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United States
Department of
Agriculture

Forest Service

Intermountain
Region

Ashley National
Forest

August 2003

Paint Mine Exploration and Development Proposal

Environmental Assessment

Duchesne/Roosevelt Ranger District

Environmental Assessment
Paint Mine
Exploration and Development Proposal
Duchesne County, Utah
(August 2003)

Lead Agency	USDA Forest Service Ashley National Forest
Responsible Official	Clark Tucker, District Ranger Duchesne/Roosevelt Ranger District
For Further Information Contact	Chauncie Todd, Minerals and Lands Staff Officer Ashley National Forest Supervisor's Office 355 North Vernal Avenue Vernal, Utah 84078 (435) 789-1181

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PAINT MINE
EXPLORATION AND DEVELOPMENT PROPOSAL
DUCHESNE RANGER DISTRICT, ASHLEY NATIONAL FOREST
ENVIRONMENTAL ASSESSMEMENT

CHAPTER 1

INTRODUCTION
And
PURPOSE AND NEED FOR ACTION

1.0 INTRODUCTION

Uintah Mountain Copper Company (UMCC) of Price, Utah is proposing new exploration and development operations on one of their unpatented load mining claims located in the Slate Creek drainage of the Ashley National Forest.

UMCC began survey work, claims identification, and claims filing in the Slate Creek drainage as early as 1936. From 1936 to 1995, UMCC located, surveyed, and filed 36 load claims in the Slate Creek drainage. Eight of the 36 claims were dropped by UMCC in 1993, due to new federal filing requirements and their geologic re-evaluation of the claims area. A re-filing of two of these eight claims followed in 1995. Presently, UMCC holds 30 claims in the Slate Creek drainage. The claims are on file under the name of Sunshine Quartz Mine and Hematite Claims, and are located 2.0 miles directly west of Moon Lake Reservoir in the Slate Creek drainage. The claims area is approximately 25 air miles northwest of Duchesne, Utah in Sections 10, 14, 15 and 16 of Township 2 North, Range 6 West, USM. The proposed exploration and development operation presented in this Environmental Assessment would take place in Sunshine Quartz Claim No. 4, located in Section 15. This claim is commonly known as the "Paint Mine" and will be referred to as such throughout the Environmental Assessment.

The intent of the UMCC's past discovery and exploration work on their claims, and the proposed development work the Paint Mine is to determine the extent, quantity, and quality of hematite (iron oxide) ore and its marketability in the specialty natural pigments market.

A 6.5 mile unimproved graded access road extends from the paved Forest Development Road 131 to the mine area. The original exploration work is located at 10,200 to 10,400-foot

elevation, with surface outcrops of ferric iron oxide observable intermittently along 600 feet of exposures adjacent to the access road, and over an additional 1,500 feet of hillside.

The hematite (iron oxide) ore within the claims area is classified as a locatable mineral; and therefore, subject to exploration and development under the U.S. General Mining Law of 1872 and its amendments. This law and amendments provide the rights to citizens to claim, develop, and purchase mineral deposits subject to the U.S. Mining Laws on lands in Federal ownership, including those of the National Forest System.

Uintah Mountain Copper Company located, surveyed, filed and performed initial claims work in accordance with U.S. Mining Laws, and in accordance with State of Utah mining laws and rules, as presently administered by the State of Utah Department of Natural Resources, Division of Oil, Gas and Mining. All claims have been filed with Duchesne County, State of Utah, and the Bureau of Land Management.

Prior to 1974, mining activities on Forest Reserves and subsequently on National Forest System lands were managed under authority of the 1872 Mining Law. This law gave the Forest Service minimal control over mineral activities, including control and mitigation of surface disturbance. This management situation was remedied by issuance of Forest Service locatable mineral regulations of August 18, 1974 (36 CRF 228). These regulations established rules and procedures (along with those of the U.S. Mining Laws) by which use of the surface of National Forest System lands were to be conducted to minimize adverse environmental impacts. As directed by the regulations in 36 CRF 228, the Forest Service now approves exploration and mining operating plans and administers those operations to ensure protection and reclamation of affected surface resources.

A memorandum of understanding between the Bureau of Land Management, USDI, and the Forest Service, USDA also guides Forest Service administration of most aspects of U.S. Mining Laws on National Forest System Lands. This memorandum includes references to the Federal Land Policy and Management Act of 1976, which states that the Forest Service must consider all National Forest System lands as available for mineral exploration and development, unless the lands in question are withdrawn from mineral entry.

The National Environmental Policy Act (NEPA) of 1969, including associated agency regulations is the governing environmental law for mineral entry and associated mining operations on National Forest System lands. The Forest Service is responsible as directed by NEPA and accompanying regulations to identify issues associated with proposed mineral entry and mining operations, and to evaluate and analyze potentially significant environmental impacts.

1.1 Purpose and Need for the Action

Uintah Mountain Copper Company (UMCC) submitted a plan of operations to the Ashley National Forest in accordance with U.S. Mining Laws and regulations. UMCC received an approved Plan of Operations in 1996 for the campsite, access road and first phase of test pit

work. The current exploration and development modification to the existing Plan of Operations for completion of the test pit was submitted in 1999 and revised according to Forest Service requests on November 30, 2000, December 30, 2000, May 14, 2001, and August 23, 2001. The Plan of Operations addresses various test pit and ore removal actions within claims filed as Sunshine Quartz Mine No. 3, Sunshine Quartz Mine No. 4 (Paint Mine), and Hematite No. 5. *General Vicinity Map on page 1-7 displays the general location of these claims.*

The proposed test pit and hematite (iron oxide) ore removal is an extension of previous exploration and development phases, and are considered necessary by UMCC to "(a) verify depth and location of geologic strata and faulting identified during the previous drilling programs, (b) assess the accuracy of drill hole data interpolations for calculating hematite ore deposits/reserve, (c) determine the probable depth of overburden for possible future mining, and (d) provide for small scale reclamation projects to measure and document the viability of proposed reclamation methods and to extrapolate results to large operations". *(UMCC Engineering Analysis Report, Exploratory Test Pit Excavation & Reclamation Development Program, page 2, September 26, 1997)*

The Proposed Action is part of UMCC's program to evaluate the full mining potential of the project. The evaluation will also include a minerals evaluation; demonstrations that minerals can be mined, removed, and marketed at a profit; and methods needed to achieve successful environmental reclamation. The ore that is removed would be hauled to an off-Forest pilot plant or testing laboratories as part of project evaluation.

Past discovery, exploration and development work, ore testing, results of exploration, geologic evaluations, and ore valuations by UMCC are described in *Chapter Six, Appendices C* and D.

This Environmental Assessment is not a decision document. Rather, the document discloses the environmental consequences of implementing the current proposal by UMCC for the Paint Mine area, and all alternatives developed by the Forest Interdisciplinary Team. This document will include mitigation measures to minimize or eliminate short- and long-term environmental effects.

1.2 Proposed Action

Uintah Mountain Copper Company's proposed action is designated as Alternative A in this analysis, and detailed descriptions and analysis of the action and alternatives are found in Chapters Two and Four. The Company's proposed action is summarized as follows:

Uintah Mountain Copper Company is proposing to remove approximately 1,534 tons (650 cubic yards) of hematite ore from their unpatented mining claim. This hematite ore would be mined from an open pit and hauled to an off-Forest location near Price, Utah for bulk testing and processing. Explanatory details of the Proposed Action area as follows:

> Uintah Mountain Copper Company would access the Paint Mine area over an existing Forest Service native surface road located between the mine and the paved road to Moon

Lake Reservoir (Forest Development Road 131). Access within the mine would be over existing access/spur roads. Existing roads would not be reconstructed, and new roads would not be constructed.

The company would use a combination of earth moving and loading equipment, and 5- and 10-ton trucks to excavate, extract and remove the hematite (iron oxide) ore. A test pit approximately 55 by 60 feet to a depth of 21 feet (0.075 acres in size) would be excavated from an east-facing slope within the Paint Mine area. Topsoil and overburden would be removed and stockpiled at the end of the existing access road within the mine area, and along an existing spur road, also within the mine area. Iron oxide bearing rock would be removed, loaded on trucks and transported to an ore transfer station adjacent to the Forest Service access road at a location approximately 0.25 miles from Forest Development Road 131.

A camp facility would be located in proximity to the ore storage/transfer station. This camp facility would be used as a daily staging area and for ore transfer, with periodic housing of management personnel in one or two small trailers.

The hematite ore would be loaded on long-haul 20 to 30 ton trailer trucks at the ore transfer station, and then transported to an off-Forest pilot plant for processing and benefaction. It is anticipated that 60 to 70 long-haul trailer trips to the pilot plant would occur. (The off-Forest pilot plant operation is not part of the proposed action; and therefore, is not analyzed and evaluated in this environmental assessment.)

Uintah Mountain Copper Company would initiate and complete rehabilitation work on the test pit, spur roads and access road within the Paint Mine, and on the Forest Service access road after removal of the hematite ore. This work would include terracing of the pit area, construction and installation of gabion rock retaining structures on the terraces, replacement and wheel-roll compaction of overburden behind and along the gabion structures, replacement of topsoil, backfilling and scarification of spur and UMCC's access roads within the mine area, placing of a approved seed mixture as part of re-establishing vegetative groundcover within the mine area, and erosion control work along UMCC's access road and spur roads in the mine area and along the Forest Service access road.

The above activities would be initiated, once snowmelt and runoff substantially ended, and access roads could be used without excessive damage to road surfaces. UMCC estimates that it would take approximately 60 workdays to complete the above work. *Project Map on page 1-8 displays the location of project related facilities.*

1.3 Forest Plan Direction

The Forest Plan provides general direction for the management of area at and adjacent to the Paint Mine Project (Sunshine Quartz Mine and Hematite Claims), including the Forest Service access road and campsite facility. *This direction is found in Chapter II pp. 9-10, and Chapters IV and V of the Forest Plan. Management Areas 'f' and 'n' occur within the areas to be*

analyzed. General management guidelines and emphasis for these areas are listed below, and Table 1.1, page 1-6, displays acreage and percentage breakdown for each area. Management prescriptions are found in Chapters IV, pp. IV-5 through IV-13 of the Forest Plan.

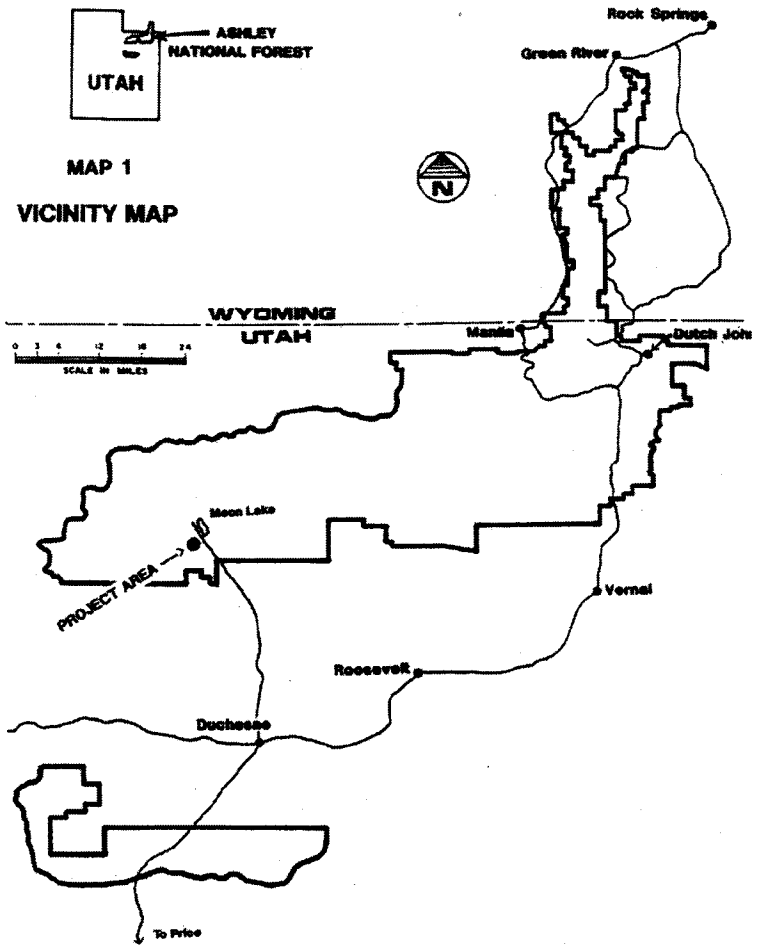
- **The objective of Management Area 'f' is to provide for dispersed recreation in a roaded environment. (One mile of the lower portion of the Forest Service access road crosses through this management area.)**
  This area receives a variety of uses in a variety of landforms and vegetation types. While traditional uses are not precluded, the area emphasis is to maintain and enhance dispersed recreation, wildlife, and visual opportunities. Transitory range would be allocated to wildlife. Wildlife improvements would be designed to enhance recreation opportunities and to optimize species diversity, and key or critical wildlife areas would be emphasized. Mineral restrictions would be those developed by established regulations and policies, or as mitigation measures for any one particular activity.

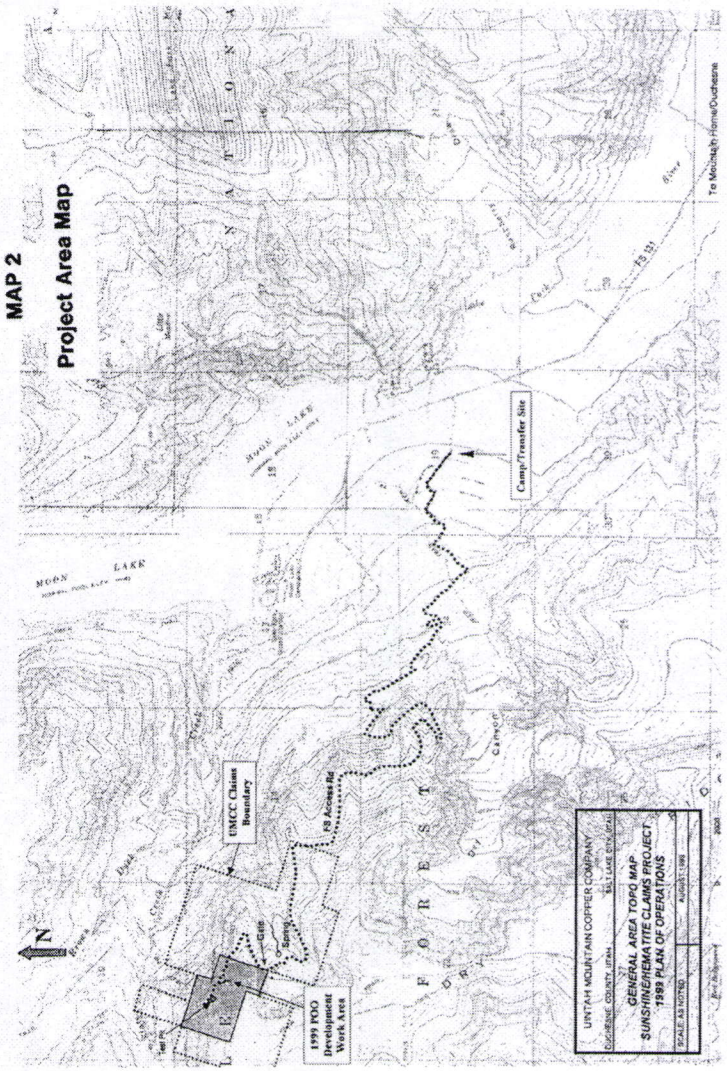
- **Management Area 'n' has the objective of allowing a range of resource uses and outputs with commodity production modified for amenity production. (The remainder of the Forest Service access road, and UMCC's access/spur roads and test pit area are located in this management area.)**
  While no traditional use is precluded by this prescription, one of its basic assumptions is that commodity production would be modified for amenity production. The framework of prescription 'n' allows the decision maker a multitude of management options dependent upon the resource constraints (identified throughout this analysis) and the standards and guidelines contained within the Forest Plan. While mineral development is an appropriate activity under this prescription, operations must be coordinated with wildlife and recreation uses. There are no mineral restrictions, other than the existing Standards and Guidelines in the Forest Plan and those developed as mitigation measures for any particular activity.

The two management areas call for maintenance and protection of riparian areas. Neither precludes mining activities.

Table No. 1.1
Acreage and Percentage Breakdown by Management Prescription
Paint Mine (Sunshine Quartz Mine No. 4)

Management Area	Acres	Percent
Area 'f' 3.6 acres of FS access road (1.0 mile of road/30 ft R/W)	3.60	14.0
Area 'n' 18.90 acres of FS access road (5.2 miles of road/30 ft R/W) 1.20 acres of UMCC access road (0.3 miles of road/30 ft R/W) 0.25 acres of truck turn around area along UMCC access road 0.20 acres of UMCC spur roads (0.1 miles of spur roads/20 ft R/W) 0.075 acres of test pit/ore extraction area 1.50 acres of camp/ore storage/transfer site area	22.13	86.0
Total	25.73	100





1.4 Decision to be made

In accordance with the Federal Land Policy and Management Act of 1976, the Forest Service must consider that all National Forest System lands are available for mineral exploration and development unless the lands in question are withdrawn from mineral entry.

With the above understanding, **the decisions to be made are:**

1. Should the Forest Service authorize and approve the Proposed Action by Uintah Mountain Copper Company as included in UMCC's Plan of Operations, including the company's measures for environmental protection and reclamation?

2. What additional measures and monitoring methods would be needed for protection of the environment, based on disclosure of all environmental impacts and the development of appropriate mitigation measures? (*Mitigation measures would become part of the final Revised Plan of Operations for the Proposed Action.)*

   Should the Forest Service allow UMCC to continue to use the camp facility for periodic housing of management personnel and staging of work as specified in UMCC's Plan of Operations; or should UMCC house their management personnel and stage their work in other facilities within or off the National Forest?

Decisions on possible mining in the future –
In regards to future development and mining proposals, Uintah Mountain Copper Company has stated that the proposed action is…"an extension of and substitute for additional drilling exploration, and is not the prelude to mining". The company also has stated that the action would allow complete pilot testing of ore, and determine the viability and success of a processing plant. UMCC has disclosed their uncertainty for conducting future operations within the mine area. In addition, the company has said that their decision to proceed or refrain from further development would be based on the outcome of the Proposed Action as explained, as well as the success of their pilot processing plant. (The pilot processing plant is located off the National Forest, and is not part of the Proposed Action.)

This Environmental Assessment (EA) will only disclose the possibility of future "development" operations, based on the outcome of ore testing and market viability of the hematite ore product, i.e., natural cosmetic pigments, and will present possible future development as "reasonably foreseeable actions" that require analysis and evaluation within a separate NEPA document *(see section 1.5 – Reasonably Foreseeable Actions).* Such reasonable foreseeable actions could be part of future proposals by UMCC and will be subject to the mining laws for "locatable" minerals. Although the Forest Service is obligated by these laws to accept such future proposals, they would be subject to additional environmental analysis, evaluation, and mitigation in a separate environmental assessment or environmental impact statement.

The reasonable foreseeable actions included in the following section (Section 1.5) will be made part of cumulative effects for each resource for the Proposed Action and Alternatives, but will not be analyzed and evaluated in detail. The analysis, evaluation, and mitigation

measures included in this environmental assessment will guide future decisions on any proposal by UMCC for mining "development" within UMCC mining claims. In addition, the results of the **current EA** (decisions and mitigation measures) may limit or otherwise influence operations included in future mining development proposals and decisions.

Decisions on Roadless area management –
UMCC's current proposed action is located within claim areas presently **excluded** from inventoried roadless areas as included in the "Forest Service Roadless Area Conservation, Final Environmental Impact Statement". Nevertheless, most of UMCC's Paint Mine and Hematite Claims extend outside of the excluded area and into the adjacent inventoried roadless area, and future proposed mining developments might be located in this roadless area. In addition, the existing campsite area that would be used during operations for UMCC's current proposed action is also located within the adjacent roadless area.

The "Forest Service Roadless Area Conservation, Final Environmental Impact Statement and accompanying Decision Memo and Final Rule addresses and recognizes existing rights associated with valid mining claims, and leasable and salable minerals that are presently leased or under contract. Notwithstanding this situation, mining laws for legal claims require that existing and future mining development proposals be accepted, analyzed, evaluated, and permitted, based on mitigation measures. Therefore, analysis, evaluation and accompanying mitigation measures for UMCC's proposed action as well as for future mining development proposals will highlight the effects to the roadless area and set standards for development that will minimize impacts to roadless characteristics and resource values.

1.5 Reasonably Foreseeable Actions

Reasonably Foreseeable Actions are included in the following section and the cumulative effects of these actions will be evaluated and analyzed for each resource in Chapter Four – Environmental Consequences.

Currently Proposed Action ***(refer to Chapter 2, Section 2.2a for detailed descriptions for the Proposed Action) –***

- Excavation of shallow open pit, 55 by 60 feet, to a maximum depth of 21 feet.
- Removal of approximately 650 cubic yards of Hematite ore (1,534 tons, assuming average ore to be 175 pounds per cubic foot).
- Removal of approximately 2000 cubic yards of overburden (4,720 tons, assuming average overburden to be 175 pounds per cubic foot).
- Excavated overburden to be returned to the open pit for reclamation.

- Approximately 0.1 acres new disturbance (the open pit).
- No new road construction required.
- Following proposed actions, open pit to be backfilled and reclaimed.
- Pit reclamation to include constructed walls, to maintain stable slope.

Reasonably Foreseeable Actions –

➢ **Minimum (Least Disturbance) Scenario:**

This scenario would occur if the exploratory mining or ore processing did not meet expectations, if major unexpected problems were encountered, or if the expected price range for final products was not achieved. Under such conditions, it is assumed that additional mining and testing would not be proposed, and that operations at the Paint Mine would be concluded.

- o No additional mining proposed.
- o Removal of mining equipment and facilities from site and camp.
- o Finish site reclamation, open pit backfilling, wall constructions, etc.
- o Reclaim portions of existing access road, which were no longer needed.

➢ **Maximum (Most Disturbance) Scenario:**

This scenario would occur if the exploratory mining achieved its desired purpose, and demonstrated strong economic incentives for continued mining. Under such conditions, it is assumed that the hematite ores met or exceeded predicted grade and tonnage levels, that ore processing was effective and reasonable efficient, and that finished products met or exceeded the projected and desired price ranges. It is also assumed that no significant problems were encountered during exploratory mining.

Under such conditions, it is reasonable that most or all of the published proven ore reserves could be proposed for future mining. For this scenario, it is assumed that all such ores are near the surface (less than 50 feet), and could be mined efficiently by open pit methods. It is not clear from the available documents, whether all of the published proven reserves are near surface, or economic to remove by open pit methods. If deeper ores proved to be economic, they would have to be mined by underground methods. Underground mining would cause relatively little surface disturbance, compared to open pit mining, and would not likely cause significant additional surface disturbance. For this reason, it is assumed that all ores would be mined by open pit, in order to show the maximum surface disturbance.

Additional deeper ores might very likely occur on the property, but would have to be mined by underground methods, which would be more expensive. Such ores have not been properly drill tested for grade or tonnage estimates, and additional drilling would be required to determine such factors before any reasonable or significant underground mining could commence. It is not reasonable to assume that any underground mining of Hematite ores would occur on the property, before the cheaper and easier near-surface ores were exhausted.

Because the finished products are targeted for a relatively small specialty market, with much higher prices than similar materials in other markets, caution would be used to prevent market flooding. The overall volume of near-surface ores is large, compared to the intended specialty market, and it would likely be many years before the near-surface ores could be exhausted. For this reason, it is not reasonable that underground mining would commence on the property for many years, if ever. Additionally, even small changes in the targeted specialty market could produce wide fluctuations in achievable product prices. Such changes would be much more likely to drive the prices downward than upward, due to much lower prices for essentially identical or superior products in other markets. Lower product prices in the targeted specialty market could easily make additional mining at the mine uneconomic. For this scenario, it is assumed that the market and finished product prices would either remain stable, or increase, during the life of the mine. This assumption is unlikely to be valid.

It is also assumed that no other valuable minerals or materials would be discovered at the mine, in addition to the known or suspected hematite ore bodies. The nature and origin of the known Hematite ore bodies, and the long history of prospecting in the nearby area, suggests that other types of valuable minerals or materials are not likely to occur at the mine. In addition, if other valuable minerals were to be discovered in the vicinity of the mine, such minerals would most likely occur within the known or suspected Hematite ores, and would be recovered as byproducts (or co-products) of the existing hematite ores.

Under the various assumptions listed above, the reasonably foreseeable maximum surface disturbance at the Paint Mine could include:

- Excavation of a larger open pit, following the published proven ore reserves. This open pit would be long and narrow, and typically less than 50 feet deep. Available maps show the main ore body to be approximately 375 feet long, with a maximum width of up to 75 feet. Additional documents suggest that this ore zone was extended approximately 100 feet by later drilling. Assuming that all of this ore is economic, and less than 50 feet from the surface, an open pit to remove the entire ore body would be approximately 500 feet long by up to 100 feet wide, and averaging 50 feet or less in depth.

- Published maps suggest that proven ore reserves extend as much as 300 feet beyond the end of the existing access road. Because the ore zone trends to the

northeast, somewhat above the existing road, short spur roads, higher on the hillside, might also be required for access. Assuming that the existing road would be used for general area access, up to 450 feet of new road construction could be required to provide reasonable access to all of the proven ore reserves.

- Mining of the ores would occur slowly, over many years (perhaps 10 -30), to avoid flooding the small specialty market. The slow mining would lend itself to concurrent reclamation during mining.

- Only a small area of the total pit area would be open at any given time. This would result from the long and narrow nature of the ore zone, combined with the desire of the Forest Service to avoid production of waste dumps on the steep hillside below the mine site. As mining proceeded forward along the ore zone, excavated overburden would be used to backfill the sections of open pit which were already completed and mined out.

- There would be removal of up to approximately 54,363 tons of Hematite ore (22,611 cubic yards), as per the published proven reserve figures. Calculation of cubic yards, from published tonnage assumes the average density of the ore to be 175 pounds per cubic foot. This figure was obtained from Uinta Mountain Copper Company (UMCC) documents.

- There would be removal of an unknown volume of overburden, most or all of which would be used to concurrently backfill and reclaim finished portions of the open pit. The amount of overburden to be mined would depend of the average depth from the surface to the ore zone. If overburden accounted for more than perhaps 75% of the total rock to be excavated, swell of the overburden materials could become a problem. In case all of the overburden would not fit back into the reclaimed pits, an additional storage location (waste dump) for the excess overburden materials could be needed.

- Approximately 1.2 acres of new disturbance would occur from the open pit, assuming an average pit dimension of 500 by 100 by 50 feet. Only a portion of this total disturbance would likely be disturbed at any given time, however, due to concurrent reclamation during mining.

- The reclamation of open pit areas would include constructed walls, to maintain steep original slope in unconsolidated backfill materials.

1.6 Permits/Agreements Required

The U.S. Mining Laws and amendments, and the Forest Service locatable mineral regulations of August 18, 1974 (36 CRF 228) would be the authorizing documents and direction for all activities, equipment, and infrastructure that are part of the Proposed Action. No separate permits would be required for the proposed exploration and development work, the camp/ore

storage and transfer sites, and the Forest Service access road on National Forest System land.

If required, Uintah Mountain Copper Company (UMCC) would be responsible for obtaining the appropriate highway licenses and permits from the federal, state and county government offices. These licenses and permits may include the following: (Other licenses and permits may be required.)

Ashley National Forest –
- ✓ Road Use Permit and Commensurate Use Agreement for hauling on Forest Development Road 131.

State of Utah Department of Transportation -
- ✓ Truck hauling on state roads

State of Utah Division of Environmental Quality –
- ✓ State NPDES/Storm runoff permit.

State of Utah Department of Natural Resources, Division of Oil, Gas and Mining
- ✓ Compliance with Rule R647-3 of the Utah Mined Land Reclamation Act of 1975, Title 40-8, et seq., Utah Code Annotated.

Duchesne County –
- ✓ Truck hauling on county roads

UMCC would also be responsible for obtaining water rights for all water used in the exploration and development operations and for use as dust abatement on the Forest Service access road.

1.7 Scoping

Public input for the Uintah Mountain Copper Company Test Pit/Ore Extraction Proposal was invited through public notices and mailing of scoping documents on April 18, 2000. Additional scoping occurred as part of public review of the pre-decisional environmental assessment published September 21, 2001. Forest Service specialists were also consulted, and an Interdisciplinary Team (IDT) was involved throughout the analysis. A review of the scoping efforts can be found in the analysis file in the Forest Supervisor's Office.

1.8 Issues and Concerns

Six comment letters were received during initial scoping in April 2000. The IDT identified five key public issues for environmental analysis. In addition, the IDT identified seven management concerns for the proposed action. The twelve issues and concerns address the potential effects of the proposed action and alternatives on the following resources:

(1) Wildlife habitat, including the effects to:
- ✓ threatened, endangered, and sensitive animals, and

- ✓ management indicator species.

(2) Vegetation, including effects to:
- ✓ brush and tree species on the area to be excavated, and at the camp/ore storage facility, including the need to reestablish pre-existing vegetative cover.
- ✓ forage species for both domestic livestock and wildlife in the camp/ore storage and transfer facility area.
- ✓ revegetation for watershed protection and visuals.

(3) Sensitive Areas, including effects to:
- ✓ steep slopes within the mine area of the Slate Creek drainage and the shallow soils on these slopes – potential for erosion, sedimentation, and slope failure.
- ✓ soils from potential fuel spills.

Note:
Federal and State of Utah requirement for fuel spills will be used as guidelines in determining the need for developing special measures and mitigation measures for the mining operation.

(4) Water Quality, including effects to:
- ✓ water entering Slate Creek drainage – increases in sedimentation to Slate Creek and/or Moon Lake Reservoir.
- ✓ water from fuel spills.
- ✓ water from human waste
- ✓ surface water protection zone associated with point sources of water used for domestic purposes, i.e., 1500 feet protection zone from point source of water.

(5) Air Quality, including effects to:
- ✓ nearby recreation activities at the Moon Lake Reservoir
- ✓ wilderness and roadless area characteristics and resources.

(6) High Uintas Wilderness, including effects to:
- ✓ wilderness values and resources.

(7) Inventoried Roadless area, including effects to:
- ✓ inventoried roadless area characteristics and resources, and the maintenance of these characteristics and resources.

(8) Native American uses, including effects to:
- ✓ access to the mine area, and removal and use of natural pigments.

(9) Visual Quality, including effects to:
- ✓ existing visual classification for the corridors associated with Brown Duck and Slate Creek trails, the Moon Lake Reservoir area, and the nearby High Uintas Wilderness.
- ✓ existing visual classification for the mine area.

(10) Public access and safety, including safe use of:
- ✓ the existing Forest Service access road to the mine area.
- ✓ the area outside of and adjacent to the mine area.
- ✓ Forest Development Road 131 during transportation of heavy equipment to and from the mine area and during the hauling of ore.

(11) Small or Large Mine Activities, as defined by the State of Utah Department of Natural Resources Division of Oil, Gas, and Mining, including defining:
- ✓ acres for all areas associated with and part of UMCC's Proposed Action, and the applicable category of mine operations, i.e.,
  - small mining activities categorized as less than or equal to 5 acres of disturbance; or
  - large mine operations categorized as greater than 5 acres of disturbance, and the application of R647-4 of the Amended and New Rules of the Minerals Reclamation Program for "Large Mine Operations".

Note:
UMCC past and proposed exploration and development operations have been permitted with the State Division of Oil, Gas, and Mining as a small mine. If UMCC exceeds the five acres of disturbance with existing or proposed operations, they would be required to apply for a "Large Mine Operations" permit.

(12) Infrastructure, including effects to:
- ✓ Forest Development Road 131, i.e., pavement, bridges, etc., during transportation of heavy equipment to and from the mine area and during the hauling of ore.

Four comment letters were received after public review of the pre-decisional environmental assessment, dated September 21, 2001. The IDT identified four issue areas for additional evaluation or analysis. These 4 issue areas are as follows: *(The content analysis of these comment letters are on file in the analysis file in the Ashley National Forest Supervisor's Office. This environmental assessment includes additional evaluation and analysis related to these issue areas.)*

(1) Plan of Operations, including questions, corrections and updates provided by Uintah Mountain Copper Company for:
- road access and road maintenance responsibilities
- test pit excavation, ore removal and ore transport
- ore storage/transfer sites
- wildlife mitigation measures
- operational time frames
- slope stability, and soils and water quality
- Inventoried Roadless Area

(2) Sedimentation in nearby streams, including questions and concerns by State of Utah Department of Environmental Quality – Division of Water Quality.

(3) Inventoried Roadless Area, including questions and concerns by the High Uintas Preservation Council and Utah Environmental Congress on associated impacts from mine operations.

(4) Mitigation measures for Wildlife, Fisheries, Soils, Hydrology, Water Quality, and Wilderness Recreation Experiences, including questions and concerns by the High Uintas Preservation Council on associated impacts from mine operations.

Other scoping concerns were determined to be: 1) less significant, beyond the scope of the analysis; 2) part of or pertaining to past approved and completed exploration activities, or 3) resolved by modifying the Proposed Action.

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.0 ALTERNATIVES TO BE ANALYZED

The Interdisciplinary Team (IDT) considered reasonable alternatives. Three alternatives were selected for detailed analysis and represent a reasonable range of alternatives that are technically feasible. The range encompasses the Proposed Action, modification of the Proposed Action (based on analysis and evaluation), and no action (ending exploration and development). This chapter describes the alternatives and summarizes the environmental consequences of the alternatives, including defining the differences between alternatives (especially in how their environmental impacts differ). There were no alternatives eliminated from detailed study.

Alternative A — **Current Plan of Operations (Proposed Action)** – continue with exploration and development activities as included in the Uintah Mountain Copper Company's (UMCC's) current Plan of Operations. Analyze and evaluate the proposed exploration and development actions, including the effectiveness of UMCC's proposed environmental protection measures, and apply the appropriate Standards and Guidelines as included in the Forest Plan.

Alternative B — **Modified Plan of Operations** – continue with exploration and development activities as included in UMCC's current Plan of Operations. In addition to the protection measures proposed by UMCC and the Standards and Guidelines from the Forest Plan, implement environmental mitigation measures developed by the Forest Interdisciplinary Team as part of this Environmental Assessment.

Uintah Mountain Copper Company's current Plan of Operations would be revised to incorporate mitigation measures, including a schedule for completing the measures and a monitoring plan.

Alternative C — **Baseline Comparison – (No Action)** – end Exploration and Development Activities and Rehabilitate All Disturbed Areas. Although technically feasible, this alternative does not have a support base in Federal land and minerals policy. *As mentioned in Section 1.4, page 9*, in accordance with the Federal Land Policy and Management Act of 1976, the Forest Service must consider that all National Forest System lands are available for mineral development unless the lands in question are withdrawn from mineral entry. The proposed project area in question has not been withdrawn. Nevertheless, this alternative is included and analyzed in

order to quantify baseline environmental conditions that would exist if exploration and development operations were to end and proposed operations were not initiated. Therefore, this alternative provides environmental data for use in comparing environmental effects.

To arrive at comparable and quantifiable data, this alternative will show the results of rehabilitation of all disturbed areas, including re-establishment of vegetative cover, and implementation of erosion control measures and follow up monitoring. The alternative assumes that existing exploration activities are ended and new exploration and development activities do not occur.

2.1 Forest Plan Objectives, Standards and Guidelines Common to Each Alternative (applicable to exploration and development activities in Management Areas 'f' and 'n')

Refer to Ashley National Forest Land and Resource Management Plan, pages IV-14 through IV-55.

Pertaining to Recreation Values –

Objective 1 – manage access and travel to protect other resources, provide for public safety, and minimize conflicts with other users.

Standard and Guidelines
Restrict access seasonally to protect roadbed, wildlife species and habitat.
Restrict access temporarily to provide for public safety.

Objective 9 – implement and manage for visual quality objectives.

Standard and Guidelines
Manage according to the inventoried Visual Quality Objective.

Pertaining to Wildlife and Fish Values –

Objective 2 – develop the species/habitat relationship of fish and wildlife.

Standard and Guidelines
Identify management indicator species to determine their occurrence, abundance, distribution, habitat requirements, and population trends.

Objective 3 – manage the habitat of all T&E or sensitive plant and animal species to maintain or enhance their status.

Standards and Guidelines
Resource management activities will be allowed if they will not adversely affect any T&E species.
Identify sensitive plant and animal species to determine their occurrence, abundance, distribution, habitat requirements, and population.
Consult with the US Fish and Wildlife Service when actions have the potential to affect any T&E species.

Pertaining to Soil, Water, and Air –
Objective 1 – increase and protect water yields through resource management activities.

Standards and Guidelines
Analyze cumulative impacts of sediment and water yielding resource activities. Determine sediment and water yield thresholds to meet aquatic habitat requirements.
Protect all surface waters from chemical contamination.

Objective 2 – maintain or improve soil stability, site productively and repair or stabilize damaged watersheds.

Standards and Guidelines
Stabilize road corridors and control use to reduce soil erosion.
Obtain at least 80% of original ground cover within 5 years after project completion.
Design activities to minimize project-caused sediment rates, not to exceed 125% increase of the pre-project rates the first year and a 105% increase at the end of five years.

Pertaining to Minerals and Energy –
Objective 1 – control mineral activities to protect other resources, and restore disturbances resulting from mining or leasing activities.

Standards and Guidelines
Prohibit the depositing of material from drilling, processing, or site preparation in natural drainages or floodplains unless restricted to prevent contamination of overland flow.
Specific stipulations will be assigned on a case-by-case basis to protect other resource values.

Mineral activity will not be allowed on areas where the erosion hazard rating or geologic hazard rating is high.
Note: Erosion hazard ratings will be determined for individual projects based on site-specific soil and geologic data. A low, medium or high identifier will be assigned, along with corresponding mitigation or prohibitions.

Pertaining to Facilities (roads, buildings, etc.) –
Objective 1 – Locate, design, construct, reconstruct, and maintain roads and trails to serve the projected land management objectives at the lowest cost for transportation consistent with environmental protection and safety considerations.

Standards and Guidelines
Close and rehabilitate unneeded roads after completion of the required use.
Minimize sedimentation and erosion during construction, and continue restoration and erosion prevention measures were needed.
Use dust abatement material to maintain road surface and provide for public safety.
Construct intercepting dips to displace water as needed to prevent surface erosion where drainage is not otherwise provided.
Clean and reshape roadway ditches to provide adequate drainage that does not undercut slopes.
Eliminate side casting excess material from construction and maintenance activities where damage to other resources may occur.
Stockpile and preserve topsoil for re-vegetation of disturbed areas.
Reshape, replace topsoil, and seed existing unstabilized slopes to prevent erosion and meet Visual Quality Objectives.

2.2 Description of the Alternatives

2.2.a. Alternative A – Current Plan of Operations (Proposed Action)

As directed by Federal Mining Laws, Uintah Mountain Copper Company (UMCC) submitted a Plan of Operations to the Ashley National Forest. UMCC's Plan of Operations is dated August 1, 1999. UMCC submitted addendums to this Plan of Operations on November 30, 2000, December 30, 2000, and May 14, 2001. The Plan of Operations proposes various test pit and ore removal actions within the claim filed as Sunshine Quartz Mine No. 4, **hereinafter referred to as the "Paint Mine"**: These actions are summarized below.

(Refer to General Vicinity Map, page 1-7 and Alternative A Map 5, page 2-24.)

Road Access –

No new roads are proposed. Existing roads would meet all access requirements. These roads consist of the following existing roads: a) Forest Service access road, b) UMCC's Operator access road, and c) UMCC's Operator spur roads within the Paint Mine.

As directed by the Plan of Operations, Uintah Mountain Copper Company would use the existing 6.2-mile Forest Service access road that originates from a junction with the paved Forest Development Road 131, 0.75 miles south of Moon Lake Reservoir. The Forest Service access road is 32,736 feet in length, approximately 30 feet wide, and occupies 24.1 acres. UMCC would be responsible for maintaining this road during their operations.

At the end of the 6.2-mile access road, maintenance and long-term reclamation of UMCC's portion of the access road becomes the responsibility of UMCC. UMCC's access road continues for approximately 2,000 feet (0.3 miles) and ends just north of the test pit area in the Slate Creek Drainage. This segment of the access road occupies approximately 1.20 acres.

There is approximately 0.1 miles (0.20 acres) of spur roads within the mine area that would be used during the exploration and development work. UMCC would be responsible for maintaining and eventually rehabilitating these spur roads.

As directed by the Forest Service, UMCC constructed a gate approximately 0.75 miles south of the existing mine area. This was done to exclude public entry from the proximity of mine operations, thereby providing for public safety.

Excavation, extraction, and removal of Hematite (iron oxide) ore – *(Refer to the Sample Ore Transportation Route Map on page 2-10)*

A combination of one Caterpillar D7 or D8-size bulldozer, one or two Caterpillar 312 or 315 excavators, and a 1.5 to 2.5 cubic yard track-mounted front-end loader would remove approximately 2000 cubic yards of topsoil, rock, and overburden from an east facing steep side slope of 30 to 40 degrees from horizontal. Although there is a very thin layer or topsoil, UMCC would attempt to segregate topsoil from the underlying overburden. The excavated material would be placed in uniform lifts i.e., levels of material of similar quantity and composition. Approximately 600 cubic yards of material would be placed to a 5 to 10-foot depth along adjacent spur roads, and the remaining 1400 cubic yards would be stored to a 7-foot depth along the last 400 feet of UMCC's access road. *(See Figures 1 through 6, pages 2-12 through 2-18 for illustrations of the storage areas for excavation material, i.e., overburden.)*

A combination of a bulldozer, loader and excavator would be used to excavate a shallow open "test" pit from the slope. The excavated test pit would occupy an area of approximately 0.075-acres (50 by 60 feet to a depth of 21 feet). This same equipment would be used to extract approximately 650 cubic yards (1534 tons) of sample hematite ore from the excavated pit area.

Blasting would not be required to remove the ore. The excavation and removal of the ore from the test pit would be done above the quartzite deposits.

Water would not be required to remove the sample ore from the test pit; therefore no wastewater would be generated. UMCC's Plan of Operations also indicates that solid wastes would not be generated and no tailing material would result from the test pit work.

The track-mounted front-end loader would place the excavated ore in 5-ton trucks for transport to a 0.25-acre truck turn-around area on UMCC's access road approximately 1,800 feet from the test pit area. At this turn-around area, the ore would be transferred to12-ton trucks via a portable bin with conveyor or by front-end loader – both methods would be evaluated as part of the testing program. The 12-ton trucks would transport the ore south along the Forest Service access road to camp/ore storage and transfer sites adjacent to the Forest Service access road. The camp/ore transfer sites would be approximately 0.25 miles from Forest Development Road 131. The ore would be stockpiled on tarps at the ore transfer site to prevent sample contamination from ground soil. Depending on ground softness at the time of work, a four to six inch layer of pea gravel would be placed below the tarps to provide a firm base for the ore and equipment. Eventually, a front-end loader would transfer the ore to a bin/conveyor facility located at the ore transfer area. This facility would load the ore on 20 to 30-ton trucks for long haul to an off-Forest pilot processing plant.

Additional miscellaneous equipment used during excavation, extraction and removal operations would include fuel and maintenance trucks to service vehicles at the test pit and campsite areas. A water truck would be used as needed to control dust.

Camp/Ore Storage and Transfer Sites – *(Refer to the camp/ore storage and transfer site map on page 2-11)*

All facilities at these sites would be temporary and approved as part of the Plan of Operations. The sites would be used as a daily staging area and for ore transfer, with periodic housing of management personnel.

One to two portable trailers (maximum 25 feet) would be used to house personnel and for use as a field office. Potable water would be brought to the site in 10-gallon containers. Sanitation facilities would be self-contained portable units, primarily within trailers. Power for transfer equipment would be provided over existing distribution lines at the site or by gas-operated generators. (The area already has power and telephone connections from past exploration and development operations.)

