

**USFS-ABANDONED MINE LAND INVENTORY PROJECT
FINAL SUMMARY REPORT**

for the

PIKE/SAN ISABEL NATIONAL FOREST

SOUTH PARK RANGER DISTRICT

February 27, 1995

by

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**USFS ABANDONED MINE LAND INVENTORY PROJECT
PIKE/SAN ISABEL NATIONAL FOREST -- SOUTH PARK RANGER DISTRICT**

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USFS-ABANDONED MINE LAND INVENTORY PROJECT
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INTRODUCTION

This document summarizes the sites *of concern* to the USFS - South Park Ranger District. It does not include all the mine sites visited during the inventory of the district. This Summary Report includes only sites that were given Environmental Degradation Ratings of extreme (1), significant (2), or potentially significant (3) and sites given Mine (Physical) Hazard Ratings of extreme danger (1) or dangerous (2). It should be noted that this inventory work was limited to those mine sites on or immediately adjacent to USFS managed lands. Private (patented) land inholdings were only investigated when evidence indicated that either the environmental degradation emanating from these sites affected USFS managed lands or the physical hazard danger was in very close proximity to USFS public use (i.e. trails, USFS roads) through patented lands..

Priority listing of the most important environmental degradation sites and the most important physical mine hazard sites were compiled based on the ratings and the judgements of the field geologist. Because of the large number of physical mine hazards in the South Park Ranger District, not all of the serious hazards are included in this priority listing, but the most severe hazards are listed.

Site descriptions of individual mine features, which compose the bulk of this report, follow in Section 5 for the Environmental Summary and Section 6 for the Physical Hazard Summary. These are not listed in order of priority, but are listed by: 1) Quadrangle Name and 2) Site Number. See Table of Contents.

The sites exhibiting environmental degradation will eventually undergo further investigation through the Regional Office. Concerning physical hazards, we recommend that all mine openings with a Mine Hazard Rating of 1 or 2 be capped, filled, or closed in some way. *Mines with a hazard rating of 3 (potentially dangerous) are not included in this summary. Even so, many of these are adits that are open and represent a threat to those who choose to enter them due to "bad air" (e.g. carbon monoxide, carbon dioxide, methane, radon gas), winzes (internal shafts) to other mine levels, mine collapse, and other hazards.* If funds are available, these mines should also be closed.

A comprehensive, detailed account of all the mine sites inventoried for the ranger district will be available in the digital database.

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NUMERICAL SUMMARY

- 212** field forms
- 934** mine openings inventoried (includes collapsed or filled openings)
- 569** mine dumps, tailings piles, highwalls, etc.

| Quad Map | Physical Hazard Rating | | | Environmental Hazard Rating | | | |
|--------------------------------------|------------------------|----|----|-----------------------------|---|----|-----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 4 |
| Alma: 53 inventory areas | 8 | 18 | 79 | 0 | 2 | 22 | 117 |
| Climax: 26 inventory areas | 1 | 21 | 54 | 1 | 4 | 19 | 111 |
| Como: 7 inventory areas | 0 | 4 | 4 | 0 | 0 | 3 | 14 |
| Copper Mtn.: 1 inventory area | 0 | 0 | 3 | 0 | 0 | 0 | 2 |
| Breckenridge: 2 inventory areas | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Black Mtn.: 2 inventory areas | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Boreas Pass: 10 inventory areas | 0 | 2 | 3 | 0 | 0 | 0 | 1 |
| Dick's Peak: 2 inventory areas | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Fairplay West: 16 inventory areas | 0 | 11 | 14 | 0 | 0 | 2 | 0 |
| Jones Hill: 3 inventory areas | 0 | 3 | 1 | 0 | 0 | 0 | 0 |
| Marmot Peak: 4 inventory areas | 0 | 2 | 4 | 0 | 0 | 0 | 3 |
| Mount Sherman: 7 inventory areas | 1 | 4 | 7 | 0 | 0 | 0 | 1 |
| South Peak: 2 inventory areas | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

| Quad Map | Physical Hazard Rating | | | Environmental Hazard Rating | | | |
|---|------------------------|------------|------------|-----------------------------|----------|-----------|------------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 4 |
| Jefferson: 1 inventory area | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tarryall: 39 inventory areas | 0 | 41 | 47 | 0 | 0 | 2 | 6 |
| Glentivar: 10 inventory areas | 1 | 3 | 5 | 0 | 0 | 1 | 0 |
| Hackett Mtn.: 5 inventory areas | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lake George: 5 inventory areas | 0 | 3 | 2 | 0 | 0 | 0 | 1 |
| Elevenmile Canyon: 9 inventory areas | 3 | 8 | 8 | 0 | 0 | 0 | 3 |
| McCurdy Mtn.: 8 inventory areas | 0 | 10 | 7 | 0 | 0 | 0 | 2 |
| TOTALS | 14 | 131 | 240 | 1 | 6 | 51 | 261 |

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PRIORITY SITES

Environmental Degradation Sites

The sites listed below are considered to have the most potential for significant degradation of the environment. Inspections of these sites revealed notable degradation or an inherent capacity for environmental degradation due to size. The report summary contains the details of these inventory sites.

| <u>Site Name</u> | <u>Quad Name</u> | <u>Site #</u> | <u>EDR</u> |
|--|-------------------------|--------------------------------------|-------------------|
| Kentucky Belle Mine | Climax | 12-10-402/4354-1.103,203,204 | 1 |
| North London Mine and Mill | Climax | 12-10-400/4349-1.200 | 2 |
| Buckskin Joe Mine | Alma | 12-10-405/4349-2.106,204 | 2 |
| Iron Mine | Como | 12-10-414/4358-1.101,201,104 | 2,3 |
| Mineral Park Mill Tailings | Alma | 12-10-406/4352-1.205 | 2 |
| Sweet Home Mine | Alma | 12-10-403/4351-1.209 | 2 |
| Champaign Mine | Climax | 12-10-399/4351-1.102,202 | 2 |
| Unknown, west side of Platte Gulch | Climax | 12-10-402/4356-2.103,203 | 3 |
| London Extension Mine | Climax | 12-10-401/4347-1.200 | 3 |
| Unknown, East of Kite Lake | Alma | 12-10-403/4354-1. 100,200,106,206 | 3 |
| East Leadville Smelter; Horseshoe Campground Area | Fairplay West | 12-10-405/4339-1.208 | 3 |

Physical Hazard Sites

The physical hazard priority sites are those inventory sites that are considered to pose the greatest threat to the public. They are sites with open and dangerous mine openings, predominantly shafts, that are close to roads, trails, campground, homes, etc. There are many other dangerous mine openings in somewhat less accessible areas within this district that are included in the Physical Hazard Rating summary of this report. Bear in mind that many other open mines were inventoried in this district that are not included in the report summary. Most open adits not immediately adjacent to public access routes were given a PHR of 3 and not included. Of the total mines and prospects inventoried in the South Park District 41% were to some degree open and potentially dangerous. Please refer to the numerical summary for the count pertaining to each quad map.

| <u>Site Name</u> | <u>Quad Name</u> | <u>Site #</u> | <u>PHR</u> |
|--|------------------|--------------------------------------|------------|
| USFS lands between Orphan Boy and Hock Hocking Mines | Alma | 12-10-404/4347-1.100,101,103 | 1,2,1 |
| Unknown, North of Cooper Creek | Alma | 12-10-404/4348-1.101 | 2 |
| Buckskin Joe Area | Alma | 12-10-405/4349-1. 100,101,102,107 | 2,2,2,1 |
| Buckskin Joe Mine | Alma | 12-10-405/4349-2.108 | 1 |
| Windy Ridge/Bristlecone Pine | Alma | 12-10-407/4352-1.101 | 1 |
| Magnolia Mine area | Alma | 12-10-407/4357-1. 102,107,108,109 | 2,1,1,1 |
| Unknown, Purgatory Gulch Area | Alma | 12-10-413/4356-1.100 | 2 (1) |
| Champaign Mine/Cooney Lake | Climax | 12-10-399/4351-1.102, 105 | 2,1 |
| Northeast Champaign Mine area | Climax | 12-10-400/4351-1.103 | 2 |
| Wilkerson Pass (Be) Mine | Glentivar | 12-10-455/4321-1.105 | 1 |
| St. Joe Group, East | Tarryall | 12-10-458/4320-1.103,104 | 2 |
| Clothin House, June, and Violette P. Claims | Tarryall | 12-10-458/4329-1.100 | 2 |

| <u>Site Name</u> | <u>Quad Name</u> | <u>Site #</u> | <u>PHR</u> |
|--|-------------------|--|------------|
| South Tarryall Area | Tarryall | 12-10-459/4329-1.102 | 2 |
| Lower Marksbury Gulch Area | Tarryall | 12-10-460/4326-2.100,101 | 2 |
| South China Wall | Tarryall | 12-10-460/4327-1.100,101.102 | 2 |
| China Wall | Tarryall | 12-10-460/4329-1.100,102 | 2 |
| A & C Claims | Tarryall | 12-10-460/4330-1.103 | 2 |
| Unknown, On FR 90 west of intersection with CR 9 | Elevenmile Canyon | 12-10-461/4319-1.100,101,102,104,106,107,108 | 1,2 |
| Weston Pass | Mt. Sherman | 12-10-398/4331-1.107 | 1 |
| Southwest Sheep Ridge; Garvie London Mine | Fairplay West | 12-10-405/4335-1.100,103 | 2 |
| Salt Creek Trail Shaft | Marmot Peak | 12-10-408/4317-1.100 | 2 |
| Watrous Gulch Mine | Jones Hill | 12-10-403/4329-1.100 | 2 |
| Upper north end of Sheep Mtn. | Fairplay West | 12-10-404/4338-1.101,103,104 | 2 |
| South slope Black Mountain | Black Mtn. | 12-10-440/4284-1.100 | 2 |
| Southwest of Warm Springs Sub. | Fairplay West | 12-10-407/4335-1.100 | 2 |
| South of Watrous Gulch | Jones Hill | 12-10-403/4327-1.102 | 2 |
| Middle Fork Salt Creek | Marmot Peak | 12-10-407/4312-1.106 | 2 |
| Southwest side of Sacramento Creek Valley near subdivision | Fairplay West | 12-10-403/4343-1.100 | 2 |

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GEOLOGY/MINE DISTRICT SUMMARY

The South Park Ranger District encompasses three main mining districts and other smaller peripheral areas. The main mining districts with the majority of the abandoned mine inventory areas are the Alma District, the Beaver/Tarryall Creeks District, and the Lake George/Tarryall/Badger Flats District.

The Alma District includes all areas from the Continental Divide east to the Middle Fork South Platte River and south to Sacramento Creek. Smaller districts continue south along the continental divide of similar geology and ore genesis such as Horseshoe and Weston Pass Districts. Alma district is characterized by high altitude mine workings with a seasonal wet environment. The geology of the area is typically lower Paleozoic formations dipping to the east overlying Precambrian metamorphic and igneous terranes, which have both been extensively intruded by later igneous "porphyries." The area has many faults, of which many have localized ore mineralization. The topography of the area has been extensively altered by Pleistocene glaciation. The area is a historic gold and silver mining district with a high density of patented land inholdings. The ore contains primarily metal sulfide minerals in mostly vein, fault shear, and blanket replacement deposits. Much of the lower valleys' glacial and river deposits have been mined for placer gold. The climate is characterized by winter snowpack and spring run-off. The geochemical reaction of sulfide minerals in the mine workings and dump material with percolating surface waters can result in acid water drainage with high metal concentrations. The only current operating mine is the Sweet Home Mine within the Buckskin Creek Valley, being worked for collector-grade rhodochrosite mineral specimens. The many historic mine roads in the area are now popular recreational dirt and 4WD roads and trails which has created easy access for the public to most larger mine workings.

The Beaver/Tarryall Creeks District in the Pike National Forest South Park Ranger District encompasses that region bound by the Continental Divide to the north, Beaver Ridge to the west, and the boundary of the South Platte Ranger District to the east. The majority of the mine workings occur between Mt. Silverheels and Boreas Pass within the Beaver Creek and Tarryall Creek drainage basins. This district is also characterized by high altitudes and seasonal snow pack with spring run-off. The geology of the area is Late Paleozoic and Mesozoic sedimentary strata dipping to the east, heavily intruded by small to large stocks, sills, and dikes of Tertiary age. The sedimentary rock has been intensely contact metamorphosed near these intrusions which correspond with areas of principal mineralization. This area has also been influenced by Pleistocene glacial activity. There are both placer and hard-rock underground mine workings in this district. A large part of the mine workings near Iron Mountain are restricted from public vehicular access by locked gates on USFS roads near the confluence of Deadwood and Montgomery Gulches.

