Montana Department of Fish, Wildlife and Parks (the Department), KNF no longer considers it feasible or advisable to manage the Libby Creek watershed for the conservation of interior redband trout. Appendix A (Aquatics Life Monitoring - page 8 to 13) and Appendix B outline

the revised requirements for aquatics monitoring and fisheries mitigation.

Noranda must implement the revised fisheries mitigation plan as described in Appendix B of this ROD. KNF offers Noranda several options for mitigating the aquatics losses anticipated from the Montanore Project, including "in-kind" and "out-of-kind" projects. These projects were developed in consultation with the Department. Noranda must implement any two (or more) of the options, with the objective of replacing the functions and values lost (except as noted) due to Montanore Project construction and operation.

Final designs and specifications for each aquatics mitigation project must be submitted to, and approved by, KNF prior to implementation. Annual maintenance and monitoring of each fisheries mitigation project is Noranda's responsibility until KNF finds that Noranda has successfully mitigated for the recreational fisheries access and aquatic impacts of Montanore. Three successive years of monitoring data showing the mitigation project(s) meet or exceed the mitigation objectives will be the basis for judging success.

This ROD does not relieve Noranda or its agents from required compliance with state or other federal regulations, including requirements to secure any needed permits, prior to initiating these activities.

Geologic Monitoring

On an annual basis, in a annual report, Noranda must provide KNF with underground geotechnical data it collects to predict subsidence potential. Noranda must inform KNF of operational changes that have occurred as a result of the data. Noranda must use the procedures and methods contained in the February 1991 Redpath Engineering Report, submitted by Noranda as supplemental underground engineering and geotechnical information for the project. If KNF, in consultation with DSL, determines that monitoring data indicate subsidence is immi-

ment, or is occurring, Noranda must submit a plan for KNF approval which provides for additional mitigation.

Cultural Resources

If previously undiscovered cultural resources are encountered, Noranda must immediately cease related activities and notify KNF and the State Historic Preservation Office, and, if appropriate, the Facility Siting Bureau of DNRC. Noranda may not proceed until the agencies give approval to re-start activities.

Weed Control

Noranda must enter into and comply with a noxious weed management agreement with the local Weed Control District or adhere to the local District's Noxious Weed Management Program.

VI REASONS FOR THE DECISION

My decision to select Alternative 3C and 5 utilizes what I consider to be best mix of beneficial aspects of several alternatives while meeting the requirements of applicable laws and regulations, including the 1872 Mining Law, the National Forest Management Act, the Wilderness Act, the Clean Water Act, the Clean Air Act, and the Endangered Species Act; and Forest Service regulations (36 CFR 228, Subpart A) which regulate surface disturbing aspects of mining related activities on National Forest System lands. The FEIS contains lengthy discussions and numerous charts and tables relating to potential affects of the project on resources, and possible ways to mitigate or eliminate the affects (for instance, see Table S-1 and S-2 - comparison of alternatives, page S-13 to S-19; Table 2-16 - Tailings impoundment matrix, page 99 to 102; and Chapter 5 - Comparison of Alternatives, page 385 to 403). All reasonable and practicable means to avoid or minimize adverse environmental impacts have been adopted.

Alternative 3C, which includes modifications required in Alternative 2, provides mitigation measures designed to reduce or eliminate adverse environmental impacts that would result from mine operation, and increases the amount of interim, operational and post-operational monitoring. This alternative will reduce potential adverse effects to water quality by requiring Noranda to treat excess adit and mine waters. The adoption of this alternative would also provide for the continued existence of the grizzly bear in the Cabinet-Yaak ecosystem.

Alternative 5 adopts Alternative 4 modifications in the transmission line location and construction methods, and additionally, reduces or avoids impacts to other forest resources (such as reduced old growth and other forest effects, reduced number of miles of road, eliminates perennial stream crossings, reduced the number of intermittent stream crossings, reduced impact to elk security and big game winter range) by re-routing a large portion of the transmission line. Adoption of this alternative will ensure that transmission line construction activities will reduce effects on small private land owners, visual, wildlife, soils, and hydrology resources.

Monitoring

There was a great deal of concern regarding potential degradation of surface and ground water in the vicinity of the proposed project, including loss of beneficial uses and lost of pristine character. The Final EIS includes an exhaustive discussion on the affects of the project on water and aquatic resources. For more information see Chapter 4, Surface Water Hydrology (page 224 to 234), Surface Water Quality (page 234 to 270), Ground Water Quality (page 270 to 278), Fish and Other Aquatic Life (page 284 to 294), and Soil, Vegetation, and Reclamation (page 316 to 329) of the FEIS. The affects of the BHES granting Noranda's petition to modify the nondegradation standard was also discussed. The BHES granted the Noranda's petition, with modifications, on November 20, 1992. There

was also considerable concern over the long-term integrity of the tailings impoundment structure. The monitoring program that will be implemented by my decision will ensure that the agencies will be able to identify the need for and trigger any additional mitigations necessary to minimize impacts and ensure compliance with applicable laws and regulations.

Wildlife

Concerns were raised that the proposed action would jeopardize the continued existence of the grizzly bear in the Cabinet-Yaak ecosystem. Because of these concerns, mitigations are required to reduce and mitigate impacts to the grizzly bear and secondarily to reduce project effects to other wildlife. Although specific measures are defined in Noranda's proposed grizzly bear mitigation plan and in the KNF's grizzly bear mitigation plan, the US Fish and Wildlife Service (FWS) issued a biological opinion that concluded that the preferred action would likely jeopardize the continued existence of the grizzly bear in the Cabinet-Yaak ecosystem. The FWS included in its biological opinion a reasonable and prudent alternative that, if implemented, would preclude jeopardy to the grizzly bear population. The KNF grizzly bear mitigation plan has been modified to include the FWS's reasonable and prudent alternatives (see Appendix C1 and C2 of this ROD).

Other concerns were raised about the affects of the project on other wildlife, including elk, moose, and mountain goats. My decision to modify Noranda's proposal will ensure that affects to these animals will be minimized or eliminated.

Traffic

Concern was expressed about safety and the total volume of traffic on forest roads providing access to the mine. In order to maximize safety and minimize traffic, mitigation measures are included to require fewer vehicle trips per day and to reduce safety hazards.

Visuals

Concern was expressed that waste rock stockpiles and other mine facilities and disturbances would intrude, visually, on the recreational experience values of the Cabinet Mountains. To offset this effect limitations were placed on stockpile height and paint colors to be used on facilities and structures.

Concern was expressed that, as the tailings impoundment expands over the life of the project, it would become more visible to forest users. To lessen the impact, Noranda will undertake a roadside tree management program with the goal of obscuring views of the impoundment from the Libby Creek road. Additionally, Noranda will develop three viewpoints, consistent with the Forest Plan, along the Bear Creek or Libby Creek roads, focusing on the Cabinet Mountains.

Noise

Concern was expressed that noise from the mining operation would intrude on the wilderness experience of wilderness users. Of particular concern were backup safety beepers on heavy equipment. Therefore mitigations have been required to minimize the level of equipment noise.

Northern Beechfern

Concern was expressed that mine development would affect the viability of the northern beechfern, which is listed on the Regional Forester's Sensitive Species list, pursuant to Forest Service management policies. The construction and operation of the tailings impoundment would essentially eliminate the Little Cherry Creek population. In order to adequately protect this sensitive species, a better understanding of its range within the KNF was necessary. Therefore, it was explained in the EIS that Noranda funded broad-scale inventories for northern beechfern on the KNF. From these studies, and KNF-funded genetic tissue testing, it was learned that the northern beechfern does exist in several

drainages on the Forest, and that it is genetically similar to at least one nearby Canadian population, where the species is considered secure. The KNF has written and adopted a Conservation Assessment (Strategy) for the continued protection of the remaining KNF populations of the northern beechfern. A copy of the Conservation Assessment (Strategy) is available for review at the KNF Supervisor's Office in Libby, Montana.

The KNF deems Noranda's northern beechfern mitigation, as described in the FEIS, complete.

Tailings Impoundment

Concern regarding the long-term stability of the tailings impoundment was expressed during scoping. The monitoring program required under the selected alternative is designed to monitor the stability of the tailings dam throughout the life of the project and to provide more detailed information on artesian pressures within the embankment area. Additional documentation regarding the need for additional drainage is presented in the Final EIS on pages 81 to 85 and 275 to 276.

Comments were received on the FEIS indicating concern about the adequacy of disclosure of the effects of lining the tailings impoundment with a synthetic liner, and asking for clarification as to why full synthetic lining of the tailings deposit was not required in the agencies' preferred alternative. As presented on pages 87 to 92 of the FEIS, Alternative 3A includes the use of a tailings liner in association with mechanical treatment of all excess water. Two possible types of liners are discussed - clay and synthetic. The effects of lining the impoundment on the water balance are disclosed on page 88 of the FEIS. Effects of lining the impoundment on water seepage volume and ground water quality are discussed on page 277 of the FEIS. The discussion indicates that lining the impoundment would reduce tailings seepage to near zero seepage.

Alternatives 3A, 3B, and 3C (the FEIS preferred alternative) were developed as a range of alternatives that would all meet State of Montana water quality standards - the agency analysis indicates Alternatives 1 and 2 may not meet these standards (see pages 391 to 392, and Table 5-1 of the FEIS). Alternative 3A would provide for the least seepage, and, therefore, would be the most protective of water quality at the project site. Full lining is estimated to cost \$12,000,000 (page 92 of the FEIS). Alternative 3B and 3C would have different water treatment technologies, but both require a tailings seepage collection system that would be functionally equivalent to the gravel drain system discussed on pages 81 to 85 of the FEIS. The gravel drainage system (or equivalent) would significantly reduce tailings seepage from that projected by the use of Noranda's proposed system alone. The gravel drain system is estimated to cost up to \$2,000,000 (page 84 of the FEIS). All three alternatives utilize Noranda's proposed pressure relief/seepage collection system.

I have decided to implement Alternative 3C - without tailings impoundment lining - because the analysis indicates that State and Federal water quality standards can be met under this alternative. It also includes increased monitoring and provisions for modification of water treatment technologies if water quality trends indicate standards may be exceeded.

Water Resources

Major concerns were expressed about the potential for degradation of water quality. These concerns included the potential for changes in water chemistry or sediment loading that would have an impact on beneficial uses and aquatic life. In response to these concerns, the agencies closely evaluated Noranda's water management plan and determined that several modifications would be necessary to ensure protection of beneficial uses and aquatic systems. Further modifications require Noranda to implement KNF Best Management Practices (see Appendix G, page 608 to 617 of the Final EIS) that

will reduce sediment resulting from the project from reaching surface waters.

Other mitigation measures on pages 93 to 94 and pages 479 to 486 of the FEIS increase the number of monitoring locations and frequency of monitoring. These will help to ensure that the land application disposal areas are operated in a way that maximizes nitrate assimilation efficiency and protect stream aquatics and fisheries during low flows. The implementation of the water management/water treatment plan would allow the KNF, DHES, and DSL to determine the actual concentrations of nitrogen in discharge water and to assess the effectiveness of the land application treatment system. If the concentrations are higher than expected, or if the land application is less effective than expected, Noranda must modify the water disposal system in accordance with a plan approved by the agencies. While the plan will allow Noranda the flexibility to apply different mitigation techniques depending on the nature and magnitude of the trend towards exceedence of permit authorizations, the plan will include such possible requirements as active water treatment of all excess water. The Final EIS considered ion exchange, reverse osmosis, and evaporator water treatment systems as possible alternatives.

As a result of these concerns the DHES Water Quality Bureau (WQB) recommended Alternative 3C to the BHES in November, 1992. In the BHES's November 20, 1992 order Noranda is required to implement the water treatment technologies of Alternative 3C, and maintain total nitrates to no more than 1 milligram per liter in surface water. In addition, Noranda must operate the treatment system at a minimum efficiency of 80 percent. Noranda will not be allowed to change the ambient quality of waters any more than shown on Table 2-6, page 48 of the Final EIS (Nitrate/nitrite, as mentioned above, is limited to 1.0 mg/L, as opposed to the requested level of 5.5 mg/L). Noranda will fund a one half full-time-equivalent WQB employee who will be assigned to monitor and assess Noranda's water quality moni-

toring program. Additional monitoring requirements are also included in this alternative.

KNF and DSL have modified the Rock Lake monitoring requirements presented in the Final EIS in order to improve our ability to detect changes in the Lake which may be caused by mining. The monitoring plan defined in the Final EIS would only detect large scale changes in the Lake. If changes are detected, additional monitoring at St. Paul Lake would be required and operational changes in mining would be implemented.

Wetlands

Concern was expressed about the effect of the project on waters of the United States, including wetlands. The agencies, in consultation with the Corps of Engineers (COE) and the Environmental Protection Agency (EPA) determined that replacement of wetlands, as described in Noranda's application would not succeed in replacing functions and values, and therefore would not meet current regulations. Therefore, KNF modified Noranda's plan to include a different ratio of wetlands replacement, expanded the monitoring aspect of the mitigation, and included mitigation for waters of the U.S. In addition, Noranda will monitor adjacent wetlands to ensure that wetlands other than those described in the Final EIS are not affected, or if other wetlands are affected, to implement mitigation.