Existing campsite facilities (storage shed, shelter, parking area, power/telephone lines and poles) occupy approximately 0.25 acres. The proposed trailer facilities and ore transfer site would disturb 1.25 acres. Total occupied area at the camp/ore storage and transfer site area would be 1.50 acres.

Long-haul of Ore to Pilot Plant –

Two long-haul trailer trucks would be used each day to transport the sample ore off-Forest. The trailer trucks would utilize Forest Service Development Road 131, State Road 87 in Duchesne County, and US 191 in Duchesne County and Carbon County to reach the pilot plant. Round trip travel would be approximately 4 hours. Approximately 60 to 70 long-haul trailer trips to the pilot plant would occur over a 16-day period. There would be 120 to 140 total passes on Forest Development Road 131, including the haul trip and return trip.

Equipment and Truck Fueling –

Equipment fueling at the camp/ore storage and transfer sites, along the access roads, and within the mine area would be done via a ¾ ton service truck.

Rehabilitation – *(after excavation, removal, storage, and hauling of the ore)*
Refer to Figures #s 1 through 6, pages 2-12 through 2-18 for illustrations of the area of excavation and ore removal, and the terrace/gabion rehabilitation measures, and road rehabilitation measures.

The above mentioned excavation equipment would be used in rehabilitation work.

Test Pit/Ore Extraction Area – *(see Figures 1 through 4 on pages 2-12 through 2-15)*

Site reclamation of the excavated test pit would incorporate the use of terraced embankments. Gabion rock walls would be used to prevent or restrain movement of the terraced areas, and to inhibit erosion and provide a medium for new vegetative growth.

Two gabion retaining structures (rock filled wire baskets) ranging from 20 to 80 feet in length would be placed on two constructed terraces in a stair step arrangement (at step-back slopes of 70 degrees). The gabion structures would not require concrete foundations and would primarily be hand-placed. The terraces would serve as catchment areas for loose soil and rock, and would be seeded/re-vegetated.

The material removed during excavation would be placed behind the existing test gabion, which is presently located at the lower end of the proposed pit area *(see Section 1.3, page 1-4 through 1-6 for a discussion of this test gabion)*. One additional basket lift would be placed on this test gabion to the base elevation of the next higher gabion structure. A one-foot thick drainage layer would be placed along the bottom and sides of the excavation. This layer would be covered with a filter fabric to prevent migration of fine material from the remainder of the backfill. "Geogrid" layers would be placed along the top of the drainage filter and laterally at each gabion lift to anchor the gabion structure. The first layer would have a filter fabric. The second gabion structure would be placed in the same manner as the first gabion structure. The terrace created by backfilling behind this second gabion would be sloped back slightly to

the rock face exposed during excavation, and this would create a second wall system. A rock net would be installed along the remainder of the exposed rock face. Once all upper level work was completed, the existing lower gabion wall would be extended to the northwest, with final backfill placed by the excavator operating from UMCC's access road. A drainage rock layer would underlie each gabion structure. Seeding and re-vegetation would be performed on both terraces and within the rock net.

Excelsior blankets or wood fiber slurry would be applied to exposed cut slopes above the test pit and to the lower terrace of the test pit to reduce sediment to acceptable levels.

Gabion structures would meet the specifications of the gabion basket manufacture, including type and size of rock used in filling the baskets and the addition of fines at the top of the baskets to encourage vegetative growth.

Heavy earthmoving equipment would not be placed within 10 feet of the edge of the lower gabion wall once fill had been placed to the final elevation. Lighter equipment would be used for final lift compaction.

It is estimated that the drainage system and gabions would require approximately 300 cubic yards of screened rock fill. The remainder of the backfill needed to reclaim the slope and terraces would be 1300 cubic yards. Total backfill requirements would be 1600 cubic yards or 80 percent of the total overburden removed during excavation (2000 cubic yards). The remaining 20 percent (400 cubic yards of overburden) would be used as part of the reclamation work for the two spur roads and UMCC's access road.

Approximately 700 cubic yards of acceptable quality gabion rock would come from the excavation area. If additional gabion rock were needed, it would be obtained from a 200- foot length of the upper reaches of Spur Road #1. It is estimated that 0.5 to 1.0 cubic yards of gabion rock per linear foot of road could be removed during road reclamation to supplement gabion rock needs. This rock is also considered to be of acceptable quality for use in the gabion structures.

Uintah Mountain Copper Company's spur roads and access road – *(see Figures 5 through 6 on pages 2-16 – 2-18)*

The spur roads within the mine area would be reclaimed as shown in Figures 5 and 5a pages 2-16 and 2-17. This would consist of pulling the outside road edge into the spur road and partially contouring to the lay of the existing slope.

Drainage water from storm runoff on the access road would be controlled with mud bars, road edge bar ditches, surface vegetation and natural cobble plating.

UMCC would employ the use of temporary silt fences, hay bales and terracing to capture sediments within roadway flows.

As directed by the Forest Service, UMCC would install water bars on the 2000 feet of the access road within the mine area to remove water to the outer edge of the road and to prevent collection of storm water at erosive sections. Low points and outflows that collect water would be protected with riprap rock to prevent erosion. At these locations, water would be allowed to cross through the rock drainage blanket, flowing under roadbeds. Filter fabric will cover the rock drain and a roadbed would be reconstructed above.

Site preparation and seeding of the test pit/ore extraction area, mine area access/spur roads, campsite, and ore storage and transfer sites would be done as directed by the Forest Service.

Table 2.1
Schedule for Proposed Work

Activity	Time Length	Labor	Person Days
Road preparation & mobilization	6 days	3 men	18
Overburden removal & stockpile	20 days	3 men	60
Ore sampling and hauling	16 days	6 men	96
Reclamation activities	18 days	10 men	180

Table 2.2
Summary of Disturbed Areas within the Paint Mine

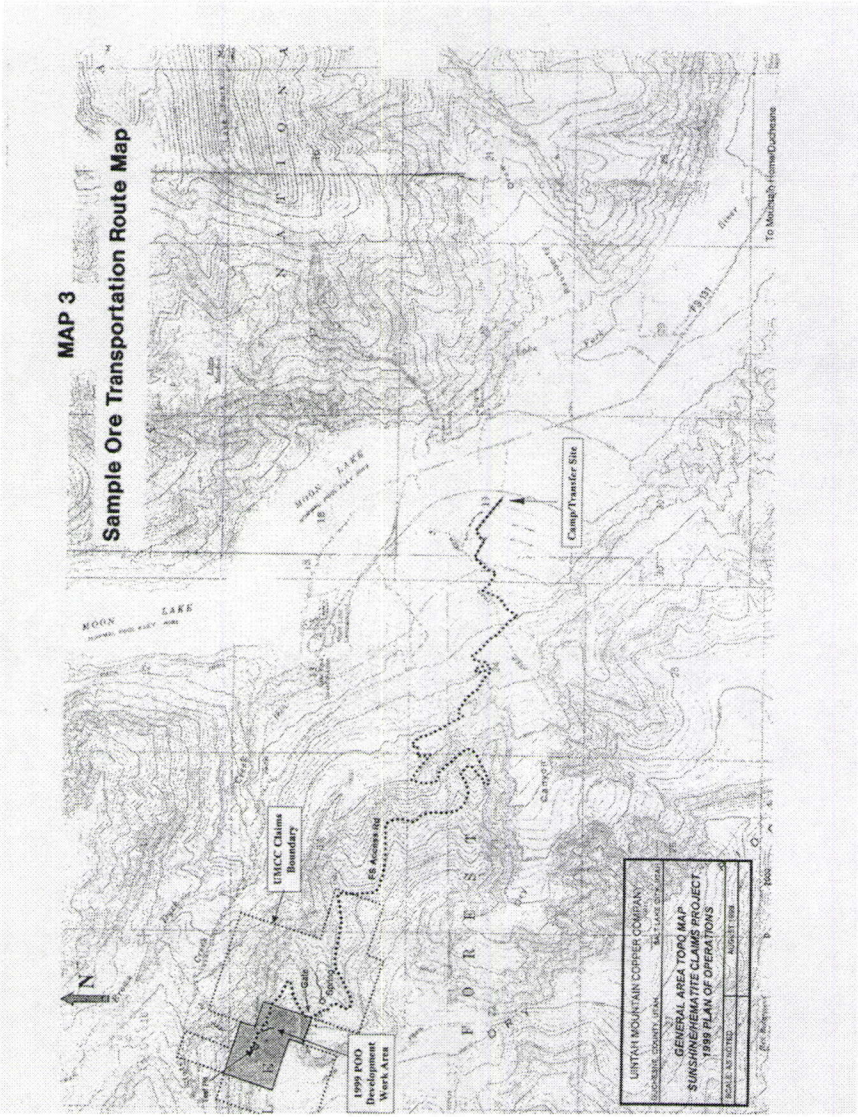
	Existing Disturbed Areas (Acres)*	Disturbed Areas from Proposed Action (Acres) *	Total Acres of Disturbed Areas*
Access/Spur Roads/Truck turn-around area	1.37	0.28	1.65
Camp/ ore storage and transfer sites	0.25	1.25	1.50
Test Pit/Ore Extraction area	0.00	0.075	0.075
Total Acres	1.62	1.605	3.225

*

Of the 1.65 acres of access/spur roads, 0.20 acres of spur roads within the mine area would be rehabilitated immediately following ore removal and rehabilitation of the 0.05-acre test pit/ore extraction area. The remaining 1.45 acres are part of UMCC's access road that would be left open to complete and monitor rehabilitation efforts within the mine area. This access road (1.45 acres) would be closed and rehabilitated upon completion of monitoring activities and successful rehabilitation within the mine.

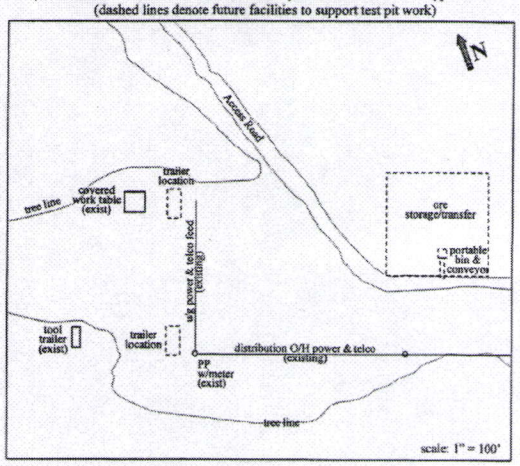
The 1.50 acres at the camp/ore storage and transfer sites would also be rehabilitated.

See Alternative A Map 5, page 2-24.



MAP 4

Camp/Transfer Site
(note: structure locations have not been surveyed in and are shown as approximate
(dashed lines denote future facilities to support test pit work)



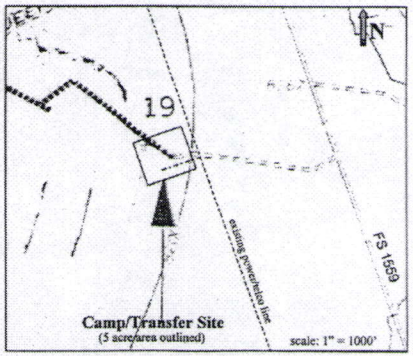
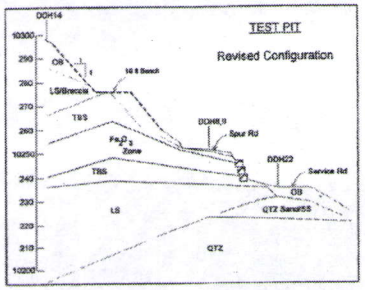
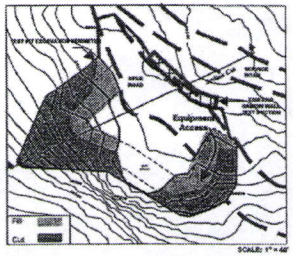
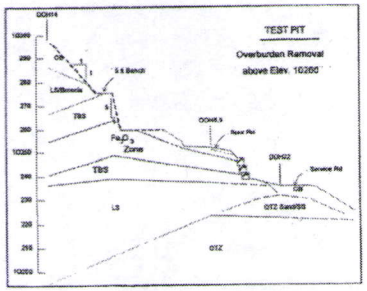


Figure 1





Revised Test Pit Configuration - Staged Excavation Overburden Removal



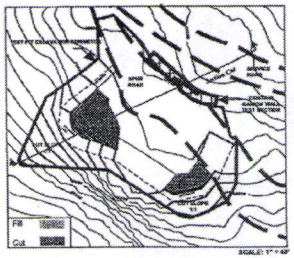
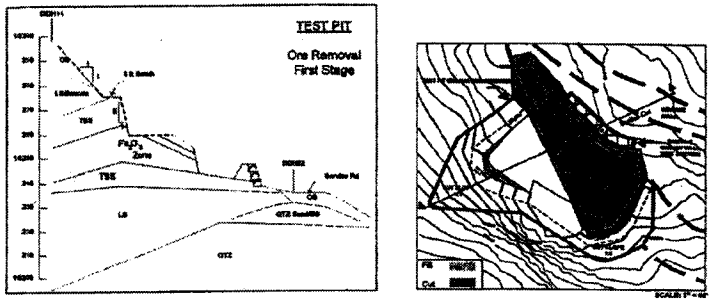


Figure 2



Revised Test Pit Configuration - Staged Ore Removal

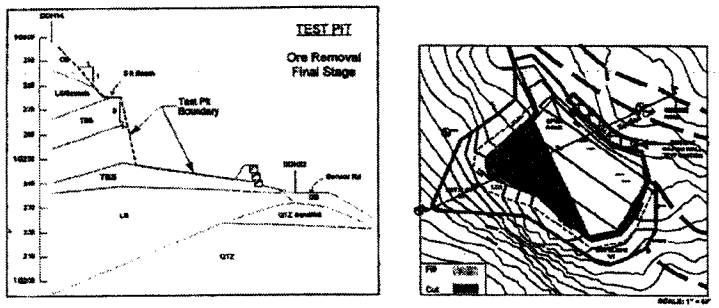
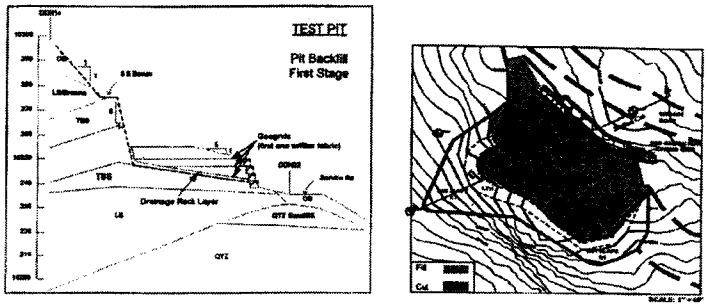
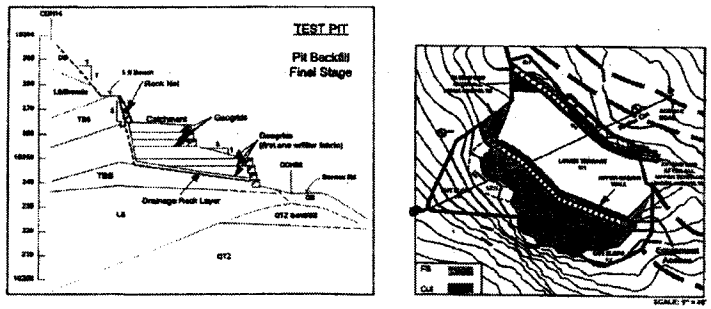


Figure 3



Revised Test Pit Configuration: Staged Excavation - Gabion Installation



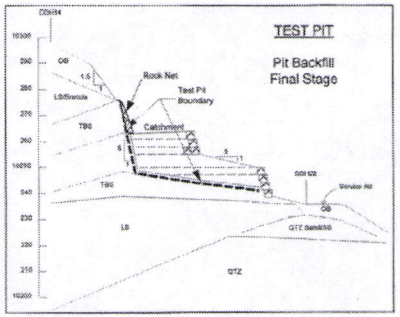
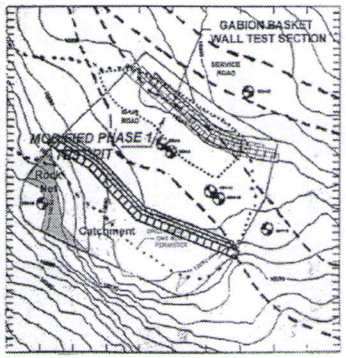
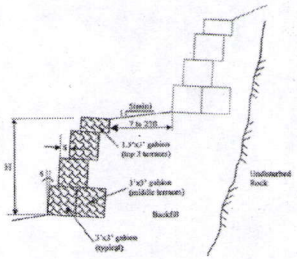


Figure 4

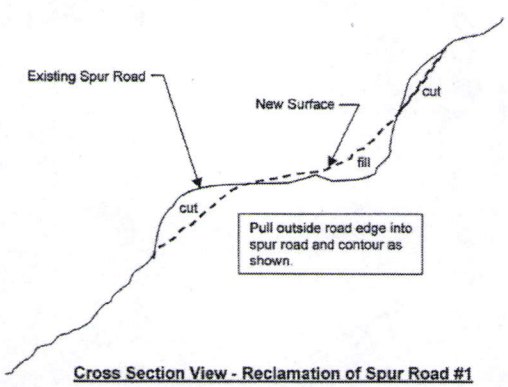
Revised Test Pit Configuration
Staged Excavtion
Rock Net on Catchment





Wall height, H, varies from 5 to 18.5 ft
Gabion baskets stagger, s, 12-43 inches
Wall inclination at time of construction, δ =10° to 15°

Figure 5



Cross Section View - Reclamation of Spur Road #1

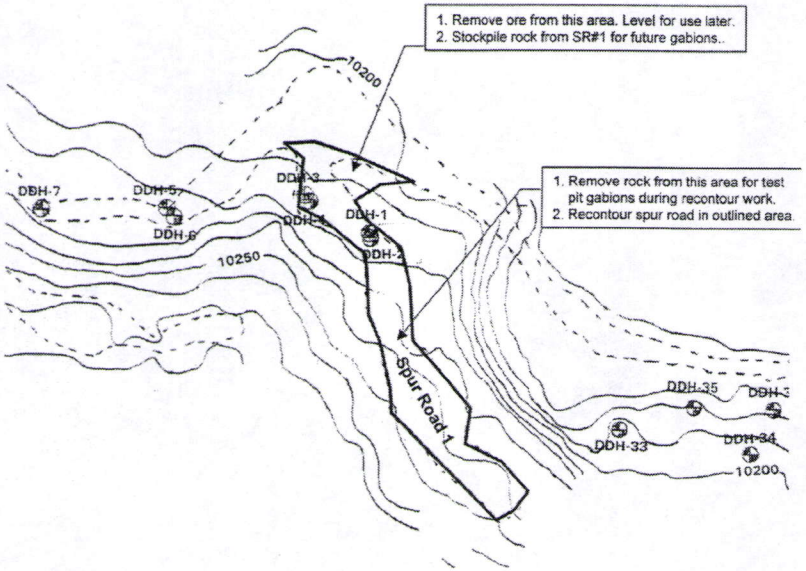
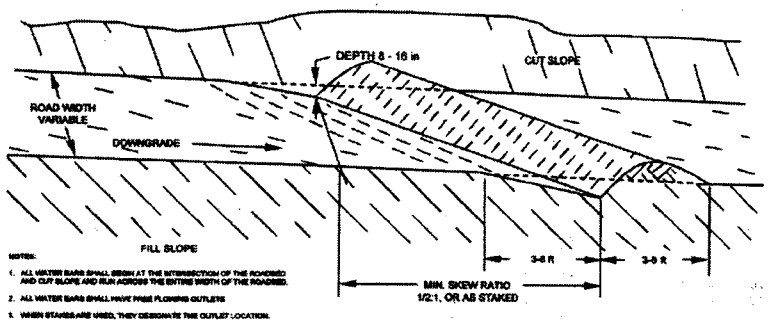
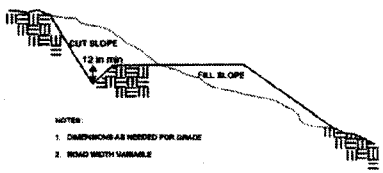


Figure 5A

NO SCALE

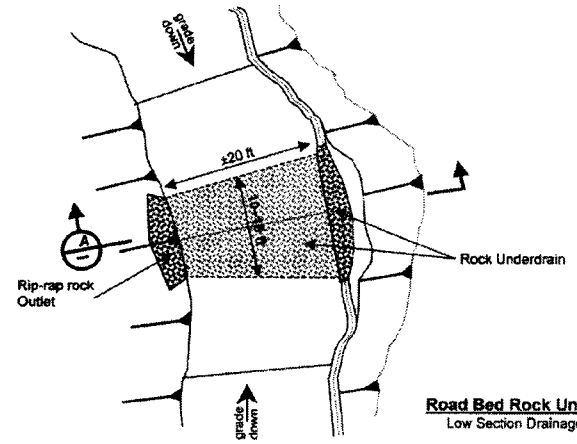


STANDARD DETAIL FOR WATER BAR
(adapted from USDA FS Wallowa-Whitman NF standards)

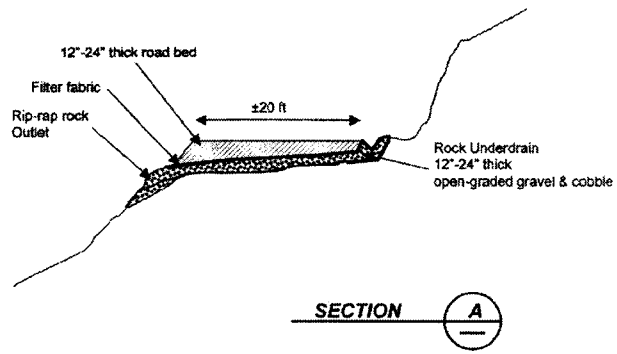


STANDARD ROAD CROSS SECTION W/DITCH
(adapted from USDA FS Wallowa-Whitman NF standards)

Figure 6



Road Bed Rock Underdrain
Low Section Drainage (NTS)



2.2.a.1 Uintah Mountain Copper Company's Proposed Environmental Protection Measures

Uintah Mountain Copper Company submitted the following environmental protection measures to meet the needs of one or more resources and to comply with applicable mining laws, and the applicable Standards and Guidelines as included in the Ashley National Forest Land and Resource Management Plan (Forest Plan).

- **Schedule of Proposed Work**

(UMCC submitted the following measures to benefit soil and wildlife resources, and recreation experiences in the adjacent High Uintas Wilderness.)

  - ✓ Road access and site mobilization/preparation would be allowed between late June and mid-July when road and site use do not result in unacceptable damage due to saturated surface conditions. Test pit work would not begin until August 1. From this date until September 10, the workweek would begin Monday afternoon and end Friday morning with 10-hour days Tuesday through Thursday. Thereafter, the workweek could be switched to a standard 8-hour, 5-day schedule. Major hauling and reclamation would begin after September 10.

  - ✓ In addition, the restriction of no project work on legal holidays would remain in effect during all time frames (from June 1st through October 30). The restriction of ore hauling only during daylight hours would remain in effect for all times.

- **Air Quality**
  - ✓ Burning of vegetation would not be permitted on the mine area or the campsite

- **Cultural Resources**
  - ✓ UMCC would…"keep open access to natural pigment minerals for regional Native Americans who may have historically utilized these materials for cultural ceremonies and would work with the Forest Service and these groups to formalize an agreement", as needed.

- **Erosion Control (within the mine area)**
  - ✓ Storm water and runoff on the test pit/ore extraction area would be inhibited and controlled by placing the terraced gabion rock walls as mentioned in the preceding section on rehabilitation. The design has already incorporated comments and recommendations from the Forest Service geotechnical engineer.

  - ✓ Hay bales, water bars, road edge berms, drainages ditches, rip-rap rock, and rock drainage blankets/filer fabric would be placed or installed along the access and spur roads for the purpose of controlling "rain-induced" sediment and soil erosion during test pit excavation and ore sample removal.

  - ✓ Seeding would be performed on the terraces constructed in the test pit upon completion of backfill operations, and would incorporate a Forest Service approved mix of seed. UMCC would also plant seedlings upon request by the Forest Service.

- **Fuels and Other Fluids, including Hazardous Substances**
  - ✓ "Construction equipment would be checked daily for fuel or oil leaks. If a leak was detected, the volume lost and cleanup measures would be documented and the Forest Service would be contacted immediately. Any fuel-contaminated soil would be excavated and removed to an appropriate disposal site and facility."

  - ✓ Fuels, and other equipment operating fluids (hydraulic fluids, battery acid, brake fluid, transmission fluid) would not be stored at the camp/ore storage and transfer sites or on the mine area. A service truck would bring in such fluids as needed. As per 40 CFR 112, an operation is exempt from a spill prevention control and countermeasure plan (SPCC) if total oil or oil products stored above ground are less than 1,320 gallons and if no single container exceeds a capacity of 660 gallons. Total fuel and operating fluids needed or to be used for the test pit/ore extraction project would not exceed these limits.

  - ✓ To eliminate or minimize fuel and fluid spills, work vehicles and haul trucks would fuel at off-site commercial fueling stations prior to arrival at the site for work each day or as needed to perform the work. Heavy equipment and haul trucks used onsite would be fueled by a service truck and serviced prior to site mobilization. Gas-powered conveyors would be fueled as needed via 5-gallon or smaller hand-operated fuel cans (not stored on site). It is anticipated that heavy equipment would only need to be re-fueled once or twice at the test pit area. The contractor would fuel trucks on equipment from a sealed 55-gallon drum and hand-operated pump stored on a service truck. Heavy equipment that required emergency on-site servicing (greasing or repair) would be done on level ground or in an area pre-designated by the Forest Service. All other equipment servicing would be done at approved off-Forest repair facilities.

- **Road Maintenance**
  - ✓ UMCC is responsible for maintenance and long-term reclamation of the 2,000 feet of the access road within the mine area. In accordance with UMCC's Plan of operations, this maintenance would consist of placing water bars and road edge drainages ditches to periodically channel and remove drainage to the outside (downhill) edges of the road. *(Refer to Figures 5 and 5a, pages 2-16 and 2-17 for illustrations of the "Standard Detail for Water Bar and Ditch construction", and Standard Road Cross Section w/Ditch).*

  - ✓ UMCC is also responsible for minor road maintenance and long-term rehabilitation of the Forest Service access road as long as UMCC maintains an active Plan of Operations and continues with their mines development activities. This work would consist of removal of fallen trees from the road right-of-way (cut and placed to the side of the road) and hand-removal of loose rocks from the surface. Blading would only be done to remove washouts. Water needed during the test pit/ore extraction work for road dust control would be obtained from off-site potable water sources or the nearby Moon

Lake Resort facility. Application would occur during the 16 days of ore hauling. When needed, a 5,000-gallon water truck would fill up once every other day for the16 day haul period, or about 2,500 gallons per day. UMCC would enter in to a contract with a water truck company, and would require that this company obtain water rights and/or other permission for the use of the water. Diluted application of Forest Service approved, non-toxic dust palliatives (such as "Soil Seal", "Soil Sement", etc.) might be used if conditions warrant.

✓ Three to four 20 to 30-ton haul trucks would travel the paved public access highways during the 16-day haul period. No major highway impacts are anticipated. It is estimated that there would be 0.001 % reduction of pavement life for the paved FDR 131 and the county road section through Mountain Home, Utah. Impacts to the paved county and state roads beyond Mountain Home would be even less. UMCC has contacted Utah Department of Transportation about their proposed truck haul use, and no maintenance agreements would be needed for the proposed truck hauling.

- **Security, and Employee and Public Safety**
  - ✓ There are three gates on the Forest Service access road to the mine area: one gate near the junction of the Forest Service access road and Forest Development Road (FDR) 131 (road to Moon Lake Reservoir), the second gate just north of the camp/ore storage and transfer sites, and the third gate 0.75 miles south of the existing mine area. UMCC recommends that all three be closed to public use during test pit/ore extraction activities for safety and security reasons. UMCC would have one person at the campsite that would be assigned to safety and security. This person would always be present whenever equipment was present (primarily during sample ore haul/transfer work) and during test pit excavation/ reclamation work. This person would control or stop public access during hauling periods, by closing and locking the middle gate. Truck drivers would also contact this person prior to leaving the test pit area in route to the camp/transfer site. The gate located 0.75 miles from the mine area would remain open during haul operations.

  - ✓ Three to four 20 to 30-ton haul trucks would enter or exit the paved Forest Development Road 131 each day during the 16-day ore haul period, or about one truck every two hours. A few company vehicles would exit and enter once or twice a day during the remainder of the work. UMCC would post appropriate advisory signs at the intersection of the Forest Service access road and FDR 131 and require the person at the campsite to act as a flagman when haul trucks entered this public travel way.

  - ✓ All trucks would be hauling under legal weight limits and in accordance with safety guidelines established for all highway truck use of public travel ways (Forest Service, county, and state highways). Hauling would be contracted to a licensed trucking firm and drivers would be contractually obligated to comply with all local, state, and federal traffic regulations.

  - ✓ UMCC would perform all hauling on non-holiday weekdays.

  - ✓ UMCC would utilize evacuation plans already in place by the Forest Service for their personnel in case of forest fire or other major catastrophic event. In addition, UMCC would take the following actions to prepare for a possible forest fire:

    - All truck drivers on the access roads and the superintendent at the test pit/ore extraction site would have mobile phones for contact. If mobile phones could not reach all areas of the work, UMCC would obtain radios for on-site personnel.
    - UMCC would assign one on-site person as the contact point for the Forest Service. The contractor superintendent might act as that contact. The Forest Service would be provided names and phone numbers at the start of work. If the Forest Service advises UMCC's contact person of a fire or other major catastrophic event, this person would contact all others at the site either by radio or mobile phone. All work would cease and personnel would report to the campsite as quickly as possible. Once all personnel were accounted for, the group would leave the area as directed by the Forest Service.
    - The access roads would be the only safe escape route for vehicle travel. If blocked by fire, all personnel would be directed to move to a safety zone pre-designated by the Forest Service.
    - UMCC would not perform work at the site during extreme fire danger, due to liability issues associated with a fire possibly being started by heavy equipment at the site.

- **Slope Stability**
  - ✓ Previous analysis and work at the site indicates that soil overburden at the top of temporary cuts on slopes within the mine area is stable at about a 1.5:1 to 1.2:1 slope (horizontal:vertical), i.e., stable between a range of a 1.5 foot of cut horizontally to 1 foot of cut vertically to 1.2 foot of cut horizontally to 1 foot of cut vertically). Slope stability safety factors were developed by UMCC as part of their slope stability evaluation for temporary cut slope in the mine area. The evaluation and safety factors shows that a slope stability within the horizontal:vertical range described above would be maintained for short-term cuts (less than 3 weeks), especially in areas where only cab-enclosed heavy equipment would be allowed.

  - ✓ "Slope stability analyses were also performed for the gabion rock walls with heavy equipment live loading and the entire slope following completion of the proposed gabion rock walls." A part of previously approved "Phase One" exploration work, a test of live load stability was performed. This test involved the operation of heavy equipment above a "test" gabion rock wall and within 1 foot of the gabion immediately after backfill. "No additional movement was observed." "One year after installation of the test gabion, a CAT 312B excavator performed additional mine work within 3 feet of the wall, and no movement was observed from this equipment activity. Further analysis was done to verify gabion rock wall safety." Modeling was done in a worst-case configuration, "assuming all tiers of rock gabion walls rested in a vertical alignment." This worst case configuration showed that...."although stability is lower than originally anticipated, the wall still functions safely, meeting minimum standard industry safety factors for long-term and transient loading." This analysis showed that... "future gabion rock walls

should be inclined into the hillside 10 degrees to 15 degrees from vertical to compensate for construction-related outward rotation from backfilling."

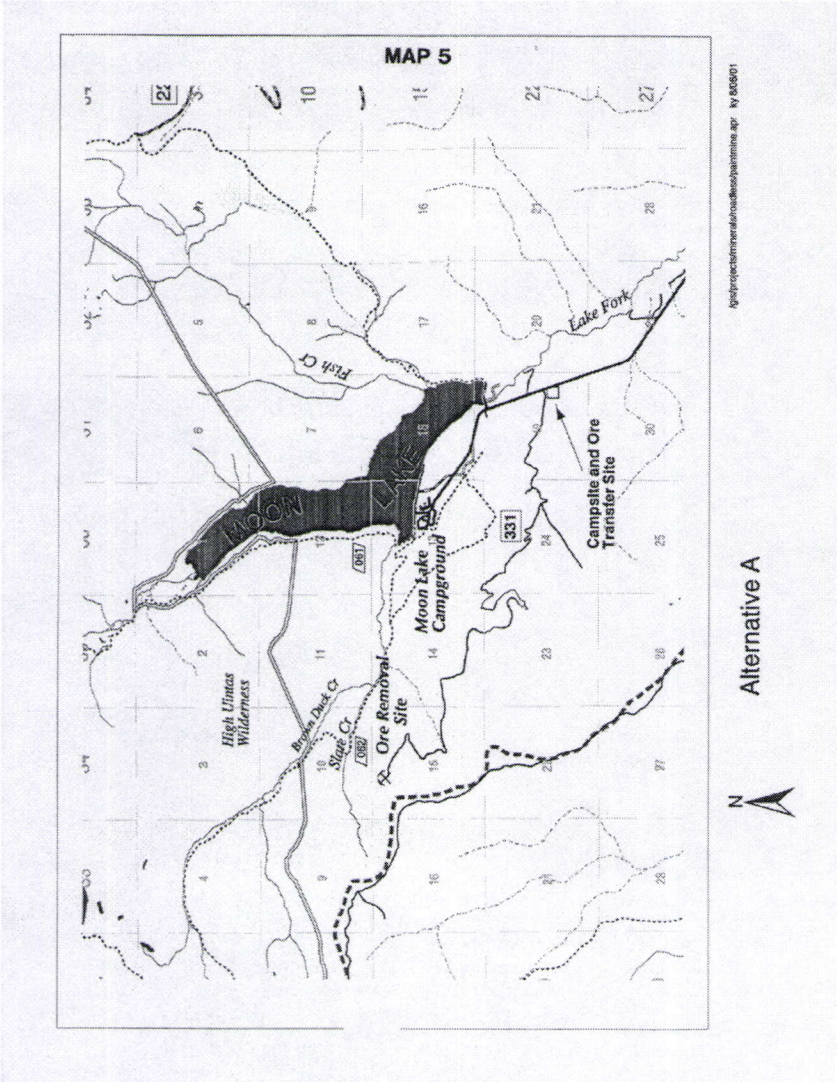
✓ For the Proposed Action, two (2), two-tiered, stair stepped vertical gabion structures would be designed and constructed to stabilize the test pit/ore extraction area and adjacent slopes. "The existing undisturbed slope has a low to moderate probability of deep-seated failure (slope stability factor of 2.33) and a moderate to high probability for localized surface failure of saturated unconsolidated overburden (stability factor of 1.11). ' Upon completion of all gabion walls, the disturbed embankment overall and local safety factors were calculated to be on the order of 2.19.' "From this analysis, as well as in response to comments and recommendation from the Forest Service geotechnical engineer and Ashley National Forest engineer, the gabion rock wall base design for the upper level of the tired, stair stepped structure was modified to improve overall stability of the embankment from failure." A previous gabion structure placed as part of "Phase One" work demonstrated the success of this type of slope stability measure. In addition, this "Phase One" structure provided insight on how to improve the overall stability of the embankment by making minor modifications to the design of the structure. *(Refer to Chapter Six, Appendix C for a discussion of the Phase One work).*

- **Stockpiling of Topsoil**
  ✓ UMCC has stated that…."there would be every effort made to segregate topsoil from overburden without causing disturbance outside the test pit/ore extraction area"…and that…."all segregated topsoil would be stockpiled for use on the reclaimed slope". 'Any additional topsoil needed to establish vegetation and prevent short-term erosion would be borrowed from local sites as recommended by the Forest Service at the time of work.'

- **Vegetation Disposal**
  ✓ No vegetation disposal is anticipated. All removed vegetation from the test pit/ore extraction area would be combined with the topsoil and either mulched or blended (depending upon piece size) to enhance topsoil nutrients and inhibit erosion.

- **Water Quality**
  ✓ UMCC has stated that water would not be needed for test pit sample removal, and that no wastewater would be generated.

  ✓ UMCC prepared a water quality analysis as part of the draft Plan of Operations that evaluated impacts from storm water on undisturbed and reclaimed terraced slopes. The conclusion indicated that annual sedimentation loss from the slopes would decrease over time after terracing (9 to 10 percent over a 10 year period following terrace construction).



2.2. b. Alternative B – Modified Plan of Operations

Exploration and development activities would be the same as for Alternative A, except as described below.

In addition to the applicable Forest Plan Standards and Guidelines and UMCC's protection measures listed and discussed in *Sections 2.1 and 2.2.a.1)*, the following mitigation measures would be implemented to address public issues and management concerns:

(Refer to Map 6 – Alternative B, page 2-32)

2.2.b.1) Mitigation Measures and Monitoring Guidelines Developed by the Interdisciplinary Team

Schedule of Proposed Work
(UMCC's proposed schedule of work would be revised to meet the requirements of Guideline (v)(ii) as included in the amendment to the Ashley Forest Plan for the Utah Northern Goshawk Project, as well as to protect soil resources and maintain recreation experiences in the adjacent High Uintas Wilderness.

- ✓ General routine road maintenance would be allowed between late June and mid-July or when road use would not result in unacceptable damage to roads and surface conditions. Site preparation at the mine area would not start until August 1st, and test pit work would not begin before August 15th. From this date until September 10, the workweek would begin Monday afternoon and end Friday morning with 10-hour days Tuesday through Thursday. Thereafter, the workweek could be switched to a standard 8-hour, 5-day schedule. Hauling of ore would not start until September 10th.

- ✓ In addition, the restriction of no project work on legal holidays would remain in effect during all time frames (from June 1st through October 30th). The restriction of ore hauling only during daylight hours would remain in effect for all times.

- ✓ All reclamation work would occur between August 15th and October 30th.

Vegetation –

- ✓ Vegetation removed during operations would be hauled to the camp/ore storage and transfer sites and piled in a designed area for later burning by the Forest Service.

- ✓ All above ground facilities at the mine area and non-essential facilities at the camp/ore storage and transfer sites (signs, trailers, outbuildings, powerline, etc.) would be removed – to allow for vegetative recovery. UMCC would notify Moon Lake Electric that the power service would no longer be needed; the Forest Service, in turn, would ask Moon Lake Electric to remove the poles and lines.

- ✓ Noxious weed inspection and control on the camp/work area for 5 years following removal of facilities would be performed or financed by UMCC. UMCC would provide annual report

to the Forest Service of weeds found and treated, plus treatment method (mechanical or chemical including chemical agent used). Any chemical application would require permission from the Forest Service and use of a certified applicator. This work would be bonded when determined necessary by the Forest Service.

- ✓ The ore storage/transfer site should be seeded with a Forest Service-approved seed. A bond would be collected to ensure follow-up treatment as necessary to a maximum of 3 years of treatment with appropriate erosion control. If ground were bladed for leveling, some topsoil would be required because seeds or seedlings cannot be expected to perform in mineral soil or soil parent material. The native topsoil is expected to be shallow. Seeding would best be accomplished in late autumn, to minimize fall germination and maximize the opportunity for germination with spring snowmelt; seeding in other seasons would be approved by the Forest Service.

- ✓ The 0.22-acre area for ore storage and transfer would be cleared, but gravel would not be placed on the cleared area as indicated in UMCC's Plan of Operations. Ore would then be stored as proposed in Section 2.2, pages 2-5 and 2-6. All areas of disturbance and clearing at the Camp/Ore Storage and Transfer Sites would be seeded as follows:

  Mountain brome 2 lbs/acre
  Slender Wheatgrass 2 lbs/acre
  Orchardgrass 1 lb/acre
  Blue flax 1 lb/acre

- ✓ Areas of disturbance and clearing within the mine area (access and spur roads and test pit area) would be seeded as follows:

  Mountain brome 3 lbs/acre
  Slender Wheatgrass 3 lbs/acre
  Orchardgrass 2 lb/acre
  Blueleaf aster (Aster glaucoides) 1 lb/acre (if available on the market)

- ✓ Maintenance of the Forest Service access road would be limited to removal of down trees that fall across the road, and minor ditch work to control or minimize concentrated water runoff – to minimize impacts to adjacent vegetation.

Wildlife –
Forest Service Sensitive Species

- ✓ Northern Goshawk – Guideline (v)(ii), in the amendment to the Ashley Forest Plan from Utah Northern Goshawk Project, states, "Project activities should be restricted during the active nesting period. The active nesting period would normally occur between March 1st and September 30th".

- ✓ General routine road maintenance would be allowed in late June or when road use would not result in damage from saturated surface conditions. However, to alleviate disturbance to sensitive species, site preparation would not start until August 1st, test pit work would not

start until August 15th, and hauling would not occur until September 10th. Hauling of ore after September 10th would be outside the goshawk fledglings' period of dependence on the PFA, according to radio telemetry surveys on the Ashley National Forest. Reclamation work would occur between August 15th and October 30th.

Soils, Hydrology, and Water Quality –

- ✓ UMCC would be required to provide a technical report on the competency of rock within the test pit area as fill for the gabion structures. Gabion fill should consist of the fill material that is porous and does not break down, and allows rapid drainage.

- ✓ Topsoil replacement would not be done on the 0.25 acres of spur roads and test pit area within Paint Mine, due to the extremely rocky nature of the overburden that would be replaced after ore extraction. Analysis and evaluations indicate that topsoil would not properly compact or subside on the rocky surface of the replaced overburden. This measure supersedes UMCC's protection measure that states…."there would be every effort made to segregate topsoil from overburden without causing disturbance outside the test pit/ore extraction area"…and that…."all segregated topsoil would be stockpiled for use on the reclaimed slope".

- ✓ Topsoil replacement would not be done on the 0.3 miles of the existing access road within Paint Mine, again due to the lack of adequate topsoil and the extremely rocky nature of the surface. The access road would be closed after completion of all rehabilitation work. Road surfaces would be scarified, and drainage structures would be installed as indicated in the Section 2.2 Description of the Alternatives, Figures, 5, 5A, and 6, pages 2-16 through 2-18.

- ✓ All of the mitigation measures in Alternative C – No Action are included for the end of the project.

- ✓ In the campsite area, no structures or activity would be permitted in the draw located just behind the existing trailer or in the large draw about 500 feet behind. Structures or activity should be no further south than the existing trailer, and preferable closer in so as not to be on the edge of the draw. Both proposed trailer sites would need to be approved on-site by the Forest Service to ensure that these collection draws are avoided; the Uintah Mountain Copper Company (UMCC) Camp/Ore Storage and Transfer Map (Map 3) shows a new trailer further back than the existing trailer, and this would need to be pulled in to ensure it is off the draw. No temporary structures other than those on the site map would be allowed (i.e., no shacks, sheds, horse facilities, etc.) without specific Forest Service authorization including location and type. No trees would be cut without Forest Service authorization. Site disturbance would require post-project seeding; this would be bonded. The Forest Service approved seed mix and application rate would be used.

- ✓ In the campsite area, the old outhouse would not be used and would be removed incorporating any applicable federal, state or Forest Service guidelines. Human waste would be accommodated by self-contained portable units in an earth tone color (e.g., sand brown or olive green). Pumping and/or removal of waste would be according to commercial contractor recommendations, and any applicable Forest Service or State health

policies, and in a responsible manner to avoid overfilling. UMCC would require all workers related to the proposed project (direct employees and contractors) to use the self-contained portable units. The number of portable sanitation units required at both the camp and ore extraction sites would depend on the number of people using the site including both day and overnight users. Any spills would be reported immediately to Forest Service and considered a biological hazard; immediate containment efforts are required. Sawdust, kitty litter, or other absorbent material would be kept on-site, along with body substance isolation gloves and footwear (rubber, latex, etc.) in case of a spill during pumping or transport.