The Tarryall/Lake George/Badger Flats District is located south of the Lost Creek Wilderness Area, north of Elevenmile Reservoir, east of the Puma Hills, and west of the South Platte River. The

old townsite of Tarryall is roughly centered within this district. The topography of the site is foothills and surrounding flat rolling land. The environment is predominantly semi-arid. The geology is predominantly Precambrian metamorphic and igneous terranes. The Pikes Peak granites occupy the eastern portion of this area. Exploration in this district was originally for gold and silver but later prospecting and production in the 1940's to the 1960's was in beryllium, and lesser amounts of tin, tungsten, copper, uranium, and fluorite. Prospecting within steeply dipping metamorphic skarns and greisen pipes has resulted in many open dangerous shafts in the district. The relatively dry nature of the area has resulted in limited mine drainage and little environmental degradation.

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SITES EXHIBITING ENVIRONMENTAL DEGRADATION

Quad Name: Alma

Site #: 12-10-407/4357-1, 105, 106

Site Name: Magnolia Mine

Environmental Degradation Rating: 3

Description and pertinent facts: Site #105 is an open adit that extends inward for over 25 feet. Immediately below the opening is a wood cribbed shaft, site 106. While the adit floor was dry at the time of inspection on August 11, 1992, evidence that standing water does occur can be seen by a red-orange precipitate on the floor. The shaft below the adit had standing water 10 feet below ground level. This water was not tested. Ground water at this location will eventually migrate to Montgomery Reservoir on the Middle Fork of the South Platte River.

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Site #: 12-10-403/4357-1. 102, 202

Site Name: Highland Princess Lode

Environmental Degradation Rating: 3

Description and pertinent facts: This site's name was taken from a claim sign on the log cabin at the mine. The mine workings are at an elevation of 12000'. Adit 102 is intact and while no water was flowing on the day of inspection, August 13, 1992, red-yellow staining indicates that flow onto and into the dump does occur. Seepage was observed from the base of the dump. The standing water within the adit tested at a pH of 3.7 and a conductivity of 250 μ S. Heavy red-orange precipitate occurs on the floor and salt deposits can be seen on the walls and ceiling. The seepage water at the base of the dump tested at a pH of 4.8 and a conductivity of 100 μ S. Some distress occurs to the alpine vegetation at the base of the 150 c.y. dump. The seep disappears into the soil about 700 feet upslope from the Middle Fork of the South Platte River.

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Site #: 12-10-403/4354-1

Site Name: Unknown, East of Kite Lake

Description and pertinent facts: This inventory area is above the treeline 1500 feet east to northeast of Kite Lake Campground. Three mine sites within this inventory area exhibited significant degradation on the inspection date: August 4, 1994.

Features #: 100,200

Environmental Degradation Rating: 3

Mine #100 is a collapsed adit that is discharging water at an estimated rate of 2 to 3 gpm. The discharge was tested at a pH of 7.1 and conductivity of 200 μ S. The adit is only 50 feet from the Buckskin Creek headwaters. The 3000 c.y. dump indicates substantial underground workings. This

dump, feature #200, has completely dammed the creek, forming a small pond reservoir. Water infiltrates through and discharges from the base of the dump at about 200 gpm. This water was tested at a pH of 6.9 and conductivity of 100 μ S.

Feature #: 101

Environmental Degradation Rating: 3

Feature #101 is a collapsed adit that drains water at times. The adit was not draining water at the time of inspection but yellow-red staining in the drainage path and damp ground was observed. The 300 c.y. dump would indicate some depth of mine workings.

Features #: 106, 206

Environmental Degradation Rating: 3

This site is on patented land but was included in the inventory because of impact to USFS lands. An apparently open shaft is filled with water at 4 feet below ground level. The shaft is only 15 feet from a natural drainage gully. The standing water in the shaft was tested at a somewhat deviated pH of 6.2 and a conductivity of 100 μ S. The mine dump has a high sulfide mineral content. Pyrite and galena are the most common sulfide minerals. The dump is about 220 c.y. in size and is highly stained. The flank of the dump is in contact with the water flowing in the natural gully. Seepage, while not seen, is inferred from the dump into the natural soils below by a halo or zone of dead and distressed alpine vegetation down gradient of the dump. Inspection date: August 4, 1994.

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Site #: 12-10-406/4354-2. 101, 201

Site Name: Quartzville Creek

Environmental Degradation Rating: 3

Description and pertinent facts: This feature is a partially collapsed adit that has a sizable dump (1000 \pm c.y.). The adit floor was damp and moss was seen there and at the base of the dump. The environmental degradation observed here was some alpine vegetation distress at the base of the mine dump, indicating some diminishing of ground water quality. Inspection date: September 9, 1992

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Site #: 12-10-406/4352-1.205

Site Name: Mineral Park Mill Tailings

Environmental Degradation Rating: 2

Description and pertinent facts: The Mineral Park Tailings ponds lie within the Bristlecone Pine Scenic Area. At the time of inspection the ponds were dry. The USFS has indicated that the ponds are acidic when they contain water. There are no pond liners. All that remains of the mill is the concrete foundation across FR 415. The mill tailings area has been separated into individual bermed ponds. A soil sample of the tailing fines was taken. The sample was taken from 6" to 18" below the surface. Analysis results by the Colorado Department of Health Inorganic Chemistry Lab were:

| | | |
|----------|------|-----------|
| Aluminum | 1200 | μ g/g |
| Arsenic | U 20 | μ g/g |
| Barium | 330 | μ g/g |
| Cadmium | U 5 | μ g/g |

| | | |
|-----------|--------|------|
| Chromium | 11 | ug/g |
| Copper | 91 | ug/g |
| Iron | 8400 | ug/g |
| Lead | 1500 | ug/g |
| Manganese | 190 | ug/g |
| Mercury | U 0.15 | ug/g |
| Nickel | U 10 | ug/g |
| pH | 7.9 | |
| Silver | 29 | ug/g |
| Zinc | 830 | ug/g |

U values = less than

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Site #: 12-10-403/4351-1

Site Name: Sweet Home Mine area

Description and pertinent facts: The inventory area is a patchwork of patented mine lands and USFS lands at or near Buckskin Creek. There has been recent work to improve the road to some of the adit sites on private land in the area. This inventory site includes the historic Sweet Home Mine, which is the only working mine in the area. The mine has been reopened to recover museum and collector-quality rhodochrosite mineral specimens.

Feature #: 100, 200

Environmental Degradation Rating: 3

This mine has a 400 c.y. dump barren of vegetation which contains abundant metal sulfide minerals. Much of the fines are crystalline pyrite. The edge of the dump is covered by a snow bank and a natural drainage passes over and through the dump. The adit adjacent to the natural drainage exceeds 40 feet in depth and also drains water at an estimated flow of 5 gpm. This water was tested (item #300) where it drains onto the pyritic dump and had a somewhat deviated pH of 6.1 and a conductivity of 50 to 100 μ S. This site was given a rating of 3 because of the sulfide minerals and the constant percolation of water into and through the dump. The mine is 1300 feet from Buckskin Creek.

Feature #: 209

Environmental Degradation Rating: 2

The major degradation occurring here has its source on patented land at the main Sweet Home mine tunnel and historic dump. Two separate drainages are occurring here flowing into the Buckskin Creek. The first is seepage from the base of the historic large mine dump, feature #209, whose toe extends to the creek. This dump exceeds 6000 c.y. in size. The area next to the creek has been heavily stained with red-orange precipitate. Seepage flow rates into the creek could not be estimated. The water tested (item #304) at a pH of 6.9 and a conductivity of 500 μ S. The second drainage is a flow from the working mine (8 gpm \pm) which crosses FR 416 to enter the creek. No staining was observed but the water tested (item #305) at a pH of 7.8 and a conductivity of 600 μ S. Buckskin Creek has been and will continue to be affected by these drainages to some degree.

Feature #: 107

Environmental Degradation Rating: 3

Feature #107 is an open adit to a depth exceeding 75 feet with standing water on the adit floor. The standing water was tested (item #107) at a depressed pH of 4.6 and conductivity of 100 μ s. There is some iron staining at the site. The adit evidently does drain during the spring run-off. The 400 c.y. dump has a rather steep slope and gulying has occurred by run-off. This adit is 1000 feet from Buckskin Creek.

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Site #: 12-10-403/4351-1.101,103

Site Name: Sweet Home Mine, southeast area.

Description and pertinent facts: This inventory site exists on the north side of Buckskin Creek valley. Two adits at this site drain water at times.

Feature #: 101

Environmental Degradation Ratings: 3

Feature #101 is about 1000 feet south of the working Sweet Home Mine, about 400 feet from Forest Road 416. At the time of inspection, October 16, 1992 the adit was discharging water onto the dump at an estimated rate of 7 gpm. White precipitate deposits were observed along the drainage course. The water was tested at a pH of 7.1 and a conductivity of less than 100 μ S. Conductivity increased greatly if the white precipitate material in the water was disturbed or mixed.

Feature #: 103

Environmental Degradation Ratings: 3

This adit has much more extensive underground workings than other features in this inventory site. Its location is farther up the valley side, about 1900 feet from Buckskin Creek. The dump size is 2100 c.y. The adit was not flowing water at the time of this inspection, August 5, 1994, but seepage is occurring. The adit does flow at times. There is 1 foot of standing water on the floor of the adit, dammed by debris at the portal. The standing water was tested at a pH of 7.3 and a conductivity of 300 μ S. There is white precipitate material in the water.

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Site #: 12-10-405/4350-1.108, 208

Site Name: Criterion Mine

Environmental Degradation Rating: 3

Description and pertinent facts: No obvious environmental degradation was observed at this site but some basic assumptions indicate that ground water quality is potentially affected. The mine site is adjacent to FR 416. Feature 108 is a large shaft that is not easily accessed. The size of the dump (21,000 c.y.) indicates extensive underground mine workings. The mine opening is on the side of a steep rocky slope. A gully from above flows water at a rate of over 50 gpm to a waterfall directly into the shaft opening. From the base of debris covering the front of the mine entrance, a peripheral seep flows onto and into the top of the mine dump. This water tested at a pH of 8.3. The test is more an indication of the pH of the water flowing from the gully, not mine discharge waters.

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Quad Name: Climax

Site #: 12-10-399/4351-1.102,202

Site Name: Campaign Mine

Environmental Degradation Rating: 2

Description and pertinent facts: The main Champaign mine tunnel, feature #102 was draining about 100 gpm on August 24, 1994, the day of this site's inspection. The 3600 c.y. dump, feature #202, indicates substantial underground workings. The discharging mine water was tested at a pH of 8.3 and a conductivity of 100 μ S. This site was given a rating of 2 because, though no evidence of toxicity was seen and the conductivity recorded was low, the rate of mine discharge was high and in the published record, high rates of radon gas were found within the tunnel. It was reported that 25,000 pCi /l were measured in the tunnel after it was sealed all winter by snow.

AAAAAAAAAA

Site #: 12-10-400/4349-1.200

Site Name: North London Mine

Environmental Degradation Rating: 2

Description and pertinent facts: This inventory site includes the historic North London Mine and Mill. The Mill and tailing ponds reside entirely on patented lands. No impact to Buckskin Creek was seen. The North London Mine was worked for several years and has extensive underground workings. The mine dump, feature 200, is one of the largest in the Alma area. It is estimated to be 44,000 c.y. Approximately half of the dump is on patented land, the other half on USFS lands. The dump is rich in metal sulfide minerals.

Common yellow-red staining can be seen in the dump material. The bulk of the dump is within a natural drainage to Mosquito Creek, 3500 feet away, down in the valley. The drainage course is heavily stained and filled with fines that have been weathered from the dump by sheet wash. This drainage was dry at the time of the



inspection, August 23, 1994, but it's obvious that drainage occurs from the dump to Mosquito Creek during spring run-off. The drainage course is stained for about 1000 feet below the dump. A soil sample of the heavily stained fines from the gully bottom was taken and analyzed by the Colorado Department of Health Inorganic Chemistry Lab. The analysis results were:

| | | |
|-----------|--------|------|
| Aluminum | 6000 | ug/g |
| Arsenic | 44 | ug/g |
| Barium | 61 | ug/g |
| Cadmium | 15 | ug/g |
| Chromium | U 10 | ug/g |
| Copper | 2800 | ug/g |
| Iron | 130000 | ug/g |
| Lead | 1500 | ug/g |
| Manganese | 400 | ug/g |
| Mercury | 0.88 | ug/g |
| Nickel | 35 | ug/g |
| pH | 6.6 | |
| Silver | U 10 | ug/g |
| Zinc | 2600 | ug/g |

U values = less than

The high levels of copper, iron, lead, and zinc impact aquatic life, specifically native and sport fish. This site was given a rating of 2 (significant environmental degradation) because it is likely that surges of waters with high metal concentrations occur every spring from this drainage into Mosquito Creek when it is flushed by run-off. The dump supplies new fines annually, recharging metal concentrations into the drainage.



