

DEPARTMENT OF STATE LANDS



STAN STEPHENS, GOVERNOR

CAPITOL STATION

STATE OF MONTANA

(406) 444-2074

1625 ELEVENTH AVENUE
HELENA, MONTANA 59620

August 28, 1992

Dear Reader:

Enclosed in this package is the Final Environmental Analysis and the Finding of No Significant Impact / Decision Records for the proposed expanded exploration project by Seven-Up Pete Joint Venture in the McDonald and Keep Cool areas outside of Lincoln, Montana.

The final EA includes comments on the draft EA and responses to the comments that were received. Some corrections were made to the EA text based on these comments.

The Mitigated Proposed Action Alternative was chosen in the Finding of No Significant Impact / Decision Record. Exploration may begin in the area upon publication of this document.

If you have any questions about the final EA or the decision document, please call Gary Weissmann at 406/ 444-2074. Thank you for your interest and input into this project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary Weissmann".

Gary Weissmann, Hydrologist
Minerals Management Bureau
Lands Division

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DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT

for

McDonald/Keep Cool Exploration Project
Seven-Up Pete Joint Venture
Lewis and Clark County, Montana

Lands Division
Montana Department of State Lands

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I. Introduction

Seven-Up Pete Joint Venture (SPJV), a partnership between Phelps Dodge Mining Company of Phoenix, Arizona, and C.R. Montana of Denver, Colorado, has submitted plans to expand exploration at the McDonald and Keep Cool properties. Within this project area are six tracts of state-owned land that have been leased to SPJV for mineral exploration and production. The project area is located approximately six miles east of Lincoln, Montana (Figure 1 in the environmental analysis).

The purpose of this exploration project is to further evaluate the project area for mineral resources, especially gold. The information from this project will be used by SPJV to determine whether a sufficient ore deposit exists to merit development of a mine. If a mine is proposed, potential impacts from that proposal will be evaluated at the time of submittal.

On state-owned land, the exploration proposal contains four major elements: 1) conduct geological mapping; 2) conduct geochemical and geophysical testing; 3) construct up to 361 drill pad sites and associated access roads (up to 76,900 feet); and 4) excavate up to 8,000 feet of trench. In addition, SPJV plans to construct additional drill pad sites and roads, trenches, a 1367 foot adit, a bulk sample storage facility, and a metallurgical and environmental testing laboratory on private lands adjacent to the state-owned tracts.

An environmental assessment, prepared by the Minerals Management Bureau and the Hard Rock Bureau of the Department of State Lands, describes the plan of operations along with the potential environmental consequences of the proposed action. The environmental assessment is on file and available at the Department of State Lands offices in Helena, Missoula, and Lincoln.

The environmental assessment was developed under the Montana Environmental Policy Act (MEPA). This decision is also necessary under the terms of the metalliferous lease agreement.

This Decision Notice documents the Lands Division's selection of the Mitigated Proposed Action Alternative, which approves SPJV's expanded exploration plan with the addition of 22 stipulations. These stipulations are added to reduce impacts to water resources, wildlife, soils, vegetation, and local residents.

II. ISSUES, CONCERNS, AND PUBLIC INVOLVEMENT

Public involvement occurred in several ways. A public meeting was held in Lincoln on April 2, 1992, to receive comments on issues and concerns to be addressed in the environmental assessment. This meeting was attended by approximately 175 people. Written scoping comments were also accepted during a 30-day period from March 23, 1992 to April 23, 1992.

Issues raised during the scoping process included: 1) concerns over potential impacts to surface water quality and quantity, since the Blackfoot River and the Landers Fork lie adjacent to or within the study area boundary; 2) groundwater quality impacts from the exploration; 3) potential impacts to wildlife in the area, including elk, bear, and the fisheries; 4) potential impacts to vegetation from the spread of weeds; 5) potential impacts on local businesses and schools; 6) potential impacts on air quality; 7) concerns over the noise from this proposed action; 8) impacts to visual quality, recreation current land use, and cultural resources.

In addition to public involvement during the initial scoping of this environmental analysis, comments were received on the draft environmental assessment between June 24, 1992, and July 24, 1992. A public hearing to receive comments on the draft environmental assessment was also held on July 16, 1992, in Lincoln, Montana. The comments received during this period were assessed and incorporated, if applicable, into the final environmental assessment.

III. ALTERNATIVES

From the issues and concerns, three alternatives were developed to analyze the effect of the project and to identify any mitigation measures necessary to protect the human environment. The alternatives are discussed in detail in Chapter 2 of the environmental assessment.

The Proposed Action Alternative was submitted by SPJV on March 13, 1992 in their plan of operations. This alternative included many mitigation measures to protect water quality, soils, vegetation, and other resources in the project area.

The Mitigated Proposed Action Alternative was developed by the interdisciplinary team to address additional mitigation measures not already included in the proposed action. These mitigation measures include stipulations to protect wildlife, water quality, soils, and local residents.

The "no-action" alternative, which denies the exploration proposal, is a requirement of the environmental analysis and provides a baseline by which to compare alternatives.

IV. DECISION

I have selected the Mitigated Proposed Action Alternative. This alternative approves SPJV's expanded exploration proposal with additional mitigation measures listed as appendix A in the environmental assessment. These mitigation measures will insure that there would be no significant impact from the exploration project.

V. RATIONALE FOR THE DECISION

In selecting the Mitigated Proposed Action Alternative, I considered several items including response to public comments, potential impacts from the proposal as addressed by the interdisciplinary team, consistency with DSL policy and management guidelines, and cumulative effects of other activities in the area.

Water Quality and Quantity

Surface water concerns stem from the fact that the Blackfoot River and the Landers Fork flow either adjacent to or within the study area boundary. Smaller drainages, such as Keep Cool Creek and Hardscrabble Creek flow adjacent to the project area, as well. In addition, numerous ponds and

springs are also located in the project area. Since activities on state-owned land would be hydrologically isolated from the major streams in the area and Best Management Practices would be utilized for construction of all roads in the area so sedimentation and erosion would be minimized, it is my finding that impacts to surface water quality will be insignificant in the area from this project. Continued water quality assessment at numerous sites within the project area will allow DSL to monitor water quality throughout the project life.

Groundwater on state-owned land could be impacted from drilling. Since the chemicals utilized in drilling are inert, utilized in very low quantities, and are diluted, and since the test holes will be immediately plugged after completion, it is my finding that impacts on the groundwater quality from activity on state-owned land in the project area will be insignificant.

Activities on private land adjacent to the state-owned land will utilize similar water quality protection measures, so the cumulative impact of work on adjacent private lands should not significantly impact water quality in the area.

Soils

The proposed action incorporated measures to protect the soils, including stockpiling soil from disturbed areas and erosion prevention in disturbed areas. The Mitigated Alternative requires additional measures to prevent erosion within large disturbed areas, such as the class IV exploration areas, and to prevent damage to soils in wet areas. With the mitigations proposed, impacts to the soils in the project area will be insignificant.

Vegetation

The proposed action contains an extensive weed control plan that includes chemical control of weeds in the project area. As stated in the environmental assessment, weed spread in the area has actually been stabilized and reduced from SPJV's aggressive weed control plan. Positive impacts on weed control, therefore, will be realized from accepting this exploration proposal.

Other vegetation in the area would be disturbed from this action. This disturbance, however, would be short-term since areas would be reclaimed with native vegetation and trees would regenerate naturally along reclaimed roads. The additional stipulation to plant tree seedlings in class IV areas will insure complete re-vegetation of the exploration area. Therefore, there will be no significant impact on vegetation from this proposal.

Wildlife and Fisheries

Of primary concern in this area are impacts to elk. State-owned section 6 in the McDonald Area contains the core winter range for the McDonald Area, and state-owned section 10 lies within the core winter range for the Keep Cool Area. The stipulations added to the proposed action in the Mitigated Proposed Action Alternative will protect the elk populations from significant impacts in both of these core winter range areas.

The Keep Cool core winter range area will be closed to mechanized exploration from October 1 to June 30. This closure will protect this important elk habitat. The mechanized exploration in addition to hunting pressures in the Keep Cool area could negatively impact the elk. Activity during the winter could displace elk in the area, forcing the elk to utilize energy reserves necessary for their survival. Finally, displacement of elk from this range during calving could also negatively impact the Keep Cool herd. For these reasons, state-owned section 10 and surrounding sections

within the Keep Cool core winter range will be closed to mechanized activity from October 1 to June 30.

Thermal and hiding cover within the Keep Cool area would not be significantly reduced under the proposed action. Therefore, it is my finding that there will not be any significant impacts on the elk population at Keep Cool.

The McDonald core winter range holds approximately 15-30 elk during winter months. A small portion of the thermal cover would be removed under this proposal (a 3% reduction). As stated in the environmental assessment, the core winter range already contains a lower percentage of thermal cover than recommended in the elk management guidelines, so the elk must be receiving other thermal values from the south facing open areas. This small additional loss of thermal cover, therefore, would not be significant since other winter range values also exist in the area and the range only supports a small number of animals.

Since the McDonald core winter range lies within the class III and IV drilling areas, displacement of elk during the winter is possible from mechanized activity. For this reason, a stipulation has been added that restricts movement of drilling rigs within the core winter range. With this stipulation (stipulation #9, appendix A), displacement would be minimized and impacts to elk would not be significant.

In the past three years of exploration, no conflicts with grizzly bear have occurred. In order to maintain this record, refuse must be removed daily. If, however, a grizzly bear is sighted in an area, operations would cease until the bear leaves the area. This would be verified by DSL or FWP biologists. In addition, the proposed exploration activity would not remove grizzly bear habitat and would be consistent with DSL grizzly bear management guidelines for the area. Therefore, it is my finding that there will not be an impact on grizzly bears in the project area.

Impacts to smaller wildlife will be analyzed upon the receipt of site specific plans. Populations of these animals, however, would not be significantly impacted by the plan since important areas, if found, could be avoided.

The fisheries of the Blackfoot River and Landers Fork would not be impacted since no impacts to water quality are expected to occur from this project. The majority of activity would occur in areas that are hydrologically isolated from the rivers, so increased sediment would not occur.

Air Quality

As stated in the environmental analysis, emissions from this scale project would not significantly impact air quality.

Land Use and Recreation

Numerous cabin site leases exist on state-owned land in sections 12 and 36 in the project area. Mechanized activities on these tracts would not be allowed without prior written approval from the Minerals Management Bureau and coordination with the cabin site lessees. This mitigation measure would reduce potential conflicts between surface lessees and SPJV.

Recreational use of the area in the form of hunting and snowmobiling is also important. Hunting would not be impacted by the proposal since important habitat in the Keep Cool area would be closed to mechanized exploration and the McDonald area is not a critical area for hunting activity. SPJV is

required to coordinate activities with the local snowmobiling club and FWP to reduce impacts to snowmobiling activity. In addition, major snowmobiling trails across the project area would not be closed under normal conditions by the exploration activity. With these stipulations, it is my finding that there will not be any significant impacts to recreational use of the area.

Noise and Visual Qualities

Noise from drilling operations has been heard by local residents. Measurements of noise from a rig indicate that the noise diminishes with distance and is only heard as a low hum beyond approximately ¼-mile from the drilling rig. However, to reduce the impact from drilling noise, drilling rigs must be oriented to place generators and engines away from local residences. In addition, operations at the crushing facility would only occur between 7:00 a.m. and 7:00 p.m. to reduce disturbance. With these stipulations, noise disturbance will be mitigated below a significant level.

Some exploration activity will be visible from Highway 200, the Landers Fork Road, and surrounding areas, but most of the activity will be shielded by trees. Visual impacts, however, would be temporary. No significant impacts to visual quality, therefore, would occur from this exploration project.

Socioeconomic Concerns

Exploration levels from this expanded exploration plan would not significantly increase over past exploration, therefore, impacts to local housing and businesses should remain unchanged. Relocation of people to the area on speculation may be occurring, though evidence does not prove that people are, in fact, moving into the Lincoln area on speculation of a mine. Therefore, my finding is that the exploration proposal will not significantly impact the Lincoln community.

Cultural Resources

Several sites have been identified within the project area, including the Old Lincoln Road, cabins, and timber loading facilities. These sites will be avoided under the proposed action, so there will be no impacts to cultural resources from this project.

Cumulative Effects

The cumulative effects of this project were analyzed in the environmental assessment. Impacts from other mineral development projects, logging, grazing, and recreation were analyzed. The Lands Division also reviewed potential impacts from this exploration project on adjacent private land.

Exploration in the McDonald/Keep Cool area on surrounding private land includes similar drilling programs as noted on state-owned land along with a bulk sample adit, bulk sample storage facility, and a metallurgical and environmental testing laboratory. The impacts from drilling on private lands will not have a significant impact for the same reasons the drilling on state-owned land will not have significant impact. The bulk sampling, storage, and metallurgical testing facilities will be contained, and adequate measures have been taken to prevent contamination of the environment. Therefore, no significant additional impacts from exploration on private land will occur.

Since activity south of the project area, the Seven-Up Pete area, has been reduced, there will be no significant additional impacts from this project.

Much of the surrounding area has been logged in the past. This has resulted in a loss of elk habitat, increase in weed populations, and possibly increased sediment load to streams. The mitigated proposed action does not

significantly increase the impact to the elk habitat, and sedimentation and erosion would be controlled in disturbed areas. Additionally, the proposed weed control plan will halt the spread of noxious weeds in disturbed areas.

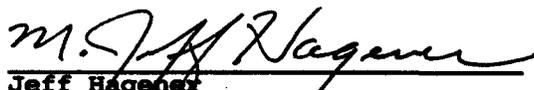
Since no changes are proposed for grazing of the area, and SPJV will reclaim all disturbed areas with native vegetation, there will be no significant additional impacts.

Finally, recreation, such as hunting and snowmobiling, impact the local wildlife. The addition of this expanded exploration, however, will not significantly increase the impacts on wildlife, as stated earlier in this document. Therefore, there will be no significant cumulative impacts from this action.

FINDING OF NO SIGNIFICANT IMPACT

An EIS is not necessary because all potential impacts under the alternative selected have been mitigated below the level of significance. It is my finding that the Mitigated Proposed Action Alternative will not have a significant impact on the human environment for these reasons:

1. Water quality will be protected by sediment control measures, immediate test hole plugging, use of inert drilling fluids at very low concentrations, and continued monitoring of water quality in the area.
2. Elk will be protected from significant displacement in the McDonald core winter range area, and the thermal and hiding cover in this area will not be significantly reduced. The Keep Cool core winter range will only be accessed for mechanical exploration from July 1 to September 30, when additional opportunities exist for the elk.
3. Disturbances are short-term and will be reclaimed upon completion of the exploration project. Reclamation will also occur concurrently. Soils and vegetation would be reclaimed and protected.
4. There will be no effects on public health and safety.
5. The exploration project is not an irretrievable or irreversible commitment for a mine at this site.
6. The cumulative impacts of this project and existing and proposed projects in the area do not have a significant impact on the human environment.
7. No known cultural or historic sites would be disturbed in the project area.


Jeff Hagen
Administrator, Lands Division
Department of State Lands


Date

DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT
for

McDonald/Keep Cool Exploration Project
Seven-Up Pete Joint Venture
Lewis and Clark County, Montana

Reclamation Division
Montana Department of State Lands

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I. Introduction

Seven-Up Pete Joint Venture (SPJV), a partnership between Phelps Dodge Mining Company of Phoenix, Arizona, and C.R. Montana of Denver, Colorado, has submitted plans to expand exploration at the McDonald and Keep Cool properties. The project area is located approximately six miles east of Lincoln, Montana (Figure 1 in the environmental analysis).

The purpose of this exploration project is to further evaluate the project area for mineral resources, especially gold. The information from this project will be used by SPJV to determine whether a sufficient ore deposit exists to merit development of a mine. If a mine is proposed, potential impacts from that proposal will be evaluated at the time of submittal.

The exploration proposal contains four major elements: 1) conduct geological mapping; 2) conduct geochemical and geophysical testing; 3) construct up to 416 drill pad sites and associated access roads (up to 154,855 feet); and 4) excavate up to 26,600 feet of trench. In addition, SPJV plans to construct additional drill pad sites and roads, trenches, a 1367 foot adit, a bulk sample storage facility, and a metallurgical and environmental testing laboratory.

An environmental assessment, prepared by the Minerals Management Bureau and the Hard Rock Bureau of the Department of State Lands, describes the plan of operations along with the potential environmental consequences of the proposed action. The environmental assessment is on file and available at the Department of State Lands offices in Helena, Missoula, and Lincoln.

The environmental assessment was developed under the Montana Environmental Policy Act (MEPA). This decision is also necessary under the terms of the metalliferous lease agreement.

This Decision Notice documents the Reclamation Division's selection of the Mitigated Proposed Action Alternative, which approves SPJV's expanded exploration plan with the addition of 22 stipulations. These stipulations are added to reduce impacts to water resources, wildlife, soils, vegetation, and local residents.

II. ISSUES, CONCERNS, AND PUBLIC INVOLVEMENT

Public involvement occurred in several ways. A public meeting was held in Lincoln on April 2, 1992, to receive comments on issues and concerns to be addressed in the environmental assessment. This meeting was attended by approximately 175 people. Written scoping comments were also accepted during a 30-day period from March 23, 1992, to April 23, 1992.

Issues raised during the scoping process included: 1) concerns over potential impacts to surface water quality and quantity, since the Blackfoot River and the Landers Fork lie adjacent to or within the study area boundary;

2) groundwater quality impacts from the exploration; 3) potential impacts to wildlife in the area, including elk, bear, and the fisheries; 4) potential impacts to vegetation from the spread of weeds; 5) potential impacts on local businesses and schools; 6) potential impacts on air quality; 7) concerns over the noise from this proposed action; 8) impacts to visual quality, recreation current land use, and cultural resources.

In addition to public involvement during the initial scoping of this environmental analysis, comments were received on the draft environmental assessment between June 24, 1992, and July 24, 1992. A public hearing to receive comments on the draft environmental assessment was also held on July 16, 1992, in Lincoln, Montana. The comments received during this period were assessed and incorporated, if applicable, into the final environmental assessment.

III. ALTERNATIVES

From the issues and concerns, three alternatives were developed to analyze the effect of the project and to identify any mitigation measures necessary to protect the human environment. The alternatives are discussed in detail in Chapter 2 of the environmental assessment.

The Proposed Action Alternative was submitted by SPJV on March 13, 1992, in their plan of operations. This alternative included many mitigation measures to protect water quality, soils, vegetation, and other resources in the project area.

The Mitigated Proposed Action Alternative was developed by the interdisciplinary team to address additional mitigation measures not already included in the proposed action. These mitigation measures include stipulations to protect wildlife, water quality, soils, and local residents.

The "no-action" alternative, which denies the exploration proposal, is a requirement of the environmental analysis and provides a baseline by which to compare alternatives.

IV. DECISION

I have selected the Mitigated Proposed Action Alternative. This alternative approves SPJV's expanded exploration proposal with additional mitigation measures listed as appendix A in the environmental assessment. These mitigation measures will insure that there would be no significant impact from the exploration project.

V. RATIONALE FOR THE DECISION

In selecting the Mitigated Proposed Action Alternative, I considered several items including response to public comments, potential impacts from the proposal as addressed by the interdisciplinary team, consistency with DSL policy and management guidelines, and cumulative effects of other activities in the area.

Water Quality and Quantity

Surface water concerns stem from the fact that the Blackfoot River and the Landers Fork flow either adjacent to or within the study area boundary. Smaller drainages, such as Keep Cool Creek and Hardscrabble Creek flow adjacent to the project area, as well. In addition, numerous ponds and springs are also located in the project area. Since exploration activities would be hydrologically isolated from the major streams in the area and Best Management Practices would be utilized for construction of all roads in the

area so sedimentation and erosion would be minimized, it is my finding that impacts to surface water quality will be insignificant in the area from this project. Continued water quality assessment at numerous sites within the project area will allow DSL to monitor water quality throughout the project life.

Groundwater could be impacted from drilling. Since the chemicals utilized in drilling are inert, utilized in very low quantities, and are diluted, and since the test holes will be immediately plugged after completion, it is my finding that impacts on the groundwater quality from exploration activity in the project area will be insignificant.

Soils

The proposed action incorporated measures to protect the soils, including stockpiling soil from disturbed areas and erosion prevention in disturbed areas. The Mitigated Alternative requires additional measures to prevent erosion within large disturbed areas, such as the class IV exploration areas, and to prevent damage to soils in wet areas. With the mitigations proposed, impacts to the soils in the project area will be insignificant.

Vegetation

The proposed action contains an extensive weed control plan that includes chemical control of weeds in the project area. As stated in the environmental assessment, weed spread in the area has actually been stabilized and reduced from SPJV's aggressive weed control plan. Positive impacts on weed control, therefore, will be realized from accepting this exploration proposal.

Other vegetation in the area would be disturbed from this action. This disturbance, however, would be short-term since areas would be reclaimed with native vegetation and trees would regenerate naturally along reclaimed roads. The additional stipulation to plant tree seedlings in class IV areas will insure complete re-vegetation of the exploration area. Therefore, there will be no significant impact on vegetation from this proposal.

Wildlife and Fisheries

Of primary concern in this area are impacts to elk. The McDonald Area contains core winter range, as does the Keep Cool Area. The stipulations added to the proposed action in the Mitigated Proposed Action Alternative will protect the elk populations from significant impacts in both of these core winter range areas.

The Keep Cool core winter range area will be closed to mechanized exploration from October 1 to June 30. This closure will protect this important elk habitat. The mechanized exploration in addition to hunting pressures in the Keep Cool area could negatively impact the elk. Activity during the winter could displace elk in the area, forcing the elk to utilize energy reserves necessary for their survival. Finally, displacement of elk from this range during calving could also negatively impact the Keep Cool herd. For these reasons, the Keep Cool core winter range will be closed to mechanized activity from October 1 to June 30.

Thermal and hiding cover within the Keep Cool area would not be significantly reduced under the proposed action. Therefore, it is my finding that there will not be any significant impacts on the elk population at Keep Cool.

The McDonald core winter range holds approximately 15-30 elk during winter months. A small portion of the thermal cover would be removed under this proposal (a 3% reduction). As stated in the environmental assessment,

the core winter range already contains a lower percentage of thermal cover than recommended in the elk management guidelines, so the elk must be receiving other thermal values from the south facing open areas. This small additional loss of thermal cover, therefore, would not be significant since other winter range values also exist in the area and the range only supports a small number of animals.

Since the McDonald core winter range lies within the class III and IV drilling areas, displacement of elk during the winter is possible from mechanized activity. For this reason, a stipulation has been added that restricts movement of drilling rigs within the core winter range. With this stipulation (stipulation #9, appendix A), displacement would be minimized and impacts to elk would not be significant.

In the past three years of exploration, no conflicts with grizzly bear have occurred. In order to maintain this record, refuse must be removed daily. If, however, a grizzly bear is sighted in an area, operations would cease until the bear leaves the area. This would be verified by DSL or FWP biologists. In addition, the proposed exploration activity would not remove grizzly bear habitat and would be consistent with DSL grizzly bear management guidelines for the area. Therefore, it is my finding that there will not be an impact on grizzly bears in the project area.

Impacts to smaller wildlife will be analyzed upon the receipt of site specific plans. Populations of these animals, however, would not be significantly impacted by the plan since important areas, if found, could be avoided.

The fisheries of the Blackfoot River and Landers Fork would not be impacted since no impacts to water quality are expected to occur from this project. The majority of activity would occur in areas that are hydrologically isolated from the rivers, so increased sediment would not occur.

Air Quality

As stated in the environmental analysis, emissions from this scale project would not significantly impact air quality.

Land Use and Recreation

Numerous cabin site leases exist on state-owned land in sections 12 and 36 in the project area. Mechanized activities on these tracts would not be allowed without prior written approval from the Minerals Management Bureau and coordination with the cabin site lessees. This mitigation measure would reduce potential conflicts between surface lessees and SPJV.

Recreational use of the area in the form of hunting and snowmobiling is also important. Hunting would not be impacted by the proposal since important habitat in the Keep Cool area would be closed to mechanized exploration and the McDonald area is not a critical area for hunting activity. SPJV is required to coordinate activities with the local snowmobiling club and FWP to reduce impacts to snowmobiling activity. In addition, major snowmobiling trails across the project area would not be closed under normal conditions by the exploration activity. With these stipulations, it is my finding that there will not be any significant impacts to recreational use of the area.

Noise and Visual Qualities

Noise from drilling operations has been heard by local residents. Measurements of noise from a rig indicate that the noise diminishes with distance and is only heard as a low hum beyond approximately ¼-mile from the

drilling rig. However, to reduce the impact from drilling noise, drilling rigs must be oriented to place generators and engines away from local residences. In addition, operations at the crushing facility would only occur between 7:00 a.m. and 7:00 p.m. to reduce disturbance. With these stipulations, noise disturbance will be mitigated below a significant level.

Some exploration activity will be visible from Highway 200, the Landers Fork Road, and surrounding areas, but most of the activity will be shielded by trees. Visual impacts, however, would be temporary. No significant impacts to visual quality, therefore, would occur from this exploration project.

Socioeconomic Concerns

Exploration levels from this expanded exploration plan would not significantly increase over past exploration, therefore, impacts to local housing and businesses should remain unchanged. Relocation of people to the area on speculation may be occurring, though evidence does not prove that people are, in fact, moving into the Lincoln area on speculation of a mine. Therefore, my finding is that the exploration proposal will not significantly impact the Lincoln community.

Cultural Resources

Several sites have been identified within the project area, including the Old Lincoln Road, cabins, and timber loading facilities. These sites will be avoided under the proposed action, so there will be no impacts to cultural resources from this project.

Cumulative Effects

The cumulative effects of this project were analyzed in the environmental assessment. Impacts from other mineral development projects, logging, grazing, and recreation were analyzed.

Since activity south of the project area, the Seven-Up Pete area, has been reduced, there will be no significant additional impacts from this project.

Much of the surrounding area has been logged in the past. This has resulted in a loss of elk habitat, increase in weed populations, and possibly increased sediment load to streams. The mitigated proposed action does not significantly increase the impact to the elk habitat, and sedimentation and erosion would be controlled in disturbed areas. Additionally, the proposed weed control plan will halt the spread of noxious weeds in disturbed areas.

Since no changes are proposed for grazing of the area, and SPJV will reclaim all disturbed areas with native vegetation, there will be no significant additional impacts.

Finally, recreation, such as hunting and snowmobiling, impact the local wildlife. The addition of this expanded exploration, however, will not significantly increase the impacts on wildlife, as stated earlier in this document. Therefore, there will be no significant cumulative impacts from this action.

FINDING OF NO SIGNIFICANT IMPACT

An EIS is not necessary because all potential impacts under the alternative selected have been mitigated below the level of significance. It is my finding that the Mitigated Proposed Action Alternative will not have a significant impact on the human environment for these reasons:

1. Water quality will be protected by sediment control measures, immediate test hole plugging, use of inert drilling fluids at very low concentrations, and continued monitoring of water quality in the area.

2. Elk will be protected from significant displacement in the McDonald core winter range area, and the thermal and hiding cover in this area will not be significantly reduced. The Keep Cool core winter range will only be accessed for mechanical exploration from July 1 to September 30, when additional opportunities exist for the elk.

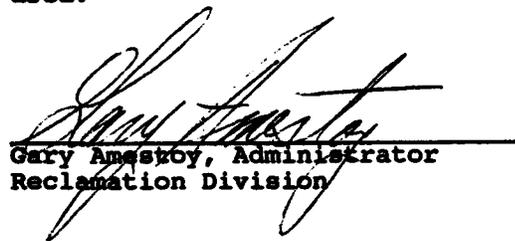
3. Disturbances are short-term and will be reclaimed upon completion of the exploration project. Reclamation will also occur concurrently. Soils and vegetation would be reclaimed and protected.

4. There will be no effects on public health and safety.

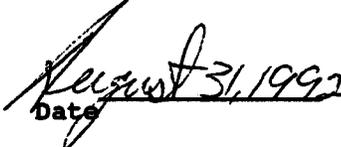
5. The exploration project is not an irretrievable or irreversible commitment for a mine at this site.

6. The cumulative impacts of this project and existing and proposed projects in the area do not have a significant impact on the human environment.

7. No known cultural or historic sites would be disturbed in the project area.

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Gary Amstoy, Administrator
Reclamation Division



Date

August 31, 1992

FINAL
ENVIRONMENTAL ASSESSMENT
for
SEVEN-UP PETE JOINT VENTURE

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QUALITY COUNCIL

APPLICATION FOR AN EXPLORATION LICENSE
FOR EXPLORATION ACTIVITY
AT THE McDONALD AND KEEP COOL PROJECT AREAS

PREPARED BY:

DEPARTMENT OF STATE LANDS
LAND ADMINISTRATION DIVISION
MINERALS MANAGEMENT BUREAU
HELENA, MONTANA

DEPARTMENT OF STATE LANDS
RECLAMATION DIVISION
HARD ROCK BUREAU
HELENA, MONTANA

PURSUANT TO THE
MONTANA ENVIRONMENTAL POLICY ACT

August 1992

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CHAPTER I - INTRODUCTION

A. Introduction

The Montana Department of State Lands Hard Rock Bureau (HRB) and Minerals Management Bureau (MMB) received a Plan of Operations for exploration activities at the McDonald and Keep Cool project areas from the Seven-Up Pete Joint Venture (SPJV) on March 13, 1992. SPJV is a partnership between Phelps Dodge Mining Company of Phoenix, Arizona, and C.R. Montana of Denver, Colorado.

B. Proposed Action

The proposed exploration activities expand a current exploration program on state and private lands at McDonald and Keep Cool in T14-15N, R7-8W, east of Lincoln, Lewis and Clark County, Montana (Figure 1). Under this proposal, SPJV would:

1. conduct geological mapping;
2. conduct geochemical and geophysical testing;
3. construct up to 614 new drill pad sites and associated access roads (up to 154,855 feet) on state and private land;
4. excavate up to 26,600 feet of trench on state and private land;
5. construct a 1367 foot adit for bulk sampling with the portal on private land;
and
6. construct an on-site metallurgical and environmental testing laboratory on private land.

A weed control program and concurrent reclamation are included in the proposed action. This phase of exploration is projected to begin in August 1992. The agencies must determine whether to approve, approve with modifications, or deny the proposed action.

Due to the nature of exploration, site specific plans are not available for environmental analysis, with the exception of the bulk sample adit and metallurgical test facilities locations. Trench, drill site, and access road locations are dependant on results from ongoing sampling, groundwater monitoring, and geotechnical data requirements, so specific planned site locations may change over the course of an exploration project. SPJV has provided the public with an exploration plan that identifies the maximum amount of disturbance while maintaining enough flexibility to operate in an efficient and timely manner. All specific road, trench, and drill site locations will be requested at later times. Therefore, this environmental assessment does not cover site specific disturbance, but instead it covers large-scale potential impacts of the exploration program.

As the exploration program develops, SPJV would submit site specific plans for review and approval. These plans would be analyzed in the field for potential site specific impacts, and environmental assessments will be completed. Site alternatives for roads, drill pads, and trenches

would be reviewed upon receipt of site specific plans. Approval of site specific plans would be contingent on compliance with guidelines and limits stated in this programmatic environmental assessment. Exploration activity will not exceed the limits reviewed in the environmental assessment.

C. Purpose and Need for Action

The purpose of the proposal is to continue detailed exploration drilling and sampling in the McDonald and Keep Cool project areas.

When this operating plan was submitted, the MMB was required to review and approve the plan on state-owned land in accordance with the terms of the metalliferous leases. The HRB was required to review and evaluate the proposal for both state and private lands under the Montana Metal Mine Reclamation Act (Title 82, Chapter 4, Part 3 et seq. MCA). The Bureaus must identify issues and develop possible mitigation and alternatives through the review process. All of these decisions must be considered collectively under the Montana Environmental Policy Act (Title 75, Chapter 1, et seq. MCA).