- ✓ At the ore storage/transfer site, the power line on the east edge of the ore storage/transfer site would be the eastern limit of any use or disturbance. No sediment, ore, chemical, or other material would be allowed to extend east of the power line; physical control measures such as certified weed-free straw bales, silt fence, reverse grading, leveling, sediment trap construction, or other Forest Service-approved methods would be implemented prior to ore storage to prevent movement into the nearby collection draw during a precipitation event. At the end of operations, rehabilitation measures would be needed such as excelsior mat or other approved method to ensure that material from the disturbed area stays in place, or disposition of trapped sediment.

- ✓ The 55-gallon fuel drum would be either stored in a location which minimizes spill potential or, if kept on a truck, restrictions would apply to truck use and parking. Examples of restrictions would include that the truck would only be used for equipment service needs (not other general transportation) and parked in a safe location when not in use in order to minimize fuel transport and spill potential, that the drum would only be filled on days with anticipated refueling need, etc.).

- ✓ A spill plan for hazardous materials in a variety of environments (addressing the fuel and maintenance truck, vehicle and equipment maintenance, refueling, and accidental spills from equipment failure) would be prepared by UMCC. The spill plan would include a communications plan. The Forest Service would be immediately advised of any spill and Forest Service instructions followed. Therefore, adequate communications service and equipment are needed to contact the Ashley National Forest Supervisor's Office during work hours or the Uintah Basin Interagency Fire Center (Vernal) or other contact designated in the plan on a 24-hour basis. (This communication would also be needed in reverse so the Forest Service would advise UMCC of fire or other hazards, and this section would be part of a general safety plan.) Immediate measures to absorb any spill would be taken; it would be recommended that kitty litter or other absorbent material be available at all sites. Where excavation and removal had hazards or disadvantages, the Forest Service would request other action. Disposal would be accomplished safely and in accordance with applicable national, state, and Forest Service policies.

- ✓ Within the UMCC access road (upper 2000 feet), UMCC would do pre-project and road maintenance work required by the Forest Service, which would include measures for resource protection, such as roadcut erosion not currently causing a safety or transport hazard. Road improvement or other measures would be required both within and below the UMCC upper section (2000 feet) if deemed necessary to protect water quality (prevent

erosion), the road, the spring supplying Moon Lake Resort recreation potable water, or the spring in Section 15, T2N R8W per UMCC "Sample Ore Transport Route Map" *(supplemental Information for USFS Letter of 4/16/01 and Meeting on 5/10/01)*. If improvements were deemed necessary by the Forest Service either within or below the upper 2000 feet of road because of the proposed action, then UMCC would be financially responsible. Any hay or straw used would be certified weed-free. Any terracing would by approved in advance by a Forest Service engineer.

- ✓ The Forest Service would require dust abatement in addition to that prescribed by UMCC if monitoring indicates unacceptable impacts to other resources; the Forest Service would specify whether water alone or chemical dust abatement products would be used. No Forest Service potable water source would be used for dust abatement or other non-potable purpose; no Forest Service recreation site potable water would be used for filling large storage tanks (e.g., pickup bed tank). Permission to use another's water right would be presented to the Forest Service prior to water use. No Forest Service water rights would be used without specific permission as to the quantity and timing of use, as well as access. For chemical dust palliatives, consideration of salts, leaching, runoff/water contamination, and possible effects on vegetation would precede approval by the Forest Service. Forest Service approval would be required prior to transport, use or storage on-site (camp/transfer or ore extraction sites).

- ✓ Woody debris removed for this proposal would be laid perpendicular to the fall line to aid in trapping sediment below the test pit and possibly below the road. Implementation monitoring would ensure woody debris is not placed parallel to the fall line, which would accelerate erosion.

- ✓ A Forest Service engineer would authorize design and frequency of road drainage and area sediment control. Road outsloping would be used in conjunction with designed drainage features (such as dips) located with a frequency and site selection, which avoids concentration of water to an erosive level. The proposed under-road rock drain would need to be evaluated by Forest Service engineer on-site to assess the resistance capacity of the hillslope below and the its ability to handle the anticipated volume of water without resource damage. The engineer also would need to evaluate the strength of the road materials to hold up when wet so piping does not occur. Post-project rehabilitation would need to be developed which would require no/low maintenance. This work would be bonded since monitoring would occur to ensure the structures function in the post-project period.

- ✓ If operations cease before final erosion control is implemented (such as for winter or other work stoppage), temporary stabilization measures would be implemented as recommended by the Forest Service.

- ✓ Monitoring and maintenance of the pit gabion by UMCC would be the same as for the roadcut gabion addressed in Alternative C – No Action (annual monitoring and maintenance would occur for a minimum of 5 years and longer if needed; maintenance would also be performed if advised by the Forest Service of structural or resource

damage). An annual report would be filed with the Forest Service by December 31 of each calendar year.

- ✓ The Forest Service would establish monitoring below the ore extraction site, consisting of water quality and stream channel condition monitoring of Slate Creek and hillside stability monitoring of slopes below the ore extraction site.

Air Quality –

- ✓ The Forest Service would monitor qualitative wilderness values such as noise, odor and dust during all aspects of project (pre/post and project). Additional refinements or restrictions to project activities might be needed.

- ✓ See previous measure for dust abatement under Soils, Hydrology, and Water Quality. This measure would also apply to Air Quality.

Wilderness –

- ✓ The Forest Service would monitor qualitative wilderness values such as noise, odor and dust during all aspects of project (pre/post and project). Additional refinements or restrictions to project activities would be needed when deemed necessary by the Forest Service.

Inventoried Roadless Area –

- ✓ Maintenance of the Forest Service access road would be limited to removal of down trees that fall across the road, and minor ditch work to control or minimize concentrated water runoff – to maintain the inventoried roadless area attribute of Remoteness.

- ✓ All above ground facilities at the mine area and camp/ore storage and transfer sites would be removed (signs, trailers, outbuildings, powerline, telephone line, poles, etc.) – to return a moderate rating to the inventoried roadless area attribute of Remoteness.

Cultural Resources –

- ✓ If any historic or prehistoric evidence or artifacts were discovered during any proposed activities, all project activities would cease and the District Ranger would be notified.

Visuals –

None noted

Recreation –

-Roads and Trails-

- ✓ To minimize safety concerns on Forest road 131 the following items should be accomplished: 1) Install proper signing to inform public of hauling; 2) make sure vegetation is adequately cut back on curves to increase sight distance; 3) Allow hauling only during daylight hours.

-Current Recreation Use Patterns-

✓ To minimize the additional noise from hauling operations, the following items would be accomplished: 1) Allow hauling only during daylight hours; 2) Do not allow the use of engine brakes; 3) Do not allow hauling to take place on Holiday weekends.

Facilities, including Public Access and Safety –
-Mine Area - Test Pit/Ore Extraction Sites-

✓ UMCC would post a lookout at the mine area to monitor rock fall danger during excavation, ore removal, and rehabilitation operations.

✓ The existing 0.4 miles of access and spur roads within the mine area would be closed as follows:

The top of cut slopes would be rounded. Roadbeds would not be scarified; rather rock fall would be allowed to fill in the existing roadbed over time. UMCC's Erosion Control Measures *(Section 2.2.a.1)* would be applied to all road surfaces, with the exception of the seeding mix. *The seeding mix would be as presented on pages 2-25 and 2-26.*

- Existing Forest Service access road – 6.2-mile access road -

✓ The Forest Service access road runs underneath existing distribution and transmission powerlines in the vicinity of the proposed camp/ore storage and transfer sites. Truckload heights would need to be verified, in order to assure proper clearance between truck/truck loads and the powerlines.

✓ Moon Lake Electric Company would be notified prior to equipment transport, and asked to inspect the road crossing at the powerline. UMCC would assure that equipment transport would not damage or interfere with the powerline or powerline operation.

✓ A commensurate maintenance agreement would developed and in place prior to operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.

-Camp Site area -

✓ After completion of all project activities, UMCC would remove all existing structures from the site, as well as any temporary facility used during the rehabilitation work (signs, trailers, outbuildings, distribution powerline, telephone

✓ The large fireplace, which exists at the "covered work table" site *(Map 4, page 2-11)* would be the only allowed fire location for cooking, warming, or other open fire use.

✓ Moon Lake Electric Company would be notified prior to equipment transport and ore hauling and asked to inspect the road crossing at the powerline. UMCC would assure that equipment transport would not damage or interfere with the powerline or powerline operation.

- Forest Development Road (FRD) 131 -

✓ Safety hazards to traveling public would occur at the junction of the Forest Service access road and FDR 131 during mobilization, ore hauling, and demobilization periods. View distances to the north of the junction are limited to 200 feet by a stand of aspen trees along the west side of FDR 131. Safe view distances need to be 500 feet or greater for the 45 mile speed limit along the road. The south view distance is greater than 500 feet. A flag person would be needed at the junction during mobilization, ore hauling, and demobilization periods.

✓ A commensurate maintenance agreement would developed and in place prior to closeout/rehabilitation operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.

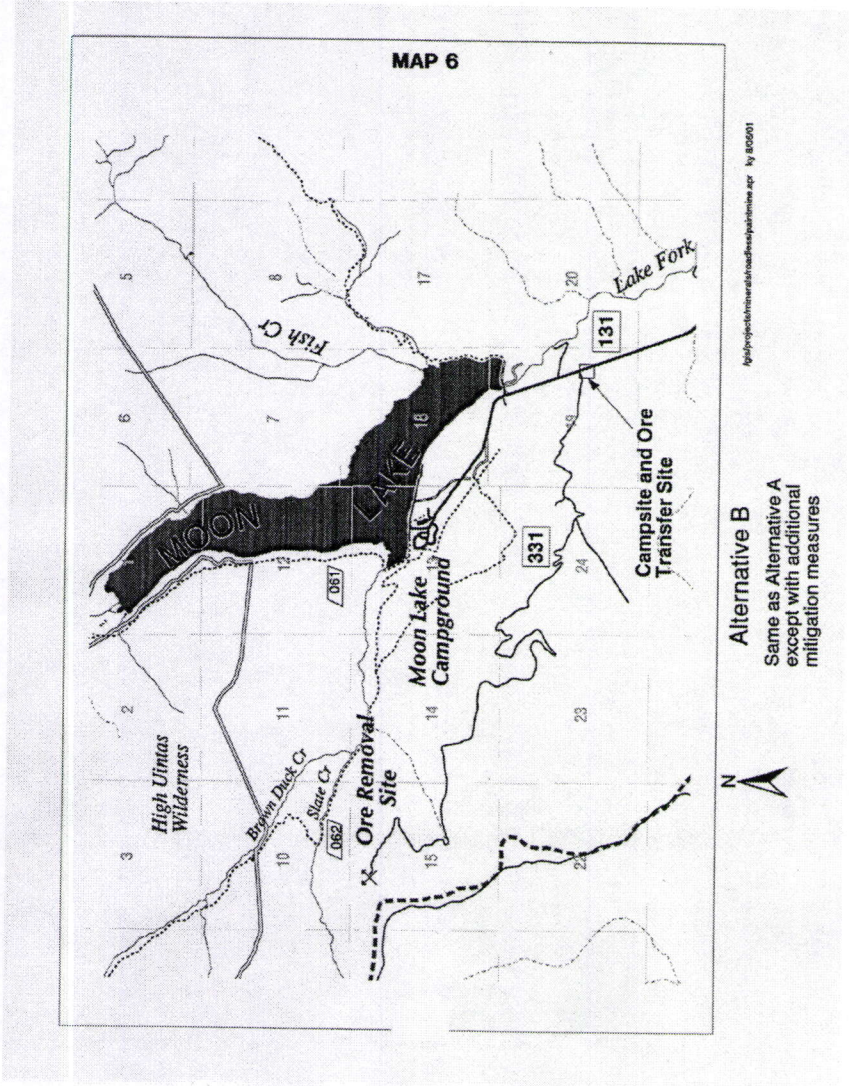
✓ Weight limits for the 2 cattle guards and 2 bridges must not be exceeded. If needed, these structures would be reinforced according to directions from the Ashley National Forest Engineer.

Lands –

Measures are covered in other resources.

Paleontology –

No significant paleontologic resources are anticipated to occur in the mine area. If such resources were discovered during the proposed activities, those activities would cease and the District Ranger would be notified.



2.2.c. Alternative C – Baseline Comparison (No Action) (End Exploration and Development Activities and Rehabilitate All Disturbed Areas)

This alternative is included and analyzed in order to quantify baseline environmental conditions that would exist if existing exploration and development operations were to end and proposed or modified exploration and development operations were not initiated.

The alternative describes and displays the results of full and complete rehabilitation of all disturbed areas, including re-establishment of vegetative cover, and implementation of erosion control measures and follow up monitoring. The alternative assumes that **existing operations are ended and new exploration and development activities do not occur**.

(See Map 7 - Alternative C, page 2-36.)

Road Access –
The existing 6.2-mile (22.5 acres) Forest Service access road would be maintained as a limited access public road, i.e., open to the public by permit for firewood gathering, etc.

The 0.3 miles (1.20 acres) of UMCC's access road in the mine area would be left open during the reclamation and monitoring period, after which it would be immediately drained, scarified and seeded by UMCC. The gate at the beginning of this access road segment would be left in place to prevent access during reclamation and monitoring and to assure public safety.

The 0.1 miles (0.20 acres) of spur roads within the mine area would be rehabilitated as shown in *Figures #5 and 6, pages 2-16 and 2-18*. This would include seeding to establish a vegetative cover.

Existing Facilities –
The facilities at the camp/ore storage and transfer sites would be removed, i.e., trailers, sanitation units, etc. and the existing disturbed areas (0.25 acres) would be scarified and seeded

Table 2.3
Areas Closed and Rehabilitated under Alternative C – Baseline Comparison

Roads and Facilities	Reclaimed and Rehabilitated Areas (Acres)
Access/Spur Roads	1.37
Camp/Ore Storage and Transfer Sites	0.25
Total	1.62 Acres

2.2.c.1) Environmental Protection Measures, Mitigation Measures, and Monitoring Guidelines for Alternative C – No Action

The measures listed under Alternatives A and B would also apply to Alternative C, except for those specific to exploration and development activities. In addition, the following special measures and monitoring guidelines would apply as developed by the Forest Interdisciplinary Team:

Soils, Hydrology, and Water Quality –

- ✓ Removal of camp area structures would occur during dry ground/road conditions and all activity would avoid any depressions/draws in order to minimize soil compaction or groundwater disturbance. (Refer to Alternative A for discussion of draws in this area, which include the area just behind the trailer and a larger area around 500 feet behind the trailer.) No temporary structures would be allowed (i.e., no shacks, sheds, horse facilities, etc.) without specific Forest Service authorization including location and type. Site disturbance or rehabilitation of bare ground would require post-project groundwork or seeding. This work would be bonded. A Forest-Service approved seed mix and application rate would be used.

- ✓ The old outhouse would be removed incorporating any applicable federal, state or Forest Service guidelines.

- ✓ UMCC would be required to install Forest Service-approved low/no maintenance drainage structures along the upper 2000 feet of road (UMCC road), such as frequent drainage dips to remove runoff water before it concentrates and erodes the downhill slope, and hardened receptor sites on fill slopes. The "low maintenance" refers to an anticipated need for UMCC to perform or finance monitoring and minor refinements to the drainage system in the first few years, with the ultimate goal of no maintenance. This work would be bonded at the discretion of the Forest Service.

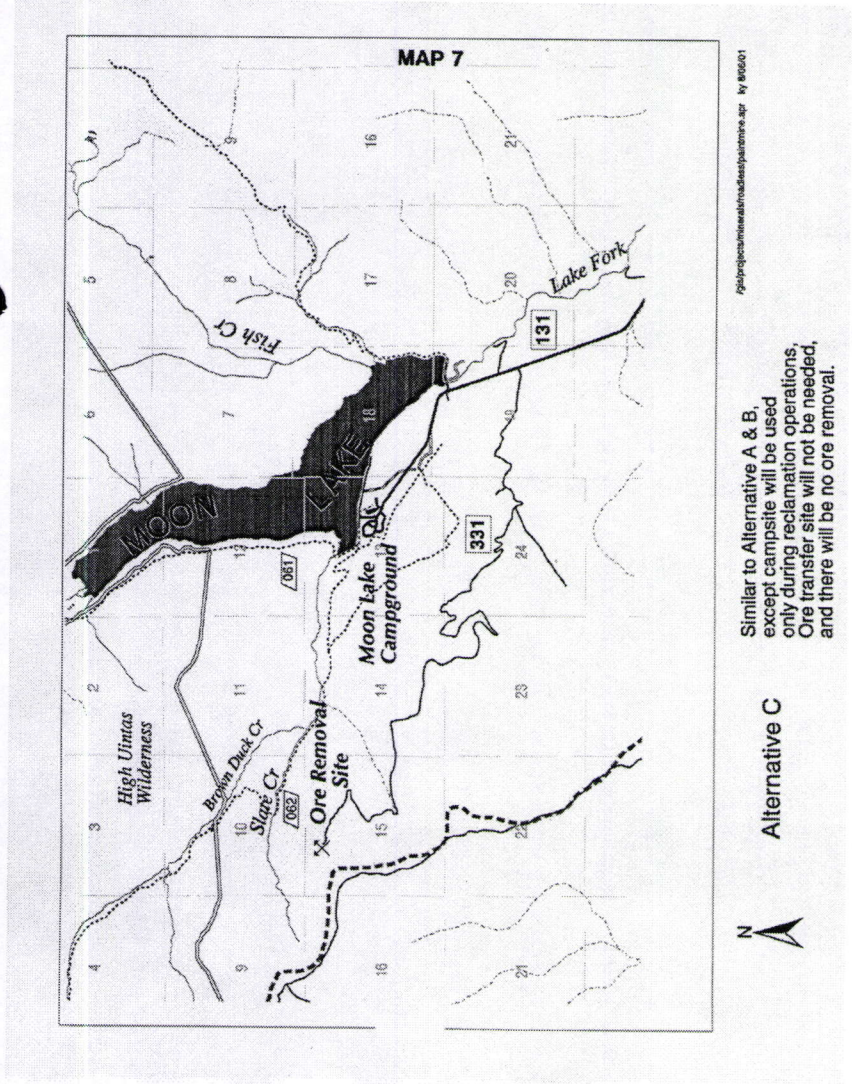
- ✓ Monitoring, maintenance and repair of the existing roadcut gabion would be performed or financed by UMCC annually for a minimum of 5 years and longer if needed (so that the possibility of monitoring through some wet years is included). Monitoring, maintenance and repair would also be required by the Forest Service during any monitoring period if structural or resource damage was evident. Maintenance by UMCC would include stabilization of any resource damage resulting from failure or maintenance/repair needs, as well as preventive care. This work would be bonded. An annual report would be filed with the Forest Service by December 31 of each calendar year.

- ✓ Pre- and post-cleanup road improvement or other measures would be required both within and below the UMCC upper section (2000 feet) if deemed necessary to protect water quality (prevent erosion), the road, the spring supplying Moon Lake Resort recreation potable water, or the spring in Section 15, T2N R8W per UMCC "Sample Ore Transport Route Map" *(supplemental Information for USFS Letter of 4/16/01 and Meeting on 5/10/01)*. If improvements were deemed necessary by the Forest Service either within or below the

upper 2000 feet of road in order to remove UMCC equipment, then UMCC would be financially responsible. This work would be bonded.

- ✓ Pulling up fill slope materials to recontour roads would require on-site consultation with a Forest Service engineer for site-specific evaluation on each road segment in order to avoid creating any new erosion concerns.

- ✓ The Forest Service would be immediately advised of any hazardous material spill; therefore, adequate communications service and equipment would be needed to contact the Ashley National Forest Supervisor's Office during work hours or the Uintah Basin Interagency Fire Center (Vernal) or other contact designated in the plan on a 24-hour basis. (This communication would also be needed in reverse so the Forest Service would advise UMCC of fire or other hazards, and this section would be part of a general safety plan.) Immediate measures to absorb any spill would be taken; it would be recommended that kitty litter or other absorbent material be available at all sites. Where excavation and removal had hazards or disadvantages, the Forest Service would request other action. Disposal is to be accomplished safely and in accordance with applicable national, state, and Forest Service policies.



2.2.d Acres by Alternative

Table No. 2.4
Acreage and Percentage Breakdown by Management Prescription
For Alternative A

Management Area	Acres	Percent
Area 'n' **1.45 acres of UMCC access road, including truck turn-around area (0.3 miles of road)** **0.20 acres of UMCC spur roads (0.1 miles of road)** **0.075 acres of test pit/ore extraction area** **1.50 acres of camp/ore storage and transfer site area**	3.225	100

Note: The acreage figures shown is Table Nos. 2.4 and 2.5 are 22.5 acres less than that shown in Table No. 1.1, page 1- 6. Table No. 1.1 shows all acres involved in the project (25.73 acres), including the Forest Service access road (6.2 miles or 22.5 acres).

The 6.2-mile Forest Service access road is not included in the acreage figures shown in Tables Nos. 2.4 and 2.5. This road would remain open to the public on a limited bases. The Forest Service has long-term maintenance responsibilities for the road, and would enter in to a short-term maintenance agreement with UMCC during the Proposed Action.

Table No. 2.5
Acreage and Percentage Breakdown by Management Prescription
For Alternative B

Management Area	Acres	Percent
Area 'n' **1.45 acres of UMCC access road, including truck turn-around area (0.3 miles of road)** **0.20 acres of UMCC spur roads (0.1 miles of road)** **0.075 acres of test pit/ore extraction area** **1.50 acres of camp/ ore storage and transfer site area**	3.225	100

Table No. 2.6
Acreage and Percentage Breakdown by Management Prescription For Alternative C

Management Area	Acres	Percent
Area 'n' **1.17 acres of UMCC access road (0.3 miles of road)** **0.20 acres of UMCC spur roads (0.10 miles of road)** **0.25 acres of camp/ore storage and transfer site area**	1.62	100

Total number of acres and acreage and percentage breakdown by Management Prescription for Alternative C would involve the reclamation of existing disturbed areas within the mine area and the camp/ore storage and transfer sites.

2.3 Comparison of Alternatives and Summary of Consequences

The comparison of alternatives and summary of consequences are displayed in the following tables and narratives.

Table No. 2.7
Acres of Disturbance by Alternative

Alternative	Acres
Alternative A – Proposed Action	3.225
Alternative B – Modified Plan of Operations	3.225
Alternative C – Baseline Comparison (No Action)	1.380

Table No 2.8
Summary of Consequences

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Vegetation	-0.075 acres of vegetation cleared at mine site -Low potential for reestablishing vegetation at test pit area and past disturbed areas within the mine area	-0.075 acres of vegetation cleared at mine site -Low potential for reestablishing vegetation at test pit area and past disturbed areas within the mine area	-No new clearing of vegetation -Low potential for reestablishing vegetation on past disturbed areas within the mine area
Wildlife - Terrestrial	**T&E species –** Canada Lynx—indirect effect from noise disturbance Temporary alteration of linkage corridors within the Lynx Analysis Unit. **Sensitive species –** Northern Goshawk—could disturb forage patterns during 60-day operations period in the PFA. Peregrine falcon, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker— possible disruption of foraging patterns and/or noise disturbance during nesting period. Spotted Bat—removal of 0.05 acres of potential habitat **Mgt Indicator Species –** Elk and Deer—short-term disturbances. Some temporary displacement of individuals and possible displacement of harvest. Northern Goshawk—could disturb forage patterns during 60-day operations period in the PFA.	**T&E species –** Canada Lynx—same as Alt A **Sensitive species –** Northern Goshawk—reduced disturbance to the PFA during the critical nesting and fledgling period. Peregrine falcon, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker—significant reduction of disturbance to foraging patterns and noise disturbance during nesting period. Spotted Bat—same as Alt A **Mgt Indicator Species –** Elk and Deer—same as Alt A, but at a reduced level. Northern Goshawk—reduced disturbance to the PFA during the critical nesting and fledgling period.	**T&E species –** Canada Lynx—same as Alt A **Sensitive species –** Northern Goshawk – minor disruption of forage patterns. Peregrine falcon, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker—minor disruption of forage patterns Spotted Bat—no additional loss of habitat **Mgt Indicator Species –** Elk and Deer—same as Alt A and B, but on a much smaller scale. Northern Goshawk – minor disruption of forage patterns.

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Wildlife – Terrestrial continued	Golden Eagle—short-term disturbance to adjacent cliff habitat during nesting period. Red-naped sapsucker and warbling vireo –possible noise disturbance during nesting period.	Golden Eagle—reduced noise disturbance to potential golden eagle habitat during the nesting period. Red-naped sapsucker and warbling vireo –reduced noise disturbance during the nesting period	Golden Eagle—minimal noise disturbance. Red-naped sapsucker and warbling vireo – temporary noise disturbance.
Wildlife - Aquatic	No direct or indirect Impacts	No direct or indirect impacts	No direct or indirect impacts
Soils	1. Low to moderate potential for slope failure at the test pit area 2. Rehabilitation of soils at the test pit area, and access and spur roads would be difficult 3. Top soil at the test pit area could not be segregated and replaced	1. Same as Alt A 2. Same as Alt A 3. Same as Alt A	1. Low potential for slope failure 2. Rehabilitation of soils on the access and spur roads would be difficult 3. No loss of top soil (no test pit would be constructed)
Hydrology & Water Quality	1. Localized compaction at subsurface collection draws could affect site productivity or increase vulnerability to surface erosion. Campfires outside the existing fireplace would reduce soil productivity in localized spots. 2. The collection draw at the ore storage/transfer site is not protected by mitigation; some sediment washing from the storage area could be transferred to an ephemeral collection draw and transferred downstream.	1. Activity buffer around subsurface collection draws and drainages ensure function maintained. Human sanitation more specifically addressed. 2. Buffer around collection draw at ore storage/transfer site and proactive sediment interception practices, along with rehabilitation reduce the potential for sediment entering the draw.	1. Some soil disturbance at camp area from removal of facilities; short-term erosion potential until vegetation establishes, but flat ground. Noxious weed control included. 2 & 3. No change from current undisturbed condition.

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Hydrology & Water Quality continued	3. Gravel in the storage site would be spread after operations, reducing long-term soil productivity. 4. Low hazardous materials potential from routine fueling; proposal to excavate contaminated soil from any spills might not be best resource approach in all cases. 5. Road drainage in the upper 2000 feet of road provided; road drainage below this segment not addressed. 6. Dust abatement plan includes use of potable water along with non-toxic dust palliatives approved by the Forest Service.	3. Long-term soil productivity from the storage sites would still occur; the buffer limits proximity to the collection draw. 4. A spill plan involving the Forest Service would be prepared. Safety measures to reduce the potential of spills from the 55-gallon drum would be specified. 5. Road improvement or other measures would be required of UMCC below the upper 2000 feet. Road use limited if conditions would cause damage and increase erosion. Project closeout measures same as Alternative C. 6. No Forest Service potable water source would be used for dust abatement. Forest Service could require dust abatement and would approve palliatives other than water.	4. Hazardous materials could be on currently active project areas during rehabilitation work, but for shorter duration and less equipment than in Alternative A or B. Forest Service notification and involvement specified. 5. Road drainage and erosion stabilization, as well as stabilization of cut slopes around the ore extraction area. Upper 2000 feet of road closed to public use. UMCC proposal to pull in outside road edge to slope gradient could increase disturbance over existing condition in some locations, so Forest Service consultation required. 6. Dust abatement needs reduced because rehabilitation operations of shorter duration.

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Hydrology & Water Quality continued	7. Long-term monitoring of the pit gabion lacking; failure could result in sediment transported down the "chute" below ore extraction site. Vegetation and lower slopes below the mine would intercept some sediment before reaching stream courses. Other sediment sources to Slate Creek, including an old road and unstable natural lands in the upper drainage, would mask effects from the proposal. Sediment would not contaminate the spring source providing domestic water to recreation facilities around Moon Lake Reservoir. 8. Long-term revegetation poor on the ore extraction site due to low natural productivity and disturbance.	7. Additional erosion control measures during operations could be required by the Forest Service. Source of rock to fill gabions designated by the Forest Service if locally obtained. Annual report by UMCC of gabion effectiveness with annual maintenance if needed for 5 years or longer. Otherwise, similar to Alternative A. 8. Same as Alternative A.	7. UMCC performs annual monitoring and maintenance of the existing roadcut gabion for 5 years or longer. Debris and sediment continue to be concentrated in the "chute" below the ore extraction site at levels similar to current levels. Otherwise, similar to Alternative A. 8. Slope rehabilitation at the ore extraction site does not include gabion construction, importing topsoil, or extensive revegetation due to low site productivity and potential to increase disturbance with rehab work.
Air Quality	1. No Wilderness lake acidification. 2. Dust visible in vicinity of ore extraction site; prevailing winds do not carry into Wilderness. High visibility from trail into Wilderness.	1. Same as Alternative A. 2. Effects similar to Alternative A. Wilderness values such as noise, odor, and dust monitored. No Forest Service potable water used for dust abatement. Dust palliative approved by the Forest Service.	1. Same as Alternative A. 2. Similar to Alternative A except rehabilitation activities are of a shorter duration and with less equipment than Alternative A or B. Applicable mitigation measures in Alternative B apply.
High Uintas Wilderness	Slight possibility that mine operations would be seen from several locations within the wilderness	Same as Alt A	Same as Alt A (during rehabilitation work only)

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Adjacent Inventoried Roadless Area	**Natural Integrity** – remains moderate adjacent to mine area and Forest Service access road; changes from moderate to low at camp/ore storage & transfer site; then returns to moderate after completion of project work **Apparent Naturalness** – perception of human impacts changes from moderate to high at all project sites; then return to moderate after completion of project work completion of all project work **Remoteness** – existing rating of moderate changes to low or very low adjacent to mine area and at the camp/ore storage & transfer site and remains low after completion of all project work. Exiting rating of moderate remains moderate along Forest Service access road **Solitude** – existing rating of moderate changes to low to very low at mine area and along the Forest Service access road; then returns to moderate after completion of project work. Existing rating of low at camp/ore storage & transfer site changes to very low; then returns to low after completion of project work.	**Natural Integrity** – same as Alt A **Apparent Naturalness** – same as Alt A **Remoteness** – same as Alt A – **Solitude** – same as Alt A during operations, but changes from low to moderate if operations are disallowed on weekends **Manageability/ Boundaries** – same as Alt A	**Natural Integrity** – remains as moderate for all areas adjacent to mine area, access roads and campsite **Apparent Naturalness** – remains moderate and slightly improves over time **Remoteness** – same as Alt A **Solitude** – remains moderate at mine area, along Forest Service access road, and at campsite area activities only **Manageability/ Boundaries** – boundary at campsite would be affected during rehabilitation activities only

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Adjacent Inventoried Roadless Area continued	**Manageability/Boundaries** – boundary at camp/ore transfer site would be affected during operation period and rehabilitation work		
Cultural Resources	No effect determination	Same as Alt A	Same as Alt A
Visual Resources	Minor short-term effects	Same as Alt A	Shorter duration of visual effects (associated with rehabilitation work only)
Recreation	**Roads & Trails** – increased traffic on Forest Road 131 during 60 day work period **Current Recreation Use Patterns** – some noise and visual distractions during 60 day work period	**Roads & Trails** – same as Alt A **Current Recreation Use Patterns** – same as Alt A	**Roads & Trails** – some increase in traffic during rehabilitation work, no large haul trucks on Forest Road 131 **Current Recreation Use Patterns** – some noise and visual distractions during rehabilitation work period (shorter duration)
Facilities, including Public Access & Safety	**Mine Area** – rock fall, upslope bank sloughing along roads, and downhill side casting of rock and soil material **Forest Service Access Road** – some road dust and rutting of the 6.2-mile native surface road **Camp/Ore Storage & Transfer Site** – No major effects	**Mine Area** – Same as Alt A **Forest Service Access Road** – Same a Alt A **Camp/Ore Storage & Transfer Site** – same as Alt A	**Mine Area** – minor rock fall during rehabilitation work **Forest Service Access Road** – minor road dust and rutting during rehabilitation work **Camp Site** – No major effects

Table No 2.8
Summary of Consequences continued

Resource Values	Consequences		
	Alternative A – Proposed Action	**Alternative B – Modified Proposed Action**	**Alternative C – Baseline Comparison (No Action)**
Facilities, including Public Access & Safety continued	**Forest Road 131** – some damage to paved surface from long-haul ore trucks; safety hazards at junction of Forest Access Road and Forest Road 131; possible need to reinforce bridges and cattle guards	**Forest Road 131** – Same as Alt A	**Forest Road 131** – minor damage to paved surface from trucks used during rehabilitation period; safety hazards at junction of Forest Access Road and Forest Road 131; no need to reinforce bridges and cattle guards
Lands	Minor effects to special use authorizations associated with recreation at Moon Lake, i.e., noise and traffic from equipment on Forest Road 131	Same as Alt A	Same as Alt A, but less traffic and noise for shorter period of time
Paleontology	No known effects	Same as Alt A	Same as Alt A

CHAPTER 3

AFFECTED ENVIRONMENT

3.0 INTRODUCTION

The information in this chapter is tiered to the Environmental Impact Statement (EIS) for the Ashley National Forest Land and Resource Management Plan; and specifically to EIS sections for minerals, wildlife, water, and soils management.

Chapter 3 presents the existing environment and describes the environmental components (resources) of the area that would be affected by the Proposed Action and alternatives, and that would affect the Proposed Action and alternatives if they were implemented. The word "affected" in the title of the chapter does not imply that environmental effects are also described. Instead, the environment described is the baseline for the analysis and evaluation comparisons in Chapter 4, Environmental Consequences.

The affected environment is described in terms of Ecological Units and individual resource values. The following paragraphs provide a summary and definition of Ecological Units and the resource values to be addressed.

The Ecological Units (EUs) are presented in Section 3.2, pages 3-2 to 3-7. The EUs are delineated in the Land Systems Inventory (LSI) of the Ashley National Forest. *(See Map 8, page 3-6 for a display of Ecological Units associated with the Proposed Action and Alternatives.)* This Lands System Inventory is consistent with and part of the National Hierarchical Framework of Ecological Units. This framework provides a standardized method for classifying, mapping, and describing ecological units at various geographic planning and analysis scales. The Lands System Inventory will serve as the base stratification for almost all aspects of forest planning. Each ecological unit described in this chapter is part of one or more management areas as defined in the Ashley National Forest Land and Resource Management Plan (Forest Pan). *Refer to Chapter 1, item 1.5, pages 1-8 and 1-9 for general management area direction.*

The affected environment for individual resource values is presented in *Sections 3.2.a through 3.2.m.* The resources included in this chapter correspond to the 11 issues listed in *Section 1.9, page 1-14 through 1-16 of Chapter 1.* Resource discussions are presented in the order listed in Section 1.9 and this same order is followed in Chapter 4. Resources, such as wetlands, recreation, and prehistoric values are either not within the project area or will not be affected by the Proposed Action and alternatives; and therefore, are not included in Chapters 3 and 4.

General Location of the Proposed Test Pit/Ore Extraction Operation

The Proposed Action and alternatives are associated with the Uintah Mountain Copper Company Paint Mine (Sunshine Quartz Mine No. 4). This mine is located approximately 25 air miles northwest of Duchesne, Utah in Section 15, Township 2 North, Range 6 West, USM.

Elevation ranges from 8,202 feet to 10,400 feet above sea level. The Forest Service access road to the Paint Mine starts at an elevation of approximately 8,202 feet and ends at an elevation of 10,200 feet. The mine is located at the 10,200 to 10,400-foot elevation. *(Refer to the General Vicinity Map, page 1-7 of Chapter 1.)*

3.1 Description of Ecological Units in the area of the Proposed Test Pit/Ore Extraction Operation, including Vegetative Cover and Surface Conditions

The following information on Ecological Units in the mine area serves as background information and data for discussions on the resource issues mentioned in *Section 1.9 of Chapter 1*, specifically the issues for vegetation, sensitive areas and resources (steep slopes, soils), and water quality.

Four (4) separate ecological units (EU) are found in the area. A map *(Map 8, page 3-6)* and brief descriptions and concepts of these units are included on the following pages, *pages 3-2 through 3-6.* More detailed descriptions of these units are on file at the Forest Supervisors Office of the Ashley National Forest.

3.1.a Glacial Bottom 3 (GB3) - 0.27 miles of the Forest Service access road crosses through this EU. The camp/ore storage and transfer sites are located in this EU

This Ecological Unit consists of upper terraces and large fans of low gradient that are flat and dry and usually support mountain big sagebrush/grass, mixed mountain shrub, and aspen/snowberry communities, with potential for displacement by coniferous species.

Gradients are typically 5 to 30 percent.

Most of the terraces are composed of cobbles, pebbles, and boulders and fine grained materials derived for the Uinta Mountain Group. The slopes are generally quite stable, and there is little erosion in this unit. Management activities should pose few problems to resource conditions. However, the soils have a high percolation rate so liquids placed in the unit could reach the ground-water table or live streams very rapidly. In a few localized cases, fine-grained side valleys have been affected by mudflows after moderate to heavy precipitation.

Soils in this unit are primarily deep, dark, colored, sandy and sandy skeletal in texture. The dominant soil is skeletal, and the surface layer is a cobbly loamy sand about 12 inches thick. The subsoil is cobbly loamy sand about 13 inches thick. The underlying material is a cobbly loamy sand, weakly cemented by carbonates in the upper several inches. Reaction is neutral in the upper layers and mildly to moderately alkaline in the underlying material. Content of rock fragments ranges from 10 to 80 percent with the higher percent being orientated in stringers and patches.

3.1.b Glacial Canyon 5 (GC5) - 1.38 miles of the Forest Service access road crosses through this EU.

The GC5 Ecological Unit consists of scattered Douglas fir/aspen covered alluvial fans built by active side canyon streams that extend out over the glacial drift of Lake Fork Canyon. Streams that have migrated back and forth over the surface of the fan built these fans. Slumping has occurred, usually in the form of mudflows.

Gradients are typically 40 to 60 percent, but range from 10 to 80 percent.

Cobbles and small boulders of quartzite armor most of the surface with some fine-grained material. The gravel armor and the depositional nature of the landtype indicate that it should not erode from locally derived sheet wash.

Soils have developed in deep colluvial-alluvial materials occurring on hummocky lower valley slopes. Some poorly drained soils occur in scattered seep areas. The dominant soils on convex slopes are flaggy silt loam about 12 inches thick. The underlying material is flaggy silt loam. Reaction is mildly to moderately alkaline. Content of coarse fragments range from 15 to 45 percent. A minor soil occurring in swales is characterized by accumulating silt loam surface soil, which is three to five feet thick. These dark soils are neutral in reaction and commonly have 10 percent or less coarse fragments.

3.1.c Alpine Moraine 7 (AM7) - 1.22 miles of the Forest Service access road crosses through this EU.

The AM7 Ecological Unit is covered with aspen and coniferous trees on shale or thin till over shale. The unit can be highly erosive where the shale is exposed or where the till is very thin. Extremely bouldery lateral moraines exist on shoulder slope positions. A Subdued ridge and swale topography runs parallel to the main canyon. The ridges are bouldery with some cabin-sized boulders. Most of the fines have been removed from these areas, probably during glacial melting. The swales contain some meadows with silt on the bottoms. Other swales lack meadows, but the boulders have been covered by fine-grained material. Because of the large number of boulders in the unit, little washing is occurring.

Gradients are typically 2 to 16 percent, but range from 0 to 25 percent.

Soils form on gently sloping to strongly sloping shoulder positions above "V" –shaped valleys in the lateral morainic areas. Cobblestones, stones, and large boulders commonly occupy 10 to 30 percent of the surface area. Depth to bedrock is greater than 10 feet.

One of the two dominant soils is somewhat excessively drained. They occur on all slopes in the landtype except in the low-lying swales. The surface layer is cobbly fine sandy loam about 2 inches thick. The subsurface layer is fine, sandy loam about 4 inches thick. The subsoil is cobbly, loamy fine sand about 8 inches thick. The underlying material is loamy fine sand. Content of coarse fragments ranges from 40 to 80 percent and are primarily cobblestones and gravel, but includes some stones and boulders. Reaction is slightly to moderately acid.

The other dominant soil occurs in depressions and swales and is poorly drained with high seasonal water table at 0 to 24 inches. Some areas have organic surfaces layers of 2 to 16 inches thick. The underlying material is gravelly loamy sand. The content of coarse fragments ranges from 2 to 10 percent in he surface layer and 10 to 50 percent in the underlying material. Coarse fragments are primarily gravel and cobblestones. Reaction is moderately acid.

Erosion hazard and soil-mass stability hazards are low because of the high content of coarse fragments and relatively gentle slopes.

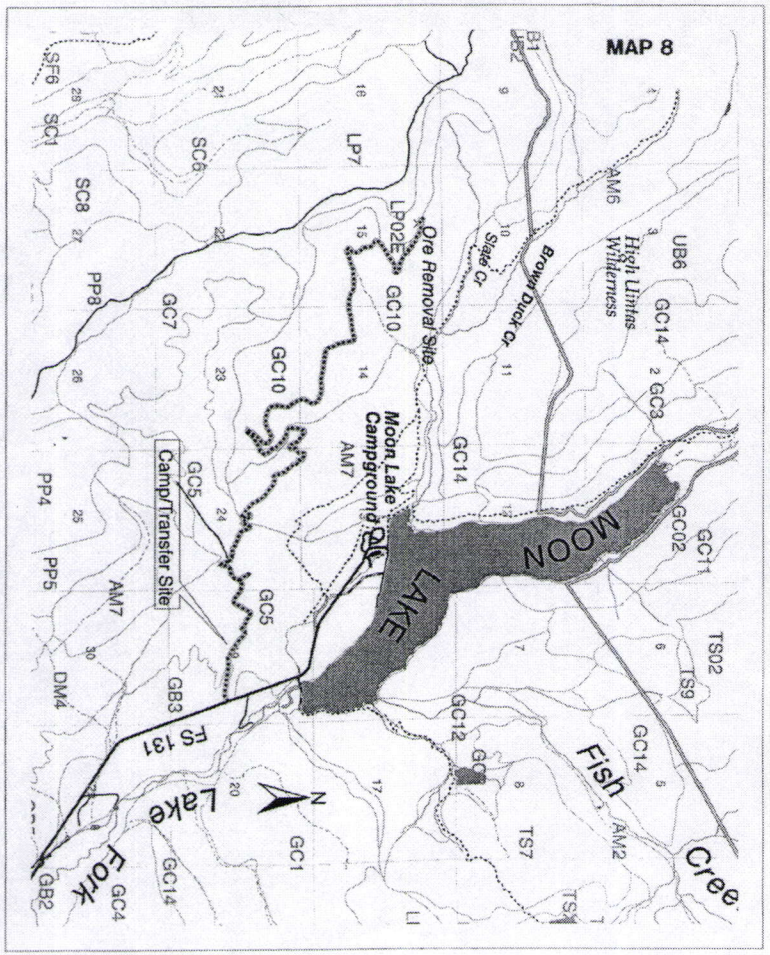
3.1.d Glacial Canyon 10 (GC10) - 3.33 miles of the Forest Service access road, and 0.3 miles of Uintah Mountain Copper Company's access road cross through this EU. The Paint Mine is also located in this EU.

Most of the steeper access route to the mine area and the mine itself are located in Glacial Canyon 10. This unit includes canyon slopes mantled by cobbly and bouldery quartzite colluviums, which frequently is underlain by Red Pine Shale. Gradients typically range from 30 to 50 percent, but include slopes from 20 to 80 percent. Gradients at the site and along the road access near the site are up to 50% or greater.

Even in an undisturbed condition, material is constantly migrating down slope. The lower parts of the unit have steep gullies, which in part, could have been caused by the surfacing of groundwater moving along the top of the Red Pine Shale. Since the slopes are composed of previous colluviums on top of impervious shale, groundwater moves along the colluvium-shale contact. Any cuts that intersect this zone of ground water movement could cause accelerated downhill movement of the colluvium.