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Site #: 12-10-401/4347-1.200

Site Name: London Extension Mine

Environmental Degradation Rating: 3

Description and pertinent facts: The London Extension Mine has the largest dump on USFS lands within the South Park District. A small portion is on patented lands while the bulk lies on USFS land. 110,000 c.y. were calculated to be on USFS land alone. The dump has common metal sulfide mineralization and there is scattered red iron staining on the dump material. The dump is on the southeastern flank of London Mountain and not in any defined drainage course. Left essentially high and dry there was no notable degradation to the native ground below the dump toe. The site was nonetheless given a rating of 3 (potentially significant) because of the huge size of the dump and the certainty that ground water is being degraded as water percolates through the dump material during the spring melt. The toe of the dump is about 700 feet from South Mosquito Creek. Inspection date: July 29, 1994.

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Site #: 12-10-402/4348-2

Site Name: Unknown, Site near confluence of Mosquito and South Mosquito Creeks.

Description and pertinent facts: This inventory site exists near the confluence of Mosquito and South Mosquito Creeks at the turn off to the London Mine from County Road 12 (Mosquito Pass Road). Two draining adits and their dumps are within 100 feet of Mosquito Creek. Both sites are easily accessed from an old mine dirt track from Forest Road 419, the road to London Mine. Inspection date: July 29, 1994

Feature #: 102

Environmental Degradation Ratings: 3

Adit #102 drains water through debris that fills the portal at a rate of ½ gpm. The seep soaks into the dump material 100 feet from Mosquito Creek. The majority of the dump has been removed, probably reprocessing or use as fill. The drainage water was tested at a pH of 8.3 and a conductivity of 300 μ S.

Features #: 103,203

Environmental Degradation Ratings: 3

Adit #103 is 120 feet west of #102. This adit is also collapsed with water draining out the wood portal at an estimated rate of 5 gpm only 50 feet from Mosquito Creek. This water was tested at a pH of 8.4 and a conductivity of 200 μ S at the point where it soaks into the dump. The north bank and a portion of the toe of the dump have been washed away by Mosquito Creek. Chunks and slabs of concrete are being used as rip-rap to partially protect the bank and dump base from further erosion.

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Site #: 12-10-402/4352-1.103,105

Site Name: Unknown, south of Kite Lake.

Environmental Degradation Rating: 3

Description and pertinent facts: This inventory site is centered 3000 feet south of Kite Lake Campground on the southwest flank of the Buckskin Creek valley. Two sites show some signs of environmental degradation. **Feature #103** is a prospect adit that drains water at 1 gpm, has some red iron staining on the floor, and has a small dump (60 c.y.) with a high sulfide mineral content. The draining water was tested at a pH of 6.7 and conductivity less than 100 μ S. **Feature #105** is also an adit with substantially more underground workings judging by it's 1500 c.y. dump. The tunnel portal has collapsed but water does drain through the debris onto the dump. This water was tested at a depressed pH of 5.7 and conductivity less than 100 μ S. Because of the distance from Buckskin Creek, 1,100 feet for #103 and 2,500 feet for #105, these two sites were barely given ratings of 3. The inspection date was late enough in the summer, July 20, 1994, so it is highly probable that both adits have surges in rates of water discharge in the spring.

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Site #: 12-10-402/4353-1

Site Name: Kite Lake

Environmental Degradation Rating: 4

Description and pertinent facts: This inventory site was included because it was noticed that the fill used to regrade and improve the gravel road to Kite Lake was apparently waste rock taken from mine dumps, possibly the large Sweet Home Mine dump next to the road. Further examination seems to indicate that dump material has been used for fill in several sections of Forest Road 416 from Kite Lake Campground to the Sweet Home Mine. In isolated areas on the road one can see iron staining.

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Site #: 12-10-402/4354-1

Site Name: Kentucky Belle Mine area

Description and pertinent facts: This inventory site is 2500 feet to the north of Kite Lake Camp and Picnic grounds, highly visible from the parking lot. The main access trail for the fourteeners Mt. Democrat, Mt. Lincoln, and Mt. Bross passes through the inventory site. This inventory site contains the worst environmental hazard recorded impacting USFS lands in the South Park District. Though the majority of the mine features in this inventory area are on patented mine lands they directly impact USFS lands and the water quality of Kite Lake and Buckskin Creek.

Features #103, #203, and #204:

Environmental Degradation Rating: 1

The main Kentucky Belle tunnel, feature #103, is draining copious amount of mine water. Drainage rates were estimated at over 50 gpm. These estimates were made on August 2, 1994 so do not reflect spring surges. The waters draining from the adit were tested, (item #302), at a deviated pH of 4.6 and a conductivity of 100 uS. The adit portal has partially collapsed to the point where the tunnel is dammed to within a foot of the ceiling. The dammed waters are flowing through and over this portal debris. The drainage flows over and around the main 2000 c.y. (feature #203) dump. The majority of the flow diverts to the east where it flows over and infiltrates into feature #204 which is over 300 c.y. of sand and gravel sized tailings from what appears to be an adjacent collapsed stamp mill. The entire extent of the mine drainage path is heavily iron stained and is barren of all vegetation. At the point where the drainage waters completely infiltrate the heavily stained mixed native scree and tailing fines, a second water test (item #301) was done that revealed a pH of 4.3 and conductivity of 200 uS. A water sample was taken for analysis at this point. The results were:

| | | |
|------------------|------|------|
| Alkalinity tot | U 10 | mg/l |
| Aluminum | 1100 | ug/l |
| Arsenic | U 1 | ug/l |
| Barium | 21 | ug/l |
| Cadmium | 3 | ug/l |
| Chromium | U 10 | ug/l |
| Copper | 990 | ug/l |
| Hardness, tot. * | 77 | mg/l |
| Iron | 120 | ug/l |

| | | |
|-----------|-------|-------|
| Lead | 0.015 | mg/l |
| Manganese | 710 | ug/l |
| Nickel | U 20 | ug/l |
| Silver | 0.2 | ug/l |
| Sulfate | 84 | mg/l |
| Uranium | 11 | pCi/l |
| Zinc | 570 | ug/l |

U values = less than

* as CaCO₃

These drainage waters re-emerge as seeps below that discharge into the natural drainage gully then to Kite Lake 1000 feet down slope. A seep outlet directly below the mine was tested (item #304) at a pH of 5.4 and a conductivity of 100 μ S. Mine affected waters have stained the northern shore of Kite Lake where they discharge into it. The analysis above indicates several metal concentrations exceeding stream standards for this area. Aluminum, zinc, and copper are particularly high. While this analysis was conducted on mine drainage effluent there is no doubt that it is adversely impacting aquatic life in Kite Lake and Buckskin Creek. This site was given an environmental degradation rating of 1.

Features #106, #206:

Environmental Degradation Rating: 3

This adit and dump are located about 400 feet southwest of site #103. This site was given a rating of 3 because the adit discharges water and the dump size, 2700 c.y., would seem to indicate substantial underground workings. The discharge rate was estimated from 5 to 10 gpm and the water was tested (item #303) at a pH of 6.6 and conductivity less than 100 μ S. It is likely that discharge rates increase during the spring run-off.

Feature #201:

Environmental Degradation Rating: 3

This feature is a small dump immediately adjacent to the drainage gulch. The dump material is rich in metal sulfide minerals and a third to half of the dump has been washed away by the stream. Near the area there are small ore piles that have degraded and killed the alpine vegetation in their immediate proximity.

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Site #: 12-10-402/4356-1.200,201,202,203

Site Name: Unknown, Upper Platte Gulch, Mt. Democrat cirque

Environmental Degradation Rating: 3

Description and pertinent facts: The inventory site is situated on the upper Platte Gulch below Mt. Democrat. The site elevation is 12,000 feet. The mines are adits in this area and have water draining from them, either seeping onto, flowing around, or through their dumps. Water testing did not indicate any depressed pH's or elevated conductivities. The environmental degradation was noted at the base of dumps for features 100, 101, 102, and 103. While not all showed some red-orange staining at the toe of the dump, all showed varying signs of alpine vegetation distress. Yellowing and dying leaves at feature 201 to a near complete dead zone forming a halo around the toe of feature

Quad Name: Como

Site #: 12-10-414/4358-1

Site Name: Iron Mine

Description and pertinent facts: This area is located up the Little French Gulch, centered 3000 feet west of Iron Mountain. The site is accessed by County Road 50 from Como. Public vehicular traffic is restricted to this site by a locked gate at the confluence of Deadwood and Montgomery Gulches where Tarryall Creek begins. Several adits are within this inventory site. Two were actively draining water while a third had a stained dry drainage. The inventory area also includes a few old collapsed mine buildings (i.e. cabins, ore processing chutes, mill).

Features #101, 201:

Environmental Degradation Rating: 2

Feature 101 is the main tunnel of this mine. The mine dump contains a high percent of metal sulfide mineralization and iron staining and salt deposit crusts were observed that indicate seepage of water in the dump material. The 3900 c.y. size shows substantial underground workings. The tunnel portal has collapsed but water drains from the portal debris at an estimated rate of 4 to 5 gpm. A well-defined drainage path with heavy iron staining extends to Little French Gulch. The gulch is 80 feet from the adit with the dump toe almost in contact with the stream. The mine drainage was tested at a pH of 7.2 and conductivity of 300 μ S. A sample was taken for analysis.

| | | |
|------------------|-------|------|
| Alkalinity tot | 20 | mg/l |
| Aluminum | 500 | ug/l |
| Arsenic | 1 | ug/l |
| Barium | 13 | ug/l |
| Cadmium | 49 | ug/l |
| Chromium | U 10 | ug/l |
| Copper | U 4 | ug/l |
| Hardness, tot. * | 110 | mg/l |
| Iron | 990 | ug/l |
| Lead | 0.005 | mg/l |
| Manganese | 330 | ug/l |
| Nickel | U 20 | ug/l |
| Silver | U 0.2 | ug/l |
| Sulfate | 82 | mg/l |
| Zinc | 4600 | ug/l |

U values = less than

* as CaCO₃

USFS ABANDONED MINE LAND INVENTORY PROJECT
PIKE/SAN ISABEL NATIONAL FOREST -- SOUTH PARK RANGER DISTRICT

SITES EXHIBITING PHYSICAL HAZARDS

Quad Name: Alma

Site #:12-10-403/4345-1.100

Site Name: Bonanza Group (?) Area

Hazard Rating: 2

Description and pertinent facts: This inventory area is found on the lower southeast flank of Pennsylvania Mountain overlooking the Sacramento Creek Valley. Collapsed adits, prospects, and one shaft are included in the site. The shaft, feature #100, is filled or bridged at a depth of 16 feet. Cratered at the surface to a 12' by 8' hole, the shaft becomes 6' by 3' where timber siding begins at 12 feet. The site is above the tree line on a moderately smooth tundra slope location. The shaft dump is easily seen. This site was given a hazard rating of 2 (dangerous) because of its visibility, the crumbling edges of the hole, and the difficulty one would have extracting themselves if they were to fall into it.

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Site #:12-10-403/4348-2.101

Site Name: Unknown, Cooper Creek Area

Hazard Rating: 2

Description and pertinent facts: Feature #101 in this inventory area is a shaft. The site is located above Cooper Creek and this feature lies within its drainage basin. Wood cribbing supports the top 5 feet of the shaft and snow and ice has partially bridged across the opening at a 12-foot depth. A weighted tape measure was advanced beyond the snow/ice bridge to a total depth of 38 feet. The wood cribbing at the top of the shaft is of questionable stability and could fail, resulting in cratering of the hole. If one were to fall into this shaft, even stopping on the ice/snow bridge, they could not get out alone. Global positioning has placed this site right on a border with patented inholdings so the feature may be on private property. There is no direct road access to this site. The closest mine road ends approximately 1400 feet away, down near Cooper Creek. Feature #101 is above the tree line on moderately smooth tundra slopes so the mine dump is easily seen.

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Site #:12-10-403/4351-1. 103

Site Name: Sweet Home Mine Area

Hazard Rating: 2

Description and pertinent facts: This inventory area includes the area west and across Buckskin Creek of the main Sweet Home Mine tunnel, one of the few working mines in the district at the time of this report. Several open adits were inventoried. Obvious recent work has been done to improve the access road up the valley side to this area and other patented property in the immediate area.

Feature 103 is a shaft situated 45 feet above feature 102, an open adit. The shaft is intact, vertical, and open to a depth exceeding 30 feet. This site is in a popular area and the public uses the 4WD mine road as access for recreation. Fire pits occur in the area. This mine site is quite visible as the mine road goes right by the base of the mine dump. The shaft, feature 103, was given a hazard rating of 2 (dangerous) because it is open and intact and in close proximity to public access and usage.