D. Background

1. Mineral Leasing - State Lands

Six state-owned tracts totaling 2,949.15 acres are involved in this operating plan (Table 1). Mineral leases on five of these tracts were issued in 1986 to Western Energy Company, and an additional mineral lease was issued in 1989 to Western Energy Company. On January 30, 1991, these leases were assigned to SPJV.

TABLE 1: STATE LEASED TRACTS INVOLVED

LOCATION	LEASE NUMBER	ACREAGE	ISSUE DATE	TRUST FUND
6-14N-7W	M-1715-86	629.15	4/21/86	School of Mines (549.15 ac); State Reform School (80 ac)
4-14N-8W	M-1716-86	240.00	4/21/86	• Public Buildings
10-14N-8W	M-1804-89	640.00	9/19/89	Public Buildings
12-14N-8W	M-1717-86	640.00	4/21/86	School for Deaf & Blind (320 ac); Public Buildings (320 ac)
16-14N-8W	M-1718-86	320.00	4/21/86	Common Schools
36-15N-8W	M-1719-86	480.00	4/21/86	Common Schools

Total Acres: 2949.15

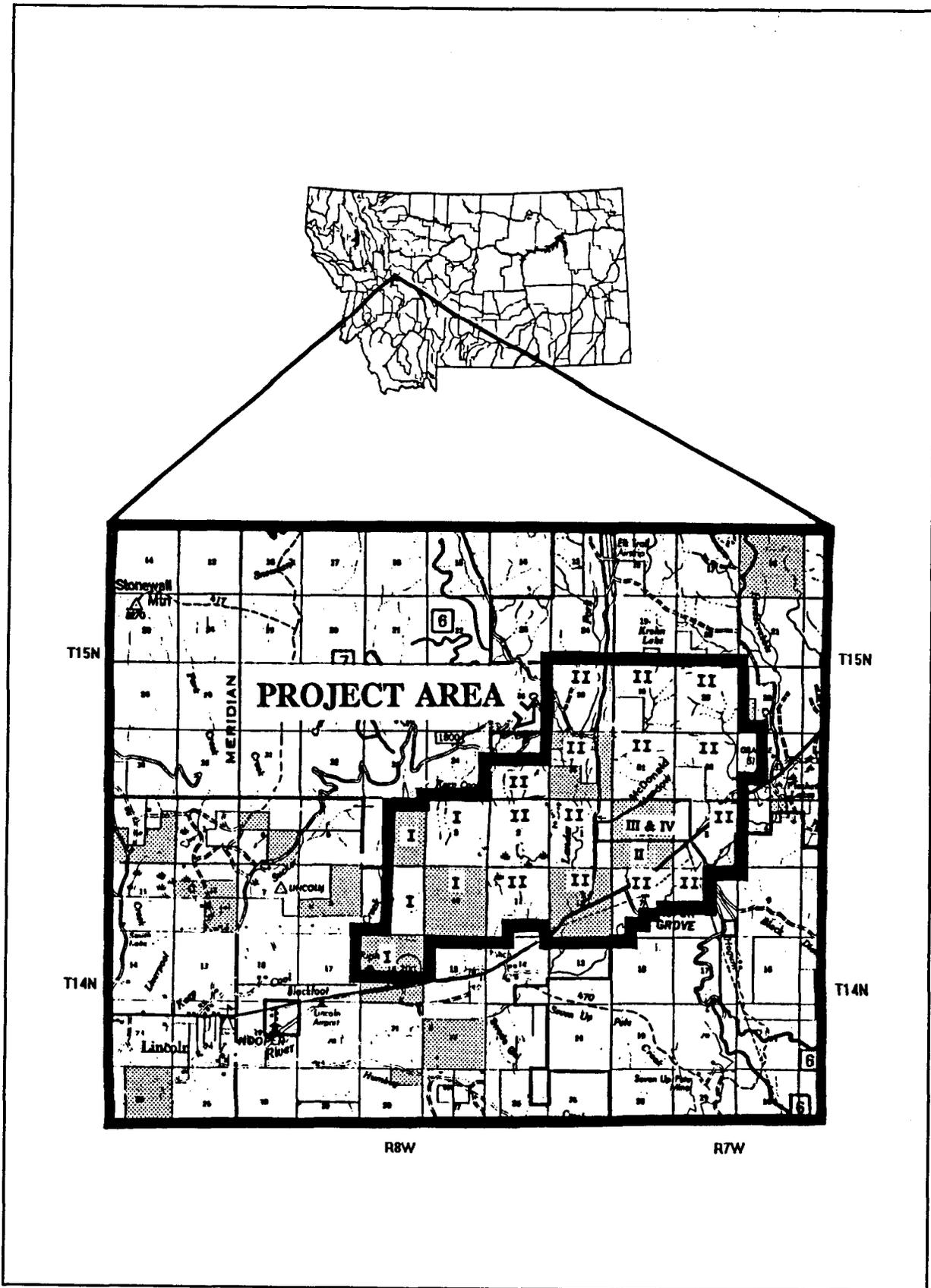


Figure 1: Location Map and Exploration Class Indications. Stippled areas mark state-owned land (also see Figure 2).

2. Private Lands

Approximately 7370 acres of private lands are involved in this operating plan. The private lands have been leased to SPJV for exploration activities.

3. Previous Exploration Operations

a. Operations on State-Owned Lands

Exploration on state-owned lands in the McDonald/Keep Cool Project Areas has been ongoing since 1986. Exploration began with geologic mapping and geochemical sampling in 1986, and has evolved into a total of approximately 130 drill holes and 61,000 feet of access roads on state-owned land as of December 1991. The 61,000 feet of access roads include permanent roads that existed prior to exploration activity and roads that were constructed to DSL standards to facilitate future management activities, such as logging. The most recent activity was reviewed with an environmental assessment in 1990. Table 2 lists the evolution of activity on state-owned land.

TABLE 2: EXPLORATION ACTIVITY ON STATE-OWNED LAND

DATE	ACTIVITY	APPROVAL DATE
1986	Geologic mapping/geochemical sampling (Western Energy)	6/3/86
Fall 1986-Winter 1987	McDonald - 1 core hole/new access road (Western Energy)	12/2/86
May 1987	Road reclaimed	
June 1987	McDonald - 6 drill sites/2100' new access road requested (Western Energy)	6/23/87
March 1989	McDonald - 14 drill sites/2550' new access road requested (Western Energy)	9/18/89
September 1989	Keep Cool - 8 drill sites/access roads (Western Energy). Roads reclaimed (Only 3 sites drilled).	11/13/89
March 1990	McDonald - Approval for total of 186 drill sites/43,000' access road (SPJV)	3/1/90 EA
January, 1992	Keep Cool - 4 drill sites/access roads requested and drilled.	1/22/92

b. Operations on Private Lands

Exploration on private lands in the McDonald /Keep Cool project area has also been ongoing since 1986. Exploration began with geologic mapping and geochemical sampling in 1986, and has evolved into a total of 82 drill sites and approximately 27,000 feet of access road on private lands as of December 1991. These activities have been reviewed by a series of checklist environmental assessments which have not been released to the public due to the mandatory confidentiality

requirements of § 82-4-306, MCA, regarding exploration activities on private lands.

E. Public Involvement

The Department of State Lands (DSL) published legal notices once each week for two consecutive weeks, starting March 23, 1992, announcing SPJV's proposed plan and requesting comments. These notices were published in the Missoulian and the Independent Record. Press releases announcing the proposed plan were also sent to the Missoulian, the Independent Record, the Great Falls Tribune, and the Blackfoot Valley Dispatch (monthly paper) on March 13, 1992. In addition, the plan of operation was made available at agency offices in Helena and Missoula, at the Phelps Dodge office in Lincoln, and at the Lincoln Public Library. As a result, several letters were received commenting on the proposed plan of operation. These letters formed the initial basis for identification of public concerns.

Following public notice, the agencies held a scoping meeting in Lincoln, Montana, on April 2, 1992, which was attended by approximately 175 people. Several additional comments expressing concern were received at that time.

The draft environmental assessment was mailed for public comment on June 24, 1992, and comments were accepted on the draft until July 24, 1992. A public meeting was held on July 16, 1992 to receive comments on the draft assessment. Notification of the draft environmental assessment release and the public hearing was published in the Missoulian, the Independent Record, the Great Falls Tribune, and the Blackfoot Valley Dispatch. Comments received and responses to these comments are located in Chapter VIII.

As a result of public involvement and agency review the following concerns have been identified:

1. Surface Water Quality: The additional disturbed area may result in increased erosion. Sediment may reach the Blackfoot River, Landers Fork, and other smaller streams in the area. Thus, the potential impact to fisheries and water quality must be evaluated.
2. Groundwater Quality:
 - a. The potential impact of additional drilling on groundwater resources must be evaluated.
 - b. The potential for groundwater degradation from the metallurgical test facility and the bulk sample adit must be evaluated.
3. Water Quantity: Drilling and bulk sampling will utilize local water resources. The potential impacts of this usage must be analyzed.
4. Wildlife:
 - a. The possible impact to wildlife as a result of new roads and

- increased activity is a concern and must be evaluated.
- b. **The potential loss of thermal and hiding cover may impact wildlife. This potential loss of habitat must be evaluated for the impacts on wildlife.**
 - c. **Potential impacts to forage and water supply must be evaluated.**
 - d. **Potential impacts to threatened and endangered species must be evaluated.**
5. **Vegetation: Knapweed is already a problem in the area. Plans to control the spread of weeds must be evaluated. Vegetation changes must also be assessed.**
 6. **Socioeconomic Concerns:**
 - a. **Impacts from the project on the local economy must be evaluated. Potential impacts to local businesses, tourism, and recreation must be included in this evaluation.**
 - b. **The benefits to the school trusts must be evaluated.**
 7. **Air Quality: Concerns have been expressed over emissions from drilling and dust from the roads. These potential impacts must be reviewed.**
 8. **Noise: Concerns over noise from the drilling operations and the crushing facility have been expressed. Noise levels and impacts from this noise must be evaluated.**
 9. **Visual: The project area borders Highway 200 and the Landers Fork Road. The visual impact, as seen from these roads and neighboring residences, must be evaluated.**
 10. **Recreation: Snowmobiling is an important land use within the study area boundary. Impacts on snowmobiling trails must be reviewed.**
 11. **Land Use: Potential impacts on cabinsite lessees, grazing, and other residences must be evaluated.**
 12. **Cultural Resources: The potential for degradation of unique cultural resources must be evaluated.**
 13. **Safety: Treatment of ore at the metallurgical test facility will utilize cyanide. The neutralization processes and containment of cyanide treated ore and fluids must be evaluated.**
 14. **Cumulative Impacts: Grazing and extensive logging has occurred throughout the study area, along with historic mining in the region.**

Recreation activities also effect the area. Cumulatively, the impacts on wildlife and water quality must be evaluated.

15. Future Mining Impacts: Concern over future mining at this site has been expressed.

This analysis will address all of these concerns except for future mining. Future mining is beyond the scope of this environmental assessment, and is not considered to be a connected action. Connected actions are defined as actions that are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) automatically trigger other actions which may require environmental impact statements; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; (iii) are interdependent parts of a larger action and depend on the larger action for their justification. No formal mining proposal has been submitted at this time. Exploration activities and mining activities together are not considered connected activities because they do not meet the above criteria. Therefore, the effects of mining are beyond the scope of this environmental assessment. Any proposed mining activities would receive the appropriate environmental reviews if and when such an application is received.

F. Agency Responsibilities

Two bureaus, each from a different division within the Department of State Lands, have participated in a joint review of this proposal (Minerals Management Bureau of the Lands Administration Division and the Hard Rock Bureau of the Reclamation Division). In addition, surface impacts were reviewed by the Department of State Lands Forestry Division and the Southwest Land Office of the Field Operations Division. The following is a description of agency responsibilities in regard to this exploration plan. Although the agencies and bureaus have cooperated in the analysis of the operating plan, decision-making responsibilities are individual and separate.

1. Reclamation Division, Hard Rock Bureau

The Administrator of the Reclamation Division of State Lands must decide whether to approve SPJV's application as proposed, approve with modified exploration or reclamation plans, or deny the application, as required by the Montana Metal Mine Reclamation Act (MMRA).

The Hard Rock Bureau of DSL administers the MMRA which applies to all state, federal and private lands within Montana, with the exception of Indian lands. The purpose of the act is to provide that the usefulness, productivity, and scenic values of all lands and the quality and quantity of surface waters and groundwater involved in mining and exploration receive the greatest reasonable degree of protection and reclamation to beneficial use. The act and its regulations (ARM 26.4.101 et seq.) set forth the steps to be taken in the issuance of an exploration license for the applicant's proposed exploration project. Under the MMRA, the HRB holds a sufficient bond for full reclamation of the exploration disturbances. The bond would be sufficient to cover the project from "cradle to grave."

DSL's rules (ARM 26.2.601 et seq.) implementing the Montana Environmental Policy Act (MEPA) also require preparation of an environmental analysis. The HRB has determined that an Environmental Assessment (EA) is appropriate for this project. This EA has several purposes:

- a. It serves to ensure that the agency uses the natural and social sciences and the environmental design arts in planning and decision-making;
- b. It assists in the evaluation of reasonable alternatives and the development of conditions, stipulations or modifications to be made part of the proposed action;
- c. It determines if there is a need to prepare an Environmental Impact Statement (EIS) through an initial evaluation and determination of the significance of potential impacts associated with the proposed action;
- d. It ensures the fullest appropriate opportunity for public review and comment on the proposed action, including alternatives and planned mitigation, where the residual impacts do not warrant an EIS; and
- e. It examines and documents the effects of the proposed action on the quality of the human environment.

The Reclamation Division Administrator may deny a license when it can be demonstrated that the applicant is in default of any other reclamation obligations required under the Metal Mine Reclamation Act (§ 82-4-332, MCA). A license may also be denied if an applicant, or any firm or business association of which that applicant was a principal or controlling member had a bond forfeited under the act (§ 82-4-360, MCA). The SPJV or its principals have not forfeited any bonds under the MMRA.

2. Lands Administration Division, Minerals Management Bureau

The Administrator of the Lands Division of State Lands is the responsible official for approving Plans of Operation for certain mineral activities on state-owned land pursuant to terms of the lease which states:

"The Department shall not approve the Plan until the Lessee has met reasonable requirements to prevent soil erosion, air and water pollution, and to prevent unacceptable impacts to vegetation, wildlife, wildlife habitat, fisheries, visual qualities and other resources and to reclaim any land disturbed by the activities. No work will be conducted without written approval of the Operating Plan."

In addition, DSL's rules (ARM 26.2.601 et seq.) implementing the Montana Environmental Policy Act require preparation of an environmental analysis. The MMB has determined that an Environmental Assessment is appropriate for this project for the same reasons listed under the HRB responsibilities (see above).

The Administrator must choose one of the alternatives and identify any necessary reclamation/mitigation measures that are needed to protect state land resources and insure future income to the applicable trust funds.

3. Department of State Lands, Forestry Division and Field Operations Division

The state-owned surface acreage within the project area is classified forest land, and, therefore, is administered by the Forestry Division of the Department of State Lands. The Southwest Land Office of the Field Operations Division oversees day-to-day activities on surface and mineral leases in the area.

Currently, all six tracts are leased to the Sieben Ranch for grazing. In addition, cabin site leases exist in Section 12, T14N, R8W, and Section 36, T15N, R8W.

Both the Forestry Division and the Southwest Land Office of the Field Operations Division review mineral activities on state land for impacts to surface leasing.

4. State Historic Preservation Office

The State Historic Preservation Office (SHPO) is responsible for cooperating with and advising DSL when potentially valuable historical, archaeological, or other cultural resources are located within a project area (Montana Antiquities Act, Sections 22-3-401 through 22-3-442, MCA, and the National Historical Preservation Act [P.L. 89-665 as amended and re-authorized E.O. 11593]). Advice given to DSL may include comments on an applicant's plan for impact mitigation of sites eligible for nomination to the National Register of Historic Places. The office also reviews the EA or EIS to ensure compliance with cultural regulations.

The SHPO reviews antiquities permits issued by DSL for projects on state lands. The office also seeks determinations from the Keeper of the National Register for sites believed eligible for listing on the National Register of Historic Places. During the exploration operation, DSL is responsible for monitoring compliance with historic preservation and monitoring plans.

5. Department of Health and Environmental Sciences (DHES)

a. Air Quality Bureau

The Air Quality Bureau (AOB) of DHES administers the Clean Air Act of Montana (Title 75, Chapter 2 et seq. MCA). Any proposed project with potential to emit more than 25 tons per year of any pollutant must obtain an air quality permit before construction. The applicant must apply Best Available Control Technology (BACT) to each emission source. The applicant must also demonstrate that the project would not violate Montana or Federal Ambient Air Quality Standards. In this case, where the project emissions fall below the level requiring a permit, the operator is still required to take reasonable precautions to minimize fugitive dust emissions. These provisions are subject to inspection and enforcement by the AOB.

b. Water Quality Bureau

The Water Quality Bureau (WQB) of DHES is responsible for administration of the Montana Water Quality Act (Title 75, Chapter 5 et seq. MCA), providing for the classification of surface waters, establishing surface and ground water quality standards, and administering permit programs to control the discharge of pollutants into state waters.

A Montana Pollutant Discharge Elimination System (MPDES) permit must be obtained before any discharge to surface water may occur. The MPDES permit contains water quality limitations and requires self-monitoring of effluent by the permittee. Exploration operations must also comply with Montana groundwater standards.

6. Department of Natural Resources and Conservation (DNRC)

DNRC administers one statute that is applicable to mineral exploration in Montana - the Montana Water Use Act [Title 85, Chapter 2, MCA (MWUA)]. A water rights permit is required by the MWUA for any surface water diversion or groundwater withdrawal exceeding 35 gallons per minute or 10-acre-feet/year. If groundwater withdrawal is less than 35 gallons per minute or 10-acre-feet/year, SPJV must file a Notice of Completion (form 602) with DNRC. The SPJV currently holds a temporary permit to appropriate water for the McDonald area.

CHAPTER II - PROPOSED PLAN AND ALTERNATIVES

A. Proposed Plan

Details of SPJV proposed exploration activities are available in the operating plan submittal. Activities are proposed to occur year round over the next 3 to 5 years. The following is a brief summary of planned activities.

1. Geophysical and Geochemical Testing and Geological Mapping

Geological mapping, geochemical testing, and geophysical testing require little to no surface disturbing activity. The remaining proposed actions will require surface disturbance.

2. Proposed Drilling Operations

SPJV's operating plan calls for the construction of up to 614 new drill pad sites and up to 154,855 feet of associated access roads in the next 3 to 5 years. The density of proposed drilling would vary with the type of exploration effort envisioned for each area. Drilling density class locations are shown on Figure 1, and Figure 2 shows example drilling patterns for each class type. Though the examples in Figure 2 indicate relatively evenly spaced drill sites around a section, in reality these sites may be more concentrated in one area of the section when drilled, depending on the need for more detailed analysis in certain portions of the section. The total proposed disturbed areas listed in Table 3, however, would not be exceeded. Exploration activity will not close or restrict access to either Highway 200 or the Landers Fork Road.

Since drill pad and road locations are dependant on data received throughout the project life, site specific plans were not submitted with this operating plan. Site specific plans for road construction will be submitted in subsequent operating plan amendments. Upon submittal of the site specific plans, assessments of impacts to resources would be completed. Approval of site specific plans would be contingent on compliance with guidelines and limits stated in this programmatic environmental assessment.

Access roads to the drill pad sites have an average width of 12 feet with a minimum cleared width of 18 feet. Roads would be constructed along contours, where possible, to minimize erosion. Waterbars, draindips, culverts, and ditches would be installed to control erosion and reduce sedimentation. Roads would be pioneered with an excavator or backhoe, and topsoil would be stockpiled on the uphill side of the road. A bulldozer would then be used to complete the road construction. Slash would be placed below the fill slope to minimize sedimentation. Roadways would also be seeded immediately after construction to help control weed infestation and control erosion. Upon reclamation of the roads, the fill would be re-contoured over the road, and topsoil would be placed back over the re-contoured area. A seed mixture of predominantly native vegetation would be placed over the reclaimed area.

Access roads would be widened to accommodate the drill pad sites. Drill pad sites typically

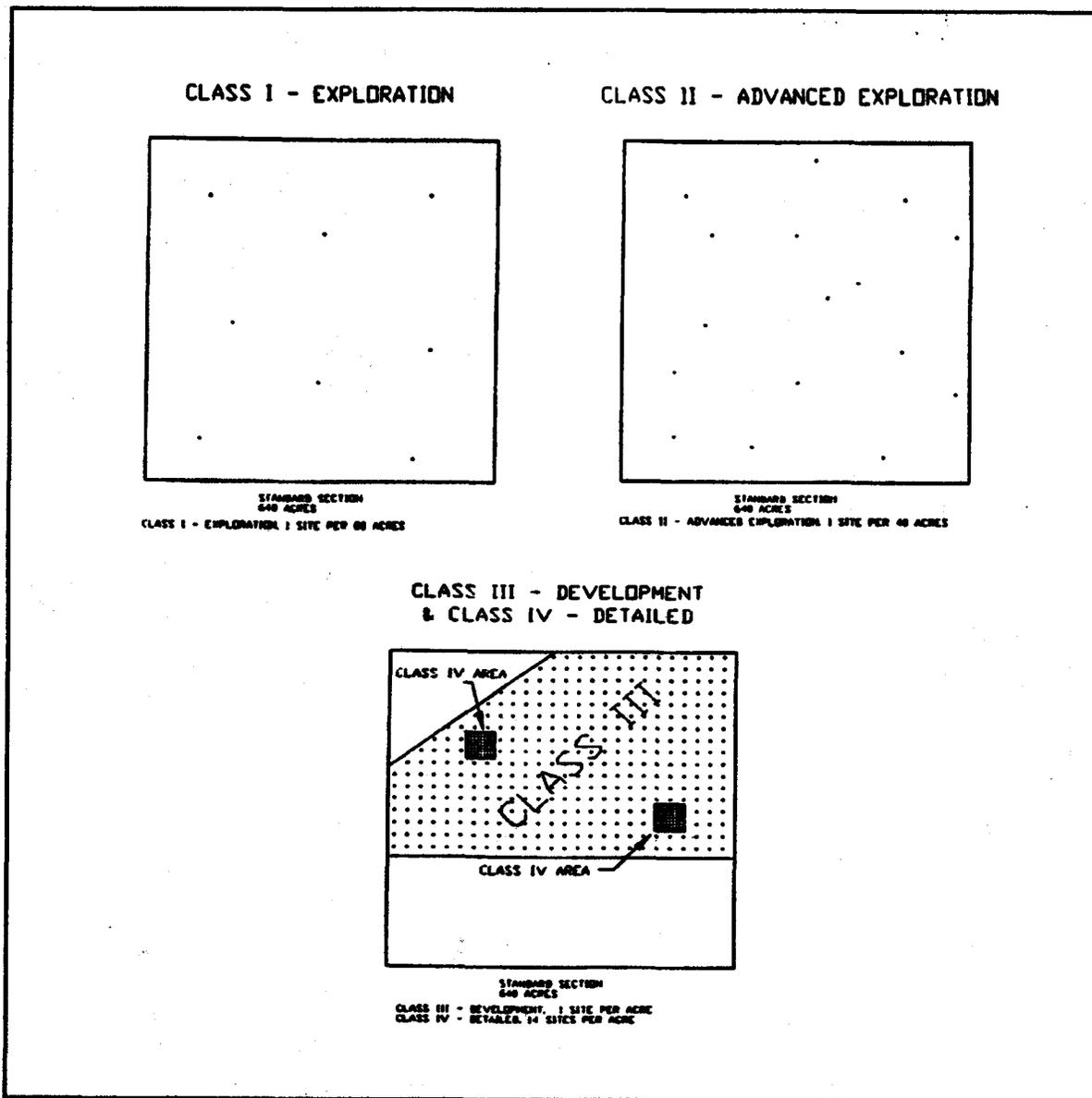


Figure 2: Drilling Density by Exploration Class

are approximately 50 by 100 feet in area, including the road width. Each drill site contains sufficient space for a drilling rig, a water truck, two support vehicles, and a small sump for excess water, mud, and cuttings (Figure 3). SPJV would clear sites, control weeds, and reclaim sites in a manner similar to the access roads.

In areas with high density drilling (Class IV), the entire area would be cleared of timber, and the soil would be stockpiled to one side of the clearing. Sumps may service more than one drill site. Upon completion of the drilling, the site would be re-contoured, then covered with the soil. A seed mixture of predominantly native vegetation would then be established on the reclaimed area. Weed control would continue over all reclaimed areas until the bond is released.

The drill holes would be plugged from the bottom of the hole to 100 feet above the water

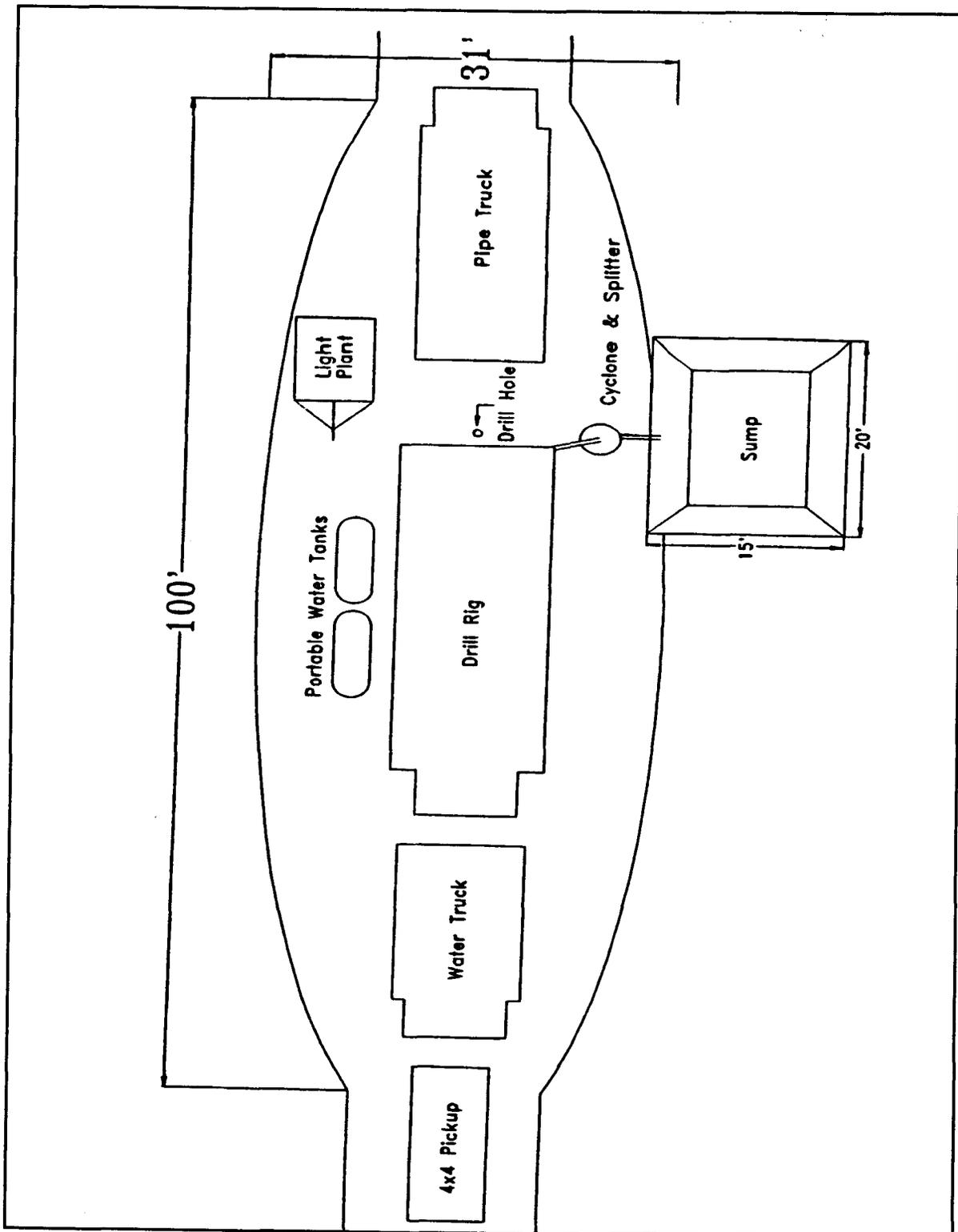


Figure 3: Typical Drill Pad Layout (actual pad layout varies with the site location)

table with bentonite mud immediately after drilling is completed. A 10 foot cement surface cap would also be set on every hole. All geotechnical holes would be plugged from top to bottom with bentonite and/or cement. Water used for drilling would come from the Blackfoot River and other

local sources (sources other than the Blackfoot River must comply with Title 85, Chapter 2, MCA and the rules of DNRC). Drilling fluid additives would be EPA approved for drilling drinking water wells. Sumps would be used to remove fine sediment. In instances where sumps may overflow, the sumps may be drained across the surface through use of a perforated pipe. If the sump is located within 100 feet of surface water, the sump water would be piped away from this water or evaporated.

TABLE 3: AREA DISTURBANCE ESTIMATES FOR THE PROPOSED ACTION
(All values are in acres)

SECTION	OWNERSHIP	TOTAL AREA	DRILL SITES	ROADS	TRENCHES	MISCELLANEOUS DISTURBANCE	NEW DISTURBANCE
McDONALD							
6	STATE	629	18.8	21.1	0.7	0.0	40.6
12	STATE	450	0.7	3.0	0.7	0.0	4.4
36	STATE	240	0.5	1.3	0.7	0.0	2.5
1	PRIVATE	341	2.9	5.2	0.7	9.0	17.8
5	PRIVATE	640	4.2	5.5	0.7	0.0	10.4
7	PRIVATE	412	0.6	1.5	0.7	0.0	2.8
25	PRIVATE	130	0.1	0.8	0.1	0.0	1.0
29	PRIVATE	640	1.0	2.3	0.7	0.0	4.0
30	PRIVATE	640	1.0	2.3	0.7	0.0	4.0
31	PRIVATE	640	1.0	2.3	0.7	0.0	4.0
32	PRIVATE	480	0.7	1.7	0.7	0.0	3.1
33	PRIVATE	142	0.1	0.1	0.0	0.0	0.2
36	PRIVATE	160	0.0	0.0	0.0	0.0	0.0
SUBTOTAL:		5544	31.6	47.1	7.1	9.0	94.8
KEEP COOL							
4	STATE	240	0.2	1.4	0.2	0.0	1.8
10	STATE	640	0.5	1.9	0.4	0.0	2.8
12	STATE	190	0.4	1.3	0.3	0.0	2.0
16	STATE	320	0.2	0.8	0.3	0.0	1.3
36	STATE	240	0.4	1.0	0.4	0.0	1.8
1	PRIVATE	299	0.5	1.1	0.4	0.0	2.0
2	PRIVATE	640	1.0	2.7	0.7	0.0	4.4
3	PRIVATE	640	0.5	1.4	0.4	0.0	2.3
9	PRIVATE	320	0.2	0.4	0.3	0.0	0.9
11	PRIVATE	522	0.8	2.3	0.7	0.0	3.8
25	PRIVATE	510	0.4	1.7	0.4	0.0	2.5
35	PRIVATE	320	0.5	1.2	0.5	0.0	2.2
SUBTOTAL:		4881	5.6	17.2	5.0	0.0	27.8
GRAND TOTAL:		10425	37.2	64.3	12.1	9.0	122.6

3. Trenching

Trenches or test pits would be constructed by an excavator or dozer. Disturbance would generally be limited to 0.5 to 3 acres. SPJV would salvage and stockpile topsoil above the trench area, and spoils would be stockpiled below the trench. Slash would be placed below the spoils pile to reduce sedimentation. The site would be reclaimed upon completion of the test by filling in the trench with spoils, re-contouring the area, and covering the disturbed area with topsoil in a manner similar to the access roads. A predominantly native seed mixture would be planted on the reclaimed area, and weed spread controlled with a herbicide until bond release. Trench footage may be exchanged for road footage or road footage may be exchanged for trench footage if the need arises.