Soils in the unit are formed in quartzite colluvium, which overlay well-fractured shale and quartzite at depths commonly ranging from several inches to several feet. Slopes are strongly sloping to steep. The surface has scattered areas of litter, which is one inch or less in thickness. The surface layer is gravelly sandy loam about tow inches thick. The subsurface layer is gravelly loamy sand about 10 inches thick. The subsoil is cobbly sandy loam about 12 inches thick. The underlying material is cobbly loamy fine sand. Bedrock occurs at approximately 30 inches. Reaction is medium acid. Content of coarse fragment is primarily gravel and cobblestones, which range from 5 to 35 percent.

Plant communities along the Forest Service access road and at the mine site are dominated by spruce, fir, lodgepole pine, and in localized areas, aspen. There are some open scree slopes in the vicinity of the site.



Ecological Units of the Project Area

The total number of acres by Ecological Unit is shown in the following Table.

Table 3.1
Acreage and Percentage Breakdown by Ecological Unit Within the Proposed Project Area

	Ecological Unit	Acres	Percent
1	Glacial Bottom 3 (GB3)	0.98	4.18
2	Glacial Canyon 5 (GC5))	5.00	21.34
3	Alpine Moraine 7 (AM7)	4.42	18.86
4	Glacial Canyon 10 (GC10)	13.03	55.62
	Total	23.43	100

3.2 Wildlife *(refer to issue #1, Section 1.8, Chapter 1)*

3.2.a Terrestrial Wildlife

This section discusses affected habitats and populations of terrestrial wildlife species listed in the Forest Plan as management indicator species, species federally listed or proposed as threatened or endangered and species the Forest Service has identified as sensitive and terrestrial species mentioned in the list of issues in Chapter One. *(See Chapter Six, Appendix B, item 1).* Additional information and references on threatened, endangered, and sensitive species can be found in the Biological Evaluation and Biological Assessment prepared for this project (on file at the Roosevelt Ranger District Office).

3.2.a.1) Forest Sensitive Species

Forest sensitive species are identified by the Forest Service Regional Forester as 'those...for which population viability is a concern, as evidenced by...significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution' (FSM 2670.5). *Chapter Six, Appendix B, items 2 & 3* covers all species recognized as species of concern by the Intermountain Region of the Forest Service (for S).

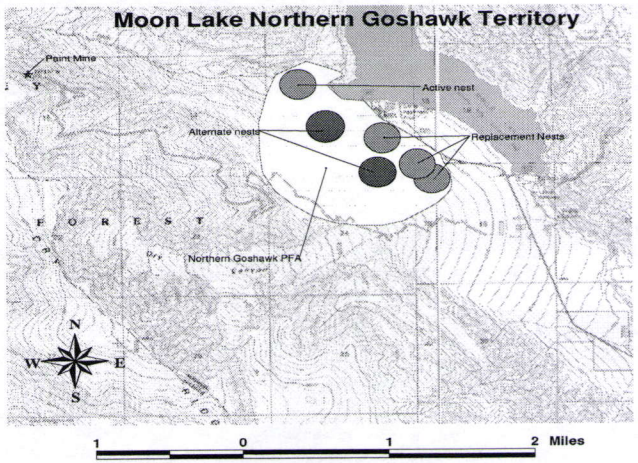
Northern Goshawk – (Accipiter gentilis)

This species breeds in coniferous and mixed forests throughout much of North America and is currently documented as occurring on the Forest. Preferred habitat during the breeding season is older, tall forests, where the birds can maneuver in and below the canopy while foraging, and where they can find large trees in which to nest.

A goshawk's home range may be up to 6,000 acres and have three main habitat component needs within this home range. The three components are 1) nest area; 2) post-fledgling family area; and 3) foraging area. Nesting areas are typically 30 acres in size and may include more than one nest. This area consists of mature trees suitable as nest sites. The post-fledgling family area is approximately 420 acres in size and surrounds the nest area. The post-fledgling family area typically includes a variety of forest types and conditions, but it should contain patches of dense trees as well as developed herbaceous areas and shrubby understory, snags, downed logs and small openings. These attributes are needed to provide the necessary habitats for the birds for hunting, security and prey species. The foraging area is approximately 5,400 acres and surrounds the post-fledgling family area.

In Utah, most of the 421 known nests located during project level surveys occur in mid-elevation (6,000 ft) to high-elevation (10,000 ft) sites, which are currently occupied by mature quaking aspen or coniferous forests (Graham et al 1999). Many of the documented goshawk territories on the Ashley National Forest are associated with lodgepole and aspen cover types. However, some nests in Utah have been documented in the spruce/fir type. The predominant forest cover type in the analysis areas is spruce/fir.

A nesting pair of northern goshawks is located near Moon Lake and the Post Fledging Area (PFA) is within the road access, but not within the test pit/ore extraction area or the campsite area *(see Map 4, page 2-11.)* The Moon Lake pair of goshawks had successful nests for the years 1998-2000 and 2002. Although the test pit/ore extraction site and campsite are not within the 600-acre PFA they are within the 5,400-acre foraging area. Effects from the test pit/ore extraction site and the camping site will be assessed for foraging and some parts of the road will be analyzed for effects on the Post Fledging Area (PFA).



Map 9. Indicating Northern Goshawk PFA, nest locations and their relationship to the Mine area.

Spotted Bat – (Euderma maculatum)

The spotted bat ranges from Mexico through the western states to the southern border of British Columbia. They roost alone in rock crevices high up on steep cliff faces and are frequently reported near cliffs over open water (Finch 1992). Spotted bats are territorial and avoid each other while foraging for moths, their primary prey species.
The spotted bat has been captured in Utah in several habitats: low riparian habitat in the desert shrub community, sagebrush – rabbitbrush, ponderosa pine forest, montane grassland (grass- aspen), montane forest and woodland (grass-spruce-aspen) (Oliver 2000). None of the 220 bats netted by Lengas (1994) in the Ashley National Forest of northern Utah was *E. maculatum*. However, he reported that two spotted bats were heard during the course of his fieldwork. Bat surveys in 2002, also detected two spotted bats on the south unit of the Forest (Perkins 2002).

The project site likely has populations of moths and open water less than one mile away. In general, these features are essential elements of foraging habitat. Within the project area, there are rocky outcrops, which might serve as potential roosting sites.

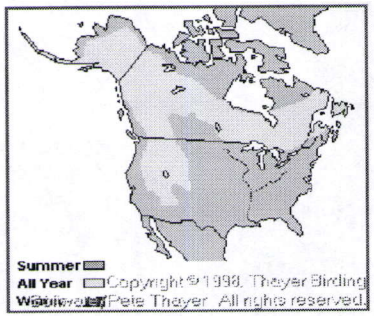
Peregrine falcon – (Falco peregrinus)

The peregrine falcon is a medium-sized falcon that nests on cliff ledges, rock outcrops, and talus slopes at elevations up to 9,500 feet. Prey abundance and diversity is probably the major

factor in nest (i.e. eyrie) selection. Nest sites are often adjacent to watercourses and impoundments because of the abundance of avian prey, which frequent the area. Peregrines may travel up to 17 miles from nesting cliffs to hunting areas (Porter and White 1973). Preferred hunting habitats are croplands, meadows, river bottoms, marshes, and lakes. The test pit/ore extraction site location is adjacent to some potential cliff habitat. Therefore, this species will be evaluated further in this document.

Three-toed woodpecker – (Picoides tridactylus)

Figure 7. Distribution of Three-toed woodpecker in North America

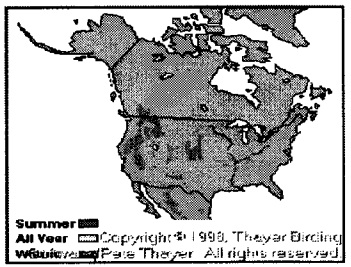


Three-toed woodpecker ranges from Alaska across the Canadian taiga belt to Newfoundland, south to Oregon, and southeast through the Rocky Mountains to Arizona and New Mexico (Finch 1992)(See Figure 7). Past surveys have indicated that three toed woodpeckers occur throughout the Uintas (Ashley National Forest, Unpub data). This species has been found in lodgepole, Douglas fir, spruce/fir and mixed conifer on the Ashley National Forest. Foraging occurs in areas with dead and decayed trees, where it feeds exclusively on the boles of trees by peeling the bark of dead and infested trees to extract the insects (e.g. spruce bark beetles). This species excavates a new cavity for nesting each year and forages by prying off loose, scaly tree bark to find insects. Generally, trees used for both nesting and foraging average 11" diameter at breast height (dbh) or more.

The three-toed woodpecker is a resident of coniferous forests typically above 8000 feet in Utah (Behle et al. 1985). Populations are often quite high in areas where fire, wind storms, or insect outbreaks have left large numbers of dead, damaged or diseased trees (DeGraaf et al 1991). Also, areas containing mature or old growth stands seem to be preferred for both feeding and nesting. This may be attributed to larger diameter trees that are available and a higher incidence of both disease and insects in older forest systems. The primary factor affecting three-toed woodpeckers and their habitat is clearing forests without snag retention (Spahr et.al. 1991). Although no surveys have been conducted in the project area it is probable this species is present in the project location.

Flammulated owl – (Otus flammeolus)

Figure 8. Distribution of flammulated owls in North America



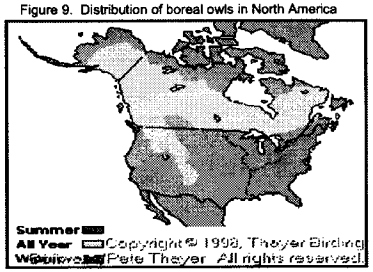
The flammulated owl occurs locally in montane forests in western North America from Central America to British Columbia (see Figure 8). In the Rocky Mountains, flammulated owls are found only in montane forests, usually open conifer forests containing pines (Hayward 1994).

The flammulated owl's preference for yellow pine and/or Douglas-fir has been linked to prey availability (McCallum 1994). Recent studies in Utah (Oleyar 2000) suggest that flammulated owls are not as specialized as first considered and will successfully breed in aspen dominated forests. The ponderosa pine forest type known to be preferred by flammulated owls does not occur in the project area, but there are small stands of aspen. The test pit/ore excavation site is dominated by a talus cliff face which is not considered suitable habitat for nesting or foraging for flammulated owls. Most of the access road is along young lodgepole pine with some small patches of young aspen, which is unsuitable habitat for flamulated owls.

Boreal owl – (Aegolius funerus)

The circumpolar distribution of the boreal owl extends from Alaska east to Newfoundland and south through the Rocky Mountains (Finch 1992)(see Figure 9). They are closely associated with high elevation spruce-fir forests.

Figure 9. Distribution of boreal owls in North America



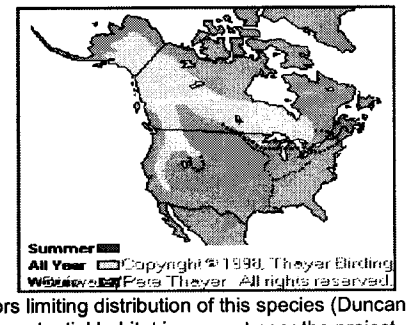
The boreal owl is associated with relatively inaccessible tracts of high elevation coniferous forest, especially mature to old growth spruce, fir and aspen (Hayward 1994). They are dependent on this forest type for foraging year round. Boreal owls nest in cavities excavated by large woodpeckers and consist of forests with a relatively high denisty of large trees (64 +/- 11.02 cm.dbh), open understory, and multilayered canopy (Hayward 1994). Although they may use edges for foraging, they tend to avoid open areas such as clearcuts and meadows (Spahr et al. 1991).

Currently, there is documentation of one boreal owl occurring on the Vernal Ranger District of the Forest. Because the Uintas represent the southernmost range for boreal owls, it is not yet known if this sighting indicates accidental or peripheral birds rather than breeding populations. During spring calling surveys conducted in the year 2000, a boreal owl responded to a call in the Lake Fork Drainage. Whether this bird was a migrant or a resident is also unknown. Potential habitat for this species is near the project area.

Great gray owl – (Strix nebulosa)

The great gray owl breeds from the boreal forests of Alaska, northwestern Wyoming, western Montana, Idaho and through the Sierra Nevadas of California (see Figure 10). Great gray owls have been detected during calling surveys in the Uinta Mountains on several occasions (Appendix B, Item 2; Ashley National Forest unpub. data). Because the Uintas represent the southernmost limit of the known range for great gray owls, it is unclear whether these occurrences represent vagrants or breeding individuals. Behle (1981) described this species as "casual or possibly a rare resident" of northeastern Utah. A statewide bird distribution study (UDWR 1983) was less optimistic, listing the great gray owl as an "accidental" species (meaning it was considered outside its normal range) in extreme northern and northeastern Utah. The Utah Partners in Flight Avian Conservation Strategy (Parrish et al. 1999) did not include this species in a list of 231 species of native birds that breed in Utah. It is therefore likely that the detections made during Forest Service surveys represent dispersing individuals rather than a resident population. If so, this owl may be present in suitable habitat in some years and absent in others, depending on conditions in more northerly portions of its range.

Figure 10. Distribution of great gray owls in North America.



In the southern portion of their range, great gray owls nest in relatively dry coniferous or mixed deciduous/coniferous forests, especially Douglas fir, lodgepole pine and aspen (Duncan and Hayward 1994). Detections on the Ashley National Forest show they will also use mixed lodgepole pine, Engelmann spruce and subalpine fir forests (Appendix A, Table 3). Availability of nest sites (typically old hawk or raven stick nests or natural depressions in broken-topped snags) and foraging habitat (relatively open, grassy areas or timber stands with low canopy closure and grassy understories) are believed to be the primary factors limiting distribution of this species (Duncan and Hayward 1994). Though, this species is rare, potential habitat is present near the project area.

3.2.a.2) Federally threatened, endangered and proposed species.

Refer to Chapter Six, Appendix B for a list of threatened, endangered and proposed species and their habitat pertinent to the Ashley National Forest.

Canada lynx – (Lynx canadensis)

The distribution of the lynx in North America is closely associated with the distribution of the North American boreal forest (Agee 1999). The Canada lynx was listed as threatened under the Endangered Species Act in March of 2000. There are 10 specimens of lynx that have been reliably traced to the Uinta Mountains, with collection dates ranging from 1916 to 1972

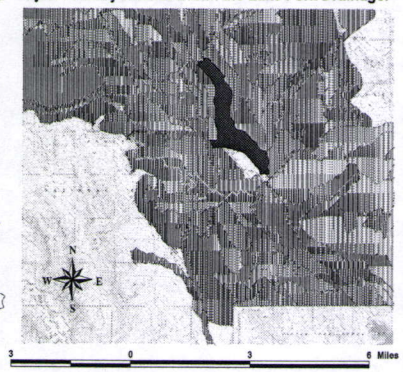
(Bates 1999). Only three specimens of lynx from Utah in the early 1900's were found in museums, including one collected in 1916 from Wasatch County, one in 1931 from Sanpete County, and one in 1937 from Daggett County (McKelvey 1999). Historical and current lynx records from this geographical area occur primarily in the Douglas-fir, spruce-fir forest, and fir-hemlock forest Potential Natural Vegetation types (Ruediger et al 2000). In the Uinta Range, Englemann spruce, white fire, subalpine fir and lodgepole pine forest at the higher elevations, 2,250 to 3,250 m (7,300 to10,500 feet) are primary vegetation that may contribute to lynx habitat (Ruediger et al 2000). According to a completed biological assessment, lynx occur rarely if at all in the Uintas (McKay 1991a). Throughout North America, lynx diets in both winter and summer are dominated by snowshoe hares (Aubrey et. Al. 2000). Forest Service track surveys (Ashley National Forest Unpub data) covering 237+ miles of transect) have not documented any lynx or wolverine tracks in the Uintas.

In 1999, several hair samples were collected and results from the Rocky Mountain Research lab indicated no positive Canada lynx hair samples. Hair samples from the 2000 and 2001 field seasons also resulted in no positive Canada lynx hair samples.

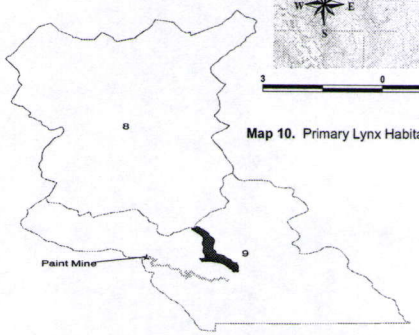
Most of the access roads and the campsite are within primary Lynx habitat as delineated by the Canada Lynx Conservation Assessment and Strategy. (PG 4-10, 4-11). Map 10 indicates the primary lynx habitat in the Ashley National Forest's Lynx Analysis Units (LAU) (Map 11). The project area is within LAU 9 as delineated on Map 11.

Since the project area has been delineated as primary lynx habitat, lynx will be considered for further analysis.

Lynx Primary Habitat within the Lake Fork Drainage.



Map 10. Primary Lynx Habitat within the lake Fork Drainage



Map 11. Test Pit/Ore Extraction project area and road in LAU 9.

3.2.a.3) Management Indicator Species

Elk and mule deer –
Elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) are listed as management indicator species in the Ashley Forest Plan due to their importance as a hunted species. Although the lower portion of the road, which is in mixed conifer/aspen, is used by mule deer, the upper road portion and test pit/ore extraction site is less often used due to poor understory vegetation. Due to the 'service' road being open only during operational periods to personnel working on the project, the area likely receives little hunting pressure. Deer and elk habitat does exist near the project area and will be evaluated further in this document.

Northern goshawk –
Goshawks are indicators for mature and old forest habitats on the Ashley National Forest. The northern goshawk is also a forest sensitive species and was discussed under "Forest Sensitive Species" above.

In Utah, most of the 421 known nests located during project level surveys occur in mid-elevation (6,000 ft) to high-elevation (10,000 ft) sites, which are currently occupied by mature quaking aspen or coniferous forests (Graham et al 1999). Many of the documented goshawk territories on the Ashley National Forest are associated with lodgepole and aspen cover types. However, some nests in Utah have been documented in the spruce/fir type. The predominant forest cover type in the analysis areas is spruce/fir.

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White-tailed ptarmigan –
White-tailed ptarmigans are indicators for alpine meadow habitat. There are no alpine meadows present in or near any of the project or project area. Due to the lower elevation and lack of alpine meadows in or near the project, this species will not be further evaluated in this document.

Red-naped sapsucker and warbling vireo –
The management indicators for deciduous woodlands, primarily aspen and riparian cottonwood, are the red-naped sapsucker and the warbling vireo. The campsite for the workers is along the edge of aspen, which is suitable habitat for these species. Therefore these species will be evaluated further in this document.

Sage grouse –
This species is an indicator for sagebrush steppe. There are no records of sage grouse in this area and it is doubtful that they have ever inhabited this area due to the elevation and lack of

sagebrush habitat. This project would not alter any sagebrush or sage grouse habitat. Therefore, this species will not be further evaluated in this document.

Golden eagle –
The golden eagle is primarily a cliff nester that hunts over a variety of habitats and is an indicator species for cliffs and rocks. The test pit/ore extraction site location is adjacent to some potential cliff habitat and golden eagles have been spotted in the Moon Lake Area. Therefore, this species will be evaluated further in this document.

Lincoln's sparrow & song sparrow–
Lincoln's sparrow and song sparrow are indicators of riparian shrubs. These species are generally found along streams, lakes and meadows in the grass-shrub successional stage from mid-elevational ranges to alpine. Although there is a spring located next to the upper portion of the road, the riparian shrubs these species represent are willows and there are no willows near this spring or anywhere near the project area. Therefore, these species will not be further evaluated in this document.

3.2.a.4) Migratory Birds

The Utah Partners in Flight (PIF) working group recently completed a statewide avian conservation strategy (Parrish, Howe and Norvell 2002). The strategy identifies 24 bird species that are "priority species" for conservation due to declining abundance or distribution, or vulnerability to various local and/or range-wide risk factors. This list of priority bird species is intended to be used as a tool by federal and state agencies… in prioritizing bird species that should be considered for conservation action" (Parrish, Howe and Norvell 2002). One application of the strategy and priority list is to give these birds specific consideration when analyzing effects of proposed management actions, and to implement the recommended conservation measures where appropriate.

Only one of the priority species identified for Utah are associated with those habitat types in or near the project area. This species is the three-toed woodpecker. The three-toed woodpecker is a Forest Service sensitive species, and was discussed under the "Forest Service Sensitive Species" heading earlier in this section and will be discussed under the same heading throughout the remainder of the document.

3.2.b. Aquatic Wildlife

Colorado River cutthroat trout (CRCT) are indicators of healthy aquatic ecosystems and more specifically fisheries resources. The nearest potential habitat is Brown Duck Creek that is located approximately ¾ to 1.0 mile from the project area.

Macroinvertebrates are indicators of water quality within aquatic ecosystems. There is essentially no water within the project area itself and the nearest live water is approximately 1/3 to ½ mile away.

There is no fisheries habitat within the project area itself. The nearest live water is Slate Creek which is located approximately 1/3 to ½ mile to the north and is at the bottom of 30-40 % slope hillside. Because of low flows and poor habitat conditions the Utah Division of Wildlife Resources (UDWR) does not consider Slate Creek to be a viable fisheries. This was confirmed with an on-the-ground field survey by Forest Service personnel on July 16,2002. During that survey, Slate Creek water flows were low, estimated at only 0.25-0.35 cubic feet/second (cfs). Surface water flow ended approximately 200 meters downstream from where Slate Creek crosses the Brown Duck Lake trail (#062), but then re-surfaced just above the confluence with Brown Duck Creek. Slate Creek bank stability was estimated at 50%. No fish were observed in Slate Creek during the survey. Riparian community consisted of a mixture of willow, mixed conifer, with various grasses and forbs.

Further removed from the project area is Brown Duck Creek. This perennial stream is located ¾ to 1 mile north from the project area. Brown Duck Creek is considered to be a valuable fishery by UDWR and is managed as a wild trout fishery. In 1999, UDWR personnel collected eight cutthroat trout for genetics testing. Results from these samples are still pending. There has been a considerable amount of non-native fish (Yellowstone cutthroat trout, brook trout, rainbow trout) stocking above and below the collection site. On July 16, 2002 Forest Service personnel estimated flow at 4-5 cfs. Habitat appeared to be in good condition with estimated bank stability of 90%. The riparian consisted primarily of mixed conifer and willow from the Slate Creek confluence down to where the creek enters Moon Lake.

The Inland West Watershed Initiative (IWWI) status calls for Colorado River Cutthroat trout (CRCT) in the project area and the adjacent areas is "absent" and "present/unknown" respectively.

3.3 Soils *(refer to issue # 3-Sensitive Areas, Section 1.8, Chapter 1)*

3.3.a Geology and Landform Development

The location of this proposal is in a very steep side canyon to Lake Fork that is predominantly mantled by cobbly and bouldery quartzite colluvium and frequently is underlain by Red Pine Shale. Also included are limestones of upper and lower Mississippian age (Madison and Humbug) along a contact with Pine Valley quartzite which is the focus of this proposal.

The side canyons, like many of the side canyons to the major drainages, were formed by geologic block failure. The steep side slopes created by glacial scouring is one method of starting block failure. The high angle of the side slopes creates a situation that is especially susceptible to slope wash, debris flows, rill erosion and slope failure. The Red Pine shale of the Uinta Mountain Group, and other equivalent shales are prone to failure and high erosion as well as a major factor in the topography of these canyons.

Any change in slope angle can result in additional failure, especially where ground water movement is along the shale or clay interface. Bedrock in the area is highly fractured with

numerous vertical cracks and joints. Stability of the bedrock is highly questionable along with stability due to steepness and geologic materials of the side canyon side slopes.

3.3.b Soils of the Project Area *(Refer to Section 3.1, pages 3-2 through 3-7 for information on surface soil conditions for the project area.)*

The soils in the area of the proposed test pit are formed in colluvium of quartzites, shales, and limestones, which overlay highly fractured bedrock. Depths of the soil range from a few inches to several feet before reaching parent material. The surface has scattered areas of litter, which is less than one inch in thickness. The surface layer is a sandy loam. Subsoil has a range of textures from loamy sands, sandy loams, and clay loams. The underlying material includes large areas of heavy clays. There could be potential for these clay areas to become saturated along the contact zone if sufficient subsurface water were present, due to seasonal storms or runoff. When these clay areas are located on steep slopes such seasonal storms or runoff could saturate the soil and trigger slope failure, if the zone is intercepted by excavation work. Erosion rates are high in the area due to texture, slope, and sparse vegetation.

The campsite area contains deep loamy and sandy loam soils that have developed in alluvium and colluvium from steeper areas above. These soils are subject to compaction, but have low to moderate erosion rates.

There is ongoing natural erosion in the Slate Creek and Dry Canyon drainages. Soils in these drainages have high erosion ratings and active erosion is occurring in the upper end of each of the two drainages. This erosion is adding sediments to downslope areas within the drainages, including the project area.

Geologic/Soil features and conditions at project sites –

Paint Mine area (test pit, and access and spur roads)
The mine area is geologically located in a hydrothermally altered hematite zone at the base of the Madison and Deseret Limestones (Mississippian). At this locality, a displacement fault associated with the Uintah South Flank Fault system has displaced this Upper Paleozoic section against the Pine Valley Quartzite and Ophir Shale (Cambrian). Bedrock strikes N80E and dips south at generally 27degrees to 30 degrees.

Slopes at the mine area are steep (30 to40 degrees), and soil development is limited (organic horizons are less than 6 inches). Minimal solid bedrock outcrops upslope from the proposed test pit/ore extraction area. Bedrock does outcrop 40 feet up from the spur road in the mine area, which deceases the potential for unraveling above road cutbanks. The downslope area has been previously disturbed from an original road that was constructed to reach the site in1936. Various portions of this downslope area are poorly vegetated.

The 0.3-mile UMCC access road within the mine area is narrow, with several high unstable cutbanks. Drainage off the road is poor. Runoff collects in the road and has created several small gullies.

Forest Service access road – 6.2-mile access road
The road bed is mostly on a solid foundation. Cutbanks are minimal in height and are stable.

Campsite area
This area consists of a moderately sloped surface (east facing slope).

3.4 Hydrology and Water Quality *(refer to issue #4 – Water Quality, Section 1.8, Chapter 1)*

3.4.a Hydrology

Hydrology - Campsite area –
The landscape in this area exhibits a series of "draws" (low-lying land or depressions), which serve as subsurface flow collectors. The backside of the existing trailer ("tool trailer" on UMCC site map) is situated is just on the edge of one such draw, which is recognizable from its lower topography and more lush vegetation. Others are also in the area, such as a larger one in the aspen about 500 feet behind the existing trailer ("tool trailer" on UMCC site map) and a more subtle drainage near the existing outhouse.

Hydrology - Ore Storage/Transfer Site –
The proposed site includes considerable surface boulder, which does not protrude much above the soil level. This appears to be a droughty site with low –growing vegetation; species are similar to the campsite (Kentucky bluegrass, assorted forbs including low-growing varieties such as dandelion and pussytoes) but with the absence of low Juniper and the addition of sagebrush. This site is more open and generally further from trees than the camp area. A power line extends along the eastern edge, and further east (downslope), there is an increase in aspen with increased slope and moister soils. A collection draw for surface and subsurface water exists; the draw and its immediate contributing area are outside direct activity but are not specifically protected from disturbance to avoid soil compaction or surface disturbance.

Hydrology - Roads –
Within the upper 2000 feet of road (closest to the ore extraction site), there are areas where water leaves the road and continues down the natural slope; the road fill slope is sometimes chanellizing and eroding. The natural erosivity of the fill slope and native materials is evident from rills, which have formed. On the road by the test pit area, water was observed running down the road and piping underground; the outlet was not observed and links underground are not known.

Below the upper 2000 feet of road, the surface is generally smooth. However, there are areas that need more drainage. In one area, the roadside ditch is getting somewhat deep and erosive in nature. Some drainage on the haul road both within and below the upper 2000 feet would be required to ensure that the upcoming heavy traffic would not lead to deteriorating road conditions. For example, water was observed running down the road, forming a rill. In

another spot, water "ponded" on the road. These were observed during spring runoff (June 6, 2001).

Hydrology - Test Pit /Ore Extraction Site –
The proposed project is located on a hill of approximately 30 to 40 degree slopes in the Slate Creek drainage basin, about 1/3 linear mile above the creek. Slate Creek is a tributary of Brown Duck Creek that flows into Lake Fork by entering Moon Lake Reservoir from the west, just above Moon Lake Campground. Lake Fork is a tributary of the Yellowstone River. Although the ore extraction site itself is located on more productive limestone geological formations, approximately 25% of the Slate Creek drainage area is comprised of red pine shale geology, which has low natural vegetation and high natural erosivity. Much of the red pine shale is located upstream, although some is also located on the lower-elevation slopes between the Paint Mine area and Slate Creek.

On the hill slope below the Paint Mine site, some surface material naturally moves downslope in undisturbed conditions due to soil and rock types as well as steep slopes. The proposed pit is located along a natural draw on the hillside that is partially vegetated; the size or nature of this draw could have been altered by past activity at the Paint Mine, but no pre-mine comparison information is available.

Vegetation has been slow to recolonize on shale, resulting in a high proportion of bare ground. Plants currently on the test pit/ore extraction site suggest soils are also influenced by limestone, which may limit growth of some species. Erosion potential is greatest if a high-water year occurs prior to site stabilization through reclamation.

Slate Creek and Brown Duck Creek -
Slate Creek below the mine area (old road switchbacks) exhibits some areas of streambank instability and bank cutting, likely from a variety of causes such as erosion of shale around natural debris, low natural levels of herbaceous vegetation along banks in Red Pine shale with conifer overstory, and sediment contributions from natural sources (such as barren headwaters of Red Pine Shale) as well as management activities, particularly past activities (erosion from old roads-now closed to the public vehicle use, trails, and past mining activities). These variables make it difficult to monitor baseline sediment vs. contributions from the proposed action. Some lodgepole pine and aspen have colonized sparsely on old exploration roads that have not been used since around 1978; some isolated spots are eroding although an area examined near Slate Creek was mostly stable.

Streamflows at the Brown Duck water quality sampling site were estimated during water quality sampling between 1974 and 1999. Flows ranged from 1.5-80 cubic feet per second (cfs) (low flows in late summer/fall, high flows in early summer). The average was 29 cfs during June through November. [STORET – USEPA] There is no measurement of flows for Slate Creek on record.

3.4.b Water Quality

Moon Lake Campground, at the mouth of Brown Duck Creek along Moon Lake Reservoir, has potable water that comes from a spring source in the Slate Creek drainage below the mine area. The approximate location of the ventilated tank that collects the water for piping to the campground is the SW1/4 SW1/4 Section 11, Township 2 North, Range 6 West, USM.

The State of Utah has identified the following beneficial uses for the waters in this vicinity (Lake Fork Cr drainage): *(Toole1997/Utah 2003, Utah 2000)*

- 1C Domestic purposes with prior treatment process
- 2B Secondary contact water sports (such as boating and water skiing; not recreational bathing)
- 3A Cold water game fish/aquatic life and their food chain organisms (Colorado cutthroat trout), a Forest Service Sensitive species, occur in the area, but their presence is unknown in the project area, according to population mapping.)
- 4 Agricultural uses including irrigation and stock watering.

Each of these categories has its own set of water quality standards, so an exceedence in one category does not necessarily mean that all are exceeded. Water quality samples in Lake Fork above the confluence of Yellowstone River (approximately 12 miles below the confluence of Brown Duck Cr. and Lake Fork) demonstrated no exceedences; sampling was done in 1985, 1995 and 1996.

Water quality monitoring in Brown Duck Creek (STORET Station #493595) has been conducted by the State of Utah near the inlet to Moon Lake Reservoir, approximately one and a quarter mile downstream of the confluence with Slate Creek. This water quality data includes any influences from Slate Creek, which is approximately 8% of the Brown Duck Cr. drainage area to the sample point. Water quality here is generally meeting beneficial use standards with isolated exceedences. In summary, exceedences are generally minor and infrequent; the two isolated significant exceedences (phosphorus and TSS – both pollution indicators, not standards) occurred in June of separate years, suggesting an influx of sediment washed down at high water.

Hydrographs and data from the USGS gauging station on Lake Fork River above Moon Lake Reservoir show waters rapidly rising to a hydrograph peak on the two June exceedence dates. Flows increased, then a drop in flow occurred before rising again to maximum flows. This supports the hypothesis flow fluctuations could have carried natural suspended sediment and associated phosphorus, resulting in the two June exceedences. (Brown Duck Creek would naturally have joined Lake Fork River where Moon Lake Reservoir now lies, so the gauging station is upstream of the confluence of Moon Lake Reservoir and Brown Duck Creek. Slate Creek drainage's elevation is 8,800-10,500 feet and the Lake Fork River drainage above the USGS station lies between 8,200 to over 12,000 feet so Slate Creek's runoff peaks may be a bit earlier than Lake Fork. Still, this gauge is helpful in examining trends at the time of the isolated exceedences.)

Brown Duck Creek was sampled for water quality in 1974, 1975, 1978-79, 1989, 1991, 1993, 1995, 1996, 1997 and 1999. Temperature and dissolved oxygen are both important for cold water fish. Temperature should be equal to or lower than the 3A standard of 20°C/68 °F; dissolved oxygen (DO) should be equal to or higher than the 3A standard of 6.5 mg/l. All samples met these standards at the Brown Duck Creek monitoring station. In addition, temperature at Slate Creek above Brown Duck Creek on 8-17-00 was 10°C (50 °F), which is well within the standard for cold water fish of 20°C (68 °F). Dissolved oxygen generally meets State standards at this temperature in south slope Uinta Mountain streams, so it can be assumed that the dissolved oxygen standard was met.

Table 3.2
Water Quality Exceedences at Brown Duck Creek above Moon Lake

Water Quality Standard	#Samples	# Exceedences	Standard Exceeded
pH	22	3	1C, 2B, 3A, 4
Total Phosphorus	22	1	3A
Cadmium	2	1	3A
Copper	2	1	3A
Fecal Coliform	2	1	2B
Total Suspended Solids	20	1	2B, 3A

There were no exceedences of the Total Dissolved Solids (TDS) standard, which applies to beneficial use class 4 (agriculture).

The pH standard is 6.5-9.0. Of the 3-pH exceedences, one was marginally below standard (more acidic) and two were above (6.4 on 8-11-99; 9.2 on 9-19-95 and 9.5 on 5-28-96); natural limestone in the watershed may have resulted in the two high readings.

The total phosphorus indicator of pollution potential is 0.05 mg/l for streams. It was exceeded on 6-11-91 with a level of 0.063, which is significantly higher than every other sample of record (next highest is 0.03). Therefore, this is considered to be an isolated instance and not symptomatic of a pollution problem.

The cadmium standard is 3.9 ug/l; it was marginally exceeded on 7-17-79 with a level of 4 ug/l.

The copper standard is 18 ug/l; no exceedences were found in the data (U.S. EPA STORET database) although an exceedence was referenced in a summary report. Values in STORET were 0 and 5 ug/l on October 24, 1995 and July 17, 1979, respectively.

The fecal colliform standard is 200/100ml as a 30-day geometric mean. A one-day sample of 750 was recorded on August 10, 1978. However, an August 21 sample in 1991 was zero, as were the other samples taken in 1979 and 1991. Therefore, the high reading is likely an anomaly that existed on the sample date, but not indicative of a pattern or average of levels in August or other months.

Total suspended solids (TSS) has a "pollution indicator" threshold for State water quality, but is not by itself a firm standard indicating pollution; it is considered in the context of water quality as a whole. The TSS indicator for 2B is 90 mg/l and for 3A is 35 mg/l; it was exceeded on 6-6-95 with a reading of 115. All other TSS values were well below the pollution indicator thresholds; the next highest value was 25 and many samples between June and October were less than 4.

The State of Utah has identified water quality limited segments (as provided in section 303d of the Clean Water Act) that include Lake Fork and the Yellowstone River below the National Forest Boundary. These segments are beyond the influence of any effects from this proposal, since the dam at Moon Lake Reservoir deposits sediment behind the dam and flows out of the Reservoir are regulated. These 303(d) segments are downstream of the National Forest Boundary, which is approximately 5 miles below the project area. Habitat alteration is the main stream stressor of concern in these areas; no habitat alteration is anticipated in the 303(d) segments as a result of the proposed action. *(Utah 2002)*

3.5 Air Quality *(refer to issue #5 – Air Quality, Section 1.8, Chapter 1)*

The proposed project is not within designated Wilderness and is not managed for Wilderness character. However, the project is within about 2/3 air miles from the High Uintas Wilderness boundary. Therefore, possible effects on Wilderness character will be examined.

Air quality standards for the High Uintas Wilderness include:

1. *Deposition:* Nitrate loading will not exceed 3-5 kg/hectare/yr. Sulfate loading will not exceed 3-5 kg/hectare/yr.
2. *Standard Visual Range:* Long-term visibility impairment from human activities will not impair long-term baseline visual range more than 10% of the 90% percentile in Class II wilderness airsheds. Short term (14 day) visual range impairment from human activities outside the wilderness will not reduce visual range more than 20% in class II wilderness airsheds.
3. *Wilderness Lake Acidification*: Alkalinity will not be reduced more than 10% of the baseline in all surface waters.

The closest deposition monitoring site is in the Lake Fork drainage within the High Uintas Wilderness. The only visibility monitoring camera is located approximately 67 air miles from the project area and indicates a 4% increase in uniform haze between 1991 and 1999. Lake sampling has been done in the High Uintas Wilderness, but not in the vicinity of the proposed project.

Specific contributions of particulates from the proposed project are not readily measurable. No burning is proposed. Therefore, air quality parameters pertinent to this analysis such as noise and possibly odor or visible fumes will be analyzed under Issues #5 and #6, High Uintas wilderness and inventoried roadless values/resources. Monitoring will be qualitative during project implementation, with adjustments made during any activity as needed.

3.6 High Uintas Wilderness *(refer to issue #6, Section 1.8 Chapter 1)*

The proposed project is located adjacent to the High Uintas Wilderness facing a northerly direction that looks into the Lake Fork drainage. The High Unitas Wilderness (HUW) is a 456,705-acre wilderness area designated in 1984 through passage of the Utah Wilderness Act (P.L. 98-428). The HUW is the largest wilderness in the state of Utah. The HUW lies directly north of the project site with the Uinta Mountain range running east to west. Mountain ridges that run north and south border the Lake Fork drainage. The ridges range in elevations from 10,000 feet to nearly 13,000 feet. Northeast of the project location at a distance of approximately 16 miles stands King's Peak at 13,528 feet, the tallest peak in Utah. A ridge containing nine summits and subordinate peaks over 13,000 feet tall separates the next watershed east between Yellowstone and Uinta Canyons.

The Paint Mine and access roads are located at an elevation ranging from 8,200 feet to 10,400 feet. The present site of the original exploration area can been seen and machinery has been heard at certain vantage points along the Brown Duck trail (#1062) approximately ¼ mile outside the wilderness boundary. None of the trails going to Brown Duck or up the Lake Fork drainages after passing the wilderness boundary afford views of the proposed test pit/ore extraction site due to ridges and canyons blocking the view.

The Lake Fork drainage encompasses 63,081 acres. The main canyon is a typical glacial trough with steep sides and a flat valley floor incised by an inner gorge 100 feet deep in some locations. It contains three large cirque basins (Brown Duck, East, and Ottoson). Lake Fork Creek and Oweep Creek divide the main Lake Fork canyon. Unique features of the drainage include a gorge at the confluence of the two creeks, fewer lakes than the other drainages in the High Uintas Wilderness, historic evidence of dam building, trailless Oweep basin, and heavy use by organized groups in and through Brown Duck basin.

The drainage received 13,000-visitor days use in 1994, most of it concentrated around fishable lakes. Most of the waters lie on the west side of the drainage. Of the 212 waters (lakes, reservoirs, ponds and bogs greater than one surface acre), 38 (18 percent) are either stocked with game fish or regenerate naturally. Most over night camping takes place near Brown Duck, Kidney, Island, Clements, Picture, and Crater Lakes in the west and Lambert Lake in the east. Most use occurs from mid-June to early September. Hunting pressure is light and fluctuates with fall weather patterns.

Most visitors to this drainage concentrate in the Brown Duck area. It receives heavy use from Boy Scout groups participating in the 50-mile hike from Mirror Lake to Moon Lake or vice-versa. An undetermined amount of visitors hike the ridges separating the watersheds and climbing the named and unnamed peaks.

3.7 Roadless Area *(refer to issue #7, Section 1.8, Chapter 1)*

3.7.a Background

Roadless Area Review and Evaluation (RARE II)

In 1979, the National Forest Lands were inventoried for roadless areas. The purpose of the inventory was to identify all lands exhibiting wilderness characteristics that could be considered for inclusion in the National Wilderness Preservation System. As a result of the study the Forest Service recommended 511,000 acres of the High Uintas for wilderness designation. Congress in the Utah Wilderness Act of 1984 established 460,000 acres as wilderness and released the balance for Forest Plans to determine the appropriate management direction. The inventory was updated in 1983 and called RARE II as part of the forest planning process.

Roadless area Conservation Implementation

President Clinton initiated the roadless Conservation Initiative in October 1999. A Final Environmental Impact Statement was prepared and released on December 12, 2000. A Final Rule was released in the Federal Register on January 12, 2001. The Final Rule prohibits new road construction, reconstruction, and timber harvest in Inventoried Roadless Areas because they have the greatest likelihood of altering and fragmenting landscapes, resulting in immediate, long-term loss of roadless area values and characteristics. Notwithstanding this prohibition, the rule recognizes prior rights associated with existing valid mining claims, and leasable and salable minerals presently under lease or contract.

3.7.b Conditions within the Project Area

The proposed test pit/ore extraction site is located approximately 0.75 miles south (from the nearest point) of the High Uintas inventoried RARE II area #01901. Part of this inventoried roadless area was designated as wilderness in 1986, including the area north of the proposed test pit/ore extraction site. The High Uintas Wilderness Area is accessible by trails from low to moderate standard roads in the canyons on the south slope of the Uintas.

The project area is easily accessible during the summer months over a 6.2 mile maintained native surface road. This road was constructed in 1978 by Uintah Mountain Copper Company to access to their Sunshine Quartz Mine and Hematite Claims. This road is now classified as a limited public access road and is open to the public by permit only.

Between 1936 and 1978, access to the claims occurred over a rugged switchback native surface road in Brown Duck and State Creek drainages. A segment of this road was abandoned and rehabilitated in the 1980's, and evidence of the roadbed exists along the existing Brown Duck and Slate Creek Trail 062. The remaining miles of road that remains open is used by the Forest Service to access the spring development that supplies water to the Moon Lake Reservoir Resort/Recreation Complex. This segment also serves as part of the Brown Duck and Slate Creek Trail (062).

Inventoried Roadless Area Mapping Discrepancies –
Discrepancies exist between the Official Forest Service Roadless Inventory for the Ashley National Forest and the Roadless Inventory Map included with this analysis.
The official Forest Service Roadless Inventory for the Ashley National Forest displays the lower one-half of the 6.2-mile access road and an area approximately 40 acres in size located in Section 23, Township 2 North, Range 6 West, USM, as outside of an inventoried roadless area. (The 40 acres in Section 23 were erroneously mapped as the proposed test pit/ore extraction area.) In addition, the official inventory map displays the upper one-half of the Forest Service access road and actual Paint Mine (Sunshine Quartz Mine No. 4) as inside an inventoried roadless area. During the official inventory, the intent of Ashley National Forest officials was to display the entire length of the 6.2-mile access road and the actual location of Sunshine Quartz Mine No. 4 as outside and inventoried roadless area. This intent was based on the long-term use of the existing Forest Service access road, and the existence of historic exploration activities.

Ashley National Forest officials found and corrected the mapping error in January 2000. However, the USDA Forest Service Washington Office would not accept any corrections to the inventory data base at that time. Forest Service officials will provide an official correction to this discrepancy in the near future.

