STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

January 4, 2008

James Fabre
6630 Glacier
Boise, Idaho 83712

RE: Preliminary Site Assessment of the Cloverleaf Patented Mining Claim

Dear Mr. Fabre:

The Idaho Department of Environmental Quality (IDEQ) has completed a review of historical mining data and geological information, and completed a site visit to the Cloverleaf patented mining claim. During the site visit, former mining sites were evaluated and water samples were collected for documentation in a Preliminary Assessment (PA).

PAs are conducted according to the federal Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA). The reasons to complete a PA include:

1) To identify those sites which are not eligible for CERCLIS because they do not pose a threat to public health or the environment (No Remedial Action Planned (NRAP));
2) To determine if there is a need for removal actions or other programmatic management of sites;
3) To determine if a Site Investigation, which is a more detailed site characterization, is needed; and/or
4) To gather data to facilitate later evaluation of the release through the Hazard Ranking System (HRS)

IDEQ has completed PAs under contract with the U.S. Environmental Protection Agency in order to identify risks to human health and the environment, and make recommendations to land owners regarding how risks might be managed, if necessary.

The subject site has a gated entrance off an unimproved Forest Service road (No. 379A4) heading east from Elk Creek. A caved-in adit and a small waste dump were observed on the south side of Lager Beer Gulch creek, across from the cabin. Vegetation was thick in this area and no obvious signs of soil contamination were observed. The concrete foundation of a former stamp mill and the remains of a short rail line were also observed along the south bank of Lager Beer Creek. A dirt road heading north from the cabin leads to a caved-in shaft located at elevation of approximately 4995 feet. The main Cloverleaf adit (Photo No. 4) is located east of the cabin on the north side of Lager Beer Creek at an elevation of approximately 4860 feet and

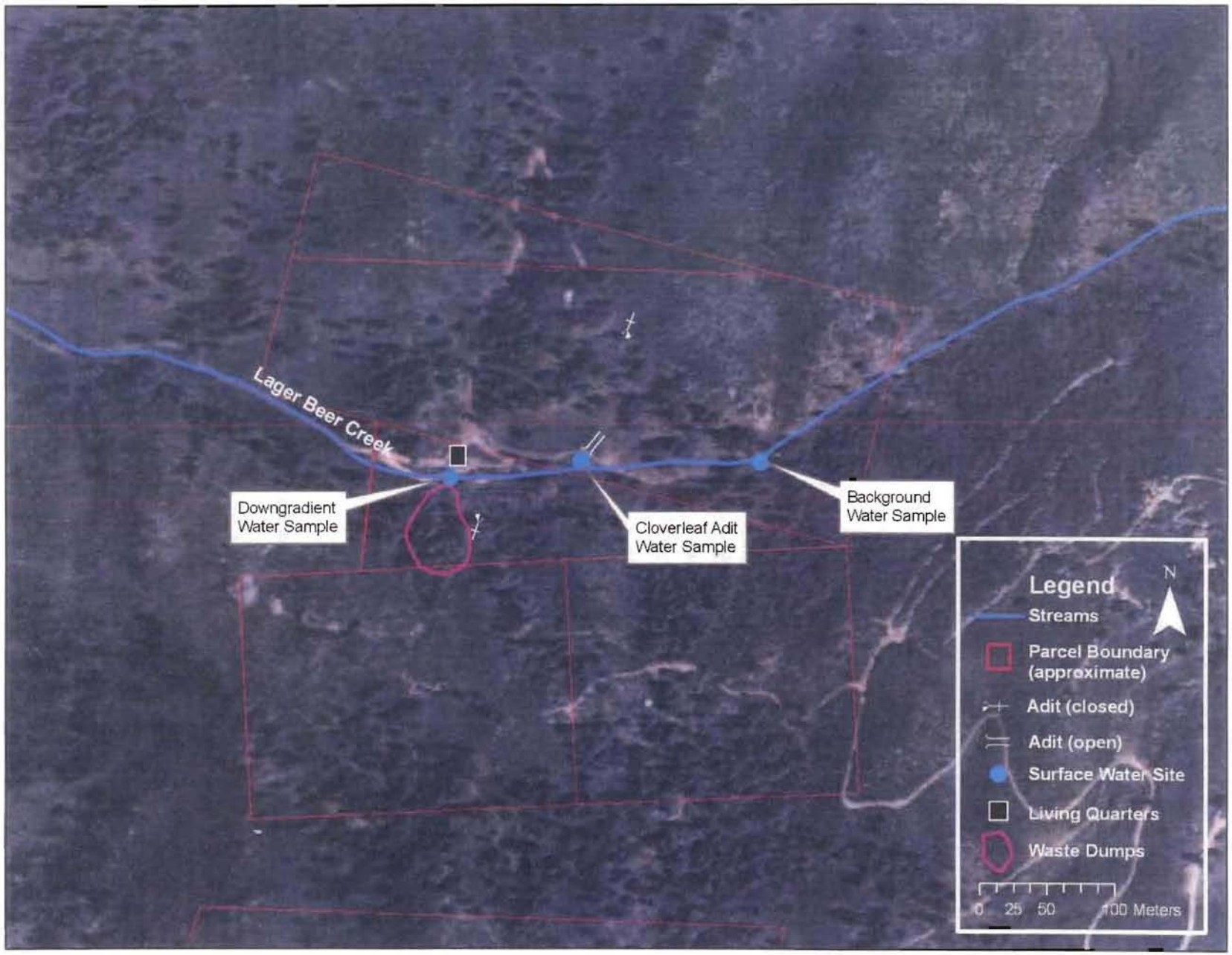
had a discharge of a few gallons per minute at the time of the site visit. Recent mining activity appears to have occurred in this area as piping used for mine dewatering was present. Table 1 summarizes the results of water samples collected from the Cloverleaf mine open adit and from Lager Beer Gulch creek. A water sample from the open adit had an arsenic concentration of 0.0281 mg/l, above drinking water standards but below acute and chronic cold water biota standards. Field parameters measured of the Cloverlead adit discharge indicated a temperature of 18.9°C, pH of 7.2, and a specific conductivity of 0.146 ms/cm. Water samples collected from Lager Beer Creek did not contain elevated heavy metals.

Table 1: Total Recoverable Metals Analysis (mg/L)

(Standards in "dissolved" unless stated)

Chemical	IDEQ Ground Water Standard	IDEQ Drinking Water Standard	IDEQ Cold Water Biota Standard Acute	IDEQ Cold Water Biota Standard Chronic	Cloverleaf adit discharge mg/l	Lager Beer Creek Back Ground mg/l	Lager Beer Creek Below waste dump mg/l	Lager Beer Creek down gradient near bridge mg/l
Aluminum	0.2*							
Arsenic	0.05	0.01	0.36	0.19	0.0281	0.0139	0.0137	0.0167
Barium	2	2			0.0285	0.0361	0.0454	0.0387
Cadmium	0.005	0.005	0.00082 (H)	0.00037 (H)	<0.0020	<0.0020	<0.0020	<0.0020
Chromium	0.1	0.1			<0.0060	<0.0060	<0.0060	<0.0060
Cobalt								
Copper	1.3		0.0046 (H)	0.0035 (H)	<0.010	<0.010	<0.010	<0.010
Iron	0.3*							
Lead	0.015	0.015	0.014 (H)	0.00054 (H)	<0.0030	<0.0030	<0.0030	<0.0030
Manganese	0.05							
Mercury	0.002	0.002	0.0021	0.000012 (T)	<0.00020	<0.00020	<0.00020	<0.00020
Nickel		0.61	0.438 (H)	0.049 (H)				
Selenium	0.05	0.05	0.018 (T)	0.005 (T)	<0.04	<0.04	<0.04	<0.04
Silver	0.1*		0.00032 (H)		<0.005	<0.005	<0.005	<0.005
Zinc	5*		0.035 (H)	0.032 (H)	<0.010	<0.010	<0.010	<0.010