Since trench locations are dependant on data received throughout the project life, site specific plans were not submitted with this operating plan. Site specific plans for trench locations will be submitted in subsequent operating plan amendments. Upon submittal of the site specific plans, assessments of impacts to resources would be completed. Approval of site specific plans would be contingent on compliance with guidelines and limits stated in this programmatic environmental assessment.

4. Bulk Sampling

Bulk sampling would consist of approximately 1367 feet of underground workings. The proposed portal site is located in an existing trench on private land, and additional surface disturbance would be small. Water from the underground workings would be collected in a sump from the adit and piped down to settling ponds at the sample process area. Access to the site would be along an existing exploration road in Section 5. This road would be widened slightly and improved to meet MSHA standards, if required.

Material removed from the adit would be stored in a relatively flat area adjacent to the north side of Highway 200 (Figure 4). At this location, portions of these samples would be crushed and stored for future testing. This area would be isolated from the general environment by a diversion ditch on the north side, to prevent natural runoff entering the site, and by a berm on the other three sides to contain precipitation within the work area. The berm would be formed from stockpiled soil. The natural glacial till beneath the soil would be compacted to prevent seepage of water within the area. The site would naturally drain to the southwest corner where two sumps, 100 feet square and 10 feet deep, would be constructed. Those sumps would either contain a compacted natural liner or a synthetic liner with a permeability rate of at most 10^{-7} cm/sec. The sump liner would be monitored by installing suction lysimeters in the unsaturated zone beneath each sump. The entire process area would be fenced. All disturbed areas would be interim seeded to control weed infestations.

One pond would be used to settle suspended solids from the run-off within the site, and from the adit drainage which would be pumped directly to this pond. This water, superficially free of suspended solids, would be pumped through a small treatment facility where lime would be

added, as required, to complete the clarification process and precipitate any minor quantity of heavy metals that may be contained in solution. Based on analysis of drill samples to date, base metal and sulfide content of the water samples is expected to be very low. The treated water would be directed to the second pond which would allow the residual solids and precipitate to settle. These ponds would be large enough to contain the maximum anticipated precipitation within the controlled area.

Treated water would be pumped from the clarification pond, when it meets regulated quality, to be disposed of by land application on other areas of the property. The minor ammonium nitrate content from explosives in this temporary additional water source would be minimized by good housekeeping in the mining phase, and would provide some additional nutrient to the natural growth in the land application area.

The bulk sampling program is projected to last for 5-6 months. Upon completion of the bulk sampling program, the portal would be secured and the area would be reclaimed. Prior to final closure, the portal would be equipped with a security door. For final closure, the portal would be filled with waste rock and the staging area re-contoured similar to the adjacent slope. Soil that was previously salvaged at the site would be spread over the area and re-seeded using a predominantly native seed mixture.

The process and storage area would be reclaimed when the area is no longer needed to support the exploration operations. Excess sample material not required for further testing would be used as road surfacing material or disposed of along with the spent test rejects. Spent test reject material would be neutralized and spread and contoured over the controlled area. The soil in the berms would be moved back to cover the site before seeding. Weed control would continue on all reclaimed areas until the reclamation bond is released.

5. Metallurgical and Environmental Testing Facility

A proposed metallurgical and environmental testing facility would be located next to Highway 200 in Section 5. The facility would contain a laboratory in a single-wide mobile trailer, a lined containment sump, three exterior testing columns, and associated auxiliary equipment (Figure 5). A 30-foot by 40-foot bermed concrete area would be constructed within the bulk sample process area to contain the testing equipment and serve as containment for any spilled process chemicals (see Figure 4).

The concrete area would contain a 10-foot by 30-foot raised area for sample preparation and a 30-foot by 30-foot bermed area. A one-foot high concrete berm would be provided for solution and solids containment. All concrete would have a minimum thickness of 4-inches.

The test facility would be fenced and kept locked when unattended. This would be a part of fencing provided around the sample storage and handling facility. Appropriate cyanide-use warning notices would be posted at regular intervals around the facility fencing.

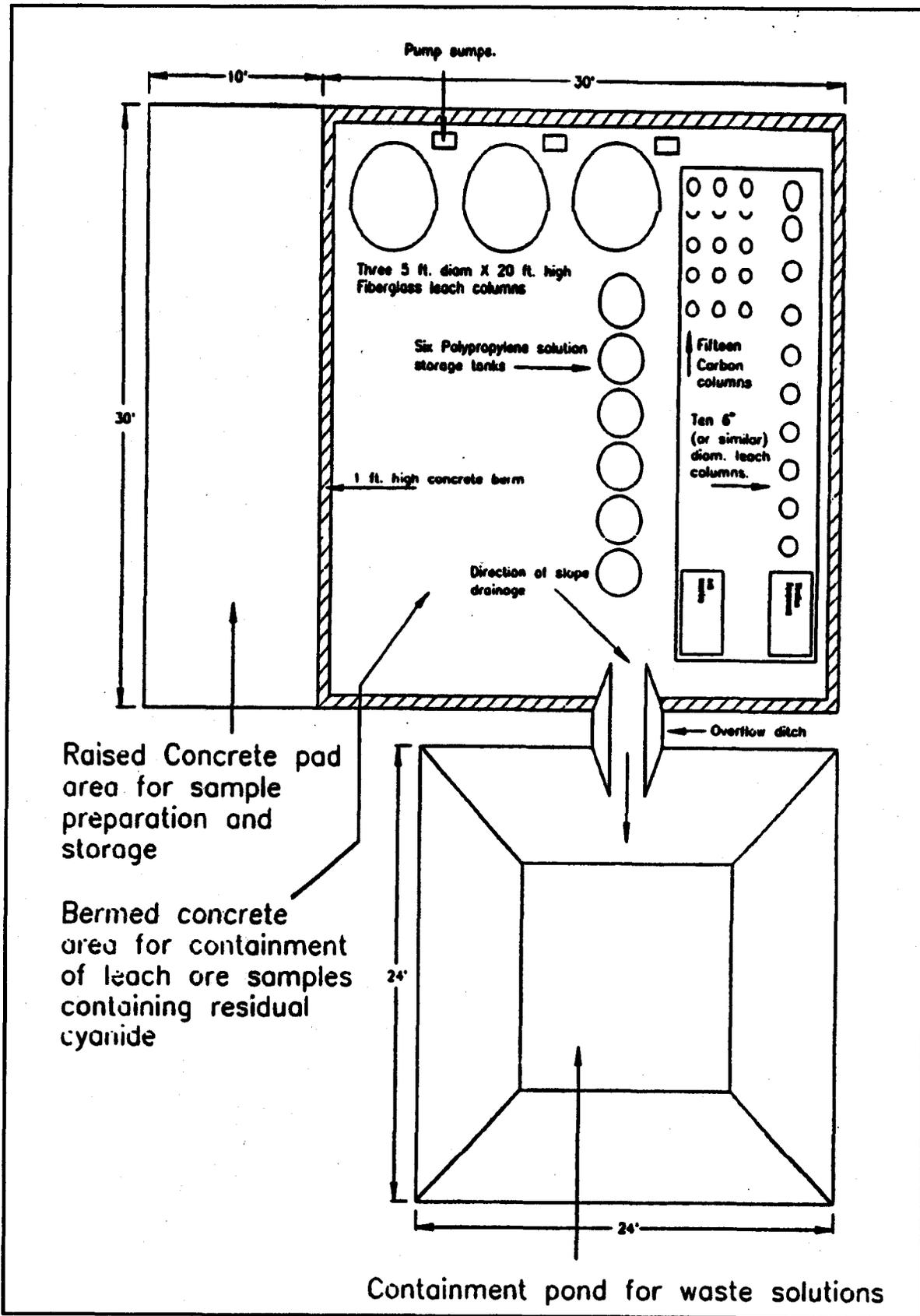


Figure 5: Metallurgical Test Facility Layout

All cyanide solutions would be contained within a closed system. In the event of a failure of the closed leaching system, solutions would be contained within the bermed concrete area and directed by gravity flow to the lined containment sump. Solutions that enter the sump would be detoxified to destroy the free cyanide with ferrous sulphate and/or hydrogen peroxide. The sump would be pumped out periodically, following adequate detoxification, into the clarifying sump located in the bulk sample process and storage area. Fluids from the process and storage area sumps would be land applied or evaporated.

At the conclusion of each column leach test, the ore would be neutralized using a combination of ferrous sulfate and hydrogen peroxide. In this process, the cyanide is either strongly complexed by the iron rendering it non-toxic, changed to thiocyanate by the presence of sulfur compounds (which is non-toxic), or oxidized to harmless cyanate and then to nitrogen compounds and carbon dioxide by the peroxide, with a by product of water. The spent ore would be considered sufficiently neutralized to prevent any contamination of groundwater when the leachate Weak Acid Dissociable (WAD) cyanide levels are less than 0.2 mg/l. This would ensure compliance with the Montana Water Quality Bureau guidelines (Horpestad, 1989). The ore would then be removed to the sample storage area for disposal during reclamation of the sample holding facility area. If the spent ores are not sufficiently neutralized prior to removal from the test facility, SPJV would remove those materials from the site and dispose of them in an active permitted facility off-site.

Solid sodium cyanide, lime, and all other reagents required to operate the test facility would be stored in closed containers within the lined test facility area. Approximately 200 pounds of NaCN would be required to treat the sample materials.

When the test facility is no longer needed, the mobile trailer and exterior equipment would be removed from the site, the concrete slab would be broken into pieces, and the sump would be filled in with broken concrete or natural materials. The site would then be reclaimed during reclamation of the bulk sample process and storage area.

6. Monitoring Plans

Groundwater monitoring wells have been, and would be, placed around the project area. These wells would be utilized for both monitoring and baseline analysis. In addition, baseline studies would continue on wildlife populations, including elk, deer, small mammals, fisheries, song birds, raptors, and threatened or endangered species. Soils mapping, aquatics monitoring, and surface water monitoring would also continue during this exploration phase. These data would provide monitoring information for DSL through the life of this exploration.

Monitoring would be used to verify that mitigation plans developed thus far are effective. If monitoring data indicated unanticipated effects were occurring, the agencies would require further mitigation.

7. Summary of Impacts Under the Proposed Action:

- a. Detailed exploration activities would be permitted under this alternative, allowing for a more complete analysis of mineral potential for the area, while mitigating measures minimize long-term environmental impacts.
- b. Exploration related jobs would remain in the Lincoln area.
- c. Some impacts could occur to wildlife in the area, including temporary displacement of elk from winter range, calving areas, and thermal and security cover.
- d. Some short-term loss of vegetation would occur along exploration roads and at drilling sites.
- e. Activities would be visible from Highway 200 and surrounding areas during exploration. Some sites would be visible until vegetation provided screening.
- f. Limited impacts could occur to surface and ground water resources through sedimentation and possible leakage of bulk sample test facility sumps.

B. Alternatives to the Proposed Plan

1. Alternative I - No Action

The no-action alternative would deny the SPJV's proposal to expand exploration operations within the McDonald and Keep Cool areas. This alternative is considered as a baseline to compare all other alternatives. Exploration activities which are already permitted would continue under this alternative. Weed control and reclamation plans in force would continue to be implemented.

a. Possible Impacts under Alternative I:

- (1) There would be no additional disturbance from new road construction, new drill pad site construction, underground workings, or the test facility other than already permitted exploration work.
- (2) Additional impacts to natural resources would be avoided.
- (3) Denial of this permit could stop future development of the site. Potential loss of jobs could result.

2. Alternative II - Proposed Plan with Additional Mitigation Measures

This alternative would accept the operating plan with additional mitigation measures attached to provide additional protection to the natural resources of the area. Mitigation measures under this proposal are listed in Appendix A. Exploration activities which are already permitted would continue under this alternative in addition to new activities allowed under this alternative.

a. Possible Impacts under the Mitigated Alternative:

- (1) Detailed exploration activities would be permitted under this alternative, allowing for a more complete analysis of mineral potential for the area, while mitigating measures minimize impacts on the local natural resources.
- (2) Exploration related jobs would remain in the Lincoln area.
- (3) Some short-term impacts would occur to wildlife in the area, including temporary displacement from winter range, calving areas, and thermal and security cover.
- (4) Some short-term loss of vegetation would occur along exploration roads and at drilling sites.
- (5) Activities would be visible from Highway 200 and surrounding areas during exploration. Some sites would be visible after until vegetation provided screening.

This alternative is evaluated in Chapter IV.

C. Related Actions under Concurrent Consideration

Other activities in the area may have additional impacts on the local resources, and must be analyzed in this review. Cumulative impacts from timber harvesting in the region, along with recreational activities, such as hiking, snowmobiling, and hunting, must be reviewed. Grazing activities in the area may also increase the impact on the area.

No changes in grazing usage or recreational plans have been proposed for the McDonald/Keep Cool areas, however, a deadwood timber salvage permit is active in Section 10 for a twelve-acre area, and another deadwood timber salvage permit is being considered for Section 4.

Historical mining disturbance in the region, such as the Heddleston District activities, are too far away to have direct impacts to this project, so the historical mining disturbance will not be reviewed in this EA.

D. Alternatives Considered but Dropped From Further Analysis

The operating plan calls for minimizing road lengths, which would minimize the area of disturbance. In the proposed programmatic exploration program, drill hole locations on a grid are proposed. Site specific locations, when selected in the field, would be adjusted to minimize impacts to natural resources. Alternatives for road access to the sites would be reviewed at that time.

Other sites for the bulk sample storage and metallurgical testing facility were briefly reviewed. Locations outside the proposed project area, such as the SPJV shop area, were considered, but the distance was too great for effective sample movement. Other locations within the McDonald/Keep Cool area were not level or would produce greater impacts to elk seasonal use. These other locations, therefore, were not considered for further analysis.

CHAPTER III - AFFECTED ENVIRONMENT

The following description of the regional environment is adapted from the environmental assessments of previous explorations plans, completed since 1986 by the DSL, from information contained in the proposed operating plan, and from site visits.

A. Topography and Geology

The study area lies on the western edge of the disturbed belt in the east central portion of the Rocky Mountains of Montana. It is located approximately two to three miles west of the Scapegoat Thrust, and is on the Scapegoat Plate (Whipple, et al, 1987). Thrusting in this area is interpreted to have occurred during late Cretaceous to early Tertiary time.

This portion of the disturbed belt is composed primarily of Precambrian Belt Series rock, which is overlain by a thick sequence of Tertiary volcanics and a thin veneer of Pleistocene glacial deposits. The Tertiary volcanics are composed primarily of rhyolite ash flows (Melson, 1971), and crop out in the eastern part of the study area. The glacial deposits are composed of poorly sorted till and moderately sorted outwash and reworked till. Both the Landers Fork and Blackfoot River valley floors are covered with alluvium.

Elevations in the study area range from about 4800 feet, in the Blackfoot River valley floor, up to 5700 feet. The topography is generally mountainous, except for the relatively flat valley floors of the Landers Fork and the Blackfoot River. The Blackfoot River valley is 1/2 to 3/4 mile wide, and has a very gentle southwest gradient. The topography bears little resemblance to the structure of the underlying Belt Series rocks.

Some evidence of minor slumping is present in the Keep Cool area and in the northern portion of the McDonald area. The areas where slumping has occurred is evident by swale topography and small ponds or wet areas on flatter portions of the slump. The failure surface of these slumps is unknown at this time.

B. Hydrology

1. Surface Water

Two major streams flow through the study area; the Blackfoot River is along the southern boundary of the study area and the Landers Fork divides the Keep Cool and McDonald areas. Other drainages in the area include Keep Cool Creek, which lies on the western border of the study area, and Hardscrabble Creek, which lies north and east of the study area.

Hydrologically, the McDonald and Keep Cool areas are distinctly different. The McDonald area is relatively dry with no named streams within its boundaries and only a few seeps and wet areas. There are no direct connections between drainages in the McDonald area and the Blackfoot River or Hardscrabble Creek. Only during extreme runoff periods could surface flow drain into the

drainage ditches along Highway 200 and into the Blackfoot River. Flow from one drainage reaches the Landers Fork in the northwest portion of the McDonald area. Flow from this drainage has been measured at less than 70 gallons per minute. Some seeps are located in the northern portion of the McDonald area, and drainages below some of these seeps are wet. Flow from these seeps, however, is less than one gallon per minute.

The Keep Cool area, on the other hand, contains numerous lakes, swamps, and intermittent streams. Seeps and swamps occur above the bases of slumps, below slump toes, and on other flat areas. Some of these areas are most likely jurisdictional wetlands (wetlands under 33 CFR §328.3 and §404 of the Federal Clean Water Act, 33 USC §1344, under jurisdiction of the Army Corps of Engineers). Some drainages in the northwest end of the Keep Cool area may discharge into Keep Cool Creek during peak flow and, subsequently their flow would reach the Blackfoot River. There are no direct connections reported between the Keep Cool area and the Blackfoot River or the Landers Fork except via Keep Cool Creek, where three, very small, intermittent streams connect the project area and Keep Cool Creek.

2. Surface Water Quality

Streams in the study area are classified by the Montana Water Quality Rules as B-1 (ARM 16.20.604). Waters classified as B-1 are "suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth propagation of salmonid fishes and associated aquatic life, waterfowl and fur bearers; and agricultural and industrial water supply" (ARM 16.20.618).

The quality of water samples taken by Hydrometrics in the study area is generally very good. Surface waters are typically a non-saline, calcium bicarbonate type, of moderate hardness. Trace metal concentrations are below freshwater aquatic and federal drinking water standards with the exception of cadmium and lead. Elevated cadmium and lead levels were noted at two sites; one on the Landers Fork and the other in Section 32. Cadmium levels at these locations were 0.002 mg/L and 0.007 mg/L, respectively. (Chronic freshwater standards for cadmium is 0.0011 mg/L). These metals probably occur naturally at the site in Section 32 since no man made disturbance lies above the site. Elevated levels of cadmium at the Landers Fork site may be either natural or from upstream disturbance outside the project area. Previous exploration has not resulted in any change in surface water quality. Detailed water quality data is available in Appendix H of the operating plan.

3. Groundwater

Figure 6 shows the potentiometric surface in the McDonald area. The aquifer system is basically an unconfined, fractured system. Springs and seeps most likely emerge where the main potentiometric surface intersects the land surface.

No data is available for the Keep Cool area, but the abundance of lakes, seeps, and swamps indicates a shallow water table.

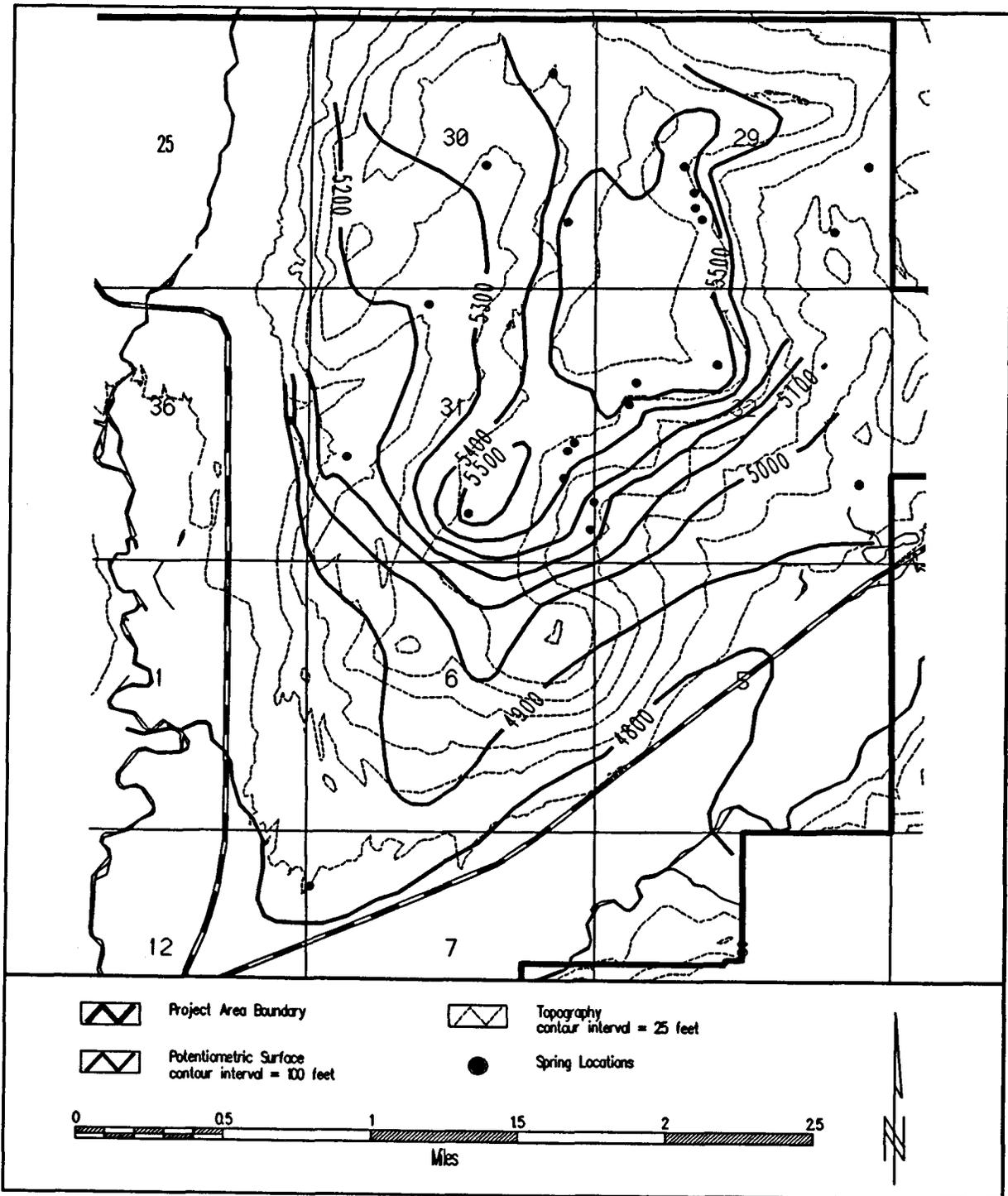


Figure 6: Potentiometric surface in the McDonald area.

4. Groundwater Quality

Data is not currently available on groundwater quality for the area. Baseline monitoring wells will be installed as part of this next phase of exploration.

C. Soils

Soils in the proposed exploration area are diverse and vary from shallow, rocky residual soils on the upper slopes and ridges to deep, clay-rich glacial till soils on the sideslopes to alluvial and colluvial soils on the footslopes. The soils support a mixture of productive grasslands, fair to moderately productive forests dominated by ponderosa pine, douglas fir, lodgepole pine and subalpine fir, and, where shallow water tables have an influence, typical wetland vegetation.

A generalized soil map has been produced by the SPJV for the McDonald area (Figure 7). These soil types represent the majority of the soils in the entire exploration area.

The major soil factors that may negatively impact reclamation of the proposed exploration activities, as observed in previous exploration and logging uses, are:

- a. high coarse fragment content,
- b. shallow depth to bedrock,
- c. shallow depth to water,
- d. relatively high clay contents in some soil horizons
- e. wetland soils,
- f. erosivity of soils, and
- g. steep slopes (>2h:1v).

High coarse fragment content and shallow depth to bedrock limit the amount of soil available for future reclamation and reseeding. Soils that have relatively high clay content may form compacted, impermeable areas if the clay-rich horizons are not mixed with other soils or ripped prior to reclamation. Soils on steep slopes can not be salvaged by operators without specialized equipment. Table 4 list the soil factors for each soil type listed in figure 7.

TABLE 4: MAJOR SOIL FACTORS FOR GENERALIZED SOIL TYPES

Soil Factor	Soil Type
High Coarse Fragment Content	AC, CA, CE, E, FL
Shallow Depth to Bedrock	E
Shallow Depth to Water	HC, FL
Relatively High Clay Content in Some Horizons	CA
Wetland Soil	HC
Erosivity of Soils	CA
Steep Slopes	CE, E

LEGEND

- AC - Loamy-skeletal mixed argic cryoborolls
- CA - Loamy-skeletal/fine-loamy, mixed typic cryoborolls
- CE - Loamy-skeletal mixed typic cryochrepts
- E - Loamy-skeletal and fragmental typic or lithic cryorthents
- FL - Coarse-loamy, mixed typic cryofluvents
- HC - Histic cryaquepts

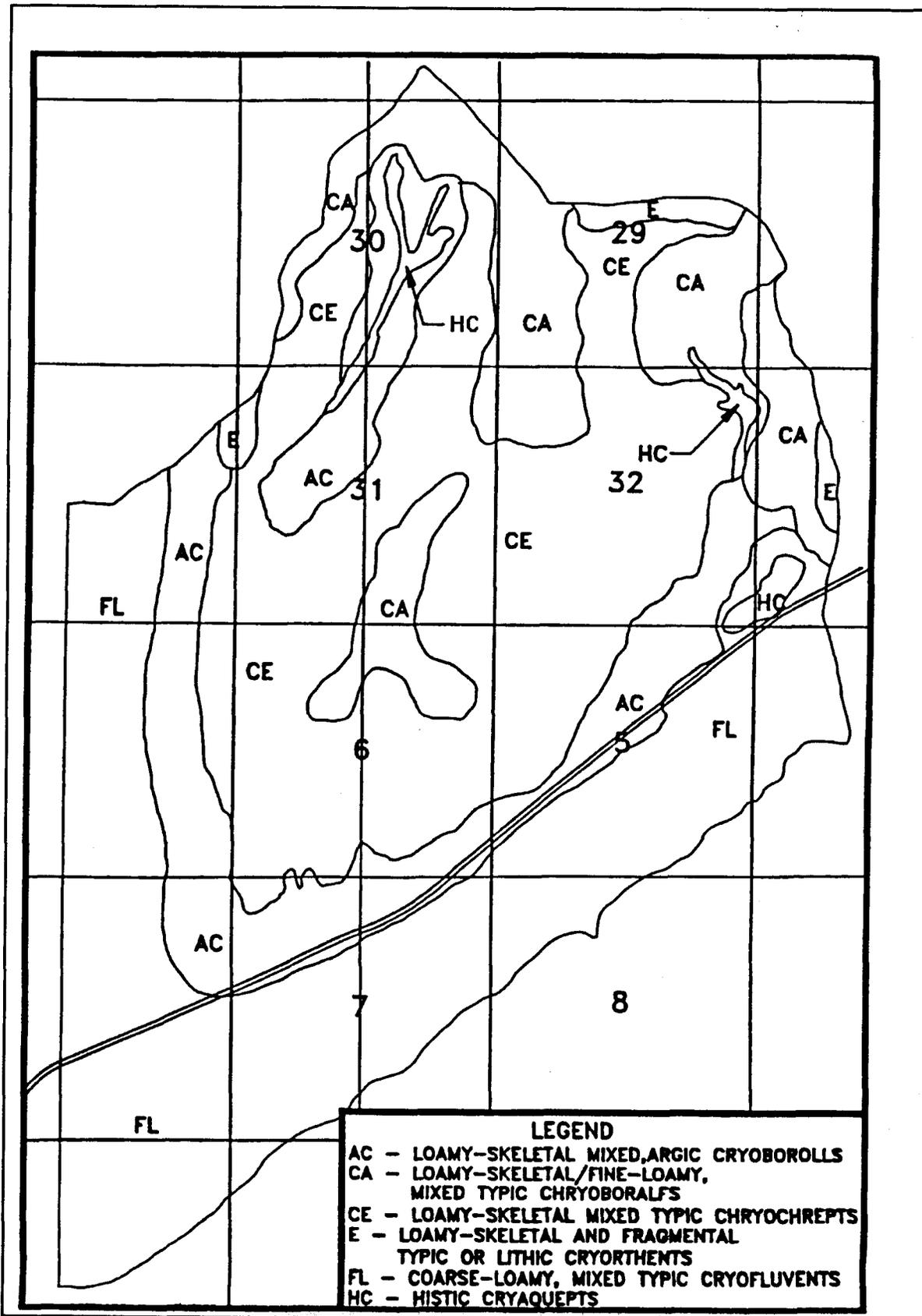


Figure 7: Generalized soils map for the McDonald area.

In the past, special problems have arisen in the proposed exploration area on deep soil, where only 6-inches of soil was removed, and with soils that have a shallow depth to water. These areas may have soft subsoils in the spring or after heavy rains. To prevent damage to the subsoil, a geotextile and gravel layer was placed over the subsoil to allow access without damage or a temporary shutdown was enforced until the soil dried. The geotextile/gravel layer would be removed when the roads are reclaimed.

The wetland soils, called histic cryaquepts (HC), present the most important limiting factors to use in an exploration program. They support important wildlife use areas, present potential water quality concerns, present difficulties with access of exploration equipment, and are more difficult to salvage and reclaim. Some of these same limitations apply to soils in areas with a shallow water table. In addition, jurisdictional wetlands would fall under the protection of applicable laws.

Various soils may be used for disposal of water from drill hole sumps, disposal of water from underground exploration activities, and surface runoff disposal from the storage and test facilities area near the highway. Land application of water has been used successfully in other areas to treat water that does not meet water quality standards for discharge directly into surface or groundwater systems. Surface application of water to the soil's organically enriched surface is very effective in filtering out suspended sediment. In appropriate seasons of the year, the surface horizon can be used as a chemical filter as well, effectively reducing contents of potential contaminants, such as nitrates from blasting.

D. Range and Vegetation

Vegetation varies with the elevation, topography, aspect, soils, precipitation, and past land use of the area. Along the Blackfoot River valley, the habitat is primarily open grassland or sagebrush grassland, with narrow stringers of riparian trees and shrubs along the river banks.

Timber productivity in the McDonald/Keep Cool area is generally low to moderate with the dominant habitat types being of the drier Douglas-fir type. Isolated wetlands exist in the Keep Cool area between the Landers Fork and Keep Cool Creek and contain some of the wetter, more productive, spruce habitat types. Riparian zones also exist along the Landers Fork, Copper Creek, and Keep Cool Creek.

Much of the land in the McDonald/Keep Cool area has been extensively logged and the majority of the remaining timber concentrations are located on state-owned land. This timber harvesting has created open areas larger than the naturally occurring grasslands. The logged areas are in various stages of regeneration, largely to lodgepole pine seral stands.

Western spruce budworm, mountain pine beetle, and dwarf mistletoe are present in the timber but incidence is low at this time. There has been a moderate amount of winter kill damage in the area, with the most damage occurring in the lodgepole pine, and lesser degrees of damage in the douglas-fir and ponderosa pine.

Noxious weed spread is a concern. Spotted knapweed is prevalent along most of the roads and logged areas in the McDonald/Keep Cool area. Dalmation Toadflax is also present in the area.

No known plants, listed as sensitive, threatened, or endangered have been found in the vegetation surveys for the McDonald/Keep Cool area.

The dry spring of 1992 has raised the danger of fire to levels that may exceed the 1988 fire season. The presence of mineral exploration equipment and vehicles in forested and grassland areas raises the chances of a major fire in the proposed exploration area. The large dead fuel moisture in the McDonald/Keep Cool area has been as low as 10 to 15% moisture in the spring of 1992. The normal moisture for this time of year is 20 to 25%.

Logging has reduced the potential for fires in some areas, to a degree. The grasslands in the area are also exhibiting reduced growth this spring, which also reduces the potential ground fuels.

E. Wildlife and Fisheries

1. Study Methods

Aerial surveys, vehicle routes and footpath routes were used to observe elk distribution patterns. Literature was reviewed and local biologists in other agencies were consulted. Habitat mapping, where available, was consulted. Specific studies, such as pellet group counts and track counts for elk, were conducted.