Aquatics

It was identified early in the NEPA process that Noranda's aquatics monitoring plan would require modification. The agency plan is described on pages 85 and 487 to 494 of the FEIS. This plan was conditioned upon the finding that the Libby Creek watershed is suitable for conservation of the interior redband trout. The FEIS monitoring plan was formulated to balance monitoring needs against conservation of a rare species of fish. New fisheries information made available to me after publication of the FEIS indicates that hybridization of redbands with

other species of trout makes this conservation goal unrealistic. Based on this new information, the State of Montana's fisheries management goal for Libby Creek is now conservation of a mixed stock of trout (redband-rainbow-cutthroat hybrid). While my goal is similar, it is restricted to management of fisheries habitat.

With this change in fisheries conservation goals, I now have more latitude in monitoring of aquatic resources. As stated in the Mitigation and Monitoring Requirements section of this ROD, Noranda is required to monitor the implementation and success of fisheries mitigation projects. I have also received many comments from other agencies and individuals concerned about details of the FEIS aquatics monitoring plan encouraging me to expand the plan. These facts, together with the scientific uncertainties identified in chapters 4 and 6 of the FEIS, convinced me to expand the aquatics monitoring required of Noranda.

Appendix A of this ROD contains the details of an expanded aquatics monitoring requirement for the Montanore Project. These new monitoring tasks include additional fisheries monitoring stations and additional sediment monitoring methods at some stations. Appendix B of this ROD is the KNF's modified fisheries mitigation plan that Noranda must implement.

Geologic Monitoring

Concerns were expressed that mining underground in the vicinity of wilderness lakes could potentially result in subsidence of lands within the wilderness or could harm the lakes. Implementation of geotechnical monitoring and reporting requirements would reduce the potential for subsidence or drainage.

Recreation

Concern was expressed that the project would have adverse effects on recreation. Specifically, the visibility of the transmission line from the Howard Lake

Campground or the gold panning area along Libby Creek would reduce the value of the recreational experience. There was also concern that increased usage of existing recreational facilities would exceed existing capacity of the Gold Panning Area. The KNF will monitor use and when monitoring parameters indicate that use exceeds capacity, KNF will require Noranda to implement additional measures designed to increase the capacity at the area..

Socioeconomics

Concern was expressed that a great number of people would move into the area and create a fiscal burden on community services and infrastructure. Concern was also expressed about the effect an influx of people would have on local social services. Under its Hard Rock Impact Plan, Noranda has committed to developing a local hiring policy designed to lessen the impacts related to the project. Therefore the KNF will not duplicate this requirement.

Short-Term Effects of the Project

Short-term effects are those that would occur over the life of the project. Mine life is projected to be 16 years. Including the construction period and reclamation the project is estimated to last approximately 20 years. In the short-term, approval of this project with modifications would cause changes in water quality possibly up to the levels permitted under the BHES order of November 20, 1993, changes in land use, changes to forest and wilderness visual resources, temporarily increase sedimentation, reduce available grizzly bear habitat, decrease the total forest population of northern beechfern, and old growth and wetland acreage on KNF lands. However, over 10 percent of the protected old growth would remain, thus complying with the Forest Plan (see page 316 of the FEIS). Mining construction and operation, and increased traffic on forest system roads would decrease air quality slightly for the short term. There would be an in-

crease in population, employment, income, and demand for housing, in the Libby area, providing for economic growth. Silver and copper would also be mined for industrial purposes.

Cumulative Effects of the Project

Concern was raised that the project, when combined with other activities in the vicinity, would have unanticipated cumulative effects. The cumulative effects and resource commitments of this project, in conjunction with existing KNF and private land activities and possible future activities, were analyzed in the Final EIS in Chapter 4 under each resource. The extent of this analysis was determined by the pattern of use for each resource. Thus, wildlife concerns covered a different area than water concerns. The cumulative effect of Noranda's project and Asarco's Rock Creek project, a similar mine proposal approximately 7 miles to the southwest in another drainage system, have also been evaluated.

Cumulative air quality effects should not approach ambient air quality standards (see page 217 of the FEIS). No cumulative effects would occur to ground or surface water resources as a result of the Montanore and Rock Creek projects (see pages 233 to 234, 269 to 270, and 278 of the FEIS). Cumulative effects to surface waters, fisheries, and stream insect populations from the Montanore Project and KNF timber harvest activities would be minimized through the use of Best Management Practices (see Appendix G of the FEIS), although occasional reductions in insect populations and possibly fish abundance could occur (see page 294 of the FEIS).

Long-Term Effects of the Project

Long-term effects are those that would be essentially permanent as a result of the project. As a result of operational controls, reclamation plans and additional mitigation, long-term effects would be limited and would frequently benefit the Cabinet-Yaak ecosystem. There would be an increase in available grizzly bear habitat, and a slight increase in the total

acres of wetlands, as well as additional protection for the northern beechfern. Loss of the northern beechfern population in the Little Cherry Creek drainage would be permanent. Lost acreage of old growth would gradually be replaced.

A portion of Little Cherry Creek would remain permanently diverted from its original channel, resulting in a 2 percent loss of existing hybrid trout habitat in the Libby Creek drainage. Habitat improvement mitigation measures, however, would result in the replacement of fish and recreational access lost as the result of the diversion. Access roads would remain wider and the tailing impoundment, although reclaimed, would permanently reconfigure the landscape. Following mine closure and reclamation, other aesthetic effects would be reduced or eliminated.

Long-term soil productivity is estimated to be reduced in the tailing impoundment area and along access roads. In addition, approximately 25 acres of roadless area would be lost in the Ramsey Creek drainage (see page 328 to 329 of the FEIS).

Mine water quality is expected to improve with time; however, it is uncertain whether water quality following operations would return to ambient, or pre-mine, conditions. Neither the mine nor the tailing are expected to be acid-producing and tailing water quality should remain the same or gradually improve with time. Subsurface inflows into underground mine openings may result in slight but permanent changes in ground water flow patterns which in turn may have slight but permanent effects on surface water flows. Thus the locations of some springs and seeps in the area could be permanently modified.

Mine development would constitute an irretrievable or irreversible commitment of approximately 95 million tons of copper and silver ore resources that would be mined under this permit. An estimated 40 million tons of ore would be left for structural support of the mine workings (Noranda is required to

leave the pillars in place rather than remove them near mine closure) and likely could never be recovered. However, this approval does not commit resources not yet proposed for mining. Any future development proposal made by Noranda would be evaluated for compliance with Federal and State statutes applicable at the time of application and would be evaluated under both the National and Montana Environmental Policy Acts in effect at that time.

Although construction of the tailing impoundment and reconstruction of the Bear Creek Road would destroy approximately 14 acres of existing wetlands and fill 5.9 acres of the waters of the U.S. permanently, mitigations would restore the function and value of these wetlands by construction of 22 acres of wetlands at other sites. Noranda would design and construct the Little Cherry diversion channel to provide, to the extent practicable, stream habitat. However, 5.9 acres of the 22 wetland replacement acres would be out of kind mitigation for the lost of a portion of Little Cherry Creek due to the impoundment.

In summary, all known practical means have been adopted to avoid or minimize environmental degradation and there are no additional significant effects occurring from the cumulative effect of other activities with the proposed mine project.

VII COMPLIANCE WITH CURRENT LAWS AND REGULATIONS

I received concurrence from the U.S. Fish and Wildlife Service that the project is not likely to adversely affect the bald eagle or its habitat, and have no effect on the gray wolf or the peregrine falcon or their habitat. I also received concurrence from the FWS that the project would not jeopardize the continued existence of the grizzly bear in the Cabinet-Yaak ecosystem because the KNF has modified its grizzly bear mitigation plan to include the FWS's reasonable and prudent alternatives (see Appendix C1).

Authority for Noranda to mine on National Forest System land is granted through the 1872 Mining Law, as amended. Noranda's two mining claims, which they assert a right to develop, lie mostly within the Cabinet Mountains Wilderness (CMW). The minerals Noranda proposes to mine lie entirely below the surface of and within the boundaries of the CMW. The Wilderness Act withdrew the lands included in the CMW from operation of the United States mining laws on January 1, 1984, subject to valid existing rights. Therefore, the Wilderness Act requires that the Forest Service determine that existing rights to mine the mineral deposit associated with Noranda's claims currently exist prior to authorizing the project.

In conjunction with Noranda's application to patent these claims, the Forest Service prepared a mining claim validity report for Noranda's HR 133 and HR 134 lode mining claims. The Regional Forester has decided that valid existing rights currently exist for HR 133 and HR 134 mining claims. He has instructed me to complete my review and make a decision on the proposed Montanore Project (see Appendix D of this ROD).

To the best of my knowledge, Alternatives 3C and 5 comply with other laws and regulations, such as the National Forest Management Act, the Clean Water Act, Clean Air Act, the Endangered Species Act, and Forest Service surface management regulations (36 CFR 228 Subpart A) relating to mining operations on KNF lands.

VIII CONSISTENCY WITH THE KNF FOREST PLAN

Management of National Forest System lands in the vicinity of the proposed Montanore project is guided by the direction found in the Kootenai Forest Plan which was approved in September of 1987. The Forest Plan established management areas which have different goals, and objectives based on the capabilities of the lands in those areas. The Forest Plan also identified management practices and

standards for each of these management areas. Management areas are described in detail in Chapter III of the Forest Plan.

Management areas in the vicinity of the project are described on page 180 to 185 of the Final EIS. Figure 3-12, page 182 of the FEIS, is a map of Management Areas in the vicinity of the project. Table 3-27, page 183 of the FEIS, summarizes the relevant standards in selected Management Areas on the KNF.

Forest Plan Goal #11, mineral development, is - "encourage responsible development of mineral resources in a manner that recognizes national and local needs and provides for economically and environmentally sound exploration, extraction, and reclamation".

The mineral objective states that mineral exploration and development may occur on most (88 percent) of the KNF; areas withdrawn from future mineral entry, where this objective may not apply, include the Cabinet Mountains Wilderness (CMW). Because Noranda currently has valid existing rights to mine ore associated with their two CMW mining claims (see Section VII - Consistency with Current Laws and Regulations), this standard does apply.

The minerals standard requires the KNF to "recognize the value and importance of the mineral resource in management activities", subject to the restrictions of various laws, such as the Wilderness

Act and the Endangered Species Act. The mineral goal, objective, and standard applies to all management areas in the project area.

Through this decision I am amending the Forest Plan for the area surrounding the tailings impoundment (approximately 1,000 acres). The new management area (MA 31 - Mineral Development) will protect the reclaimed structure from possible adverse impacts of future activities. Areas crossed by the transmission line classified as corridor avoidance areas (224 acres) are, by this decision, amended in the Forest Plan to MA 23 - Electric Transmission Corridor. Approximately 130 acres of the Libby Creek Gold Panning Area are changed from MA 14 to MA 6 - Developed Recreation Sites.

With these minor Forest Plan amendments my decision to implement Alternatives 3C and 5 is consistent with the Kootenai Forest Plan.

IX IMPLEMENTATION OF THE SELECTED ALTERNATIVE

Implementation of selected Alternative may begin no sooner than 7 days after publication of the legal notice of the Record of Decision in the Western News, Libby, Montana. However, Noranda may not begin implementation until my written authorization has been received (see Section II - Decision). This will not be issued until Noranda has formally agreed to implement all aspects of my decision.

X CONSULTATION AND COORDINATION

In conducting the analysis, the KNF, the DSL, the DHES, and the DNRC consulted with the following agencies:

Lincoln County

Montana Department of Commerce, Hard Rock Impact Board

Montana Department of Fish, Wildlife, and Parks

Montana Department of Health and Environmental Sciences, Air Quality Bureau

Montana Department of Health and Environmental Sciences, Water Quality Bureau

Montana Department of Labor & Industry

Montana Department of Transportation

Montana Department of Natural Resources and Conservation

Montana State Historic Preservation Office

Sanders County

U.S. Department of Defense, Army Corps of Engineers

U.S. Department of Interior, Fish and Wildlife Service

U.S. Department of Transportation, Federal Highway Administration

U.S. Environmental Protection Agency

XI PLANNING RECORDS

Planning records contain detailed information and data used in the preparation of the Montanore Project Final EIS and selection of Alternatives 3C and 5 for implementation. Documents are available for review at:

Kootenai National Forest
Supervisors Office
506 U.S. Highway 2 West
Libby, Montana 59923
(406) 293-6211

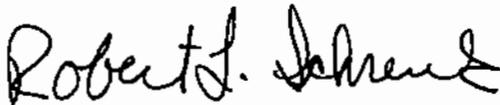
XII APPEAL RIGHTS

Noranda may appeal this decision under 36 CFR 251, Subpart C, within 45 days of the date of written notice of the decision to Noranda.