* secondary MCL (T) – Standard in Total (H) – Hardness dependent * 25 mg/L


Lager Beer Creek
Downgradient Water Sample
Cloverleaf Adit Water Sample
Background Water Sample
Legend
N
Streams
Parcel Boundary (approximate)
Adit (closed)
Adit (open)
Surface Water Site
Living Quarters
Waste Dumps
0 25 50 100 Meters

Based on existing conditions and uses of the properties, low potential risks to human health and the environment were identified at the site. Subsequent to our analysis IDEQ has determined that No Remedial Action is Planned (NRAP) for this property. However, if you discover mine or mill tailings during development of the site, you may want to conduct additional site and risk assessment work. This may suggest that your future development plans should incorporate risk management provisions for residential home sites, and to protect worker health and safety from potential risks associated with heavy metals which may be present. IDEQ recommends that you do not use the water discharging from the Cloverleaf adit as drinking water. Future mining activity conducted on this property should incorporate best management practices to control erosion and protect surface waters. Discharges from the adit associated with mining activity may need to be regulated through an EPA NPDES permit.

Attached is the Preliminary Assessment Checklist for the property area which summarizes how IDEQ came to its NRAP recommendation for the property. Photos of the subject area are also attached. Maps showing the property parcel, area geology, nearby ground water wells, nearby threatened and endangered species, nearby surface water bodies and wetlands are attached. Several quartz gold prospects existed in this area, however, limited historical information on the former mines was found. The Cloverleaf mine had a 25-ton stamp mill that operated during the 1930's. The Cloverleaf mine land patent was issued in 1904 to Harry Fisher, and was previously known as the MacCarthy mine. The workings of the adjacent Cleveland mine are located to the south across the creek on land that appears to be currently owned by Interex Minerals of Canada. Excerpts from A. Anderson's "Geology and Ore Deposits of Boise Basin, Idaho," 1947 USGS report are also included.

IDEQ very much appreciates your cooperation and approval for our access, and looks forward to addressing any questions you may have regarding our findings. Please call me if you have any comments, questions, or if I may be of any other assistance. We very much appreciate any feedback you can give us relative to our services.

Sincerely,

Bruce A. Schuld
Mine Waste Projects Coordinator
Waste Management and Remediation Division

BAS:tg \cloverleaf nfrap.doc

Attachments

cc: Ken Marcie – U.S. Environmental Protection Agency
USDA Forest Service, Boise National Forest
file

SITE VISIT PHOTGRAPHS

Photo No. 1: Overview of Cloverleaf mine looking north from south side of Lager Beer Creek

Photo No. 2: Looking west towards cabin area.

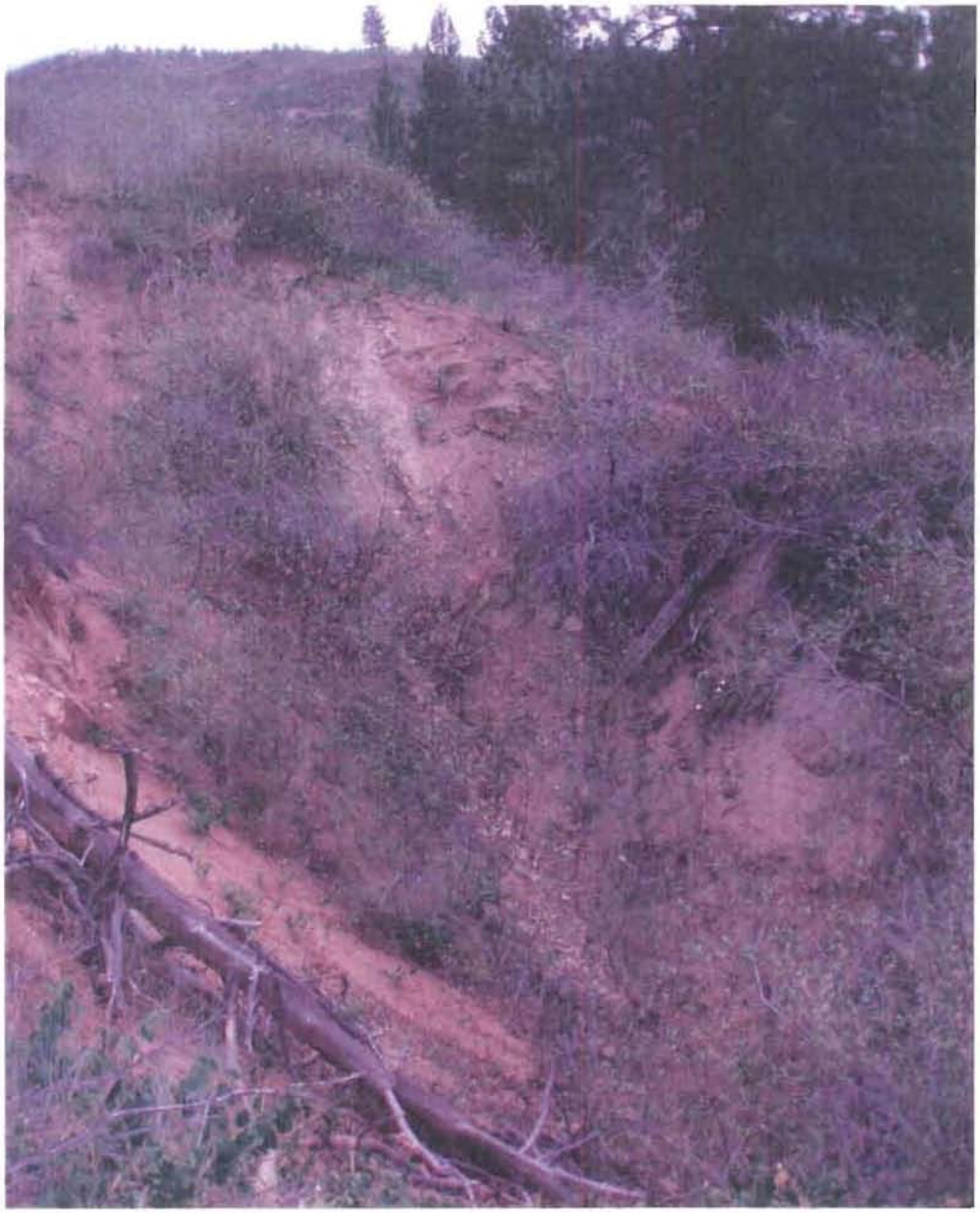


Photo No. 3: View of caved-in shaft located in northern area of property above cabin.