2. Elk Habitat

a. Elk Winter Ranges

Elk winter ranges in the study area have been mapped by SPJV consultants and agency biologists (Figure 8). The overall winter range extends across most of the project area and includes open ridges, steep slopes in grasslands, or logged areas at elevations below 5200 feet in the foothills, and along the Blackfoot River. Two smaller areas, the core winter ranges, are the most important elk use areas to consider in the exploration program because they are the areas most likely to support elk in severe winters.

(1) Keep Cool Area West of Landers Fork - Core Winter Range

The Keep Cool Area is the most important core winter range north of the Blackfoot River in the study area. It also provides superior year-round elk habitat. The core winter range is approximately 3 square miles in size and accommodates 60 to 100 elk during winter and spring (Figure 8). This is range where elk tend to gather during severe winters.

Use of the area is restricted by road closures after October 15. However, the area is

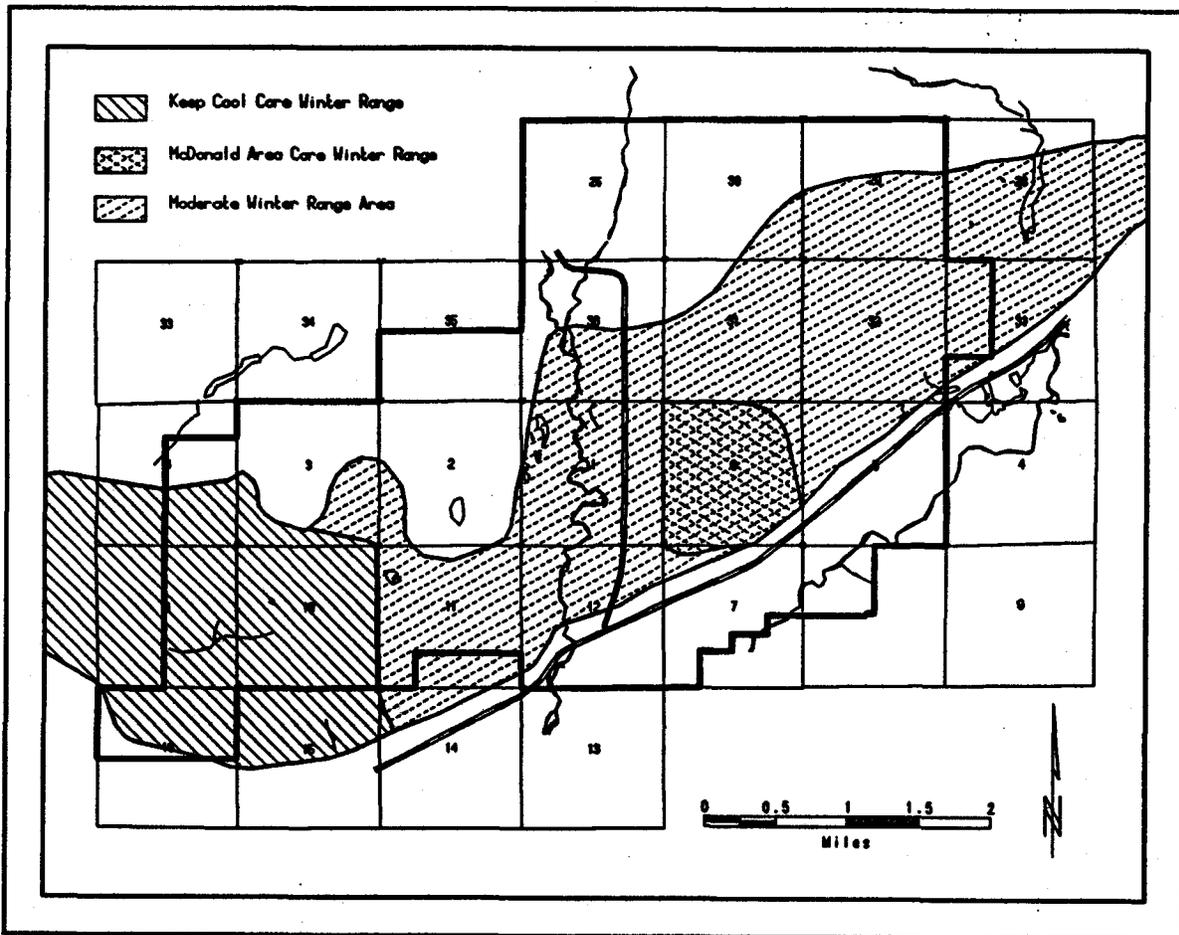


Figure 8: Elk winter range in the McDonald/Keep Cool area.

hunted during the general big game season, and snowmobile use occurs in the area.

Logging on the private lands in the area has decreased use of security and thermal cover, resulting in increased use of timbered lands on the state-owned sections.

(2) McDonald Area - Core Winter Range

The core winter range in the McDonald area covers approximately 1 square mile. This winter range is normally occupied by a local resident herd of 15-30 elk, however the number varies. The numbers may be augmented by non-resident elk, or the resident herd may periodically use other winter ranges, especially to the east, but none of these movements have been confirmed.

Thermal and hiding cover for elk in the McDonald area has been reduced substantially in the recent past by extensive logging on private land to the north and east of the McDonald core winter range. Thermal cover is defined as areas with greater than 70% canopy cover and timber that is greater than 40 feet tall. Prior to exploration, 112 acres of thermal and hiding cover and 301 acres of hiding cover remained in the McDonald core winter range area (Section 6). Therefore, a total of 27% of the timbered area was in thermal cover prior to exploration, and 73% provided hiding

cover. Exploration disturbance to date has not reduced the effectiveness of the thermal and hiding cover. Elk use in this area with a relatively low percentage of timber in thermal cover, indicates that additional thermal values are being provided in open southerly slopes.

The area is hunted during the general big game season and winter road closures after December 1 are in effect on the state lands in the area. It is believed that the elk move in and out of the area depending on the weather (snow depth) and other winter uses such as mineral exploration and snowmobiling. The evidence suggests elk move east - west along the north side of the river (i.e., from Landers Fork to Alice Creek) and consequently are not always present in the McDonald core winter range.

b. Spring Use/Calving Areas

In spring there is a large influx of transitory elk beginning in early- to mid-April and ending in mid-to late-June, with a peak in mid-May. The spring use area extends from the Keep Cool area to the west to at least Silver King Lake to the north and Alice Creek to the east. A minimum of 132 animals has been counted in one aerial survey in this area.

Calving has been documented in the Keep Cool/McDonald area, including McDonald Meadows itself and the timber immediately surrounding it. It is believed that use for calving is severely limited by the shortage of unlogged security cover areas, and that most calving occurs further north in the Hardscrabble and Alice Creek drainages. The McDonald Meadows calving area, however, could be important to the small resident herd, though these resident elk probably use surrounding areas as well.

c. Summer Use/Thermal Cover Areas

Moist forested areas such as the unlogged spruce habitat and the lodgepole pine/subalpine fir dominated drainages in the Keep Cool area and northeast Section 6 and Section 32 areas at McDonald are important habitat for forage, security, and thermal reasons. Warmer, drier sites such as McDonald Meadows, which received considerable use in spring, appear to receive comparatively less use in summer.

d. Fall Use Areas/Hunting Season

The few sightings of elk in the fall are believed to be a function of elk response to hunting rather than to an absence of elk. The McDonald area has relatively little security cover and the area is easily accessible by logging roads and trails. Most of the movement onto the winter range is delayed by hunting pressure. In recent years, logging and mineral exploration activity may have also delayed the traditional entrance date onto the winter range.

3. Grizzly Bear Habitat Considerations

Grizzly bear sightings usually have been associated with bears that have come into conflict

with domestic sheep on Sieben Ranch Company and other private lands. Residential refuse has also been a factor. The most recent confirmed sighting of a grizzly in this area was at a residence northeast of Lincoln in April 1992. This, with previous confirmed sightings, indicates this area is still used by to grizzly bear populations. Timber harvesting activities have modified the habitat component maps produced by the USFS, but huckleberries and other edible plants important to the grizzly's diet are present and will continue to be a resource for the bears. Most grizzly bear use in the area is along the major stream drainages such as Copper Creek, Alice Creek, and Landers Fork. State-owned sections in the McDonald/Keep Cool area are contained within a special management area for grizzly bear management by the Division of Forestry, DSL (Dept. of State Lands, 1988). The guidelines developed for this special management area were developed to reduce grizzly/human conflict in an area with high usage by people. The guidelines include the following standards:

1. Management policy is to discourage presence of grizzly bears and factors contributing to their presence.
2. Management decisions will not consider maintaining or improving grizzly bear habitat.
3. Minimizing grizzly/human conflicts is a high priority
4. Implement guidelines or other management actions needed to minimize the potential for grizzly/human conflicts. Specific guidelines or other management actions will be determined on a case-by-case basis through the biological review process.

These policies are consistent with management direction for management situation 3 grizzly bear habitat as defined in the draft grizzly bear recovery plan (US Fish and Wildlife Service, 1990).

4. Habitat for other wildlife

The wetlands and grassland in the McDonald and Keep Cool areas support a number of small mammals, song birds, and raptors. Baseline studies of these animals and their habitats are ongoing.

5. Fisheries

Fisheries surveys for the Blackfoot River and its major tributaries were completed in the early 1970's and in the late 1980's (Peters and Spoon, 1989 & Peters, 1990). These surveys included three sections located near or within the McDonald/Keep Cool project area - two on the Blackfoot River and one on the lower portion of the Landers Fork. One Blackfoot River section, the Flesher Section, is located upstream from the project area. The other Blackfoot River Section, the Hogum Section, is located adjacent to the project area. The Landers Fork Section is located within the project area boundary.

Fish populations in these sections are dominated by westslope cutthroat trout (53% of the trout population) and eastern brook trout (46% of the trout population). Bull trout in these sections are very rare, with only one fingerling size bull trout captured in the Blackfoot River in 1988. The bull trout are a category 2 species under the Endangered Species Act. This means that more study is needed to determine listing status. In addition, the State designated the westslope cutthroat trout as a "species of special concern."

Both cutthroat and brook trout densities have significantly declined in the Flesher Section since the 1970's. Cutthroat populations declined from 69 per 1000 feet of stream in 1973 to 15 per 1000 feet of stream in 1988. Similarly, the brook trout populations have declined in this section from 27 per 1000 feet of stream in 1973 to less than 10 per 1000 feet of stream in 1988. This sharp decline is attributed to toxic metals contamination from the Mike Horse tailings pond failure.

The density of cutthroat trout in the Hogum Section has not significantly changed since the 1970's. Cutthroat densities ranged from 14 to 17 per 1000 feet of stream. Available habitat in this section is poor due to a near absence of hiding cover (Peters and Spoon, 1989). Brook trout experienced a similar decline as noted in the Flesher Section, most likely due to the Mike Horse tailings pond failure.

The Landers Fork was sampled in 1989. Juvenile mountain whitefish and westslope cutthroat trout were captured in the lower Landers Fork Section. Densities in this section were very low, and much of the suitable habitat was vacant (Peters, 1990). Heavy bedload in an aggrading stream system has produced frequent channel changes in this reach of the Landers Fork, therefore this section is naturally a low productivity type. According to FWP, "even a limited harvest will keep this fishery in poor condition because of limited productivity of the stream" (Peters, 1990).

Bull trout were rare within the reaches around the McDonald/Keep Cool project area. The FWP studies noted, however, that bull trout densities are greater in the upper reaches of tributaries.

Fishing regulations were changed in 1989 to reduce the impact of fisherman to low cutthroat and bull trout numbers throughout the Blackfoot River drainage. The new regulations make harvesting either species illegal. Major restoration efforts are also being implemented in the Blackfoot drainage to improve past damage to aquatic resources from logging, fires, and historic mining.

F. Air Quality and Climate

SPJV conducted air quality and meteorological monitoring from December 1989 through June 1991 around the McDonald Area. PM-10 (particulate matter less than 10 microns in diameter) was sampled at a site west of Hogum Creek about 1.5 miles south of the highway. Meteorological monitoring was done near the top of the East Butte of the McDonald area in Section

6 and near the old Columbia Mine west of the upper reach of Hogum Creek. The complete baseline report is included in the exploration application.

The maximum PM-10 concentration recorded was 47 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and the average (arithmetic mean) for the period was $7 \mu\text{g}/\text{m}^3$. These are well below the Montana and Federal 24-hour and annual average standards of 150 and $50 \mu\text{g}/\text{m}^3$, respectively.

Trace metals analyses, including arsenic, cadmium, chromium, lead and zinc, were also performed on the particulate samples. Very low concentrations (well below the Montana guidelines) were observed.

The climate of the area is described as modified continental characterized by relatively dry semi-arid conditions. Pacific Ocean air masses, drainage of cooler mountain air into the valleys, and the shielding effect of the mountains, modify or lessen the temperature changes typical of a true continental climate. Generally, average monthly temperatures are moderate, ranging between 20°F in January, and 60°F in July.

Annual precipitation for the area is about 21.9 inches, but can be quite variable based on elevation. May receives the greatest amount of precipitation (2.57 inches) and July the least (1.31 inches). Peak snowpack normally occurs in mid to late March (about 30 inches of snow or 9 inches of water) and is gone by late May.

At the McDonald site, predominant winds were from the west-southwest to west and averaged about 8 miles per hour during the period of record.

G. Land Use

Existing land use activities in the McDonald/Keep Cool area include year round and seasonal residences, timber harvesting, livestock grazing, fishing, hunting, snowmobiling, cross country skiing, and recreational access. Land ownership in the project area is primarily a mix of Sieben Ranch Company land and state-owned land, along with a smaller component of other private lands.

There are a number of homes in the McDonald/Keep Cool area. Some are permanent residences but most are utilized on a seasonal basis. The majority of these residences are residential leases on state-owned land in Sections 12 and 36.

Timber harvesting activities in the McDonald/Keep Cool area seemed to have peaked in 1990 and 1991 and have since subsided considerably. Although timber harvesting still occurs in this area, it is not of the magnitude seen in years past.

The majority of the McDonald/Keep Cool area is utilized for grazing by domestic sheep. Grazing usually occurs in this area from June through October.

FWP statewide pressure estimates for 1989 show 3,354 angler days along the Blackfoot

River in Powell and Lewis and Clark Counties. No specific information is available for fishing use in the exploration area in these estimates. However, since the fishery is in relatively poor condition in this area, fishing activity is generally low.

The project area is located within hunting district 281 (Upper Blackfoot District). Only a small portion of hunting district 281 is represented in the McDonald/Keep Cool area, and no specific information is available on hunting pressures within the project area boundary, but observations indicate that hunting activity is moderate to heavy in the project area, especially the Keep Cool area. During 1991, 10,701 hunter days for elk and 10,644 hunter days for deer were recorded in district 281.

A campground administered by the US Forest Service is located in Section 7 just outside the boundary of the project area.

Snowmobiling constitutes the majority of the recreational activity in this area from December through the middle of March. Snowmobile activity is moderate to heavy along many of the groomed trails in this area. Two groomed snowmobile trails, which are part of a statewide trail system groomed with the use of state gasoline tax funding, cross the project area. These trails are major connections between Lincoln and the Landers Fork drainage and between the Landers Fork drainage and Alice Creek. The area is also used for cross country skiing, but skiing usage is generally low.

State Highway 200 and an electrical transmission line are located in the Blackfoot River valley. The Landers Fork/Copper Creek road offers the major access for many recreational activities in the Scapegoat Wilderness Area via the Indian Meadows trailhead. It also is heavily used by many people who recreate on the Helena National Forest that lies north and west of the McDonald/Keep Cool area.

The McDonald/Keep Cool area has been the site of active gold exploration since 1986. This activity has ranged from geological mapping to drilling and trenching.

H. Aesthetics

1. Visual Quality

Montana State Highway 200 passes through the southern portion of the study area, and much of the McDonald exploration area is visible from this highway. Vegetative cover has hidden most of the exploration activity to date. A few exploration roads and pad sites, located just north of the highway in Section 5, are visible from Highway 200 due to lack of trees in this portion of the section. Some of these roads were reclaimed in 1991.

The Copper Creek Road bisects the study area, and some exploration activity has been visible from this road. The project area is also visible at a distance from the Continental Divide area between Flesher Pass and Stemple Pass.

Much of the study area has been previously logged, and evidence of this activity is visible from the Copper Creek Road and the surrounding area.

2. Noise

Noise can generally be defined as unwanted sound. Some of the factors which might influence whether or not a sound is unwanted include:

1. The overall total sound level (generally measured in decibels(dBA));
2. The time period, duration, and frequency of occurrence; and
3. The sound-wave frequency (higher frequencies being generally more irritating).

Sound levels have been measured in the area and the ambient sound levels are typical of rural settings and small towns - about 40-50 dBA. Current sources of sound (noise) include vehicle traffic, exploration-related equipment, aircraft, chain saws, firearm discharge, and dogs.

Noise levels from drilling were measured while drilling a hole in the northeast corner of Section 6. Noise levels ranged from 110 dBA at the drill rig during drilling operations to 34 dBA in a stand of trees in the northeast corner of Section 12 (Figure 9). Drilling activity is heard as a low hum in surrounding sections.

The propagation of sound outdoors, at distances of several hundred feet or more, is often significantly affected by atmospheric and ground cover conditions. In addition to being decreased with distance from the source, sound pressure levels are reduced over distance by atmospheric absorption. Temperature and relative humidity also effect attenuation.

Excess attenuation is also readily observed as sound propagates over large distances parallel or in close proximity to the ground. The magnitude of the attenuation is governed primarily by the type of ground cover present. Dense stands of trees provide significant noise reduction by absorbing sound energy.

I. Socioeconomic Conditions

This section describes socioeconomic conditions in the town of Lincoln and the surrounding area, focusing on those factors likely to be affected by the proposed action and alternatives: the local economy and employment, the population, housing, and schools.

1. The Local Economy and Employment

The primary sources of income to the Lincoln area are timber, recreation, tourism, ranching, mining and light manufacturing (Lewis and Clark Areawide Planning Organization, 1983). Many tourists pass through the town of Lincoln on Highway 200 between Great Falls and Missoula. Businesses in the commercial district along the highway benefit from these travellers. Recently, the town has made an effort to promote snowmobiling to increase winter tourism. The presence of

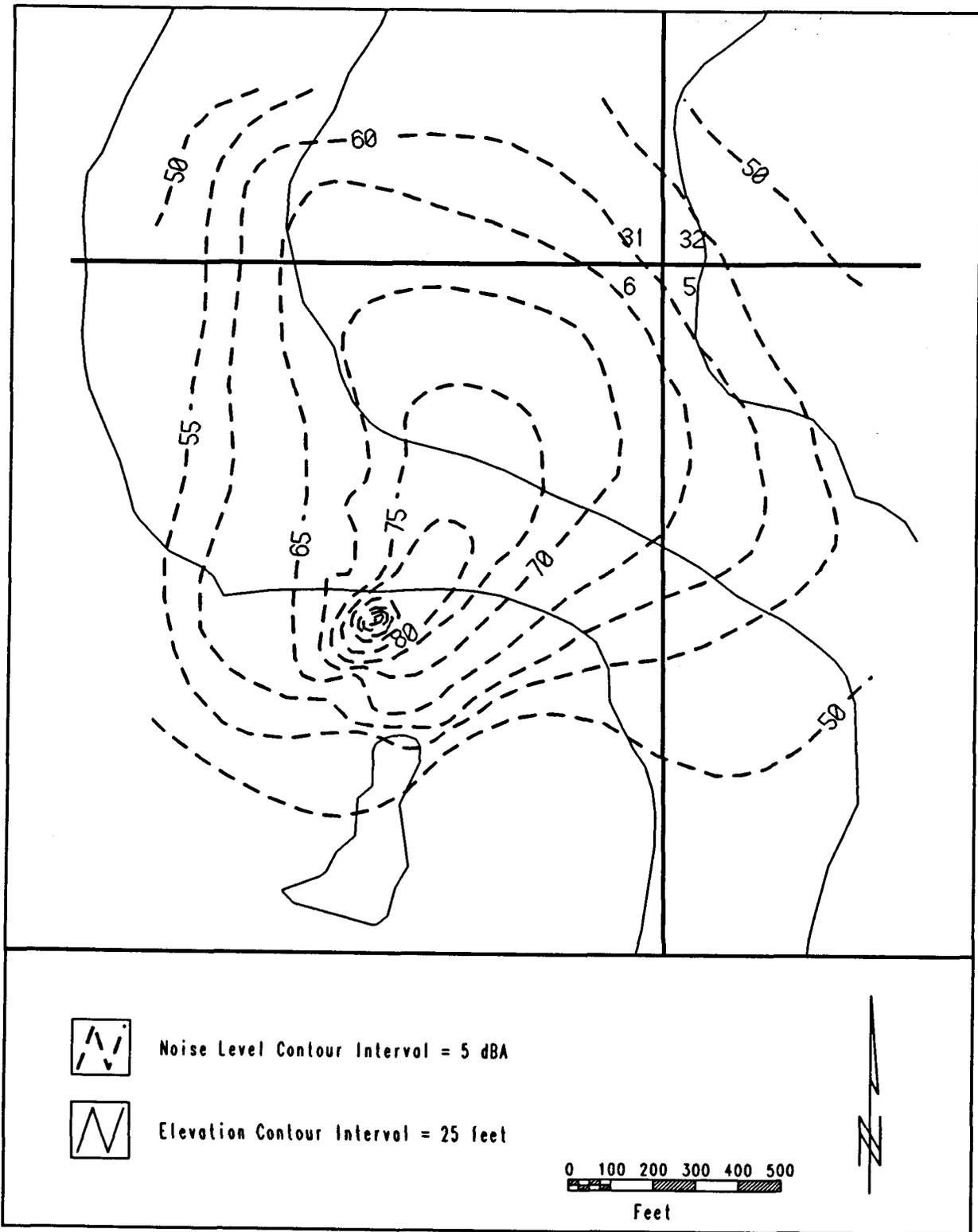


Figure 9: Noise levels measured while drilling a test hole in the northwest corner of Section 6.

the Blackfoot River, the Scapegoat Wilderness and the Helena National Forest brings in recreationists, who contribute to the local economy, from Missoula, Great Falls, Helena and

The timber industry has been an important part of the Lincoln economy. The USFS Lincoln Ranger district timber target is an average of 7.5 million board-feet annually over a 10-year period. Timber harvests declined in the late 1980's to 1.8 million board-feet, but are increasing toward target levels again. Timber harvest activities on Sieben Ranch land, however, have declined in recent years. The area once supported over a dozen lumber enterprises, but only a post and pole operation with a wood pellet plant is currently operating.

The Hi Country Beef Jerky plant is the largest local employer with 60 employees. The U.S. Forest Service's Lincoln Ranger District has about 27 permanent employees and a seasonal work force of an additional 25 employees. The Lincoln School District has about 25 permanent employees.

Since the mid-1980's, mineral exploration has increased in the area and is considered an important economic activity. The SPJV employs 6 permanent employees and up to approximately 65 temporary employees in the summer and fall.

2. Population

According to the 1990 Census Bureau data, the Census and Economic Information Center (MT State Department of Commerce) in Helena has estimated that 657 people live year-round in the unincorporated area of Lincoln. Vacation home owners approximately double this figure in the summer. Seasonal residents are mostly retirees, though a few of the retirees are year-round residents (Stolp, personal communication).

3. Housing

Permanent and seasonal employees usually live in rental housing. Many of the motels and hotels offer furnished kitchenette units for seasonal workers that need temporary quarters (typically 1 to 2 months). "The Roost" also has small furnished cabins available on a daily, weekly or monthly basis. In total there are 81 rooms available for lodging in Lincoln.

In 1990 and 1991, several of the drillers brought their own travel trailers to house themselves and their families. There are three trailer parks in town and a privately owned campground/trailer park located three miles west of Lincoln.

4. Schools

The Lincoln School District provides education for students in grades K-12. There are 220 students enrolled for 1992-3, the largest number ever (Irvin, personal communication). Enrollment is especially high in grades 4-9. The schools are at capacity and need additional space for some activities. The teaching staff is presently adequate for the level of enrollment.

The present student enrollment represents a 10% increase over past years. While the student population typically fluctuates somewhat throughout the school year, and often declines,

the recent increase has been sustained.

Many of the new students are children of unemployed parents who have moved in from outside of the area and may be on welfare (Irvin, personal communication). Some of these children have learning and health problems with which the schools and county must deal.

The reason for the influx of unemployed persons and their children is not known precisely. Speculation on future job opportunities if a mine opens may be one cause. Low cost of living and generous welfare benefits may be another.

J. Cultural Resources

The environmental context of the study area indicates a moderate to high potential for the presence of cultural properties. The five cultural inventories conducted on the state lands in this area resulted in the recordation of two cultural properties. SPJV contracted with Heritage Research Center (HRC) to perform additional inventories in the McDonald portion of the study area. HRC has located six more sites, all of which are historic, such as cabins and a road. The significance of these sites has not been established. Significance will be determined after HRC submits a report of their findings.

Once the report is received, consultation will begin with the State Historic Preservation Office. The consultation process determines the significance of sites and establishes the appropriate level of mitigation for significant sites that would be impacted by exploration activities. Mitigation measures vary with the type of site, but are designed to retrieve or record the values that make a site significant.

The Keep Cool portion of the study area is not covered by HRC's inventory. As exploration plans are submitted for review, site specific cultural inventories will be conducted according to land owner requirements. Reports submitted for review will go through the same consultation process with the State Historic Preservation Office as outlined above.

CHAPTER IV. ENVIRONMENTAL CONSEQUENCES

The following section identifies the environmental consequences resulting from implementation of the proposed alternative, the no action alternative, and the mitigated proposed action alternative.

A. Topography and Geology

1. Proposed Action

The proposed action would have minimal impact on topography and geology. Only short-term, localized changes to topography would occur from road building, drill pad site construction, and trench construction, where fill slopes would be built below the roads. Reclamation at the end of the exploration program would return the topography to its original state.

The maximum acres of potential disturbance were estimated for the proposed action by assuming all disturbances would occur on previously undisturbed land (Table 3). The proposed exploration program would produce an additional disturbance of 37 acres for drill pad sites, 64 acres for roads, and 12 acres for trenches. In addition, 9 acres would be disturbed for the bulk sample storage and metallurgical testing facility. This results in a maximum of 122 acres of new disturbance, most of which would be in Sections 5 and 6 in the McDonald area. Total disturbance including both previously permitted exploration and the proposed exploration would be approximately 230 acres, or approximately 2% of the McDonald/Keep Cool area. Many activities, however, would occur along pre-existing roads from previous exploration or logging activities, so new acreage disturbed would be much less.

Additional information on the ore body and local geology would be acquired under this alternative. Since the drilling activity is done with relatively low pressure, and the test holes are shallow, faults in the area would not be affected by the proposed action.

2. No-Action Alternative

No additional impacts to the topography would occur under the no-action alternative. Short-term disturbance would be limited to the 108 acres previously approved. Information on the local geology, however, would not be gained under this alternative.

3. Mitigated Proposed Action Alternative

Topography and geology would be affected in a similar manner to the proposed action. No additional acreage would be disturbed as a result of mitigations.

B. Hydrology

1. Impacts to Surface Water

a. Proposed Action

Potential problems for surface water from exploration drill holes and adits could include water use conflicts, sedimentation, and contamination. SPJV is using water from the Blackfoot River under a temporary permit. This permit allows the removal of up to 55 gallons per minute. This is less than 1% of the river's flow during low discharge, and, therefore, should have no impact on users downstream. If ground water or other local sources are used, the amount of water used would be limited, thus no conflicts with other water users are expected.

Potential sediment sources include cleared areas, such as roads, drill pad sites, trenches, and the bulk sample storage site. Since the bulk sample storage facility is completely bermed, and settling ponds would catch runoff within the storage area, no sedimentation is expected to occur from this area. By constructing roads in a manner similar to roads previously constructed, with topsoil above the road, slash placed below the fill material, and drain features placed on the roads immediately after construction, sediment from roads is minimized.

Under the proposed action, no additional steps are suggested to decrease sediment output from the Class IV areas. If roads access the Class IV areas from the bottom, and no erosion control features are placed within the Class IV area, erosion could occur. The likelihood of this material traveling outside the study area boundary or into surface water is slim since the soils surrounding the Class IV area would probably trap the sediment and no surface water is near the proposed Class IV areas. Some temporary shallow burial of ground cover could occur from this sedimentation, but the vegetation would probably not be negatively impacted.

The drilling fluid in use at the McDonald/Keep Cool area is approved for drinking water well drilling. Drilling fluids may be released through perforated pipe after sediment within the drill sumps has settled. This release would not occur within 100 feet of surface water. Therefore, no impact is expected from drilling fluid contamination.

Water draining from the bulk sample adit could be a source of surface water contamination. Blasting leaves a nitrate residue which is picked up by groundwater flow entering the adit. This water would be pumped from the adit and piped down to the sample storage facility sumps. The nitrate concentration in these waters would be dependant on spillage during hole loading. By careful hole loading, spillage would be minimized and nitrate concentrations would be small. It is not anticipated that nitrate concentrations would be above either the ambient or federal drinking water standards, but if nitrate concentrations are higher, the water would be treated by land application. Additional data would be collected prior to land application including:

- a. a detailed soil map of the proposed land application area;**

- b. detailed map of plant communities in the proposed land application area;
- c. chemical and physical properties of dominant soils including pH, texture, cation exchange capacity and background metal levels;
- d. chemical analysis of water to be land-applied;
- e. quantity of water to be applied; and
- f. an operating plan for land application treatment including application rate, long-term loading rate, measures to prevent runoff, winter storage of produced water, and other operational details.

As an alternative to land application, SPJV could apply for an MPDES permit for discharge of waters, and thus would meet the standards of the Water Quality Bureau.

Acid formation potential of the ore is very low. Water within the bulk sample storage facility would be limited to the small amount that would fall within the facility. Runoff from outside areas would be diverted around the storage facility. Any amount of solution draining from the small piles of ore would likely not be in enough quantity to flow and would probably evaporate in place. In the event water did flow from the storage piles, it would be collected in sumps and, if necessary, lime would be added to neutralize the water. The low to nonexistent acid formation potential of the rocks would be verified by sampling various rock types during the bulk sampling program.

b. No-Action Alternative

Under the no-action alternative, drill pads, trenches, and roads previously constructed would be reclaimed and no new construction, beyond the current exploration program, would occur. No change in surface water resources would occur under this alternative.

Some sedimentation from the previously logged areas would continue.

c. Mitigated Proposed Action Alternative

The mitigated alternative would have similar impacts to surface water resources as the proposed action alternative, with the exception of potential sediment impacts from the Class IV areas. Under this alternative, roads would enter the Class IV area from the side, and waterbars and slash filter windrows would be placed to stop erosion within the Class IV area.

In addition, drill pads that are constructed within 50 feet of surface water would be required to have all drill fluids contained in either a lined sump or tanks. This would prevent release of drilling fluids into surface water.

Some sedimentation from clear cuts in the area would continue to occur under this alternative.

2. Impacts to Ground Water

a. Proposed Action

Impacts on ground water may potentially arise from three sources: 1) the drilling activity, 2) the underground bulk sample workings, and 3) the bulk sample storage and metallurgical test facility.

Since drilling would be done using drilling fluids approved by EPA for drinking water wells, no ground water impacts are expected from the drilling fluid. The test holes would also be plugged immediately upon completion, so no ground water contamination from surface water sources should occur. Drilling would also have no impact on ground water quantity since very little water would be produced from these test holes. Some ground water may, however, be produced to use during drilling, and this may have some local impact on ground water quantity near the well, but prior to this water use, SPJV must obtain a ground water use permit from the Department of Natural Resources and Conservation (DNRC).