Decisions made in this Record of Decision are subject to appeal under 36 CFR 217.3. Two copies of a written Notice of Appeal must be submitted within 45 days of the date of the legal notice of this decision which is published in the Western News, Libby, Montana. Notice of Appeals must be sent to:

David F. Jolly, Regional Forester
Northern Region
P.O. Box 7669
Missoula, Montana 59807

Failure to file the appeal in compliance with procedures identified in 36 CFR 217 could result in dismissal of the appeal.



ROBERT L. SCHRENK
Forest Supervisor
Kootenai National Forest

Date: 28 SEPT 93

APPENDIX A

MONITORING

Montanore Project Record of Decision

MONTANORE RECORD OF DECISION

APPENDIX A - MONITORING

Noranda must implement the programs described in this attachment in the first quarter of construction of the mill and tailing impoundment. Monitoring programs must be maintained during the life of the project. Noranda's Interim Water Quality Monitoring, described in a letter from Dan Myers to Sandi Olsen, DSL, and Bob Thompson, KNF, dated May 12, 1992, or as approved by the KNF, DSL, and DHES-WQB, must be continued up to the time of implementing these monitoring plans. Noranda is responsible for the cost of the monitoring programs.

The goals of these monitoring programs, described in Chapter 2 of the Final EIS, are to (1) quantify any measurable environmental impacts accompanying construction, operation, and reclamation of the mine; (2) evaluate the accuracy of projections of impacts; (3) document compliance with regulatory performance standards and permit conditions; and (4) determine whether changes to project operations or additional mitigative actions are required to correct any unanticipated impacts or to prevent future violations of regulatory requirements.

Whenever performance standards, such as surface or ground water quality standards, have not been achieved, Noranda must implement corrective actions approved by the agencies.

QUALITY ASSURANCE/QUALITY CONTROL

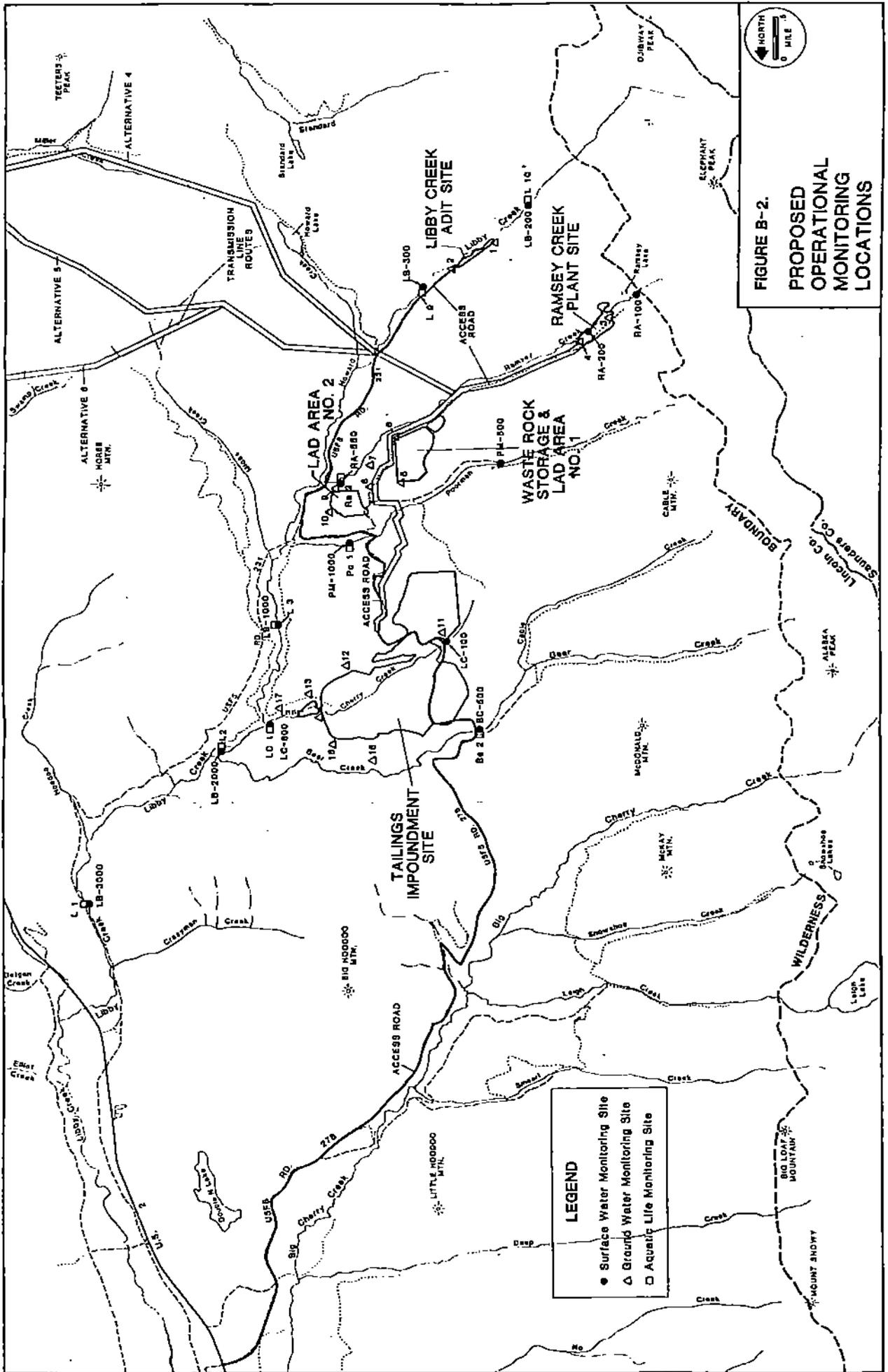
As part of each plan for environmental monitoring, Noranda must develop and submit quality assurance/quality control (QA/QC) procedures. These procedures must collectively comprise a QA/QC plan which ensures the reliability and accuracy of monitoring information as it is acquired. QA/QC procedures must include both internal and external elements. Internal elements may include procedures for redundant sampling such as random blind splits or other replication schemes, chain of custody documentation, data logging, and error checking. External procedures may include audits and data analyses by outside specialists, and oversight monitoring and data checking conducted by various regulatory agencies.

Written reports to document the implementation of the QA/QC plan must be an integral part of monitoring reports. If variances or exceptions to established sampling or data acquisition methods are detected during monitoring, they must be documented. Documentation must include a discussion of the significance of data omissions or errors, and measures taken to prevent any reoccurrences. Reports must be submitted to the appropriate agencies with the annual report, unless otherwise requested.

HYDROLOGY MONITORING

SURFACE WATER

Surface water must be monitored for quality and flow in Ramsey, Poorman, Little Cherry, Bear and Libby creeks. Noranda must sample the monitoring stations in March (early spring low flow), June (spring high flow), September (late summer low flow), November (fall low flow), and January or February (winter low flow). A year-round flow station must be installed at LB 2000 to monitor flow and suspended sediments continuously.



The months of measurement may be changed depending on the results of the continuous flow measurements at LB 2000. Substances to be monitored are shown in Table B-2. Monitoring stations are presented in Table B-2 and shown on Figure B-2.

If substantial inflows to the mine occur in the vicinity of any of the lakes, Noranda must report inflows to the agencies within 48 hours. Lake water level data must be tabulated and included in the quarterly hydrologic monitoring report.

GROUND WATER

Noranda must monitor ground water downstream of all project facilities. Ground water sampling must be conducted at the same time as the surface water sampling. Noranda must use standard ground water modelling techniques and "tracer compounds" such as nitrate, total dissolved solids and potassium to evaluate the effects of Noranda's discharges and to predict impacts to surface water. Ground water monitoring locations are shown in Table B-4 and on Figure B-2.

In order to establish baseline and monitor the effectiveness of Land Application Disposal (LAD) treatment, Noranda must install additional ground water monitoring wells, in consultation with the agencies, in and around the Little Cherry Creek LAD area. Noranda must collect baseline water quality information from the wells at a minimum from March, or as soon as the Kootenai National Forest allows, through November 1993. Noranda may not land apply in the Little Cherry Creek area until baseline is complete.

Noranda must sample excess adit and mine waters with sufficient frequency to determine actual average concentrations and loads of nitrates and ammonia discharged. The temporary water storage pond must be sampled once a month when it is in use. Adit and mine water also must be sampled directly. Samples of adit and mine water must be "composited" on an hourly basis over a 24-hour period. During the first 6 months of construction, composite samples must be collected and analyzed for nitrates and ammonia twice a month. During the next 6 months, sampling and analysis frequency must alternate between every-other day in one month and twice-a-month in the next month.

Noranda must provide the agencies with information concerning its blasting cycle to ensure the adit and mine water samples are representative. Sampling frequency in subsequent years would be decided at the annual meeting.

Ground water monitoring locations must be sampled in LAD areas monthly whenever excess water is discharged to the LAD areas (anticipated during the construction phase and beginning in Year 10 of operations). If nitrate or ammonia concentrations increase in ground water, Noranda must notify the agencies within 2 weeks and initiate twice-a-month monitoring of all adjacent surface and ground water stations, as agreed to in consultation with the agencies. Monthly monitoring of ground water must continue for at least a year following cessation of discharges.

At the end of the first monitoring year and following submittal of the annual report, Noranda must meet with the agencies to discuss the monitoring results and evaluate the effectiveness of the land application treatment system. Following the annual review, the agencies would decide whether a change in monitoring or operations would be required. When twice-a-month monitoring is not required, monitoring must occur five times

per year, as discussed above. Noranda must present the details of the additional monitoring in the final water management/treatment plan to be submitted to the agencies for review and approval.

Table B-2. Proposed surface water monitoring stations.

Station	Location	Purpose
Libby Creek LB 200 LB 300 LB 1000 LB 2000 LB 3000	Above Libby Creek adit Upstream of the Howard Lake confluence Downstream of Poorman Creek and Midas Creek confluences Downstream of Little Cherry Creek confluence Upstream of the Crazyman Creek confluence	Provide reference station on upper Libby Creek Assess potential impacts from the Libby Creek land application area (LAD) Assess potential cumulative impacts from Ramsey Creek and Libby Creek LAD area and plant site Assess potential impacts from tailings impoundment Assess potential cumulative impacts from upstream sources
Ramsey Creek RA 100 RA 200 RA 550	Above Ramsey Creek plant site Below Ramsey Creek plant site Above Libby Creek	Provide reference station on upper Ramsey Creek Assess potential impacts from the plant site Assess potential impacts from the plant site and Ramsey Creek LAD area
Little Cherry Creek LC 100 LC 800	Above tailings impoundment Upstream from Libby Creek confluence	Provide reference station on Little Cherry Creek Assess potential impacts from tailings impoundment
Poorman Creek PM 500 PM 1000	Upstream on Poorman Creek Upstream from the Libby Creek confluence	Provide reference station on upper Poorman Creek Assess potential impacts from Ramsey Creek LAD area
Bear Creek BC 500	Upstream from any disturbance and above USFS Road #278	Provide reference data from an undisturbed tributary station

Source: Hydrometrics, Inc. 1989

Table B-3. Proposed analyses for surface and ground water samples.

Specific conductivity (1.0)§	Flow or static water level (wells)
Total suspended solids (1.0)	Aluminum (0.1)
Total dissolved solids (1.0)	Arsenic (0.005)
Sodium (1.0)	Cadmium (0.0001)
Calcium (1.0)	Chromium (0.004)
Magnesium (1.0)	Copper (0.001)
Potassium (1.0)	Iron (0.05)
Carbonate (1.0)	Lead (0.0007)
Bicarbonate (1.0)	Manganese (0.02)
Chloride (1.0)	Mercury (0.0002)
Sulfate (1.0)	Silver (0.0002)
Nitrate + Nitrate as N (0.01)	Zinc (0.02)
Total Kjeldahl nitrogen as N (0.2)	Field Temperature (°C)
Total phosphorous as P (0.005)	Total alkalinity (as CaCO ₃) (1.0)
Ammonia (0.05)	Total hardness (as CaCO ₃) (1.0)
pH	Turbidity (0.1)

Source: Chen-Northern, Inc. 1991b; revised by the agencies.

§ Proposed analytical detection limits are shown in parentheses in mg/L.

Table B-4. Proposed ground water monitoring sites.

Well No.	Location	Purpose
Libby Creek Drainage 1 and 2	Down-gradient of edit facilities	Assess potential impacts from the Libby Creek LAD area
Ramsey Creek Drainage 3 4 5, 6, and 7 8, 9, and 10	Up-gradient of plant site Down-gradient of plant site Down-gradient of LAD area 1 Up-gradient of LAD area 2	Provide reference station on upper Ramsey Creek Assess potential impacts from the Ramsey Creek plant site Assess potential impacts from the Ramsey Creek LAD area Assess potential impacts from the Ramsey Creek LAD area
Little Cherry Creek Drainage 11 12 through 17	Up-gradient of tailings impoundment Down-gradient of tailings impoundment	Provide reference station on upper Little Cherry Creek Assess potential from tailings impoundment

Source: Hydrometrics, Inc. 1989

Table B-5. Proposed aquatic life monitoring stations.