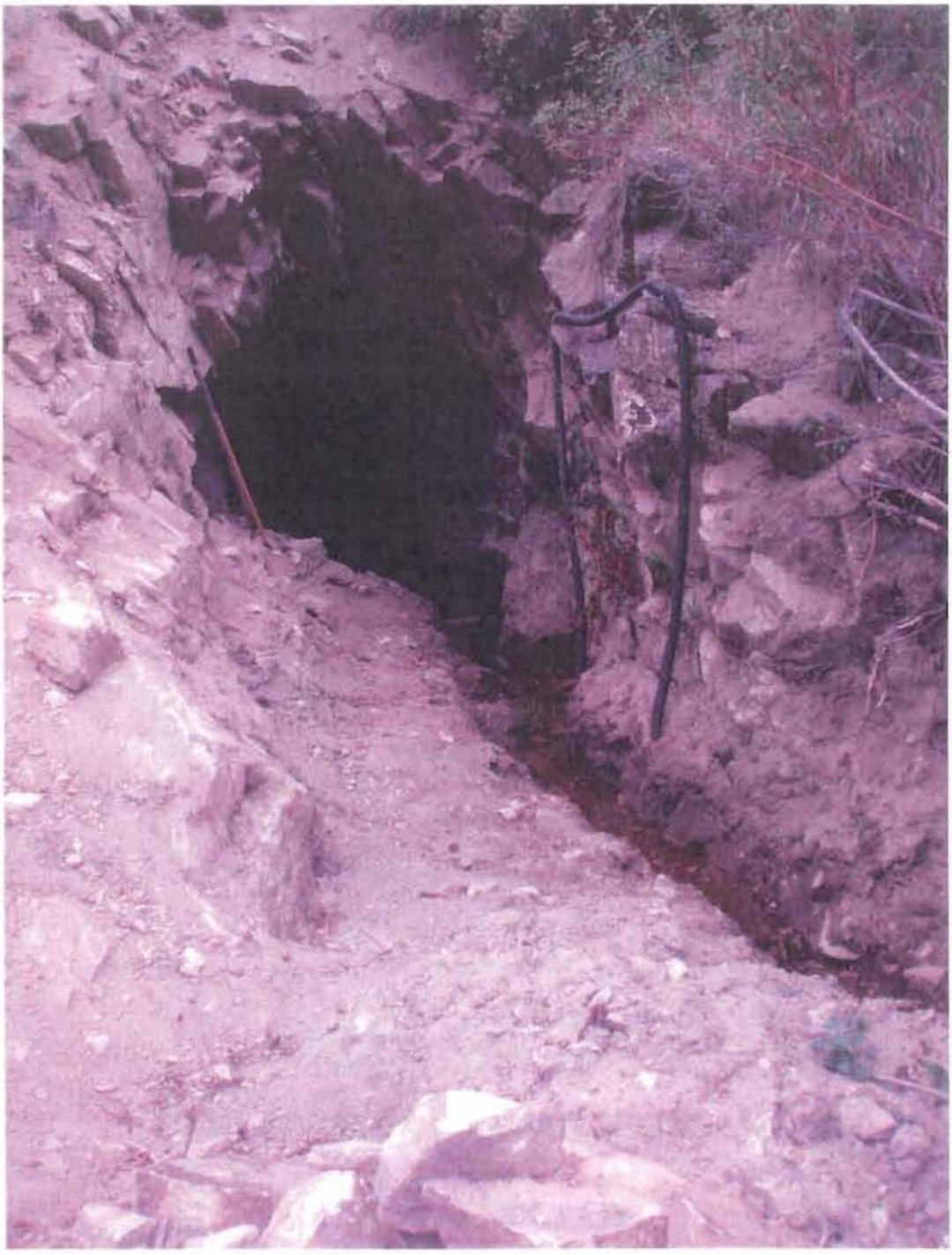


Photo No. 4: View of discharge coming from Cloverleaf mine adit.

Photo No. 5: View of Lager Beer Gulch creek down gradient from waste dump.

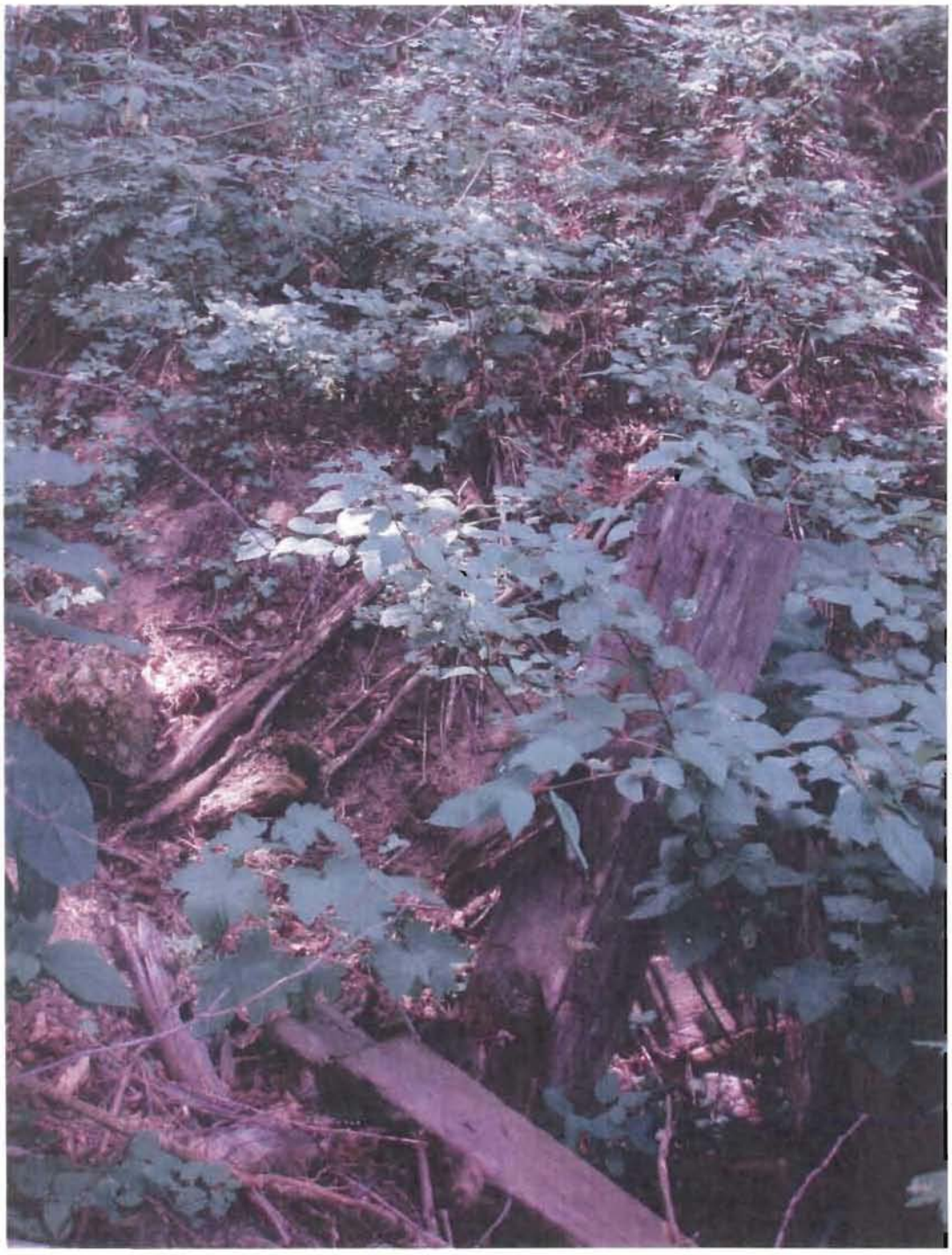


Photo No. 6: View of caved-in adit on the south side of Lager Beer Creek.