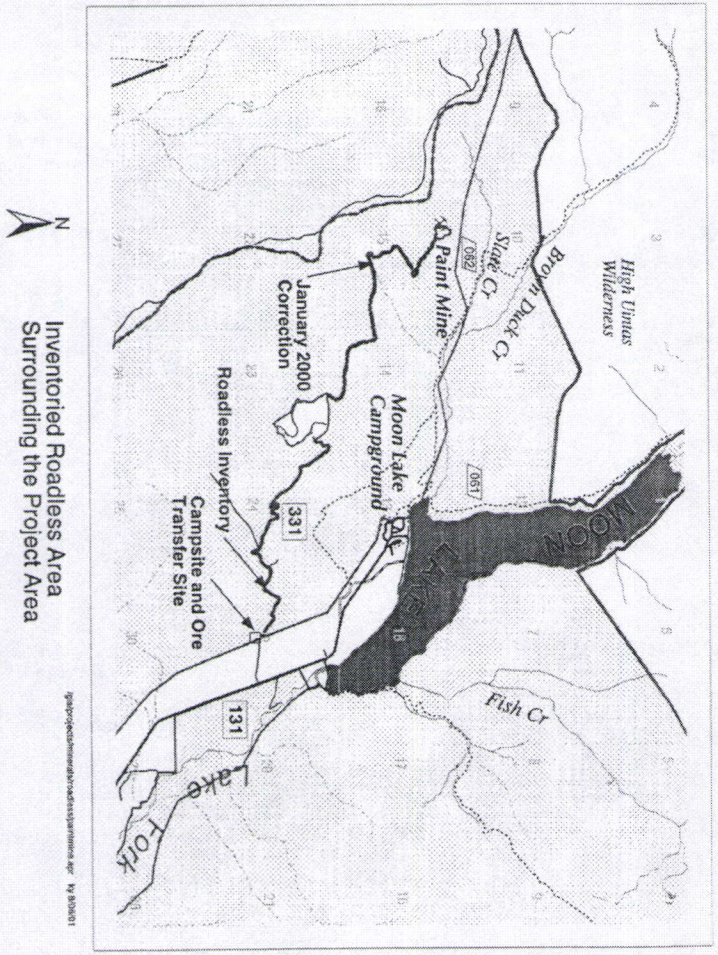
Ashley National Forest officials excluded the following project related areas from the inventoried roadless area:

- Paint Mine (Sunshine Quartz Mine No. 4) and the 0.4 miles of access and spur roads within the mine area from the inventoried roadless area
  (Areas surrounding the Paint Mine are located in an inventoried roadless area.)
- 6.2-mile Forest Service access road
  (Areas on both sides of this 6.2-mile section are located within an inventoried roadless area.)

The camp/ore storage and transfer sites are located 50 to 300 feet <u>within</u> the Official Inventoried Roadless Area boundary in Section 19, Township 2 North Range 5 West, USM, and is displayed accordingly on *Map 12 – Inventoried Roadless Area Surrounding the Project Area, page 3-25.*

The eastern 0.4 miles of the 6.2-mile main access in Section 19, Township 2 North, Range 5 West, USM, and adjacent areas to the north and south <u>are outside</u> of the Official Inventoried Roadless Area, and is also displayed accordingly on *Map 12 – Inventoried Roadless Area Surrounding the Project Area, page 3-25.*

MAP 12



Inventoried Roadless Area Surrounding the Project Area

3.7.c Characteristics of the Inventoried Roadless Area Surrounding the Project Area

The term "roadless character" refers to an area of at least 5,000 acres that is substantially natural, without development and maintained roads. Roadless areas have varying degrees of wilderness characteristics; wilderness is specifically defined in the Wilderness Act of 1964 (P.L. 88-577). Roadless characteristics include: natural integrity, apparent naturalness, remoteness, solitude, special features, and manageability/boundaries.

The existing ratings for roadless area attributes within the Mine area and surrounding area take into consideration existing conditions and activities, such as ongoing exploration work at the nearby Dal Cuinn Claims, grazing allotment activities, etc.

Natural Integrity –
Natural integrity is the extent to which long-term ecological process are intact and operating. Impacts to natural integrity are measured by the presence and magnitude of human-induced change to an area. This change includes physical developments as well as activity in the area.

Natural integrity of the adjacent inventoried roadless area is moderate. The long-term ecological processes are generally in tact and operating. Some integrity has been lost due to past exploratory drilling, small wood product utilization, grazing, and addition of fences and gates.

The areas involved in the test pit, and spur and access roads of the Paint Mine (Sunshine Quartz Mine No. 4) are the only areas of the 30 claims located outside of the inventoried roadless area. Other road construction and exploratory drilling is also evident on two of the 30 claims (claims other than Sunshine Quartz Mine No. 4). These two claims are Sunshine Quartz Mine #3, and Hematite #5), which are located within the inventoried roadless area and are located immediately adjacent to Sunshine Quartz Mine No. 4.

A low standard native surface road intersects the Forest Service access road in Section 24, Township 2 North, Range 6 West, USM. This road is approximately ¾ miles in length and terminates in Dry Canyon. The road was used during the construction of Moon Lake Reservoir to remove rock from a developed rock pit. The rock was used as construction material for the Moon Lake Reservoir Dam. The road and rock pit in Dry Canyon are also within the inventoried roadless area. This road also provides access to another area of mining claim areas, filed with the Bureau of Land Management as the Dal Cuinn Claims.

A segment of the Dry Ridge jeep road is located on the ridgeline approximately ¼ mile west of the Paint Mine. Holders of permits for the Lake Fork Cattle Allotment use this road to access various areas of the allotment. The road also accesses the Forest Service radio repeater on Duck Peak in Section 7, Township 2 North, Range 6 West, USM. Although the road right-of-way is excluded from the inventoried roadless area, areas on both sides of the right-of-way are within the roadless area.

Approximately 0.25 acres is occupied by facilities at the existing campsite area. The campsite area is located within the inventoried roadless area boundary. This disturbance consists of a

distribution powerline on two poles, telephone line located on the same power poles, 10 foot by 30 foot storage shed, 20 foot by 20 foot covered work area, and a small pit toilet. An old road is evident within the campsite area and provides access to a watering trough west of the camp site area, under permit to the Lake Fork Cattle Allotment Permittees.

Apparent Naturalness –
Apparent naturalness is an indicator of whether an area appears natural to most people who are using the area. It is a measure of importance of visitor's perception of human impacts to the area. There could be some human impact, but it will not be obvious to the casual observer and the area would have the appearance of being affected only by the forces of nature.

The apparent naturalness of the project area is moderate. Evidence of man's activities is common in several areas. This evidence is primarily associated with mineral exploratory drilling operations on these and other mining claims in the area (including the Dal Cuinn Claims in Dry Canyon), the old road and rock pit used during construction of the Moon Lake Reservoir and Dam in Dry Canyon, cattle grazing activities, unauthorized use by off-road vehicles, and the campsite area described above. Minor evidence of firewood gathering and pole cutting exists along the Forest Service access road to the mine area.

Remoteness –
Remoteness is the perceived condition of being secluded, inaccessible, and "out of the way". Topography, vegetative screening, distance from human impacts, distance from the sights and sounds of man, and difficulty of travel all contribute to remoteness.

The feeling of remoteness is moderate within the inventoried roadless area. Although the Moon Lake Reservoir and Dam are visible from several locations within the area, most locations in the area are screened from the sights and sounds of man by dense stands of trees. Prominent peaks of the High Uintas Wilderness frame the vistas to the north and east. On occasions, sounds from the Moon Lake Recreation Complex can be heard, especially at locations on east facing slopes.

Solitude –
Solitude is a personal, subjective value defined as isolation from the sights, sounds, and presence of others, and the developments of man. A primitive recreation experience includes the opportunity to experience solitude, a sense of remoteness, closeness to nature, serenity, and spirit of adventure.

Solitude in the inventoried roadless area is moderate, except at the campsite area where the rating is low. For the most part, topographic features of the area isolate the sights, sounds, and presence of others. Occasionally, the sights and sounds of Moon Lake Reservoir and Moon Lake Recreation Complex are evident, especially during summer and early fall months. Sounds from snowmobile activity near Moon Lake Reservoir also break solitude during winter months.

Special Features –

Colorful rock outcrops along ridges, heavy dense stands of timber, and occasional small meadows provide pleasant diversity and uniqueness within the area. The prominent peaks of the High Uintas Wilderness provide outstanding foreground views.

Manageability/Boundaries –

Uintah Mountain Copper Company's Paint Mine (Sunshine Quartz Mine No. 4), associated access road right-of-ways, and campsite area are either surrounded by or within the inventoried roadless area boundary. This same condition exists with Dry Canyon road and the Dry Ridge jeep road.

3.7.d Existing Travel Administration Policies

The Travel Plan for the Roosevelt and Duchesne Ranger Districts, dated 1988, shows that the project area is located in a #2 travel opportunity area. The area use opportunities/restrictions for this area are as follows:

All motor vehicles are restricted to designated roads or trails EXCEPT:

a. Oversnow machines operating on adequate snow.
b. Access within 300 feet of designated roads for travel to and from campsites. No travel off-road within 0.25 miles of any designated campground or picnic area.
c. Access within 300 feet of designated roads for gathering firewood (by permit).

The access road to the proposed test pit/ore extraction site is not classified as a designated road. Use of the road is by UMCC is allowed as part of their Plan of Operations. The road is gated and open to public by permit only.

3.8 Cultural Resources *(refer to issue #8, Section 1.8, Chapter 1)*

Two areas of the proposed operation have been surveyed for cultural resources. The excavation area was surveyed on 10/11/00. The area is on a 30 to 40 degree slope at an elevation of 10,250 feet above mean sea level. A portion of the area has been previously disturbed. No historic or prehistoric evidence or artifacts were found.

The camp/ore storage and transfer area was also surveyed on October 11, 2000. The area is relatively flat to gently sloping at an elevation of 8,250 feet above mean sea level. The area is covered with sagebrush, grasses and forbs and is surrounded by a stand of aspen. No historic or prehistoric evidence or artifacts were found.

The Cultural Resource Report was sent to the Utah State Historic Preservation Office (SHPO) for review and concurrence. A letter of concurrence with the report's recommendation of No Historical Properties Affected has been received and is located in the Project File.

3.9 Visual Resources *(refer to issue #8, Section 1.8, Chapter 1)*

3.9.a Scenic Attractiveness

The characteristic landscape involves high mountain ridges extending to over 10,000 feet with bare scarp faces on the north and east facing slopes. Colors in the raw cliff face range in yellows to orange to red. Lodgepole pine, mixed with fir, spruce and aspen is the dominant tree cover. The slopes to the west of the ridgelines are gentle to moderately steep and consist of open alpine meadows with small, intermixed stands of fir. Land managers consider scenic Attractiveness "high", and this rating supports visitor expectations for quality scenery.

Constituent information determines the significance of the scenery to the area. Ongoing recreation visitor polls indicate a high value for the scenery of the area. People visit the Moon Lake area and High Uintas Wilderness throughout the summer season, and 5,000 or more people will visit the Moon Lake area on holiday weekends, such as July 4 and 24.

3.9.b Scenic Integrity

Scenic Integrity is a measure to which a landscape is visually perceived as "complete". Although Insect activity in the lodgepole pine stands is killing a high percentage of the trees, Scenic Integrity for the Moon Lake area remains with a rating of **"high"**.

3.9.c Scenic Class Rating and Visual Quality Objective

The resultant Scenic Class rating is "1" for the area. The corresponding Visual Quality Objective for this area is Retention of Landscape Character. This means that management activities should be visually subordinate to the surrounding landscape.

3.9.d Visual conditions

The site can be seen as background and middleground from two general locations. The first is from the Lake Fork Mountain – Fish Creek area, which is situated one to two miles east of Moon Lake. Lake Fork Mountain is a high mountain ridge that offers views in most all directions. It is accessed via Yellowstone Canyon and the Hells Canyon road. Few Forest visitors know this Forest road provides access to the east end of the mountain. Views from the mountain are outstanding! The Fish Creek National Recreation Trail climbs out of the Moon Lake Area and extends east to Center Park. Trail users can see the proposed test pit/ore extraction area as they look directly west across Moon Lake. Distances are about 5 to 6 miles and detail at the proposed test pit/ore extraction site will be difficult to discern from this location. With the characteristic scarp faces near the proposed test pit/ore extraction site, it will be difficult to even determine where the site is located.

The second location to see the proposed test pit/ore extraction area is on the Brown Duck Trail about 0.2 miles north of Slate Creek. The location is about 0.66 miles from the proposed test pit/ore extraction site. Hikers coming out of the High Uintas Wilderness would see the proposed test pit/ore extraction area. As they round the point between Brown Duck Creek and

Slate Creek, their orientation on the trail is directly towards the proposed test pit/ore extraction area. The length of trail is about 200 feet. Duration of the view would be one to two minutes. The view is obscured due dense trees, and the proposed test pit/ore extraction site blends with the typical scarp face on the raw mountainside. The view of the site is at a distance of 3000 feet and elevation rise of 1000 feet. The resultant angle of view to the site is 18 degrees from level. People generally like to look out for distant vistas, however in this situation with a confined view through the trees, they generally will not look up at that angle and notice activities at the site. It will be difficult for visitors to see the site from the Brown Duck Trail during the normal use season from June through mid-September.

Roadways that connect the proposed test pit/ore extraction site to the transfer station and camp area are difficult to discern in the canyon. It is possible that visitors could see some movement of vehicles at times from a vantage point, but such sightings would be minimal. The movement of vehicles and additional traffic loads on the Moon Lake Road would not be enough to make a difference from a visual standpoint.

3.10 Recreation Resources *(refer to issue #9, Section 1.8, Chapter 1)*

The purpose of this section is to describe the existing recreational component within the area. It describes the recreational resources that would be affected by the implementation of the alternatives.

3.10.a Recreation Roads and Trails

The main access to the area is by Forest road 131, a two lane, bituminous surface road that accesses Lake Fork Canyon. This road provides a main transportation route for recreation visitors and is open to general vehicle travel.

The Fish Creek National Recreation Trail (#060) junctions with Forest Road 131 at the Moon Lake Dam. This trail traverses east to Cow Park and Center Park, before entering the High Uintas Wilderness. The trails end at Toquer Lake.

Lake Fork Trailhead is located about 1 mile past Moon Lake Dam. This trailhead accesses the Brown Duck Trail (#062), which follows Brown Duck and Slate Creeks to the west in to the High Uintas Wilderness. This trail passes within 0.5 miles of the Proposed test pit/ore extraction site on its route up Slate Creek. The trailhead receives 17,876 recreation visitor days (RVD's) per year. (One RVD = one visitor for a 12 hour period.)

The Lake Fork Trail (#061) junctions with the Lake Fork Trailhead and traverses up the Lake Fork River, enters the High Uintas Wilderness, and continues to the Uinta Mountain divide where it intersects Trail #202.

3.10.b Recreation Aesthetic Amenities

Lake Fork Canyon is an interesting drive due to its scenery. The area is broken into various views including openings of sagebrush and grass, aspen stands, and pine stands. The sides of the canyon are intersected with side canyons, and are covered with pine and aspen as well as large rock outcrops and rocky slopes.

3.10.c Current Recreation Use Patterns

Recreation sites and activities in the area include Moon Lake Resort, Moon Lake Campground, Moon Lake Group Use site dispersed recreation sites, and use of the trails previously discussed. The general recreation use period for the canyon is Memorial Day through Labor Day, with some use earlier and later depending on the weather conditions.

Moon Lake Resort is a privately owned resort under special use permit with the Ashley National Forest. The site offers opportunities for renting cabins, boats for use on nearby Moon Lake, bicycles, and horses for trail rides. The site receives 5,991 recreation visitor days (RVD's) per year. (One RVD = one visitor for a 12 hour period.)

Moon Lake Campground is operated by the Forest Service, or a concessionaire under special use permit. The area has a capacity of 280 people-at-one-time (PAOTs) with average annual use of 10,341 RVD's.

Moon Lake Group Use site receives 2,742 RVD's annually.

Dispersed recreation use in the area consists of camping, hiking, horseback riding, fishing, hunting and sight seeing.

3.11 Facilities, including Public Access and Safety *(refer to issue #s10 and 12, Section 1.8, Chapter 1)*

Facilities and facility descriptions, and public access in the project area are presented in the following table. The table lists the facilities, locations, and descriptions. The Proposed Action and Alternatives would directly or indirectly affect these facilities. *Refer to Vicinity Map and Project Area Map for location of facilities, pages 1-7 And 1-8.*

Table 3.3
Facilities Associated with the Project Area

Facility	Location	Description
0.1 miles of spur roads within Paint Mine	Sunshine Quartz Mine #4, NW ¼ of Section 15, T 2N R 6 W, U.S.M.	Low standard, native surface roads. Maintenance and rehabilitation are the responsibility of Uintah Mountain Copper Company (UMCC).
0.3 mile access road within Paint Mine	Sunshine Quartz Mine #4, NW ¼ of Section 15, T 2 N R 6 W, U.S.M	Low standard, native surface road. Maintenance and rehabilitation are the responsibility of UMCC.
6.2 mile Forest Service (FS) Access Road	Originating at junction with Forest Development Road (FDR) 131, 0.75 miles south of Moon Lake Reservoir; and ending at the junction with UMCC's 0.3- mile access road.	Moderate standard, native surface road under special use permit to UMCC. UMCC is responsible for maintenance during operations. Road is open to the public on a limited basis. -Three gates exist along the road; one gate at upper end to control entry to mine area; one gate approximately 0.5 miles from junction with FDR 131 to control public use; and one gate at the junction with FDR 131.
Non-system roads intersecting 6.2 mile FS road	Dry Canyon area west of the 6.2 mile FS road.	FS does not maintain roads. These are historic roads used to access a rock source used to construct Moon Lake Dam, other mining claims in the area, grazing activities. These roads were also used to access to past pole cutting and firewood gathering.
Camp/Ore Storage and Transfer Sites	Approximately 0.5 miles west of junction of 6.2-mile FS Road and FDR 131.	-A 14.4/24.9 kV transmission powerline (40 ft right-of-way) under special use permit to Moon Lake Electric crosses the east side of the site, approximately 50 feet from the proposed ore transfer site. -A distribution powerline, connects with the transmission line and provides power to the camp/transfer site. This line is also under SUP to Moon Lake Electric. -An inactive telephone line to the camp/transfer site is located on the same power poles as the distribution powerline. -A road used by cattle allotment permittees to access a water trough in the Lake Fork Cattle Allotment. -Other facilities are: 10' X 30' storage shed 20' X 20' covered work area pit toilet structure

Table 3.3 *continued*
Facilities Associated with the Project Area

Facility	Location	Description
Forest Development Road (FDR) 131.	From the intersection of 6.2-mile FS road, to the Forest Boundary, a distance of 3.6 miles.	-Two-lane, asphalt surface Forest road. This road is the main public access road to Moon Lake Reservoir and Recreation Complex. -Two cattle guards are located on the 3.6-mile section; one cattle guard at the common boundary of the National Forest and Uintah and Ouray Reservation, and the other at the north boundary of the private land in Section 29, T 2N R 5W, U.S.M. -A right-of-way fence is located along FDR 131 through this private land. -Two road bridges across water conveyance canals. The first bridge is located 1.9 miles from the common boundary of the Forest and Uintah and Ouray Reservation; and second bridge is located 1.9 miles from this common boundary. The bridges span canals that transport water to and from Lake Fork River and Twin Pots Reservoir for use at nearby private ranching operations. -A buried telephone line and aboveground junction boxes are located along the east side of the road right-of-way. -A solar-powered relay station is located immediately across from the junction of FDR 131 and the 6.2-mile FS road to the Mining Mine area.

Other general facility information –

The Forest Service closed the 6.2-mile Forest Service access road to public use during past exploration drilling work by Uintah Mountain Copper Company, and during exploration work done by other claim owners in Dry Canyon. Public use was allowed by permit before and after exploration activities on a limited basis to cut firewood and poles. The 6.2–mile road and intersecting roads are low standard, low speed travelways (speeds of less than 15 miles per hour). Higher speeds are limited by grade, surface conditions, narrow right-of-way, and sight distance. Trees overhang or are very close to the road edge along several sections of this road.

The sight distance to the south of the junction of FDR 131 and the 6.2-mile Forest Service access road is 300 feet or greater. The sight distance to the north of the junction is limited to less than 50 feet by a stand of aspen trees along the west side of FDR 131.

Vehicle weight limits on Forest Development Road 131are set by the tolerances of the two bridges associated with canal crossings, and the cattle guard at the north road crossing on the private land in Section 29. The weight limits are set at 10 tons.

Open cattle range exists along 2.8 miles of FDR 131 from the common boundary of the National Forest and Uintah and Ouray Reservation to the cattle guard at the north boundary of the private land in Section 29.

3.12 Lands *(refer to issue #11, Section 1.8, Chapter 1)*

The area of the proposed mineral operations is part of the Ashley National Forest designated as R1 lands which was reserved from the Public Domain and received National Forest Status in 1905. These lands are open for mineral exploration and development under the 1872 Mining Law. All surface and mineral estates are owned by the United States and under the management of the Forest Service. Land use in the vicinity of the proposed project includes recreation, wildlife habitat, watershed management and forest management.

Several special use authorizations issued by the Forest Service occur in the vicinity of the proposed project, including: 520801 issued to Moon Lake Resort which is located in the Lake Fork drainage below the project site; 10570 and 105801 issued to USGS for stream gauging stations; 401501 issued to Moon Lake Electric for a 14.4/24.9 kV powerline which serves Moon Lake Resort and other facilities in Lake Fork Canyon, and the camp/ore storage and transfer sites for the Proposed Action; 401801 issued to Uintah Basin Telephone for a telephone line serving the area; 406101 issued to Natural Resources Conservation Service (NRCS) for a resource monitoring station; 407101, 407201 and 518501 issued to Moon Lake Water Users for canals and pipelines for water conveyance; 515201 and 515801 issued to Moon Lake Water Users for dams and reservoirs in the headwaters of Lake Fork Drainage; 537201 and 438401 issued to private entities for water conveyance systems. There are no special use authorizations in the immediate area of the proposed project.

The project area is within the boundaries of the Lake Fork Cattle Allotment, and 709 head of cattle are permitted during a June 26 to September 3 season. Only about 200 head of cattle are in the Moon Lake area of the allotment, with the remaining use on Petty Mountain or in Bear Wallow south of the project area.

A special use authorization was issued to Uintah Mountain Copper Company (UMCC) in 1978 for a camp at the location of their proposed camp/ore storage and transfer sites. The Forest Service selected the current campsite area in exchange for UMCC's historic campsite located closer to the Moon Lake Resort/Recreation area. This permit was for a 5-acre site to be used for a staging area for constructing a new road to their mining claims. This permit was allowed to expire in 1996 because the camp was more appropriately authorized as needed in their Plan of Operations. This is the same campsite described in the Proposed Action. UMCC's Plan of Operations estimates the site disturbance to be 0.01 acres. More accurate measurements

show that the site disturbance is 0.25 acres. The entire campsite including camp, ore transfer site, parking and truck turnaround would require a minimum of 1.50 acres.

Another special use authorization was issued to UMCC in 1978 for construction of the present access road within the mine area in exchange for UMCC's historic special use permit access road along Slate Creek. This permit was allowed to expire in 1998 because the use of the road was more appropriately authorized in UMCC's plan of operations. The campsite area and access road to the mines were included as part of UMCC's 1998 Plan of Operations

3.13 Paleontology

The limestone formations have the potential for fossils. Site investigations have shown potential for significant fossils to be low.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.0 INTRODUCTION

This chapter is tiered to the Ashley National Forest Land and Resource Management Plan Environmental Impact Statement (EIS).

The chapter sections are arranged as follows:

4.1.x Resource Value, i.e., Vegetation
-environmental consequences for Alternatives A, B, and C
-cumulative effects for Alternatives A, B, and C
-mitigation measures for Alternatives A, B, and C
-monitoring guidelines for Alternatives A, B and C

4.1 Vegetation and Surface Resources *(refer to issue #2, Section 1.8, Chapter 1)*

Refer to Chapter Three, section 3.2, pages 3-2 through 3-7 for discussions on Ecological Units that are included in Chapter Four.

4.1.a Environmental Consequences to vegetation for Alternatives A – Current Plan of Operations

Consequences by Ecological Unit and associated Project facility or activity are as follows:

Glacial Bottom 3 (GB3) -

-Camp/Ore Storage and Transfer Sites *(Refer to page 2-11 – Map 4, Camp/Ore Storage &Transfer Site)*

Sagebrush and grass would be disturbed at the 0.22-acre area that would be used as the ore storage/transfer facility.

Proposed trailer facilities and parking areas would occupy an additional 1.04 acres of grass-covered area. Vegetation on this1.04 acres would not be cleared, and disturbance would consist of temporary occupancy by trailer facilities and vehicles.

Glacial Bottom 3 (GB3), Glacial Canyon 5 (GC5), Alpine Moraine 7 (AM7), and Glacial Canyon 10 (GC10) -

-Forest Service Access Road

No new vegetative removal would occur along the existing 6.2-mile Forest Service access road. Occasional overhanging conifer and aspen trees could be removed as part of road maintenance activities.

Glacial Canyon 10 (GC10) -

-Uintah Mountain Copper Company's Access and Spur Roads

Conifer species might need to be removed from a 0.25-acre area along the 0.3-mile access road within the mine area. This cleared area would be used as the truck turn-around area during ore hauling.

No additional vegetative removal would occur along the existing 0.3-mile access road. Occasional overhanging conifer and aspen trees could be removed as part of road maintenance activities.

No additional vegetative removal would occur along the existing 0.1-miles of spur roads within the mine area.

-Uintah Mountain Copper Company's Test Pit Area

Conifer species and mountain brush species would be removed from the 0.075-acre test pit area within the mine area.

4.1.b Environmental Consequences to vegetation for Alternatives B – Modified Plan of Operations

Consequences by Ecological Unit and associated Project facility or activity are as follows:

Glacial Bottom 3 (GB3) -

-Camp/Ore Storage and Transfer Sites *(Refer to page 2-11 - Map 4, Camp/Ore Storage and Transfer Site)*

The 0.22-acre area for ore storage and transfer would be cleared. Ore would be stored as proposed in *Section 2.2, page 2-6*, with the exception of the placement of gravel (no gravel would be placed on the ground surface----if gravel were placed, removal of gravel

would be difficult and would inhibit successful rehabilitation efforts). Sagebrush and grass would be removed from this 0.22-acre area.

Proposed trailer facilities and parking areas would occupy an additional 1.03 acres of grass-covered area. Vegetation on this1.03 acres would not be cleared, and disturbance would consist of temporary occupancy by trailer facilities and vehicles. (Same as Alternative A)

Glacial Bottom 3 (GB3), Glacial Canyon 5 (GC5), Alpine Moraine 7 (AM7), and Glacial Canyon 10 (GC10) -

-Forest Service Access Road

No new vegetative removal would occur along the existing 6.2-mile Forest Service access road. Occasional overhanging conifer and aspen trees could be removed as part of road maintenance activities. (Same as Alternative A)

Glacial Canyon 10 (GC10) -

-Uintah Mountain Copper Company's Access and Spur Roads

Conifer species would be removed from a 0.25-acre area along the 0.3-mile access road within the mine area. This cleared area would be used as the truck turn-around area during ore hauling. (Same as Alternative A)

No additional vegetative removal would occur along the existing 0.3-mile access road. Occasional overhanging conifer and aspen trees could be removed as part of road maintenance activities. (Same as Alternative A)

No additional vegetative removal would occur along the existing 0.1-miles of spur roads within the mine area. (Same as Alternative A)

-Uintah Mountain Copper Company's Test Pit Area

Conifer species and mountain brush species would be removed from the 0.05-acre test pit area within the mine area. (Same as Alternative A)

Vegetation Mitigation Measures – Alternative B –

✓ All above ground facilities at the mine area and non-essential facilities at the camp/ore storage and transfer sites (signs, trailers, outbuildings, powerline, etc.) would be removed – to allow for vegetative recovery. UMCC would notify Moon Lake Electric that the power service would no longer be needed; the Forest Service, in turn, would ask Moon Lake Electric to remove the poles and lines.

✓ The 0.22-acre area for ore storage and transfer would be cleared, but gravel would not be placed on the cleared area. Ore would then be stored as proposed in *Section 2.2, pages 2-5 and 2-6.* All areas of disturbance and clearing at the Camp/Ore Storage and Transfer Sites would be seeded as follows:

Mountain brome 2 lbs/acre
Slender Wheatgrass 2 lbs/acre
Orchardgrass 1 lb/acre
Blue flax 1 lb/acre

✓ Areas of disturbance and clearing within the mine area (access and spur roads and test pit area) would be seeded as follows:

Mountain brome 3 lbs/acre
Slender Wheatgrass 3 lbs/acre
Orchardgrass 2 lb/acre
Blueleaf aster (Aster glaucoides) 1 lb/acre (if available on the market)

✓ Noxious weed inspection and control on the camp/work area for 5 years following removal of facilities would be performed or financed by UMCC. UMCC would provide annual report to the Forest Service of weeds found and treated, plus treatment method (mechanical or chemical including chemical agent used). Any chemical application would require permission from the Forest Service and use of a certified applicator. This work would be bonded.

✓ Maintenance of the Forest Service access road would be limited to removal of down trees that fall across the road, and minor ditch work to control or minimize concentrated water runoff – to minimize impacts to adjacent vegetation.

4.1.c Environmental Consequences to Vegetation for Alternatives C – Baseline Comparison (No Action)

Existing disturbance to vegetative cover by Ecological Unit and associated Project facility or activity is as follows:

Glacial Bottom 3 (GB3) -

-Camp/Ore Storage and Transfer Sites *(Refer to page 2-11, Map 4 - Camp/Ore Storage and Transfer Site Map)*

Existing campsite facilities (storage shed, shelter, parking area, power/telephone lines and poles) occupy approximately 0.25 acres.

Surrounding vegetation consists of sagebrush/grass and mixed mountain shrub communities.

Glacial Bottom 3 (GB3), Glacial Canyon 5 (GC5), Alpine Moraine 7 (AM7), and Glacial Canyon 10 (GC10) -

-Forest Service Access Road"

The existing 6.2-mile Forest Service access road would be maintained as a limited access public road, and would be open to the public by permit only.

Occasional overhanging conifer and aspen trees could be removed as part of road maintenance activities.

Glacial Canyon 10 (GC10) -

-Uintah Mountain Copper Company's Access and Spur Roads

The 0.3-mile access road and 0.1 miles of spur roads within the mine area would be closed and rehabilitated. Erosion control measures and seeding would stabilize the disturbed surface over a period of one to two years. Tree and mountain shrub cover would return slowly over the years.

Surrounding vegetation consists of spruce, fir, lodgepole pine, and mixed mountain shrub communities.

Vegetation Mitigation Measures – Alternative C –

✓ All above ground facilities at the mine area and non-essential facilities at the camp/ore storage and transfer sites (signs, trailers, outbuildings, powerline, etc.) would be removed – to allow for vegetative recovery. UMCC would notify Moon Lake Electric that the power service would no longer be needed; the Forest Service, in turn, would ask Moon Lake Electric to remove the poles and lines.

✓ The ore storage/transfer site should be seeded with a Forest Service-approved seed. A bond would be collected to ensure follow-up treatment as necessary to a maximum of 3 years of treatment with appropriate erosion control. If ground is bladed for leveling, some topsoil would be required because seeds or seedlings cannot be expected to perform in mineral soil or soil parent material. The native topsoil is expected to be shallow. Seeding would best be accomplished in late autumn, to minimize fall germination and maximize the opportunity for germination with spring snowmelt; the Forest Service would approve seeding in other seasons.

✓ All areas of disturbance and clearing at the campsite would be seeded as follows:

Mountain brome 2 lbs/acre
Slender Wheatgrass 2 lbs/acre
Orchardgrass 1 lb/acre
Blue flax 1 lb/acre

✓ Maintenance of the Forest Service access road would be limited to removal of down trees that fall across the road, and minor ditch work to control or minimize concentrated water runoff – to minimize impacts to adjacent vegetation.

✓ Areas of disturbance and clearing within the mine area (access and spur roads) would be seeded as follows:

Mountain brome 3 lbs/acre
Slender Wheatgrass 3 lbs/acre
Orchardgrass 2 lb/acre
Blueleaf aster (Aster glaucoides) 1 lb/acre (if available on the market)

4.1.d Vegetation - Cumulative Effects

The following activities were considered for the cumulative impacts on vegetation and vegetative cover:

- past firewood gathering and pole cutting along the Forest Service access road
- disturbance from ongoing dispersed recreation (non-motorized and motorized)
- past exploration and development work at the mine area and mining claims in Dry Canyon
- old roads and road beds intersecting the Forest Service access road and in other locations surrounding the proposed project area
- ongoing cattle grazing activities associated with the Lake Fork Cattle Allotment

Alternative A – Current Plan of Operations (Proposed Action) and Alternative B – Modified Plan of Operations

These alternatives would have minor influence on overall vegetation and vegetative cover at the watershed or larger scale, and would add few additional effects to above existing vegetative disturbances. Most plant species in the area are common and widespread, and the proposed actions would have little additional influence on plants of limited distribution. Project impacts would be limited to areas associated with roads and excavation areas, and impacts beyond the immediate area would be low.

Alternative C – Baseline Comparison (No Action)

This alternative would slightly improve overall impacts to vegetative cover within the watershed.

Improvement would be associated with the rehabilitation of the existing 0.25 acres of disturbance at the campsite area and the 0.4 miles of access and spur roads within the mine area.

Vegetative cover and growth would return to natural conditions within a two or three year period at the campsite area.

Vegetative cover within the mine area is sparse or non-existent due to naturally occurring surface rock and shallow soils on steep slopes. Rehabilitation of existing disturbed areas would be most effective on the access and spur roads within the mine area. These measures would be designed to control runoff. Vegetative recovery on these areas would be very slow, as evidence by natural conditions on undisturbed areas in the immediate vicinity.

Reasonably Foreseeable Actions

These actions would also have minor influence on overall vegetation and vegetative cover at the watershed or larger scale, and would add a few additional effects to existing vegetative disturbances and to those discussed for Alternatives A and B. Project impacts would be limited to areas associated with 450 feet of new road and 1.2 acres of excavation areas, and impacts beyond the immediate area would be low.

4.1.e Vegetation - Monitoring Guidelines

The acceptable level of success for seeding germination and vegetative growth is 60 percent of undisturbed adjacent areas. This level must be reached within 24 months of seeding; otherwise follow up seeding would be required in the aforementioned season of application.

4.2 Wildlife *(refer to issue #1, Section 1.8, Chapter 1)*

4.2.a Terrestrial Wildlife

The following sections are based upon Alternative A Current Plan of Operation; Alternative B Modified Plan of Operation with mitigation *(Modification to the plan of operation would be to change the schedule of work of the project to later in the summer to alleviate concerns with breeding birds and forest sensitive species such as goshawk);* and Alternative C– Baseline Comparison (No Action).

All Three Alternatives - Direct and Indirect Effects of the Proposed Test Pit/Ore Extraction Operation

4.2.a.1) Threatened, Endangered and Proposed Species

Canada Lynx - A Lynx Analysis Unit, or LAU, is a project analysis unit upon which direct, indirect, and cumulative effects analyses are performed. The proposed project occurs within

the LAU 9. The total acreage of primary lynx habitat within LAU 9 is 27,953 acres and 39,022 acres of secondary habitat. According to the Lynx Conservations Assessment and Strategy (LCAS), management actions (timber sales, salvage sales, etc) cannot change more than 15% of lynx habitat within a LAU to an unsuitable condition within a 10-year period. Currently in LAU 9, only the two small-scale thinning projects (10 acres) and the pole timber sale (2 acres) would be considered unsuitable habitat within the last 10 years. This represents less than one percent of the total in LAU 9. If we include the vegetation that would be removed in alternatives A and B (.01 acres) this does not significantly alter the percentage listed above.

As addressed in the LCAS, most mining activities affect lynx habitat by changing or eliminating native vegetation, and contributing to fragmentation (Reudiger 2000). The main effects of mining are probably related to the potential for plowed roads to provide access for lynx competitors, particularly coyotes (Reudiger 2000).

- None of the alternatives would be during the winter months and no plowing would be necessary or allowed.
- Alternatives A and B would not significantly alter habitat due to the current existing access road and the proposed test pit/ore excavation only removing a few trees on a very steep barren slope (not associated with snowshoe hare habitat).
- The campsite, in Alternatives A and B, would be temporary in duration, would not significantly alter any habitat, and would leave no permanent structures.
- Under Alternatives A & B, less than one percent of primary lynx habitat would be converted to unsuitable lynx habitat.
- Indirect effects to lynx would include disturbance (noise) from the test pit/ore extraction area, campsite, and the road (refer to cumulative effects for discussion on disturbance effects).
- Alternative C would cause temporary disturbance of the area and might cause lynx to temporarily avoid the area. However, this effect would only be temporary and would reduce disturbance in the long term.
- Disturbance effects to lynx, associated with reclamation activities in all three alternatives, are anticipated to be the same as described in the previous discussion of disturbances.

4.2.a.2) Forest Service Sensitive Species

Northern goshawk – There is an active post family-fledging area (PFA), as delineated on Map 8, page 3-9, near the project area. None of nest sites are near the road, campsite, or the test pit. However a part of the road crosses within the outer edge of the PFA and the entire project falls within the 5,400-acre foraging area.

The only disturbance to the Moon Lake PFA is in the outer edge (.6 miles of road). This disturbance could affect the foraging patterns of goshawks in the PFA. However, it is not expected to significantly affect the habitat within the PFA, or result in a trend toward federal listing. Under Alternative B, anticipated disturbance to the Foraging area, and near the PFA, would be reduced. Due to the minimal disturbance to the PFA, and the relatively small scale of the project in relation to goshawk habitat, it is unlikely that Alternatives A or B would significantly affect the goshawk or its habitat.

Most of the standards and guidelines amended into the Ashley Forest Plan from the Utah Northern Goshawk Project discuss vegetation manipulation and mitigation. Guideline (v)(ii) indicates that management activities should be restricted during the active nesting period. The active nesting period will normally occur between March 1st and September 30th. Guideline (v)(iii) further suggests planning the transportation system to minimize disturbance to the PFA's.

- In alternatives A and B only a small portion (<80 acres or .6 miles of road) would fall within the adjusted 600-acre Post Fledging Area. However, the entire project falls within the 5,400 foraging area.
- Under Alternative A the early period for site preparation and pit excavation, could affect the foraging area in this goshawk territory. The disturbance related to these activities could disrupt goshawk foraging patterns in the foraging area and use patterns in the PFA during the post fledgling period. Hauling of ore, and reclamation during mid/late September through October would be outside the fledglings' period of dependence on the PFA, according to radio telemetry surveys on the Ashley.
- Under Alternative B, site preparation would not begin until August 1st, test pit work would not start until August 15th, and hauling and reclamation would not start until September 10th. This would reduce the disturbance within the post fledging period, near the PFA, and in the foraging area. As previously stated, hauling of ore, and reclamation during mid/late September through October would be outside the fledglings' period of dependence on the PFA, according to radio telemetry surveys on the Ashley. Alternatives A and B would alter a very small amount of vegetation (<1 acre).
- Alternative C could cause a temporary disturbance to the area. However, if actions under this alternative were not implemented until September, disturbance to goshawks during the critical period (the nesting and fledgling period) would be eliminated.

Peregrine falcon, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker -Some potential impacts from the proposed project would be similar amongst the peregrine falcon, boreal owl, great gray owl, and three-toed woodpecker from the proposed project. These common impacts are described below.

- Under Alternative A, noise disturbances during the early period for site preparation and pit excavation, could disrupt foraging patterns and/or nest sites, if present, near the project area. Hauling of ore and reclamation during September through October would be outside the nesting period of these species.
- Under Alternative B, site preparation would not begin until August 1st, test pit work would not start until August 15th, and hauling and reclamation would not start until September 10th. This would eliminate the disturbance to potential nest sites and reduce noise disturbance to near by foraging areas for these species. As previously stated, hauling of ore and reclamation during September through October would be outside the nesting period of these species.
- Alternative C would cause a temporary disturbance to the area. However, if actions under this alternative were not implemented until September, disturbance to these species during the critical period (the nesting and fledgling period) would be eliminated.

There are some cliffs adjacent to the proposed project area (test pit/ore extraction site). However these cliffs may be above the preferred elevation for nesting peregrines. Furthermore, no peregrine falcons have been sighted in the area and no nests are known. Any potential impacts would be significantly reduced under Alternative B.

During spring calling surveys conducted in the year 2000, a boreal owl responded to a call in the Lake Fork Drainage. Whether this bird was a migrant or a resident is unknown. Potential habitat for this species is near the project area. However, it has been documented that boreal owls are relatively tolerant of human and mechanical disturbance and have been known to nest within 30 meters of a major highway (Hayward et. al. 1994). There is no evidence that disturbance is an important factor in nest loss or owl movements (Hayward et. al. 1994). Potential boreal owl habitat exists along portions of the road proposed for hauling. Any potential impacts would be significantly reduced under Alternative B.

The test pit/ore extraction site would only eliminate a half dozen sapling sized trees, unsuitable habitat for flammulated owls. The Forest Service access road has the highest probability of occurring in suitable habitat for this species and is likely only used as a foraging area. Flammulated owls are associated with ponderosa pine and Douglas-fir. There are no ponderosa pine in the area and only scattered patches of Douglas-fir, which may be potential flammulated owl foraging habitat. However, Douglas-fir are few and scattered and are unlikely to provide suitable habitat for flammulated owls in this structural stage.

The test pit/ore extraction site would only eliminate a half dozen sapling sized trees, unsuitable nesting habitat for great gray owls. The Forest Service access road has the highest probability of occurring in suitable habitat for this species and is likely only used as a foraging area. The great gray owl is rare to Utah and the Uinta Mountains. There is very little great gray owl habitat (foraging habitat) near the proposed project and would therefore unlikely be significantly affected by the proposed project. Any potential impacts would be significantly reduced under Alternative B.

The primary factor affecting three-toed woodpeckers and their habitat is clearing forests without snag retention (Spahr et.al. 1991). Under all alternatives, very few trees would be removed. The trees that would be removed are sapling sized, which are not preferred by three-toe woodpeckers. However, the access road passes through potential three-toed woodpecker habitat. Any potential impacts would be significantly reduced under Alternative B. Therefore, the project is unlikely to have significant impacts to three-toed woodpecker habitat.

Spotted Bat – The rocky outcrops associated with the proposed test pit area represent potential spotted bat roosting habitat.

- Alternative A and B would remove the rocky outcrops and replace them with overburden from associated sites, essentially making them unsuitable habitat for spotted bats until suitable rocks were recruited to the site. The removal of this site, associated with alternatives A and B likely constitutes an insignificant amount of habitat as it relates to the Lake Fork Drainage.

- Alternatives A and B would remove 0.05 acres of potential habitat. The Lake Fork Drainage consists of hundreds of acres of potential spotted bat habitat. The activity associated with Alternative A and B would temporarily disperse spotted bats from the area during the project duration.
- Alternative C would affect spotted bat habitat as described for Alternatives A & B. However, the disturbance would be on a smaller scale.

4.2.a.3) Management Indicator Species

Elk and mule deer – The elk population for the Yellowstone subunit (proposed project is within this subunit) is estimated at approximately 5,300 animals and has been relatively stable for the past three years (Thacker, UDWR pers. com.). Before that time, elk numbers in this subunit were on an increasing trend. The Division of Wildlife also states that deer numbers in this unit have decreased over the years, but are currently stable. The anticipated effects to elk and deer from the proposed project would not change the current trends of their populations, nor would the project encourage the current trends. The project could temporarily displace some individuals from the area, however this would not affect their survival. Displacing some individuals from the area could have an affect of the harvest in the area or could displace harvesting to another area. Given the small scale of the proposed project and the large landscape elk and deer use, it is very unlikely that the proposed project would fragment a significant amount of habitat or have a significant effect on elk and deer migration. Considering the elk and deer population numbers and trends, and short duration of the project, the impacts listed below are not anticipated to be significant enough to affect the viability of elk and deer populations or the potential harvest.