The underground bulk sample adit may produce some nitrate enriched water. Since the adit does not go below the water table and the sample site is relatively dry, only water used to drill the bulk sample is expected to be produced. A portion of this water would most likely enter the ground water system through fractures encountered by the adit, but the majority of the water would be collected and piped down to the bulk sample storage facility sumps and treated as discussed in the surface water section. The minor amount of nitrate-enriched water that may enter the ground water would be diluted upon entering the water table, and the impact would be minor.

The bulk sample storage and metallurgical test facility would be located on the edge of the Blackfoot River alluvial plain. Depth to ground water has been measured at 38 feet at this location. The ore from the bulk sample adit would be stored and tested at this location. The chances for a cyanide spill from this test facility are extremely low. The testing facility is very small compared to any actual leaching operation and, consequently, a very limited amount of dilute cyanide solution would be in the leach-tank system at any given time. If a spill were to occur in the testing facility, the completely enclosed, bermed, cement foundation would contain the maximum amount of the solution that could ever be spilled during testing. No cyanide would be used outside of the enclosed testing facility. In the extremely remote event that a spill within the test facility building occurred and the bermed cement foundation failed concurrently, solutions would flow to a pond outside the testing facility but within the testing complex and would be treated at that point. SPJV would have the on-site capability to neutralized spilled solutions.

Cyanide solution and spent ore treatment methods were previously discussed in Chapter 2. A recent study of leach pad detoxification and decommissioning at the Zortman/Landusky Mine site concluded that the large leach pads at the Zortman/Landusky facility could be sufficiently

detoxified (Schafer, et al, 1991). The ore mined at Zortman has many physical and chemical similarities to the material proposed for testing by the SPJV. Therefore, detoxifying small columns of ore in a laboratory facility should not be a problem.

As proposed, drainage from the storage facility would flow into two sumps at the southwest end of the site. These sumps would be formed from compacted natural material or a synthetic liner with permeability of $< 10^{-7}$ cm/sec. Leakage is not expected from these sumps. Suction lysimeters, however, would be installed to monitor these sumps.

b. No-Action Alternative

No additional impacts would occur to ground water under the no-action alternative. Drilling of previously permitted test holes would continue, but these holes would be drilled with EPA approved drilling fluids and plugged immediately upon completion.

c. Mitigated Proposed Action Alternative

Impacts under the mitigated alternative would be similar to those under the proposed action.

C. Soils

1. Proposed Action

The maximum acres of potential disturbance were estimated for the proposed action by assuming all disturbances would occur on previously undisturbed land. The proposed exploration program would produce an additional disturbance of 37 acres for drill pad sites, 64 acres for roads, and 12 acres for trenches (Table 3). In addition, 9 acres would be disturbed for the bulk sample storage and metallurgical testing facility. This results in a maximum of 122 acres of new disturbance, most of which would be in Sections 5 and 6 in the McDonald area. Total disturbance including both previously permitted exploration and the proposed exploration would be approximately 230 acres, or approximately 2% of the McDonald/Keep Cool area. Many activities, however, would occur along pre-existing roads from previous exploration or logging activities.

Mitigation practices used during past exploration, and proposed in the current operating plan, have successfully addressed many soils-related problems. The following mitigating measures have been used, and would continue under the proposal by SPJV, to limit impacts on soils.

Erosion and sedimentation from past exploration activities in the area has been mitigated by placement of drainage features on roads. Such features include waterbars and flappers, use of geofabric and gravel, culvert placement at water crossings, interim revegetation of cut and fill slopes and stockpiles, slash filter windrows, and use of forestry Best Management Practices (BMP's). With these practices, sedimentation has been minimal.

Compaction has been, and would be, avoided by salvaging surface soils in all use-areas for replacement later, by winter use of frozen wetland or deep soft soils, by ripping of subsurface soils prior to soil replacement, by avoiding use of wet soils, and by limiting operations to times when deep soils are dry.

Mixing of soils has been, and would be, minimized by salvaging the top 6-inches of soil for later replacement as the surface soil layer on reclaimed disturbance sites.

Plant productivity has been, and would be, maximized by reclaiming unnecessary sites as soon as possible after disturbance and by salvaging even the limited surface, organically enriched horizons on extremely steep, rock outcrop areas. Fertilization proposed by SPJV would also aid plant productivity on reclaimed sites.

Sources of contamination to soils from past exploration activities have been limited to minor fuel and oil spills and spills of drilling fluids from the overflow of sumps. The soils affected by fuel and oil spills are buried below the rooting depth in reclaimed sites. Due to SPJV's containment practices, only minor spills would be anticipated. Clean-up would prevent any effects to soils, vegetation, and water.

Drill fluids used in the exploration program contain no harmful substances. At the few sites where accidental overflows of sumps occurred, suspended sediment was the primary concern. The vegetation and soils, however, trapped this sediment in a relatively short distance and absorbed the fluid.

A disposal program that SPJV has proposed for drilling fluids includes removal of the suspended sediments. These fluids can then be disposed of by sprinkling and/or gravity flow on soils. This disposal method is used only when the disposal area is more than 100 feet from sources of surface water and in areas where the water table is greater than 10 feet below the surface. Disposal is monitored to prevent fluids from accumulating in one area and to prevent erosion of surface soils.

In the proposed plan, water collected at the bulk sample storage facility sumps may be land applied. Prior to land application, SPJV would submit detailed information for review and approval, as listed under hydrology (Section B.1.a.). Only after a complete review of these data would a land application be permitted. No land application would be allowed in areas with a shallow water table.

If areas with shallow water tables are proposed to be disturbed by road, trench, or drill pad construction, alternative locations would be evaluated. If the wet area could not be avoided or used when the soils are frozen, the area may need to be drained temporarily. A drainage trench would be constructed, and pumping may be used, if necessary, to facilitate drying. The soil would then be stripped and stockpiled. Gravel and geofabric would be used to harden the work surface. After the work is completed, the gravel and geofabric would be removed, soil would be reapplied, pumping would stop, and the drainage trenches backfilled and reclaimed. This would be an unavoidable impact of the proposed action and would be minimized as much as possible. If

disturbance is proposed in a jurisdictional wetland area, SPJV would be required to obtain a 404 permit from the Corps of Engineers.

The top 6 inches of soil would also be salvaged at the test pits, drill pads, and the metallurgical test facility site.

Because of these planned mitigating measures, no major long-term soil related impacts are expected from the proposed exploration program.

2. No-Action Alternative

If the no-action alternative is selected, the total area of disturbance would be limited to the existing and previously permitted disturbance. Approximately 108 acres could be disturbed from the exploration.

The mitigations in place for the existing exploration program are sufficient to complete the reclamation of the existing and previously permitted disturbances. Site specific field investigations, prior to site construction, would identify alternative site locations that minimize environmental impacts. Therefore, no long-term soil related impacts are expected from the no-action alternative.

3. Mitigated Proposed Action Alternative

Since the disturbed area under the proposed action would be minimized, no change in the potentially disturbed acreage is expected under the mitigated alternative.

The mitigation measures proposed by SPJV would minimize impacts to the soils. However, additional mitigations would be implemented under this alternative to further reduce environmental impacts. These mitigations are:

- a) Complete soil salvage, stockpiling, and replacement of up to 24 inches of soil would be aggressively implemented in the drastically disturbed areas, such as in the Class IV areas, test pits, and at the metallurgical testing facility. Replacement of up to 24 inches of soil would ensure the return to productivity that existed on the deep soils in the exploration area before disturbance.
- b) All areas to be used for storage of equipment and materials for an extended period of time should have at least the surface soils salvaged and stockpiled for later replacement. Compacted areas would be ripped prior to soil replacement.

The mitigations listed above, if implemented, would further reduce soil impacts and the resultant impacts to vegetation and wildlife in the exploration area.

D. Range and Vegetation

1. Proposed Action

Selection of the proposed action alternative would result in the temporary removal of vegetation along access roads, at drill pad sites, along trench sites, and at the metallurgical test facility. Over much of the area, logging has already removed the timber. Grassland disturbance would be short-term and easily reclaimed. Impact in timbered areas would most likely be short-term as well since natural regeneration of coniferous tree species would occur in the disturbed areas after reclamation. Seed mixtures used in the reclamation are of predominantly native species. The Class IV areas, however, would be much slower to regenerate due to the size of the disturbance and distance from seed sources.

Knapweed is already a problem in areas previously disturbed by other non-mining activities. Under this exploration plan, however, knapweed encroachment should stabilize because of regulated vehicular traffic and an aggressive weed control program which includes chemical treatment and interim seeding of all disturbances.

The fire hazard to vegetation posed by the existing dry conditions in the exploration area have not been addressed by SPJV in the operating plan. In the past, SPJV has been very responsive to meeting all requirements for spark arresters, fire extinguishers, and bans to smoking in the active exploration area during periods of hazardous fire conditions. The exploration companies have also offered and used earthmoving equipment, water trucks, and personnel to help fight local fires.

2. No-Action Alternative

Selection of the no-action alternative would limit further disturbance from mineral exploration activities, however this area would still be subject to other activities in the future. Timber harvest activities are likely to be scheduled within the next 6 years on state-owned section 6. Grazing in this area would also continue at the present rate.

There would be a probable increase in knapweed encroachment under this alternative because of unregulated vehicular traffic and the lack of an aggressive weed control program.

All current mineral-related disturbances would be reclaimed and seeded to predominantly native species of grass. Regeneration by coniferous tree species would occur naturally from residual trees.

Under the no-action alternative, SPJV would continue to operate under the existing plan of operations, which does not have any special provisions for fire control.

3. Mitigated Proposed Action Alternative

Selection of the mitigated alternative would allow mineral exploration to occur as proposed with the following mitigating stipulations.

Removal of some timber would be necessary to allow access to drill sites and for actual drill site construction. Timber removal would be kept to the minimum amount necessary to conduct operations. Regeneration of coniferous tree species on disturbances for exploration activity Classes I, II, and III would occur naturally from existing surrounding trees. Regeneration on Class IV sites would require SPJV to plant specified tree seedlings to a density of 435 seedlings per acre within 2 years after the site has been reclaimed.

Potential forest fire restrictions and closures, implemented under existing statutes and rules, can effect these exploration activities as well as all other activities in Montana's forests. Initiation of restriction levels are guided by a written process agreed upon by all wildland fire protection agencies in the State. Fire Restrictions and closures within this area are coordinated through the Central Montana Zone Fire Headquarters. Five levels of progressively tighter restrictions are possible, with forest closure being the most severe. Restrictions begin with normal forest fire season rules, and progress through voluntary and mandatory restrictions to complete closure of all forest activity. Depending upon potential forest fire severity, voluntary or mandatory restrictions on operations may be executed. These include restrictions on smoking, blasting, welding, road building, and timing of the work day. In case of a forest fire close, all operations could be halted. These measures would reduce the risk of fire and loss of vegetation.

E. Wildlife and Fisheries

1. Proposed Action

Under the proposed action, expanded exploration would take place, resulting in additional road building and removal of timber at proposed drill sites. Elk and other wildlife could be displaced locally by drilling and road building activities during exploration. Displacement during winter months could cause increased stress and be harmful to the wildlife. During severe winters, elk could be displaced into other winter ranges, placing additional pressures on neighboring elk populations.

The building of additional roads in the area could provide easy recreational access during the calving and hunting seasons, negatively impacting populations. Removal of timber would also result in additional loss of thermal and security cover in the area, especially the East and West Butte portions of Sections 5 and 6 and around the McDonald Meadows area in the north part of Section 6 and the south part of Sections 31 and 32.

In the McDonald area, 54 acres of thermal cover lie within the proposed Class III and IV areas, and the remaining 54 acres of thermal cover lie within the proposed Class II area. An average of 18% of land in Class III areas could be disturbed in a widely distributed pattern. The

distribution and quality of thermal cover in Section 6 in relation to the Class III exploration area shows that approximately 13 acres of thermal cover area could be lost within the Class III and IV area under the proposed action. These 13 acres would, however, still be effective as security cover. Approximately 10 acres of security cover could be lost in Class IV areas under the proposed plan, but the rest of the security cover in the Class III and IV areas would remain effective. Cover effectiveness in the Class II areas would not be reduced. Under the proposed plan, therefore, a total of 24% of the timbered area would remain in thermal cover (a 3% reduction), and 70% would remain to hiding cover (an additional 3% reduction).

DLS Forestry Division guidelines for elk habitat call for preservation of at least 30% of timbered area to remain as effective thermal cover and an additional 20% to remain as security cover. The McDonald core winter range only had 27% of the timbered area under thermal cover prior to exploration, and the proposed action would reduce this amount to 24%. Security cover would remain at approximately the same level, going from 73% of the core winter range to 70% of the area. In addition, the surrounding winter range has been logged and has no current value for thermal or security cover, which makes this pocket of thermal and security cover in the core winter range more important for the 15-30 elk that winter in the McDonald area.

The core winter range is already below the guideline of 30% thermal cover, and the direct impact from the additional 3% loss of thermal cover area is difficult to estimate. This loss of habitat could displace elk to surrounding winter range areas. This may increase potential pressures in neighboring wintering herds, most likely in the Keep Cool area. Potentially, the 15-30 elk from McDonald could join the approximately 100 elk already at Keep Cool, increasing elk density by 30%. This may overpopulate the Keep Cool Range because a series of mild winters, conservative hunting seasons, and elk trend data all indicate that current populations are at range capacity.

The Keep Cool core winter range contains excellent habitat for elk. Under the proposed plan, activity could occur in the Keep Cool area year round. Exploration activity in the winter and during calving could cause displacement of elk in this area and could have negative impacts on the elk population. During the fall, the cumulative impact of hunting pressure and mechanized exploration activity could also increase pressure, causing additional displacement and stress in the animals prior to winter.

Proposed disturbance levels in the Keep Cool core winter range area are very low and dispersed under the proposed plan since only Class I exploration is proposed, so the thermal and security cover integrity would not be compromised.

Grazing opportunities may be increased after reclamation since old roads would contain grasses for forage until regeneration of trees occurred.

Grizzly and black bear populations could be negatively impacted by increased drilling activity, especially in the Keep Cool area. Negative impacts would result from confrontations that could occur along with possible displacement of the bears. Given the current bear populations, the possibility of such effects is low. These activities also conform with the Division of Forestry

Guidelines for grizzly bear management.

Drilling operations present the potential for disturbing wet areas in both the McDonald and Keep Cool areas, with possible displacement of localized small mammal and fox populations from these important habitats, especially around the McDonald Meadows. Such displacement would not affect the overall viability of these populations. Other wildlife populations would be impacted to a lesser degree since they are either more dispersed species or small mammals with more dense populations. Site specific impacts on these animals would be assessed upon receipt of site specific plans.

Since the proposed action would have no impact on the perennial rivers and creeks of the area, the fisheries would not be affected by this plan.

The area south of the river would not be impacted by the proposed exploration program. Activities north of the river may push some elk across the river along suspected elk routes. Any future proposed exploration at the Seven-Up Pete Project area in the timeframe of the proposed McDonald/Keep Cool Exploration must be reviewed by the appropriate agencies in a separate environmental analysis. Exploration is planned in the Seven-Up Pete area for the next 3-5 years in order to maintain claims.

2. No-Action Alternative

This alternative would deny the SPJV's proposal for expanded exploration activities in the McDonald and Keep Cool areas. Selection of this alternative would result in SPJV being allowed to complete currently permitted activities of exploration and the reclamation of roads, drill sites, and associated structures. No additional impacts to wildlife would occur.

3. Mitigated Proposed Action Alternative

Under this alternative impacts to wildlife would be minimized while still allowing exploration activities to continue.

Winter range values for elk have been identified in this area (Figure 8). Impacts to thermal and security cover would be the same as under the proposed action alternative.

With the proposed winter activity in the McDonald area, elk could be displaced to adjacent winter ranges. This may result in additional pressure on these ranges which could have a detrimental effect on the regional herd. As a result of this concern, the following mitigations would be used:

- a) Operation from December 1 to May 15 would be restricted in Section 6 of the McDonald area as follows:

- i) Activity will be limited to a minimum of 10 days of drilling and site preparation within two adjacent 40-acre sectors within the core winter range (Figure 8).
- ii) The next 10-day period could be in another separate sector with the limitation of site preparation within this new sector preceding moving of drill rigs by a maximum of 5 days.
- iii) The Department's Field Officer will determine the confines of these operating sectors.

This mitigation measure would reduce potential wildlife displacement in important winter usage areas by allowing only limited movement of exploration equipment. Drilling rigs would remain in a predictable location for 10 days, then move if necessary. This allows the elk to use the remainder of the core winter range at McDonald without disturbance. Elk would still have exclusive use of a majority of the thermal cover area during this period.

- b) Ongoing monitoring would be used to further evaluate displacement. If negative effects could be documented, the agencies would reduce the allowed activity level. SPJV would be required to develop a monitoring plan in consultation with the agencies.

Mechanized exploration in the Keep Cool Area core winter range will be limited to July 1 to September 30. This restriction would reduce pressures on elk in the Keep Cool area, and would limit disturbance of the Keep Cool herd to times of the year when greater opportunities exist for the elk.

In addition to elk winter range restrictions, SPJV would be required to mitigate impacts to wildlife populations in the following manner:

- a) The McDonald area would be controlled by a locked gate to prevent casual access to the area by recreationists and others. This would help decrease the displacement potential and additional conflicts.
- b) All abandoned sumps used to collect drilling mud would be filled in or fenced with an 8 foot woven wire fence to prevent their use as salt-licks by big game and other wildlife populations.
- c) Any confrontation with or sighting of a grizzly bear in the exploration area would result in the immediate stopping of all exploration activities in that area until such time as a credible authority can determine that the bear has left the area. The "exploration area" means either the McDonald area or Keep Cool area, depending on where the bear was sighted. Bear/human conflict will be minimized with this stipulation.

d) All refuse would be kept in closed containers and removed on a daily basis to avoid attracting bears and other foraging wildlife.

e) Any sighting of a bald eagle nest will result in the stopping of any mechanized exploration activity in accordance with the Habitat Management Guide for Bald Eagles in Northwestern Montana.

f) All timber removal for drill pad sites, roads, and sumps would be kept to the minimum level necessary to access the site and conduct operations to prevent unnecessary loss of thermal and security cover for wildlife populations.

g) all roads, drill pads, trenches and associated structures would be reclaimed as soon as possible after completion of site operations and in conjunction with other exploration activities to reduce the recreational and other vehicle use.

F. Air Quality and Climate

1. Proposed Action

The most significant air quality concern resulting from this project would be particulate matter (dust). The primary source would be from vehicle traffic on unpaved roads. Minor amounts of particulate would be generated from drilling and material handling processes, such as trenching/test pitting, bulk sample extraction and handling, and reclamation activities.

An air quality permit is not required for this type of project; however, the Montana air quality rules (ARM 16.8.1401) require that reasonable precautions be taken to minimize fugitive dust emissions. This would involve either watering and/or chemical stabilization of road surfaces or work areas on an as-necessary basis. This would be most likely be limited to high-use areas such as around the proposed plant site. Road dust emissions on an uncontrolled basis from the underground bulk sampling program are estimated at less than one ton per year based on the proposed tonnage, truck size, and haul distance. Road dust related to drilling activities would be dependent on the number of drill rigs operating at any point in time and the amount of service/support traffic associated with the rigs. The need for and adequacy of road dust control would be evaluated by the agencies (DSL and the Department of Health and Environmental Sciences) on an on-going basis.

Diesel exhaust emissions would also result from the project. Large diesel engines which are used to power the rigs, pumps, and auxiliary equipment would emit relatively small amounts of gaseous pollutants such as nitrogen oxides and carbon monoxide. Total emissions would again be dependent on the number of rigs, size (horsepower ratings), diesel usage, and hours of operation, however resulting air quality impacts would be minimal under the proposed action.

Another concern which has been raised is the potential for air quality impacts associated with using cyanide in the testing program. With proper handling and operation of the facility, there

is no health hazard associated with the use of sodium cyanide. The pH of a sodium cyanide solution must be maintained in a basic condition (recommended pH of >9.4) or very toxic hydrogen cyanide gas will form. At dilute leaching concentrations, total hydrogen cyanide gas reversion would not be significant enough to harm humans or animals outside of the facility. The primary hazard from hydrogen cyanide gas would be to workers on the immediate site. There would be numerous safety precautions in place to avoid cyanide-related problems, including specific handling procedures and spill prevention and containment plans.

In general, air pollutant levels (both particulate and gaseous) and resulting impacts should be similar to those occurring from the previous exploration activities. The levels should remain well below applicable ambient air quality standards and impacts should be minimal. The exception may be short-term localized dust problems, but these can be mitigated on a case-by-case basis if they occur.

2. No-Action Alternative

Under the no-action alternative, air quality conditions would return to levels similar to those existing prior to the exploration activities.

3. Mitigated Proposed Action Alternative

No specific air quality mitigations would be required at this time. Air quality impacts under this alternative would be the same as described in Section F.1. above.

G. Land Use

1. Proposed Action

Selection of the proposed action alternative would have short-term negative impacts on residential and recreational activities. No long-term impacts are foreseen from this exploration proposal.

Under the proposed action, exploration could occur on state cabin leases, but the improvements would be avoided. The operating plan calls for coordination with lessees in Section 12, but does not address cooperation with Section 36 cabinsite lessees. Activities on these leases would most likely disturb the residents during the term of the activity.

Snowmobiling and other recreational activities would be allowed in the proposed exploration area except when movement of heavy equipment poses a hazard to the recreationists. Groomed snowmobile trails would be avoided, if possible, signs would be posted where plowed roads cross groomed trails, and, upon completion of exploration activities, snow bridges would be built where the plowed road crosses the groomed trail. The proposed action does not mention coordination of exploration activities with the local snowmobile club.

No impact to the grazing activity is expected under the proposed action.

Fishing access and angler days would not be directly affected by the exploration project since there would be no impact on the areas immediately surrounding the river.

The expanded exploration activity would not have a great impact on hunting in the area. The core habitat in the Keep Cool area would be closed to mechanized exploration, so no conflict with hunting should occur in this area. Other portions of the exploration area may be utilized by both hunters and SPJV, but conflicts have not occurred in the past and are not expected in the future. In addition, SPJV policy prohibits employees or contractors from carrying firearms or use vehicles to transport hunted animals from the project area.

2. No-Action Alternative

Selection of this alternative would not adversely affect any of the land use activities in this area. Future timber management activities under this alternative may have some short term adverse impacts on land use during harvesting operations.

3. Mitigated Proposed Action Alternative

Selection of this alternative would allow mineral exploration to occur as proposed with the following mitigating stipulations.

Proposed activities on state-owned land in this area would be conducted in coordination with the State's grazing lessee, the Sieben Ranch Company. This would help avoid potential conflicts between the two state lessees.

No mechanized exploration activities would be allowed on state cabin leases in Sections 12 and 36 unless approved in writing. All exploration activities in State Sections 12 and 36 would be coordinated with the state cabin lessees to insure that activities do not create any unreasonable interference with residential land use.

SPJV would initiate and coordinate a meeting between themselves, Montana Dept. of State Lands, Montana Dept. of Fish, Wildlife, and Parks, Sieben Ranch Company, and the Ponderosa Snow Warriors (local snowmobile club) to discuss the possibility of developing a cooperative road closure program to mitigate the cumulative impacts of all land uses.

The SPJV would further cooperate jointly with the Ponderosa Snow Warriors in developing alternatives to mitigate disturbances to groomed snowmobile trails caused by mineral exploration activity.

Some short-term, negative impacts on residential and recreational activities would occur where exploration activities cross residential lots and recreational trails, but these mitigation measures would reduce the potential for conflicts between the users. No long-term impacts are expected.

H. Aesthetics

1. Visual Quality

a. Proposed Action

Under the proposed action alternative, some exploration activity would be visible from Highway 200, the Landers Fork Road, and from surrounding areas. Access roads, drill pad sites, and the bulk sample storage and metallurgical test facility would be easily seen from these roads. Much of the exploration activity, however, would be hidden by the trees or by the surrounding topography.

The visual impacts of the bulk sample storage facility would be reduced by placing a berm between the facility and Highway 200, but the plant would still be visible from the highway. This high visibility, however, may aid in allowing the public to verify that activities are in compliance with the permitting requirements. Upon completion of the exploration project, this facility would be reclaimed and native grass seed planted, so the impacts would be short-term.

Drill sites and access roads would also be visible from the surrounding area, especially the Class IV drilling areas and activity below the lower tree line in Section 5. Visual evidence of disturbance below the lower tree line would be temporary since the locations would be recontoured and seeded upon reclamation. The Class IV areas, however, would appear as small clearcut areas until regeneration of the trees is completed. Areas of Class III drilling may also appear as thinned out areas until timber regeneration occurs.

b. No-Action Alternative

Under the no-action alternative, no additional visual impacts would occur. At the present time, some visual evidence of exploration activity is seen from Highway 200, but upon reclamation, this disturbance would not be visible.

c. Mitigated Proposed Action Alternative

Planting trees in the Class IV areas would decrease the period that the visual impact would occur. Other visual effects from the proposed action would be the same under this alternative.

2. Noise

a. Proposed Action

Noise impacts under the proposed action would come from primarily three sources - vehicular traffic on the roads, drilling and trenching equipment, and crushing equipment at the bulk sample storage facility.

Noise from traffic on roads in the area would be primarily from heavy truck traffic. Sound levels from this traffic would most likely be heard only for a short distance.

Drilling equipment would be heard over a larger area. Though noise levels from the drilling rigs are relatively low and heard as a low hum by local residents, the 24-hour drilling may disturb some residents. Acclimation to this noise, however, is possible.

Noise levels from the crushing facility are estimated to be around 90 decibels. The noise from the crushing plant would be comparable to that generated from a gravel quarry used for road construction. Berms and screening walls would be used to help absorb the sound energy generated from this facility, but noise from the facility may disturb local residents during operations, especially if operations are conducted 24-hours a day.

b. No-Action Alternative

Under the no-action alternative, noise from drilling operations and support traffic would continue until the previously permitted activity is completed later this year. Upon completion of the permitted exploration, noise levels would return to previous ambient sound levels.

c. Mitigated Proposed Action Alternative

Noise levels under the mitigated alternative would be similar to those under the proposed action except for the following mitigations:

- a. operations at the bulk sample crushing facility would only be allowed from 7:00 a.m. to 7:00 p.m. This stipulation would limit disturbance to local residences from crushing facility noise.
- b. drilling rigs will be oriented so generators and engines will be away from local residences. This will use the drilling rig and other equipment as a buffer to help reduce noise propagation from the drilling rig. The hum of drilling activity, however, will most likely be heard from residences in the area.

1. Socioeconomic Concerns

This section describes socioeconomic impacts in the town of Lincoln and the surrounding area. Factors likely to influence the socioeconomic conditions of Lincoln and the surrounding area include:

- 1) the number of temporary employees and the duration of their employment;
- 2) the availability and location of housing and existing and potential housing sites; and
- 3) the people directly and indirectly affected economically by the proposed action (example: from wages or taxes).

1. Proposed Action

a. Local Economy and Project Employment:

The project employment would be up to 74 total workers. The SPJV would retain 7 permanent workers currently employed, up to 23 temporary employees, and up to 50 contracted employees. The number of temporary and contracted employees would vary throughout the year. These numbers are similar to employment levels in 1990 and 1991. No additional impacts to the local economy from numbers of employees would be expected under the proposed action because employment patterns would not change.

No direct impacts from the existing exploration are currently known on the tourist and recreation industry in Lincoln. This would not be expected to change under the proposed exploration plan.

b. Population:

The permanent population of Lincoln would not be expected to change.

c. Housing:

The peak housing demand would occur during the summer and early fall. Employees would be expected to live in rental housing as they have done in the past. Rental prices have increased approximately \$25-50 per unit in the past few years. This increase may be related to the number of seasonal employees at the exploration operation (Carol Blowars, personal communication).

Since employees would be expected to rely on rented housing, the demand for houses for sale would not be expected to change. House prices apparently have not changed since the exploration operation started in Lincoln. Retirees considering relocating to the area may perceive Lincoln to be a less desirable place to live because of the activity from the exploration operation. However, recent purchasers have not expressed concern regarding the exploration operation (Carol Blowars, personal communication).

d. Schools

Lincoln schools are presently at capacity, and there is need for additional space for some activities. It is anticipated that, given the current enrollment, facility shortages, such as for science courses, will also develop in the near future in the high school grades. If enrollment continues to grow as a result of unemployed persons and their families moving into the area, problems with facilities may become more general. Furthermore, if future enrollments follow the recent pattern, many new children may have special needs with which the schools and county would be expected to cope.

The reason or reasons for the influx of unemployed persons with their families cannot be

stated with certainty. Immigration has occurred in other areas of the State from planned projects. This appears to be happening now in Roundup near the site of a proposed underground coal mine. The perception that a mine will open as a result of the proposed exploration project may be drawing people who hope for future employment.

2. No-Action Alternative

a. Local Economy and Project Employment:

If the exploration application were denied, project employment for up to 74 total workers would not be available. The 7 permanent workers currently employed probably would be relocated or laid off. Up to 23 temporary employees and up to 50 contracted employees, previously employed in varying numbers during the year would not be needed.

No direct impacts from the existing exploration are currently known on the tourist and recreation industry in Lincoln. This would not be expected to change under the no action alternative.

b. Population:

The permanent population of Lincoln would decrease if the 7 permanent employees and their families are relocated. Some of the temporary or contracted employees living in the Lincoln area could move away seeking other employment opportunities.

c. Housing:

Seasonal employees would no longer need rental housing, so those rental units that have been occupied in previous years could remain empty, possibly causing an increase in the seasonal fluctuation in the rental housing market. Rental prices which have increased in the past few years could decline with decreased demand.

d. Schools

If the exploration application were denied, some area workers could be forced to go elsewhere seeking jobs and would be expected to take their families with them. Unemployed persons who may have moved their families to Lincoln on speculation of future mining job opportunities would probably go elsewhere. It is likely that school enrollment would drop somewhat, under this alternative, relieving some of the facility-related problems at the schools and some of the demands to accommodate children with special needs.

3. Mitigated Proposed Action Alternative

Mitigations that would be applied to the exploration permit would not be expected to cause impacts to the local economy and project employment, population, housing, or schools different

from those of the proposed action.

J. Cultural

1. Proposed Action

Under the proposed action, one of the eight cultural properties recorded in the McDonald area would be impacted. The Old Lincoln Road is in the vicinity of the bulk sample storage facility. The old road would be bisected by the drain pipe transporting waste water from the bulk sampling adit to the settling ponds. The drain pipe would add approximately four feet of new disturbance to the Old Lincoln Road. This amount of disturbance may be considered minimal in relation to the total length of the site and be an acceptable loss.

The other cultural properties would be avoided. Site inspections would also be completed prior to new road construction and exploration site preparation. If a cultural property was located, the site would be avoided or analyzed for significance.

2. No-Action Alternative

No physical impacts to cultural resources would occur under the no-action alternative. Additional research into the significance of cultural properties within the area may be discontinued under this alternative.

3. Mitigated Proposed Action Alternative

Under the mitigated alternative, the Old Lincoln Road would not be impacted further by burying the pipeline under the existing haul road. If avoidance is not possible and the road is determined to be significant, then some form of mitigation would be required. Photography using the 4X4 format has been used in the past to document segments of roads and trails undergoing impacts.

CHAPTER V - CUMULATIVE EFFECTS

This chapter analyzes the cumulative effects of activities in the McDonald/Keep Cool area. Cumulative effects are the impacts of related past and present activities and other future state-agency actions that are currently planned, added to the impacts of each alternative.

A. Past, Present, and Future Actions

1. Mineral Development

a. Mining

No mining is active or proposed in the immediate vicinity of the McDonald/Keep Cool area. Any future applications for mining permits would receive the appropriate environmental review.