Station†	Location	Purpose
Libby Creek L 10 (LB 200) L 9 (LB 300) L 3 (LB 1000) L 2 (LB 2000) L 1 (LB 3000)	Above Libby Creek adit Upstream of the Howard Lake confluence Downstream of Poorman Creek and Midas Creek confluences Upstream of Bear Creek Upstream of Crazyman Creek confluence	Provide reference station on upper Libby Creek Assess potential impacts from the Libby Creek LAD area Assess potential cumulative impacts from Ramsey Creek and Libby Creek LAD area and plant site Assess potential cumulative impacts from up- stream sources in conjunction w/ continuous sur- face water flow monitoring Assess potential cumulative impacts from up- stream sources
Ramsey Creek Ra 2 (550A)	Upstream from Libby Creek confluence	Assess potential impacts from the Ramsey Creek plant site and LAD area
Little Cherry Creek LC 1 (LC 800)	Upstream from Libby Creek confluence	Assess potential impacts from tailings impoundment
Poorman Creek Po 1 (PM 1000)	Upstream from Libby Creek confluence	Assess potential impacts from Ramsey Creek LAD area
Bear Creek Be 2 (BC 500)	Upstream from any disturbance and above USFS Road #278	Provide reference data from an undisturbed tributary station

Source: Western Technology and Engineering, Inc. 1991a; revised by the agencies

†Corresponding hydrology monitoring station numbers are shown in parentheses.

HYDROLOGIC DATA REPORTING

Noranda must prepare a report briefly summarizing hydrologic information, sample analysis and quality assurance/quality control procedures following each sampling interval. Data must be submitted to the reviewing agencies by Noranda within a reasonable time (5-7 weeks) after each sampling trip. All monitoring data must be submitted to the agencies in an electronic format acceptable to the agencies.

The annual report, summarizing data over the year, must include data tabulations, maps, cross-sections and diagrams needed to describe hydrological conditions. Raw lab reports and field and lab quality control results also must be reported. In the annual report, Noranda must present a detailed evaluation of the data. Data must be analyzed using routine statistical analysis, such as an analysis of variance, to determine if differences exist

- between sampling stations;
- between an upstream reference station and the corresponding downstream station;
- between sampling time (monthly, growing season/non-growing season);
- between stream flow at time of sampling (for example, low flow during the fall compared to low flow during the winter); or

- between sampling years.

Noranda or the reviewing agencies may request a formal review meeting involving DSL, WQB, KNF, and Noranda. Such a meeting must be arranged within two weeks of Noranda's submitting the monitoring report to the agencies. The formal review meeting must involve representatives from the reviewing agencies and Noranda. The formal review must include evaluating probable natural, historical, or mine-related causes for any changes observed, and determining the potential seriousness and implications of any detected change. The agencies' internal or formal review could result in various outcomes, as determined by the agencies:

- Determine that no change in the monitoring programs or mine operation plans is needed;
- Require modifications to the monitoring programs;
- Require new treatment or mitigation measures be implemented as part of the mine operation plan; or
- Require Noranda to implement necessary measures to ensure compliance with applicable laws and regulations.

Recommendations from the review must be implemented through administrative processes of the Forest Service and the State of Montana.

Water Balance

Noranda must maintain a detailed water balance of inflows and outflows to project facilities. The monitoring information would be used to modify, as necessary, operational water handling and to develop a post-mining water management plan. As part of this monitoring, Noranda must measure:

- daily mine and adit discharges;
- the amount of tailings (coarse and fine) slurried to the impoundment and the percent solids of the slurry;
- the amount and source of fresh makeup water used by the mill;
- the amount of reclaimed tailings water sent to the mill;
- the amount of water from the seepage collection pond pumped back to the impoundment;
- the amount of water collected by the seepage collection/pressure relief wells and pumped back to the impoundment;
- the amount and source of water sent to the dust suppression system; if any
- the amount and source of water sent to the enhanced evaporation sprinkler system; if any
- the amount and source of water discharged to the land application disposal area, if any;
- pan evaporation technique at Little Cherry Creek impoundment site; and
- the amount of precipitation received at Little Cherry Creek impoundment site.

These measurements must be provided as monthly (or more frequently if requested by the agencies) and annual averages and totals in a quarterly hydrology report. If mine and adit inflows greater than 1,200 gpm occur over a two-month period or if excessive tailings water occurs or is anticipated, Noranda must notify the agencies within 2 weeks. Noranda's excess water contingency plans, described in Chapter 2 of the FEIS, must then be implemented. If excess inflows occur near the Rock Lake Fault, Noranda must evaluate the possible connection to surface water bodies and provide an evaluation report to the agencies.

In conjunction with monitoring of mine and adit flows, Noranda must collect water samples of inflows seasonally. Water collected by the pressure relief/seepage interception system must be sampled seasonally in conjunction with the surface water sampling. Samples must be analyzed for the parameters shown in Table B-2. The results from these samples must be submitted in the annual report.

Best Management Practices Implementation and Effectiveness

Noranda must implement the Best Management Practices (BMP) listed in Appendix G of the Final EIS for all surface disturbing activities.

SAMPLE COLLECTION AND DATA HANDLING:

Collection, storage and preservation of water samples must be in accordance with EPA procedures (EPA-600/4-4-82-029). Grab samples must be collected from streams and ground water samples must be obtained with a bailer or a submersible pump. Samples must be cooled immediately after collection. Metals in water samples must be preserved by adding nitric acid in the field to lower the pH to less than 2.0. Ground water samples for metals analysis must be field filtered through a 0.45 micron filter to allow measurement of dissolved constituents. Chemical analysis of water samples must be by procedures described in 40 CFR 136, EPA-600/4-79-020, or methods shown to be equivalent. All field procedures must be consistent with procedures described in the U.S. Geological Survey's National Handbook of Recommended Methods for Water-Data Acquisition.

Noranda must use a sample control plan which includes sample identification protocol, the use of standardized field forms to record all field data and activities, and the use of chain-of-custody, sample tracking and analysis request forms. Noranda must develop a master file of all field forms and laboratory correspondence.

Noranda must ensure representativeness by locating sampling stations in representative areas and by submitting quality control samples. Quality control samples must include blind field standards, field cross-contamination blanks and replicate samples. Field cross-contamination blanks must be inserted at a minimum frequency of 1 in 20. Blind field standards and field replicates must be inserted into the sample train at a minimum frequency of 1 in 20. In addition, Noranda must use an EPA-approved laboratory.

AQUATIC LIFE MONITORING

GENERAL REQUIREMENTS

Noranda must coordinate aquatic biological monitoring with the surface water quality monitoring program. Refer to Appendix B of this ROD and Appendix B of the FEIS for additional detail on methods to be used, and other biomonitoring requirements not superseded by this document.

Noranda must compare data collected from seven downstream monitoring stations to data collected during pre-construction baseline studies from all sampling stations, and to data collected during operation and post-operation reclamation from two reference monitoring stations.

MONITORING LOCATIONS AND TIMES

Noranda must use the nine monitoring locations proposed in Table B-5 and Figure B-2. Noranda must monitor during three periods: in April prior to run-off, in August during late summer flows, and in October prior to ice forming in the streams.

FINE SEDIMENTS

(Note: these monitoring requirements are modified from that required in the FEIS and by DSL.)

Noranda must estimate the seasonal variation of fine sediment loading (embeddedness) at each sampling station using the "substrate score" methodology. At the four fish monitoring stations (L1, L3, L9 and Be 2) the surface embeddedness monitoring will be supplemented with the "McNeil Core" substrate sampling methodology using five representative core samples if bull trout spawning is observed. Both sediment monitoring methods will determine quantitatively the percentage of fine sediment, with the substrate score applied in pool, riffle and run habitats, and the coring method looking at spawning riffles, found at each station.

ROUTINE PHYSICAL/CHEMICAL FEATURES

Noranda must measure routine physical and chemical parameters for each monitoring station at the time of sample collection. Noranda must measure air and water temperature, stream width and depths, discharge, pH, total alkalinity, specific conductance, and sulfate. Noranda must use standard EPA methods.

BENTHIC MACROINVERTEBRATE

Bottom dwelling, or benthic, macroinvertebrates are widely recognized as useful indicators in aquatic monitoring programs (Plafkin et al. 1989). Noranda must collect a variable number of "quantitative" and "qualitative" samples from each station during each sampling visit beginning with construction. The number of samples would be based on the variability of the cumulative biomonitoring data, with the sampling intensity capable of detecting a 25 percent change in conditions with a 95% probability. (Note: sampling intensity criteria is a modification from the FEIS and DSL requirements.) Quantitative benthic samples must be collected using a 500-micrometer mesh Hess net equipped with a Dolphin plankton bucket attached to the end of the net. Samples must be collected from the riffle/run habitats in the stream. Specific sampling locations at each station must be standardized, to the extent possible, for depths between 0.5 and 1.5 feet and flow velocities of less than 1.5 feet per second.

Noranda must collect the qualitative sample with a 500-micrometer mesh bottom kicknet in habitats not sampled during each collection of the quantitative samples. A unit-effort (60 seconds) kicknet sample must be collected from the various micro-habitats not sampled by the quantitative methods. Benthic macroinvertebrates collected with the kicknet must be used to supplement the quantitative list and to determine the relative abundance of the taxa inhabiting aquatic habitats at the sampling station.

Parameters used to analyze the benthic data must follow those of Plafkin et al. (1989). The parameters must include the total number of individuals collected, taxa richness, EPTC abundance (i.e., total percent relative abundance of mayflies, stoneflies, caddisflies, and true midges), percent relative abundance for each taxa,

percentage of indicator and/or marker species, seasonal and site variations, Shannon diversity index, and ratio of functional feeding groups. To summarize these data, four common statistical measures must be used (mean, standard deviation, coefficient of variation, and standard error of the mean), plus other appropriate measures (U.S. EPA, 1990).

To provide quality control and quality assurance for these studies, Noranda must maintain a permanent taxonomic reference collection that contains all benthic species collected from project area streams. Taxa identification in this collection must be documented and confirmed by taxonomic experts selected who must be with concurrence of the agencies. This reference collection must be maintained by Noranda through the period of post-operational monitoring. Following this period, the collection must be transferred to a depository selected by the agencies for permanent scientific reference.

PERIPHYTON

Noranda must sample periphyton populations at the nine monitoring stations concurrent with the proposed benthic insect population sampling episodes in April, August, and October. At each station, scrapings of periphyton must be collected from surfaces of stones and other natural substrates over the range of habitat structures, water depths, and velocities found. The scrapings must be composited and preserved in separate containers for each station. In the laboratory, major periphyton taxa must be identified by genus or species, as much as possible, and counted using standardized methods. For diatoms, permanent slide mounts must be prepared.

Noranda must prepare data reports that include lists of the major taxa identified and their relative proportions by numbers or biomass in each sample from each station. Indicator species found must be reported by their proportional occurrence and relevance.

To provide quality control and quality assurance for these studies, Noranda must maintain a permanent reference collection that contains representative samples of all dominant and any indicator taxa of periphyton collected from the monitoring stations. All such non-diatom taxa must be preserved in vials and representative permanent slide mounts made for diatom taxa. Taxonomic identifications in the reference collection must be confirmed by recognized taxonomic experts selected with concurrence of the agencies. This reference collection must be maintained by Noranda through the period of post-operational monitoring. Following this period, the collection must be transferred to a depository selected by the agencies for permanent scientific reference.

TROUT POPULATIONS

To determine possible changes in fish populations associated with development of the Montanore Project, Noranda must monitor fish populations in Libby Creek. The KNF, in consultation with MDFWP, has modified the interval and number of stream reaches from that identified in the FEIS. Noranda must monitor fish populations in Libby Creek at 2-year (instead of 3-year) intervals in four stream reaches (L 1, L 3, L9 and Be 2 - instead of one reach) using the following procedures. The stream reach must be blocked by netting at its upstream and downstream limits to prevent fish movement into or out of the sample reach during the sampling. Sampling procedures must include multiple-pass depletion electroshocking to collect trout from a 300-yard (or 300-meter) reach of stream. Population densities of each fish species captured during the

study must be estimated, where adequate sample sizes permit, using the Seber-Lecren multiple pass method or comparable method to make population estimates. The condition of all captured fish must be recorded following an examination for overt signs of disease, parasites, or other indications of surface damage. The monitoring report must be submitted within 5 to 7 weeks of completion of sampling and must be copied to the Montana Department of Fish, Wildlife and Parks, DHES, and DSL.

The same fish monitoring procedures will be used to monitor the fish response to fish mitigation projects implemented by Noranda. Beginning in the year prior to a fish mitigation project, the population density will be estimated using the approved methods. In subsequent years (yearly), the mitigation monitoring at each site will be repeated until there is evidence of a stable increase in fish at each site. The fish population data from stations L 1 and Be 2 will be used as controls to assess whether observed changes are a natural event or not. Five consecutive years of data showing a positive response by fish will be required before Noranda is credited for a mitigation project.