- Due to the noise disturbance from activities related to Alternatives A and B (test pit exploration, ore hauling, and reclamation), the project could reduce the elk and deer use in the area and along the road.
- The disturbance anticipated from reclamation activities in Alternative C, from the reclamation, could temporarily reduce the elk and deer use in the area and along the road. However, in the long run, this alternative could increase habitat for deer and elk.
- Since vegetation manipulation associated with this project would be minimal, it is anticipated that none of the alternatives would reduce escape and hiding cover or forage available to deer and elk.
- If the Forest Service access road remains open to the public, ease of access would increase the harvest during the appropriate hunting season.

Northern goshawk – There is an active post family-fledging area (PFA), as delineated on Map 8, page 3-9, near the project area. None of nest sites are near the road, campsite, or the test pit. However a part of the road crosses within the outer edge of the PFA and the entire project falls within the 5,400-acre foraging area.

An analysis of monitoring data for goshawk populations on the Ashley National Forest indicates a stable trend in their populations (Ashley NF, unpub. data). The only disturbance to the Moon Lake PFA is in the outer edge (.6 miles of road). This disturbance could affect the foraging patterns of goshawks in the PFA. However, it is not expected to significantly affect

the habitat within the PFA, change the stable trend in their populations, or result in a trend toward federal listing. Under Alternative B, anticipated disturbance to the Foraging area, and near the PFA, would be reduced. Due to the minimal disturbance to the PFA, and the relatively small scale of the project in relation to goshawk habitat, it is unlikely that Alternatives A or B would significantly affect the trend in goshawk populations.

Most of the standards and guidelines amended into the Ashley Forest Plan from the Utah Northern Goshawk Project discuss vegetation manipulation and mitigation. Guideline (v)(ii) indicates that management activities should be restricted during the active nesting period. The active nesting period will normally occur between March 1st and September 30th. Guideline (v)(iii) further suggests planning the transportation system to minimize disturbance to the PFA's.

- In alternatives A and B only a small portion (<80 acres or .6 miles of road) would fall within the adjusted 600-acre Post Fledging Area. However, the entire project falls within the 5,400 foraging area.
- Under Alternative A the early period for site preparation and pit excavation, could affect the foraging area in this goshawk territory. The disturbance related to these activities could disrupt goshawk foraging patterns in the foraging area and use patterns in the PFA during the post fledgling period. Hauling of ore, and reclamation during mid/late September through October would be outside the fledglings' period of dependence on the PFA, according to radio telemetry surveys on the Ashley.
- Under Alternative B, site preparation would not begin until August 1st, test pit work would not start until August 15th, and hauling and reclamation would not start until September 10th. This would reduce the disturbance within the post fledging period, near the PFA, and in the foraging area. As previously stated, hauling of ore, and reclamation during mid/late September through October would be outside the fledglings' period of dependence on the PFA, according to radio telemetry surveys on the Ashley. Alternatives A and B would alter a very small amount of vegetation (<1 acre).
- Alternative C would cause a temporary disturbance to the area. However, if actions under this alternative were not implemented until September, disturbance to goshawks during the critical period (the nesting and fledgling period) would be eliminated.

Golden Eagle – There are some cliffs adjacent to the proposed project area. Golden eagles have been sighted in the Lake Fork Drainage, however no golden eagles or nests have been observed in the project area. According to compiled surveys (1966-2002) from the North American Breeding Bird Survey (Sauer et. al.), golden eagle populations in the region were found to have a significant increasing trend. The anticipated effects to golden eagles from the proposed project would not change the current trend in their populations. There would be some noise disturbance to potential golden eagle nesting habitat and if golden eagles are present, could disturb nesting. However, this disturbance would be significantly reduced under Alternative B. Considering, few anticipated disturbances to golden eagles from the project, their population trends, and the project being small scale; it is unlikely that the proposed project would affect the viability of their populations or the current trend. Possible disturbance are described below.

- Under Alternative A, noise disturbance during the early period for site preparation and pit excavation could disrupt golden eagle nest sites, if present, and use patterns. Hauling of ore and reclamation during September through October would be outside the nesting period of golden eagles.
- Under Alternative B, site preparation would not begin until August 1st, test pit work would not start until August 15th, and hauling and reclamation would not start until September 10th. This would significantly reduce the disturbance to potential nest sites and reduce the disturbance to golden eagles in the area. As previously stated, hauling of ore and reclamation during September through October would be outside the nesting period of golden eagles.
- Alternative C would cause a temporary disturbance to the area. However, if actions under this alternative were not implemented until September, disturbance to golden eagles during the critical period (the nesting and fledgling period) would be eliminated.

Red-naped Sapsucker and Warbling Vireo - According to data compiled from surveys from 1966 to 2002, the North American Breeding Bird Survey (Sauer et. al.) shows warbling vireo populations in the region to have a significant positive trend and red-naped sapsucker populations to have a decreasing trend and currently stabilizing. The campsite for the workers is along the edge of aspen, which is suitable habitat for these species. There could also be some disturbances to these species from the test pit, ore hauling, and reclamation activities. However, suitable nesting habitat near the project area could be limited. Therefore it is unlikely that these effects would significantly change the current trends in these populations or encourage the red-naped sapsucker population to remain in a decreasing state.

Under Alternative B, possible disturbances to the red-naped sapsucker and the warbling vireo would be significantly reduced, thereby reducing any chance of changing the current trends in their populations. Also, it is unlikely that any of the alternatives would encourage the decreasing trend of red-naped sapsucker populations. Considering, few anticipated disturbances to these species from the project, abundant habitat in the Lake fork drainage, the small scale of the project, and their population trends, it is unlikely that the proposed project would affect the viability of their populations or their current trends. Possible disturbance are described below.

- Under all alternatives, very few aspen (sapling sized) would be removed. Therefore, the project is unlikely to have significant impacts to red-naped sapsucker and warbling vireo habitat.
- Some disturbance from the campsite in Alternatives A & B could displace some individuals.
- Under Alternative A, noise disturbance during the early period for site preparation and pit excavation could disturb these species nests, if present near the project. Hauling of ore and reclamation during September through October would be outside the nesting period of these species.
- Under Alternative B, site preparation would not begin until August 1st, test pit work would not start until August 15th, and hauling and reclamation would not start until September 10th. This would reduce the disturbance to potential nest sites and reduce the disturbance to red-naped sapsuckers and warbling vireos in the area. As previously

stated, hauling of ore and reclamation during September through October would be outside the nesting period of these species.
- Alternative C would cause a temporary disturbance to the area. However, if actions under this alternative were not implemented until September, disturbance to these species during the critical period (the nesting period) would be eliminated.

4.2.b Terrestrial Wildlife - Cumulative Effects

Cumulative effects for all species will be considered at two levels. The first level is the project level consisting of a sub-watershed scale and in the case for wildlife species, the Lynx Analysis Units (LAU) will be used. The second level of consideration will be the watershed or drainage scale.

Current effects on the project level consist of the paved road to Moon Lake, the Moon Lake Resort, the Moon Lake campground, one summer cabin, the dam structure at Moon Lake, the Moon Lake trailhead, two small scale thinning projects (10 acres total), one pole timber sale (2 acres) and a developing subdivision (50 acres).

Threatened, Endangered, and Proposed Species -
According to the LCAS the disturbance in any single LAU should not exceed 30% or allow any further reduction of suitable conditions. The disturbance associated with the other man made features (campground, resorts, etc) consists of 934 acres in primary lynx habitat (3.4% reduction). To arrive at a reasonable disturbance area, paved roads were buffered ¼ mile on each side and the campground received a buffer of a ¼ mile around its perimeter. The Moon Lake resort and dam were also totaled in the 934 acres. If we include the access road and the proposed test pit/ore extraction operation as outlined in Alternative A and B as temporarily unsuitable due to the activities related to the project, this would add 2080 acres, 0.2 acres of a spur road, 0.05 test pit and 1.26 acres of camp for a total of 2081.51 acres. Adding the additional 1.2 acres from the reasonably foreseeable actions gives a total of 2082.71 acres of potential disturbance in LAU 9, from the proposed project. This is approximately 10.8% of the total area in LAU 9 that would receive temporary disturbance for the duration of the project.

- Alternatives A and B could temporarily alter linkage corridors within the LAU due to the vehicular traffic associated with the test pit/ore extraction operation.
- Alternative A and B are not likely to adversely affect lynx viability or distribution in LAU 9 or on the Ashley National Forest due to the size of the project area and the short duration of the project. Alternative C would have no effect on lynx viability or distribution from reclamation of 1 acre of cliff habitat.
- Reasonably foreseeable actions of Alternatives A & B could convert an additional 1.2 acres of suitable lynx habitat to unsuitable. However, with this additional conversion of suitable lynx habitat added, the total potential conversion of suitable lynx habitat to unsuitable would still be less than one percent of the total primary lynx habitat within LAU 9.

  Note:
  The Ashley National Forest received a concurrence letter from Fish & Wildlife dated January 10, 2002 for the Ore Exploration and Development Assessment. The letter concurred with

the "could affect, not likely to adversely affect" determination for Canada lynx in the Biological Assessment. Since that time "reasonably foreseeable actions" were developed for the Ore Exploration and Development Proposal Environmental Assessment. These actions would affect another 1.2 acres over the coarse of 10 to 30 years, with possible annual noise disturbance.

The additional 1.2 acres would be an extension of the disturbed site. Although this area is within lynx habitat, the actual site is not lynx habitat. The site is mostly open with patches (stringer type) of Douglas-fir on a slope. According to the Lynx Conservation Assessment and Strategy, Douglas-fir and some slopes are unsuitable habitat for lynx. Therefore, it is unlikely that the additional 1.2 acres would disturb quality lynx habitat. It is also unlikely that the temporary noise disturbance in the area would significantly disturb lynx habitat. The disturbance is temporary, for a short time during the year, and already receives disturbance from current mining and other recreational uses. Also, if the additional 1.2 acres were to be calculated in the cumulative effects section of the BA, it would add far less than 1% to the potential disturbed acres of the project. This would not change the determination in the BA.

Furthermore, if the "reasonably foreseeable actions" were to occur, a new NEPA document would be completed before their occurrence. Another BA would also be completed and consultation with US Fish and Wildlife Service would be initiated. In other words, before the "reasonably foreseeable actions" would occur, consultation with US Fish & Wildlife Service would be initiated and a decision to implement those actions would not occur until concurrence is received from US F&WS.

Therefore, reinitiating consultation with US Fish & Wildlife Service for the "reasonably foreseeable actions" in the Ore Exploration and Development EA will not be necessary.

Sensitive Species -

- The Moon Lake Goshawk territory has existed for several years and consistently produced offspring, regardless of the close proximity of recreational activities at Moon Lake and the resort. Due to disturbances related to the Moon lake complex coupled with the proposed project, successful goshawk foraging does have the potential to incrementally increase in difficulty. However, under Alternative B, these potential cumulative impacts to the PFA would significantly be reduced.
- Reasonably foreseeable actions would only alter an additional 1.2 acres, which would not significantly affect goshawk habitat. However, anticipated future use of the pit could continue to disrupt the PFA and the foraging area. If the pit were used in the future, delaying activities as specified in Alternative B would be necessary to avoid disturbance and disruption of the PFA and foraging area.
- The spotted bat and peregrine falcon are reliant on cliff areas for roosting/nesting. There is a road on the ridge above the cliffs. Recreation use of this ridge coupled with the actions in all alternatives, including reclamation, could increase disturbance to these cliff areas.
- An additional 1.2 acres of spotted bat habitat could be lost in the reasonable future. However, affecting this small acreage would not significantly reduce spotted bat habitat in the Lake Fork drainage.
- The noise disturbance associated with the reasonably foreseeable future would not significantly impact peregrines, if present, or their habitat. Any possible disturbances

would significantly be reduced, if implementation of the proposal were delayed as specified in Alternative B.

- Moon Lake and the associated resort coupled with the proposed actions could increase disturbance to the area. However, no habitat for boreal owls, flammulated owls, great gray owls, or three-toed woodpeckers is expected to be altered. Furthermore, this increase in disturbance is not anticipated to significantly affect nesting and foraging patterns for these species, if present. Under Alternative B, these potential cumulative impacts would be minimal.
- Reasonably foreseeable actions would only alter an additional 1.2 acres, which would not affect habitat for boreal owls, flammulated owls, great gray owls, or three-toed woodpeckers. These actions may prolong disturbance to the area, but is not anticipated to significantly alter foraging patterns or nesting habitat for these species. Any possible disturbances would significantly be reduced, if implementation of the proposal were delayed as specified in Alternative B.

Management Indicator Species -

- The Lake Fork drainage has a very low density of miles of road per square mile (0.82), indicating that deer and elk have not been significantly impacted from road density (decrease forage, road kill, etc). The disturbances from the proposed project to elk and deer coupled with the recreational use from Moon Lake and the resort are not anticipated to significantly increase road density, significantly effect elk and deer habitat or migrations, or significantly affect their populations.
- Reasonably foreseeable future actions could continue to displace elk and deer from the project area. However, this is not anticipated to have significant effects to elk and deer populations, nor would it change their current trend in population. Harvest of deer and elk, during fall hunting, could be displaced as well.
- The Moon Lake Goshawk territory has existed for several years and consistently produced offspring, regardless of the close proximity of recreational activities at Moon Lake and the resort. Due to disturbances related to the Moon lake complex coupled with the proposed project, successful goshawk foraging does have the potential to incrementally increase in difficulty. However, under Alternative B, these potential cumulative impacts to the PFA would significantly be reduced.
- Reasonably foreseeable actions would only alter an additional 1.2 acres, which would not significantly affect goshawk habitat, nor affect their current population trend. However, anticipated future use of the pit could continue to disrupt the PFA and the foraging area. If the pit were used in the future, delaying activities as specified in Alternative B would be necessary to avoid disturbance and disruption of the PFA and foraging area.
- The golden eagle is reliant on cliff areas for nesting. There is a road on the ridge above the cliffs. Recreation use of this ridge coupled with the actions in all alternatives could increase disturbance to these cliff areas, but would not significantly increase impacts to golden eagles. Therefore the anticipated cumulative effects are unlikely to change the current population trend of golden eagles. Any potential impact on golden eagles from these cumulative effects would significantly be reduced, if implementation of the proposal were delayed as specified in Alternative B.
- Impacts to golden eagles from reasonably foreseeable future actions would be negligible. There would be prolonged disturbance to the area that could displace individual golden

eagles, if present. However, this small-scale disturbance would not significantly affect the current population trend of golden eagles. Furthermore, any potential impact on golden eagles from these reasonable foreseeable actions would be eliminated or significantly reduced, if implementation of the proposal was delayed as specified in Alternative B.

- Moon Lake and the associated resort coupled with the proposed actions could increase noise disturbance to red-naped sapsucker and warbling vireo habitat. The increased noise disturbance could displace some individuals. However, the disturbance is small in scale and would only temporarily affect a small piece of habitat for these species. Therefore, these disturbances are not anticipated to significantly affect these species populations or their habitats.
- Impacts to red-naped sapsuckers and warbling vireos from reasonably foreseeable future actions would be negligible. There would be prolonged disturbance to the area that could displace individuals, if present. However, this small-scale disturbance would not significantly affect the current population trends for these species or their habitats. Furthermore, any potential impact on these species from the reasonable foreseeable actions would be eliminated or significantly reduced, if implementation of the proposal was delayed as specified in Alternative B.

4.2.a Aquatic Wildlife

Colorado River cutthroat trout is a Forest Service sensitive species and is also a Management Indicator Species.

Based on the relative location of the project area and the proposed activities there would be no negative or positive direct or indirect effects to fisheries from implementation of Alternatives A or B and associated Reasonable Foreseeable Actions. Habitat conditions suggest that Slate Creek does not appear to support a fishery; however there could be some limited fish use within the first 0.25 miles above the Brown Duck Creek confluence. Based on past mining activities within the project area, proposed mining activities would not have any effects to aquatic wildlife in Slate or Brown Duck Creeks.

Given the proposed action and alternative and the reasonably foreseeable actions there will be no negative or positive cumulative effects to fisheries from this project.

Macroinvertebrates will not be negatively affected, because of the lack of water within and around the project area and the distances involved to the nearest water source.

4.3 Soils *(refer to issue #3-Sensitive Areas, Section 1.8, Chapter 1)*

Refer to Section 4.4 Hydrology and Water Quality for additional information on Environmental Consequences to Soils.

4.3.a and 4.3b Soils - Alternative A – Current Plan of Operations (Proposed Action) and Alternative B – Modified Plan of Operations

Geology and Landform Development –
Geologic processes operating in the formation of the side canyon area (location of the mine area) need to be considered in this proposal, due to safety and environmental consequences of potential slope failure from this project. Alterations in slope angle, interception of groundwater, changes in water movement, and alternations in a highly fractured bedrock system could potentially lead to slope failure.

Note: There is no evidence that groundwater exist within the test pit area of the mine.

The ability to replace removed materials from the test pit area would be questionable, and collection of water could increase the instability of small local areas. Under Alternatives A and B, the potential to create potential areas of failure would exist. Due to the natural processes that have formed the canyons in the area, alterations of slope dynamics increases the risk of failure, especially with the addition of water, or changes in the groundwater hydraulics.

Soils within the Project Area –
The majority of the overburden to be removed would be extremely rocky in nature. Rehabilitation potential of the soils would be low to non-existent at the proposed project site. Little topsoil exists in the area, and the ability to stockpile, separate, and replace would be limited. With the removal of this overburden material, site potential would change and the ability to reestablish vegetation would be limited.

The colluvial material excavated from the test pit area would be a poor medium for revegetation of the disturbed slope, and successful revegetation of the slope would be unlikely.

Stockpile of overburden would be difficult due to the limited work area and steep slopes. Segregation of materials would be severely limited due to lack of space for stockpiling.

Slope Stability Technical Studies – Test Pit Excavation and Reclamation –
The Ashley National Forest Engineer and USDA Region 4 Geotechnical Engineer prepared technical studies on slope stability and mitigation. Based on the conclusions and requirements from these studies, Uintah Mountain Copper Company revised their Plan of Operation, Proposed Action and Environmental Protection Measures to comply with the conclusions and requirements of the Forest Service technical studies. *(Refer to Chapter Two, Section 2.2.a and 2.2.a.1 for descriptions and discussions on slope stability, test pit excavation and reclamation. These sections address the conclusions listed below and comply with the requirements of the Forest Service technical studies.)*

A brief summary of the conclusions and requirements from the Forest Service technical studies are as follows:

Conclusions

- Calculations of weight (density) of material (soil, rock, etc) on the "slip surface" of the underlying bedrock could be underestimated. If the material were denser than indicated in previous Plans of Operation, the safety factors for slope failure would be adversely affected. For the existing slope percentage and conditions, a minimum 1.5 to 2.0 safety factor would be needed....which represents the stability of material over the slip surface of the underlying rock/soil profile. A safety factor below 1.5 and maybe even 2.0 could result in slope failure after or during ore removal and gabion placement. The potential weight of the material (greater than that estimated in past Plans of Operations) over the normal plane of the slope (angle of friction) could give a safety factor of less than 1.0.
- Past Plan of Operations slope stability figures for both shallow and deep failure calculations show the test pit would intercept the shallow and deep failure zones, and the block of material and ore to be removed could result in both shallow and deep slope failures.
- Past gabion designs shows that they would not anchored to stable slope conditions on either end of the gabion structure; therefore, slope creep and erosion could result around the ends of the gabions. Also, the gabions would be "perched" and not anchored to the bottom of the pit and therefore could have the tendency to move downhill as a result of pressure from the weight of upslope material. This condition would be aggravated if heavy equipment operated on or above the gabions.

Requirements **(adopted by UMCC and made part of latest revision of the Plan of Operations)**

- Topsoil replacement would not be done on the 0.25 acres of spur roads and test pit area within Paint Mine (Sunshine Quartz Mine No. 4), due to the extremely rocky nature of the overburden that would be replaced after ore extraction. Analysis and evaluations indicate that topsoil would not properly compact or subside on the rocky surface of the replaced overburden.
- Topsoil replacement would not be done on the 0.3 miles of the existing access road within the Paint Mine, again due to the lack of adequate topsoil and the extremely rocky nature of the surface. The access road would be closed after completion of all rehabilitation work. Road surfaces would be scarified, and drainage structures would be installed as indicated in the Section 2.2 Description of the Alternatives, Figures, 5, 5A, and 6, pages 2-16 through 2-18.
- Eliminate the top tiers and two gabion structures as designed and illustrated in past Plans of Operation. (Previous Plans of Operation showed a three-tier/four gabion design for use in reclaiming the test pit area.)
- Pull side slopes of the two remaining tiers back on to the top of the tiers as work in completed.
- Gabion material would come from onsite material.
  Possible sources of gabion rock material exist on spur road #1. According to Uintah Mountain Copper Company, this material would be the same color as the surface soil/rock, of sound composition (not deteriorating), and the correct size. The rock

would be segregated on site, and the correct size for the gabion baskets would be used.

- Fabric liners would be used as layers in the fill material of the two tiers to prevent soil saturation, and a drainage feature would be constructed along the bottom of the fill of each tier. The liners and drainage feature would help reduce a potential blow out that would be associated with saturated backfill.
- Excelsior blankets or wood fiber slurry would be applied to exposed cut slopes above the test pit and to the lower terrace of the test pit to reduced sediment.
- Geogrids would be constructed in each gabion with the first layer having a filter fabric. A drainage rock layer would underlie each gabion structure.
- Gabion structures would meet the specifications of the gabion basket manufacture, including type and size of rock used in filling the basket and the addition of fines at the top of the basket to encourage vegetative growth.
- Segregation of topsoil would not be done, due to the thin layer that already exist.
- The storage area for overburden would be on the spur road. Only 600 feet of linear area should be needed.
- The side slopes of the two tiers would be pulled in to the catchment area, to reduce raveling behind the two gabions.
- Backfill would be wheel-rolled.
- Heavy equipment would not be placed within 10 feet of the edge of the lower gabion wall once the fill had been placed to the final elevation. Lighter equipment would be used for final lift compaction.
- A rock net would be placed on the top cut to reduce rock fall after completion of the pit restoration work.

Results and benefits:
Adherence to the recommendations could or would:

1) help reduce and minimize the potential loss of uncompacted material that would have been placed as part of a three tier-four gabion slope stability measure.
2) minimize risk of superficial failure, but most likely not a deep failure.
3) eliminate weight of upper tiers and gabions, including the backfill, resulting in less weight on the slope cut and reduced potential of superficial slope failure and deep slope failure.
4) allow for a larger catchment area below the top cut; thereby reducing or minimizing loss of material down slope.
5) improve slope stability safety factor for the test pit to a factor of 2.19.

Soils - Cumulative Effects –
Same as for Section 4.4.a - Hydrology, Cumulative Effects for Alternatives A and B and Reasonable Foreseeable Actions

Transport of soil, parent material, and sediment from this project and previous exploration activity/ roads below this site would be expected to remain above natural levels until rehabilitation was completed and cut slopes reached an angle of natural stability and vegetation or rock "pavement" became established. Relative to Alternative C (No Action), this

would take longer and there would be ground disturbance which sets back the existing condition – similar to Alternative B but with greater erosion potential below the upper 2000 feet of road.

Soils - Mitigation Measures – *(In addition to UMCC's protection measures and requirements/agreements from the Soil Stability Technical Study (Also, refer to Section 4.1.d Hydrology and Water Quality for mitigation measures applicable to soils)*

The inherent high erosion ratings, low fertility, shallow topsoils, and high potential for slope failure would limit any type of mitigation in regard to soils at the mine area.

1. Every attempt should be made to avoid accumulation of water.
2. Straw bales and logs cut to length should be used to stabilize gullies and side washes that have resulted from previous activities, as well as those that would result from the proposed activities.
3. UMCC's would be required to provide a technical report on the competency of rock within the test pit area as fill for the gabion structures. Gabion fill should consist of the fill material that is porous and does not break down, and allows rapid drainage.
4. If clearing at the truck-turn-around area (beginning of UMCC's 0.3 mile access road) is needed and required, topsoil should be segregated and stockpiled for later use in rehabilitation and reestablishment of vegetation of this same area. (Not a borrow area)

Soils - Monitoring Guidelines –
Representatives from Uintah Mountain Copper Company and the Ashley National Forest would meet prior to operations to discuss protective and mitigation measures for soils, including slope stability and erosion control. UMCC would be required to document the application and results of applied protection and mitigation measures. Required documentation would be:

- ✓ The protective and/or mitigation measure applied and date applied, and the results of measure….
  -upon completion of rehabilitation work,
  -no later than 9 months after completion of rehabilitation work, and
  -one year after completion of rehabilitation work
  (times/schedules for the above three items would depend on availability of access and weather conditions)

4.3.c Soils - Alternative C – Baseline Comparison (No Action)

Soils - Mine area, and 0.4 miles of access and spur roads – *(Refer to Section 4.1.d.3) Hydrology – Alternative C for additional effects to soils).*

The access and spur roads would catch and hold soil and rock material unraveling from upslope sources. This would prevent most of the material from moving downslope. The

possibility exist that existing road cuts would not reach a stable angle and the cuts would move upslope. This could result in debris spilling downslope beyond the access and spur road beds. Old road cuts downslope would also offer physical trapping of erosional debris moving downslope.

The access road in the mine area has areas where water is collecting and/or creating an erosive channel. The protective measures proposed by Uintah Mountain Copper Company for this area could correct and minimize ongoing erosion; thereby allowing UMCC's access and spur roads to stabilize within an acceptable time frame.

Soils - Forest Service access road – 6.2 –mile access road –
This road would be maintained by UMCC during the rehabilitation and closeout period, after which it would be managed as a limited access public road under Forest Service maintenance standards. (The road would be open to the public by permit only.)

Soils - Campsite area –
Minor soil disturbance would occur during the rehabilitation and close out period and soil conditions would return to natural conditions within a one to two year period.

Soils - Cumulative Effects –
Same as for *Section 4.4* – Hydrology/Water Quality - Alternative A - Cumulative Effects

Transport of soil, parent material, and sediment from this project and previous exploration activity/ roads below this site would be expected to remain above natural levels until cut slopes reach an angle of natural stability and vegetation or rock "pavement" was established. Some erosion/instability levels above natural would continue longer due to the combination of inherent instability with past project activity (such as the chute immediately below the proposed pit site).

There is ongoing natural erosion in the Slate Creek and Dry Canyon drainages. Soils in these drainages have high erosion ratings and active erosion is occurring in the upper end of each of the two drainages. This erosion is adding sediments to downslope areas within the drainages, including the project area.

Other activities in the general Moon Lake area are considered of minimal impact due to low current activity and the availability of standard erosion control practices, which are effective at minimizing sediment movement on lower slopes.

Soils - Mitigation Measures – *Refer to Section 4.4) Hydrology - Alternative C Mitigation Measures, pages 4-26 and 4-27 for the list of mitigation measures applicable to soils.*

Soils - Monitoring Guidelines –
Representatives from Uintah Mountain Copper Company and the Ashley National Forest would meet prior to operations to discuss protective and mitigation measures for soils, including slope stability and erosion control. UMCC would be required to document the application and results of applied protection and mitigation measures. Required documentation would be:

✓ The protective and/or mitigation measure applied and date applied, and the results of measure....
- -upon completion of rehabilitation work,
- -no later than 9 months after completion of rehabilitation work, and
- -one year after completion of rehabilitation work

(times/schedules for the above three items would depend on availability of access and weather conditions)

4.4 Hydrology and Water Quality *(refer to Issue #4 – Water Quality, Section 1.8, Chapter 1)*

4.4.a Hydrology and Water Quality- Alternative A – Current Plan of Operations (Proposed Action)

The principal water quality concerns are sediment and contamination of spring sources. A secondary concern relates to human waste and the outhouse at the existing camp area.

The proposed project area would be less than 5 acres. The Slate Creek drainage area is approximately 1 square mile (640 acres). Thus, the project disturbance would represent less than 1% of the Slate Creek drainage located primarily in the upper elevations of the watershed. As a comparison, the erosive Red Pine Shale comprises about 160 acres (25%) of the Slate Creek drainage area.

Hydrology/Water Quality - Campsite area –
Compaction of the lower "draw" areas would be localized, but could affect site productivity or subsurface water movement at a very local scale. Compaction could make the "draw" area more subject to surface erosion because compaction could reduce surface infiltration and reduce plant root vigor.

Campfires create ground disturbance, both by reducing soil productivity at the fire ring and often compacting ground around it from human use. Both of these could result in reduced plant vigor above and below ground. A large fireplace already exists at the "covered work table" site *(Map 4, page 2-11)*.

Hydrology/Water Quality - Ore Storage/Transfer Site –
Disturbance in the ore transfer/storage area could allow sediment, rock, ore, or other materials to reach the nearby collection draw. The proposed use of gravel in this area, which would be reclaimed by spreading the gravel, would lower site productivity by acting as mulch and blocking light and/or moisture from soil – possibly for decades, depending on thickness. This

is generally undesirable from a watershed standpoint because vegetation helps trap precipitation/ sediment and slows erosion. The thinner it is spread, the greater the area of impact. The gravel would protect soil from erosion and vegetation would gradually re-establish. Some weedy species could establish on the disturbed area.

Hydrology/Water Quality - Hazardous Materials at Camp, Ore Storage and Transfer Site, Roads, and Test Pit Site –
A service truck would be carrying a variety of materials. Spill concerns include soil contamination and the potential for contaminated materials to be transported through erosion, disturbance, or natural precipitation runoff patterns. The Plan of Operations (POO) states that heavy equipment used onsite would be fueled and serviced prior to site mobilization and refueled once or twice at the test pit area. A 55-gallon drum of fuel would be available. Emergency repair is stated to be on level ground; however, if heavy equipment breaks down on a steep slope, there is some question whether it can safely be removed to level ground for repair, and leaks could occur on steep slopes. The POO specifies that contaminated soil would be excavated and removed. In some cases, there would be resource or logistical concerns with this approach, such as if excavation would create a resource or safety hazard.

Hydrology/Water Quality - Roads –
As part of Alternative A and B, UMCC would: (1) Use mud bars, road edge bar ditches, surface vegetation and natural cobble plating to reduce road-caused sediment; (2) use temporary silt fences, hay bales, and terraces for sediment control from roads; (3) install a drain at a low point in the road within the upper 2000 feet to the test pit site; (4) follow Forest service direction in installing water bars to prevent collection of storm waters at erosive sections; and (5) riprap low points and outflows to prevent erosion where water would be allowed through a installed drain under the roadbed to the outer/fill slope side of the road (one site has been identified so far).

UMCC would reclaim the upper 2000 feet. Water bars would be considered essential to remove water frequently enough to avoid collection into erosion. Outsloping has been proposed to prevent concentrated discharge, and would need to be used judiciously in conjunction with other methods to remove water from the road frequently and in a manner, which does not accumulate erosive forces. This alternative generally provides for drainage in the upper 2000 feet of road. If the "hay bales" were not certified weed-free, then noxious weeds could be introduced.

This alternative would not address the road below the upper 2000 feet, which is generally smooth. The increased traffic (compared to current levels) could exacerbate existing drainage problems and make conditions worse the following spring. In addition, a thunderstorm or rain-on-snow event could create ponded or rilled conditions similar to those observed in spring 2001. Some road cuts are unstable, and material is eroding from the cut onto the road.

UMCC has requested approval for use of potable water for dust abatement and the option of using Forest Service-approved, non-toxic dust palliatives; the water contractor would be responsible for water rights.

Hydrology/Water Quality - Test Pit /Ore Extraction Site –
The steep slopes and instability of disturbed surface materials create concerns regarding erosion and runoff. A high-intensity precipitation event (such as a summer thunderstorm) or season of high precipitation – or even the work of gravity in concert with unstable materials -- before slope stabilization (gabion) could release earth materials downslope, traveling down the road and/or down the natural incline. Immediately below the road at the pit site is a "draw" or "chute" (described more fully in Alternative C-Environmental Consequences); this is one example of current conditions that would not return to "natural", at least for a very long time. The existing roads are another. Therefore, it is the additional effects of the test pit-related proposal that are being evaluated under this alternative.

The proposed gabion has two terraces and has been designed with input from the Forest Service to maximize the potential for erosion control. However, the only existing gabion of similar nature on this site is along the road cut. On this location, there is no prior gabion use in a test pit on this steep, unstable hillslope. The excavation could trigger an erosion event, which moves up the hillside until reaching resistant limestone. A series of wet years would cause different results than dry years and there have been mostly drier years since the road-cut gabion installation (September 1997). The road cut differs from the test pit in that there is only one face to stabilize, rather than three. Thus, there are questions as to the long-term effectiveness of the gabion in the pit.

UMCC's Plan of Operations (item C-Reclamation) states that "Gabion rock walls (rock-filled wire baskets) create retaining structures that have a natural appearance, adapt to difficult sites, require little to no maintenance and can easily be vegetated." This is definitely a difficult site, being steep, unstable, and with little native topsoil. Gabions are not expected to have a totally natural appearance simply because they are built in square lines and do not restore the natural slope and vegetation; however, the effort to use fill material which blends with the natural landscape is important, especially since the site could be visible by Forest visitors hiking into the High Uintas Wilderness.

The opportunity for success could be enhanced by careful selection of rock to put in the gabion wires. UMCC's Plan of Operations (item C-Reclamation) states that "Rock backfill incorporates native fractured limestone and fine soils near the top of baskets to encourage vegetation growth on and above the retaining structures." The material below this top layer is not specified. In a published article on use of gabions in difficult terrain by Peter Kandaris of UMCC (Kandaris 1999), the Ashley Forest roadcut gabion and proposed use in the test pit are discussed. The article advises that "Limited access required wall materials be both light-weight for ease in transportation and utilize on-site rock for aesthetics. Slope stabilization methods also needed to be inexpensive and compatible with the forest environment, leaving a natural appearance." A possible source of alternative fill material for the gabions is an old borrow area that was used in building Moon Lake Reservoir's dam.

The Forest Service shares the POO goal of little or no maintenance; however, the maintenance needs over time would only be known after lengthy monitoring. It is not expected that vegetation would be easy to establish on any disturbed lands in the test pit area, including on the gabion itself. As noted in Alternative C – No Action, the revegetation opportunity could

be low regardless of revegetation method used. UMCC has offered in its POO to try and reserve topsoil for rehabilitation and would use excelsior blankets or wood fiber slurry on exposed cut slopes above and within the test pit. Topsoil storage is generally an essential part of reclamation; however, there is very little natural topsoil and separating/reapplying this very thin topsoil is not expected to be a reliable means of establishing vegetation. The mulch material would discourage surface erosion above the pit and help hold the lower terrace within the pit. The drainage underneath the gabion would help prevent saturated conditions; if there is an outlet, then that location could become unstable.

A storm water drain permit could be required (EPA NPDES permit) of UMCC. Information on this permit is available from Harry Campbell, Utah Division of Environmental Quality, Salt Lake City, Utah. This would be UMCC's responsibility and would need to be obtained prior to any move-in or operation of this proposal, unless the Utah Division of Environmental Quality otherwise notified the Forest Service.

Hydrology/Water Quality - Cumulative Effects –
The area of cumulative effects analysis is the dam at Moon Lake Reservoir, since the dam traps sediment and stores water, which then undergoes regulated release.

There is ongoing natural erosion in the Slate Creek and Dry Canyon drainages. Soils in these drainages have high geologic erosion ratings and active erosion is occurring in the upper end of each of the two drainages. This erosion is adding sediments to downslope areas within the drainages, including the project area.

Within the Slate Cr. drainage, some old access roads exist in the Slate Creek watershed – lower in elevation than the ore extraction site and access road. Some erosion or rilling is evident although these roads were reclaimed many years ago and are not open to public vehicle use. Transport of soil, parent material, and sediment from these roads is expected to remain above natural levels. The Slate Creek watershed is about 8% of the Brown Duck Creek watershed and includes highly erosive natural headwater areas. The natural and pre-project sediment potential is thus high and no detectable increase from the project would occur where Brown Duck Cr. enters Moon Lake Reservoir, within Moon Lake Reservoir or below. Alternative A would generate sediment, but the sediment will not reach Slate Creek or have detectable impacts, so stream conditions would be similar to Alternative C. The distance to water from the ore extraction site and upper roads (approximately 2000 feet) and the variety of sediment contributions already entering Slate Creek would continue to make direct water quality sampling of low value since any anomalies discovered would be from a variety of sources.

Water depletion or quality in the Upper Colorado River Basin is not a concern in any alternative. Water for dust abatement is from off-site potable sources or nearby Moon Lake facilities. No net depletion would occur unless the water is in addition to uses already under water right (vs. change of use or purchasing other users' water rights); the amount of water needed for road watering is considered to be undetectable to the Brown Duck Creek and the Upper Colorado River. (For example, this use would likely qualify as a *de minimus* use in Idaho, and a water right would not be needed.) No downstream effects to water quality would

occur since Moon Lake Reservoir would trap sediment, store incoming water, and control water releases downstream.

Risk to area springs from the proposed project is about the same as in Alternative B and C; no effect to the spring would occur. Dense conifer forest type exists between the road and the spring over approximately 2000 feet, and sediment would not reach the spring, nor offer any groundwater contamination. The ore extraction site drains a hillslope area to the west of the spring and overland flow would not cross the spring. The cumulative effect of other activities in the general Moon Lake area is similar to Alternative C (low effect). The spring source is not fenced from livestock use but is currently undergoing source protection plan delineation through the State of Utah and the Ashley National Forest.

Regarding future extraction of mineral deposits, which might be reasonably foreseeable following this proposed exploration phase, the following assumes a marketable product is determined. (Otherwise, effects would include those of rehabilitation, which would be similar to the exploration phase but would cease after rehabilitation completion.) If the project does lead to further mineral excavation, this would need to be approved in a separate future NEPA document. Due to rehabilitation concurrent with operations, a small area would be disturbed at any one time (the total area of new disturbance is anticipated to be less than 2 acres). Effects of extraction would be similar to the current proposed action through the excavation period (estimated at 10-30 years) and subsequent rehabilitation. The development of up to 450 of new road would create newly disturbed soil; specific mitigation measures to reduce road erosion and sediment would be part of the future NEPA analysis. However, the distance from roads to streams would be similar to the current proposed action – around 2000 feet away, with some vegetation in between. With on-site mitigation measures similar to those in the proposed action (upper 2000 feet of road), there would not be detectable stream sediment from this source. State control of runoff through NPDES storm drain permits or plans also would limit runoff.

4.4.b Hydrology/Water Quality - Alternative B – FS Modified Plan of Operations

Key Changes from Alternative A –
The changes from Alternative A are associated with the following resource values and effects:
-Road drainage and maintenance below the upper 2000 feet of road.
-Mitigation at ore transfer site.
-New camp area structures and activities outside a buffer from the draw behind the existing trailer.
-Increased oversight by Forest Service engineer.
-No Forest Service potable water use for dust abatement;
-Sanitation and hazardous materials more specifically addressed.
-Interim erosion control provided if work stoppage occurs, plus rehabilitation at end of operations.
-Gabion fill material designated by the Forest Service in consideration of weight, -aesthetics, and other relevant characteristics.
-Gabion long-term monitoring and maintenance specified.

Hydrology/Water Quality - Campsite area –
Compared to Alternative A, all activities and new facilities are outside of a 50-foot buffer along the draw behind the existing trailer and effort is made to avoid more subtle draws. This eliminates any new compaction potential in the deeper soils of the draw behind the trailer and minimizes the potential for interference with natural subsurface drainage. Fires are allowed only in the existing fireplace so no ground disturbance from other fires or new fire rings would occur.

Hydrology/Water Quality - Ore Storage/Transfer Site –
Compared to Alternative A, mitigation regarding to the gravel layer and ground storage of ore are considered to minimize soil disturbance and enhance long-term productivity. The drainage east of the power lines is protected from possible sediment or disturbance.

Hydrology/Water Quality - Hazardous Materials at Ore Storage/Transfer Site, Roads, and Test Pit Site –
This provision would lower the risk of a spill compared to Alternative A, although the risk to water resources is small in both alternatives. The 55-gallon drum of fuel or other containers posing a significant spill hazard would be specifically addressed in a spill plan prepared by UMCC. Other provisions such as spill action and notification, consequences, and mitigation measures are the same as in Alternative A.

Hydrology/Water Quality - Roads –
Compared to Alternative A, this alternative adds additional road stabilization and maintenance requirements below the upper 2000 feet of road where it is determined that the proposed action might affect or be affected by current conditions. UMCC is to perform any needed pre-project roadwork and maintenance during project, including below the upper 2000 feet, if such work is deemed necessary by the Forest Service to accommodate the increased traffic and load weights from this proposal, or to address safety related to it. This would reduce the overall erosion hazard from project roads use on-Forest. Otherwise, the proposal and consequences are similar to Alternative A.

This alternative eliminates the possible use of Forest Service potable water use for dust abatement and adds mitigation related to other aspects of dust abatement.

Hydrology/Water Quality - Test Pit /Ore Extraction Site –
The rock for filling gabions is designated by the Forest Service with consideration of added water weight from on-site materials, aesthetics and other relevant characteristics. Monitoring and maintenance responsibility for the gabion structure are specified.

As in Alternative A, a storm water drain permit might be required (EPA NPDES permit) of UMCC. Information on this permit is available from Harry Campbell, Utah Division of Environmental Quality, Salt Lake City, Utah. This would be UMCC's responsibility and would need to be obtained prior to any move-in or operation of this proposal, unless the Utah Division of Environmental Quality otherwise notified the Forest Service.

Hydrology/Water Quality - Cumulative Effects –
Cumulative effects for sediment are similar to Alternative A and C. More erosion along the road below the upper 2000 feet could occur, but this is not expected to reach the stream or be detectable in water quality sampling.

Effects on the upper Colorado River Basin are the same as for Alternatives A and C (no effect). In this alternative, no Forest Service potable water sources are used for dust abatement and a proof or permission of water right would be provided to the Forest Service. No net depletion would occur unless the water is in addition to uses already under water right (vs. change of use or purchasing other users' water rights). The amount of water needed for road watering is considered to be undetectable to the Upper Colorado River basin. (For example, this use would likely qualify, as a *de minimus* use in Idaho and a water right would not be needed.) No downstream effects to water quality would occur since Moon Lake Reservoir would trap sediment, store incoming water, and control water releases downstream.

The risk to area springs from the proposal is as negligible as for Alternatives A and C. The cumulative effect on other activities in the general Moon Lake area is similar to Alternative C (low).

Regarding future activity, which would be reasonably foreseeable after this exploration activity, effects would be similar to Alternative A. Compared to Alternative C, there would be a longer period before rehabilitation, and then activities similar to Alternative C would occur.

Hydrology/Water Quality - Mitigation Measures – (Alternative B):

1. All of the mitigation measures in Alternative C – No Action (Hydrology) are included for the end of the project.

2. In the campsite area, no structures or activity would be permitted in the draw located just behind the existing trailer or in the large draw about 500 feet behind. Structures or activity should be no further south than the existing trailer, and preferable closer in so as not to be on the edge of the draw. Both proposed trailer sites would need to be approved on-site by the Forest Service to ensure that these collection draws are avoided; the Uintah Mountain Copper Company (UMCC) Camp/Ore Storage and Transfer Map (Map 3) shows a new trailer further back than the existing trailer, and this would need to be pulled in to ensure it is off the draw. No temporary structures other than those on the site map would be allowed (i.e., no shacks, sheds, horse facilities, etc.) without specific Forest Service authorization including location and type. No trees would be cut without Forest Service authorization. Site disturbance would require post-project seeding; this would be bonded. A Forest-Service approved seed mix and application rate would be used.

3. In the campsite area, the old outhouse would not be used and would be removed incorporating any applicable federal, state or Forest Service guidelines. Human waste would be accommodated by self-contained portable units in an earth tone color (e.g., sand brown or olive green). Pumping and/or removal of waste would be according to commercial contractor recommendations, and any applicable Forest Service or State health policies, and in a responsible manner to avoid overfilling. UMCC would require all workers related to the proposed project (direct employees and contractors) to use the self-contained portable units. The number of portable sanitation units required at both the camp and ore extraction sites would depend on the number of people using the site including both day and overnight users. Any spills would be reported immediately to Forest Service and considered a biological hazard; immediate containment efforts are required. Sawdust, kitty litter, or other absorbent material would be kept on-site, along with body substance isolation gloves and footwear (rubber, latex, etc.) in case of a spill during pumping or transport.