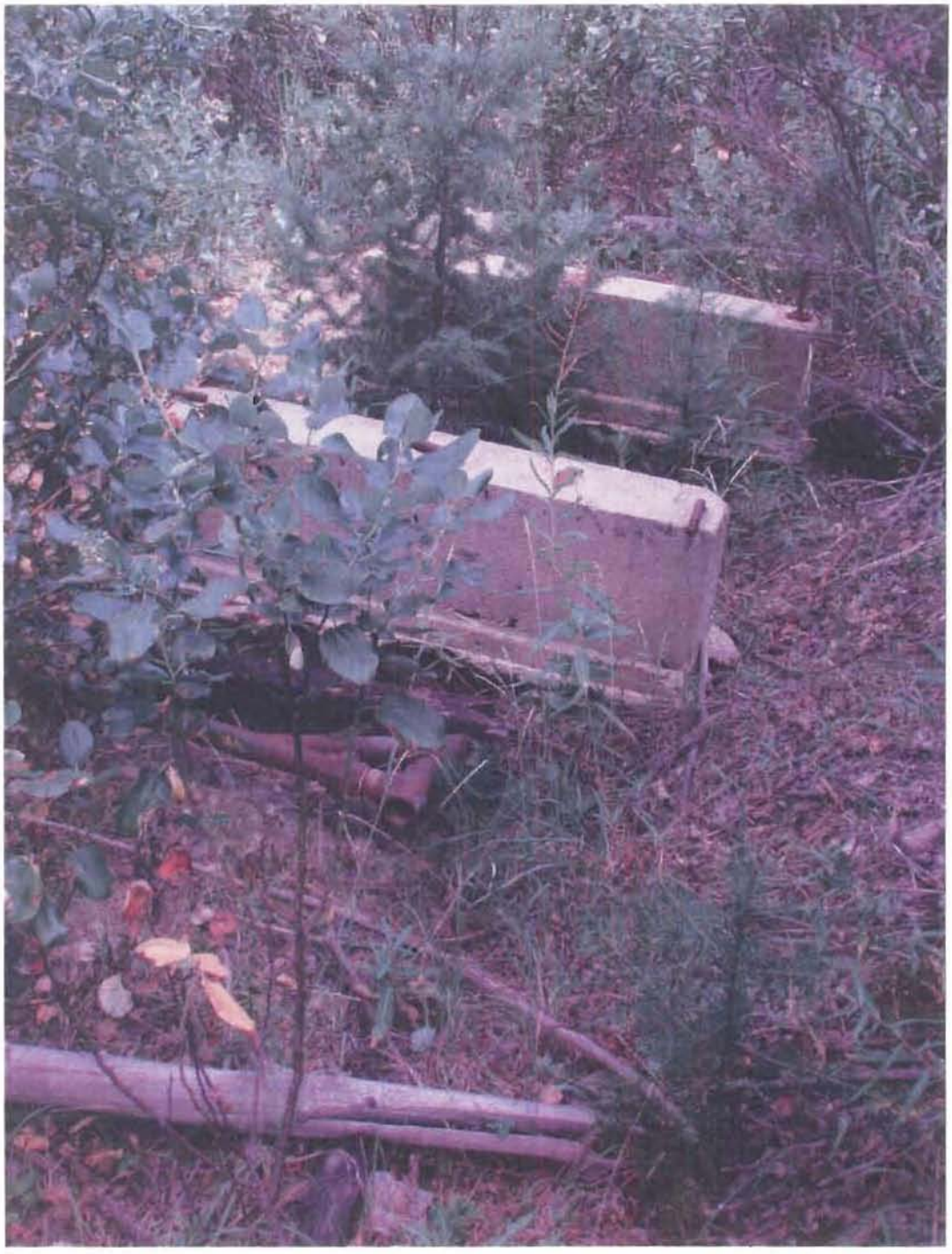


Photo No. 7: View of foundations of former stamp mill and rail line located on south side of Lager Beer Creek

Photo No. 8: View of wetland area in Lager Beer Creek located upstream from mine adit.

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Pete Johansen Idaho DEQ (Name/Title) 12/20/07 (Date)
1410 N. Hilton, Boise, ID 83706 (Address) (208)373-0230 (Phone)
www.deq.idaho.gov (E-Mail Address)

Site Name: Cloverleaf mine

Previous Names (if any): _____

Site Location: Approx. 5 miles NE of Idaho City, (Street)
T 6N, R 6E, Sec 6 (City) _____ (ST) _____ (Zip) - _____

Latitude: N 43° 53' 33" **Longitude:** W 115° 47' 33"

Describe the release (or potential release) and its probable nature: This site was investigated for potential releases of heavy metals and sediment from mine waste dumps, and potential discharges of other deleterious materials, such as petroleum products and ore processing chemicals.

Part 1 - Superfund Eligibility Evaluation

If all answers are "no" go on to Part 2, otherwise proceed to Part 3.	**YES**	**NO**
1. Is the site currently in CERCLIS or an "alias" of another site?		x
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?		x
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (e.g., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?		x
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?		x
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exists (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, or an EPA approved risk assessment completed)?	x	

Please explain all "yes" answer(s).
Historical records research and site visit confirmed that contaminants of concern do not exist in concentrations that present a threat to human health or the environment.

Part 2 - Initial Site Evaluation

For Part 2, if information is not available to make a "yes" or "no" response, further investigation may be needed. In these cases, determine whether an APA is appropriate. Exhibit 1 parallels the questions in Part 2. Use Exhibit 1 to make decisions in Part 3.

If the answer is "no" to any of questions 1, 2, or 3, proceed directly to Part 3.	**YES**	**NO**
1. Does the site have a release or a potential to release?	x	
2. Does the site have uncontained sources containing CERCLA eligible substances?		x
3. Does the site have documented on-site, adjacent, or nearby targets?	x	

If the answers to questions 1, 2, and 3 above were all "yes" then answer the questions below before proceeding to Part 3.	**YES**	**NO**
4. Does documentation indicate that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?		x
5. Is there an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site?		x
6. Is there an apparent release and no documented on-site targets or targets immediately adjacent to the site, but there are nearby targets (e.g., targets within 1 mile)?		x
7. Is there no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site?		x

Notes:

Lager Beer Creek is immediately down slope of the subject site; however, based on analytical results from water samples collected at the site there are no potential risks to human health or the environment. The highest metal concentrations were in the discharge from the Cloverleaf mine adit, which contained arsenic at 0.0281 mg/l. No soil samples were collected of the small waste dump or near the former stamp mill as no obvious signs of environmental contamination were observed.

EXHIBIT 1 SITE ASSESSMENT DECISION GUIDELINES FOR A SITE

Exhibit 1 identifies different types of site information and provides some possible recommendations for further site assessment activities based on that information. You will use Exhibit 1 in determining the need for further action at the site, based on the answers to the questions in Part 2. Please use your professional judgement when evaluating a site. Your judgement may be different from the general recommendations for a site given below.

Suspected/Documented Site Conditions		APA	Full PA	PA/SI	SI
1. There are no releases or potential to release.		Yes	**No**	No	No
2. No uncontained sources with CERCLA-eligible substances are present on site.		**Yes**	No	No	No
3. There are no on-site, adjacent, or nearby targets.		Yes	**No**	No	No
4. There is documentation indicating that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site.	Option 1: APA SI	Yes	**No**	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
5. There is an apparent release at the site with no documentation of targets, but there are targets on site or immediately adjacent to the site.	Option 1: APA SI	**Yes**	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
6. There is an apparent release and no documented on-site targets and no documented targets immediately adjacent to the site, but there are nearby targets. Nearby targets are those targets that are located within 1 mile of the site and have a relatively high likelihood of exposure to a hazardous substance migration from the site.		**No**	Yes	No	No
7. There is no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site.		**No**	Yes	No	No

Part 3 - EPA Site Assessment Decision

When completing Part 3, use Part 2 and Exhibit 1 to select the appropriate decision. For example, if the answer to question 1 in Part 2 was "no," then an APA may be performed and the "NFRAP" box below should be checked. Additionally, if the answer to question 4 in Part 2 is "yes," then you have two options (as indicated in Exhibit 1): Option 1 --conduct an APA and check the "Lower Priority SI" or "Higher Priority SI" box below; or Option 2 -- proceed with a combined PA/SI assessment.