^^^^^^^^^^

Site #:12-10-403/4352-2

Site Name: Unknown, inventory area southeast of Kite Lake

Description and pertinent facts: This inventory area is located near FR 416 which is the popular road to Kite Lake Campground and the main trailhead for hiking to Mt. Democrat, Mt. Bross, and Mt. Lincoln. The inventory area consists of mine adits and their dumps less than 200 feet from the road. The features are easily seen from the road and commonly visited by hikers.

Feature #: 101

Hazard Rating: 2

Adit 101 has a portal in rock 5.5 feet high and 4 feet wide, is intact, and extends to a depth of 70 feet. This feature was given a hazard rating of 2 (dangerous) due to its visibility, depth, and proximity to public use areas.

Feature #: 102

Hazard Rating: 2

Adit 102 has a portal in rock 5 feet high and 3.5 feet wide, is intact, and extends to a depth exceeding 75 feet. This feature was given a hazard rating of 2 (dangerous) due to its visibility, depth, and proximity to public use areas.

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Site #:12-10-403/4354-1.106

Site Name: Unknown, East of Kite Lake Campground

Hazard Rating: 2

Description and pertinent facts: Feature #106 is an open 3.6' by 6.5' shaft with a timber cribbing liner. The shaft is on patented land but is near Kite Lake Campground. The shaft has standing water at 4 feet below grade. Total depth is not known because of the high standing water and the unavailability of a weighted tape measure.

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Site #:12-10-403/4358-1

Site Name: Unknown, southeast from Wheeler Lake

Description and pertinent facts: This inventory area contains five open adits with depths from 18 to 40 feet or more. The adit sites are near the confluence of Platte Gulch and the runoff from Wheeler Lake where the drainages become the Middle Fork South Platte River. The site is also near Forest Road 408, the popular hiking, mountain biking, and 4WD road to Wheeler Lake. Four of the five adits are within 400 feet of the trail/road and are easily seen.

Feature #: 103

Hazard Rating: 2

Site #103 adit was given a rating of 2 because its location is only 50 feet from the trail/road. The 6.5' by 4' portal is clear of debris and the adit extends to a depth of 40 feet. The remaining adits in this inventory area were given ratings of 3 because they were further from the road and less likely to be entered.

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Site #:12-10-404/4347-1

Site Name: Unknown, USFS lands between Orphan Boy and Hock Hocking Mines

Description and pertinent facts: This inventory area exists in a portion of USFS land north of Mosquito Creek between patented lands that contain the historic Orphan Boy and Hock Hocking Mines. This site was on the South Park District list (#15) of known mine sites requiring reclamation. The majority of the mine features at this site are from 100 to 250 feet from County Road 12 (Mosquito Pass Road).

Feature #: 100

Hazard Rating: 1

Feature #100 is a dangerous open shaft. The shaft has cratered to a 9' by 12' hole at the surface and reduces to a vertical 3.5' by 5' shaft when it enters rock 5 feet down. The crater edges of the shaft hole are unstable and rock and soil are prone to ravel (detach) and fall into the shaft. The shaft has partially filled but was still measured at a total depth of 20 feet. This shaft is only 100 feet from Mosquito Pass Road. This feature was given a hazard rating of 1 (extremely dangerous) because of the depth of the shaft, its unstable margins, and its proximity to the road.

Feature #: 101

Hazard Rating: 2

Feature #101 is also a dangerous shaft, very similar to #100. The shaft has cratered to an unstable 10' by 12' hole at the surface then becomes 3' by 6' where the timber cribbing liner begins. It has partially bridged with timbers, rock, and soil at a depth of 17 feet. The entrance of the shaft contains scattered timbers bridging the opening. This site is about 250 feet from Mosquito Pass Road and has a old mine trail to it that begins next to the London Mine sign.

Feature #: 103

Hazard Rating: 1

Feature #103 is a dangerous shaft with unstable cratered borders. This site is approximately 200 feet from the road and 100 feet from feature #100. The shaft has cratered to a 10' by 10' hole at the surface. The edges of the crater are unstable and failure could occur if somebody stood there. At a depth of nine feet a 4' by 4' wood liner of the shaft begins. A weighted tape measure was advanced to a depth of 30 feet where timbers have possibly bridged the shaft opening. Standing water exists in the shaft at a measured depth of 27 feet. One can see a portion of the bridging timbers that possibly bridged sticking above the water level. This mine had a single strand wire "fence" around it at one time but half is now missing because it fell into the shaft as the cratered hole widened over the years.

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Site #:12-10-404/4348-1

Site Name: Unknown, North of Cooper Creek

Description and pertinent facts: This inventory area encompasses USFS land inholdings within predominantly patented mine lands at the base of Loveland Mountain. The site is at the edge of the tree line and is accessed by Forest Road 192 from Buckskin Creek and Forest Road 450 from Mosquito Creek. There are several underground mine workings in the area, on and off USFS lands. Remains of mine buildings and log cabins exist in the area. Public usage of the area includes 4WD driving and camping. Fire pits can be seen in the immediate area.

Feature #: 101

Hazard Rating: 2

Feature #101 is an open adit. The 4' by 5' adit portal is supported by timbers and open to a depth over 100 feet. The adit dump is easily seen from Forest Road 450, a popular 4WD mine road. This adit was given a hazard rating of 2 (dangerous) because of the depth of the mine workings and ease of access.

Feature #: 102

Hazard Rating: 2

Feature #102 is a dangerous open shaft between adit #101 and Forest Road 450. The intact shaft is open to 5' by 6' at the surface. At 13 feet the shaft reduces to 3' by 5' where a timber cribbing liner begins. The vertical shaft's total depth was measured at 26 feet. The mine dump makes this site highly visible from the road.

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Site #:12-10-404/4351-1. 106

Site Name: Unknown, site 8,000' due south of Mt. Bross

Hazard Rating: 2

Description and pertinent facts: This inventory area is accessed by FR 285 via FR 857 from the Mineral Park/Bristlecone Pine Scenic Area; both popular 4WD roads. The inventory area contains many underground openings and their dumps, the majority being adits whose portals have collapsed. A portion of this inventory area is on private inholdings. Feature #106 is a shallow prospect shaft in rock that extends to a depth of 16 feet. The shaft sides are vertical and a person would be injured and unable to get out if he or she fell in. Feature is approximately 200 feet into private inholdings at this area but its small dump is easily seen because the site is above the tree line.

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Site #:12-10-405/4349-1

Site Name: Buckskin Joe Area

Description and pertinent facts: This inventory area includes USFS tracts surrounded by patented land which contained the historic mining camp Buckskin Joe. This inventory area is separated from the historic Buckskin Joe Mine, which exists to the south across FR 413 and, for the most part, across Buckskin Creek. This inventory area is in a forested area bound by FR 413 and FR 415 with two rough unnamed 4WD mine access routes into the area. The majority of the sites are mine shafts.

Feature #: 100

Hazard Rating: 2

Feature #100 is an open shaft that is only 35 feet from the road. The shaft is supported by 3' by 6' timber lining and was measured with a weighted tape to a depth of 20 feet. Standing water existed within the shaft at a 7-foot depth from ground level at the time of inspection.

Feature #: 101

Hazard Rating: 2

Feature #101 is an open shaft that is 120 feet east of #100 and 40 feet from the road. The shaft is supported by 3' by 7' timber lining and was measured with a weighted tape to a depth of 20 feet. Standing water existed within the shaft at a 9-foot depth from ground level at the time of inspection.

Feature #: 102

Hazard Rating: 2

Feature #102 is an open shaft that is 108 feet west of #100. The shaft is self-supported in bedrock and was measured with a weighted tape to a depth of 19 feet. Standing water existed within the shaft at a 9 foot depth from ground level at the time of inspection.

Feature #: 107

Hazard Rating: 1

Feature #107 is an open shaft about 120 feet from FR 416, the main road along Buckskin Creek to Kite Lake Campground. The shaft is supported by 4.5' by 7' timber lining. It's depth exceeded 50 foot, which was the length of the weighted tape measure. Standing water existed within the shaft at a 9-foot depth from ground level at the time of inspection. This shaft was given a higher hazard rating of 1 (extremely dangerous) because of its proximity to a popular public use road.

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Site #:12-10-405/4349-2

Site Name: Buckskin Joe Mine

Description and pertinent facts: The historic Buckskin Joe Mine is predominantly on private land but there are some USFS inholdings that have had some mining activity. Some of the sites within the inventory area are possibly on private property but were included because of inherent danger and proximity to the Forest Service road.

Feature #: 106

Hazard Rating: 2

Feature #106 is the main adit for the Buckskin Joe Mine. While the mine dump is entirely on private patented mine property the adit portal lies within a 200' by 200' USFS inholding within the patented land. The old mine includes outbuildings and 150(±) feet of timber covered portal with ore cart rail. The mine entrance into the hillside has collapsed and subsidence features occur in the hillslope above. Though this site has "No Trespassing" signs, there is no gate limiting access. The site is commonly visited and people explore the unstable ruins.

Feature #: 108

Hazard Rating: 1

Feature #108 is a dangerous open cratered shaft above the main Buckskin Joe Mine adit (#106). The shaft has cratered in soil to form a 25' by 30' hole with a 15-foot high vertical rim. Seventeen feet

from the rim is Forest Road 192. The shaft is funnel shaped below the rim to about 30 feet where a 6' by 6' hole continues to a depth exceeding 40 feet. For the size and depth of the crater and amount of soil and rock material that entered the shaft it must be connected to the main Buckskin Joe Mine underground workings. This feature is near the borderline of USFS and private property.

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Site #:12-10-405/4350-1.108

Site Name: Excelsior and Criterion Mine Area

Hazard Rating: 2

Description and pertinent facts: This inventory area encompasses a small portion of USFS land south of patented Paris Mine property. The site is adjacent to FR 415, the access to Windy Ridge/Bristlecone Pine Scenic Area. Feature #108 is within private inholdings but its 21,000 c.y. dump is on USFS land. The mine opening is a shaft located within a rock cleft on a steep cliffy slope. Access is easily gained by the switchback trail up the large dump. The opening depth is not known because mine hoist debris is in the way.

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Site #:12-10-407/4352-1. 101

Site Name: Windy Ridge/Bristlecone Pine Scenic Area

Hazard Rating: 1

Description and pertinent facts: This area is a popular public use area and is accessed by FR 415. The Forest Service has constructed a parking area here for visitors. The one mine site on public property, #100, is a mine shaft that is either filled or bridged over. The size of the dump indicates a small operation. The dangerous feature, #101, is just north of the designated scenic area on private property. This mine is a shaft that has cratered to a 30 by 30 foot opening with dangerous raveling slopes. Judging by the size of the mine dump the measured depth of 24 feet is a false bottom. Debris has probably bridged within the originally much deeper shaft. A person could not extract himself from the shaft if he slid into it from the cratered slope. The mine dump is highly visible from anywhere on Windy Ridge and a jeep road, closed to vehicles and now used as a trail, goes right by the mine site from the Bristlecone Pine Scenic Area parking lot. This shaft was given a hazard rating of 1 (extremely dangerous) because of its danger, high visibility, and immediate proximity to the scenic public use area.

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Site #:12-10-407/4357-1

Site Name: Magnolia Mine

Description and pertinent facts: The Upper Magnolia Mine area contains workings on both private and USFS lands. The area is easily accessed by FR 188 and FR 189 near 11,900 feet in elevation. Both are popular 4WD recreational roads that begin one mile away at Hoosier Pass. They are used year round for hiking, mountain biking, four-wheel driving, cross country skiing, and snowmobiling.

Feature #: 102

Hazard Rating: 2

Site 102 is on USFS property about 100 yards from FR 188. A deep open shaft exists with deteriorating wood cribbing. Its dump is easily seen from the road and is obviously visited by summer and winter recreational vehicles. Standing water exists at a depth of 25 feet. The total depth is not known.

Feature #: 107, 108, 109

Hazard Ratings: 1

Sites 107, 108, 109 are also open shafts and daylighted stopes(?) and, while on private property, are immediately next to FR 189. Site #108 cratering is beginning to encroach into the edge of the road.

These three sites have single strand barb wire fencing around them but they are deteriorating and the deterrent effect is minimal. These features were given hazard ratings of 1 (extremely dangerous) because of their immediate proximity to the public 4WD road. These sites are narrow enough at the surface that winter snow pack could conceivably bridge across at times creating lethal traps.