No reclamation of abandoned sites is proposed in the immediate vicinity of the project area. Previous plans to mine west of Lincoln (by Sunshine Mining) have been withdrawn by the current property owners. The current owners have not proposed to resubmit an application in the near future. Since no concurrent activity has been proposed, the Big Blackfoot properties are not considered in this cumulative effects analysis.

b. Exploration

The SPJV has reduced exploration activities in the Seven-Up Pete area south of the Blackfoot River since the exploration program began in the McDonald area. There will be ongoing exploration at Seven-Up Pete in 1992, and future plans will be no less than what is required for assessment purposes.

Any additional work that might be proposed for the Seven-Up Pete area would require an environmental review by the appropriate agencies when proposed. Since activity at the Seven-Up Pete area is greatly reduced, these activities should have no impacts on the resources in the McDonald/Keep Cool area.

Since 1986, exploration has occurred in the McDonald/Keep Cool area, and this exploration continues at present. A total of 82 acres of disturbance, out of 10,734 acres in the permit area, has been permitted to date. Exploration disturbance in the project area includes roads, drill pads, and trenches. Out of this 82 acres, 6% of this area (5 acres) has already been reclaimed. The reclamation in these areas has been very successful. The remainder of the area will be reclaimed upon the completion of the current exploration program. Minimal loss of soil has occurred, and, after recontouring and seeding, vegetation growth has been substantial. Some temporary displacement of wildlife has probably occurred, but elk and deer are seen grazing within sight of drilling operations. FWP has not reported any major effect on populations in the area. All exploration activities have been bonded for complete reclamation.

2. Logging

Much of the privately-owned land in the area has been extensively logged. The Department of State Lands currently has an active deadwood timber permit in Section 10 of the Keep Cool area, and another deadwood timber salvage permit is being considered for Section 4 of this area. The active permit allows timber salvage in a 12-acre area.

3. Grazing

Grazing of domestic sheep by the Sieben Ranch Company has had some impact on vegetational succession and soils in the area. The domestic sheep also attract grizzly bear on occasion. No changes in historic grazing patterns on state and federal lands has been proposed.

4. Recreation

There are no known changes proposed to modify existing recreation patterns previously described in Chapter 3.

B. Summary of Cumulative Effects

1. Proposed Action

Total disturbance including both previously permitted exploration and the proposed exploration would be approximately 230 acres, or approximately 2% of the McDonald/Keep Cool area. Many activities, however, would occur along pre-existing roads from previous exploration or logging activities, so new acreage disturbed would be much less.

Cumulative impacts from the proposed action include possible loss of some soil in the Class IV drilling areas, additional effects on wintering elk from stress displacement in both the Keep Cool and McDonald areas, and additional loss of thermal and security cover in the area.

Soil losses from past, present, and proposed drilling would be on-site and limited by waterbars on the roads, slash windrows, and other erosion prevention techniques. Soil loss in other areas would be minimized and limited by use of forestry BMP's. Since this minimal soil loss would be contained on-site, no additional, cumulative, or indirect impacts on soil or water quality are expected under the proposed action.

Since test holes would be plugged immediately upon completion, no additional impact to ground water is expected from drilling operations, and no related or concurrent activities would affect the groundwater.

As in the past, elk would experience maximum displacement from use areas during the fall hunting season. In addition, wildlife could be displaced by drilling and other exploration activity during this time. Additional roads constructed for exploration could allow increased recreational

access to the area, as well. Additional displacement from exploration activities, along with displacement from hunting and other recreational pressures, could cause additional stress to the animals at critical times.

Displacement also occurs from snowmobile usage in the winter range. A recent analysis indicated that 32% of the effective elk habitat in the Keep Cool area has been lost due to snowmobile use. The displacement from snowmobiles, along with additional displacement from exploration activity, could also cause stress to the wildlife. Coordination of exploration activities with the local snowmobiling club would help reduce some of this pressure.

Timber removal from the area has greatly reduced thermal and security cover for elk and other wildlife well below thresholds defined in DSL elk management guidelines. Regeneration in these disturbed areas is beginning to allow some security cover for the animals. Some off-site sedimentation is probably occurring from this logging disturbance. No known percentage of population loss has occurred from the loss of thermal and security cover.

In summary, the elk and deer populations have, and are expected to, remained stable and FWP has not proposed any change in hunting regulations for the area.

Noxious weeds have spread from logging activity disturbance and recreational utilization of roads in the area. Because of the weed control program for this exploration project, weed spread would be controlled, thus reducing the impact from weed infestation. Thus, the cumulative effect would be to reduce total weed infestation and further limit weed seed sources.

No change in timber industry employment or SPJV employment is expected, so there would be no additional impacts on the Lincoln area population and economics.

2. No-Action Alternative

Under the no-action alternative, impacts on soils, wildlife, and other resources would continue from logging and recreational activities. The currently permitted exploration activities at the McDonald/Keep Cool area would continue under existing permits into the future, and roads, drill pads, and trenches would be reclaimed.

The minimal soil loss from existing exploration roads would stop upon reclamation. These exploration road closures would reduce the accessibility of the area to recreationists, though most of these roads are on state sections behind locked gates, so accessibility of the area would not be drastically changed.

The wildlife would still be displaced along groomed snowmobile trails and from hunting pressures, but the additional displacement from exploration activity would not occur.

Knapweed and other noxious weeds could spread due to seed transport by recreationist and logging activity following reclamation.

A loss of up to 74 jobs, including 7 permanent jobs, would occur under the no-action alternative, possibly causing a decline in the Lincoln area population.

3. Mitigated Proposed Action Alternative

Cumulative impacts under the mitigated alternative would be less than those of the proposed action. Additional erosion protection features in the Class IV drilling areas would reduce potential soil loss and on-site sedimentation.

Since drilling activity would be prohibited from the Keep Cool area in the fall, winter, and spring, wildlife would only be displaced along one groomed snowmobile trail in the winter. Also, winter activities in the McDonald area would be restricted to limited areas, thus reducing potential displacement of wildlife from exploration activity. Additional coordination of activity between the local snowmobiling club and SPJV would also help reduce cumulative impacts on winter range.

No change in other cumulative effects, described above, would be expected to occur under this alternative.

CHAPTER VI - CONCLUSIONS AND RECOMMENDATIONS

The Reclamation Division and Lands Division of the Department of State Lands have evaluated the effects of three alternatives: the proposed action, the no-action alternative, and a mitigated proposed action alternative. Other alternatives were evaluated and dropped from further consideration as described in Chapter II.

Table 5 is a comparison of impacts under each alternative. Comparisons of maximum acreage that would be disturbed from specific exploration activities are listed in Table 6, and Table 7 shows a comparison of maximum disturbed acreage under each alternative.

The Divisions predict that the direct, indirect, and cumulative effects of the evaluated alternatives would not result in significant effects on the environmental resources in the area of the proposed exploration activity. Although both the proposed action and the mitigated proposed action have minimal environmental consequences, the Divisions prefer the mitigated proposal because it further minimizes effects to water quality, soil preservation, wildlife, and regeneration of the vegetation (see Table 5).

An EIS is not necessary as the direct impacts and cumulative impacts do not constitute a significant impact.

TABLE 5: COMPARISON OF IMPACTS UNDER EACH ALTERNATIVE

	Proposed Action	No-Action Alternative	Mitigated Alternative
Topography	Short-term, localized changes to slope for roads, drill pads, trenches, and bulk sample storage facility.	Some short-term, localized changes to slope for previously permitted roads, drill pads, and trenches.	Same as the proposed action.
Geology	Additional information about the ore body would be gained.	No additional information about the ore body would be gained.	Same as the proposed action.
Hydrology	Potential on-site sedimentation from Class IV areas. Minor on-site sedimentation from roads and other cleared areas. Continued on-site and off-site sediment input from previously logged areas.	Very minor sedimentation from existing roads and other cleared areas. Continued on-site and off-site sediment input from previously logged areas.	Minor on-site sedimentation from roads and other cleared areas. Continued on-site and off-site sediment input from previously logged areas.
	Some potential leakage of drilling fluid into surface waters.	No impacts to surface water.	No fluid release to surface waters.
	Minor amounts of nitrate may enter the ground water system via fractures encountered by the bulk sample adit, or if some leakage of bulk sample storage facility sumps occurred.	No groundwater impacts.	Minor amounts of nitrate may enter the ground water system via fractures encountered by the bulk sample adit. Monitoring would assure nondegradation standards would be enforced.

	Proposed Action	No-Action Alternative	Mitigated Alternative
Soils	Soil horizon mixing and replacement of only the top 6-inches of soil in highly disturbed areas may slightly reduce plant productivity upon reclamation. Compacted subsoil may also limit reclamation success.	No additional impacts.	Soils would be temporarily disturbed, but stockpiling of the top 24-inches of soil, where possible, ripping compacted subsoil prior to replacement, would enhance plant productivity in reclaimed areas over the proposed action.
Vegetation	Some short-term loss of trees and grasses would occur in disturbed areas. Regeneration of trees in the Class IV areas would be slow.	Some short-term loss of trees and grasses would occur in disturbed areas of previously permitted exploration activities.	Some short-term loss of trees and grasses would occur in disturbed areas. Planting of trees in the Class IV areas would decrease the time required for regeneration.
	Noxious weed spread would be controlled over the period of the exploration program.	Noxious weed spread would only be controlled until the end of the currently permitted exploration program.	Noxious weed spread would be controlled over the period of the exploration program.
Wildlife	Thermal cover in the McDonald core winter range area would be reduced from 26% of the timbered area to 23% of the timbered area. Security cover would remain essentially intact. Thermal and security cover in the Keep Cool area would remain effective.	Current levels of thermal and security cover would remain effective on both the Keep Cool and McDonald areas.	Same as the proposed action.
	Short-term displacement of elk from the McDonald and Keep Cool winter ranges and calving areas is possible.	Localized displacement of elk from winter range in the McDonald area would continue under the previously permitted exploration. Some limited displacement of calving elk is possible from the previously permitted exploration.	Potential localized displacement of elk from winter range in the McDonald area. No impact would occur in the Keep Cool winter range. Some limited displacement of calving elk is possible.
	Minor potential for confrontation with bears.	Minor potential for confrontation with bears.	Minor potential for confrontation with bears.
	Short-term increase of grazing opportunities in reclaimed areas.	Short-term increase of grazing opportunities in reclaimed areas.	Short-term increase of grazing opportunities in reclaimed areas.
	Some displacement of small mammals and fox populations would be possible around impacted wetlands.	No impact to wetlands.	Same as the proposed action.
	Displacement of wildlife and increased mortality from hunting due to increased recreational access to the tracts. This impact would be short-term until roads are reclaimed.	Lesser impact than the proposed action since fewer new roads would be constructed. Locked gates on the state-owned sections would reduce recreational access.	Lesser impact than the proposed action since access to the state sections would be limited by locked gates.

	Proposed Action	No-Action Alternative	Mitigated Alternative
Air Quality	Minor dust from vehicle travel, drilling, trenching, bulk sample extraction and handling, and reclamation activities would occur.	Minor dust from previously permitted exploration activities would continue.	Same as the proposed action.
	Very minor diesel exhaust emissions would occur from exploration activities.	Very minor diesel exhaust emissions would occur from previously permitted exploration activities.	Same as the proposed action.
Land Use	Increased recreational access to the area would be provided by additional roads.	Some additional access would be provided by previously permitted roads.	Increased recreational access to the area would be provided by additional roads, but access to the state sections would be limited by locked gates.
	Potential conflicts with snowmobile usage could occur along two major snowmobile trails in the area.	Potential conflicts with snowmobile usage could occur on one snowmobile trail until current exploration program is completed.	Potential conflicts with snowmobile usage could occur on one snowmobile trail. Increased coordination between local snowmobiling clubs would reduce potential for conflicts.
	Potential conflict with residential land use in Section 36, T15N, R8W. Coordination with residential lessees or owners in other sections would decrease potential for conflicts.	No impacts to residential land use.	Coordination with residential lessees or owners in all areas would decrease potential for conflicts.
Visual	Some disturbance would be visible from Highway 200 and the Landers Fork Road.	Some disturbance would be visible from Highway 200 and the Landers Fork Road, but only previously permitted disturbance.	Some disturbance would be visible from Highway 200 and the Landers Fork Road. Impacts would be shorter term than the proposed action since trees would be planted in Class IV areas.
Noise	Low hum from drilling operations would be heard in the surrounding areas. Noise levels from the crushing facility could disturb area residents at night.	Low hum from previously permitted drilling activity would be heard in the surrounding areas. This activity, though, would continue under existing permits into the future.	Low hum from drilling operations would be heard in the surrounding areas. Rig orientation would slightly reduce this noise. Noise levels from the crushing facility could disturb area residents during daylight hours.
Socio-Economics	Up to 74 additional jobs would be in the area for the next 3 to 5 years.	Jobs would continue in the area until previously permitted activity ended.	Same as the proposed action.
	Housing costs would remain unchanged.	Housing costs could decline slightly upon the completion of the current exploration program.	Same as the proposed action.
Cultural	A 4-foot segment of the Old Lincoln Road would be disturbed.	The Old Lincoln Road would not be affected.	The Old Lincoln Road would not be affected.

TABLE 6: McDONALD/KEEP COOL AREA DISTURBANCE ESTIMATES (ACRES) BY DISTURBANCE TYPE

SECTION OWNER-SHIP	TOTAL AREA (ACRES)	DRILL SITES					ROADS						TRENCHES					MISC DISTURB				
		PROPOSED	CURRENT EXPLORATION PROGRAM			FUTURE EXPLOR TOTAL	PROPOSED	CURRENT EXPLORATION PROGRAM			FUTURE EXPLOR TOTAL	NON EXPLORATION PRE-EXISTING	TOTAL FUTURE DISTURB	PROPOSED	CURRENT EXPLORATION PROGRAM				TOTAL FUTURE DISTURB			
			EXISTING	RECLAIMED	SUBTOTAL			TEMPORARY EXISTING	UPGRADED EXISTING	SUB TOTAL					DOZER	EXCAVATOR	RECLAIMED			SUB TOTAL		
																					TOTAL	TOTAL
McDONALD																						
6 STATE	629	20.4	10.8	0.5	11.3	31.7	18.1	21.0	1.8	0.0	22.8	40.9	7.3	48.2	0.7	0.0	0.0	0.1	0.1	0.8	0.0	0.0
12 STATE	450	0.7	0.0	0.0	0.0	0.7	3.0	0.0	0.0	0.0	0.0	3.0	5.9	8.9	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0
36 STATE	240	0.5	0.0	0.0	0.0	0.5	1.3	0.0	0.0	0.0	0.0	1.3	5.7	7.0	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0
1 PRIVATE	341	2.9	1.9	0.0	1.9	4.8	5.2	2.7	0.0	0.0	2.7	7.9	12.2	20.1	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0
7 PRIVATE	640	7.0	7.6	0.3	7.9	14.1	4.0	12.1	0.6	3.6	16.3	20.3	6.3	26.6	0.7	3.0	0.2	0.0	3.2	3.9	9.0	0.0
7 PRIVATE	412	0.6	0.3	0.0	0.3	0.9	1.5	0.8	0.0	0.0	0.8	2.3	8.9	11.2	0.7	3.0	0.0	0.0	3.0	3.7	0.0	0.0
25 PRIVATE	130	0.1	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.8	5.6	6.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
29 PRIVATE	640	1.0	0.5	0.0	0.5	1.5	2.3	0.6	0.0	0.0	0.6	2.9	12.0	14.9	0.7	3.0	0.0	0.0	3.0	3.7	0.0	0.0
30 PRIVATE	640	1.0	0.8	0.0	0.8	1.8	2.3	1.4	0.0	0.0	1.4	3.7	15.0	18.7	0.7	6.0	0.0	0.0	6.0	6.7	0.0	0.0
31 PRIVATE	640	1.0	3.2	0.0	3.2	4.2	2.3	1.0	0.0	0.0	1.0	3.3	19.2	22.5	0.7	6.0	0.0	0.0	6.0	6.7	0.0	0.0
32 PRIVATE	480	0.7	0.7	0.0	0.7	1.4	1.7	1.0	0.0	0.0	1.0	2.7	9.2	11.9	0.7	3.0	0.0	0.0	3.0	3.7	0.0	0.0
33 PRIVATE	142	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	2.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34 PRIVATE	160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	5544	36.0	25.8	0.8	26.6	62.6	42.6	40.6	2.4	3.6	46.6	89.2	111.9	201.1	7.1	24.0	0.2	0.1	24.3	31.4	9.0	0.0
KEEP COOL																						
4 STATE	240	0.2	0.0	0.0	0.0	0.2	1.4	0.0	0.0	0.0	0.0	1.4	3.3	4.7	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0
10 STATE	640	0.5	0.5	0.2	0.7	1.2	1.9	1.3	1.0	0.0	2.3	4.2	9.8	14.0	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0
12 STATE	190	0.4	0.0	0.0	0.0	0.4	1.3	0.3	0.0	0.0	0.3	1.6	3.6	5.2	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0
16 STATE	320	0.2	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.0	0.8	4.5	5.3	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0
36 STATE	240	0.4	0.0	0.0	0.0	0.4	1.0	0.0	0.0	0.0	0.0	1.0	3.9	4.9	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0
1 PRIVATE	299	0.5	0.5	0.0	0.5	1.0	1.1	0.8	0.0	0.0	0.8	1.9	3.4	5.3	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0
2 PRIVATE	640	1.0	0.4	0.0	0.4	1.4	2.7	0.3	0.0	0.0	0.3	3.0	19.8	22.8	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0
3 PRIVATE	640	0.5	0.1	0.0	0.1	0.6	1.4	0.0	0.3	0.0	0.3	1.7	18.7	20.4	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0
9 PRIVATE	320	0.2	0.1	0.0	0.1	0.3	0.4	0.0	0.0	0.0	0.0	0.4	7.0	7.4	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0
11 PRIVATE	522	0.8	1.6	0.0	1.6	2.4	2.3	1.7	0.0	0.7	2.4	4.7	16.7	21.4	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0
25 PRIVATE	510	0.4	0.1	0.0	0.1	0.5	1.7	0.1	0.0	0.0	0.1	1.8	1.4	3.2	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0
33 PRIVATE	320	0.5	0.0	0.0	0.0	0.5	1.2	0.0	0.0	0.0	0.0	1.2	11.5	12.7	0.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0
SUBTOTAL	4881	5.6	3.3	0.2	3.5	9.1	17.2	4.5	1.3	0.7	6.5	23.7	103.6	127.3	5.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0
GRANDTOTAL	10425	41.6	29.1	1.0	30.1	71.7	59.8	45.1	3.7	4.3	53.1	112.9	215.5	328.4	12.1	24.0	0.2	0.1	24.3	36.4	9.0	0.0

NOTE: LANDERS FORK IS CONSIDERED THE BOUNDARY BETWEEN KEEP COOL AND McDONALD

ACREAGE FIGURES CALCULATED AS FOLLOWS:

DRILL PAD SITES: 0.12 acres/site. Half of site is road acreage, so all sites assumed to be average of 0.06 acres/site.

ROADS: Assumed to have width of 18 feet.

TRENCHES: If constructed with a dozer, 3 acres/trench. If constructed with an excavator, 20-foot width assumed.

MISCELLANEOUS DISTURBANCE: This includes the bulk sample storage and metallurgical test facility site and loading areas.

**Existing disturbance values include areas that are permitted but not constructed.

TABLE 7: McDONALD/KEEP COOL AREA DISTURBANCE ESTIMATES (ACRES) BY ALTERNATIVE

SECTION OWNER-SHIP	TOTAL AREA (ACRES)	NEW DISTURBANCE UNDER PROPOSED ACTION		CURRENT PROGRAM DISTURBANCE NO-ACTION ALTERNATIVE						COMBINED PROGRAMS DISTURB. (PROPOSED ACTION AND MITIGATED ALTERNATIVE)			PRE-EXISTING NON-EXPLORATION ROAD DISTURBANCE		TOTAL FUTURE DISTURBED AREA (PROPOSED ACTION AND MITIGATED ALT. INCLUDING NON-EXPLORATION)			
		ACRES	% AREA	DISTURBED		RECLAIMED		TOTAL DISTURBANCE		ACRES	% AREA	% RECL'D	ACRES	% AREA	ACRES	% AREA	% RECL'D	
				ACRES	% AREA	ACRES	% AREA	ACRES	% AREA									
McDONALD																		
6 STATE	629	39.2	6.2	31.8	5.1	2.4	0.4	34.2	5.4	73.4	11.7	3.3	7.3	1.2	80.7	12.8	3.0	
12 STATE	450	4.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	1.0	0.0	5.9	1.3	10.3	2.3	0.0	
36 STATE	240	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.0	0.0	5.7	2.4	8.2	3.4	0.0	
1 PRIVATE	341	8.8	2.6	4.6	1.3	0.0	0.0	4.6	1.3	13.4	3.9	0.0	12.2	3.6	25.6	7.5	0.0	
5 PRIVATE	640	20.7	3.2	26.5	4.1	0.9	0.1	27.4	4.3	48.1	7.5	1.9	6.3	1.0	54.4	8.5	1.7	
7 PRIVATE	412	2.8	0.7	4.1	1.0	0.0	0.0	4.1	1.0	6.9	1.7	0.0	8.9	2.2	15.8	3.8	0.0	
25 PRIVATE	130	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.0	5.6	4.3	6.6	5.1	0.0	
29 PRIVATE	640	4.0	0.6	4.1	0.6	0.0	0.0	4.1	0.6	8.1	1.3	0.0	12.0	1.9	20.1	3.1	0.0	
30 PRIVATE	640	4.0	0.6	8.2	1.3	0.0	0.0	8.2	1.3	12.2	1.9	0.0	15.0	2.3	27.2	4.3	0.0	
31 PRIVATE	640	4.0	0.6	10.2	1.6	0.0	0.0	10.2	1.6	14.2	2.2	0.0	19.2	3.0	33.4	5.2	0.0	
32 PRIVATE	480	3.1	0.6	4.1	0.9	0.0	0.0	4.1	0.9	7.2	1.5	0.0	9.2	1.9	16.4	3.4	0.0	
33 PRIVATE	142	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	2.5	1.8	2.7	1.9	0.0	
36 PRIVATE	160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.3	2.1	1.3	0.0	
SUBTOTAL	5544	94.7	1.7	93.6	1.7	3.3	0.1	96.9	1.7	191.6	3.5	1.7	111.9	2.0	303.5	5.5	1.1	
KEEP COOL																		
4 STATE	240	1.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.8	0.0	3.3	1.4	5.1	2.1	0.0	
10 STATE	640	2.8	0.4	1.8	0.3	1.2	0.2	3.0	0.5	5.8	0.9	20.7	9.8	1.5	15.6	2.4	7.7	
12 STATE	190	2.0	1.1	0.3	0.2	0.0	0.0	0.3	0.2	2.3	1.2	0.0	3.6	1.9	5.9	3.1	0.0	
16 STATE	320	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.0	4.5	1.4	5.8	1.8	0.0	
36 STATE	240	1.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.8	0.0	3.9	1.6	5.7	2.4	0.0	
1 PRIVATE	299	2.0	0.7	1.3	0.4	0.0	0.0	1.3	0.4	3.3	1.1	0.0	3.4	1.1	6.7	2.2	0.0	
2 PRIVATE	640	4.4	0.7	0.7	0.1	0.0	0.0	0.7	0.1	5.1	0.8	0.0	19.8	3.1	24.9	3.9	0.0	
3 PRIVATE	640	2.3	0.4	0.1	0.0	0.3	0.0	0.4	0.1	2.7	0.4	11.1	18.7	2.9	21.4	3.3	1.4	
9 PRIVATE	320	0.9	0.3	0.1	0.0	0.0	0.0	0.1	0.0	1.0	0.3	0.0	7.0	2.2	8.0	2.5	0.0	
11 PRIVATE	522	3.8	0.7	4.0	0.8	0.0	0.0	4.0	0.8	7.8	1.5	0.0	16.7	3.2	24.5	4.7	0.0	
25 PRIVATE	510	2.5	0.5	0.2	0.0	0.0	0.0	0.2	0.0	2.7	0.5	0.0	1.4	0.3	4.1	0.8	0.0	
35 PRIVATE	320	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.7	0.0	11.5	3.6	13.7	4.3	0.0	
SUBTOTAL	4881	27.8	0.6	8.5	0.2	1.5	0.0	10.0	0.2	37.8	0.8	4.0	103.6	2.1	141.4	2.9	1.1	
GRAND TOTAL	10425	122.5	1.2	102.1	1.0	4.8	0.0	106.9	1.0	229.4	2.2	2.1	215.5	2.1	444.9	4.3	1.1	

CHAPTER VII - CONSULTATION AND COORDINATION

This EA is a joint document prepared by the Minerals Management Bureau and the Hard Rock Bureau of the Department of State Lands.

The Department of Health and Environmental Sciences, Air Quality Bureau and Water Quality Bureau, the Department of Fish, Wildlife and Parks, the State Historic Preservation Office, and the Field Operations Division and Forestry Division of the Department of State Lands were consulted in preparation of this document.

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CHAPTER VIII - COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT AND RESPONSES

The following pages contain written comments received by DSL during the formal comment period on the draft environmental assessment. Responses to comments are included at the end of this chapter.

SYNOPSIS OF PUBLIC HEARING COMMENTS
JULY 16, 1992, 7:00pm

This document is a synopsis of the comments received at the public hearing held on July 16, 1992 at 7:00pm in the Lincoln Community Hall. A complete record of this meeting is available on tape at the Department of State Lands, and a transcript can be made, if requested.

A. Gary Spaulding
5974 Glass Drive
Helena, MT 59601

1. The Independent Record article misrepresented the status of the DSL decision. This may have had a significant effect on the turnout for this public hearing. People who were opposed to the expansion of exploration may not have been present, thinking that a decision had been made. DSL should pursue a front page retraction of this story. The retraction should explain that written comments will be accepted until July 24 and a decision will be made after that time.

2. The environmental assessment did not address groundwater sufficiently. The question was asked earlier (during scoping) as to "where the groundwater reach(es) the surface water environment?"

B. Jacques Spaulding
1438 Avenue D
Billings, MT 59102

1. Question: Is Governor Stephens behind this analysis and exploration? Was pressure brought on by the governor to complete this analysis? How can the analysis be unbiased when the boss is biased?

2. The discussion has been limited to exploration only. I am concerned about this area becoming another Golden Sunlight mine.

C. Bruce Farling
Clark Fork Coalition
Box 7593
Missoula, MT 59803

1. I am not for or against the expanded exploration. I compliment Phelps Dodge. They have been responsive to questions in the past, and "I think they've done a pretty good job in terms of minimizing impacts and being somewhat sensitive to public concerns" in this exploration, so far.

2. Problems are with the DSL analysis and the lack of depth of analysis. Disclosure of impacts is not complete, and the analysis skips over many resources. Written comments will be mailed prior to the deadline, but highlights are as follows:

a. No information on the baseline for fisheries was disclosed for the project area. How can impacts be assessed without the baseline information?

b. Little information on water resources, especially in the Keep Cool area, was offered in the EA. There is no information on where the development will be in relation to the water resources.

c. The only wildlife assessed was the elk, and this analysis was flawed. Was FWP consulted during this process? The figure of

2.3% area disturbance infers that 98% of the area is left untouched. The disturbance is distributed across the area, and therefore, the areal disturbance and impacts to wildlife will be much greater than the 2.3% figure quoted.

d. Which water quality standard must be adhered to? Non-degradation and drinking water standards are both referred to in the text. Non-degradation should be the only standard and must be adhered to in the exploration. There can't be any allowable standards for nitrates.

8

D. Stan Bradshaw
Montana Trout Unlimited
P.O. Box 1273
Helena, MT 59624

1. The fisheries were not discussed in the EA. My understanding is that there probably will not be any impact to fisheries from this exploration, but the EA should disclose potential impacts on the fisheries. At least mention why no impacts on fisheries is expected.

9

E. Bob Berry
Montana Alliance for Progressive Policy
P.O. Box 961
Helena, MT 59624

1. Information in the newspaper was not correct. Also, I came to the meeting expecting that information would be presented during the open house by the Department of State Lands people. I had hoped to be brought up to speed by the DSL staff on the proposal. I have not received a copy of the EA, but will and I will send in written comments.

F. Jim Jensen, Executive Director
Montana Environmental Information Center
Box 1184
Helena, MT 59624

1. "This exercise of pretending there isn't going to be massive mining and surface disturbance in the area seems silly, and I wonder if people, by and large, think that the deal is done." The company has been going around to all the agencies to determine where the EIS process goes and how it is done, but this assessment ignores the potential for the level of mining that is going to occur in the area makes a "farce" of the cumulative effects analysis that is done under NEPA. We do not ignore the potential for mining, and the state shouldn't either. We urge you to have an honest and forthright discussion on the likelihood that mining will occur. The public needs to know what this next step could lead to in the future.

10

G. Jack Mulcare
P.O. Box 383
Lincoln, MT 59639

1. Comments on wildlife restrictions from December 1 through June 30: Exploration activity would probably have no impact on elk calving. As far as impacts to community during this time of year, it is probably more advantageous to have heavier exploration during winter, when less competition for lodging and meals with tourists would occur. Less impact to soils from compaction and to water would occur during this time of year. Protection of elk seems to have overruled the other potential resources during this time of year.

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H. George Anderson
Box 172
Lincoln, MT 59639

12 1. The Blackfoot River has never been a blue ribbon trout stream and never will be. I have sampled water from a spring near the Blackfoot River and sent the water out for analysis. This water has high contents of minerals that tells me that the stream will never be a blue ribbon trout stream.

13 2. I am a layman when it comes to biology, but have spent 43 years in the woods and have learned a few things from observation. I have seen deer eat of the end of fallen trees while I have been working at the other end. Doesn't seem comprehensible that elk will be effected by the exploration activity during calving.

**Montana Department
of
Fish, Wildlife & Parks**



3201 Spurgin Road
Missoula, MT 59801
July 21, 1992

Mr. Gary Weismann
Department of State Lands
Capitol Station
Helena, MT 59620

Dear Mr. Weismann:

Following are the Department of Fish, Wildlife and Parks' comments on the Draft EA for the Seven-up Pate Joint Venture Application for an exploration license at McDonald Meadows and Keep Cool Project Areas.

We have furnished review and comments on this Venture previously. The continuation of this project in the proposed form potentially has several minor to major negative impacts on wildlife, (particularly elk), recreational, and fishery resources. Discussion of those impacts have been included in the EA document. Several mitigative measures have been proposed and adopted that may partially offset the losses envisioned. We have the following additional comments:

1. On Page 29, the statement that 200 elk winter in the Keep Cool area is not correct. In Feb. 1990, we conducted a population survey and estimate for elk between Lincoln Gulch and the Landers Fork, at which time we estimated that 176±18 elk wintered through that area north of Highway 200. The estimated number of elk in the Keep Cool area at that time would have been closer to 55-60. During our annual spring aerial surveys conducted in April, we have seen between 61 and 93 elk during the past few years. Some movement may occur across the valley in the spring, when elk are taking advantage of "green-up", which could account for discrepancies between winter estimates and spring observations. Nevertheless, the EA should be revised to reflect a lower figure closer to 60 for winter or 60-100 for winter/spring.

2. On Page 30, Figure 8, as was discussed with Gary Weismann (DSL), the boundaries of the core area for the Keep Cool winter range should be adjusted to include the ridge and south and western slopes of Sec. 3, all of Sec. 4, Sec. 9, and Sec. 10.

Mr. Gary Weismann
July 21, 1992
Page 2

3. On Page 47, virtually all of the thermal cover available in the McDonald core winter range area lies in Sec. 6. Does the 2.3% loss of thermal cover refer to loss of available thermal cover in that section? The figure seems quite low, if this assumption is correct.