Check the box that applies based on the conclusions of the APA:

x	NFRAP		Refer to Removal Program - further site assessment needed
	Higher Priority SI		Refer to Removal Program - NFRAP
	Lower Priority SI		Site is being addressed as part of another CERCLIS site
	Defer to RCRA Subtitle C		Other: _____
	Defer to NRC		

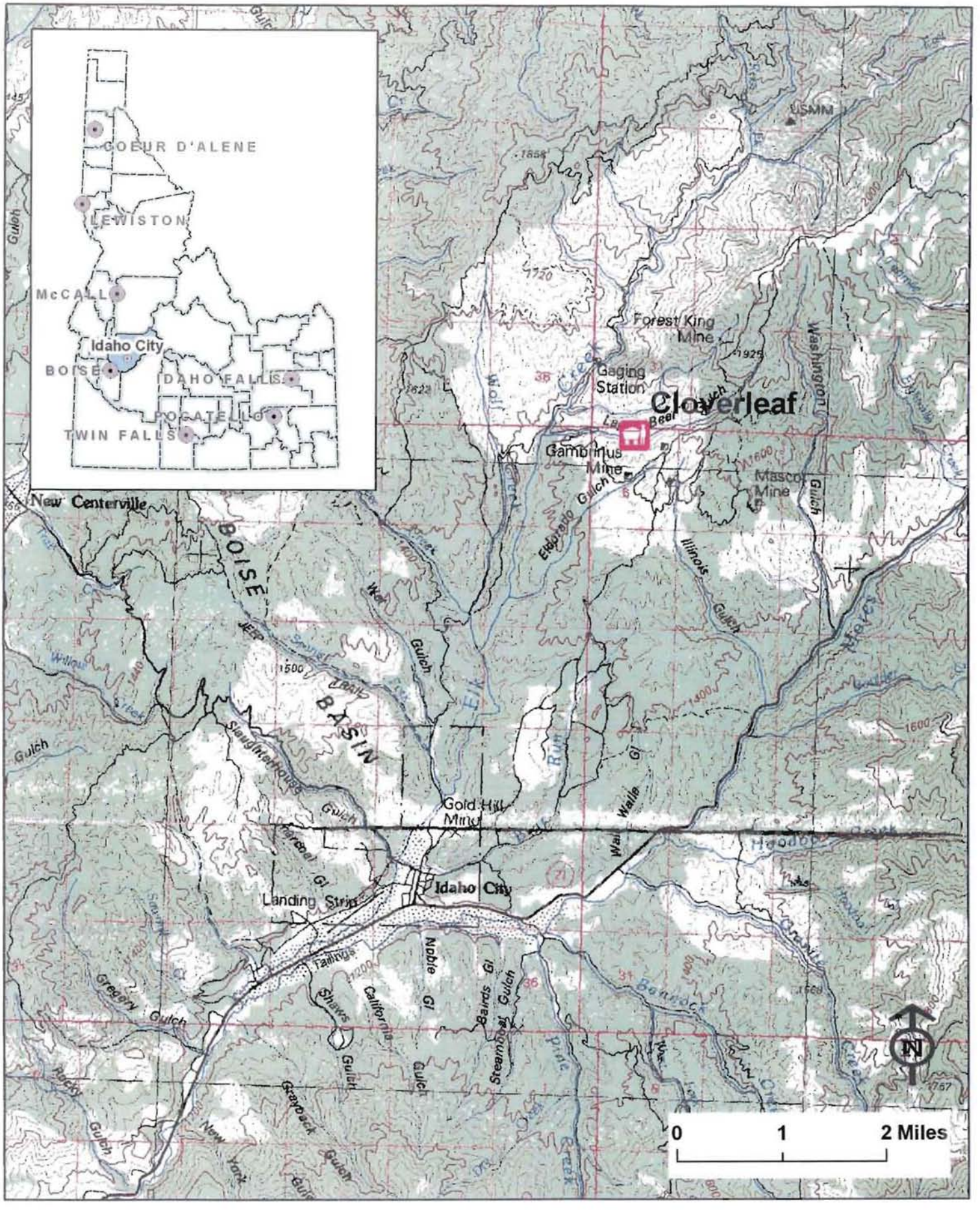
Regional EPA Reviewer: _____ _____

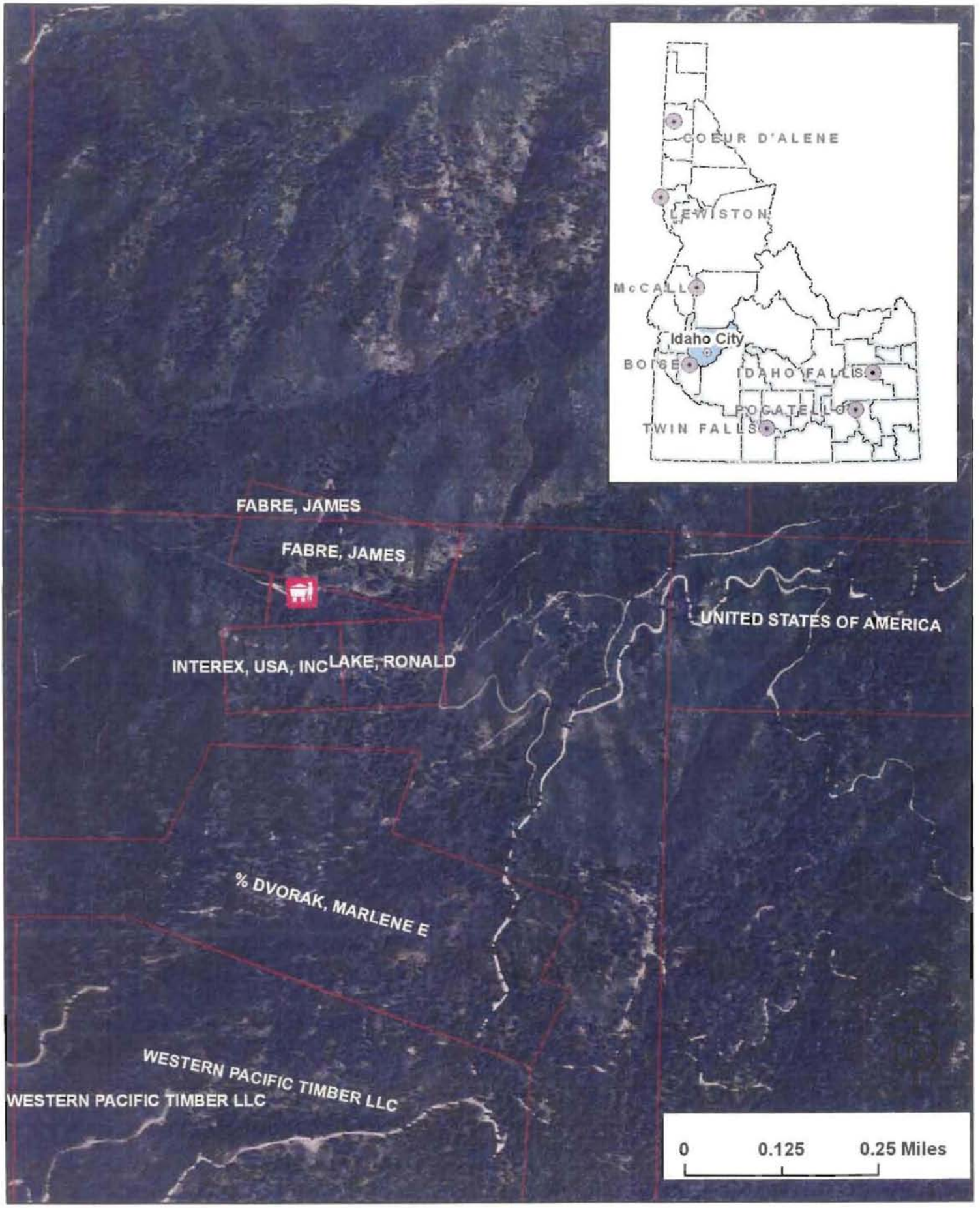
Print Name/Signature Date

PLEASE EXPLAIN THE RATIONALE FOR YOUR DECISION:

Limited mining activity appears to have occurred on the subject site. No impacts from the small waste dump were observed. The discharge from the Cloverleaf adit contained arsenic at 0.0281 mg/l,below the cold water chronic and acute limits. Water samples collected from Lager Beer Creek did not indicate the presence of elevated heavy metal concentrations. No significant threats to human health and the environment were observed.

NOTES:


COEUR D'ALENE
LEWISTON
McCALL
Idaho City
BOISE
IDAHO FALLS
POCATELLO
TWIN FALLS
New Centerville
Forest King Mine
Gaging Station
Cloverleaf
Gambrinus Mine
Mascot Mine
Gold Hill Mine
Idaho City
Landing Strip
BOISE BASIN
0
1
2 Miles
N


COEUR D'ALENE
LEWISTON
McCALL
Idaho City
BOISE
IDAHO FALLS
POCATELLO
TWIN FALLS
FABRE, JAMES
FABRE, JAMES
UNITED STATES OF AMERICA
INTEREX, USA, INC
LAKE, RONALD
% DVORAK, MARLENE E
WESTERN PACIFIC TIMBER LLC
WESTERN PACIFIC TIMBER LLC
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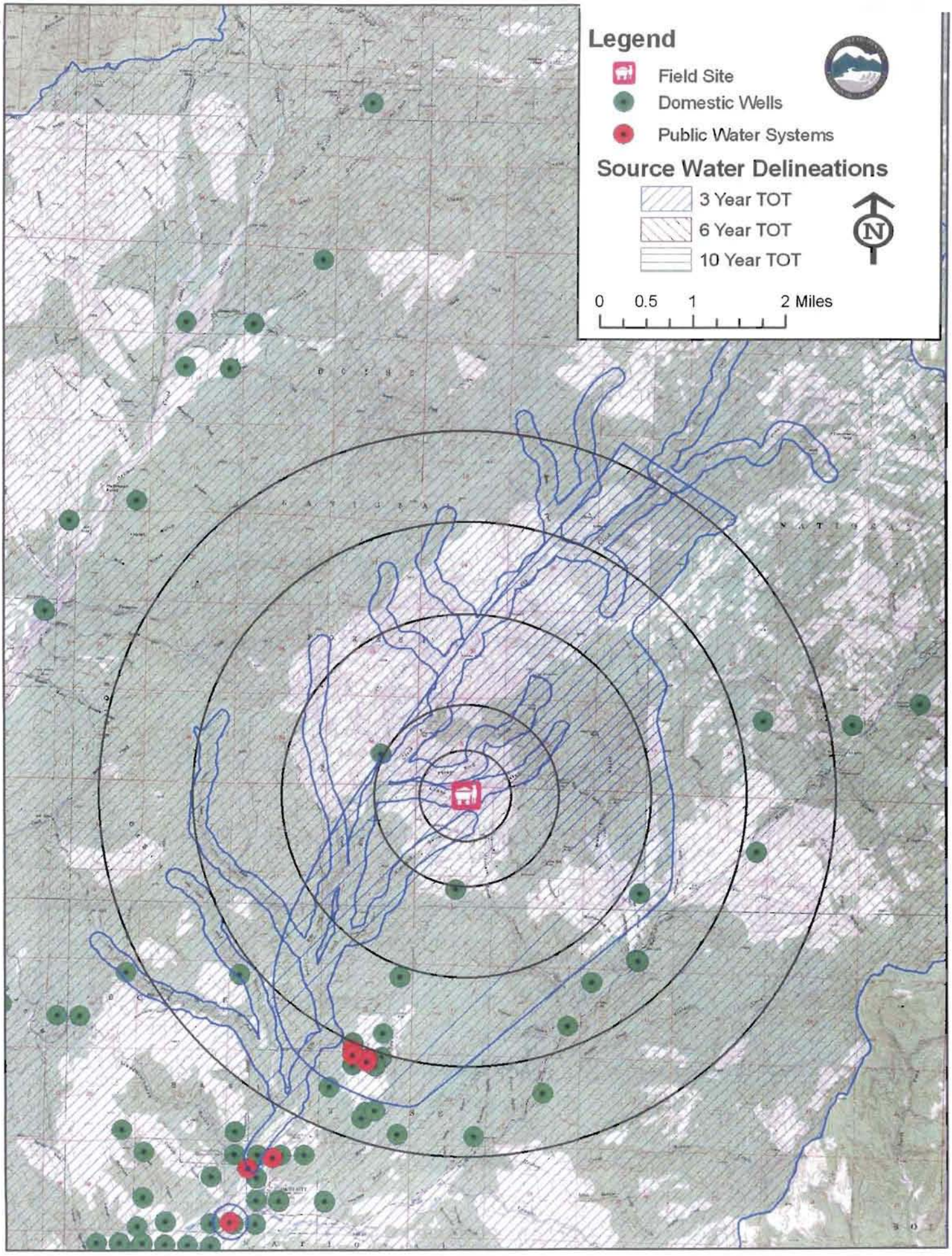
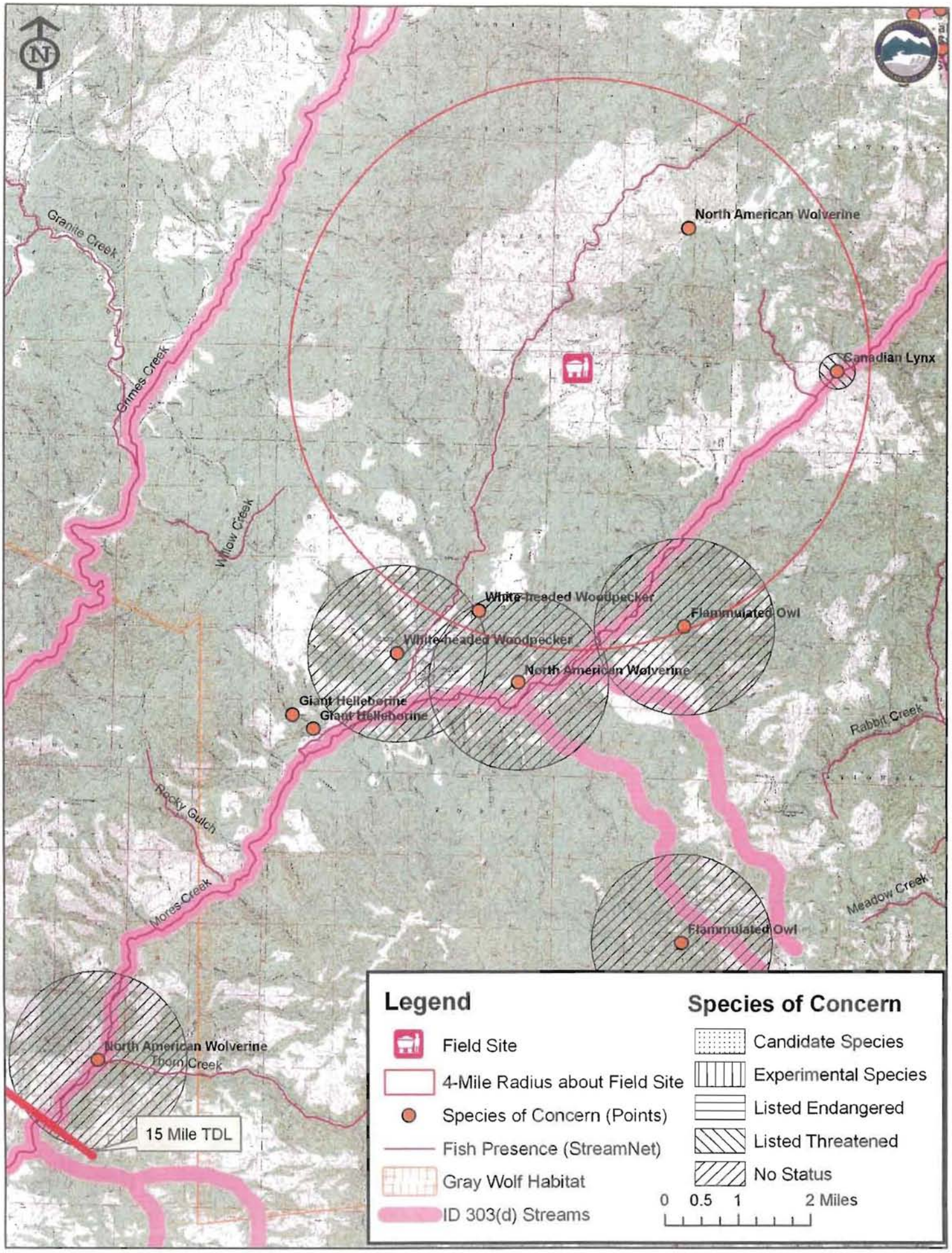
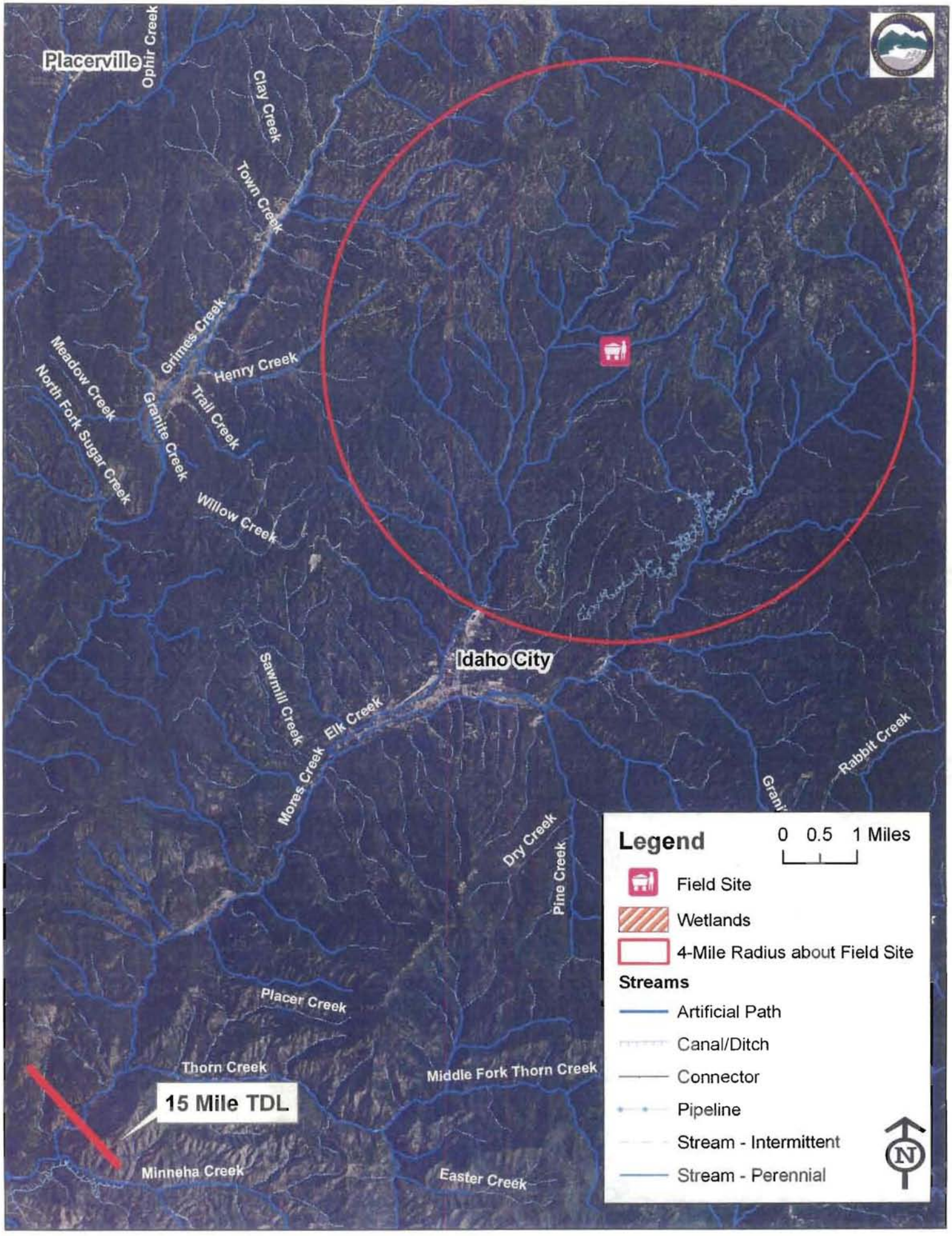
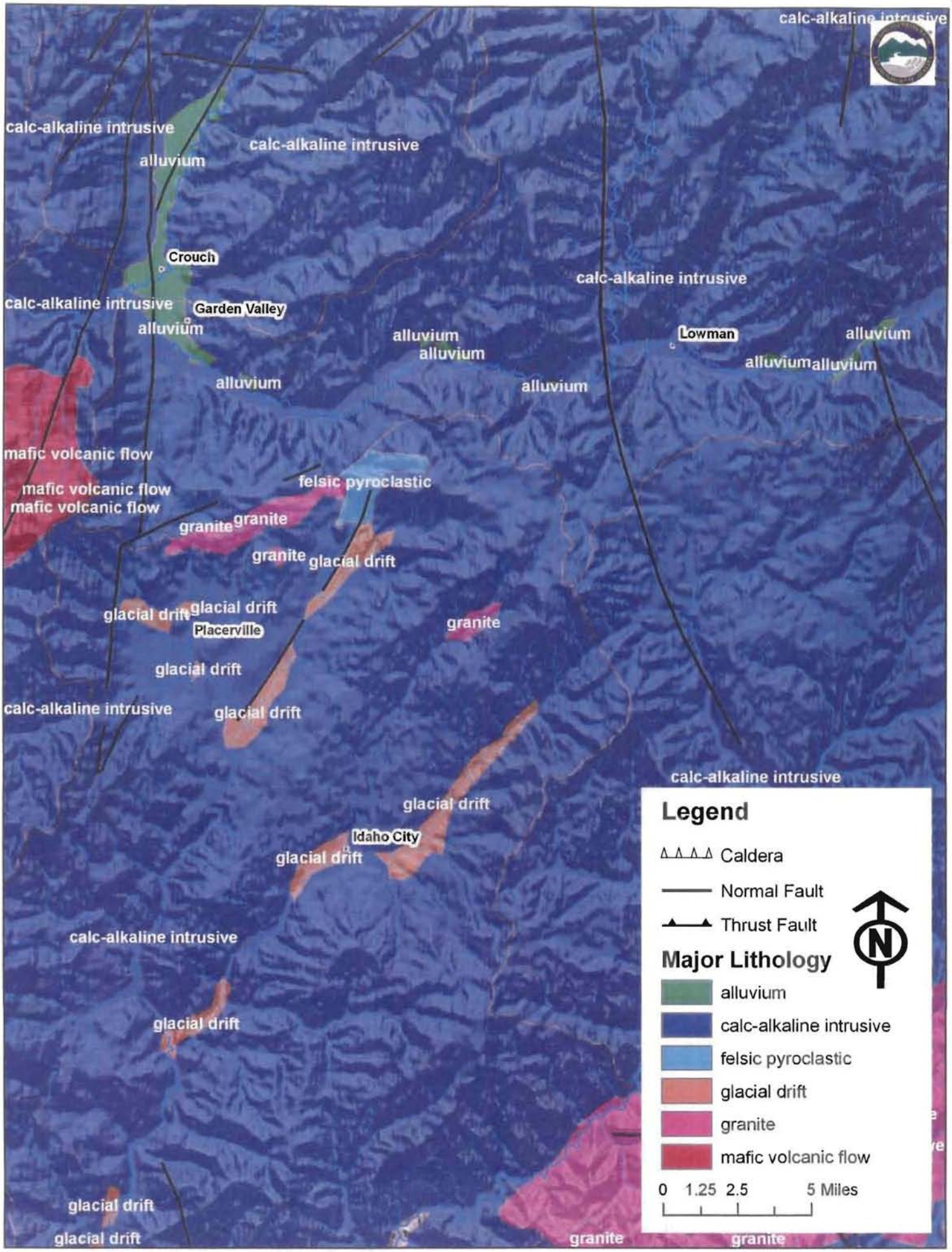
0.125
0.25 Miles