4. At the ore storage/transfer site, the power line on the east edge of the ore storage/transfer site would be the eastern limit of any use or disturbance. No sediment, ore, chemical, or other material would be allowed to extend east of the power line; physical control measures such as certified weed-free straw bales, silt fence, leveling, sediment trap construction, or other Forest Service-approved methods would be implemented prior to ore storage to prevent movement into the nearby collection draw during a precipitation event. At the end of operations, rehabilitation measures would be needed such as excelsior mat or other approved method to ensure that material from the disturbed area stays in place, or disposition of trapped sediment.

5. The 55-gallon fuel drum would be either stored in a location which minimizes spill potential or, if kept on a truck, restrictions would apply to truck use and parking. Examples of restrictions would include that the truck would only be used for equipment service needs (not other general transportation) and parked in a safe location when not in use in order to minimize fuel transport and spill potential, that the drum would only be filled on days with anticipated refueling need, etc.).

6. A spill plan for hazardous materials in a variety of environments (addressing the fuel and maintenance truck, vehicle and equipment maintenance, refueling, and accidental spills from equipment failure) would be prepared by UMCC. The spill plan would include a communications plan. The Forest Service would be immediately advised of any spill and Forest Service instructions followed. Therefore, adequate communications service and equipment are needed to contact the Ashley National Forest Supervisor's Office during work hours or the Uintah Basin Interagency Fire Center (Vernal) or other contact designated in the plan on a 24-hour basis. (This communication would also be needed in reverse so the Forest Service would advise UMCC of fire or other hazards, and this section would be part of a general safety plan.) Immediate measures to absorb any spill would be taken; it would be recommended that kitty litter or other absorbent material be available at all sites. Where excavation and removal had hazards or disadvantages, the Forest Service would request other action. Disposal would be accomplished safely and in accordance with applicable national, state, and Forest Service policies.

7. Within the UMCC access road (upper 2000 feet), UMCC would do pre-project and road maintenance work required by the Forest Service, which would include measures for resource protection, such as roadcut erosion not currently causing a safety or transport hazard. Road improvement or other measures would be required both within and below the UMCC upper section (2000 feet) if deemed necessary to protect water quality (prevent erosion), the road, the spring supplying Moon Lake Resort recreation potable water, or the spring in Section 15, T2N R8W per UMCC "Sample Ore Transport Route Map" *(supplemental Information for USFS Letter of 4/16/01 and Meeting on 5/10/01)*. If improvements were deemed necessary by the Forest Service either within or below the upper 2000 feet of road because of the proposed action, then UMCC would be financially responsible. Any hay or straw used would be certified weed-free. Any terracing would by approved in advance by a Forest Service engineer.

8. The Forest Service could require dust abatement in addition to that prescribed by UMCC if monitoring indicates unacceptable impacts to other resources; the Forest Service could specify whether water alone or chemical dust abatement products would be used. No Forest Service potable water source would be used for dust abatement or other non-potable purpose; no Forest Service recreation site potable water would be used for filling large storage tanks (e.g., pickup bed tank). Permission to use another's water right would be presented to the Forest Service prior to water use. No Forest Service water rights would be used without specific permission as to the quantity and timing of use, as well as access. For chemical dust palliatives, consideration of salts, leaching, runoff/water contamination, and possible effects on vegetation would precede approval by the Forest Service. Forest Service approval would be required prior to transport, use or storage on-site (camp/transfer or ore extraction sites).

9. Woody debris removed for this proposal would be laid perpendicular to the fall line to aid in trapping sediment below the test pit and possibly below the road. Implementation monitoring would ensure woody debris is not placed parallel to the fall line, which would accelerate erosion.

10. A Forest service engineer would approve the design and frequency and would authorize road drainage and area sediment control. Road outsloping would be used in conjunction with designed drainage features (such as dips) located with a frequency and site selection, which avoids concentration of water to an erosive level. The proposed under-road rock drain would need to be evaluated by Forest Service engineer on-site to assess the resistance capacity of the hillslope below and the its ability to handle the anticipated volume of water without resource damage. The engineer also would need to evaluate the strength of the road materials to hold up when wet so piping does not occur. Post-project rehabilitation would need to be developed which would require no/low maintenance. This work would be bonded since monitoring would occur to ensure the structures function in the post-project period.

11. If operations cease before final erosion control is implemented (such as for winter or other work stoppage), temporary stabilization measures would be implemented as recommended by the Forest Service.

12. Monitoring and maintenance of the pit gabion by UMCC would be the same as for the roadcut gabion addressed in Alternative C – No Action (annual monitoring and maintenance for a minimum of 5 years and longer if needed; maintenance also performed if advised by the Forest Service of structural or resource damage). An annual report would be filed with the Forest Service by December 31 of each calendar year.

13. The Forest Service would establish monitoring below the ore extraction site, consisting of water quality and stream channel condition monitoring of Slate Creek and hillside stability monitoring of slopes below the ore extraction site.

4.4.c Hydrology/Water Quality - Alternative C – Baseline Comparison (No Action)

Summary –
With the recommended mitigation measures, no impacts to beneficial uses from structures, human waste, or test pit/ore extraction activity is anticipated in Slate Creek, Brown Duck Creek, or area springs. Mitigation measures are primarily physical, rather than biological (meaning using vegetation or live material to trap sediment) due to inherent site conditions.

Hydrology/Water Quality - Campsite area –
The existing trailer, outhouse, and sheltered worktable with fireplace would be removed. Seeding would not likely be required due to the minimal impact which currently exists and the likelihood that native vegetation would fill the small bare areas left by the work area, trailer and outhouse. Noxious weed control would be needed for 5 years to ensure these bare areas are not inappropriately colonized. Compared to Alternatives A and B, the activities herein would occur within about 1 work season (vs. ongoing 10-30 years) and no concentrated activity would occur after rehabilitation.

Hydrology/Water Quality - Ore Storage/Transfer Site –
No change from current condition, which is undisturbed. Stream conditions in Slate Creek and Brown Duck Creek are similar to Alternatives A and B.

Hydrology/Water Quality - Hazardous Materials at Ore Storage/Transfer Site, Roads, and Test Pit /Ore Extraction Site –
Rehabilitation work is expected to be of shorter duration and with less equipment than either Alternative A or B. Mitigation is included, similar to Alternatives A and B but without requiring a spill plan. As with Alternatives A and B, there is low risk of a spill impacting streams.

Hydrology/Water Quality - Roads –
At the ore extraction area, several road cuts exist from primary and spur roads. These are expected to catch earth materials early in the erosion process and help prevent movement downslope. If cuts do not reach a stable angle, or if precipitation patterns maintain erosion, the cuts could continue upslope, continually releasing new earth materials. Old road cuts downslope below this proposal, which have been determined to be rehabilitated, also offer

physical trapping of earth materials moving downslope, although some minor erosion is occurring on some of those fill slopes.

The road below the test pit/ore extraction area has areas where water is collecting and/or creating an erosive channel, sometimes flowing down the road at snowmelt. Drainage and erosion stabilization need to consider all types of water, such as snowmelt, summer thunderstorms/high-intensity events, and smaller events, which could cumulatively saturate soils.

Stabilization of cut slopes around and below the testing/ore extraction site would include the existing gabion structure, roadcuts capturing sliding rock/earth and helping build back an angle of repose naturally, and closing the upper 2000 feet of road and associated spur roads to public use.

UMCC has suggested that spur road reclamation include pulling in the outside road edge and contouring the road "to the lay of the existing slope". Pulling in the fill slope is often desired; however, some areas on this particular site could have lowered stability resulting, either because the fill slope is already stabilizing and this action would disturb it or because the fill slope is too erosive and could unravel with disturbance.

Compared to Alternatives A and B, road stabilization and reclamation occurs within about 1 season of work (vs. pre-project and use 10-30 years), with closeout monitoring and maintenance similar to Alternatives A and B.

Hydrology/Water Quality - Test Pit /Ore Extraction Site –
Rehabilitation of this steep, rocky site would not include revegetation of all disturbed areas due to the expected inability to immediately stabilize soil or establish desired vegetation. Successful establishment of any seed on this harsh site is questionable; even if germination were successful, long-term survival is questionable due to lack of natural topsoil and droughty soil conditions. The proximity to wilderness suggests desired use of native species or short-lived, non-spreading non-native varieties. The introduction of topsoil imported from other areas along with its inherent seed source, and the application of native seed (considering the limited commercial availability of native species) would not be considered a rehabilitation enhancement in this case. The process of hauling in topsoil and spreading it mechanically could increase site disturbance and make reclamation more difficult. Indiscriminate introduction on non-native seed could lead to long-term ecological imbalance at this remote site.

The natural draw below the test pit/ore extraction site likely concentrated debris and earth materials to some degree prior to initial mineral activity. Similar slopes along the road below the proposed ore extraction site exhibit more ground cover both from live and dead vegetation. It thus appears that past exploration activity has increased the amount of earth material movement and general instability of this chute.

Compared to Alternatives A and B, there is less disturbance over time at the top of the natural draw so less potential for exacerbation of soil/debris movement downslope. Rehabilitation

activities occur within about 1 work season, with monitoring and maintenance similar to Alternatives A and B.

Hydrology/Water Quality - Cumulative Effects –
There is ongoing natural erosion in the Slate Creek and Dry Canyon drainages. Soils in these drainages have high geologic erosion ratings and active erosion is occurring in the upper end of each of the two drainages. This erosion is adding sediments to downslope areas within the drainages, including the project area.

Influences and effects are similar to Alternative A and B, except that mineral activity is not prolonged and rehabilitation activity takes precedence. Short-term soil disturbance would occur through the rehabilitation period but no effect on Brown Duck Creek would be detectable.

No effect on the Upper Colorado River Basin would occur, either in water quality or quantity. As with Alternatives A and B, there would be no effect on the drinking water sources providing water to the Moon Lake Reservoir recreation sites.

Regarding reasonably foreseeable activity, there would be short-term rehabilitation activity and annual reclamation monitoring, with periodic maintenance activities as needed to ensure reclamation success.

Hydrology/Water Quality - Mitigation Measures – Alternative C:

1. Removal of camp area structures would occur during dry ground/road conditions and all activity would avoid any depressions/draws in order to minimize soil compaction or groundwater disturbance. (Refer to Alternative A for discussion of draws in this area, which include the area just behind the trailer and a larger area around 500 feet behind the trailer.) No temporary structures would be allowed (i.e., no shacks, sheds, horse facilities, etc.) without specific Forest Service authorization including location and type. Site disturbance or rehabilitation of bare ground would require post-project groundwork or seeding; this would be bonded. A Forest-Service approved seed mix and application rate would be used.

2. The old outhouse would be removed incorporating any applicable federal, state or Forest Service guidelines.

3. UMCC would be required to install Forest Service-approved low/no maintenance drainage structures along the upper 2000 feet of road (UMCC road), such as frequent drainage dips to remove runoff water before it concentrates and erodes the downhill slope, and hardened receptor sites on fill slopes. The "low maintenance" refers to an anticipated need for UMCC to perform or finance monitoring and minor refinements to the drainage system in the first few years, with the ultimate goal of no maintenance. This work would be bonded.

4. Monitoring, maintenance and repair of the existing roadcut gabion would be performed or financed by UMCC annually for a minimum of 5 years and longer if needed (so that the possibility of monitoring through some wet years is included). Monitoring, maintenance and repair would also be required by the Forest Service during any monitoring period if structural or resource damage was evident. Maintenance by UMCC would include stabilization of any resource damage resulting from failure or maintenance/repair needs, as well as preventive care. This work would be bonded. An annual report would be filed with the Forest Service by December 31 of each calendar year.

5. Pre- and post-cleanup road improvement or other measures would be required both within and below the UMCC upper section (2000 feet) if deemed necessary to protect water quality (prevent erosion), the road, the spring supplying Moon Lake Resort recreation potable water, or the spring in Section 15, T2N R8W per UMCC "Sample Ore Transport Route Map" *(supplemental Information for USFS Letter of 4/16/01 and Meeting on 5/10/01)*. If improvements were deemed necessary by the Forest Service either within or below the upper 2000 feet of road in order to remove UMCC equipment, then UMCC would be financially responsible. This work would be bonded.

6. Pulling up fill slope materials to recontour roads would require on-site consultation with a Forest Service engineer for site-specific evaluation on each road segment in order to avoid creating any new erosion concerns.

7. The Forest Service would be immediately advised of any hazardous material spill; therefore, adequate communications service and equipment would be needed to contact the Ashley National Forest Supervisor's Office during work hours or the Uintah Basin Interagency Fire Center (Vernal) or other contact designated in the plan on a 24-hour basis. (This communication would also be needed in reverse so the Forest Service would advise UMCC of fire or other hazards, and this section would be part of a general safety plan.) Immediate measures to absorb any spill would be taken; it would be recommended that kitty litter or other absorbent material be available at all sites. Where excavation and removal had hazards or disadvantages, the Forest Service would request other action. Disposal is to be accomplished safely and in accordance with applicable national, state, and Forest Service policies.

4.5 Air Quality *(refer to Issue #5 – Air Quality, Section 1.8, Chapter 1)*

4.5.a Air Quality - Alternative A – Current Plan of Operations (Proposed Action)

Air Quality - Deposition and Acidification of Wilderness Lakes –
The contributions to air pollution include ground disturbance and use of motorized equipment outside the Wilderness including gasoline and diesel engines to perform test pit activity and rehabilitation work as well as camp area structure removal. The primary source of nitrates or sulfates within the Wilderness would be from gas or diesel engines. The increased duration and quantity of emissions, noise and dust compared to Alternative C – No Action increases the

possibility of pollutant transport within the Wilderness. The prevailing winds in the area are west/southwest (NE Utah Airshed Work Group, 2001). The closest Wilderness lakes are Big and Little Dog, Brown Duck, Island, and Kidney Lakes. These lakes lie approximately 2.5-4 miles east and north of the project area. Because of the prevailing wind direction, effects to wilderness lakes are unlikely. No wilderness lies due west or southwest of the project area. Moon Lake Reservoir (outside Wilderness) is the only lake in that trajectory for many miles.

Air Quality - Standard Visual Range –
On calm days, dust could linger in the area and be observable or a potential nuisance to recreationists in the Moon Lake area or those en route to or from the Wilderness along the Forest Service trail. The Wilderness lies outside of the Slate Creek drainage; it is possible that dust would cross the drainage divide and enters the Wilderness. However, the prevailing winds suggest that most dust and chemical air pollutants would be outside the Wilderness and would be transported down the Slate Creek drainage.

Air Quality - Cumulative Effects –
Other air quality contributors in the area include vehicles and boats from recreation uses around Moon Lake Campground. These users could observe dust and/or hear noise on the hillside during pre-project preparation, project implementation, and post-project rehabilitation. Some noise could cross the Wilderness boundary. Activities would be highly visible from the Forest Service trail leaving the Wilderness in Section 10 between Brown Duck Creek and Sate Creek. However, this section of trail is outside of Wilderness. The duration and amount of noise and dust are greater than in Alternative C – No Action.

If the project does not lead to further mineral excavation, effects would continue through the rehabilitation work at a level comparable to that experienced during exploration. Activity would then cease after rehabilitation except for continued monitoring of reclamation and necessary maintenance. If the project does lead to further mineral excavation (as approved in a separate NEPA document), then the small area under development at any one time (due to less than 2 acres total new disturbance and rehabilitation concurrent with operations) would result in effects similar to the proposed action through the excavation period (estimated at 10-30 years) and subsequent rehabilitation.

4.5.b Air Quality - Alternative B – Modified Plan of Operations

Air Quality - Deposition and Acidification of Wilderness Lakes –
The contributions to air pollution are similar to those presented in Alternative A (Proposed Action) and higher than in Alternative C (No Action).

Air Quality - Standard Visual Range –
The contributions to dust and chemical air pollution are similar to those presented in Alternative A (Proposed Action) and higher than in Alternative C (No Action).

Air Quality - Cumulative Effects –
The cumulative effects are similar to those presented in Alternative A (Proposed Action) and higher than in Alternative C (No Action) due to the longevity of the reasonably foreseeable mineral activity (assumes marketable product).

Air Quality - Mitigation Measures –

1. The Forest Service would monitor qualitative wilderness values such as noise, odor and dust during all aspects of project (pre/post and project). Additional refinements or restrictions to project activities could be needed.

2. No Forest Service potable water source would be used for dust abatement or other non-potable purpose; no Forest Service recreation site potable water would be used for filling large storage tanks (e.g., pickup truck bed-sized tank). Permission to use a water right would be presented to the Forest Service prior to water use. No Forest Service water rights would be used without specific permission as to the quantity and timing of use, as well as access location since dust abatement is not an automatic right. Any dust palliative used, other than water, would need to be evaluated for salts, leaching, runoff/water contamination, or possible effects on vegetation and approved by the Forest Service prior to transport, use or storage on-site (camp/transfer or test pit/ore extraction sites).

4.5.c Air Quality - Alternative C – Baseline Comparison (No Action)

Air Quality - Deposition and Acidification of Wilderness Lakes –
Contributions to air pollution include ground disturbance and use of motorized equipment outside the Wilderness including gasoline and diesel engines to perform rehabilitation work and remove structures from the camp area. The contribution of nitrates or sulfates within the Wilderness would be from gas or diesel engines. No significant change in Wilderness levels is expected from activities in this alternative which would be of short duration and generally downwind of the Wilderness. No changes to Wilderness lake pH levels are anticipated.

Air Quality - Standard Visual Range –
Potential impairments to visibility include hydrocarbons and dust/airborne sediment from motorized equipment and rehabilitation activities outside the Wilderness. No discernible impairment of long-term visibility/standard visual range within the Wilderness is expected due to the topography and prevailing winds, which are expected to keep dust from crossing the slate Creek/Brown Duck divide and into the Wilderness. However, there could be weather conditions, which transport these materials into the Wilderness.

Air Quality - Cumulative Effects –
The types of other air quality contributions in the area are the same as those described in Alternative A. Dust and noise from the project rehabilitation could be a nuisance to other users but of lesser amount and duration compared to Alternatives A and B due to the reduced equipment needs and shorter project completion time. Periodic monitoring and maintenance of rehabilitation measures would create noise and perhaps dust intermittently over perhaps 5-20 years.

Air Quality - Mitigation Measures –

Same as Alternative B – Modified Plan of Operations

4.6 High Uintas Wilderness *(refer to Issue #6 – High Uintas Wilderness, Section 1.8, Chapter 1)*

4.6.a High Uintas Wilderness - Alternative A – Current Plan of Operations (Proposed Action)

Direct

High Uintas Wilderness - Noise pollution - Because of the Paint Mine location at an elevation between 10,200 and 10,400 feet, the mitigation or augmentation by winds aloft would likely vary in response to orographic effects from the mountain range and changes in meteorological pressure. During earlier operations, engine noise and clanking of heavy equipment could be heard along the access trail to Brown Duck Reservoir outside the wilderness. No reports of the noise being heard inside the wilderness have been recorded.

High Uintas Wilderness - Visibility - Much of the terrain inside the wilderness for the first several miles obscures direct line of sight of the mine area. A visibility study using Geographic Information System (GIS) analysis indicates that certain mountain ridges and mountain peaks afford a direct line of sight to the mine location. Lovina Mountain was identified as one mountain and the furthest mountain that had direct line of sight from the ridge of the High Uintas some 16 miles away. A number of areas on ridges in between Lovina Mountain and the mine location were shown to have direct line of sight. What would actually be seen would be debatable since the use of binoculars would certainly allow anyone with direct line of sight to see the mine area during operation and to identify as man-made the tiers of gabions that would be left for reclamation and stabilization.

Indirect

Wilderness Values - The mine is located outside the wilderness and any intrusion by sound or visibility would degrade the values of the wilderness resource. Any sight of mine operations would be a direct reminder of the "growing mechanization" that as defined in the 1964 Wilderness Act. This Act established the National Wilderness Preservation System (NWPS) to protect lands "designated for preservation and protection in their natural condition" that "....generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;" and "has outstanding opportunities for solitude..." (PL 88-577).

High Uintas Wilderness – Cumulative Effects-Alternative A –
The following activities were considered for the cumulative impacts on the adjacent Wilderness:

- past firewood gathering and pole cutting along the Forest Service access road
- rock pit and access road off of the Forest Service access road
- proximity of Moon Lake Reservoir and Recreation Complex
- dispersed recreation (non-motorized and motorized) in the immediate area
- hunting
- past exploration and development work at the mine area
- old roads and road beds intersecting the Forest Service access road and in other locations in the immediate vicinity of the Wilderness boundary
- past and ongoing exploration work at the mining claims in the Dry Canyon area

Note: No future recreation developments, trails, special uses, timber sales, or other resource management activities are planned adjacent to the Wilderness boundary at this time.

The ore excavation and hauling activities as described for Alternative A could result in noise and visual sighting along the Wilderness boundary during the operation and rehabilitation periods, including extended periods associated with the Reasonable Foreseeable Actions.

4.6.b High Uintas Wildness - Alternative B Modified Plan of Operations

Direct

High Uintas Wilderness - Noise pollution - Because of the location of the mine at an elevation between 10,200 and 10,400 feet, the mitigation or augmentation by winds aloft would likely vary in response to orographic effects from the mountain range and changes in meteorological pressure. During earlier operations, engine noise and clanking of heavy equipment could be heard along the access trail to Brown Duck Reservoir outside the wilderness. No reports of the noise being heard inside the wilderness have been recorded. Noise of machinery could be carried by winds, which would affect the wilderness visitors experience by invading the natural sounds and sense of solitude.

High Uintas Wilderness - Visibility – Much of the terrain inside the wilderness for the first several miles obscures direct line of sight of the mine area. A visibility study using Geographic Information System (GIS) analysis indicates that certain mountain ridges and mountain peaks afford a direct line of sight to the mine area location. Lovina Mountain was identified as one mountain and the furthest mountain that had direct line of sight from the ridge of the High Uintas some 16 miles away. A number of areas on ridges in between Lovina Mountain and the mine area location were shown to have direct line of sight. What would actually be seen would be debatable since the use of binoculars would certainly allow anyone with direct line of sight to see the mine area during operations and to identify as man-made the tiers of gabions that would be left for reclamation and stabilization. Noise of machinery could be carried by winds,

which would affect the wilderness visitors experience by invading the natural sounds and sense of solitude.

Indirect

Wilderness Values - The mine area is located outside the wilderness and any intrusion by sound or visibility would degrade the values of the wilderness resource. Any sight of mine operations would be a direct reminder of the "growing mechanization" that is addressed in the 1964 Wilderness Act. This Act established the National Wilderness Preservation System (NWPS) to protect lands "designated for preservation and protection in their natural condition" that "....generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;" and "has outstanding opportunities for solitude..." (PL 88-577).

High Uintas Wilderness - Mitigation Measures –

- ✓ Project and rehabilitation work would be avoided on any legal holidays (defined as those for which the Forest Service receives a paid holiday) between June 15 and September 10 to minimize conflicts with recreation or Wilderness experiences.
- ✓ The Forest Service would monitor qualitative wilderness values such as noise, odor and dust during all aspects of project (pre/post and project). Additional refinements or restrictions to project activities could be needed.

High Uintas Wilderness – Cumulative Effects-Alternative B –
The following activities were considered for the cumulative impacts on the adjacent Wilderness:

- past firewood gathering and pole cutting along the Forest Service access road
- rock pit and access road off of the Forest Service access road
- proximity of Moon Lake Reservoir and Recreation Complex
- dispersed recreation (non-motorized and motorized) in the immediate area
- hunting
- past exploration and development work at the mine area
- old roads and road beds intersecting the Forest Service access road and in other locations in the immediate vicinity of the Wilderness boundary
- past and ongoing exploration work at the mining claims in the Dry Canyon area

Note: No future recreation developments, trails, special uses, timber sales, or other resource management activities are planned adjacent to the Wilderness boundary at this time.

Alternative B would have the same cumulative effects as for Alternative A, including the Reasonable Foreseeable Actions. Noise and visual sightings could be apparent along the Wilderness boundary during the operation and rehabilitation periods.

4.6.c High Uintas Wilderness - Alternative C Baseline Comparison (No Action)

Direct

High Uintas Wilderness - Noise - Natural sounds would be abundant and ambient without any intrusion or interruption, incept those that would occur during rehabilitation of the mine area.

High Uintas Wilderness - Visibility – After rehabilitation of the road spurs and the access road (used during past exploration work) was completed and weathering softened the visual affects, the visions of landscapes could contain natural settings and be absent of "growing mechanization" or the "imprint of man's work" (PL 88-577)

Indirect

Wilderness Values – The High Uintas Wilderness rated 100% using the Wilderness Attribute Rating System (WARS) during the Roadless Area Review and Evaluation during the early 1970's. (Based on the success of rehabilitation of the spur and access road, at the mine area, the Lake Fork drainage and the high ridge tops surrounding the drainage could continue to appear as natural and unimpaired as it did when the WARS rating system was conducted.

High Uintas Wilderness - Mitigation Measures –

✓ The Forest Service would monitor qualitative wilderness values such as noise, odor and dust during all aspects of project (pre/post and project). Additional refinements or restrictions to project activities could be needed.

High Uintas Wilderness – Cumulative Effects-Alternative C –
The following activities were considered for the cumulative impacts on the adjacent Wilderness:

- past firewood gathering and pole cutting along the Forest Service access road
- rock pit and access road off of the Forest Service access road
- proximity of Moon Lake Reservoir and Recreation Complex
- dispersed recreation (non-motorized and motorized) in the immediate area
- hunting
- past exploration and development work at the mine area
- old roads and road beds intersecting the Forest Service access road and in other locations in the immediate vicinity of the Wilderness boundary
- past and ongoing exploration work at the mining claims in the Dry Canyon area

Note: No future recreation developments, trails, special uses, timber sales, or other resource management activities are planned adjacent to the Wilderness boundary at this time.

Alternative C would have the same cumulative effects as for Alternative A and B, but for a shorter period of time (during rehabilitation activities, only. Noise and visual sightings could be apparent along the Wilderness boundary during the rehabilitation period.

4.7 Roadless Area – Inventoried Roadless Area Surrounding the Project Area *(refer to issue #7, Section 1.8, Chapter 1)*

The Forest Service access road, mine area and past exploration and development work has direct influence on the attributes of the adjacent inventoried roadless area. The Forest Service access road and other past activities along the main access road (rock pit, mining claim, forest product sales) have resulted in a zone influence within adjacent inventoried roadless area. For analysis purposes, this zone of influence is defined as….the inventoried roadless area within 500 feet to 0.5 miles of the road, mine areas, and project work.)

The Final Environmental Impact Statement for Roadless Area Conservation was released on December 12, 2000. The Final Rule for Roadless Area Conservation was released in the Federal Register on January 12, 2001. This Rule recognizes prior rights associated with existing valid mining claims, and leasable and salable minerals presently leased or under contract.

4.7.a Roadless Area - Alternative A – Current Plan of Operations (Proposed Action)

Users traveling through this zone of influence would occasionally see haul trucks and excavation equipment and often hear equipment noise during various daylight hours throughout the 60-day period illustrated in *Table 2.1 – Schedule of Proposed Work, page 2-8*. Users could also see occasional dust plumes from the same operations during the same time period.

Refer to Chapter Three, Section 3.2.g.3), pages 3-24 through 3-26 for descriptions of the following roadless area attributes and current conditions and ratings. All impacts to these attributes would occur during the 60-day operations period. The visual aspects of some of the attributes would be affected long-term, i.e., the Forest Service access road would be open for administrative use and would be open to the public by permit only, and site rehabilitation efforts at the project site or mine area would be noticeable for many years.

The existing ratings for roadless area attributes within the Mines area and surrounding area take into consideration existing conditions and activities, such as ongoing exploration work at the nearby Dal Cuinn Claims, grazing allotment activities, etc.

Natural Integrity –

The Forest Service access road, mine area and all mine operations would be outside of the inventoried roadless area. Natural integrity of the inventoried roadless area adjacent to these

facilities and operations would remain in tact and operating, and therefore, natural integrity would remain moderate.

The camp/ore storage and transfer sites are located within the inventoried roadless area. The 1.26 acres of disturbance associated with the camp/ore storage and transfer sites would continue during operations period (60 days). This area would be used as a staging area, campsite for workers, and ore storage area. Natural integrity of the area and zone of influence would change from moderate to low or very low (low or very low degree of natural integrity) during the operations period; then return to moderate after completion of all project activities.

Apparent Naturalness –

Even with user awareness of the inventoried roadless area boundary, this alternative would diminish the apparent naturalness of the adjacent inventoried roadless area within the above described 0.5 to 1.0 mile "zone of influence". Due to the proximity of project activities at the mine area and along the Forest Service access road, the visitor's perception of human impacts to the adjacent inventoried roadless area would change from moderate to high (high perception of human impacts); then return to moderate after completion of operations and rehabilitation work.

Evidence of project activities at the camp/ore storage and transfer sites would diminish the apparent naturalness inventoried roadless area. The existing rating of moderate would change to high (high perception of human impacts); then return to moderate after completion of operations and rehabilitation work.

Evidence of project activities noise, visual obtrusions, dust, etc., would greatly diminish beyond the 0.5 to 1.0 mile zone of influence.

Remoteness –

The feeling of remoteness would remain moderate along the Forest Service access road within the 0.5 to 1.0 mile zone of influence of the adjacent inventoried roadless area. Vegetative screening of the road by dense stand of trees would provide some sense of remoteness.

This moderate rating would change to a rating of low or very low (low or very low degree of remoteness) in the zone of influence surrounding the mine area and at the camp/ore storage and transfer sites, due to existing and proposed site disturbances, lack of vegetative screening and exposed surface conditions. Existing site disturbance at the mine area site from past exploration and development work is evident from the various points to the east along the Brown Duck and Slate Creek Trails, #'s 061 and 062. The site disturbance at the existing campsite area is highly visible for the 6.2-mile access road. The feeling of remoteness would be mostly impacted during periods of activity, such as excavation, ore hauling and site rehabilitation work. This would be most evident in the area surrounding the mine operation, during excavation and removal of overburden and ore, during use of the camp/ore storage and transfer sites, and during site rehabilitation. The rating within the zone of influence at the mine

area and at the camp/ ore storage and transfer sites would remain low after completion of all project activities, including site rehabilitation.

Solitude –

This attribute is rated moderate in the zone of influence, except for the existing campsite area, where is rated as low. Visitors hiking through the zone of influence would experience occasional sightings of the access roads and past exploration and development, and occasional sounds and sights of dispersed and developed recreation associated with the Moon Lake Recreation Complex.

The alternative would change the moderate rating for the zone of influence to low (low degree of solitude) along the Forest Service access road, and very low at the mine area during the operations and site rehabilitation periods, after which the rating would return to moderate. The rating of low at the campsite would change to very low during operations and rehabilitation periods, the return to a rating of low.

Special Features –

There are no unique features within the zone of influence of the adjacent inventoried roadless area.

Several prominent peaks and ridge tops of the High Uintas Wilderness area are visible from the mine area. Distances of these wilderness features from the mine area range from five to 20 miles.

Manageability/Boundaries

This alternative would not affect the ability to manage and maintain the boundary of the adjacent inventoried roadless area at the mine area and along the Forest Service access road. The roadless area attributes would be affected during the operations period, and would return to existing ratings upon termination and completion of project work at the mine area and along the Forest Service access road.

The camp/ore storage and transfer sites are located within the inventoried roadless area, and continued use of the areas would affect the manageability of the inventoried roadless boundary.

4.7.b Roadless Area - Alternative B – Modified Plan of Operations

Alternative B is designed to supplement the environmental protection measures proposed by Uintah Mountain Copper Company for Alternative A – Proposed Action; and thereby further reduce or eliminate impacts to natural resources and forest uses. The Forest Service mitigation measures would be applied to natural resources and forest uses within the right-of-way of the Forest Service access road, the camp/ore storage and transfer sites near Forest

Development Road 131, and the immediate vicinity of the mine area. All but the camp/ore storage and transfer sites are outside of the inventoried roadless area.

Roadless Area Attributes at the mine area and along the Forest Service access road – The Forest Service mitigation measures included with Alternative B would not improve the conditions or reduce the ratings of the attributes found in the zone of influence of the adjacent roadless area.

With the exception of the Solitude attribute, the ratings for roadless area attributes would not differ from those ratings described for Alternative A, i.e., they would either remain as moderate or would be reduced to low to very low during project activities; then return to or maintain their existing rating of moderate upon completion of project operations and site restoration activities. As with Alternative A, Alternative B would also change the moderate rating for Solitude for the zone of influence to: low along the Forest Service access road, and very low at the mine area during the operation and site rehabilitation periods, after which the rating would return to moderate. Solitude would be improved for many users by disallowing project operations from Friday noon through Sunday. This requirement would maintain the existing rating of moderate for the zone of influence during this time period.

Roadless area attributes at Camp/Ore Storage and Transfer Sites –
Removal of the facilities and complete and full rehabilitation at the camp/ore storage and transfer sites would change the high perception of human impacts (Apparent Naturalness) to a moderate rating, and the low and very low ratings to a moderate rating for the attributes of Natural Integrity, and Remoteness. The Manageability/Boundaries attribute would be improved by removal of all facilities and complete and full rehabilitation of surface disturbances.

Mitigation Measures – Alternative B - Modified Plan of Operations

- ✓ Project activities would not be allowed from Friday noon through Sunday during the operation and site rehabilitation periods – to enhance the inventoried roadless area attribute of Solitude.
- ✓ Maintenance of the Forest Service access road would be limited to removal of down trees that fall across the road, and minor ditch work to control or minimize concentrated water runoff – to maintain the inventoried roadless area attribute of Remoteness.
- ✓ All above ground facilities at the mine area and camp/ore storage and transfer sites would be removed (signs, trailers, outbuildings, powerline, telephone line, poles, etc.) – to return a moderate rating to the inventoried roadless area attribute of Remoteness.

4.7.c Roadless Area - Alternative C – Baseline Comparison (No Action)

Alternative C assumes the existing operations are ended and new exploration and development activities do not occur. For baseline comparisons, the alternative describes and displays the results of full and complete rehabilitation of all disturbed areas, including re-

establishment of vegetative cover where possible, and implementation of erosion control measures and follow up monitoring.

This alternative would maintain or slightly improve the current user experience in the zone of influence for the adjacent inventoried roadless area. The evidence of past exploration activities and other forest uses within the zone of influence would remain for many years. The 6.2-mile access road would be maintained as a limited access public road (open to the public by permit only). Successful vegetative regeneration at the mine area would take five or more years, due to the poor soils and shallow and rocky surface conditions.

Natural Integrity –

Natural integrity of the inventoried roadless area adjacent to the mine area and access road would remain as moderate and slightly improves over time.

Natural integrity of the campsite would remain be moderate after rehabilitation work.

Apparent Naturalness –

The apparent naturalness within the zone of influence of the adjacent inventoried roadless area at the mine area and along the Forest Service access road would remain moderate with or without this alternative, and only slightly improve over time.

Evidence of project rehabilitation activities (noise, visual obtrusions, dust, etc.) would not occur or exist or would be rare beyond the 0.5 to 1.0 mile zone of influence.

As described in Chapter Three, *Section 3.2.g.3),* evidence of man's activities, such as past mineral exploratory drilling operations, old roads, other mining claims, a rock pit, and firewood gathering and pole cutting exist within portions of the adjacent inventoried roadless area. The apparent naturalness of the campsite area and zone of influence would change from rating of low to a rating of moderate.

Remoteness –

The feeling of remoteness would remain moderate along the Forest Service access road within the 0.5 to 1.0 mile zone of influence of the adjacent inventoried roadless area. Vegetative screening of the road by dense stand of trees would provide some sense of remoteness. This condition would change to a rating of low in the zone of influence surrounding the mine area, due to past site disturbances, lack of vegetative screening and exposed surface conditions. Site disturbance at the mine area from past exploration and development work is evident from various points to the east along the Browns Duck and Slate Creek Trails, #'s 061 and 062.

The feeling of remoteness at the campsite area would remain with a low rating, due to the proximity of Forest Road 131 and the Moon Lake Electric powerline.

Solitude –

This attribute has an exiting rating of moderate in the zone of influence. Visitors passing through the zone of influence would continue to experience occasional sightings of the Forest Service access road and past exploration and development work, and occasional sounds and sights of dispersed and developed recreation associated with the Moon Lake Recreation Complex.

The alternative would maintain the moderate rating for the zone of influence along the at the mine area and along the Forest Service access road.

The alternative would create a moderate rating of solitude at the campsite.

Special Features –

There are no unique features within the zone of influence of the adjacent inventoried roadless area.

Several prominent peaks and ridge tops of the High Uintas Wilderness area are visible from the mine area. Distances of these wilderness features from the mine area range from five to 20 miles.

Manageability/Boundaries

This alternative would not affect the ability to manage and maintain the boundary of the adjacent inventoried roadless area at the mine area and along the Forest Service access road. The access road and existing mine area would remain outside of the inventoried roadless area.

The alternative would allow the inventoried roadless area boundary to be better defined and managed at the campsite area.

Mitigation Measures – Alternative C – Baseline Comparison (No Action)

- ✓ Project activities would not be allowed from Friday noon through Sunday during the site rehabilitation periods – to enhance the inventoried roadless area attribute of Solitude.
- ✓ All above ground facilities at the mine area and campsite would be removed (signs, trailers, outbuildings, powerline, etc.) – to maintain the inventoried roadless area attribute of Remoteness.

4.7.d Roadless Area - Cumulative Effects

The following activities were considered for the cumulative impacts on the inventoried roadless area adjacent to the all project activities and infrastructure:

- past firewood gathering and pole cutting along the Forest Service access road
- rock pit and access road off of the Forest Service access road
- proximity of Moon Lake Reservoir and Recreation Complex
- dispersed recreation (non-motorized and motorized)
- hunting
- past exploration and development work at the mine area
- old roads and road beds intersecting the Forest Service access road and in other locations adjacent to the inventoried roadless area
- mining claims in the Dry Canyon area

Note: No future recreation developments, trails, special uses, timber sales, or other resource management activities are planned at this time.

Cumulative Effects for Alternative A – Current Plan of Operations (Proposed Action) and Alternative B – Modified Plan of Operations, including Reasonable Foreseeable Actions –

-Roadless Area Attributes at the mine area and along the Forest Service access road – These alternatives would maintain the ratings of the most of the existing attributes within the zone of influence of the adjacent inventoried roadless area at the mine area and along the Forest Service access road. The quality of several of the attributes would be reduced during operation and site rehabilitation activities, but would return to the previously existing condition upon completion of project under both alternatives. For this reason, there would be no significant effects on existing roadless characteristics when considering these alternatives in conjunction with the other activities (listed above) within the zone of influence of the inventoried roadless area.

-Roadless Area Attributes at the camp/ore storage and transfer sites –
Alternative A would affect 1.50 acres of inventoried roadless area.
Alternative B would also affect the same acreage, but during operations only. The 1.50 acres would be completely and fully rehabilitated, including the removal of all facilities.

Cumulative Effects for Alternative C – Baseline Comparison (No Action) –

-Roadless Area Attributes at the mine area and along the Forest Service access road – This alternative would maintain and slightly improve the current user experience in the zone of influence of the inventoried roadless area at the mine area and along the Forest Service access road; although, the evidence of past exploration and development work and other forest uses mentioned above would remain evident to uses for many years. Therefore, this alternative would slightly decrease cumulative effects of the above activities that have influenced the roadless attributes.

-Roadless Area Attributes at the campsite area –

This alternative would improve the current user experience at the existing site and in the zone of influence. Due to the small area involved (0.25 acres) the alternative would only slightly decrease cumulative effects of the above activities that have influence the roadless attributes.

4.7.e Roadless Area - Monitoring Guidelines

Site inspections would be held biweekly during the operations period to determine effectiveness of mitigation measures. Corrective measures would be implemented within a reasonable time frame.

During operations, Forest Service personnel would spend one day within the zone of influence of the Inventoried Roadless Area and monitor the follow:

- ✓ Metered noise levels of operations
- ✓ Measured sight distances of operations
- ✓ Amount of disturbance to roadside vegetation and vegetation at the camp/ore storage and transfer sites
- ✓ Amount of visible dust resulting from operations

4.8 Cultural Resources *(refer to issue #8, Section 1.8, Chapter 1)*

The excavation area and camp/transfer site were surveyed for cultural resources. No historic or prehistoric evidence or artifacts were found. A concurrence of no effect has been received from the Utah State Historic Preservation Office. The no effect determination is the same for all alternatives.

Cumulative Effects –
No cumulative effects would occur with alternatives and associated reasonable foreseeable actions.

Mitigation Measures –

- ✓ If any historic or prehistoric evidence or artifacts are discovered during any proposed activities, activities at the site would cease and the District Ranger would be notified.

4.9 Visual Resources *(refer to issue #9, Section 1.8, Chapter 1)*

4.9.a Visual Resources - Alternative A – Current Plan of Operations (Proposed Action)

This alternative would have minor effects on the scenery. The gabion structures at the test pit/ore extraction site would be placed along the lower edge of the activity, and would hide the exploration/development activity from views at lower elevations along the Brown Duck Trail. Colors would blend with the characteristic landscape. Some horizontal line effect would be

expected with the creation of fill banks associated with the road and with the gabion retaining walls. This horizontal line effect would be expected to blend with the lines and shadows of the surrounding landscape.

4.9.b Visuals - Alternative B – Modified Plan of Operations

Proposed resource mitigation measures would not change or improve the scenery. Therefore, this alternative would be the same as Alternative A.

The proponent would be required to use rock in the gabion structures that blend in with surrounding colors.

4.9.c Visuals - Alternative C – Baseline Comparison (No Action)

Rehabilitation efforts for this alternative would not change or improve the scenic qualities at the mine area.

Removal of the facilities at the camp/ore storage and transfer sites would return scenic and visual quality to near natural conditions within a one or two years.

4.9.d Visuals - Cumulative Effects

The activities under the proposed action and alternatives and reasonable foreseeable actions, along with past, present, and proposed activities would not change the existing visual resource values and ratings.

4.9.e Mitigation Measures

None proposed.

4.9.f Monitoring Guidelines

None proposed.

4.10 Recreation

Roads and Trails –

Recreation - Alternative A – Proposed Action
Presently few large trucks use Forest road 131 to either enter or exit Lake Fork Canyon, except for trucks used for maintaining the road or facilities in the canyon. The proposed 120 to 140 round trips for hauling material from the site would be an unusual occurrence for the forest visitors using the canyon.

The forest visitors using Forest road 131 for sightseeing and for access to trailheads would be impacted by the additional use by large trucks. The primary concern would be safety on the curves and narrow bridges, and passing clearance with larger RV's and motor homes.

Recreation - Alternative B – Modified Plan of Operations
Under this alternative the impacts would be similar to those in Alternative A.

Recreation - Alternative C - No Action
Under this alternative the impacts would be similar to those in Alternative A. In this alternative the impacts would be from moving reclamation equipment in and out of the site. There would be fewer trips, creating fewer or a shorter duration of impact.

Current Recreation Use Patterns –

Recreation - Alternative A – Proposed Action
Overall, recreation use patterns should not be affected by the proposed activity. The project would generate additional noise to the canyon, but due to distance and sound barriers (trees and landforms), noise would not be heard at the developed or dispersed campsites in the canyon. Trucks hauling material from the test pit/ore extraction site to the ore transfer site would not be expected to generate a large amount of noise. Trucks hauling material from the ore transfer site to the pilot plant would be larger and could generate enough noise to detract from the solitude and enjoyment of the forest visitor, especially if allowed to use "jake" brakes. These trucks would enter the main road below the developed recreation sites, but they could be heard from Moon Lake Resort and Moon Lake Campground, and more so from dispersed sites along the travel route.

Recreation - Alternative B – Modified Plan of Operations
Same consequences as Alternative A.

Recreation - Alternative C - No Action
Same consequences as Alternative A with moving reclamation equipment in and out of the site, except there would be fewer trips involved under this alternative so noise duration would be reduced.