4. The proposal calls for excavation of 26,600 feet of trenches and 154,855 feet of roads or 181,455 feet in any combination of the two (page 15- "trench footage may be exchanged for road footage ..." and the reverse). This is a total of 34.4 miles of trench or road. The EA does not provide information on where these are to be located, slopes to be encountered, reclamation timetables, or alternatives to address this amount of land disturbance. It would appear the potential for major erosion problems exists with this amount of disturbance.

5. No mention is made of the chemistry of the drilling fluid additives that are to be used. What are the compounds and how much is to be used at each site and in total on the project?

6. No mention is made of the high recreation and fishery values in the Blackfoot River drainage that the proposed lands drain into. The Blackfoot River, from the Clearwater River downstream, represents a Class I trout stream, and efforts are currently underway to return the upper reaches to the same status.

7. No mention is made of the presence of bull trout in the Lander's Fork or the Blackfoot River. Bull trout are now a category 2 species under the Endangered Species Act. This means that more study is needed to determine listing status. In addition, the state designated the Westslope cutthroat as a "species of special concern". This species is also found in the vicinity of the project area.

8. What is the proposed disposal method of the cyanide leach solution after completion of bulk testing?

9. On page 24, Surface Water, in discussing the Keep Cool area, a statement is made that "There are no direct connections reported between the Keep Cool area and the Blackfoot River or the Lander's Fork." This area drains to the Blackfoot River via Keep Cool Creek and the Lander's Fork, so there is a connection to the Blackfoot River. Is the intent of the statement to indicate no "major" surface water connection?

10. On page 33, Land Use, toxic mine wastes have been reported in the Blackfoot River adjacent to the proposed site. These toxic wastes have and continue to seriously disrupt a once thriving fishery in this area. These wastes are a serious threat to the fishery of the entire Blackfoot River fishery. The

Mr. Gary Weismann
July 21, 1992
Page 3

potential for additive impacts to the existing mining-related problems need to be addressed.

11. On page 59, Cumulative Effects, a reclamation plan is to be released soon on the clean up of existing metals and acid contamination from old mining in the drainage. Mine wastes from the area proposed for clean up have moved into the area adjacent to the proposed mine exploration of Phelps-Dodge. Reclamation plans may include areas adjacent to the proposed exploration. This reclamation plan should also be considered in determining cumulative effects on the river system.

Thanks for the opportunity to comment.

Sincerely,


C. Richard Clough
Regional Supervisor

cc: Chuck Wright
John Munding



Clark Fork - Pend Oreille Coalition

P.O. Box 7593 • Missoula MT 59807 • (406) 542-0539
P.O. Box 1096 • Sandpoint ID 83864 • (208) 263-0347

17 July 1992

Gary Weismann
Department of State Lands
Capitol Station
Helena, MT 59620

RE: draft EA, Seven-Up Pete Joint Venture

Dear Gary:

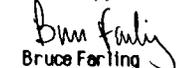
Enclosed are comments of the Clark Fork-Pend Oreille Coalition on the draft environmental assessment for the application of the Seven-Up Pete Joint Venture to expand its exploration in the McDonald Meadows and Keep Cool Project Areas.

Though the Coalition's primary mission is to protect and enhance water quality and aquatic resources in the Clark Fork watershed, including the Blackfoot River, I am enclosing additional comments regarding MEPA policy and wildlife. We have long been advocates for complete, accurate and substantive disclosure of environmental impacts in the state's environmental documents. The analysis and disclosure in this document is woefully incomplete in many areas besides water resources. Moreover, as a sportsman and wildlife enthusiast who has for years hunted and fished in the Blackfoot watershed, I can't help but comment on the deficient or absence of analysis on the potential impacts to wildlife from this proposal.

I am particularly disturbed about the notification process that occurred for this meeting and others held regarding the joint venture. That is, why does DSL, the regulator, allow the regulated, Phelps Dodge, to send out agency notices -- accompanied with the company's own "invitations" and explanations -- for a meeting that is an important part of the state's oversight responsibility? Getting DSL's mailing from Phelps Dodge's office raises serious questions about DSL's objectivity on the proposal. A cynic would question whether the joint venture in this isn't between DSL and Phelps Dodge. Knowing Commissioner Casey, I'm sure he'd be disturbed about the appearances of this arrangement.

I look forward to seeing these comments addressed in the responsiveness summary for the final EA.

Sincerely,


Bruce Farling
Conservation Director

Basin-wide support for an outstanding resource

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STATE LANDS

COMMENTS OF THE CLARK FORK-PEND OREILLE COALITION

on
DRAFT ENVIRONMENTAL ANALYSIS FOR A PROPOSAL BY
THE SEVEN-UP PETE JOINT VENTURE TO EXPAND HARD-ROCK EXPLORATION IN
THE McDONALD MEADOWS AND KEEP COOL AREAS

July 1992

26 p. 3. The state should list all previous environmental documents prepared for related exploration done by the joint venture. Though the Metal Mine Reclamation Act contradicts the Montana Constitution and MEPA by prohibiting the disclosure of these documents to the public, this EA should state whether the joint venture has also waived its confidentiality for those documents much like it has for this EA. That would allow the public access to additional documents that might facilitate understanding of this EA

27 p. 11. So that the public can better gauge the impacts of the proposal, the EA should state the exact time period the exploration will occur. The EA should state specifically the period -- and cite an expiration date -- for which the exploration license is being amended. The statement: "...the next 3 to 5 years," is hardly specific.

28 p. 12. As is common with DSL mining-related documents, the agency does not state what specific reclamation indicators will be monitored before the site is determined to be "reclaimed" and the bond released. It should.

29 p. 14. Table 3 is practically meaningless. What measurement units are used in the table? We infer the "new disturbance" figures are in acres. If the road figures are in miles, they total 588,192 feet. That conflicts significantly with the figure cited on page 11, which states that there will be "up to 154,855 feet of associated roads in the next 3 to 5 years." How many miles or feet of road will there be?

30 p. 15. How much water is anticipated to be encountered at the bulk sampling site? Though the EA states the site is above the groundwater table (which we concur with), having a pipeline sump and settling ponds at the sample process area to deal with this discharge implies there will still be significant amounts of water encountered. If there is no land application system, where does this water go after it's in the settling ponds?

31 p. 17. How much ore will be used for the column leach tests? Where will it be placed "for disposal during reclamation of the sample holding facility area?" The EA never says how much spent cyanidated ore will be around nor where it's final resting area will be after it is neutralized. We presume the company's application for expansion includes this information. If so, it should be cited in the EA.

32 p. 19. Under "Summary of Impacts Under the Proposed Action," the EA states that "if this exploration proves economic mineral reserves, potential income to the school trusts may be realized." Why is this statement here if "full mining," as cited on page 6, is "beyond the scope of of this environmental assessment, and is not considered to be a connected action?" Apparently full mining is indeed considered to be "connected" if it is convenient for the purposes of selling this exploration proposal.

33 p. 20. The EA says "Denial of this permit could stop future development...potential loss of income to the school trust funds, loss of taxes and loss of jobs could result." Why is this mentioned? It intimates connected actions. Under "Possible Impacts under the Mitigated Alternative," the EA states: "if this exploration proves economic mineral reserves, potential income to the school trusts may be realized." Again, we have been told repeatedly elsewhere in this document and in public by both the agency and company that full mining is unconnected. Yet its economic potential is cited here. If economic benefits of full mining are to be cited, then so should the environmental and social impacts. And that makes full mining a connected action, thereby making a larger scale analysis necessary for this proposal.

34 p. 20. "Short term" in respect to wildlife should be quantified.

35 p. 24. The EA doesn't disclose if the wetlands in the Keep Cool area are jurisdictional wetlands and if they will be affected. It should. It also doesn't say where roads, drill pads, sumps, etc. will be in relation to the "numerous lakes, swamps and intermittent streams" in the area. Therefore, it doesn't disclose what potential impacts to surface and ground water may be.

36 p. 25. The EA should include some of the water quality data that is cited as being in "Appendix H of the operating plan." For purposes of monitoring, it is important to demonstrate that "elevated levels" of cadmium and lead are indeed "probably natural." How "elevated" are these levels? Do they exceed gold book criteria? Cadmium at very low concentrations (the Gold Book criterion is .0003 mg/l) is especially toxic to aquatic life. Is the "site" in section 32 a surface or ground water site? What are the implications of drilling and a "shallow water table" in the Keep Cool area? Though water quality was listed as an important issue of concern to the public during scoping, it has largely been brushed off in this document, especially regarding the Keep Cool area.

37 p. 28. The EA cites wetlands soils as being "the most important limiting factors to use in exploration." Fine. How does this statement relate to this project? The EA says wetlands are present in the Keep Cool area but it doesn't provide a map of wetlands nor wetland soils for this portion of the permit area. The only soils map provided, a cursory one at that (p. 27), is for the McDonald Meadow area. Why not provide one of Keep Cool, too? Why not show where wetlands or wetland soils are relative to roading and drilling?

38 p. 29. Under "wildlife and fisheries" no baseline information is provided on fisheries, and none of any substance on any wildlife other than elk. On page 5, the document says the public identified fisheries protection as a concern and therefore "...the potential impact to fisheries and water quality must be evaluated." The same page also says the public identified "wildlife" and endangered species as a concern and therefore they must be evaluated. Why were fish ignored? Why was evaluation of all wildlife aside from elk, including endangered species, also ignored?

39 p. 30. Figure 8 and the accompanying text make it clear that the Keep Cool area is by far the most important core winter range for elk in the permit area. It also is apparently the best summer area (p. 31). It would therefore be far more helpful if there were separate analyses for each area. By mixing the acreages together for analysis, it makes it look like the impacts to elk are far less than they might be.

40 p. 31. The DSL "guidelines" for grizzly bear management are insulting. First of all, the reference list says they are "interim" guidelines (p. 71). Interim until what? Who developed

them and does MDFWP and the U.S. Fish and Wildlife Service concur that they are adequate? The EA says the management policy is to "discourage presence of grizzly bears and factors contributing to their presence." That can be interpreted as: If you disturb them with exploration activity and chase them out of the area, you are "managing" for them. The "guidelines" also say "management decisions will not consider maintaining or improving grizzly bear habitat." In other words, if bear habitat is lost, DSL feels it is not responsible for mitigating any loss, even though the animal is a federally listed threatened species. DSL's guidelines, in summary then, are not to consider and mitigate for any impacts to grizzly bears. In fact, they encourage disturbance to the animals so they will no longer be present so that the agency does not have to worry about them.

41 p. 33. No baseline information on how much fishing or wildlife-related recreation is presented. The EA simply states that people fish and hunt in the area. That's hardly revealing. The EA doesn't say how much or how recreation will be affected.

42 p. 40. Under "Environmental Consequences" for surface water, the EA doesn't say what specific conditions and monitoring would trigger use of land application for the edit water. It should be spelled out here and not left to some later determination after the license has been approved. DSL needs to verify what it considers to be a violation of water quality standards. The nondegradation policy may apply instead of drinking water standards.

43 p. 42. The EA should state how much cyanide solution and how much ore will be used at the testing facility. Without that information it is hard for the public to gauge how much risk or impacts could be involved at the site.

44 p. 43. Without supportive qualitative data indicating that indeed the ore at Zortman/Landusky is the same and detoxifying there successful, the claim that detoxifying at this facility will be no problem is strictly anecdotal and not environmental analysis. The only attempt at demonstrating the correlation is the reference to a Zortman document, which may or may not be available to the public, in the back of the EA. DSL should have provided a summary or data table that demonstrates the claimed correlation.

45 p. 44. What conditions will dictate whether discharge collected in the sumps at the storage facility will be land applied? If not land applied, what will be done with the discharge?

46 p. 44. What are the "wet areas" that are referred to? Are they wetlands? Are they jurisdictional wetlands? If so, pumping and trenching would require a 404 permit from the Army Corps of Engineers.

47 p. 45. DSL's alleged analysis on impacts to elk is faulty for several reasons. First of all, Keep Cool and McDonald Meadows each have their own unique values. Keep Cool has more cover and more wet areas and has been demonstrated to be more critical habitat for elk. Therefore, their acreages should not be combined when DSL says "only" 2.3 percent of the habitat will be disturbed. It is more important to determine how much will be disturbed in each area. But most importantly, the figure 2.3 percent is almost irrelative. It merely indicates how much surface disturbance will occur. What is more critical in terms of security and thermal cover is the distribution of that disturbance. When disturbance is widely distributed, as is contemplated, the impacts to elk will also be widely distributed. That diminishes the effectiveness of remaining cover. Therefore, more than 2.3 percent of the area will likely no longer be very usable to elk

in winter and during hunting and calving seasons. It is important for DSL to analyze security and thermal cover effectiveness, instead of just calculating the gross amount of surface area disturbed.

48 p. 47. There is no indication DSL examined potential impacts to the "other wildlife" the agency purports to address. (for example, it mentions anecdotally "fox populations" but provides no information as to whether impacts on these animals were ever evaluated.)

49 p. 48. Though the EA implies throughout that elk will not be adversely affected, it also says "quantification of impacts is not possible based on available data." Without some quantification, how can any reliable conclusions on impacts be made? The EA also states that certain behavioral changes in the elk population are "possible" (being "acclimated" to humans, displacement). Yet the EA, a disclosure document for impacts, cannot cite specific data for such statements.

50 p. 49. The alleged "mitigation" for elk is riddled with loopholes. For example, under mitigation for activities in McDonald Meadows, the "department's field officer," who is not identified as a biologist, can allow "exception to this standard...provided conditions regarding protection of wildlife can be met." What does this mean? What specifically triggers exception to the standard and what are the "conditions" that must be met? The mitigation measures are supposed to be the conditions for operating. DSL is now saying there are other unspecified mitigation measures that can relieve the operator of the mitigation described in the EA.

51 p. 49. Exploration in the Keep Cool area is supposed to be allowed only between July 1 and September 30. Yet the EA says "limited access" could be allowed from "October 1 until the end of hunting season." Frankly, if the objective is to not have activity during hunting season then there should be no exceptions. Moreover, maintaining the hunting season loophole could allow SPJV employees who hunt to have vehicular access to an area with "limited access" to the rest of the public. Though gating is mentioned as a specific mitigation measure in McDonald Meadows, it is not mentioned for Keep Cool. So how will "limited access" be controlled?

52 p. 49. Regarding grizzly bear sightings, the EA refers to: "SPJV personnel or other credible authority..." Why are "SPJV personnel" called "credible authorities" on grizzly bears? For the purposes of mitigation to the bears, what constitutes a "credible authority"?

53 p. 50. What becomes of timber cut on state lands?

54 p. 50. Will there be any slash burning that might affect air quality?

55 p. 60. The statement that "Grazing of domestic sheep...has very little impact on the area..." is a bit hard to take, and a cursory range analysis of the Sieben lands would likely indicate that indeed sheep have had a lot of impact on vegetational succession and soils.

56 p. 60 Again, the EA exaggerates the biological significance of "only disturbing" 2.3 percent area of area.

57 p. 63. Table 5 says "monitoring would assure nondegradation standards would be enforced." What are considered "nondegradation standards?" The EA earlier indicates the drinking water standard is the criterion for groundwater. Also, there is only one nondegradation standard in Montana law. Just as importantly, what is the monitoring plan? Nowhere in the document is any

monitoring of any resource described, even though "monitoring" of water quality and elk is considered crucial to minimizing impacts and critical to this analysis.

58 p. 65. It is unclear whether all state sections in the permit will have locked gates. (see our comment for page 48, re. Keep Cool.)

59 p. 69. The public should be told what the education and professional background is for all people involved in preparing the EA. The extent of consultation and concurrence with the other agencies should be summarized.

60 p. 73. Because the application for expanding the scope of the exploration license is not listed as a reference, it remains unclear whether it was used in the analysis or if it even includes data relevant to the EA. If it doesn't include baseline information used for analysis of impacts to water, wildlife, etc., what was used?

61

DEPARTMENT OF STATE LANDS

DATE: 7/20/92 TIME: _____ a.m. 4:30 p.m.

FILE NO./NAME Seven Up Pete Joint Venture EA

CONTACT: Carol Ferguson, Administrative Officer, Hardrock Mining Impact Board

ADDRESS: Helena

PHONE: X4478

RESULTS OF CONVERSATION OR DISCUSSION

Impacts to local government from people moving into the area on speculation of a mine was not covered in the draft EA. Often many of these people are on welfare, have children in the schools, need medical help, etc, and the counties and local schools incur additional expenses.

To get a handle on this issue, Ben Irvin, Lincoln School Superintendant (362-4201) may have some information on the impacts felt at the schools. Also, Dori Nielson at OPI (x3656) may have information on the increase or decrease in students in Lincoln. Steve Enders is also on the school board.

Carol felt this issue should be addressed in the EA.

FOLLOWUP ACTION REQUIRED? Yes No
-Copied to Alicia and Greg for review and addition to socio-economics section.
-CC: Sandi Olsen

DSL EMPLOYEE

Gay L...

7/20/92

DATE

Wayne E. Otto
P.O. Box 97
Lincoln, MT 59639
(406) 382-4937

July 20, 1992

Department of State Lands
Capital Station
Helena, MT 59620

Attention: Mr. Gary Weissmann

Re: Seven Up Pete Joint Venture, Lincoln, MT

Dear Mr. Weissmann:

The below signed group of landowners live up the Landers Fork Valley two miles north of the proposed project. Our feeling is that our lives and well being will be greatly affected by the outcome of this mining venture. We believe this community (Landers Fork area, not Lincoln) has nothing to gain by this venture, other than a lot of headaches.

Comments regarding the State Lands prepared Environmental Assessment and the project, in general, are as follows:

- 62 1. Noxious weeds (knapweed, in particular) are becoming a major problem along the Copper Creek road and State Hiway 200. As the area is traversed, the weeds are obviously spread. The major portion of the weed problem is on State lands and hiway right-of-way. I think the E.A. should specify how the weed problem will be handled; who will monitor the control, and pay for the monitoring; and penalties to be assessed.
- 63 2. Who pays for all the costs involved for the State's participation in this venture, including all the effort and costs to date? We have a feeling the taxpayer is heavily involved in the cost sharing.
- 64 3. If the project gets the go-ahead, who pays for monitoring the project? Does the venture net a profit for the State or is the taxpayer again responsible for the State costs?
- 65 4. Since this project has started, the lower blacktop portion of Copper Creek road has started to deteriorate. The U.S. Forest Service (supported by our Federal tax dollar) has taken care of it in the past. Our feeling is the increased traffic load (weight and frequency of use) has added greatly to this deterioration. The Joint Venture should, therefore, be required to participate greatly in the maintenance program for this road.
- 66 5. If this project gets into the mining phase, and it attracts miners with

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STATE LANDS

Wayne E. Otto
P.O. Box 97
Lincoln, MT 59639
(406) 382-4937

page 2

families, who pays for the additional school classrooms, teachers, supplies and related items needed? It is our contention the property owner will again be responsible for the bill through his taxes - not the miner who is renting or living in a mobile home park.

We, up on Landers Fork, do not have an easy time getting to and from our homes in the winter, but to us the beauty, peace and quiet are well worth the trouble. This tranquil atmosphere has been shattered - instead of natural sounds, such as the wind in the trees and coyotes yelping in the sage, we now hear the continual noise of the drilling rigs at work. In summary, the serenity, beauty and wildlife that attracted us to our property will be irrevocably taken from us all.

Sincerely,

ELK TRAIL RANCH HOME OWNERS

Wayne E. Otto

Lain M. Otto

Robert M. Mongrain

Dorise L. Mongrain

Jenny A. Locksham Jr

Patricia S. Cocheran

cc: Seven-Up Pete Joint Venture

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION



STAN STEPHENS, GOVERNOR

LEE METCALF BUILDING
1830 EAST SIXTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-9889
TELEFAX NUMBER (406) 444-8721

HELENA, MONTANA 59620-2301

July 6, 1992

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STATE LANDS

Department of State Lands
Reclamation Division
Hard Rock Bureau
Helena, MT

Dear Sir:

In your Draft Environment Assessment for Seven-Up Pete Joint Venture, hereinafter referred to as "SPJV", there are two areas that concern permitting by the Department of Natural Resources and Conservation, hereinafter referred to as "DNRC", that should be corrected.

(67) The first is in Chapter 1, Page 9, Part 6, where you talk about Title 85, Chapter 2 Montana Code Annotated (MWUA). It states that groundwater withdrawal exceeding 35 GPM will need a permit. It should say groundwater withdrawal exceeding 35 GPM or 10 acre feet shall require a permit. If it is under 35 gpm and 10 acre feet they will still have to file a Notice of Completion (Form 602) with the DNRC.

(68) In Chapter II, Page 12, the last paragraph states that water for drilling will come from the Blackfoot River and other local sources. The Temporary Permit number Q077599-s-76F was only issued for the Blackfoot River and the point of diversion is to be located in the SESESW Section 5 Township 14 North Range 7 West. There has not been any other point of diversion or source authorized by the DNRC for SPJV to take water from. Chapter IV, Page 39, Paragraph 3 relates to other sources of water being used. Once again, only the Blackfoot River in the SESESW has

Page 1 - Department of State Lands
July 6, 1992

been authorized to have water diverted. If SPJV wishes to divert water from other sources or from different points of diversion they will have to comply with Title 85, Chapter 2 Montana Codes Annotated and the rules and policies of this department.

Sincerely,

Handwritten signature of T.J. Reynolds in cursive.

T.J. Reynolds, Manager
Helena Water Resources Regional Office

TR:wf
cc: Larry Holman
Gary Knudsen

Page 2 - Department of State Lands
July 6, 1992

CENTRALIZED SERVICES
DIVISION
(406) 444-8708

CONSERVATION & RESOURCE
DEVELOPMENT DIVISION
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ENERGY
DIVISION
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OIL AND GAS
DIVISION
(406) 444-8878

WATER RESOURCES
DIVISION
(406) 444-8881



Seven-Up Pete Venture
526 Main Street, P.O. Box 1117, Lincoln, MT 59639 • (406) 362-4555
FAX: (406) 362-4991

July 24, 1992

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JUL 24 1992
STATE LANDS

Mr. Gary Weissmann
Hydrologist
Minerals Management Bureau
Lands Administration Division
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59620

RE: **Comments on the Draft Environmental Assessment for Exploration Activity at the McDonald and Keep Cool Properties**

Dear Gary:

Enclosed are comments from the Seven-Up Pete Joint Venture on the Draft Environmental Assessment for exploration activity at the McDonald and Keep Cool Properties. In particular, the Joint Venture is concerned with the wildlife stipulations proposed in the mitigated alternative, the descriptions of our potential future activities at Seven-Up Pete, and the restrictions on exploration activities on the State cabin site leases.

In addition, the Joint Venture is also concerned that fisheries are not adequately addressed in the draft EA. The Joint Venture requests that the DSL include comments on why there will be no impact to fisheries from our proposed activities.

Finally, we have included numerous, smaller corrections and clarifications that we would like you to include in the final EA. Some of these include typographical and other editorial corrections. The Joint Venture can provide you with an edited copy of the draft EA if it would expedite your review. Please contact me if you have any questions.

Sincerely,

Charles M. Rose
Environmental Coordinator

Enclosure

cc: M. S. Enders

DIVISION OF PHELPS DODGE CORPORATION

70

DRAFT EA CONCERNS & EDITS

Title Page: Insert the word "THE" after "AT". Delete the word "MEADOWS".

Page "i", Table of Contents, Chapter II: Add "B, Alternatives to the Proposed Plan" after Item 6.

Page "iii", Chapter V, A.: Add the word "Grazing" to #3.

Page 1, paragraph 1: Delete Meadows. Add a "-" between Seven Up. Change the word "Corporation" to "Company" and "Canyon Resources" to "CR Montana".

Page 1, paragraph 2: Delete "Meadows". Add a "," after R7-8W.

Page 1, paragraph 2, #2: Add ";" after testing.

Page 1, paragraph 2, #5: Change "1400" to "1367..."

Page 1, paragraph 2, Line 11: Delete "concurrent".

Page 1, paragraph 2, line 13: The (SPJV) suggests the following sentence be added after "...is projected to begin in July, 1992." "The duration and extent of the items listed above will be largely a function of the results of exploration."

Page 1, paragraph 2, line 15: Add the word "subsequent" after "so".

Page 1, paragraph 3, line 2: Delete "Meadows".

Page 3, paragraph 1, line 4: Change "Seven-Up Pete Joint Venture" to "SPJV".

Page 3, TABLE 1: Move "TABLE 1" up under "Mineral Leasing - State Lands" after the paragraph.

Page 3, paragraph 3, line 1: Delete "Meadows".

Page 3, paragraph 3, line 3: The SPJV recommends the following sentence be clarified: "Exploration began with geologic mapping and geotechnical sampling in 1986, and has evolved into a total of approximately 130 drill holes and 61,000 feet of access roads on state-owned land as of December 1991." The 61,000 feet of access road includes permanent roads that were either existing prior to exploration activities or constructed to the Department's standards to facilitate future management activities such as logging.

Page 3, paragraph 2, line 2: Change "land has been" to "lands have been .

Page 4, TABLE 2, line 2: Insert "McDonald -" in front of "1 core hole....."

Page 4, TABLE 2, line 4: Insert "McDonald -" in front of "6 drill sites....." Add "s" to road.

Page 4, TABLE 2, line 6: Insert "McDonald -" in front of "14 drill sites....." Add "s" to road.

Page 4, TABLE 2, line 8: Insert "new" before "access roads". Change "Western Energy" to "Phelps Dodge Mining Company".

Page 4, TABLE 2, line 10: Insert "McDonald -" in front of "Approval for total....." Insert "new" before "access". Add "s" to road. Delete "McDonald Meadows area".

Page 4, paragraph 1, line 1: Delete "Meadows".

Page 7, paragraph 4, line 5: Change "principles" to "principals".

Page 9, paragraph 1, line 1: Delete the first "The".

Page 9, paragraph 5, line 5: Delete "Meadows".

Page 11, paragraph 4, line 7: After "....to help control weed infestation.. Add "and control erosion."

Page 12, paragraph 1, line 3: Insert sentence afterwould also be set on every hole. "All geotechnical holes will be plugged from top to bottom with bentonite and/or cement."

Page 15, paragraph 1, line 3: Change "works" to "workings".

Page 17, paragraph 5: If the spent ores are not sufficiently neutralized prior to removal from the test facility, the SPJV would like the option to remove those materials from the site and dispose of them in an active, permitted facility off-site.

Page 19, Item B.1, Line 2: Delete "Meadows".

Page 21, paragraph 1, line 2: Delete "Meadows".

Page 25, paragraph 1, line 3: Change "fair" to "low".(see pg.28)

Page 26, paragraph 2, line d: Delete "and". Line e: add ",," after soils. Line f: add ", and" after soils. Line g: add "." after last).

Page 27, Figure 7, Change the soil type designation in the map from "HE" to "HC".

Page 28, paragraph 1, line 5: The SPJV requests that the sentence "The geotextile/gravel layer....." be changed to read "The geotextile/gravel layer would be ripped and buried when the roads are reclaimed."

Page 28, paragraph 5, line 4: Delete "the". Line 5: Capitalize "creek".

Page 29, paragraph 6, line 1: Delete "mining company" and replace with "SPJV". Line 2: Add ",," after ridges, delete "or".

Page 30, paragraph 2, line 3: The SPJV suggests that "15-50 elk" be changed to read "15-30 elk". Baseline wildlife data collected to date does not indicate a resident herd of 50 elk on the winter range.

Page 31, paragraph 2, line 4: The SPJV seeks to clarify the following sentence. "The McDonald Meadows calving area, however, could be important to the small resident herd." This sentence is correct but may be misinterpreted to suggest that the only area used for calving by resident elk is McDonald Meadows.

Page 31, paragraph 4, line 2: Delete "Meadows". Line 4: The SPJV recommends the following sentence be deleted because there is no data from the McDonald area to support it. "In recent years, logging and mineral exploration activity may have delayed the traditional entrance date onto the winter range." The statement may be true for the Keep Cool area, but the SPJV does not have the data to accept or refute it.

Page 31, paragraph 5, line 5: The SPJV suggests the sentence should be changed to read "..... still used by grizzly bear populations." It is questionable whether the area is considered "important".

Page 34, line 1: The SPJV suggests the addition of a new sentence after "section". The new sentence would read "Some of these roads were reclaimed in 1991".

Page 36, paragraph 6, line 1: Change sentence to read "In 1990 and 1991,.....".

Page 37, paragraph 1, line 4: Delete "Meadows".

Page 40, paragraph 5, line 8: The SPJV suggests the sentence should be changed as follows. "Additional data would be collected prior to land application including....." (See page 44, paragraph 7, line 2)

Page 41, Last paragraph and page 42: The SPJV suggests changing the paragraph to reflect Appendix A, Item No. 10 which states, "No drill pad sites will be located within 50 feet of surface water unless tanks or lined sumps are used to collect drill fluids. Drilling fluids will not be discharged into surface water."

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Page 44, paragraph 7, line 2: Put a "." after sediments. Capitalize "these". Insert "then" after "These fluids can..."

Page 46, paragraph 3, line 2: Delete "exploration companies in the area". Replace with "... SPJV has". Line 4: Delete "exploration companies have....." Replace with "... SPJV has" Line 4: The SPJV recommends deleting "...and bans to smoking...." from the sentence. The SPJV will ban smoking in the exploration area only during hazardous fire conditions.

Page 47, paragraph 2, line 7: Insert "and" after voluntary. Line 11: Capitalize "these". (Beginning of a sentence.)

Page 48, paragraph 4, line 3: Insert "-" in "Seven Up". Line 4: Insert "appropriate" before agencies. Line 5: Delete "minimal", capitalize "exploration". Insert "-" in "Seven Up". The SPJV plans on conducting exploration activities at the Seven-up Pete property in 1992 and in the future.

Page 49, paragraph a) & b): See comments on Appendix A, item #9.

Page 49, paragraph 2, b): Insert "abandoned" between "All" and "sumps".

73 Page 49, paragraph 2, c): The SPJV believes the term "exploration area" should be clarified. Does it mean a drillsite, or 40-acre sector or one particular area such as McDonald or the project area that encompasses both the McDonald and Keep Cool areas?

Page 51, line 3: The SPJV requests the following correction be made to the sentence: "The pH of a sodium/cyanide solution must be maintained in a basic condition (recommended pH above 9.4) or very toxic hydrogen cyanide gas will form." A pH above 9.4 is the standard limit currently accepted by the industry.

Page 52, Section 3., paragraph 3: The SPJV requests that the "No mechanized exploration activities would be allowed on State cabin leases and...." be deleted from the sentence. (See Appendix A, Number 17) The SPJV has a valid mineral lease in Sections 12 and 36 and will coordinate mechanized exploration activities with the lessees to insure that activities do not create any unreasonable interference with residential land use.

Page 59, paragraph 4, line 1: Add "-" to "Seven Up". Line 3: Add "-" to Seven Up.

Page 59, paragraph 4, lines 2-10: The SPJV requests that the sentence "The only activities planned for the Seven-Up Pete area, " and items i, ii, and iii, be replaced with the following: "There will be ongoing exploration at Seven-Up Pete in 1992 and future plans will be no less than what is required for assessment purposes." Line 11: Change "an another environmental review" to

"a separate environmental review by the appropriate agencies." Line 12: Change "will be minimal in the future" to "is reduced"

Page 61, paragraph 2, line 1: Add "the" between "during" and "fall".

Page 61, paragraph 9, line 3: Change "... would end in the near future..." to "... would continue under existing permits into the future."

74 Page 62, paragraph 6, line 1: Change "would" to "could". Line 3: Change "would" to "could".

Page 63, TABLE 5, Hydrology, Line 9: Change "wetlands" to "surface waters".

Page 65, Noise-No Action Alternative, line 5: Change "...would end soon." to "... would continue under existing permits into the future."

Page 71, line 5: The term "BHES" should be defined in the glossary.

Page 72, MMRA, line 3: Indent "Montana Metal Mine Reclamation Act".