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Site #:12-10-411/4350-1.101

Site Name: Miller and Sheldon Placer/Lucky Step Lode Mine

Hazard Rating: 2

Description and pertinent facts: This inventory area is located adjacent to Beaver Creek and FR 413, the road access to the Beaver Creek drainage basin. The site has both placer and underground mining features easily seen from the main road. Feature #101 is an open intact adit. The portal has partially collapsed but an easily accessible 2.5-foot high by 6-foot wide hole remains to an intact 5 by 6 foot high adit that extends over 40 feet into the hillside. The adit and its dump is immediately adjacent to an unnamed 4WD road. The general area is used for camping judging by the existing fire

Quad Name: Climax

Site #:12-10-399/4351-1

Site Name: Champaign Mine/Cooney Lake Area

Description and pertinent facts: This area is centered just east of Cooney Lake. Extensive mining has occurred in this area with much of it on patented mine claims and BLM lands to the south. This inventory area includes 7 adits, 3 shafts, and 1 prospect. Several insignificant prospects were not included as inventoried features. Access to this area is gained by Forest Road 856 from below and Forest Road 452 from above. Both are 4WD mine roads that turn off of Mosquito Pass Road. All three roads are popular recreational roads.

Feature #: 102

Hazard Rating: 2

Feature #102 is the main Champaign Mine adit. A spur off of Forest Road 856 goes directly to the site. A 6' by 5' adit portal is timber supported and open to an unknown depth beyond 100 feet. The size of the dump (3,600± c.y.) indicates extensive further underground workings. A mine building exists on the dump next to the mine. The mine dump and cabin are easily seen from Mosquito Pass road and visited often. A couple groups of people were seen visiting this site while the Colorado Geological Survey was conducting site investigations in this and nearby inventory areas. This tunnel should be sealed or the portal gated because of its depth and reported high radon gas levels inside. See environmental hazard section.

Feature #: 105

Hazard Rating: 1

Feature #105 is a extremely dangerous open shaft that declines 65° from horizontal to a depth over 60 feet. Forest Road 452 passes right next to this mine on its way up to Cooney Lake. It appears a headframe stood over the shaft at one time but only a wood foundation still exists with scattered timber rafters in the area. A timber shaft collar is still in place but is partially undermined by the cratering of the shaft below to an 8' by 12' hole. Mine dump material is about 1 foot thick on the collar timbers and you cannot see the undercutting of the collar without moving to the opposite side of the shaft. A dangerous situation is created because what appears competent ground next to the shaft is, in fact, a one foot thick, 3 foot wide overhang of bridged collar timbers and soil. People in 4WD vehicles visited this site during our site inspection and evaluation. The mine dump and existing timbers from the original mine structures are so close to the road that this site is a curiosity most people will stop to investigate.

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Site #:12-10-399/4352-1

Site Name: Unknown, Mosquito Creek headwaters

Description and pertinent facts: This inventory area is located within the glacial bowl below the Continental Divide within the Mosquito Creek Valley. Centered along a line equidistant from Treasurevault and Buckskin Mountains, the site was inventoried with 5 adits, 3 shafts, and one prospect pit. Several small insignificant prospects were not included in the inventory listing. Access

to the site is gained by Forest Road 856, a rugged 4WD jeep road, that forks off of Mosquito Pass Road.

Feature #: 102

Hazard Rating: 2

Feature #102 is a dangerous 4' by 5' shaft that was measured 22 feet deep. The actual depth may be deeper because snow and ice have partially filled and bridged the opening at 15 feet. The site is 1,500 feet from FR 856.

Feature #: 104

Hazard Rating: 2

Feature #104 is also an open dangerous 4' by 4.5' shaft that was measured to a depth of 20 feet. The bottom of this shaft also holds snow and ice and may be deeper than that measured. This site is approximately 1,800 feet from the 4WD road, FR 856.

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Site #:12-10-400/4349-1

Site Name: North London Mine and Mill

Description and pertinent facts: This inventory area encompasses the area between the historic North London Mine and its Mill below next to Mosquito Creek. An old aerial cable tram, running from the mill to the ore processing structure at the mine dump, is in ruins. The main North London Mine tunnel is on patented land inside BLM holdings but over half of the 44,000[±] c.y. of dump and the ore processing building are on USFS lands. Several smaller mine workings are also in the area.

A total of 10 adits, 8 prospect pits and trenches, and 2 shafts were inventoried at this site. Other lesser prospect pits not marked on the Climax quadrangle map, while investigated, were not included as inventoried features. The inventory area is centered 2,500 feet due north of London Mountain and is immediately accessible by County Road 12 (Mosquito Pass road) which passes right next to the mine. Both mine and mill structures are visited daily by recreational 4WD vehicles. Almost all vehicles that travel the Mosquito Pass road to or from Fairplay stop at this site.

Feature #: 101

Hazard Rating: 2

Feature #101 is a shallow shaft just below the North London Mine dump, feature #200, about 100 feet from Mosquito Pass Road. The prospect shaft has the remains of a 7' by 4.5' timber collar at the surface and drops vertically in rock to a depth of 8 feet where it is filled with timbers. These timbers are probably bridged and represent a false bottom. This site was given a hazard rating of 2 (dangerous) because it is in a high public use area and the 8-foot depth is sufficient to create a hazard.

Feature #: 108

Hazard Rating: 2

Feature #108 is also a prospect shaft. A 6' by 7' shaft drops vertically in rock to a bottom depth of 17 feet. The dump of this mine, though small (<50 c.y.), can be seen from the road which is about 300 feet away.

Feature #: 116, 117, 118

Hazard Ratings: 2

These three features are open adits that are grouped within 350 feet of each other about 500 feet west of the North London Mine Mill a short distance up the slope. All are open to dangerous depths and have dumps of sufficient size to be easily visible from the mill. Adit #116 has a 5' by 4.5' portal and extends over 60 feet into the hillside. The size of dump (600[±] c.y.) indicates significant additional depth. Adit #117 has a 5' by 3.5' entrance and extends to 35 feet where the ceiling has completely collapsed. Adit # 118 has a 7' by 4' opening and extends into the hillside over an observed 80 feet. The size of its dump (630[±] c.y.) indicates additional depth not determined at this time for safety reasons.

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Site #:12-10-400/4351-1

Site Name: Northeast Champaign Mine Area

Description and pertinent facts: This area is located northeast of the main Champaign mine within the uppermost Mosquito Gulch area. The site is accessed by Forest Road 856 and an unnamed mine road that forks off of it. The inventory area is centered 7,200 feet east of Treasurevault Mountain and 4,800 feet south to southwest of Mount Buckskin. Six adits, 2 shafts, and 2 prospect holes were inventoried in the area. Two old mine cabins also exist within this inventory area.

Feature #: 103

Hazard Rating: 2

Feature #103 is an open adit. The total depth of the adit is unknown but can be seen to extend more than 40 feet into the hillside. The portal and adit roof within the first 25 feet is entirely in soil that has bridged 9 feet in width and 5 feet in height. The opening reduces to 5' by 4' at 25 feet when it enters competent bedrock. The soil portal and 25 feet of soil roof is not supported and is inherently dangerous to anyone inside the adit or standing on its roof. Collapse of the soil tunnel could occur at any time.

Feature #: 108

Hazard Rating: 2

Feature #108 is an open shaft. The shaft is only about 60 feet from the unnamed Champaign Mine access road where it crosses the Mosquito Creek, about 250 feet north of the turnoff from Forest Road 856. The shaft was measured with a weighted tape as 22 feet deep. Standing water level was 15 feet. There is no collar but the shaft is lined with timber cribbing to below the water level. Original shaft dimensions are 2.5' by 5' but an old steel mine boiler was thrown into the shaft. It is stuck at the top of the shaft, obstructing most of the hole except an accessible 2.5' by 1.2' hole on one side.

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Site #:12-10-401/4351-1

Site Name: Unknown, South of Mount Buckskin in Mosquito Gulch Drainage

Description and pertinent facts: This inventory area is centered 3,000 feet south of Mount Buckskin on the western flank of the ridgeline between Mount Buckskin and Loveland Mountain.

Inventoried in this area were 13 adits, 5 prospect pits, and 1 shaft. Several minor prospects were also located and inspected but were not included in the inventory unless marked on the Climax map. The site is accessed by Forest Road 856, originally a mine road, now a popular rugged 4WD road. The majority of the features within the inventory area are located 1,500 to 2,000 feet away from the road.

Feature #: 105

Hazard Rating: 2

This mine feature is an open adit. Though the remoteness of this adit would not normally result in a hazard rating of 2 this adit extends into the mountain the deepest of those in this inventory area. The 6' by 3' portal is in good competent rock and completely open. Though actual depth is unknown, one can see from just inside the portal that the tunnel advances into the mountain over 40 feet.

Feature #: 107

Hazard Rating: 2

Feature #107 is a 6' by 3.5' prospect shaft that has been excavated vertically into rock to a measured depth of 17 feet. Standing water level within the shaft was at 12 feet. Though relatively shallow, the vertical shaft walls, no way to climb out, and potential serious injury or death if someone were to fall in justifies a hazard rating of "dangerous". The location is on a moderately smooth grassy tundra slope so the dump is easily seen.

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Site #:12-10-401/4353-1

Site Name: Unknown, Lake Emma Area

Description and pertinent facts: Lake Emma is a cirque lake that is the beginning of Buckskin Creek. The inventory area is centered 1,700 feet south of the lake. A unnamed trail exists from Kite Lake Campground to Emma Lake through this inventory area. The site also includes some patented mine claims. Inventoried at this site were 7 adits and 2 shafts. The two features with noteworthy hazard ratings were both positioned on patented lands close to the Lake Emma trail. Portions of their underground workings are on USFS land. The other mine features within the inventory area include shallow adits, adits with collapsed portals, shallow prospect shafts, and prospect pits. No deterrent sign or fence is noted in the area.

Feature #: 103

Hazard Rating: 2

Feature #103 is an adit. The 5 by 3.5 foot portal is intact and access underground is very easy. The adit extends into the mountainside over 50 feet. The size of the mine dump (2,000 c.y.) indicates substantial underground workings beyond the 50 foot depth observed from the portal. This site is only 60 feet from the trail so the dump is very noticeable.

Feature #: 104

Hazard Rating: 2

Feature #104 is also an open adit. This site is about 100 feet west of site #103. The 6 by 3.5 foot adit is intact and extends into the mountainside 70 feet. These sites were given the hazard rating of 2 (dangerous) because the sites are above the treeline and hence very visible, open, easily accessible, and close to public use (trail).

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Site #:12-10-402/4348-1.100

Site Name: Loveland Mtn. ridgeline above Mosquito Creek.

Hazard Ratings: 2

Description and pertinent facts: Feature #100 is one of four features in this inventory area that are mapped on the east edge of the Climax quadrangle map on Loveland Mountain at the edge of Mosquito Creek Valley. The feature is an open 5' by 3' shaft that drops vertically to a depth of 18 feet. Twenty feet from the shaft is a cabin on USFS land that is still being maintained. If this is a cross-country ski hut, the hazard is even more significant. No road goes to the site. Closest access is 1,000 feet northeast where Forest Road 450 reaches the upper eastern flank of Loveland Mountain.

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Site #:12-10-402/4348-2.100

Site Name: Confluence of Mosquito and South Mosquito Creeks.

Hazard Ratings: 2

Description and pertinent facts: The feature at this inventory area is an adit right on Mosquito Pass Road. It appears that the adit was there before the road was widened and improved. The 5' by 3' adit extends 20 feet deep into the roadside rockface. The road rockcut comprises the headwall of the adit portal now. Small rock failures have and could still occur over the easily accessible adit portal.

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Site #:12-10-402/4350-1

Site Name: Loveland Mountain

Description and pertinent facts: The inventory area is on the southeastern flank of Loveland Mountain where it broadens out from the narrow ridge above and further north. Features inventoried at the site include 3 shafts, 2 adits, and 4 mapped prospects. The site is accessed by Forest Road 450, a popular 4WD mine road now used for recreation.

Features #: 101, 102

Hazard Ratings: 2

These two features are prospect shafts that were filled with ice and snow so that true depths could not be determined. As snow and ice depths change these shafts could become deep enough to be dangerous. Shaft #101 has a 4.5' by 2.4' opening that drops vertically to 11⁺ feet where it is filled or bridged with snow. Shaft #102 has a 6' by 4' opening that drops to 6 feet where standing water begins. True depth at feature #102 could not be determined because of an ice plug on the water. The size of the dump (100[±] c.y.) and the timber cribbing inside the shaft seems to indicate much deeper workings below the ice plug.