Similarly, Noranda will monitor the recreational use levels at all fishery access sites that are modified for mitigation purposes. Beginning the year before, and extending at least five years after implementation, Noranda must show a stable increase in use by the targeted users for each access project.

BIOACCUMULATION OF METALS IN FISH TISSUE

(Note: this monitoring requirement is a modification from that required in the FEIS and required by DSL.)

Noranda must conduct monitoring studies that measure background concentrations and document potential changes in the concentrations of cadmium, mercury and lead in the fish of Libby Creek. Each year, for five years, Noranda must collect ten cuttbow trout, each greater than four inches in size, and ten adult sculpin from Libby Creek at Stations L 1, L3 and Be 2. Collections must be completed during the late-summer to early-autumn low-flow period. Tissue samples, including homogenized flesh and skin from each fish, must be analyzed to determine cadmium, mercury and lead concentrations. Thereafter, Noranda will resample each site at a 3-year interval to document the trends in bioaccumulation of these metals. Test procedures will be the same as those used for baseline testing, unless changed by the agencies.

After the first five years of monitoring, it may be possible to focus this effort only on sculpin if a correlation can be established between the bioconcentration factors for these metals in the "cuttbow" trout and sculpin sampled. This substitution would help reduce sampling loss of cuttbow trout from Libby Creek, and minimize concerns about any possible influence of sampling on population densities in Libby Creek.

TOXICITY OF AMBIENT WATERS

Noranda must perform routine laboratory toxicity testing to monitor the potential acute toxicity present, when such waters are available in: (1) mine and adit water that is discharged to the land application disposal area, and (2) decant waters from the tailings pond. For pre- and post-operational monitoring, waters for toxicity testing must be collected during aquatic monitoring in August. During the period of operational monitoring, water for toxicity testing must be collected annually concurrent with aquatic monitoring. Noranda must collect additional water at these times from Station L10 to provide in-stream reference waters and any water needed for dilution in these toxicity tests.

Should these tests reveal acute toxicity associated with mine, adit or tailings waters, Noranda must conduct additional instream toxicity studies at the locations specified above. The additional instream studies would include waters collected from Station L1, to assess potential toxicities from cumulative upstream sources reaching downstream waters, and from Station L3, to assess the toxicity of waters potentially entering the stream through any subsurface drainages from the land application disposal area. Water from Station L10 would provide water for an instream reference station, and continue to provide dilution waters for the other tests. Toxicity tests using waters collected from the percolation and tailings ponds would determine whether these waters may be a potential source of toxicity found in ambient stream waters downstream of these ponds.

Noranda must evaluate acute toxicity following methods presented by Peltier and Weber (1985), or other methods approved by the Montana Water Quality Bureau. Initial toxicity testing must routinely employ early life stages of either cuttbow or cuttbow trout, depending on their availability, and either Ceriodaphnia or Daphnia. These four taxa are generally comparable in their sensitivities to potential acute toxicity from metals.

The pre-operational toxicity tests must be used to establish appropriate test plans for later monitoring studies, and establish whether existing chemical conditions in these creeks are potentially toxic to the test organisms in the laboratory. When successful invertebrate testing procedures are assured, joint tests using fish and invertebrate species could help to establish the toxicity-response relationship between these species in these test waters. After a satisfactory relationship has been defined, the toxicity tests using fish may be omitted as a future monitoring requirement.

SAMPLING TRIP AND ANNUAL REPORTING REQUIREMENTS

Within one week of completing biological sampling in April, August, and October, Noranda must submit a brief report to appropriate review personnel in the DSL, KNF, DHES, and Montana Department of Fish, Wildlife and Parks. This report must include brief statements about stream conditions observed at each monitoring station and must alert the review personnel to any marked changes in monitoring data relative to the cumulative monitoring record.

Within a reasonable time (5 to 7 weeks) after completing each sampling, a report containing the results of all data compiled and analyses completed from the biological monitoring collections must be submitted to the agencies on paper and on computer diskette in a format suitable to the agencies. (This reporting time period excludes data relating to bioaccumulation studies or those requiring other special chemical analyses by outside laboratories.) A brief report must accompany this data submission, highlighting any new or unusual patterns in the data, with a brief discussion of any known causes for this pattern. These reports must form the basis of the May, September, and November reviews of the monitoring results, as discussed above.

On or before each March 1, Noranda must submit an annual aquatic monitoring report that contains summaries of all aquatic monitoring data collected during the previous year. Each report must also discuss trends in population patterns and evaluate changes in stream habitat quality, based on all data collected to date for the project. Reference to appropriate scientific literature must be included. Guidance on appropriate methods for summarizing monitoring data and analyzing these data for trends are provided by Green (1979), Gilbert (1987), Plafkin et al. (1989), and in Chapter 7 of Wedepohl et al. (1990). Recommendations in these reports can include modifications to increase monitoring efficiency or to provide additional data needs.

ANNUAL REVIEW AND POSSIBLE REVISION OF THE MONITORING PLAN

Within one month after Noranda submits the annual report, there must be an annual meeting to review the aquatics monitoring plan and results, and to evaluate possible modifications to the plan. This meeting must include personnel from the DSL, KNF, DHES, Montana Department of Fish, Wildlife and Parks, Noranda's representatives, and other interested individuals.

TAILINGS DAM AND IMPOUNDMENT

Noranda must monitor the tailings dam stability both during the operating period and after cessation of mill operations. The monitoring program must consist of visual inspections, piezometer readings, estimates of seepage and topographic surveys. The various aspects of the proposed monitoring are described in detail in the following sections.

The downstream slope and toe of the tailings embankment and saddle, collection and diversion dams (when applicable) must be visually inspected by Noranda on a daily shift basis for evidence of seepage exiting the slope or the downstream toe, and a daily log of observations must be kept. If seepage is noticed, both the seep location and estimated quantity of flow must be recorded and the project geotechnical engineer immediately contacted for further inspection and recommendation for mitigation measures, if necessary.

If pumps are installed on the pressure relief/seepage collection system, the system must be monitored on a daily shift basis in order to assure proper and continuous operation. Accurate monitoring records must be maintained and available to the agencies for inspection.

Noranda must periodically measure and record ground water levels in piezometers installed within the tailings embankment, saddle dam, dam foundations and pressure relief well system for evaluation of the embankment stability during and after operations. Noranda must monitor piezometers, with monthly readings made during the first five years of operation. After three years, the monitoring schedule must be reevaluated with respect to the ground water levels and a new schedule established in consultation with the agencies.

The primary purpose for monitoring piezometers is to maintain a record of ground water levels during disposal operations in order to evaluate the slope stability of the embankments. Ground water level data must be plotted on a continuous graph as soon as is practicable after collection, allowing for development of graphs of ground water levels versus time. Trends in ground water level fluctuations which could impact embankment stability must be reviewed by Noranda's geotechnical engineer during each monitoring period in order to determine the potential for instability. This information must be submitted in the annual report.

Topographic surveys of semi-permanent monuments located along the downstream toe of the toe dam must be performed semi-annually by Noranda in order to maintain a record of embankment settlement and movements during operations. Survey monuments also must be installed on the crest of the final dam and monitored during the final years of operation and during reclamation. It is anticipated that the final dam crest would be reached about two years before cessation of operations. Accurate records must be kept of both elevations and coordinates of the monuments. Permanent control points must be established on the final dam crest after cessation of sands deposition. In the event of excessive settlements or horizontal movements,

Noranda must notify its geotechnical engineer for review of the survey records and recommendations as required.

Noranda must measure and record the depth and/or elevation of the collection pond water level on a weekly basis so that estimates of collected seepage can be developed. Accurate records of the quantity of fluid reclaimed from the collection pond and the decant pond must be kept, including pumping rates and periods of pump operation and shutdown.

Annual reports containing all of the monitoring program data along with summaries of the collected data must be prepared by Noranda and submitted to the agencies.

APPENDIX B

FISHERIES MITIGATION & MONITORING

INTERAGENCY AGREEMENT

Montanore Project Record of Decision



United States
Department of
Agriculture

Forest
Service

Kootenai NF

506 US Highway 2 West
Libby, MT 59923

Reply to: 2810

Date: May 14, 1993

Mr. Eldon Strine
U.S. Corps of Engineers
Regulatory Branch, P.O. Box 5
Omaha, NE 68101-0005

Mr. George Bain
U.S. Environmental Protection Agency
Montana Office, Federal Building
301 S.Park, Drawer 10096
Helena, MT 59626-0096

Dear Gentlemen:

Our January 20th meeting in Kalispell resulted in a commitment by all parties to resolve the remaining fisheries issues inherent in the Noranda Minerals Corporation MONTANORE Project "404 Application". You agreed to accept a joint Forest Service - Fish, Wildlife and Parks mitigation agreement, and we committed to development of said agreement as a Montanore "waters of the U.S." mitigation requirement. Since that meeting the Forest Service and State of Montana, in consultation with Noranda Minerals, have considered new aquatics data and revisited the aquatics mitigation and monitoring plans. We have now reached agreement in principle.

The attached details our common view on the fisheries mitigation requirements for the Montanore Project. This agreement includes revisions to the aquatics monitoring plan that are warranted given the new aquatics data we evaluated. This agreement will appear as an appendix to the Forest Service Final EIS Record of Decision, and as such it will supercede (or in some cases supplement) the aquatics mitigation and monitoring sections of the Final EIS. These mitigation and monitoring actions will be joint requirements under the Forest Service Record of Decision, the Montana Board of Health and Environmental Sciences order of November 20, 1992, and the Montana Department of State Lands record of decision signed on November 23, 1992.

Daniel P. Vincent
Regional Supervisor
Region 1
Montana Fish, Wildlife and Parks

Sincerely,

Robert L. Schrenk
Forest Supervisor
Kootenai National Forest
U.S. Forest Service

attachment

cc: Sandi Olsen, MDSL
Dan Fraser, MDHES
Mark Petersmeyer, NMC



**INTERAGENCY AGREEMENT
U.S. Forest Service - Montana Fish, Wildlife and Parks**

**MONTANORE PROJECT
FISHERIES MITIGATION & MONITORING**

The Final EIS for the Montanore Project concluded that the diversion and filling of Little Cherry Creek would result in the permanent loss of approximately 5,500 feet of coldwater fish habitat (waters of the U.S.) and 330 "cuttbow" trout. The artificial diversion channel that will replace Little Cherry Creek is not expected to replace this loss of functions and values, but an effort will be made to mitigate the fisheries loss with the diversion structure to the degree possible. Other project consequences may include sedimentation of habitat, nutrient and heavy metal loading, flow depletions, and modified recreational fisheries use. However, these indirect and cumulative effects have a high degree of uncertainty due to a lack of scientific data on the fish response to such changes in relatively sterile waters like those in the project area.

The Final EIS contains a mitigation and monitoring plan for fisheries that was conditioned by interior redband conservation priorities for the project area. The Montanore fisheries mitigation and monitoring plan is relatively conservative, in spite of the scientific uncertainties on effects, because of the desire to conserve the redband trout. Supplemental genetics data received after the Final EIS indicates the affected redband population is essentially irreversibly hybridized, and thus the fish mitigation and monitoring plan is resting upon a faulty assumption.

At the urging of several Federal and State agencies and interested individuals, the U.S. Forest Service and the State of Montana re-examined the fisheries mitigation and monitoring plan in light of new fisheries data. Several coordination meetings resulted in findings of fact (1,3). The following is the culmination of this re-examination of the fisheries mitigation and monitoring issue.

FINDINGS

The Final EIS conclusion that 330 "cuttbow" trout would be lost due to diversion and filling of Little Cherry Creek (2) is in error. Consultations with the State (3) revealed an error in the assumptions used for the impact assessment - there are approximately 6.4 fish per hundred feet of stream immediately above the diversion point, rather than none as assumed. Further, the mitigation plan is strongly tipped in favor of redband conservation, so the objective of replacing the loss of redbands is likewise in error. Any mitigation that is conditioned upon the assumption that no fish are upstream of the diversion channel, and that redbands are the species to mitigate for, are thus invalid.

The Final EIS classification of the Little Cherry and Libby Creek redband population as an Experimental Sensitive Fish Population (partially hybridized but suitable for rehabilitation) is in error. Subsequent sampling of this population by the Forest Service (4) indicates it is a hybrid swarm of rainbow, redband and cutthroat. The State of Montana considers this population irreversibly hybridized, and has concluded that a mixed-stock (hybrid trout) is the management objective for this fishery (5). Any mitigation and monitoring that is conditioned upon the assumption that redbands are the emphasis species in this watershed are thus invalid.

The Final EIS aquatics monitoring plan is overly conservative in several fisheries and habitat evaluation elements. The original monitoring plan (7) was formulated to protect the redband population from further losses of adult fish due to monitoring activities. Direct mortalities that are at the discretion of the cooperating agencies were thus minimized at the expense of monitoring precision and reliability. Further, the monitoring plan fails to track the success of the proposed mitigation effort, and thus insure one-for-one mitigation. The monitoring plan is also weak in areas critical to the evaluation of effects on bull trout. The findings (above)

indicate redband conservation is no longer a constraint upon monitoring, and thus portions of the monitoring plan are invalid.