APPENDIX A, page 1, item 8: It is the SPJV's understanding that this mitigation measure has been changed to read as follows - "Seasonal exploration in the Keep Cool core winter range area will be limited from July 1 through September 30" based on the July 24, 1992 meeting with DSL.

APPENDIX A, page 2, line 1: Add "d" to McDonal.

APPENDIX A, page 2, b) line 3: Change "Phelps Dodge" to "SPJV" and "develop" to "operate".

75 APPENDIX A, page 2, item 9: Based on data presented in the July 24, 1992 meeting between DSL and SPJV, the SPJV does not believe that the moderate value winter range identified in Section 6, nor the small number (15-30) of resident elk it supports, constitutes a significant component of the elk resource in the surrounding region. Therefore, the SPJV does not believe the mitigation measures are necessary.

APPENDIX A, page 2, item 11, line 1: Insert "abandoned" between "All" and "sumps".

76 APPENDIX A, page 2, item 12, line 2: The "exploration area" needs to be defined. What are the boundaries for "in that area"?

APPENDIX A, page 2, item 13, line 1: Insert "mechanized" between the words "All" and "exploration".



State Historic Preservation Office

Montana Historical Society

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Office Address: 102 Broadway • Helena, MT • (406) 444-7715

July 6, 1992

Bob Winegar
Hard Rock Bureau
Montana Department of State Lands
1625 Eleventh Avenue
Helena, MT 59620

Re: EA
Seven-Up Pete Joint Venture

Dear Bob:

I received the EA for Seven-Up Pete without a cover of any kind, so I am not sure where your bureau is in review of this project, or even whether you are the person handling it. I decided to take a shot at it, anyway, and trust that you will pass our comments along, if need be.

I have no specific comments to offer concerning the properties which have apparently been recorded in the project area, since we have not yet received Heritage's report for review. It is nice to know what cultural values are involved by the EA stage, but it is certainly not required. Without specific information, though - as I'm sure you understand - all I can really say is that the process for consideration of cultural resources which is described in the EA appears to be complete and appropriate.

For the same reason, I can't comment on likely effect or proposed mitigation. I do note that avoidance of cultural resources whenever possible appears to be company policy, and that their policy apparently does not discriminate among resources based on recommendations of significance.

We appreciate an opportunity to review the EA, and look forward to reading the Heritage report in the near future.

Sincerely,

Katherine M. Huppe
Historical Survey Reviewer

File: Comp/ DSL-Hardrock/ 1992

RESPONSE TO COMMENTS
Draft Environmental Assessment

1. DSL requested a retraction from the Independent Record, and a retraction was printed on page 8a on Friday, July 17. Press releases and comments to the Independent Record never mentioned or inferred that a decision had been made. Conclusions contrary to this were solely those of the Independent Record.
2. The groundwater from the McDonald/Keep Cool area most likely reaches the surface water system in the Blackfoot River or its tributaries. At this time, the exact location of this intersection is unknown, but groundwater studies would be conducted during exploration to characterize the groundwater system in greater detail. Since drill holes would be immediately plugged upon completion, drilling fluids used contain only inert chemicals, these chemicals would be greatly diluted, and most solvents will be settled in the sumps. DSL believes there would be no impact to the groundwater from the exploration program.
3. The Department has received no comments from the Governor's Office regarding this exploration proposal. The Department's technical staff has exercised its judgement in indentifying and analyzing the potential impacts of the exploration proposal.
4. As stated in the environmental assessment, future mining is beyond the scope of this assessment and is not considered to be a connected action. No formal mining proposals have been submitted at this time, and without data from this exploration proposal, potential mine size, locations of facilities, and potential impacts of such a mine could not be sufficiently assessed. Any attempt at determining such impacts could only be pure speculation, and not based on any factual information. Therefore, any proposed mining activities would receive the appropriate environmental review if and when such an application is received. Specific concerns about mining should be raised at that time. The Department's ability to authorize the proposed action does not bind it to any irreversible or irretrievable commitment of resources.
5. A baseline analysis of the fisheries has been added to the environmental assessment.
6. Please see the response to written comments (response # 35).
7. Please see the response to written comments (response # 47).
8. All exploration activity must adhere to the non-degradation standard since this is a potential new source for contamination.
9. Please see response # 5.
10. The agencies acknowledged in the environmental assessment and during scoping that the potential for mining exists. However, future impacts are speculative, at best, without an operating

plan. For example, we can assume that land and wildlife will be affected, but how much impact is dependant on the plan, and the operating plan is dependant on the results of ongoing exploration and ongoing environmental baseline studies.

11. DSL and FWP biologists believe that there would be minimal impact on elk during calving. However, some impacts may be incurred during the winter and restrictions are necessary during this time period in the McDonald area. Elk habitat within the Keep Cool area has greater importance, and restriction from October 1 through June 30 are needed to protect the local elk population from potential impacts. The reduced pressure on lodging and food in the Lincoln area with winter activity has been noted in the environmental assessment. Impacts to soils and water resources are minimized under the proposed mitigations in the mitigated alternative.

12. True, the Blackfoot River is not currently a blue ribbon trout stream. However, studies completed on the Blackfoot River show that minerals have come from both natural sources and previous mining in the region, with contamination from previous mining in the region being the greater source by many orders of magnitude. Also, the non-degradation standard does not allow additional contamination of the surface or groundwater without securing a variance approval from the DHES Water Quality Bureau.

13. Wildlife is often seen in areas with human activity, however this does not mean that the wildlife is not impacted by the activity. Length of stay and amount of movement by the wildlife are more critical factors in determining the impacts of human activity on the animals during the winter.

14. The document has been corrected with these new figures.

15. This map has been corrected to more accurately depict the core winter ranges as described by FWP.

16. Assumptions used in the draft environmental assessment on impacts to the thermal and security cover were incorrect. The potential impacts on this cover have been reassessed and are included in the final document.

17. SPJV has provided the public with an exploration plan that identifies the maximum amount of disturbance while maintaining enough flexibility for the joint venture to operate in an efficient and timely manner. Of the 34.4 miles of trench and roads proposed in the plan, the majority of this disturbance would be located in Sections 5 and 6 of the McDonald Area. Some localized sediment movement is expected from this amount of road, but, since the Blackfoot River and the Landers Fork are hydrologically isolated from the exploration area in terms of surface water, with the exception of one stream in the northwest portion of Section 31, sediment would not reach the Blackfoot system from exploration at McDonald. Sediment controls on roads near the stream in Section 31 would prevent sediment from entering the Blackfoot system.

Hydrologic connections with surface water sources in the Keep Cool are limited as well. Only roads and activities in the northwest portion of the area could be connected to Keep Cool

Creek and the Blackfoot River (see Chapter 3). Smaller scale activities are planned for this area, so road density will be low. Forestry BMP's would be utilized to minimize sedimentation from roads. Other local surface water sources in the Keep Cool Area, such as ponds and lakes, would be protected from sedimentation by either a 50-foot buffer area or special precautions, such as slash windrows, sediment control devices, and contained sumps. Alternatives would always be assessed to retain a 50-foot buffer around surface water resources.

In addition, all specific locations of roads and trenches would be inspected by DSL personnel prior to construction. Alternative routing would be discussed at that time to minimize impacts to soils, vegetation, wildlife, and water resources. Specific locations requested by the company could be denied at that time because of inherent site problems, such as soft soils or wildlife use. DSL personnel may also stipulate specific erosion control measures on a site-by-site basis.

18. Drilling fluid is composed primarily of water. Various drilling fluid additives are also used to lubricate the bit and drill string and to increase the mud viscosity to the drilling fluid to aid in removal of rock cuttings. All drilling fluids to be used on the project have undergone previous environmental review by the EPA and are EPA-approved, thus that analysis is not reported here. Specific additives used in this program include the following:

1100 FLOC - is a selective flocculent used to clean the drill holes when drilling core holes. It increases the viscosity of the drilling fluid to aid in removal of drill fluids and cuttings from the drill hole.

Minex 1330 - is another flocculent used in a similar manner as 1100 FLOC. Both flocculents are used in very low concentrations (1-2 quarts per 500 gallons).

ALCOMER 120L - is a mixture of mineral oil, petroleum solvent, and surfactants and is used to increase drilling fluid viscosity.

Petroleum Grease - is a drilling grease used to lubricate drill stem joints and contains no hazardous substances.

FONDU-SECAR - are Portland Cement products used to plug drill holes.

CAL-SEAL Additive - is an accelerator used in cement to plug drill holes.

Soda ash - is an additive used in cement as an accelerator instead of CAL-SEAL.

Bentonite - is a clay used to plug drill holes.

The drilling additives used by SPJV are common products used and approved by the EPA for drilling water wells. All these products require careful handling in concentrated form, but, if used according to label instructions, they present little danger for groundwater contamination in a drilling

program. Standard treatment for flocculents in fluids after use are land application and filtration through soils, where they can be broken down by bacteria and other natural processes.

19. Recreational values of the Blackfoot River has been added to the text.

20. See comment # 5.

21. SPJV has proposed conventional disposal methods for the cyanide leach solution which include initial treatment to reduce cyanide levels followed by land application of the treated solution. Cyanide levels must be reduced to Water Quality Bureau discharge standards (a threshold value of <0.22 mg/l weak acid dissociable cyanide is currently used by DSL, which is more conservative than DHES Water Quality guidelines, thereby ensuring compliance with those guidelines) by addition of various reagents before discharge is allowed via land application to surface soils. Residual cyanide, if any, is quickly broken down into nitrogen compounds and carbon dioxide in the soil and, along with residual nitrates (if any), is consumed by the plants growing on the land application area. Any metals in the solution are adsorbed into soil clay and organic matter particles, which together act like a natural carbon filter. In general, ore must be primarily oxidized to be leachable with cyanide, and oxidized ore is generally low-grade and also quite low in metals. No groundwater contamination or significant vegetation mortality has ever occurred since DSL conducted the first land application project in 1985. DSL is confident that no impacts would occur as the result of land application at the SPJV project area.

22. This has been clarified in the final environmental assessment. The intent of the statement was to indicate no major surface water connections exist, however protection of smaller drainages is also a priority. See also response # 17.

23. Since this exploration program is not expected to impact the water or fisheries resources, impacts to these resources from historic mining would not cumulatively result from implementation of the proposed plan.

24. Please see comment # 23. In addition, DSL is aware of the reclamation plans proposed for historic mining waste upstream from this proposed exploration and is monitoring that activity.

25. Agency notices were not sent out through the Joint Venture. DSL published notices, in legal advertisements and press releases, for public meetings and the release of the Environmental Assessment in the Independent Record (Helena), the Great Falls Tribune, and the Missoulian. In addition, the draft environmental assessment and notification of the public comment hearing and comment deadlines was mailed to all parties on the DSL mailing list for this project. This mailing list was compiled during the scoping period. SPJV mailed newsletters and published notices of these meeting on their own behalf to assure that the community was fully informed and to maximize public involvement. These notices were SPJV's, however, not the agency's notification. SPJV has offered to remove anyone who wishes to be removed from their mailing list. Please contact them directly.

26. SPJV has not waived its confidentiality rights on previous exploration. Several checklist environmental assessments were written for exploration, but these can not be released due to confidentiality as it applies to private lands.

27. SPJV has asked for a number of drill holes, footage of road, and footage of trenches. The limits on the exploration plan are based on amount of disturbance and environmental impacts, not on the length of time necessary to complete the program. The rate at which such activities can be accomplished is weather and resource dependent. Further, as the agencies attach stipulations to a permit, such timeframes may increase or decrease. In addition, as noted in the EA, depending on the results of ongoing activities, SPJV may choose not to implement some activities they have proposed to permit. This would also affect timeframes.

Finally, the MMRA does not give DSL the authority to place expiration dates on exploration plans of operation. The only time frame with regards to exploration that is cited in the Act is the two-year period from project completion to final reclamation; i.e. all exploration disturbances must be reclaimed within two years of project completion or abandonment (See § 82-4-332(4) MCA). All activities proposed have been delineated and probable timeframes attached.

28. DSL monitors bond release on a site-by-site basis. MMRA requires returning the disturbed land to comparable stability and utility (see § 82-4-336(7) MCA). Generally, this means returning the site to near original contours, soil replacement, and revegetation. Implementation of SPJV's reclamation plan, as modified by DSL in the preferred alternative, is expected to achieve comparable stability and utility. The plan described in Chapter 2 addresses revegetation to a specific post-disturbance land use, erosion control, weed control, and grading and plugging activities. Revegetation is monitored until DSL's technical specialists are satisfied that the potential for erosion and sedimentation have been minimized, and that the area will remain free of noxious weeds. On this particular exploration site, water quality would also continue to be monitored after project completion to ensure that no changes have occurred in water quality/quantity as a result of the exploration project. The time frame between completion of reclamation and bond release varies with the size, nature and scope of the particular exploration project, and usually varies from between 1 and 5 + years.

The commentor should point out any specific reclamation requirements that have been overlooked.

29. Disturbance figures in Table 3 are in acres. Maximum road disturbance proposed for the area is 154,855 feet or 29.3 miles. This has been clarified in the text.

30. DSL has asked for a pipeline, sump, and settling ponds to deal with operational drilling water normally used in an underground bulk sampling program and runoff from sites used in the exploration program. The ponds, pipelines, and sump are sized depending on projected volumes of mining water and runoff. Details on disposal plans have been added to the environmental assessment in Chapter 2.

31. The application does contain the detailed information asked for by the Clark Fork - Pend Oreille Coalition. Approximately 200 tons of material will be tested annually. About 200 pounds of sodium cyanide will be needed to treat this amount of ore. At the conclusion of each test, the ore will be rinsed with fresh water until the effective solution is less than a pH of 9 and the free cyanide is below acceptable disposal levels (a threshold value of <0.22 mg/l weak acid dissociable cyanide is currently used by DSL, which is more conservative than DHES Water Quality guidelines, thereby ensuring compliance with those guidelines). The neutralized ore is then returned to the sample storage area until reclamation. The spent test material, as well as some of the excess sample material, will be spread over the facilities area before soil is replaced during the reclamation phase or it may be removed from the site and disposed in an active, permitted facility off-site.

32. This statement has been deleted since no additional income to the school trust is realized from the exploration program. Only during a mining phase could royalty income be considered.

33. Please see response # 32. Denial of this permit, however, could stop future development.

34. Short-term impacts implied in the statement referred to relate to the life of the exploration program and reclamation. This has been estimated to be three to five years.

35. Some of the "wet areas" are most likely jurisdictional wetlands, and studies are ongoing to determine the extent of the jurisdictional wetlands. However, prior to any disturbance, DSL field personnel will evaluate each particular disturbance site and its potential to disrupt a jurisdictional wetland site. At that point, DSL will use the data available in the field to make that determination. If a decision cannot be made by the field officer, a request for assistance from other agencies may be made to assist in making a wetland determination. With the limited disturbance proposed in the Keep Cool area, DSL is convinced that jurisdictional wetlands can be avoided in the exploration program. If a jurisdictional wetland must be disturbed, then SPJV would be required to obtain a 404 permit from the Corps of Engineers.

36. Data on the elevated cadmium levels recorded at the two sites listed has been added to the environmental assessment text. The level of cadmium and lead are being monitored and will be evaluated as more data is collected. DSL has no reason to believe the levels are anything but natural at this time since no disturbance has occurred at or near these sites. The site in Section 32 is a surface water site.

Impacts to surface water quality have been adequately analyzed in this document. Culverts, slash filter windrows, flappers, interim seeding, road surfacing with geofabric and gravel, as well as other best management practices would be employed to limit potential impacts to surface water resources. Upon receipt of site specific plans, alternative siting is evaluated for roads, drill sites, and trenches to further minimize potential impacts. Containment and control of drilling fluids have also been analyzed in this assessment.

The Keep Cool area has received less attention because less exploration disturbance is proposed in that area. If shallow water tables are intersected by drilling in an area, special

precautions would be implemented including portable sumps, complete plugging of the drill hole, disposal of drilling fluids in acceptable locations, and drilling in frozen conditions to reduce impacts to soils. If necessary, DSL can deny a particular site if the impacts are considered excessive to the surface or shallow ground water resource. These alternatives were discussed in the environmental assessment.

37. The level of detail needed by the field officer to approve a particular site is not always included even in an Order 1 soil survey. Each road location, drill site, or trench site would be evaluated and a determination would be made if it would affect a potential jurisdictional wetland. The amount of jurisdictional wetlands observed in the McDonald area is less than in the Keep Cool area. The map was simply provided to indicate the level of information available in the exploration area. DSL believes that the jurisdictional wetlands can be avoided in the exploration program, but if a site investigation reveals the need to disturb a wetland site, SPJV would be required to obtain a 404 permit from the Corps of Engineers prior to disturbance.

38. DSL must deal with impacts relative to the amount of disturbance proposed. During initial scoping review and from past environmental reviews of the site, potential impacts to elk was noted as being of primary importance. Impacts to other, smaller and less mobile species would be dealt with on a site by site basis.

DSL does not expect any problems with threatened and endangered species. The potential for grizzly bear and human interaction exists in the area, and SPJV and DSL employees working in the area are aware of this potential. If a siting or contact is made, DSL would implement a temporary shutdown until the bear leaves the area.

A baseline analysis of the fisheries has been added to the final environmental assessment text.

39. DSL has evaluated the impacts to elk in the Keep Cool and McDonald areas separately in the final environmental assessment.

40. The interim guidelines for grizzly bear management were developed by the Forestry Division until finalized guidelines can be written, accepted and published. The special management area, that includes the McDonald/Keep Cool area, was established because of the heavy human usage in the area. These guidelines were written to help reduce the potential for bear/human conflict which could eventually lead to bear mortality. The guidelines do not imply that either taking of a bear or disturbance of a bear is acceptable. Stipulations added in the mitigated proposed action were developed to stop operations if a grizzly is sighted and keep people out of the area until the bear has moved on. A stipulation has also been included to have refuse removed on a daily basis to keep from attracting grizzlies to the area, thus reducing bear/human conflict. These stipulations would reduce conflict and conform to the goals of the guidelines.

41. Information on potential impact on recreational hunting and fishing has been added to the environmental assessment text.

42. All water collected in the storage facility sumps would either be evaporated or land applied. Volumes are expected to be low, and land application is an accepted disposal method for these fluids.
43. Please see response # 31.
44. Cyanide destruction using the method discussed on page 17 of the draft environmental assessment is proven technology, commonly used by the gold mining industry. The Zortman example is one reference that the public can easily find and review in DSL files. The statement in the environmental assessment simply points out the geologic similarity in the two ores and concludes that if large, multi-million ton pads of similar ore materials can be successfully detoxified under field conditions, small test cylinders containing <20 tons of material could easily be detoxified in a laboratory. Specific data on the ore body mineralogy has not been released and is held confidential.
45. The only land application of solutions envisioned by DSL or the SPJV during the 6-month bulk sampling and testing program is final disposal of fluids after treatment. DSL does not expect any problems with nitrates or metals, as land application has been used successfully to remove these potential pollutants in many instances. DSL will be monitoring the disposal in the proposed land application area.
46. Please see response # 35 and 37.
47. Please see response # 16.
48. Please see response # 38.
49. DSL has attempted to provide additional quantification of potential impacts to wildlife in the final environmental assessment. The information presented in the environmental assessment indicates that thermal cover would be reduced from 27% to 24% in the McDonald area would be removed by the exploration program. This will have a minimal level of impact on the 15-30 elk that use the area. Elk mobility complicates any quantified analysis. Data on the elk and other wildlife would continue to be collected and monitored.
50. Possible exemptions by the DSL field officer have been removed.
51. The mitigations in the Keep Cool area have been revised to address the Clark Fork Coalition concerns.
52. Any sighting will be considered credible. The credible authority listed to determine whether the bear sighting was real or not and whether the bear has left the area would be limited to a DSL or FWP wildlife biologist.
53. The harvested timber on state-owned lands for the purpose of mineral exploration is sold to

the SPJV by the Department of State Lands under a timber permit. Disposal of the harvested timber is the responsibility of SPJV and has, in the past, been sold to local mills for lumber production.

54. Most of the slash is placed at the toe of the fill slope as a slash filter windrow to impede sediment transport. In areas of heavy slash concentrations, the slash is piled and burned. Burning is done during periods of good smoke dispersion in cooperation with the State Airshed Coordinating Group.

55. The final environmental assessment has been corrected with this information.

56. Please see comment # 47.

57. Nondegradation is the standard to which this project must adhere. The nondegradation standard applies to both ground and surface water and is based on the ambient conditions of potentially affected ground and surface waters. Ambient conditions are characterized on page 23 and 24. Your reference that "The EA earlier indicates the drinking water standard is the criterion for groundwater" could not be found. However, the likely context for the statement you refer to is that the drinking water standard is the criterion for groundwater which the Board of Health and Environmental Sciences could not exceed, if SPJV were to apply for a modification of the nondegradation standard.

A groundwater well in the facilities area will be sampled throughout the exploration program to observe potential changes in groundwater quality. Additional groundwater monitoring wells have been, and would be, placed around the project area. These wells would be utilized for both monitoring and baseline analysis.

In addition to groundwater studies, baseline monitoring studies would continue on wildlife populations, including elk, deer, small mammals, fisheries, song birds, raptors, and threatened or endangered species. Soils mapping, aquatics monitoring, and surface water monitoring would also continue during this exploration phase.

58. State Section 10 currently has a locked gate near the center of the section. This gate is locked from October 15 through May 15. Year round vehicle access on State Section 6 is controlled by one gate on Section 6 and three gates on surrounding private ground.

Additional road closures or locked gates could come about as a result of a cooperative road closure program between the SPJV, FWP, DSL, Sieben Ranch Company, and Champion International Corporation. Currently, no progress has been made towards any cooperative road closure program.

59. This information has been added to the document.

60. The application has been added to the reference list.

61. Unemployed people with families moving into areas where large projects are proposed has occurred elsewhere in the State. The final environmental assessment has been amended to address this issue.

62. SPJV has had and continues to implement an aggressive weed control plan on all properties affected by the exploration plan. This includes all disturbance areas as well as access roads (not Forest Service or county roads, or state highways), shop areas, and even residences in Lincoln. Weed populations on areas disturbed by SPJV are less today than when SPJV began exploration in 1989. Major populations of noxious weeds exist on logged areas and along roads not covered by the SPJV weed control plan. DSL is monitoring weed control status and SPJV must report to the Lewis and Clark County Weed Control District. DSL specifically notes existing weed population status when the exploration company accesses a site. Interim seeding is implemented as soon as disturbances are made, and weed control is required until DSL releases the bond.

63. At this stage, costs incurred by the State (taxpayer money) include staff time in preparation of the environmental analysis, cost of printing the environmental analysis, cost associated with public notification for the analysis, staff time and travel costs involved in monitoring activity on the site, and staff time spent monitoring site specific approvals for exploration plans (eg., road placement, drill pad site locations, trench sites, etc.). These costs are part of the agency responsibilities, so the Hard Rock Bureau and Minerals Management Bureau programs absorb the cost. Since this project is just one of many such projects, actual costs incurred from this proposal and activity have not been split out from other programs.

64. In terms of water quality and soil monitoring, SPJV would be placed on a self-monitoring program with the samples sent to a commercial laboratory for analysis. The results from these tests would be submitted to DSL. The company would pay for this monitoring. SPJV also incurs costs associated with monitoring wildlife, aquatics, and soils. DSL would periodically take its own water and soil samples to be compared with the data submitted by the company (check samples). DSL (taxpayers) would pay for the check samples and staff time involved in reviewing the monitoring results.

Income to the State from this project includes annual rental payments of \$3.00 per acre on state-owned land. The mineral leases in this area also include provisions for a 5% of gross royalty, should the lease go into production, but only rental payments are received during the exploration stage of operations.

65. Many timber sales have occurred in the area, so heavy logging equipment has utilized this road a great deal more than SPJV. DSL does not believe that SPJV had a significant impact on the Copper Creek Road to date.

66. Mining is not proposed and speculation on possible impacts is beyond the scope of this analysis. If a mine is proposed in the future and would employ at least 75 full time employees, the company would be required to develop a hardrock mining impact plan. Under such a plan, the company would agree to prepay a part of its taxes to local governments. These funds would be

used for such services as schools and upgrades to water and sewer systems to help ease the shock to local governments of a large influx of new people. If a smaller operation were to be proposed, the local governments, and the taxpayers, would likely have to absorb these costs.

67. These corrections have been noted in the final environmental assessment.
68. These corrections have been noted in the final environmental assessment.
69. Please see comment # 5.
70. The editorial comments and changes have been corrected in the final environmental assessment.
71. This statement has been clarified.
72. The statement, as written, suggests only the possibility of a delay of entrance into the traditional winter range. Data does not exist to prove this is not the case.
73. This has been clarified in the final environmental assessment. The term "exploration area" would mean either the McDonald area or the Keep Cool area, depending on where the bear was sighted.
74. This requested change is inappropriate. Under the mitigated alternative, activity "would" be restricted in these areas.
75. DSL disagrees with this statement. Preservation of this small winter range is important for long-term recovery of the site after exploration is completed. Though the elk numbers are small, displacement of these animals into adjacent winter range areas, such as the Keep Cool area, could also have a larger impact on herds in these adjacent areas during extremely harsh winters. The mitigation measures would reduce the potential for displacement of the elk from the McDonald winter range area.
76. Please see comment # 73.

GLOSSARY

- AQB** Air Quality Bureau, Department of Health and Environmental Sciences
- Concentration** Amount of material contained in a specified volume, or the strength of a solution (mass per volume).
- Degradation** The increase in concentration of certain regulated substances above ambient (background) levels, and may only be allowed by the BHES based on necessary social and economic concerns.
- DHES** Montana Department of Health and Environmental Sciences
- DNRC** Montana Department of Natural Resources and Conservation
- DSL** Montana Department of State Lands
- EA** Environmental Assessment - an environmental document of a proposed action and its effects on the environment
- EIS** Environmental Impact Statement - a comprehensive environmental document delineating a proposed action's effects on natural and human environment. An EIS gives an in-depth look at specific issues and cumulative effects in an area. Required by the federal National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA)
- Forestry BMP's** Best Management Practices used in logging operations for protecting water quality. These guidelines include road design and construction methods and stream-side management zones for minimizing impacts to surface water.
- FWP** Montana Department of Fish, Wildlife and Parks
- geotextile** Synthetic material that is used in construction to create desired soil properties and conditions. Geotextiles are used to increase tensile and bearing strength for equipment access, to control water management and flow direction, and are used as filters between materials of varying particle size distribution.
- gpd** gallons per day
- gpm** gallons per minute
- HRB** Hard Rock Bureau of the Department of State Lands

LAD	Land application disposal
MMB	Minerals Management Bureau of the Department of State Lands
MMRA	Montana Metal Mine Reclamation Act
permeability	A relative property of material that allows for movement of water. Low permeability of impervious material such as clay would allow less water movement than the high permeability of a pervious medium such as sand and gravel.
pH	Measure of the acidity or alkalinity; 7 is neutral, low numbers are acidic
ppm	parts per million
SPJV	Seven-Up Pete Joint Venture
sump	Catchment pond for collection of waste water or runoff
wetlands	"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (40 CFR 230.3 and 33 CFR 238.3).
WQB	Water Quality Bureau, Department of Health and Environmental Sciences

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**APPENDIX A:
MITIGATION MEASURES FOR McDONALD MEADOWS/KEEP COOL
EXPLORATION PROPOSAL**

1. Access roads will enter from the sides of the Class IV area. Roads within the Class IV areas will be built along contour as much as possible, and where necessary, waterbars will be constructed across the slope to prevent erosion within the Class IV areas. Slash will be placed at the bottom of fill slopes and at the bottom of the Class IV area to prevent sedimentation outside the Class IV area.
2. In locations where large areas will be disturbed, such as in the Class IV zones, test pits and the bulk sample storage facility, the SPJV will salvage and stockpile 24 inches of soil, where the terrain allows. Compacted subsoil will be ripped prior to soil replacement.
3. All areas to be used for storage of equipment and materials for an extended period of time will have the topsoil salvaged and stockpiled for later replacement. Compacted subsoil will be ripped prior to soil replacement.
4. No right-of-way clearing or road construction will take place when soil moisture is such that excess damage, e.g. erosion or compaction, will occur. All mechanized operations will either cease when conditions are such that excess damage will occur to existing roads, or be mitigated by placing geofabric and gravel over the road surface to protect wet soils. Soil moisture determinations will be made by the DSL field officer.
5. Timber removal will be kept to the minimum amount necessary to conduct operations. In Class IV sites, SPJV will plant specified tree seedlings to a density of 435 seedlings per acre within 2 years after the site has been reclaimed.
6. All applicable wildland fire restrictions will be enforced. In addition, voluntary fire prevention measures may be requested. These include regular fire inspections, restricted access to sites during the hottest portions of the day, no smoking, no fires, no vehicular off-road travel through grasslands (to prevent fires from catalytic converters), fire fighting equipment and extinguishers contained in every vehicle, organized regular meetings and fire training sessions for employees, daily updates on location and availability of equipment and personnel, improved communications networks with radios in all vehicles and daily updates of forest fire conditions.
7. Access to the McDonald area will be controlled by locked gates to prevent casual access to the area by recreationists and others.
8. Seasonal exploration in the Keep Cool core winter range area will be limited to July 1 to September 30.

9. a) Operation from December 1 to May 15 would be restricted in Section 6 of the McDonald area as follows:
 - i) Activity will be limited to a minimum of 10 days of drilling and site preparation within two adjacent 40-acre sectors in the core winter range (Figure 8).
 - ii) The next 10-day period could be in another separate sector with the limitation of site preparation within this new sector preceding moving of drill rigs by a maximum of 5 days.
 - iii) The Department's Field Officer will determine the confines of these operating sectors. and security
- b) Ongoing monitoring would be used to further evaluate displacement. If negative effects could be documented, the agencies would reduce the allowed activity level. SPJV would be required to develop monitoring programs in consultation with the agencies.
10. No drill pad sites will be located within 50 feet of surface water unless tanks or lined sumps are used to collect drill fluids. Drilling fluids will not be discharged into surface water.
11. All abandoned sumps used to collect drilling mud will be filled in or fenced with an 8 foot woven wire fence until reclamation is completed.
12. Any confrontation with or sighting of a grizzly bear in the exploration area will result in the immediate stopping of all exploration activities in that area until such time as a credible authority can determine that the bear has left the area. The "exploration area" means either the McDonald area or the Keep Cool area, depending on where the bear was sighted.
13. Any sighting of a bald eagle nest will result in the stopping of any mechanized exploration activity in accordance with the Habitat Management Guide for Bald Eagles in Northwestern Montana.
14. All refuse will be kept in closed containers and removed on a daily basis to avoid attracting bears and other foraging wildlife.
15. All roads, drill pads, trenches and associated structures will be reclaimed as soon as possible after completion of site operations and in conjunction with other exploration activities to reduce the recreational and other vehicle use.
16. Proposed activities on state land in this area will be conducted in coordination with the State's grazing lessee, the Sieben Ranch Company.

17. All exploration activities in state-owned Sections 12 and 36 will be coordinated with the state cabin site lessees so as to not unreasonably interfere with residential uses.
18. SPJV will initiate and coordinate a meeting between themselves, Montana Dept. of State Lands, Montana Dept. of Fish, Wildlife, and Parks, Sieben Ranch Company, and the Ponderosa Snow Warriors (local snowmobile club) to discuss the possibility of developing a cooperative road closure program to mitigate the cumulative impacts of all land uses.
19. The SPJV will further cooperate jointly with the Ponderosa Snow Warriors in developing alternatives to mitigate disturbances to groomed snowmobile trails caused by mineral exploration activity.
20. Operations at the bulk sample crushing facility would only be allowed from 7:00 a.m. to 7:00 p.m.
21. Drilling rigs will be oriented so generators and engines will be away from local residences.
22. The bulk sample drainage pipeline will be buried under the haul road to avoid damage to the Old Lincoln Road.