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Site #:12-10-402/4352-1.105

Site Name: Unknown, South of Kite Lake

Hazard Rating: 2

Description and pertinent facts: This inventory area is centered 3,500 feet south of Kite Lake across from Buckskin Creek. Inventoried in this area were 7 adits. Some, while open, were not given a hazard rating of 1 or 2 because of their remoteness from road or trail. One site, #105, is a collapsed adit that has had some recent mining work done. A recent claim dated 5/2/87 by Mr. Louise W. Maulking of 1260 Can St., Lakewood, CO 80215 refers to this mine as the "AJAX No. 1". It appears that work was done to begin re-entering the adit. Of particular concern was the discovery, 200 feet north of the adit, of a blue plastic bucket that contained unsecured explosives (ammonium nitrate and dynamite sticks) near two steel equipment boxes grouted in place and locked. This material was shielded from view from below the mine, but is easily seen from above.

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Site #:12-10-402/4354-1

Site Name: Kentucky Belle Mine

Description and pertinent facts: The Kentucky Belle Mine occupies an area along the flank of Mt. Democrat above Kite Lake. The inventory area is centered 3,500 feet southeast of Mt. Democrat and 2000 feet north of Kite Lake Campground. The main trail from the campground parking lot to Mt. Democrat, Mt. Lincoln, and Mt. Bross pass through this inventory area. Several mine features occur in the site on patented and USFS lands. Since this site is above the tree line the mines are in plain view from the campground. Total features inventoried at this site included 5 adits and a stope. There were no access deterrents at this location.

Feature #: 105

Hazard Rating: 2

Feature #105 is a planar stope that declines 55° into the mountainside. Approximately 300 feet long, it appears that a 6 foot wide vein was mined out from the surface to a 30-40 foot depth, possibly deeper. The hanging wall of this planar excavation is now unsupported and is in various forms of collapse. There are still several openings and holes into this mined area that are quite dangerous. The danger is enhanced by this feature's proximity to popular public recreational use areas.

Feature #: 106

Hazard Rating: 2

Feature #106 is a deep open adit. The portal roof and sidewalls have partially collapsed but an easily accessible 3' by 4.5' hole remains. Behind the collapse debris, an intact 5' by 5' adit tunnel extends over 50 feet into the mountainside. Total depth is not known. The dump of this mine is easily seen from the campground and trail to the "fourteeners". Global positioning places this adit right on the border of a patented mine claim with the underground workings on USFS land.

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Quad Name: Como

Site #:12-10-414/4356-1.101

Site Name: Silverheels Mine area.

Hazard Ratings: 3 (2 if public vehicular access is gained)

Description and pertinent facts: This feature was placed in the Silverheels Mine inventory area. The actual Silverheels mine that is marked on the Como quadrangle map is on patented property 1900 feet west of this feature and while investigated was not inventoried. Adit #101 is open with no access deterrents and appears to have been maintained relatively recently. The adit extends into the hillside a depth of 180 feet where a vertical winze exists. This underground shaft of unknown depth is partially blocked by a winze hoist frame. The site is easily accessible by an old mine road that turns off of Forest Road 405 in Montgomery Gulch. Though on USFS lands, public vehicular access is prevented to this site by a locked gate on Forest Road 405 (County Road 50) at patented land near the confluence of Deadwood and Montgomery Gulches (where Tarryall Creek begins). This mine site was given a hazard rating of 3 (potentially dangerous). If, in the future, public vehicular access is gained to this area, the hazard rating for this feature would be increased to 2 because site visits would increase substantially.

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Site #:12-10-415/4356-1.100

Site Name: Link Mine

Hazard Ratings: 3 (2 if public vehicular access is gained)

Description and pertinent facts: The historic Link Mine is accessible from an unnamed mine road from Forest Road 405, within the upper reaches of Australia Gulch. The adit opening and underground workings are on patented land but the mine dump, ore processing chute, and 3 old mine cabins are on USFS lands. Feature 100 is the lower adit whose dump encroaches on USFS property. Public vehicular access is prevented to this site by a locked gate on Forest Road 405 (County Road 50) at lands near the confluence of Deadwood and Montgomery Gulches (where Tarryall Creek begins). The adit portal side walls and roof have partially collapsed leaving an easily accessible 3.5' by 4' hole into intact 5' by 4' adit tunnel to a depth exceeding 70 feet. The size of dump (1,400± c.y.) indicates substantial additional underground workings beyond the safely observable 70 feet. If, in the future, public vehicular access is gained to this area, the hazard rating for this feature would be increased to 2 because site visits would increase substantially.

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Site #:12-10-417/4353-1

Site Name: Unknown

Hazard Ratings: Unknown

Description and pertinent facts: This inventory area is on the saddle between Little Baldy Mountain and the eastern flank of Mount Silverheels. The site was on the USFS South Park District list of known hazardous mine sites. One to three shafts are supposedly in the area. The saddle is a

Quad Name: Fairplay West

Site #: 12-10-403/4341-1.104

Site Name: Mudsill Springs / Sacramento Area

Hazard Rating: 2

Description and pertinent facts: This is an intact exploratory shaft on the east end of the top of the hill south of Mudsill Spring. The shaft opening measures 11 x 10 feet and total depth is 26 feet.

The untimbered shaft walls appear competent, dug into a gray limestone with algal mat sedimentary structure. This spot does not get frequent visitation, yet the depth of the shaft makes it a dangerous feature. It could be backfilled with the adjacent dump material (70 c.y.). There is also a partially open adit (feature 103) just below the shaft that is potentially dangerous (PHR=3). The adit is intact (6 x 4 feet) behind the partially collapsed portal (2 x 3 feet). Depth of the adit is greater than 15 feet.

If work is done on the shaft this adit should also be backfilled with its dump material. It is possible that the shaft and this adit are connected workings.

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Site #: 12-10-403/4343-1.100

Site Name: Southwest side of Sacramento Creek Valley near subdivision

Hazard Rating: 2

Description and pertinent facts: This intact prospect shaft is only about 800 feet west of a newly developed subdivision. As of Autumn 1993 no houses had been built in this new subdivision. The shaft is 17 feet deep and has a surface opening of 6 x 4 feet. This shaft could easily be backfilled.

There is no trail to the shaft, but access for construction equipment is still good because the hill is not very steep and trees are relatively sparse.

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Site #: 12-10-404/4338-1.101,103,104

Site Name: Upper north end of Sheep Mountain

Hazard Rating: 2

Description and pertinent facts: Mine features 101, 103, and 104 are all open adits. These adits are rated as dangerous because they occur about one mile southwest of Horseshoe Campground and are easily accessed from Trail 691 which leads from the campground up the northeast slope of Sheep Mountain. Adit 101 occurs on the upper end of the trail and just below the trail. The adit is only slightly open as the portal has mostly collapsed leaving a 1 x 2-foot opening. Behind the portal the adit is intact and extends over 25 feet back beyond line of sight. Adits 103 and 104 occur at the head of a drainage that is accessed by a side trail leading south off of Trail 691. Adit 103 is on the east side of this drainage and is a large open tunnel with an 8 x 5 foot portal opening extending beyond sight, over 80 feet into the mountain. Some timbers are scattered on the 393 c.y. dump at the mouth of this tunnel. Adit 104 is partially collapsed with many timbers in the portal leaving only a 3 x 4 foot opening. Behind this, the tunnel appears to be intact and extends beyond sight at least greater than 15 feet. Galena (PbS) and barite (BaSO₄) are found in the dump at this location.

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Site #: 12-10-405/4335-1.100,103

Site Name: Southwest Sheep Ridge; Garvie London Mine

Hazard Rating: 2

Description and pertinent facts: The most dangerous mine feature in this inventory area is shaft 103. This shaft is on the upper part of the west slope of Sheep Ridge. It is situated in an area of the slope that is conspicuously absent of trees, probably from a former fire. The shaft occurs inside a small cabin. The shaft is timbered, has a surface opening of 8 x 3 feet, and is 31 feet deep. There is no trail leading to the shaft, but the cabin is visible looking upslope from FR-426 (which leads to the Garvie London Mine). Abundant bear "sign" was noted inside the cabin, so this could possibly be a den (?).

The largest mine in this inventory area is the Garvie London Mine adit (mine feature 100). FR-426 leads directly to it, so it does get relatively frequent visitation. The adit portal opens into a mostly intact cabin (50 x 20 feet). The adit portal measures 7 x 6 feet and extends back at least 30 feet. A large subsidence depression is located about 30 feet uphill from the portal. It appears that this subsidence has cut off any further access to the adit. The subsidence also highlights the structural instability of the adit and with the ease of access to the mine site conspires to make this a dangerous physical hazard.

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Site #: 12-10-405/4339-1.101

Site Name: Lower north end of Sheep Mountain near Horseshoe Campground

Hazard Rating: 2

Description and pertinent facts: This adit's portal is partially filled with sloughed material from above, but is still intact behind this material. The opening measures only 1 x 3 feet, but opens up to 6 x 4 feet behind the sloughed material and extends past sight more than 20 feet in depth. A dilapidated cabin sits next to the dump. The dump consists of Leadville Limestone with some "zebra rock." There is no trail leading to the adit, but it occurs only about 400 feet south of Trail 691, whose trailhead is in Horseshoe Campground. Several other collapsed adits occur in this inventory area.

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Site #: 12-10-407/4335-1.100

Site Name: Southwest of Warm Springs Subdivision

Hazard Rating: 2

Description and pertinent facts: This prospect shaft is located just 500 feet south of the nearest house in the Warm Springs Subdivision. The house is located at the southern extent of Lamb Mountain Road. No trails lead to the shaft, but the dump is visible from the area of the house. The shaft is 20 feet deep with a surface opening of 11 x 10 feet. Loose unconsolidated colluvium forms the upper walls of the shaft. This material shows some bell-shaped erosion inside the shaft indicating possible future collapse at the surface. A collapsed cabin surrounds the shaft and many

Quad Name: Black Mountain

Site #: 12-10-440/4284-1.100

Site Name: South slope Black Mountain

Hazard Rating: 2

Description and pertinent facts: This intact 40 foot deep shaft is adjacent to FR-272 and about 2 miles west of county road 88. This is a dangerous shaft because of its depth and the fact that sloughing of the walls of the shaft have caused bedrock at the surface to overhang the eroded opening. This is called "bell-shaped" erosion and causes the ground surrounding the shaft to be structurally unstable. The only reason this shaft did not get a Physical Hazard Rating (PHR) = 1 is that it is fairly remote, is accessed via a moderately rough 4WD road, and therefore, does not get visited often. Nevertheless, the shaft is right next to FR-272 on the southwest side. The shaft is dug into a conglomerate (Tallahassee Creek Conglomerate) composed of clasts of scoriaceous tuff up to cobble size. Weathering of the soil and conglomerate around the shaft leave rounded pebbles and cobbles around the shaft collar causing insecure footing. This is assumed to be a uranium prospect, but radiometric readings are equal to background levels of 50-60 cps. The dump contains no obvious ore minerals.

Quad Name: Mount Sherman

Site #: 12-10-398/4331-1.107

Site Name: Weston Pass

Hazard Rating: 1

Description and pertinent facts: This shaft is in the Weston Pass area which receives much tourist traffic and frequent visitation to the mines in the area. Shaft 107 lies just southwest of the headwaters of the South Fork South Platte River. It can be easily accessed from the Weston Pass Road (FR-5). The cribbed shaft has a surface opening of 8 x 4 feet and contains standing water at a depth of 20 feet. The shaft's full depth is not known, but if the dump is indicative of shaft size, the shaft depth should be about 25 feet. Some of the cribbing timbers have fallen in the shaft and there is some sidewall collapse that is currently being retained by cribbing. This shaft is extremely dangerous because of frequent public interaction. Two people were at this mine during our inventory work. If the shaft is not much deeper than the estimated 25 feet, backfilling this shaft with dump material is recommended.

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Site #: 12-10-398/4331-1.110

Site Name: Weston Pass

Hazard Rating: 2

Description and pertinent facts: This is the main adit of the Ruby Mine and it is on a patented claim(s). This site was inventoried because it was draining water across the mine site onto USFS managed land. Water test pH and conductivity indicated no environmental degradation of this water. A significant physical hazard does exist for this open adit. This adit is over 80 feet long and likely has hundreds of feet of mine workings. The portal with dimensions of 5 x 4 feet is large enough for easy entrance. The draining water is not a significant deterrent since it was estimated at 1 gallon per minute in September. This adit should be capped because of frequent tourist visitation. Other open mine features are present on the patented claims that were not inventoried. Any mine closure work on this land would need to be negotiated with the claim holders.

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Site #: 12-10-398/4338-1.102

Site Name: Peerless Mine / Leavick Tarn

Hazard Rating: 2

Description and pertinent facts: This shaft is next to a trail marked on the PBS base map, but not numbered. The trail leads from FR-422 near the Peerless Mine to Horseshoe Gulch. The shaft appears to be on private land as indicated on the PBS base map. The shaft is cribbed, 18 feet deep, and has a collar size of 15 x 10 feet. Water fills the bottom 5 feet of the shaft. There would be no escape if someone fell into this mine.