REVISED Mitigation and Monitoring

Montanore Project

Mitigation

The loss in fisheries production is agreed (6) to be 506 trout (aged 1 year or older), with an approximate intrinsic and recreational value of \$5223, annually (4). The existence value of a fish population is given no dollar value, but is acknowledged as variable depending upon the personal values of individual "owners" of this public resource. The access to the Little Cherry Creek fishery is an additional loss of recreational opportunities (4). For purposes of mitigation, the U.S. Forest Service (Kootenai N.F.) and Montana Department of Fish, Wildlife and Parks (hereafter termed "we") agree that limited access to the affected length of Little Cherry Creek warrants a loss estimate of 383 angler-hours of recreational potential regardless of existing use levels. We further agree that the mitigation goal will be replacement of a lost fishery, with a reasonable degree of certainty. Measured mitigation accomplishments should equal or exceed the fish and recreational-use loss estimates, as opposed to an economic expenditure (compensation) by the project's proponents.

Thus, the primary Montanore fisheries mitigation objective will be to replace this 506 mixed-stock trout loss with a variety of potential projects. The secondary fisheries mitigation objective will be to replace the loss of access to a recreational opportunity. These two impacts of the Montanore project are essentially permanent losses, but assuming the direct project impact lasts 30 years (Life-of-the-project plus 10 years for recovery), mitigation for the existence-of and access-to a fishery will be considered reasonable mitigation for effects in "perpetuity"(5). Noranda Minerals Corporation will select and implement as many access and fish-loss mitigation projects as are necessary to replace (with a reasonable degree of certainty) the losses identified.

Mitigation for a resource loss, and in particular a "waters of the U.S." impact, should be a replacement in-kind whenever feasible and out-of-kind only when necessary or prudent. Further, it is reasonable for the public to expect that project effects will be minimized, or compensated for, as soon as practicable. We have thoroughly reviewed the mitigation opportunities available for the Montanore project and find that a range of mitigation options, and incremental mitigation, is the most prudent course of action.

We are convinced that a group of potential projects offers the best chance of achieving the mitigation objectives given the uncertainty associated with some types of mitigation, and because we have not studied the benefits and costs of each potential project in detail. We further agree that it is reasonable to allow Noranda Minerals Corporation the flexibility to choose the most cost-effective mitigation strategy from the range of options presented to them, since the agencies have no preference or priority on which mitigation options are implemented.

The Forest Service and Fish, Wildlife and Parks offer the following list of mitigation guidelines as principles to be used in selecting and implementing mitigation projects:

emphasize mitigation for species of concern (sensitive species) where appropriate

strive to create isolated populations of genetically-pure fish (bull trout, redband or westslope cutthroat)

protect, mitigate, and enhance biological production in the affected waters

mitigate off-site only when full mitigation of natural production is not possible within the affected waters

emphasize natural fish production and habitat when feasible

utilize artificial propagation of fish to enhance populations and provide recreational opportunities only when natural production is not possible

To mitigate the fisheries impacts associated with the Little Cherry Creek diversion, Noranda Minerals Corporation will do the following under the supervision of the Forest Service and Fish, Wildlife and Parks:

1. Before any other mitigation work is attempted, and immediately prior to closure of the diversion dam, that portion of Little Cherry Creek to be permanently dewatered will be block netted, and all fish resident in the affected stream section will be collected by hand and moved to the newly constructed diversion channel as it is flooded (may require temporary holding facility) - said channel will be designed and constructed to incorporate as many fish production characteristics as is technically feasible given the hydrologic constraints of the structure. **[no mitigation "credit" until Montanore closes permanently, and then both an access and a fish production "credit"]**

2. Prior to, or concurrent with, the start of Montanore construction, Noranda will finance additional fish investigations to determine the genetics, distribution, and abundance of fishes of concern (sensitive species) in the Libby Creek watershed (redband, bull trout and westslope cutthroat). **[no mitigation "credit"]**

3. Following the completion of #1 above, implement recreational access mitigation to compensate for the loss of 383 angler-hours through one or more of the following **(not prioritized, recreational access "credit")**:

a. Howard Lake - construct paved access trails and 3 fishing platforms for physically-challenged recreationists in the vicinity of the existing facilities. Restrooms and other facilities shall be modified to improve accessibility.

b. Ramsey Creek - construct a vehicle pullout and small parking area in the vicinity of the millsite (accessible to motorized public), and a trail around the millsite that leads to upper Ramsey Creek or Ramsey Lake (only approved if a new fishery is created, see #4.e. below).

4. Following the completion of #1 and 3 above, implement fish production mitigation to compensate for the loss of 506 trout (annually) through one or more of the following **(not prioritized, fish production "credit" unless otherwise noted)**:

a. Howard Lake - rehabilitate up to 100 feet of the lake outlet to provide spawning and rearing habitat, using pool-riffle control structures, overhead cover, clean gravels, and proper flow-depth controls.

b. Libby Creek - rehabilitate habitat upstream from the mouth of Howard Creek through creation of pool and hiding cover habitat, stabilization of old mining spoils, and channel narrowing; enhance habitat values in stream reach immediately downstream of the 'Libby Adit'.

c. Libby Creek Watershed - conduct a sediment-source inventory in the watershed, and stabilize, recontour, and revegetate priority source areas (typically roadcuts) in Libby, Hoodoo, Poorman, Midas and Crazyman creeks. [**"credit" in-lieu-of fish production**]

d. Standard Creek - survey upper reaches for rehabilitation opportunities, implement habitat work to mitigate limiting factors, and stock with a trout species of concern (artificial barrier protection if needed).

e. Ramsey Lake/Creek - survey upper reach of Ramsey Creek, and Ramsey Lake, for suitability as a trout species of concern fishery, implement habitat work (and barrier) as necessary, and stock with suitable type and number of fish.

f. Snowshoe Creek - survey upper reach for channel stabilization and habitat rehabilitation needs, implement habitat and streambank work as needed to mitigate limiting factors, and stock with a trout species of concern (may require liming of watershed to speed-up recovery of an aquatic ecosystem).

g. Kilbrennan Lake - Rehabilitate the fish population in the watershed to create a self-sustaining wild trout population, implement habitat rehabilitation work as needed based on a survey.

We agree that the identified mitigation options have a near-certain probability of success in replacing the functions and values projected to be lost in Little Cherry Creek due to Montanore. Some or all of the projects will be implemented, with monitoring data on each project accomplishment being the basis for issuing "credits" for mitigation. As noted above, several projects will be implemented prior to, or concurrent with, the start of the Montanore project. We agree that replacement of some functions and values will occur over the life of the project rather than immediately, since we will require five years of monitoring data indicating stable or increasing mitigation success (median value to be used as a measure of the amount of "credits" earned) before accepting a project as successful mitigation.

We understand that mitigation projects will be vulnerable to the same risks faced by natural habitats and fisheries. Therefore, we agree that Noranda Minerals Corporation will be responsible for maintenance of all fisheries mitigation projects until full mitigation of fisheries losses is complete and accepted by the agencies. Obligations for the operation and maintenance of the diversion channel are a separate issue not affected by this agreement. We further agree that Noranda Minerals Corporation may offer alternatives or additions to the mitigation plan should they fail to accomplish the fisheries mitigation objectives after implementing the present list of options, if a completed mitigation project is destroyed by a natural disaster, or if further investigations nullify a potential project. Finally, we agree that Noranda Minerals Corporation must submit project surveys and designs for consultation and agency approval prior to implementation of any fisheries mitigation project.

These mitigation actions are joint requirements under the Forest Service Record of Decision, the Montana Board of Health and Environmental Sciences order of November 20, 1992, and the Department of State Lands record of decision signed on November 23, 1992. The Agencies reserve the right to further modify the fisheries and aquatics mitigation requirements if monitoring indicates unanticipated impacts, or if there is a project design change or a violation of State water quality laws.

Monitoring

The aquatics monitoring plan (5) is hereby expanded to further insure protection of beneficial uses, to insure full mitigation for anticipated fisheries impacts, to optimize the monitoring program in areas of scientific uncertainty over effects, and to better monitor the potential effects on bull trout. We agree that these changes

are necessary and prudent given the new fisheries information made available since the publication of the Final EIS.

Nearly one hundred individuals and organizations have expressed concerns about water quality and heavy metals effects, sediment effects, fisheries impacts, and the proposed monitoring program during the environmental review process. In recognition of this concern, we agree that additional fisheries monitoring reaches will be required to assure protection of beneficial uses. The mitigation program will be monitored for success, and as a means to document the magnitude of fish population and recreational use accomplishments. A more direct measure of the potential effects on bull trout will be included in the monitoring program. In recognition of the risks and uncertainties associated with water quality effects issues, additional fish tissue monitoring effort will be required.

The Final EIS monitoring plan (7) required monitoring and evaluation of cumulative effects on fish populations at one stream reach. This requirement is modified to better assess the impacts of upstream non-point sources of anticipated change. We agree that Noranda Minerals Corporation will be required to monitor fish populations at three additional reaches (L3, L9 and Be 2) in addition to the one station (L-1) already specified. Further, the frequency of fish monitoring will be increased to once every other year. The fish population estimate method will be modified to a multiple-pass depletion estimate (2-3 pass). All other methods (i.e. block-netting, health exam, 300-yard reach) will remain the same.

The success of the mitigation program will be founded upon documented evidence of a sustained increase in fish standing stock at sites treated. We agree that Noranda Minerals Corporation will annually monitor the use level or fish population, both before and after, at each fish mitigation site. In both instances, monitoring of each mitigation project must use similar data from Stations L 1 and Be 2 (untreated sites) for comparison purposes to assure that the observed change is not a natural event. Annual population data and estimates will be collected at each fish-production mitigation site, and when five consecutive years of data indicate a sustained increase (no significant difference in the latest two-year estimates) in standing stock, the project will be considered a success. At access mitigation sites, annual use estimates must indicate a five-year median use rate of 128 angler-hours or more by the targeted users to be considered a success. The amount of fish or access "credits" given for a project will be on the basis of the documented increase (median value for five years of data).

The Final EIS aquatics monitoring plan (7) specifies that potential sedimentation effects be monitored using a surface embeddedness procedure. While this method provides an early warning of substrate changes, it does not directly address the habitat quality concern for the sensitive bull trout in the Libby Creek watershed. Therefore, we agree that Noranda Minerals Corporation will conduct additional sediment monitoring to quantify the percent fine sediments (< 1/4 inch) in riffle habitats if bull trout redds are observed in monitoring reaches. At all aquatics monitoring stations, the "substrate score" methodology (8) will be used for surficial sediment monitoring. At stations L1, L3, L9 and Be2, "McNeil core sampling" will supplement the substrate score procedure if bull trout spawning use is observed. When bull trout spawning is observed at any or all of the four fisheries monitoring reaches, a total of five substrate cores will be taken and analyzed at a representative transect using the procedures recommended by the Montana Department of Fish, Wildlife and Parks (9, 10).

The Final EIS monitoring plan (7) requires a trout and sculpin analysis of metals accumulation in fish tissues. The details of this bioaccumulation monitoring were conditioned by the assumed presence of redband trout. The agencies agree that new information justifies changing the frequency of this monitoring element. Noranda Minerals Corporation will collect ten trout and ten sculpin for tissue analysis (cadmium, mercury and lead) for five consecutive years concurrent with project startup. Thereafter, a trend sample of ten or more fish (sculpin, or trout plus sculpin, see reference 7) will be taken every third year. Further, this monitoring element will be conducted at two additional stations - L3 and Be2 - besides the cumulative effects station (between L1 and L3).

REFERENCES

- 1 - Perkinson, R.D.. 1993. Montanore Project Fish Mitigation Meeting. U.S.F.S., KNF, 2810 memo (4/2/93), Libby, MT. 5pp.
- 2 - Perkinson, R.D.. 1991. NORANDA Aquatic Mitigation. U.S.F.S., KNF, 1950 memo (5/21/91), Libby, MT. 4pp.
- 3 - Hensler, M.E.. 1993. Montanore EIS mitigation package. MDFWP, R-1, MH5.93, Libby, MT. 3pp.
- 4 - Perkinson, R.D.. 1993. NORANDA Aquatic Mitigation. U.S.F.S., KNF, 2670 memo (2/4/93), Libby, MT. 5pp.
- 5 - Vincent, D.P. 1993. Interagency Memo. MDFWP, ref. DV232.93, 2/4/93, Helena, MT. 2pp.
- 6 - Vincent, D.P. 1993. Final EIS comments. MDFWP, R-1, DV218.93, 2/25/93, Helena, MT. 3pp.
- 7 - U.S. Forest Service et.al. 1992. Montanore Project, Final Environmental Impact Statement, Vol. 1 & 2.
- 8 - Crouse, M., C. Vallahan, K. MaLeug and S.E. Dominguez. 1981. Effects of fine sediments on growth of juvenile coho salmon in laboratory streams. T. Am. Fish. Soc., 110: 281-286.
- 9 - McNeil, W.J., and W.H. Ahnell. 1964. Success of pink salmon spawning relative to size of spawning bed materials. U.S. Fish Wildlife Service, Special Scientific Report. Fisheries 469. 15pp.
- 10 - Shepard, B.B., and P.J. Graham. 1982. Fish resource monitoring program for the upper Flathead Basin. EPA Contract No. R008224-01-04. MDFWP, Kalispell, MT. 61pp.