Recreation - Cumulative Effects –
There are no other known activities planned in this area that would add to the cumulative effects, including those associated with the reasonable foreseeable actions.

Recreation - Mitigation Measures –

Roads and Trails –
To minimize safety concerns on Forest road 131 the following items should be accomplished: 1) Install proper signing to inform public of hauling; 2) make sure vegetation is adequately cut back on curves to increase sight distance; 3) Allow hauling only during daylight hours.

Current Recreation Use Patterns –
To minimize the additional noise from hauling operations, the following items should be accomplished: 1) Allow hauling only during daylight hours; 2) Do not allow the use of "jake" brakes; 3) Do not allow hauling to take place on Holiday weekends.

Recreation - Monitoring Guidelines –

Roads and Trails –
Request that Recreation Guards monitor and document signing on a regular basis to make sure it is in place and visible, report traffic conditions and impacts from hauling activities to District Ranger. If unforeseen impacts occur, take extra mitigating actions as needed.

Current Recreation Use Patterns –
Establish random listening points at Moon Lake Resort, Moon Lake Campground and dispersed sites and report noise impacts from hauling activities. If unforeseen impacts occur, take mitigating extra actions as needed.

4.11 Facilities, including Public Access and Safety *(refer to issues #10 and #12, Section 1.8, Chapter)*

4.11.a Facilities - Alternative A – Current Plan of Operations (Proposed Action)

The environmental consequences to facilities, public access, and safety are based on Uintah Mountain Copper Company's (UMCC) proposed operations and corresponding protection measures for facilities, public access, and safety are listed in *Section 2.2.a.1)*. Environmental consequences to facilities, public access and safety are in accordance with UMCC's protection measures.

The following subsections are organized by facility, and include effects to public access and safety.

- Existing access and spur roads at the test pit/ore extraction site -
The existing 0.4 miles of access and spur roads within the mine area would be 20 foot rights-of-way, with vehicle use limited to light truck and 5-ton haul trucks. Truck access would be limited to one vehicle at a time (passing would be unsafe due to the narrow right-of-way across steep slopes.

- Road dust should be minimal due to the short road lengths, slow travel speeds, and rocky road surfaces.
- Some clearing of vegetation along these routes would be necessary to eliminate overhanging vegetation and provide space for trucks to turn around and backup.
- Rock fall, upslope bank sloughing, and downslope side casting would occur during and after the proposed operations, due to the steepness of the terrain (greater than 50%). Rock fall could occur during operations on the spur roads used to access the test pit area, and on the spur road used to store overburden from the test pit. Grading would be

necessary to remove the debris from road surfaces. Workers could be subjected to the dangers of falling debris during operation periods. This condition would continue after operations ceased and until rehabilitation efforts were completed and considered successful. Even then, rock fall would continue, due to the steepness of slopes and naturally eroding surface and subsurface conditions. Rock fall downslope would occasionally occur, with possible fall distances greater than 500 feet. Slate Creek Trail (062) is located approximately 1600 to 2000 feet downslope and northeast of potential rock fall origins. There are no public roads downslope of the potential rock fall.

- Existing Forest Service access road – 6.2-mile main access road -
This Forest Service access road would be used to transport all excavation and loading equipment to the mine area during a six-day mobilization period (refer to Section 2.2, page 2-5). The road would also be used for daily travel between the camp/ore storage and transfer sites and the mine area by work crews and service trucks, and as the haul route for the ore removed from the test pit.

Uintah Mountain Copper Company proposes to use 12-ton trucks to haul 650 cubic yards (1600 tons) of ore from the mine area to the camp/ore storage and transfer sites. This use would occur during a 16 to 20 day period. Approximately 260 total round trips would occur during the haul period.

Upon completion of ore removal and reclamation work, all excavation and loading equipment would be transported off the mine area and down the Forest Service access road.

- Overhanging vegetation would be removed to accommodate safe use of the road.
- Road surfaces would be graded at washouts or where other surface conditions warrant removal of obstacles.
- Road dust would result, especially in the lower 3.1 miles where the road surface consists of fine-grained materials.
- Rutting of the road surface would result along portions of the road during wet weather conditions, mainly in the lower 3.1 miles.
- The Forest Service access road runs underneath existing distribution and transmission powerlines in the vicinity of the proposed camp/ore storage and transfer sites. Truckload heights would need to be verified, in order to assure proper clearance between truck/truck loads and the powerlines. Excessive dust from truck and ore loading operations could also cause arcing of electrical power in the vicinity of the road/powerline crossings.

-Camp/Ore Storage and Transfer Sites -
The proposed ore transfer facility is located approximately 50 feet from the existing 14.4/24.9 kV transmission line, under special use permit to Moon Lake Electric.

- Excessive dust from the hauling and ore transfer could cause interference with power transmission. Equipment (trucks and loaders) working in the vicinity of the powerline could cause arcing of electrical power between the line and equipment; and thereby create a safety hazard to equipment operators, as well as disruption of power.

- Forest Development Road (FDR) 131 -
Forest Development Road 131 is a two-lane paved public access road. The road is an extension of the Duchesne County Road and Utah State Road 134, and provides public access to private land within the National Forest administrative boundary, the Moon Lake Reservoir area, and the High Uintas Wilderness Lake Fork Trailhead.

FDR 131 and off-Forest county and state roads would be the travelways for equipment mobilization, service trucks, work crews, and ore transport during the 60-day operations period scheduled by Uintah Mountain Copper Company.

During the ore hauling period of 16 days, 20 to 30-ton trucks would make 60 to 70 one-way long-haul trailer trips to UMCC's pilot processing plant in Price, Utah (120 to 140 total passes, 3 to 4 per weekday, each direction).

- The junction of the 6.2-mile Forest Service access road and FDR 131 might need to be widened to accommodate transport and haul trucks and trailers. This would involve reshaping and widening of the access point on the Forest Service access road to allow for proper turning radius.
- Paved road surfaces on FDR 131 would be warped during hot days, due to the thin layer of asphalt surfacing.
- The two cattle guards and two bridges might need to be reinforced to accommodate load weights. Existing load weights limits are 10 tons.
- The heaviest single axle weight expected during UMCC's operational period is 9 tons.
- Safety hazards to traveling public would occur at the junction of the "service" road and FDR 131 during mobilization, ore hauling, and demobilization periods. View distances to the north of the junction are limited to 200 feet by a stand of aspen trees along the west side of FDR 131. Safe view distances need to be 500 feet or greater for the 45 mile speed limit along the road. The south view distance is greater than 500 feet.

4.11.b Facilities - Alternative B – Modified Plan of Operations with mitigation

The environmental consequences to facilities, public access, and safety would be the same as Alternative A.

Mitigation Measures – Alternative B – Modified Plan of Operations –
The following mitigation measures would be required to minimize or eliminated effects, and are in addition to Uintah Mountain Copper Company's (UMCC) protection measures for facilities, public access, and safety *(Section 2.2.a.1), pages 2-19 through 2-22).*

- Existing access and spur roads at the project area -
- UMCC would post a "lookout" at the mine area to monitor rock fall danger during excavation, ore removal, and rehabilitation operations.
- The existing 0.4 miles of access and spur roads within the mine area would be closed as follows:
  The top of cut slopes would be rounded. Roadbeds would not be scarified; rather rock fall would be allowed to fill in the existing roadbed over time. UMCC's Erosion

Control Measures (Section 2.2.a.1) would be applied to all road surfaces, with the exception of the seeding mix. The seeding mix would be as presented in *Section 4.1.a.2), page 4-3*.

- Existing Forest Service access road – 6.2-mile main access road -

- A commensurate maintenance agreement would developed and in place prior to operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.
- Moon Lake Electric Company would be notified prior to equipment mobilization and ore hauling, and asked to inspect the road crossing under the powerline. UMCC would assure that all truck/truck load heights would not damage or interfere with the powerline or powerline operation.

- Camp/Ore Storage and Transfer Sites –

- Moon Lake Electric Company would be notified prior to equipment ore hauling, and asked to inspect the ore transfer site at the near the powerline. UMCC would assure that all ore transfer operations would not damage or interfere with the powerline or powerline operation.
- After completion of all project activities, UMCC would remove all existing structures from the site, as well as any temporary facility used during the project work (signs, trailers, outbuildings, distribution powerline, telephone line, etc.).
- The large fireplace that exists at the "covered work table" site *(Map 4, page 2-11)* would be the only allowed fire location for cooking, warming, or other open fire use.

- Forest Development Road (FRD) 131 -

- A commensurate maintenance agreement would developed and in place prior to operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.
- Weight limits for the 2 cattle guards and 2 bridges would not exceeded. If needed, these structures would be reinforced according to directions from the Ashley National Forest Engineer.

4.11.c Facilities - Alternative C – Baseline Comparison (No Action)

The environmental consequences to facilities, public access, and safety would be only those associated with full and complete rehabilitation of all existing disturbed areas at the mine area and campsite area (areas involved in past exploration activities). Uintah Mountain Copper Company's (UMCC) proposed operations and corresponding protection measures for facilities, public access, and safety *(Section 2.2.a.1), pages 2-19 through 2-22)* would also apply to the rehabilitation work. Environmental consequences and associated mitigation measures for the closeout/rehabilitation work would be as follows.

- Existing access and spur roads at the project area -

- The existing 0.4 miles of access and spur roads within the mine area would be closed as follows:

The top of cut slopes would be rounded. Roadbeds would not be scarified; rather rock fall would be allowed to fill in the existing roadbed over time. UMCC's Erosion Control Measures *(Section 2.2.a.1, pages 2-19 through 2-22)* would be applied to all road surfaces, with the exception of the seeding mix. The seeding mix would be as presented in *Section 4.1.a.2), page 4-3.*

- Road dust should be minimal due to the short road lengths, slow travel speeds, and rocky road surfaces.
- Rock fall, upslope bank sloughing, and downslope side casting could occur during the rehabilitation work, due to the steepness of the terrain (greater than 50%). This condition would continue until rehabilitation efforts were completed and considered successful. Even then, rock fall would continue, due to the steepness of slopes and naturally eroding surface and subsurface conditions. Rock fall downslope would occasionally occur, with possible fall distances greater than 500 feet. Slate Creek Trail (062) is located approximately 1600 to 2000 feet downslope and northeast of potential rock fall origins. There are no public roads downslope of the potential rock fall.

Facilities - Mitigation Measures – Alternative C – Baseline Comparison (No Action)

-Test Pit/Ore Extraction Sites-

- UMCC would post a lookout at the mine area to monitor rock fall danger during excavation, ore removal, and rehabilitation operations.

-Existing Forest Service access road – 6.2-mile main access road -

- The Forest Service access road runs underneath existing distribution and transmission powerlines in the vicinity of the proposed camp/ore storage and transfer sites. Truckload heights would need to be verified, in order to assure proper clearance between truck/truck loads and the powerlines.
- Moon Lake Electric Company would be notified prior to equipment transport, and asked to inspect the road crossing at the powerline. UMCC would assure that equipment transport would not damage or interfere with the powerline or powerline operation.
- A commensurate maintenance agreement would developed and in place prior to operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.

- Camp Site -

- After completion of all project activities, UMCC would remove all existing structures from the site, as well as any temporary facility used during the rehabilitation work (signs, trailers, outbuildings, distribution powerline, telephone line, etc.).

- Forest Development Road (FRD) 131 -

- Safety hazards to traveling public would occur at the junction of the "service" road and FDR 131 during mobilization, ore hauling, and demobilization periods. View distances to the north of the junction are limited to 200 feet by a stand of aspen trees along the west side of FDR 131. Safe view distances need to be 500 feet or greater

for the 45 mile speed limit along the road. The south view distance is greater than 500 feet.

- A commensurate maintenance agreement would developed and in place prior to closeout/rehabilitation operations. This agreement would define maintenance tasks and responsible parties, including cost recovery for shared cost.
- Weight limits for the 2 cattle guards and 2 bridges would not exceeded. If needed, these structures would be reinforced according to directions from the Ashley National Forest Engineer.

4.11.d Facilities - Cumulative Effects

Alternative A – Current Plan of Operations, including Reasonable Foreseeable Actions
The cumulative effects of additional road and facilities would be for the life of the project. The miles of access and spur roads within the mine area and the campsite would be closed and rehabilitated upon completion of project work. All related facilities would be removed. The existing 6.2-mile access road would remain in place as a limited access public road (open to the public by permit only).

Alternative B – Modified Plan of Operations with Mitigation, including Reasonable Foreseeable Actions
Same as Alternative A.

Alternative C – Baseline Comparison (No Action)
Same as Alternative A.

4.11.e Facilities - Monitoring Guidelines

All Alternatives
Qualified Forest Service inspectors would initiate onsite visits and inspections during each week of the project to assure compliance with all mitigation and protection measures. Commensurate Road Maintenance Agreements would be in place prior to initiation of project work.

4.12 Lands *(refer to issue #11, Section 1.8, Chapter 1)*

4.12.a Lands - Alternative A – Current Plan of Operations (Proposed Action)

Some impacts from noise generated from hauling operations would be expected for those special use authorizations related to recreation activities, (See write-up for recreation in this chapter). Other authorized uses would not be impacted by this proposed project.

4.12.b Lands - Alternative B – Modified Plan of Operations

The following items would be required to minimize impacts to recreation activities and operations under special use permit:

Allow hauling only during daylight hours
Do not allow the use of engine brakes
Do not allow hauling to take place on Holiday weekends

Other impacts would be the same as those for Alternative A.

4.12.c Lands - Alternative C – Baseline Comparison (No Action)

There would be impacts for the short period during reclamation. These impacts would be the same as Alternative A, but for a shorter time period.

4.12.d Lands - Cumulative Effects, including Reasonable Foreseeable Actions –

There are no other known activities planned in this area that would add to the cumulative effects.

4.12.e Lands - Monitoring Guidelines –

For special use authorizations related to recreation activities, establish random listening points at Moon Lake Resort, Moon Lake Campground and dispersed sites and report noise impacts from hauling activities. If unforeseen impacts occur, take mitigating extra actions as needed.

4.13 Paleontology

As discussed in Chapter 3, the limestone formations in the area have the potential for some fossils. However, site investigations have shown the fossil potential to be low. Significant fossils would not be encountered by this proposed project. This would be the same for all alternatives.

Paleontology - Cumulative Effects, including Reasonable Foreseeable Actions –
There are no other known activities planned in this area that would add to the cumulative effects.

Paleontology - Mitigation Measures –
None required.

Paleontology - Monitoring Guidelines –
None required.

4.14 Unavoidable Adverse Impacts

Unavoidable adverse impacts are identified by resource values, which in turn, represent public issues and management concerns. (Mitigation of impacts are presented in Uintah Mountain Copper Company's environmental projection measures, *Section 2.2.a.1), and Forest Service mitigation measures listed by resource value in Chapter Four.)*

Vegetation

Loss of vegetative cover at the 0.075-acre test pit/ore extraction site –
The existing conifer and mountain brush cover on the 0.075-acre area would be difficult to reestablish, due to the loss of topsoil that would occur during excavation of the hematite ore. Existing topsoil on the steep slopes is shallow and could not be segregated during excavation.

Loss of vegetative cover on the 0.4 miles (1.65 acres) of access and spur roads within the mine area –
The thin layer of topsoil was removed during past construction activities and rocky subsurface conditions would prevent successful reestablishment of vegetative cover on these disturbed sites.

Successful reestablishment of prior vegetative cover could be achieved at all other disturbed areas associated with proposed project work.

Wildlife

Threatened, Endangered, Proposed Species –
Indirect effects to lynx could include disturbance (noise) from the test pit/ore exploration area and use of the access roads. This could temporarily alter linkage corridors within the Lynx Analysis Unit.

Sensitive Species –
In Alternatives A and B, less the 80 acres or 0.6 miles of road would fall within the adjusted 600-acre "Post Family-Fledging Area" (PFA) for the Northern Goshawk. Under Alternative A, early operations could disrupt goshawk foraging patterns.

Project activities associated with Alternative A could temporarily disturb foraging and/or nesting habitat for peregrine falcon, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker.

Alternatives A and B would remove 0.05 acres of rocky outcrops and replace them with overburden from associated sites, essentially making them unsuitable habitat for spotted bats until suitable rocks were brought to the area. Alternatives A, B, and C could temporarily disperse spotted bats from the area during the project duration.

Management Indicator Species -
All alternatives could temporarily reduce elk and deer use in the area and along the access roads, due to vehicle traffic and noise.

In Alternatives A and B, less than 80 acres or 0.6 miles of road would fall within the adjusted 600-acre "Post Family-Fledging Area" (PFA) for the Northern Goshawk. Under Alternative A, early operations could disrupt goshawk foraging patterns.

Project activities associated with Alternative A could temporarily create noise that would disturb foraging and/or nesting habitat for the golden eagle, red-naped sapsucker, and warbling vireo.

Soils

Rehabilitation of disturbed soil profiles within the mine area –
Shallow topsoils on the 0.075-acre test pit/ore extraction site could not be segregated during excavation of the hematite ore as proposed under Alternatives A and B. Therefore, site potential on this area would change and the ability to reestablish vegetation would be limited. The site potential of the existing 0.4 miles of access and spur roads within the mine area would continue to be low, due to loss of topsoil and rocky subsurface conditions.

Transport of soil, parent material, and sediment from project activities under Alternative A and B and disturbances from past exploration would be expected to remain above natural levels until rehabilitation was completed and cut slopes reached an angle of natural stability, and vegetation was reestablished.

Slope stability –
Existing slope stability could be affected by excavation of the test pit as proposed under Alternative A and B. The proposed reclamation structures (gabion rock walls) might not prevent the replaced overburden from sliding downslope. Secondary slides could be caused by unstable soil conditions within the mine area.

Hydrology and Water Quality

Hazardous material spills –
There could be minor fuel spills during servicing and fueling of equipment used during the project activities. (All Alternatives)

Runoff and erosion –
There would be concentrated discharge of water along the access and spur roads within the mine area during rainstorms and snow melt periods. (Greater degree of concentrated discharge of water in Alternative A; less degree in Alternative B; and least degree in Alternative C).

Air Quality

Minor and short-term dust from operations at the mine area and from vehicle use of the access roads would occur during activities for all Alternatives.

High Uintas Wilderness

Although there have been no past reports, noise of machinery could be heard and equipment could be seen from various points within the High Uintas Wilderness during the 60-day operations period and follow up rehabilitation period.

Roadless Area – Inventoried Roadless Area Surrounding the Project area and Access Roads

Natural Integrity –

The existing rating of moderate for the zone of influence associated with the camp/ore storage and transfer sites would change from moderate to very low during operations for Alternatives A and B, then return to a moderate rating.

The existing rating of low for the existing campsite itself would change to very low during operations for Alternatives A and B, then return to moderate after rehabilitation and the site.

Apparent Naturalness –

For all project activities proposed under Alternatives A and B, the perception of human impacts would be high in the zone of influence for the adjacent inventoried roadless area; then return to moderate after completion of all project activities.

Remoteness –

During the operational period for Alternatives A and B, the existing rating of moderate for the zone of influence for the inventoried roadless area would change from low to very low at the mine area and camp/ore storage and transfer sites. The rating would remain low in the zone of influence after all project activities.

Solitude –

During the operational period for Alternatives A and B, the existing rating of moderate for the zone of influence for the inventoried roadless area would change to low or very low at the mine area and along the Forest Service access road, then return to a moderate rating. The existing rating of low at the camp/ore storage and transfer sites would change to very low during operations, then return to low.

Manageability/Boundaries –

The campsite area is located within the inventoried roadless area and would continue to adversely affect the manageability of the inventoried roadless area under all alternatives.

Cultural Resources

None noted.

Visual Resources

None noted.

Recreation, Facilities, and Public Safety

Traffic and noise –

There would be temporary disturbances to recreation and other users in the Moon Lake Area and along Forest Development Road, due to increased traffic and noise during the 60-day operations period for Alternative B and C. This same condition would occur for Alternative C during rehabilitation work, but truck hauling of ore would not occur.

Roads –

During transporting and hauling periods for all Alternatives, some damage to road surfaces would occur on Forest Development Road 131 and on the Forest Service access road.

Lands

None noted.

Paleontology

None noted.

4.15 Relationship of Short-Term Uses and Long-Term Productivity

The short-term uses involved with both Alternatives A and B (project activities over a 60-day period) would have effects on the long-term productivity of the following resource values:

Vegetation and Soil –
The loss of vegetative cover 0.075-acre test pit/ore extraction area and the 0.4-mile (1.65-acres) of access and spur roads within the mine area would be difficult to reestablish, due to the loss of topsoil. Long-term productivity of vegetation and soil site conditions would be lost for a period greater than 10 to 20 years, even with rehabilitation efforts.

Inventoried Roadless Area –
Due to past exploration activities, the quality ratings of attributes of natural integrity, apparent naturalness, remoteness, and solitude were reduced to a moderate rating. The quality ratings would remain at the reduced levels or drop further during the 60-day operations period under Alternatives A and B, and would return to exiting quality ratings after completion of all project

activities and site rehabilitation, with the exception of remoteness and solitude. Remoteness and solitude would remain low at the mine area and campsite.

4.16 Irreversible and Irretrievable Commitments of Resources

Irreversible (commitments that can not be reversed) –
- -removal of the 650 cubic yards of hematite ore.
- -short-term disturbances to foraging habitat for sensitive bird species and MIS bird species.
- - under Alternative A, short-term disturbances to potential nesting habitat for sensitive bird species, and MIS bird species.

Irretrievable (commitments that are lost for a period of time) –
- -temporary alteration of linkage corridors for lynx within the Lynx Analysis Unit.
- -temporary disruption to potential habitat of sensitive bird species and MIS bird species.
- -loss of habitat (rocky outcrops) for spotted bats.
- -loss of vegetation at the 0.5-acre test pit/ore extraction site within the claim area
- -loss of vegetative cover at the ore storage and transfer sites
- -loss of topsoil and slope stability within the claim area
- -reduced quality ratings for roadless area attributes

CHAPTER 5

LIST OF PREPARERS

The following individuals participated in the formulation and analysis of the alternatives and the subsequent preparation of the Environment Assessment.

Core Team Members:

Bob Christensen
Wildlife Biologist, Roosevelt/Duchesne Ranger Districts
BS – Fisheries & Wildlife Management Utah State University
Minors – Range Science, Biology, and Recreational Resources
USDA Forest Service, Wildlife and Range – 5 years
Utah Division of Wildlife Resources, Technician – 2 years

David Frew
Wilderness Specialist (acting), Roosevelt/Duchesne Ranger Districts
BS (Business Administration), University of Maryland
MA (Public Administration), University of Northern Colorado
MS-pending (Forestry Sciences), Colorado State University
Wilderness/Trails/Dispersed Recreation - 8 years

Sherel Goodrich
Ecologist, Ashley National Forest
BS, Range Management
MS, Plant Taxonomy
31 years with the US Forest Service

Brent Hanchett
Landscape Architect, Ashley National Forest
BS, Landscape Architecture, Utah State University – 1968
Licensed LA in the State of Utah
33 years with the USDA Forest Service

Ronnee Sue Helzner
Hydrologist, Ashley National Forest
BA, Environmental Science, Colby College, Maine – 1977
BS, Range Management with Water/Fish Graduate work, University of Wyoming – 1985
Member, National Watershed/Riparian Committee, Society for Range Management
Assistant District Ranger and Watershed Program Manager – 4 years
Fisheries Biologist – 4 years
Range Conservationist – 2 years
17 years with the USDA Forest Service and USDI Bureau of Land Management

David Herron
Forest Geologist, Ashley National Forest
BS (Geology, Brigham Young University (1990)
MS (Geology, Brigham Young University (1997)
Consulting Geologist to Mining Industry – 15 years
USDA Forest Service Geologist – 2 years

Darlene Koerner
Forest Soil Scientist, Ashley National Forest

Don Marchant
Forest Engineer, Ashley National Forest
BS, Engineering Science in Civil Engineering, Brigham Young University

Kurt Pindel
Wildlife Biologist – Roosevelt/Duchesne Ranger Districts
BS, Wildlife Management, University of Wisconsin-Stevens Point
USDI National Park Service Biologist – 7 years
USDA Forest Service Biologist – 3 years
Member, The Wildlife Society

Chauncie Todd
Forester, Ashley National Forest
BS, Forest/Range Management, Colorado State University
Range Conservationist – 8 years
Resource Assistant – 7 years
Lands/Minerals Forester – 16 years
32 years with the USDA Forest Service

CHAPTER 6

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B. Other Resource Information

Items

1. **Table of Threatened, Endangered and Sensitive Wildlife Species in the project area.**
2. **Table of Sensitive Wildlife Species of the Ashley National Forest**
3. **Table of candidate, threatened and endangered wildlife species of Daggett, Duchesne and Uintah Counties**

Item 1

Threatened, Endangered and Sensitive Wildlife Species

Federally threatened (T), endangered (E), and proposed (P) species occurring in Duchesne County, UT (USFWS 2000), and Forest Service sensitive (S) and management indicator (MI) species occurring on the Ashley National Forest (Ashley National Forest unpub. data; USFS 1986) and their status in the Mine project area.

Species	Status	Occurrence in Project Area	Basis for occurrence determination
Canada lynx	T	Possible	Project is within primary habitat in Ashley NF LAU 9.
Mexican spotted owl	T	Not expected	Preferred habitat not present; outside normal distribution of species.
Mountain plover	PT	Not expected	No suitable habitat
Bald Eagle	T	Not Expected	Preferred winter or summer habitat is not present.
Black-footed ferret	E	Not expected	No suitable habitat
Great grey owl	S	Possible	Habitat exists in the project area.
Northern goshawk	S	Possible	Part of project area is within Moon Lake PFA/territory.
Townsend's big-eared bat	S	Not Expected	No Roosting habitat.
Peregrine falcon	S	Not Expected	Potential habitat in the Lake Fork Drainage, but never observed in the area.
Spotted bat	S	Possible	Roosting habitat (cliffs) present in project area
Boreal owl	S	Possible	Detected in the Lake Fork Drainage during wildlife surveys (Spring 2000)
Wolverine	S	Not expected	Remote and secluded habitat does not exist in the project area. Species may be extirpated from the state.
Common Loon	S	Not expected	Only Ashley occurrences are on Flaming Gorge Reservoir and along Green River corridor (outside project area).
Three-toed woodpecker	S	Possible	Potential habitat exists in the project area.
Flammulated owl	S	Possible	Foraging habitat exists in the project area.
Elk and mule deer	MI	Present	Observed in project area
Lincoln's and song sparrow	MI	Not expected	This project area is not associated with these species habitat.
Red-naped sapsucker and warbling vireo	MI	Possible	The campsite is associated with these species habitat.
White-tailed ptarmigan	MI	Not expected	Indicator habitat (alpine meadow) not present
Sage grouse	MI	Not expected	No habitat exists in the project area.
Golden Eagle	MI	Present	Observed in project area.
Trumpeter Swan	S	Not Expected	Only observed on Flaming Gorge.

ITEM 2.
Sensitive wildlife species of the Ashley National Forest

Species	Status	Habitat Use and Local Distribution	References
Peregrine falcon	S	Known to nest on cliffs along Flaming Gorge Reservoir; sightings and one confirmed nest in canyons in the Stream Canyon and Glacial Canyon Landtype Associations. Usually found where rivers, marshes or other wet habitats are associated with cliffs, so the canyon landtype associations are the most likely sites outside of Flaming Gorge Reservoir.	Ashley NF wildlife surveys/sighting records
Spotted bat	S	Various habitats and elevations, but most often collected in dry, rough desert terrain. Distribution thought to be limited by availability of roosts (primarily under loose rock or in crevices in rock cliffs). On the south slope of the Uintas, they have been located near steep-walled stream canyons such as Ashley Creek, Black Canyon and Brush Creek. There was also one location on the South Unit in pinyon/juniperper/sage at 7400'.	Watkins 1977 Lengas 1994 Oliver 2000 Perkins 2001
Townsend's big-eared bat	S	Various habitats and elevations, but in Utah primarily found in shrub steppe and pinyon/juniper habitats. Needs caves or mines for hibernation and maternity roosts; occasionally uses old buildings. Sensitive to disturbance at these roosts. Have been located in two caves on the Ashley. Limestone Hills, Limestone Plateau and various canyon landtype associations contain most of the suitable habitat on the Ashley, since they have rock formations that are likely to contain caves.	Kunz and Martin 1982 Ashley NF cave survey data Oliver 2000
Boreal owl	S	Spruce/fir or mixed conifer forest*; may use aspen if suitable conifer is nearby. Possible but unlikely in pure lodgepole. Secondary cavity nester; needs large (13"+) diameter trees for nesting. Availability of suitable nest sites can limit population size. Five boreal owls have been located on the Ashley, all in spruce/fir or mixed conifer.	Hayward 1994 Ashley NF survey data
Great gray owl	S	Conifer or conifer/hardwood forests. Two (possibly 3) recent locations and one historic record on Ashley, all in mixed conifer. Uses old stick nests constructed by other species, depressions in broken tops of trees, etc. for nesting. Uinta Mountains are at or just beyond southern limit of normal range; species is considered casual or irregular in Utah.	Behle 1981, Behle et al. 1985 Duncan and Hayward 1994 Ashley NF survey data
Flammulated owl	S	Ponderosa pine or Douglas fir forests. Has been located in both of these forest types throughout the Ashley; has not been found in lodgepole or mixed conifer. Stream Pediment, Stream Canyon, Glacial Canyon, Limestone Plateau and Limestone Hills Landtype Associations contain nearly all the suitable habitat on the south slope of the Uintas. Secondary cavity nester.	McCallum 1994 Ashley NF survey data
Wolverine	S	Tundra, boreal forests, coniferous forests of western mountains. Needs a diversity of habitats to support its prey base, especially large mammals (scavenged ungulate carrion is an important food source). Habitat may be better defined as large, sparsely inhabited areas with adequate food than by topography or vegetation. Appears to be sensitive to habitat fragmentaton and human disturbance; consequently often restricted high elevation, remote portions of mountain ranges. Uinta Mountains, especially the High Uinta Wilderness, appear to contain suitable habitat, however, the last confirmed record of wolverine occurring anywhere in Utah is from 1924 and it may be extirpated from the the state.	UDWR 1998 McKay 1991 Banci 1994
Common loon	S	Flaming Gorge Reservoir during migration	Ashley NF wildlife sighting records
Three-toed woodpecker	S	Coniferous forests, or conifer mixed with aspen. Has been found in lodgepole, Douglas fir, spruce/fir and mixed conifer on the Ashley. Excavates a new cavity for nesting each year. Forages by prying off loose, scaly tree bark to find insects. Trees used for both nesting and foraging average 11" dbh or more. Management recommendations include maintenance of some snags greater than 12" dbh, and with some bark still present.	Evans and Conner 1979 Thomas et al. 1979 Goggans et al. 1988 Ashley NF survey data
Northern goshawk	S	Most forest types. Uses a wide variety of forest types on the Ashley, but majority of our known breeding territories are in lodgepole or mixed conifer stands, especially in the Trout Slope LTA. Home ranges include a variety of stand ages and structures, but older-age stands with a high density of large trees, relatively high canopy closure and high basal area are preferred for nesting. Stands with large trees and relatively open understories are preferred for foraging. Sensitive to disturbance during the nesting season.	Graham et al. 1999 Rodriguez et al. 1998 Reynolds et al. 1992 Ashley NF survey data
Trumpeter Swan	S	Swans from Wyoming transplant programs have been seen on the Flaming Gorge NRA during the winters of 2000 and 2001. Preferred winter habitats provide ice-free waters with slow currents, extensive beds of aquatic plants, low levels of human disturbance, and few trees or shrubs to obscure their view.	Personal communication with S. Patla, Wyoming Game and Fish; Mitchell 1994; Shea 1993

*Mixed conifer defined as Engelmann spruce, subalpine fir and lodgepole pine on the Ashley.

ITEM 3

Listed, proposed and candidate threatened and endangered wildlife species of Daggett, Duchesne and Uintah Counties, Utah*

Species	Status	Habitat Use and Local Distribution	References
Western Yellow-billed Cuckoo	C	Nests in lowland riparian habitats (typically in cottonwood/willow habitats) with dense understory vegetation, usually within 100m of water. In Utah, nesting habitat is thought to occur between 2500-6000' elevation. There are no records of occurrence on the Ashley, but suitable habitat may exist in the low elevation portions of stream and glacial canyons where cottonwood trees are found in combination with conifers and aspen.	Parrish et al. 1999
Bald Eagle	T	Winter only; usually near Flaming Gorge Reservoir and Green River corridor; occasionally near other waters until freeze-up	Ashley NF wildlife sighting records
Mexican spotted owl	T	Historic range exists in the BLM-managed Tavaputs Plateau south of the Uintah Basin. One individual heard on nearby Dinosaur National Monument in summer 1996; also located in Desolation Canyon on at least two occasions. Typical habitat on the Colorado Plateau (Utah) and southern Rocky Mountains (Colorado) is steep-sided canyons containing pockets of usually coniferous overstory trees mixed with smaller Gambel oak and box elder trees. In So. UT owls have not been found above 7200' (cutoff for suitable habitat considered 8000'). Suitable habitat may exist in the Stream Canyon and possibly Glacial Canyon landtype associations. No locations recorded on the Ashley.	pers. comm. with NPS personnel pers. comm. with UDWR personnel USDI Fish + Wildlife Service 1995
Mountain plover	PT	Uses shortgrass prairie over most of its range. In NE Utah, only known population occurs in black sage/shadscale/grass communities between 5000' and 6300' elevation, where plant heights average 3"-10" and prairie dogs are present. Suitable habitat may exist in Gilsonite Draw area of the Duchesne RD (black sage flats and some grassy [burned] swales in landtype 140).	Day 1994 UDWR 1994 DeGraaf et al. 1991
Canada lynx	T	Mesic mid- to high-elevation forests including Engelmann spruce, subalpine fir, lodgepole pine and possibly Douglas fir. Uses aspen when it is mixed with or adjacent to suitable conifer forests. Needs areas of dense understory cover and/or thickets of young trees for foraging, mature forests with large amounts of coarse woody debris for denning. Abundance and population persistance linked to snowshoe hare populations; red squirrels are secondary prey. Last confirmed occurrence in Uinta Mountains was 1972.	Ruediger et al. 2000 McKay 1991 Koehler and Aubry 1994
Southwestern Willow Flycatcher	E	Nests in swampy thickets, especially of willow but sometimes of other species such as tamarisk, where vegetation is 4-7m or more in height. Associated with mid- to low-elevation riparian habiats (<8500'). Known to occur in extreme southern Utah, may occur along major riparian corridors elsewhere in the state.	NatureServe 2001 UDWR 1998
Black-footed ferret	E	Black-footed ferret distribution is coincident with prairie dog colonies. Habitat is therefore restricted to open or slightly brushy areas at relatively low elevations in the western U.S. An experimental population was recently established in Uintah County southeast of Vernal, UT on lands managed by the BLM; this species does not presently occur anywhere else in Utah Potential habitat may exist on the Flaming Gorge NRA. No other portions of the Ashley NF appear to be suitable habitat for this species.	UDWR 1996 USDI-BLM 1999

* U.S. Fish and Wildlife Service species and habitat list for Utah, as of August 2002. Terrestrial wildlife species only – see USFWS list for aquatic species and plants.

C. History of the Paint Mine and Discovery, Exploration, and Development

The history and chronology of the Mines area and the past discovery, exploration and development work are herein presented as background information for the proposed action, as well as disclosure information of authorizing and approval actions and environmental controls for all past actions and activities.

The following information is from records on file, including UMCC's Plan of Operations and the report entitled, Addendum to Due Diligence, Summary of Activities, 1994-1997 Update, Uintah Mountain Copper Company (a document required by the US Securities and Exchange Commission to make a UMCC a "fully reporting company").

Location –
From 1936 to 1995, UMCC located, surveyed, and filed 36 load claims in the Slate Creek drainage. Six of the 36 claims were dropped by UMCC between 1993 and 1995. The remaining 30 claims are located in Township 2 North Range 6 West, Sections 10, 14, 15 and 16, and are directly west of Moon Lake Reservoir in the Slate Creek drainage.

The company's past discovery and exploration work, and the recent pilot test pit work has been done on three of the 30 claims, filed as Sunshine Quartz Mine No. 3, Sunshine Quartz Mine No. 4, and Hematite No. 5. The legal subdivision descriptions for these 3 claims are: NW ¼ of Section 15 and the SW ¼ of Section 10, Township 2 North, Range 6 West; and the NW ¼, NE ¼ of Section 15, Township 2 North, Range 6 West, U.S.M.

Access –
Between 1936 and 1978, access to the claims area occurred over a rugged switchback native surface road in Brown Duck and Slate Creek drainages. This road was abandoned and rehabilitated in the early 1980's. Evidence of this old road exists along the existing Brown Duck and Slate Creek Trails, #'s 061 and 062.

In the summer of 1978, the Forest Service located and flagged the centerline for a Forest Service access road to the claims area and ore body. The Forest Service issued a special use permit to Uintah Mountain Copper Company on October 31, 1978, for construction and maintenance of a 6.5-mile Forest Service access road along this flagged route. A separate special use permit covered use of the campsite area near the junction of the Forest Service access road and Forest Development Road 131.

Exploratory Work and Geologic Evaluations –
UMCC prepared or contracted the preparation of a number of preliminary geologic reports between 1976 and 1996. These reports documented work that was done during that time, such as: a) sampling methods and associated evaluations of the ore body, b) estimates of recoverable ore, c) interpretations of data obtained from deep and shallow drill holes bored into the claims, d) and small open pit exploration work.

Portions of the Sunshine Quartz claims have been periodically explored and mined for hematite pigment since they were originally located in 1936. Prior to 1994, exploration work was based on examinations of surface outcrops and limited, widely spaced bore holes.

An intensive exploratory subsurface drilling program was initiated during 1994 and 1995 with the intent of proving the extent of mineable hematite ore reserves within the claims. Core samples were obtained from 23 drill holes. Thirteen (13) additional core holes were drilled in August and September 1995 to supplement data from the 1994 program. This exploration work extended the knowledge of the hematite deposit, including surface exposure data, ore body perimeter, and depth of ore-bearing strata. The drilling program was categorically excluded from detailed analysis in an environmental assessment or environmental impact statement. The deciding Forest Service officer determined that this work met category 8 of 31.2 FSH 1909.15, short term mineral, energy, or geophysical investigation and supporting activities.

Test Pit Development –
Between 1995 and 1997, UMCC submitted a plan of operation and several addendums for future claims exploration and development. These documents originally addressed a three-year phased exploratory test pit program, with the objectives as stated in Section 1.1 Purpose and Need for the Action, i.e., "(a) verifying depth and location of geologic strata and faulting identified during the drilling programs, (b) assessing the accuracy of drill hole data interpolations for calculating hematite ore deposits/reserve, (c) determining the probable depth of overburden for future mining, and (d) providing for small scale reclamation projects to measure and document the viability of proposed reclamation methods and to extrapolate results to large operations". *(UMCC Engineering Analysis Report, Exploratory Test Pit Excavation & Reclamation Development Program, page 2, September 26, 1997)*

The first phase of the test pit work was approved by the Forest Service and initiated in October 1996, and ended in October 1998. This work included… "excavation of a 20 to 25-foot wide by 20-foot long and 7-foot deep test pit, removal of an estimated 170 tons of sample ore and 120 tons of overburden, placement of a 30-foot long by 9-foot high gabion rock basket reclamation test section, replacement of overburden behind the gabion protection, and re-seeding of the disturbed areas". (*Forest Service Approval Letter to UMCC, dated October 25, 1996; Forest Service/UMCC Authorization Letter for Approval of Extension of Phase I, dated December 4, 1997; and Supplemental Data Requested by Enclosure #1 of USFS Letter Dated October 30, 2000, UMCC)* The ore was transported off-Forest for analysis and evaluation at laboratory facilities.

A Forest Service geotechnical engineer evaluated the first phase test pit configuration and rehabilitation measures in September 1998. As a result of this evaluation, UMCC performed a detailed geotechnical engineering analysis in 1999 and presented a reconfigured test pit plan that incorporated the remaining two phases of work into a single final test pit program. This final program is presented in this environmental assessment as the "Proposed Action".

In response to Forest Service requests, UMCC submitted a number of revisions to a 1999 Plan of Operations to clarify the final test pit program. Addenda were submitted on November 30, 2000, December 30, 2000, May 14, 2001 and August 23, 2001, which complied with concerns

from the Ashley National Forest Interdisciplinary Team for maintaining soil stability, achieving acceptable erosion control, displaying acres of operations, and performing acceptable road maintenance. This Plan of Operations and associated addenda serve as source documents for data, information, and resource analysis and evaluation, and development of mitigation measures in this Environmental Assessment.

D. Results of Exploration, Geologic Evaluations, and Ore Valuations at the Paint Mine Area

The following information is from records on file, including the Uintah Mountain Copper Company's Plan of Operation; Iron Oxide Market Assessment-Uintah Mountain Copper Company-Uintah Red ™ Products September 1999; and a report entitled, Addendum to Due Diligence, Summary of Activities, 1994-1997 Update, Uintah Mountain Copper Company (a document required by the US Securities and Exchange Commission to make a UMCC a "fully reporting company").

Ore Deposit and Reserve Estimate –
Past exploration operations, including the 1994 and 1995 extensive drilling program and recent geologic evaluations identified approximately 54,363 tons of proven iron oxide ore deposit within 3 of the 30 claims. Analysis data indicates that slightly less than one-half of these proven deposits are…"proven reserves, or 20,436 tons of raw ore". "Probable reserve estimates shows an additional 52,564 tons of raw ore, which includes 33,927 tons of drill-proven ore deposits from non-near surface sources and deposits determined from widely-spaced deep drill holes, and 18,637 tons from geologic evaluations of surface exposures in adjacent areas of the claims yet to be drilled."

"A summary geologic report prepared from the drilling data and all other sources of information also identifies 73,000 tons of probable iron oxide deposit and upwards of 750,000 tons of estimated ore deposits.

The 1996 to 1998 test pit work indicated that… "near-surface ore can be economically extracted and the surrounding area economically reclaimed. Near-surface ore is the iron oxide-bearing rock that can be extracted with small to intermediate track-mounted equipment to a depth of 30 to 50 feet below ground surface".

Uintah Mountain Copper Company evaluated the raw ore in proven reserves for percent content and purity of ferric iron oxide, and results indicate the ore has from 11% to 90% ferric iron oxide content with an average purity of 26%. The company estimates a product recovery rate after benefaction of 80 to 85%. The company also estimates that the recovery rate and purity would result in one ton of final products from every five tons of raw ore processed, or 2,500 tons of raw ore would produce 500 tons of final product.

Uintah Mountain Copper Company estimates a break-even price of products to be approximately $1.00 per pound after ore extraction, benefaction, reclamation and other

company operation costs. (*Iron Oxide Market Assessment-Uintah Mountain Copper Company-Uintah Red ™ Products, pages 1& 2, September 1999.)*

Markets –
Uintah Mountain Copper Company lists the products as iron oxide pigments, which are used in cosmetics, artist paints, electronics, magnetic storage products, steel coating materials, and "multiple other uses". The company would market its iron oxide pigments under the trademarked product name Uintah Red ™. Laboratory and pilot plant studies indicate that the…"Uintah Red ™ would result in at least one pigment that would equal or exceed current products in terms of purity and meet the standards of the paint and cosmetic industries."

Uintah Mountain marketing efforts and reports include: a) identification of market niches for natural pigments, b) prospects for future growth of these market niches, including competition, c) projected annual sales of final product, and d) potential buyers.
The company has developed pricing and sales strategies for the natural pigments, including strategies within the specialty artist and craft paint national and international market. In addition to the specialty natural pigments market, the company is investigating the use of other minerals and byproducts from the mine area in other applications, including use of "specular hematite" as long-term protection coating for structural steel. (*Iron Oxide Market Assessment-Uintah Mountain Copper Company-Uintah Red ™ Products, pages 2 & 3, September 1999.)*