Two other mine adits in this inventory area are rated as potentially hazardous (PHR=3). Adit 100 is on private land, but is adjacent to and easily accessed from FR-422. It is 35 feet in length and has

Quad Name: Tarryall

Site #: 12-10-457/4320-2. 100

Site Name: St. Joe Group, West

Hazard Rating: 3

Description and pertinent facts: The inventory area includes two shafts and two adits. The site is 1800 feet north of Highway 34 and is accessed by a dirt road. Fire pits in the area indicate the immediate area is used for camping and picnicking. The main St. Joe Tunnel (feature #100) has two bulkheads, a steel culvert segment, and a locked steel grate installed by the Colorado MLRD. Subsequent vandalism of the outside bulkhead has opened a passage behind the locked grate in the annulus between the adit and the installed culvert. The back bulkhead appears undamaged and access to the main underground workings is still prevented. A mine trail from St. Joe Tunnel starts up the hill to the east to the St. Joe Group, East inventory area.

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Site #: 12-10-458/4320-1

Site Name: St. Joe Group, East.

Description and pertinent facts: This inventory area is located just east of the West St. Joe site. The site is on the lower southeastern flank of Badger Mountain. The site is 2,000 feet from Highway 34 and is accessible by a dirt road that passes within 400 feet of some of the mine features. Six shafts and 3 adits were inventoried in this area. Patented land is included within the inventory area and some of the mine openings may be on private land.

Features #: 103, 104

Hazard Ratings: 2

Features #103 and #104 are shafts spaced only 50 feet from each other. They share the same 1,300 c.y. dump that is visible from the highway. Feature 103 is an intact 4' by 8' timber lined shaft in moderately good condition. Its depth is 39 feet. Feature 104 is a 4' by 7' unlined shaft that is badly cratered at the surface to a raveling 11 by 16 foot hole. The shaft depth exceeds 75 feet. The trail from St. Joe Tunnel goes to this mine. These sites may be on private property.

Feature #: 107

Hazard Rating: 2

Shaft #107 is on a hill slope on the far east side of the inventory area. No apparent trail leads to it. The 4' by 7' intact shaft has a timber liner and descends vertically to a depth of 21 feet.

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Site #: 12-10-458/4329-1

Site Name: Clothing House, June, and Violette P. Claims

Description and pertinent facts: The inventory area is centered 3000 feet southwest of Tarryall and 2,300 feet from the intersection of Forest Road 31 and County Road 77. Forest Road 31 passes through the center of the inventory area. Three shafts and scattered prospect pits occur in this area.

Feature #: 100

Hazard Rating: 2

This feature is an open shaft at the end of an exposed fault gouge filled vein. The vein is easily seen from RE 31, 270 feet away. The shaft is cratered to a 10' by 9' hole at the surface. The 7' by 3.5' shaft drops vertically to a depth of 24 feet where trash has either bridged or is on the bottom. A double wire fence partially around the feature is ineffective as a deterrent and has been undermined by the cratering of the hole.

Feature #: 102

Hazard Rating: 2

Feature #102 is about 800 feet southeast of FR 31 on the opposite side from feature #102. The shaft has a timber collar but it is beginning to fail and the hole has started to crater. The 6' by 3' shaft descends vertically to 17 feet where debris has filled.

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Site #: 12-10-458/4330-1.100

Site Name: Nix Group prospects

Hazard Rating: 2

Description and pertinent facts: The Nix Group prospects include prospect shafts, pits, and trenches. The inventory area is 0.6 miles west of Tarryall. One shaft, feature 100, is on top of a small hill 400 feet from FR 233, which runs to Webber Park. The 8' by 8' shaft drops vertically to a total depth of 23 feet. It is a dangerous open hole.

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Site #: 12-10-459/4321-1.100

Site Name: Unknown, marked mine location on map

Hazard Rating: 2

Description and pertinent facts: This inventory area is located 1.4 miles west of Round Mountain. Three shafts were recorded in this inventory area. Feature #100 is an open intact 5' by 8' shaft that descends vertically 29 feet. The dump is visible about 3500 feet to the north of Highway 34. The shaft entrance is cut into a ledge of pegmatite rock. Thick bushes growing on the dump have completely hidden the hole from view. Bat guano is believed to have been found at this site. The site is accessed by an old mine road that approaches within 200 feet of the mine. This road is now a popular 4WD recreation and hunting road. A single-track trail runs to the mine.

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Site #: 12-10-459/4325-1.100

Site Name: Unknown

Hazard Rating: 2

Description and pertinent facts: This site is located 2,500 feet west of the abandoned Lake George Industries Beryllium Mill and 500 feet north of Forest Road 896. One shaft and several prospect pits and trenches occur within the inventory area. The 5' by 8' shaft drops vertically to a depth of 24 feet. There is vehicular access to this site and fire pits indicate that camping/public use occurs here.

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Site #: 12-10-459/4329-1.102

Site Name: Unknown, South Tarryall Area

Hazard Rating: 2

Description and pertinent facts: The inventory area is centered 3,000 feet south of Tarryall with County Road 77 passing through the western side. Five shafts were recorded in this area, three have been capped by the Colorado MLRD. Feature 102 is an open prospect shaft that drops vertically 18 feet. This shaft is only about 200 feet from County Road 77 and 2,400 feet from Tarryall. Its dump is clearly seen from the road.

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Site #: 12-10-460/4326-2

Site Name: Unknown, Lower Marksbury Gulch area

Description and pertinent facts: Two dangerous open prospect shafts lie within this inventory area. The site is located at the lower part of Marksbury Gulch, 0.4 miles west of County Road 77. The shafts are located close to an unnamed dirt road that runs from the abandoned Lake Industries Beryllium Mill (site # 12-10-460/4326-1) to the Marksbury Gulch road, FR 213.

Feature #: 100

Hazard Rating: 2

This shaft is located 50 feet west of the unnamed road. Its dump is easily seen on the side of the hill.

The vertical shaft has the remains of a wood collar on one side but has cratered to an 8' by 9' hole at the surface. The portal has been partially bridged by furniture thrown into the shaft leaving a 2' by 4' hole on one side to a measured depth of 23 feet.

Feature #: 101

Hazard Rating: 2

This shaft is located up the hill from #100, about 100 feet away. Its location is about 80 feet west of the road. This dangerous intact shaft measures 3.5' by 8' in rock and was measured to a depth of 23 feet. The upper 4 feet has cratered to a 10' by 13' hole.

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Site #: 12-10-460/4327-1

Site Name: South China Wall geographic location

Description and pertinent facts: A group of 3 shafts and an adit comprise this inventory area. The area is centered 750 feet from County Road 77, 2.1 miles south of Tarryall. The features are on the steep western slope of the southern end of the China Wall. The mine dumps are clearly seen from the road below.

Feature #: 100

Hazard Rating: 2

This 4' by 7' vertical shaft is timber lined and descends to a total depth of 33 feet. An intact ladder of questionable strength is still in the shaft.

Feature #: 101

Hazard Rating: 2

This 3' by 7' shaft is timber lined and drops vertically for 15 feet where the timber cribbing ends and the shaft inclines 30° from vertical in unsupported rock to an unknown depth exceeding 50 feet. A dangerous wood ladder is affixed to the timber liner.

Feature #: 102

Hazard Rating: 2

A 5' by 8' unlined shaft descends to an 18 feet depth. The collar has some support by 3 feet of timber cribbing but the edge of the hole is beginning to crater.

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Site #: 12-10-460/4329-1

Site Name: China Wall

Description and pertinent facts: This inventory area is accessed by the 4WD FR 212 from County Road 77. The turn-off is 4200 feet south of Tarryall. Inventoried are five shafts. Three are grouped together in a line only 25 feet from each other near the 4WD road.

Feature #: 100

Hazard Rating: 2

This 6' by 3' vertical shaft is timber lined to a total depth of 26 feet. The 4WD road passes within 30 feet of this open shaft. This is a dangerous hole near a popular 4WD road that needs to be filled or capped.

Feature #: 102

Hazard Rating: 2

This inclined shaft, 55° from horizontal, exceeds 60 feet in depth. It is separated from shaft #100, 50 feet away, by the partially filled shaft, #101. A 6' by 3' timber liner exists from the collar to a 10-foot depth where the shaft continues in rock to an unknown depth. This also is a dangerous hole that needs to be filled or capped.

Feature #: 103

Hazard Rating: 2

This feature is also a shaft that is farther north of the first group of three across the 4WD road. The dump of this shaft is easily seen from the road as it approaches China Wall ridge from the flat below.

This shaft has cratered at the surface to an 11-foot diameter hole with incompetent perimeter material. The shaft is intact in rock below the cratering, is vertical, and drops to a measured depth of 17 feet.

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Site #: 12-10-460/4330-1

Site Name: A & C Claims, North China Wall area.

Description and pertinent facts: The A & C Claims are a group of shafts and prospect trenches, pits, and adits. The area is centered 0.9 miles east of Tarryall. Access is provided by FR 212 at a turn-off 4200 feet south of Tarryall on CR 77. An unnamed road forks off of FR 212 at inventory area 12-10-460/4329-1 to the mine location. This road has been closed by the USFS but, judging

by tire tracks, the road is in continued use with 4WD vehicles bypassing the closure sign and bulldozed trench. While several mine features were given potentially dangerous ratings two features were assigned a rating of 2 (dangerous).

Feature #: 100

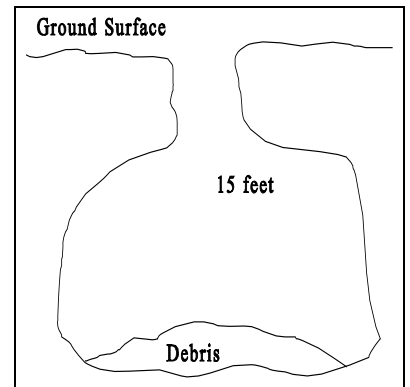
Hazard Rating: 2

Feature #100 is a shallow prospect shaft that drops vertically to a measured depth of 15'. The sheer vertical sides in rock are such that one could not get out if one accidentally fell in. This site is only 100 feet from the mine access road.

Feature #: 103

Hazard Rating: 2

This shaft is particularly dangerous because of its immediate proximity to the mine access road and the morphology of the mine itself. The shaft, while only 15 feet in depth opens to a mined out area with horizontal headings that has left a "room" with the shaft in the middle. The surface near the shaft collar is now undermined and is susceptible to collapse into the hole. See figure.



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Site #: 12-10-461/4319-1.100

Site Name: Unknown

Hazard Rating: 2

Description and pertinent facts: This inventory area includes only one shaft, feature #100. The mine is located west to southwest of Round Mountain Campground, 2,200 feet south of Highway 34. An unnamed forest access dirt road passes within 1,700 feet of the mine. The 2.5' by 6', intact, timber lined, shaft descends vertically to a 30 foot depth. The wood cribbing at the collar is beginning to fail and bulge inward and could crater at any time.

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Site #: 12-10-461/4325-1

Site Name: Boomer Mine area

Description and pertinent facts: The Boomer Mine is one of the most extensively mined area in the Tarryall/Badger Flats mining district. Three adits and seven shafts were inventoried at this site on USFS lands. Several more mine openings occur on patented lands. Many prospect pits and trenches are scattered throughout the area. Four of the shafts inventoried have been sealed or capped by the Colorado Division of Minerals and Geology (DMG), Inactive Mine Program.

Feature #: 104

Hazard Rating: 2

Feature #104 is a shaft located 1,600 feet northeast from the main Boomer mineshaft marked on the map. The shaft has cratered at the surface to a 10' by 9' opening within the dump material. The edges of the crater are unstable. A timber liner begins 3 feet down and extends vertically to the bottom of the shaft at 33 feet.

Feature #: 105

Hazard Rating: 2

This feature is located about 300 feet southwest of #104. The shaft has a timber collar that supports the dump material at the surface. The 5' by 5' shaft drops vertically to a depth of 23 feet.

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Site #: 12-10-463/4324-1.107

Site Name: Mary Lee Mine area

Hazard Rating: 2

Description and pertinent facts: The Mary Lee Mine area is a well-known mining area of the Tarryall/Badger Flats district. The site is centered 1.3 miles east to southeast of the Boomer Mine and is accessed by Forest Road 287. Nine mine openings were inventoried at this site, the majority of which have been sealed or capped by the Colorado DMG. Feature #107 was given a closure number during the DMG project but evidently was omitted or forgotten. This 3' by 7' intact shaft has timber lining to a depth of 11 feet and a total depth of 23 feet. A dangerous wood ladder still exists inside the shaft.