APPENDIX C

Montanore Project Record of Decision

C1 - U.S. Fish and Wildlife Letter

C2 - Revised Grizzly Bear Mitigation Plan



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Mountain-Prairie Region

IN REPLY REFER TO:

ES
MAIL STOP 60120

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

JUL 2 1993

Mr. Robert L. Schrenk
Forest Supervisor
Kootenai National Forest
506 U.S. Highway 2 West
Libby, Montana 59923

Dear Mr. Schrenk:

Your letter dated June 14 outlines how the Kootenai Forest intends to implement the reasonable and prudent alternative in the Fish and Wildlife Service's (Service) April 7, 1993, biological opinion on the Montanore Project. The Service has reviewed the modifications to the reasonable and prudent alternative presented in your June 14 letter and the rationale presented for these modifications.

The Service concurs that implementation of the reasonable and prudent alternative with these modifications and designation of a Montanore Project displacement area involving Bear, Cable, and Poorman Creek drainages will achieve the objectives of the reasonable and prudent alternative. The Service also agrees that the Memorandum of Understanding can be signed after the Record of Decision, provided that the Record of Decision does not authorize the Noranda Minerals Corporation (Noranda) to conduct surface disturbing activities until after the Memorandum of Understanding is signed.

Your decision to close the Bear Creek Road yearlong for the life of the project (an additional closure of 3.5 months during the period July 1 to October 15) legitimately allows the total land acquisition program to be reduced by 236 acres, from 3,062 acres to 2,826 acres, and still achieve the "no net loss" objective of the reasonable and prudent alternative. Our biological rationale for providing 236 acres of credit to the land acquisition program is as follows:

- Current spring and fall Bear Creek Road closure equals 4.5 months.
- Additional closure from July 1 to October 15 equals 3.5 months.
- Bear use period from April 1 to November 30 equals 8 months.
- 138 habitat units within the Bear Creek Road influence the zone.

Mr. Robert L. Schrenk

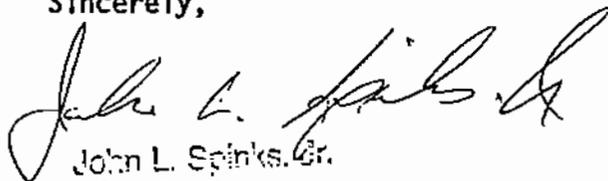
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- $138 \text{ habitat units} / 8 \text{ months} = 17.25 \text{ habitat units/month.}$
- $17.25 \times 3.5 \text{ months} = 60.4 \text{ habitat units credit for additional closure.}$
- $60.4 \text{ habitat units} \times 3.9 \text{ acres/habitat unit} = 235.5 \text{ acres credit.}$

Your letter references comments attributed to the Service's Grizzly Bear Recovery Coordinator that recovery is more a social problem than a biological problem. I would like to clarify that resource extraction activities such as the proposed Montanore Mine do pose serious biological impacts to the grizzly bear as identified in the Service's jeopardy biological opinion. Comments from the Service's Grizzly Bear Recovery Coordinator that public acceptance of the grizzly bear recovery program is important and needed should not be interpreted to mean that biological impacts associated with resource extraction activities are not an important aspect limiting survival and recovery of the grizzly bear in the Cabinet/Yaak Ecosystem. The Service recognizes that there are both biological as well as social factors that have to be considered in grizzly bear management and recovery. The Service will continue to work with the Kootenai Forest on both aspects so that our mutual objectives can be accomplished. The successful resolution of the "jeopardy" biological opinion with your cooperation and that of Noranda will certainly benefit the local communities, Noranda, and grizzly bear recovery.

Your cooperation in meeting our joint responsibilities under the Endangered Species Act is appreciated.

Sincerely,



Deputy Regional Director
John L. Spinks, Sr.

cc: Mr. Dan Vincent
Montana Department of Fish,
Wildlife, and Parks
Helena, Montana

Mr. Mark Petersmeyer
Noranda Minerals Corporation
Libby, Montana

Dr. Chris Servheen
Fish and Wildlife Service
Missoula, Montana

APPENDIX C2

MONTANORE PROJECT

REVISED GRIZZLY BEAR MITIGATION PLAN

The Kootenai National Forest (KNF) biological assessment (BA) for threatened and endangered species for the Montanore Project was signed on April 1, 1992. It was included in the project Final Environmental Impact Statement (FEIS) as Appendix C. The BA included a grizzly bear mitigation plan which was developed to reduce or minimize the effects of the project on grizzly bears and their habitat. The project BA was transmitted to the U.S. Fish and Wildlife Service (FWS) for consultation. The FWS concluded in its biological opinion that implementation of the project is likely to jeopardize the continued existence of the Cabinet-Yaak grizzly bear population. The FWS' biological opinion included a "reasonable and prudent alternative" which, if implemented as part of a revised mitigation plan, would preclude jeopardy of the grizzly bear.

The KNF stated its intent to adopt the FWS' reasonable and prudent alternative in a letter to the FWS dated June 14, 1993. The letter included a specific methodology of implementation. In a June 2, 1993 letter to the KNF Forest Supervisor (Appendix C1 of the Montanore Project Record of Decision), FWS stated that the KNF's described methodology of implementation of the reasonable and prudent alternative would meet the intent of the Service's reasonable and prudent alternative.

This appendix (C2) to the Montanore Project Record of Decision constitutes a revised grizzly bear mitigation plan, and incorporates FWS' reasonable and prudent alternative as stated in the KNF's June 14, 1993 letter. The KNF grizzly bear mitigation plan (Appendix I of the project BA) is superseded by this revised plan. Exhibit 1 to this appendix is a revised displacement area map, as agreed to by the FWS (see Appendix C1 to this ROD), that replaces displacement compartments 44C and 48 as displacement for project operational impacts.

The revised grizzly bear mitigation plan will reduce and mitigate for the effects on grizzly bears and their habitat. Specifically, the mitigation plan will reduce direct, indirect, and cumulative effects by providing for the spatial requirements of the bear, managing for an adequate distribution of bears, reducing mortality risks, and maintaining habitat suitability with respect to bear food production. The mitigation plan is divided into five main parts. The effects of implementing this plan are discussed in the project BA, under the section entitled GRIZZLY BEAR, Analysis of Effects.

MITIGATION PLAN MANAGEMENT

A Memorandum of Understanding (MOU) between the KNF, FWS, and the Montana Department of Fish, Wildlife and Parks will be established to oversee implementation of the mitigation plan. The KNF is responsible for assuring that the mitigation plan is proceeding in accordance with agreements made between the KNF and FWS, and between the KNF and Noranda. The KNF will counsel with FWS and the Department prior to making final determinations regarding implementation of elements of this plan.

The duties of the KNF are as follows:

- Prioritize and direct the land acquisition and grizzly bear habitat preservation program.
- Evaluate proposals and approve specific habitat enhancement projects for acquired lands.
- Review progress reports on the status of the mitigation program.
- Direct the activities of the Information and Education program.
- Evaluate the need for the I&E position after five years, and determine if the funds should be directed towards monitoring, research, or habitat management. Direct these activities if they occur.
- Evaluate the effectiveness of reclamation and determine if and when roads closed as part of project mitigation can be reopened, and the specific timing for releasing acquired lands.

The land acquisition functions of the KNF generally will be conducted as follows:

- The KNF, in counsel with FWS and the Department, will develop a list of desirable lands to acquire, and will prioritize these lands in order of importance taking into account the number of habitat units per acre available for each parcel, other desirable grizzly bear habitat qualities of each parcel, the location of the parcels relative to the project area, and other related factors.
- Noranda will be responsible for carrying out the acquisition program, either directly or through contract with a third party.
- The KNF, in counsel with FWS and the Department, will be responsible for review and approval of each acquisition prior to purchase, and approval of conservation easements.

LAW ENFORCEMENT AND INFORMATION/EDUCATION PROGRAMS

Two new full-time wildlife positions will be created, with duties aimed directly at minimizing effects on grizzly bears. This includes a law enforcement officer and an information and education specialist.

Funding for the two full-time positions will be as follows:

- Noranda will fund each of the positions on an annual basis. The estimated total cost for the positions is approximately \$3.1 million over the life of the project, assuming an initial annual cost of \$97,355. per year and an average inflation rate of 4.2% per year (approximately \$1.9 million in today's dollars).
- Noranda will work with the employing agency to establish a collection agreement and other agreements necessary for the creation of the positions.
- Noranda will be informed by the employing agency two months prior to the beginning of each fiscal year the amount of monies needed to fund the positions for the following year, and a bill for collection issued.
- Noranda will place the monies for the positions in a cooperative or similar account one month prior to the beginning of each fiscal year. With KNF agreement, other arrangements can be made as is deemed appropriate by the employing agency and Noranda.

The law enforcement position:

- will be an employee of the Montana Department of Fish, Wildlife, and Parks.
- will be funded through the end of the operating period. For the purposes of this requirement, the operation period will be considered to have ended when mining has ceased and all reclamation identified in the Plan of Operations, as modified by the KNF ROD, has been accepted as complete by the KNF.
- will be assigned to a specific area generally encompassing the southern portion of the Cabinet Mountains, particularly the East Front.
- duties will be established by the KNF in counsel with FWS and the Department, and will be directed towards those enforcement activities needed to: (1) deter illegal killing of bears; (2) investigate all reported/suspected bear deaths and help prosecute illegal actions; (3) minimize/eliminate grizzly mortality due to mistaken identity during black bear hunting seasons; (4) enforce applicable Federal and State laws, regulations, and policy/guidelines regarding proper sanitation practices and storage of bear attractants; and (5) enforce road closures and help prosecute violations of road closure and vandalism.

The Information and Education position:

- will preferably be an employee of the Department. If this is not possible, the I&E position will be an employee of FWS, the KNF, or Noranda, as determined by the KNF in counsel with the FWS and Department.
- duties will be established by the KNF in counsel with FWS and the Department, and will be directed toward: (1) education of school-age children regarding grizzly bear conservation and biology; (2) development of educational materials and programs oriented toward mine employees; (3) development of informational/educational materials and programs oriented toward the general public and local community; and (4) integrating with the actions and programs of the Interagency Grizzly Bear Committee and its Subcommittees.

As discussed, the KNF will determine if the Information and Education position should be continued after the first five years of the project, or whether the funds should be used instead for programs such as grizzly bear monitoring, research, or habitat management. If the position is terminated at year 10, approximately \$500,000 (today's dollars) would be available over the remaining life of the project for the above mentioned purposes.

In the future, if additional mines are developed in the Cabinet Ecosystem, funding for both positions may be shared by other mining companies, subject to approval by the KNF in counsel with FWS and the Department.

HABITAT PROTECTION

There are three sub-parts to this mitigation measure: road management, habitat acquisition, and management of patented mill site claims.

Road Management

Road management mitigations include both yearlong and seasonal closures. These closures are intended to off-set immediate effects of the mine operation by providing additional security adjacent to the impacted area, and replacing lost space and habitat units. In addition to closures required to meet Forest Plan standards the KNF will implement the following closures.

- The upper Bear Creek Road #4784 will be closed yearlong for the life of the project. The closure will be at the location of the existing seasonal gate closure which is 2.1 miles from the end of the road.
- The South Fork Miller Road (No. 4724) will be closed on a seasonal basis (April 1 to June 30) for the life of the project. The closure (6.6 miles) will be closed at the junction of the main Miller Creek Road No. 385.

These closures will be in effect prior to beginning construction activities, and will continue through the operating period and into the reclamation period.

Habitat Acquisition

The KNF, in its biological assessment, determined that habitat acquisition mitigation would be based on replacement of habitat units effected by the project. That is, Noranda would purchase lands or obtain conservation easements as approved by the KNF until a certain number of habitat units were acquired. As part the KNF's implementation of FWS's reasonable and prudent alternative, this is changed. The unit of measure for mitigating for project impacts has now become acres, rather than habitat units.

The KNF calculated that 785 habitat units would be affected by Montanore Project operation phase activities, with an average of 3.9 acres per habitat unit. The habitat unit figure was converted to acres in order to establish an estimated cost of acquiring land equivalent to the habitat units being impacted. The KNF, in consultation with the FWS, determined that the upper Bear Creek road closure would provide 60.4 habitat units, or an equivalent 236 acres of mitigation. Noranda must mitigate for the remaining unmitigated project effects by purchasing 2,826 acres of private lands, rather than land acreage equivalent to the remaining habitat unit value (725).