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Site #: 12-10-463/4327-1

Site Name: Redskin Gulch Area (Redskin, Minerva, and Black Prince mines)

Description and pertinent facts: The inventory area lies within Redskin Gulch basin. The area is located northeast of Landis Ranch centered about 3,500 feet from Tarryall Creek. Vehicular access to the mine sites is only through the usually locked Landis Ranch Estates gate. Seven shafts were inventoried at this site. Many prospect pits are also in the area.

Feature #: 102

Hazard Rating: 2

The Black Prince Mine main shaft is collared and lined with timbers. The wooden hoist frame and ore chute have collapsed. The 3.5' by 7' shaft is intact and drops vertically to a depth exceeding 50 feet (the length of the weighted tape measure). Standing water in the shaft was measured at 39 feet.

Feature #: 105

Hazard Rating: 2

The Minerva "J" shaft is also collared and lined with timbers to 14 feet. The 4' by 7.5' shaft drops vertically to 20 feet where standing water occurs. Total actual depth is not known. An old dangerous wooden ladder is still in the shaft. The shaft has been partially covered with wood planks. These planks are rotten and would probably break if stood upon.

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Site #: 12-10-464/4319-1.102

Site Name: Unknown

Hazard Rating: 2

Description and pertinent facts: This inventory area is one mile south of Hayman Site and is accessed by an unnamed forest road that turns off of FR 208 and doubles back to the site. The inventory area is on a small ridge only 700 feet from Highway 34. Three shafts were inventoried at this site. Two have been backfilled and sealed by the Colorado MLRD. Feature 102 is about 500 feet from the others. This dangerous, intact, 3' by 7' shaft has a timber collar and liner to 10 feet. It's total depth is 27 feet. An old wood ladder is affixed to the liner.

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Site #: 12-10-464/4324-1.100

Site Name: Badger Gulch area southwest of County Road 77

Hazard Rating: 2

Description and pertinent facts: The inventory area is easily accessed from County Road 77 but the access is restricted by private property. A longer access is available from Forest Road 225 along Badger Gulch but that unnamed road has been closed to motorized vehicles. Feature #100 is a 4' by 7' prospect shaft that drops vertically to 22 feet where relatively recent trash lies.

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Site #: 12-10-465/4317-1

Site Name: Unknown, Lower Pulver Gulch, west side.

Description and pertinent facts: This inventory area is 2.7 miles southeast of the turn-off to Round Mountain Campground along Highway 34. Five shafts and one prospect pit were inventoried. The mine sites trend roughly linear, northeast to southwest, on a ridgeline. A few cabin remains near Highway 34 were probably the old mine camp. Access to the upper (southwestern) portion of the ridge is by an old 4WD mine road in the draw south of the ridge. There is a gate in the right-of-way fence along Highway 34. This track deteriorates quickly and becomes undriveable towards the top.

Feature #: 100

Hazard Rating: 2

Feature #100 is a 3' by 6' intact vertical unlined shaft that exceeds 35 feet in depth. Its location is 1000 feet from Highway 34.

Feature #: 101

Hazard Rating: 2

This feature is another 1,200 feet farther up the ridge from #100. It is an open unlined shaft that inclines 20° from vertical and exceeds 100 feet in depth. The 4' by 6' shaft has cratered at the surface to a 10' by 13' hole with an unstable perimeter.

Feature #: 104

Hazard Rating: 2

This feature is also farther up the ridgeline, about 1100 feet above #101. Inclined at 10° from vertical this shaft is also intact. The 4' by 6' inclined shaft is open to a 50 foot depth where a drift

begins of unknown length. The old head frame has collapsed and a cable still enters the shaft. The shaft has cratered at the surface to a 10' by 10' hole with unstable edges.

Feature #: 105

Hazard Rating: 2

This mine is clearly seen from shaft #104 downhill 200 feet away. The shaft is open to a depth of 27 feet. The bottom 11 feet has a 3' by 7.5' timber liner. The top 16 feet opens up gradually to a 7' by 9' crater at the surface with a dangerous incompetent perimeter.

Feature #: 106

Hazard Rating: 2

This shaft is near the top of the ridge an additional 200 feet uphill from #105. The shaft is inclined slightly from vertical. The 4.5' by 7' unlined shaft has cratered at the surface to a 12' by 15' foot hole.

The cratered material has partially filled the shaft at 30 feet leaving a remaining 3' by 4.5' hole to an unknown depth exceeding 50 feet.

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Site #: 12-10-466/4318-1

Site Name: Unknown, lower Pulver Gulch area, east ridge behind Noble property.

Description and pertinent facts: This inventory area is accessible through the Noble property or an around-about way on unnamed USFS dirt roads from the north and east. Six shafts and one adit were inventoried at this site, the majority are intact and dangerous. The site is centered 2.5 miles southeast from the Round Mountain Campground turn-off along Highway 24 and 1,500 feet east of the highway along the ridgeline.

Feature #: 100

Hazard Ratings: 2

Feature #100 is an intact open shaft. The top 5 feet has a 3' by 6.5' timber collar. The collar has begun to fail on the west side. The vertical shaft was measured at a depth of 36 feet.

Feature #: 101

Hazard Ratings: 2

This shaft is located 50 feet from #100. The shaft has cratered at the surface to a 10-foot diameter hole within dump material. Four feet down the 3.5' by 6' shaft enters competent rock and drops vertically to a measured depth of 19 feet.

Feature #: 103

Hazard Ratings: 2

Feature #103 is also a shaft, located about 110 feet farther up the hill from #101. This shaft is collared with a 2.5 by 4.5' timber liner to a depth of 4 feet. It drops vertically for 18 feet then inclines at 40° to an unknown depth. A weighted tape measure was thrown into the hole to a depth of 58 feet. The total depth could not be verified from the surface because of the dog-leg in the hole.

An old rotten wood ladder is still in place in the vertical section of the shaft.

Feature #: 104

Hazard Ratings: 2

This mine feature is about 250 feet northeast of #103. The shaft is similar to #103 in that it drops vertically with a 2.5' by 7' wooden liner to 11 feet where the liner ends and the shaft becomes

Quad name: McCurdy Mountain

Site #: 12-10-457/4332-1.100,101

Site Name: Unknown, south of Spring Gulch

Hazard Ratings: 2

Description and pertinent facts: This inventory area is centered 2,000 feet south of Spring Gulch. The site is accessed by Forest Road 214. An unmarked road with a USFS road closure sign forks off of FR 214 to the south. This track passes feature #100, an adit marked on the McCurdy Mountain quadrangle map. The adit is within 50 of the road. The adit is still open to an unknown depth beyond 50 feet. The adit has a side drift that forks off at about 25 feet. Feature #101 is southeast, across the hill, from #100. This feature is an open dangerous shaft. The shaft has opened at the surface to an unstable 9' by 11' crater with unstable edges. The shaft was measured to a depth of 40 feet. This shaft was brought to our attention by USFS personnel.

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Site #: 12-10-457/4335-1.100

Site Name: Bradley Peak area

Hazard Rating: 2

Description and pertinent facts: This site is rather remote and does not have a public vehicular access. It was still given a hazard rating of 2 because it is a 4.5' by 6.5' vertical prospect shaft that descends to a measured depth of 17 feet. The site is 1700 feet from County Road 77 on the southeastern flank of Bradley Peak.

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Site #: 12-10-458/4330-2.101

Site Name: Unknown, northwest of Tarryall

Hazard Rating: 2

Description and pertinent facts: Feature #101 is one of three mine sites within this inventory area. The site is 2000 feet northwest of the homes in Tarryall. The mine is an inclined prospect shaft. The shaft has a 4' by 8' timber collar but the hole is beginning to crater outside the cribbing and undermining it. The shaft was measured to a depth of 23 feet.

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Site #: 12-10-458/4332-1

Site Name: Unknown, south of Spring Gulch near County Road 77.

Hazard Rating: 2

Description and pertinent facts: This inventory area contains two shafts. The site is 0.6 miles south of the Twin Eagle Picnic Area, centered 1,500 feet south, from the curve of County Road 77. The mine sites are accessed by a dirt track not shown on the quadrangle map. Both mines are dangerous intact prospect shafts.

Feature #: 100

This mine is 200 feet east of the unmarked 4WD road that runs north to where Spring Gulch meets County Road 77 and Tarryall Creek. The shaft has partially cratered at the surface. Depth was measured at 18 feet.

Feature #: 101

Cratered at the top 3 feet to an 11-foot diameter hole, this 5' by 7' hole descends vertically to a total depth of 20 feet. The mine is about 750 feet from the dirt track and 1,200 feet from CR 77.

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Site #: 12-10-458/4336-1

Site Name: Bearcat Mines

Description and pertinent facts: The Bearcat Mines are marked on the McCurdy Mountain map. The inventory area included other sites to the south of the marked mine. The majority of the workings were large trenches. Also inventoried were one shaft, an adit, and a stope associated with the adit. An old mine access road, marked as Forest Road 218, runs to the mines. Public vehicular access is prevented by locked gates at the private property in the bottomlands adjacent to Tarryall Creek.

Feature #: 100

Hazard Rating: 2

Feature #100 is a prospect shaft 2,300 feet south of the marked Bearcat Mine location on the map. The dump is easily seen because the area has been clear-cut logged. The shaft has cratered at the surface to a 13-foot diameter hole with unstable edges. Below the cratering of the upper 5 feet, the 4' by 5' shaft descends vertically to a measured depth of 26 feet.

Features #: 103, 104

Hazard Rating: 2

This site contains an adit and stope within the deeply incised trench at the Bearcat Mine location shown on the map. A trench is deeply cut into the hillside, as much as 27 feet deep with vertical sides. Where it ends a shallower trench begins. On this shallower trench there are two holes that have opened to narrow underground workings, feature #103, along the same trend as the deep trench. An adit, feature #104, was probably advanced from the bottom of the deep trench and stoped upwards. Evidence of this adit is buried under slough material from the trench. The holes on top, one 2' by 1.5' and the other 2.5' by 1.5' reveal a linear, timber supported, drift; 1.5 feet wide, 25 feet deep, and 50 feet or so long.

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Site #: 12-10-458/4337-1.100

Site Name: Unknown, north of Bearcat Mine inventory area.

Hazard Rating: 2

Description and pertinent facts: This site includes shafts and one prospect adit that was marked on the USGS PP 608-B. The site is centered 4,000 feet north of the Bearcat Mines inventory area center. There is an old mine trail that begins from Bearcat Mines to the site. All of the shafts have collapsed and filled except for feature #100. This shaft still has a 5.5' by 5.5 timber liner near the

Quad name: Elevenmile Canyon

Site #: 12-10-461/4319-1

Site Name: Unknown

Description and pertinent facts: This inventory area is centered 0.9 miles west from the intersection of County Road 92 and Forest Road 90. Ten shafts and one adit were inventoried along 3,000 feet of hillslope parallel and immediately adjacent to Forest Road 90. Many of the mine dumps can be seen from the main road. A forest/mine access road runs up to the top of the hill that passes very close to some of the holes. Two additional open shafts also occur on private property.

Feature #: 100

Hazard Rating: 1

This shaft is only 200 feet from FR 90. The intact unlined 5' by 5' shaft descends vertically to 22 feet. At the surface the shaft has cratered to an 11' by 15' hole with unstable edges.

Feature #: 101

Hazard Rating: 2

Shaft #101 is also about 200 feet from the road but higher up on the slope in relation to the road, as the road moves down into the steeper draw. The intact unlined 5' by 6' shaft drops vertically to a depth of 28 feet.

Feature #: 102

Hazard Rating: 2

This shaft has the largest dump of the mines inventoried at this site. The depth was measured to 48 feet. A 4' by 7' timber liner begins at 22 feet. The surface has cratered badly to a 16' by 19' hole with unstable crumbly edges.

Feature #: 104

Hazard Rating: 1

Cratering has occurred at this shaft forming a 12' by 16' wide hole within the mine dump. At the 4 foot depth the 4' by 8' unlined shaft enters bedrock and descends 19 feet. This mine feature was given a rating of 1 because of its close proximity to a forest access road at the top of the hill.

Feature #: 106

Hazard Rating: 2

This feature is a shaft that inclines 15° from vertical. The 5' by 5' unlined shaft has cratered badly at the surface to a 15' by 16' wide hole. The depth was measured at 37 feet.

Feature #: 107

Hazard Rating: 1

Feature #107 is right next to the same road as #104, but located 1,300 feet to the west. The 5' by 5' unlined shaft descends to a measured depth of 20 feet. The top 5 feet in soil and dump material has cratered to an 8' by 11' opening. As with #104 this mine was given a rating of 1 because of its proximity to the road.

Feature #: 108

Hazard Rating: 2

No. 108 is farther down the slope from #107 about equidistant from the upper access road and the main FR 90. This unlined 3' by 6' shaft was measured at a depth of 21 feet.

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