Acquisitions will be completed within a six year period, beginning at the time of construction, with at least 50 percent completed within the first three years. Acquired lands will be managed for the best interest of the grizzly bears throughout the life of the impacts. All management will be approved by the KNF, in counsel with FWS and the Department. Selection and approval of parcels to be acquired will be directed by the KNF, also in counsel with FWS and the Department.

The location of acquired lands will be within the Cabinet portion of the Cabinet-Yaak Ecosystem. Preference will be given by the KNF for lands within the affected Bear Management Units and lands along the east side of the Cabinet Mountains. For biological reasons, and because of the potentially limited amount of lands that may be available for acquisition within this area, lands within other portions of the Cabinet portion of the Cabinet-Yaak Ecosystem may also be considered.

With agreement between the KNF and Noranda, and in counsel with FWS and the Department, any of the following could occur with the acquired parcels:

- Noranda may purchase the private parcels directly, and then transfer title to the KNF, or other state or federal resource management agencies. If the KNF acquires these lands they will be managed as Management Situation 1 grizzly bear habitat.
- Noranda may purchase the private parcels directly, and then transfer title to a private conservation organization, along with an acceptable conservation easement directed at protecting the land for use by grizzly bears.
- Noranda may purchase private lands directly, and then retain title to the lands, along with an acceptable conservation easement directed at protecting the land for use by grizzly bears.

- Or, in some instances, Noranda may purchase a conservation easement with fee title remaining with the private party.

Conservation easements generally would be established in perpetuity. The KNF may, on a case-by-case basis, and in counsel with FWS and the Department, accept conservation easements established for a fixed period of time extending throughout the life of the impacts (not in perpetuity). If this option is selected:

- For those parcels acquired to compensate for habitat influenced but not physically altered by project activities, conservation easements will remain in effect, at a minimum, until the activities in the upper Ramsey Creek basin have ceased, and the road system returns to its current yearlong closure status.
- For those parcels acquired to compensate for physically altered habitat, easements will remain in effect until, at a minimum, the disturbed areas have been adequately revegetated. For those sites where revegetation with grizzly bear foods is desired, adequate reclamation would be completed when grizzly bear foods attain 40% coverage on one-tenth acre vegetative plots randomly selected in the impacted area. This procedure is described in detail by Madel (1982), and was used as the basis for mapping high value foraging components in the Cabinet Mountains.

Noranda will provide the Forest Service "first-right-of-offer" before offering fee title of acquired lands to third parties. The Forest Service will seek a mineral withdrawal on any acquired lands to prevent future mineral entry. Under certain conditions, Noranda might also be able to enter into a land exchange with the Forest Service, and in return receive lands outside of grizzly bear habitat.

After the KNF, in counsel with FWS and the Department, determines that project impacts have ended, the acquired lands could be used by others seeking mitigation for effects on grizzly bears, providing that acceptable conservation easements or other conditions are satisfied to protect these lands for grizzly bear use.

The direct cost for habitat acquisition is estimated at approximately \$5,652,000. This is based on an average estimated cost of \$2,000 per acre. The actual cost for these lands would vary based on factors such as parcel size, location, owner, time of purchase, and whether or not a conservation easement was included with the property.

The bond estimate is made as follows:

The total land acquisition acreage figure multiplied by an average dollar per acre value for desirable private lands in bear habitat along the east Cabinet front, plus 10 percent of this figure to account for real estate transaction costs.

Determination of the average dollar per acre value for land along the east front was taken from information provided by the KNF Lands Staff (T. Anderson, pers. comm., 1/10/92) and Flathead NF Lands Staff (H. McAllister, pers. comm., 11/17/92), and was estimated at \$2000./acre. This estimate could vary, of course, as stated above. The 10 percent real estate transaction cost estimate is based on advice from these same sources.

The bond amount Noranda must provide to the KNF to ensure land acquisition requirements are achieved is:

$$2,826 \text{ ac.} \times \$2,000/\text{ac.} (1 + 0.10) = \$6,217,200.$$

Noranda must submit this surety bond to the KNF prior to construction activities. The bond will take into account any lands that Noranda might have already purchased prior to that time, providing that the KNF, in counsel with FWS and the Department, accepts such lands for mitigation. This provides Noranda with the

flexibility of obtaining lands now, but does not commit the KNF to accepting them as part of the mitigation package.

If, because of failure on Noranda's part, it becomes necessary to collect the bond, Noranda will be responsible for all legal fees incurred by the Forest Service. Since completion of the acquisition program will be a provision of project approval, failure to comply could result in project shutdown. The bond will be reviewed annually to determine if the bond amount should be adjusted.

MANAGEMENT OF PATENTED LANDS

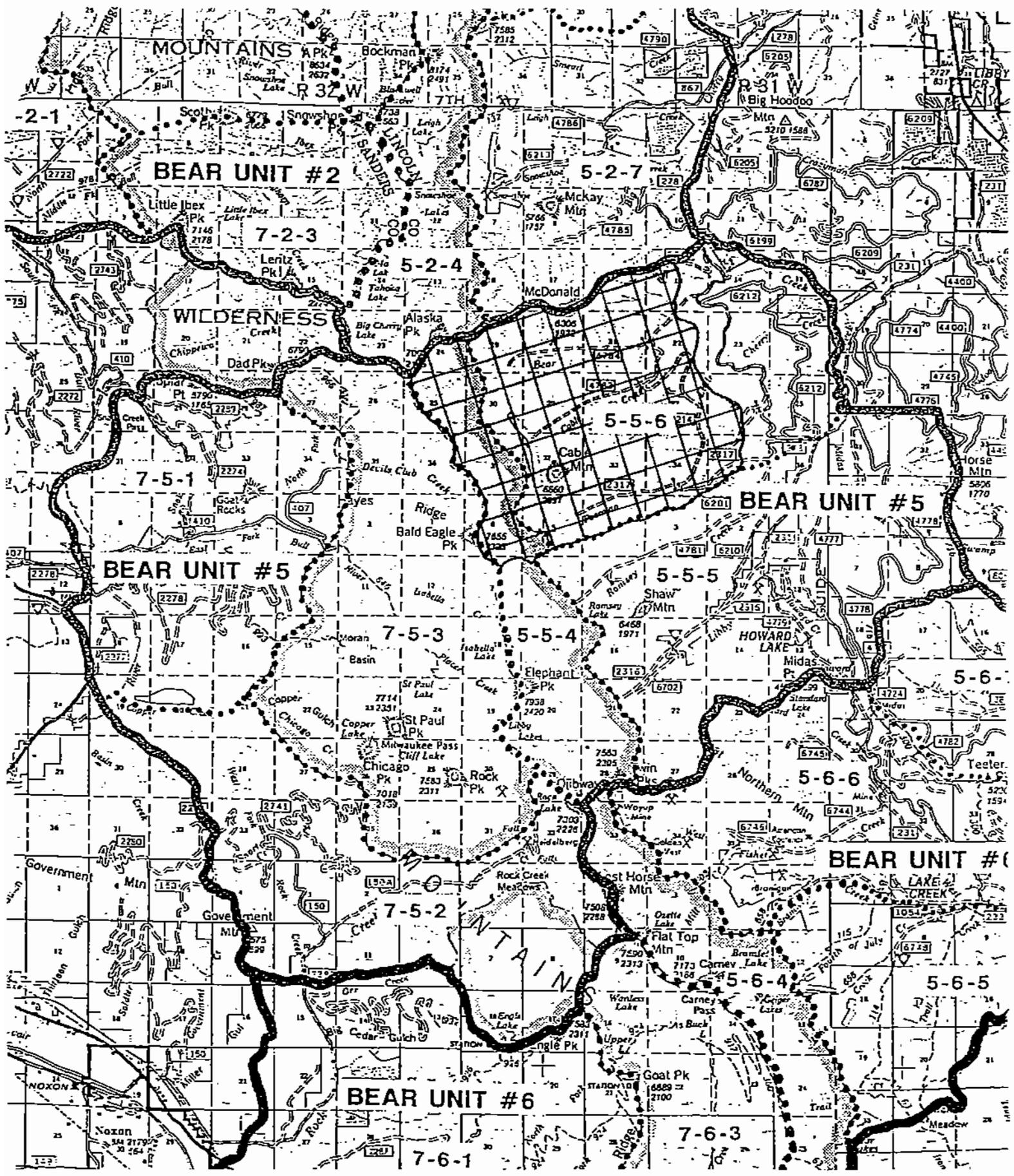
Any mill site claims that Noranda might patent as a result of the Montanore Project, or mining claims that may be patented on the mineral deposit, will be managed by Noranda to provide for grizzly bear use subsequent to the mining operation. This is to ensure that these lands are not developed after the mining operations for uses that could be detrimental to grizzly bears. Patented claims will be handled in one of three ways:

- As agreed to between Noranda and the KNF, Noranda will transfer fee title to the Forest Service once reclamation of the lands has been completed. Lands acquired by the KNF will be managed as Management Situation 1 grizzly bear habitat.
- Noranda may retain title to the lands, but will provide a permanent conservation easement directed at protecting the land for use by grizzly bears. The KNF must approve the provisions of the easement.
- Noranda may sell the lands to another party providing that a permanent conservation easement is included. The KNF must approve the provisions of the easement.

ADDITIONAL MEASURES

Additional measures will be implemented to reduce mortality risk directly associated with the project.

- The Forest Service will restrict public motorized travel in the upper Ramsey Creek drainage. This restriction will occur at the northeast corner of Sec.2 (T27N,R31W), at the junction of Road #6210. Noranda will implement this restriction.
- Noranda will remove road kill from project roads on a daily basis to reduce the potential for human-bear interaction.
- Noranda will prohibit employees from carrying firearms within the permit area, except for security officers and other designated personnel.
- Noranda will use bear proof containers for garbage, and will prohibit employees from leaving foods or other bear attractants in the field.
- Noranda will prohibit employees from feeding bears or other wildlife.



MONTANORE PROJECT GRIZZLY BEAR MITIGATION DISPLACEMENT AREA

Satisfies Element #8 of the Service's reasonable and prudent alternative - 6-9-93

APPENDIX D

**Regional Forester's
Valid Existing Rights Determination**

Montanore Project Record of Decision

United States
Department of
Agriculture

Forest
Service

R-1

Reply To: 2810

Date: September 13, 1993

Subject: Noranda Minerals Corporation's Valid Existing Rights

To: Forest Supervisor, Kootenai NF

This letter constitutes my decision concerning valid existing rights associated with Noranda Minerals Corporation's lode claims HR 133 and HR 134.

My decision is based on review of an administrative record which contains a June 1993 mining claim validity report for lode claims HR 133 and HR 134 and documents considered in the preparation of that report. Among those documents are a Forest Service February 27, 1985, mining claim validity report and documents considered in the preparation of that report. The 1985 report also considered the validity of lode claims HR 133 and HR 134, then held by Noranda Minerals Corporation's predecessor in interest. In addition, I have met with Forest Service geologists to review the technical and geological aspects of the mining claim validity reports.

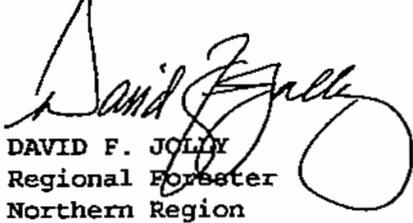
Based on this review, I have decided that Noranda Minerals Corporation's predecessor in interest did establish valid existing rights in the Cabinet Mountains Wilderness prior to December 31, 1983, and that those rights have been maintained to the present. You should, therefore, proceed with your review of Noranda Minerals Corporation's proposed plan of operations for the Montanore Project and issue your decision on whether to approve that plan when your review has been completed.

Enclosed is a copy of the approved mining claim validity report for Noranda Minerals Corporation's lode claims HR 133 and HR 134. Any requests under the Freedom of Information Act for this mining claim validity report should be forwarded to the Regional Office for processing (36 C.F.R. 200.10). Some of the information in the enclosed report clearly is confidential business information, which is exempt from disclosure under the Freedom of Information Act. The Forest Service cannot readily determine whether other information in the report may also fall within the scope of that exemption. In accordance with this Department's Freedom of Information Act regulations (7 C.F.R. 1.11 (1993)), Executive Order 12600 (June 23, 1987), and the Trade Secrets Act, the views of Noranda Minerals Corporation must be solicited before any decision is made on the disclosure of any information provided by Noranda or its predecessor in interest unless the Forest Service can readily determine that this information is not privileged or confidential business information. Consequently, you should insure that the report and its appendices are stored in a locked secure place and not released.

My decision that Noranda Minerals Corporation has valid existing rights is not subject to appeal by the public under 36 C.F.R. 217 since the decision does not

result from analysis, documentation, or other requirements of the National Environmental Policy Act. In accordance with 36 C.F.R. 228.14, Noranda Minerals Corporation may appeal this decision under the provisions of 36 C.F.R. 251, subpart C.

A copy of my letter notifying Noranda Minerals Corporation of this decision is enclosed.



DAVID F. JOLLY
Regional Forester
Northern Region

Enclosures