Legend
Field Site
Domestic Wells
Public Water Systems
Source Water Delineations
3 Year TOT
6 Year TOT
10 Year TOT
N
0 0.5 1 2 Miles


Granite Creek
Grimes Creek
Willow Creek
Rocky Gulch
Mores Creek
Rabbit Creek
Meadow Creek
Thorn Creek
North American Wolverine
Canadian Lynx
White-headed Woodpecker
White-headed Woodpecker
Flammulated Owl
North American Wolverine
Giant Helleborine
Giant Helleborine
Flammulated Owl
North American Wolverine
15 Mile TDL
Legend
Field Site
4-Mile Radius about Field Site
Species of Concern (Points)
Fish Presence (StreamNet)
Gray Wolf Habitat
ID 303(d) Streams
Species of Concern
Candidate Species
Experimental Species
Listed Endangered
Listed Threatened
No Status
0 0.5 1 2 Miles


Placerville
Ophir Creek
Clay Creek
Town Creek
Grimes Creek
Meadow Creek
North Fork Sugar Creek
Granite Creek
Henry Creek
Trail Creek
Willow Creek
Idaho City
Sawmill Creek
Elk Creek
Mores Creek
Rabbit Creek
Dry Creek
Pine Creek
Placer Creek
Thorn Creek
Middle Fork Thorn Creek
15 Mile TDL
Minneha Creek
Easter Creek
Legend
0 0.5 1 Miles
Field Site
Wetlands
4-Mile Radius about Field Site
Streams
Artificial Path
Canal/Ditch
Connector
Pipeline
Stream - Intermittent
Stream - Perennial
N


calc-alkaline intrusive
calc-alkaline intrusive
alluvium
calc-alkaline intrusive
Crouch
calc-alkaline intrusive
Garden Valley
alluvium
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alluvium
alluvium
Lowman
alluvium
alluvium
alluvium
alluvium
mafic volcanic flow
felsic pyroclastic
mafic volcanic flow
mafic volcanic flow
granite
granite
granite
glacial drift
glacial drift
glacial drift
Placerville
granite
glacial drift
calc-alkaline intrusive
glacial drift
calc-alkaline intrusive
glacial drift
Idaho City
glacial drift
calc-alkaline intrusive
glacial drift
glacial drift
glacial drift
granite
granite
Legend
Caldera
Normal Fault
Thrust Fault
Major Lithology
alluvium
calc-alkaline intrusive
felsic pyroclastic
glacial drift
granite
mafic volcanic flow
0 1.25 2.5 5 Miles
N

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGY AND ORE DEPOSITS OF BOISE BASIN, IDAHO

Prepared in cooperation with the
IDAHO BUREAU OF MINES AND GEOLOGY

GEOLOGICAL SURVEY BULLETIN 944–C

BLAINE MINE

The Blaine mine is in Illinois Gulch, about half a mile south of the Illinois mine. It is one of the oldest mines in the Gambrinus district but has not been worked for many years. The workings are no longer accessible but are reported to have consisted of a tunnel about 400 feet long, which is probably everywhere within 30 feet of the surface, and crosscuts from the tunnel level. Some ore was milled, but records of production were not available.

The fracture zone, which is reported to be 30 feet wide, strikes west-northwest and dips southwest and, therefore, is like others in the Gambrinus district. It contains the usual quartz seams and stringers.

CLOVERLEAF MINE

The Cloverleaf mine, formerly the MacCarthy, is in the Gambrinus district, near the head of Eldorado Gulch, in sec. 6, T. 6 N., R. 6 E. It is reached by road by way of Elk Creek and Lager Beer and Eldorado Gulches. The property is an old one and after a long period of inactivity was reopened by the Cloverleaf Metals Co. in 1935. Some of the older workings were rehabilitated and additional openings made. In 1937 a 25-ton mill was completed and a small amount of ore treated. Because of failure to find additional ore bodies, work was suspended in 1938. The property comprises one patented and several unpatented claims and one patented mill site. The development consists of about 1,260 feet of underground workings, principally on two tunnels and a shaft, shown in longitudinal section in plate 42.

The deposit is like most of the others in the Gambrinus district and occupies a fracture zone that trends about N. 65° W. and dips 65° to 70° SW., the dip steepening with depth. The ore shoots terminated as the dip steepened and the walls came together. Slickensides along the fracture zone show that the movement was vertical and that the hanging wall moved upward with respect to the footwall. The ore shoots are small. The larger of the two had an average length of about 40 feet, with a maximum stope length of 90 feet. The shoot pitched to the southwest and was mined to a depth of 170 feet below the surface.

The ore is highly quartzose and contains but very little sulfide. Some of the quartz is the early rather coarsely crystalline white to glassy variety, barren of sulfide; some is the fine-grained, almost chalcedonic quartz with finely disseminated arsenopyrite and pyrite, or slightly coarser-grained quartz with small grains and granules of arsenopyrite, sphalerite, and galena, which fill fractures in the early barren quartz; and some is the young coarsely crystalline, in part massive, in part drusy and comby, quartz with small scattered crystals

of auriferous pyrite. The young-stage quartz occurs largely with a breccia of the earlier quartz. Some of the richest ore was reported mined where the second-stage quartz had been fractured and cemented by the third-stage quartz, the sulfides having been effective precipitants of the gold carried in by the youngest ore solutions. The country rock is but slightly sericitized along the lode but in places is slightly impregnated with a little disseminated pyrite.

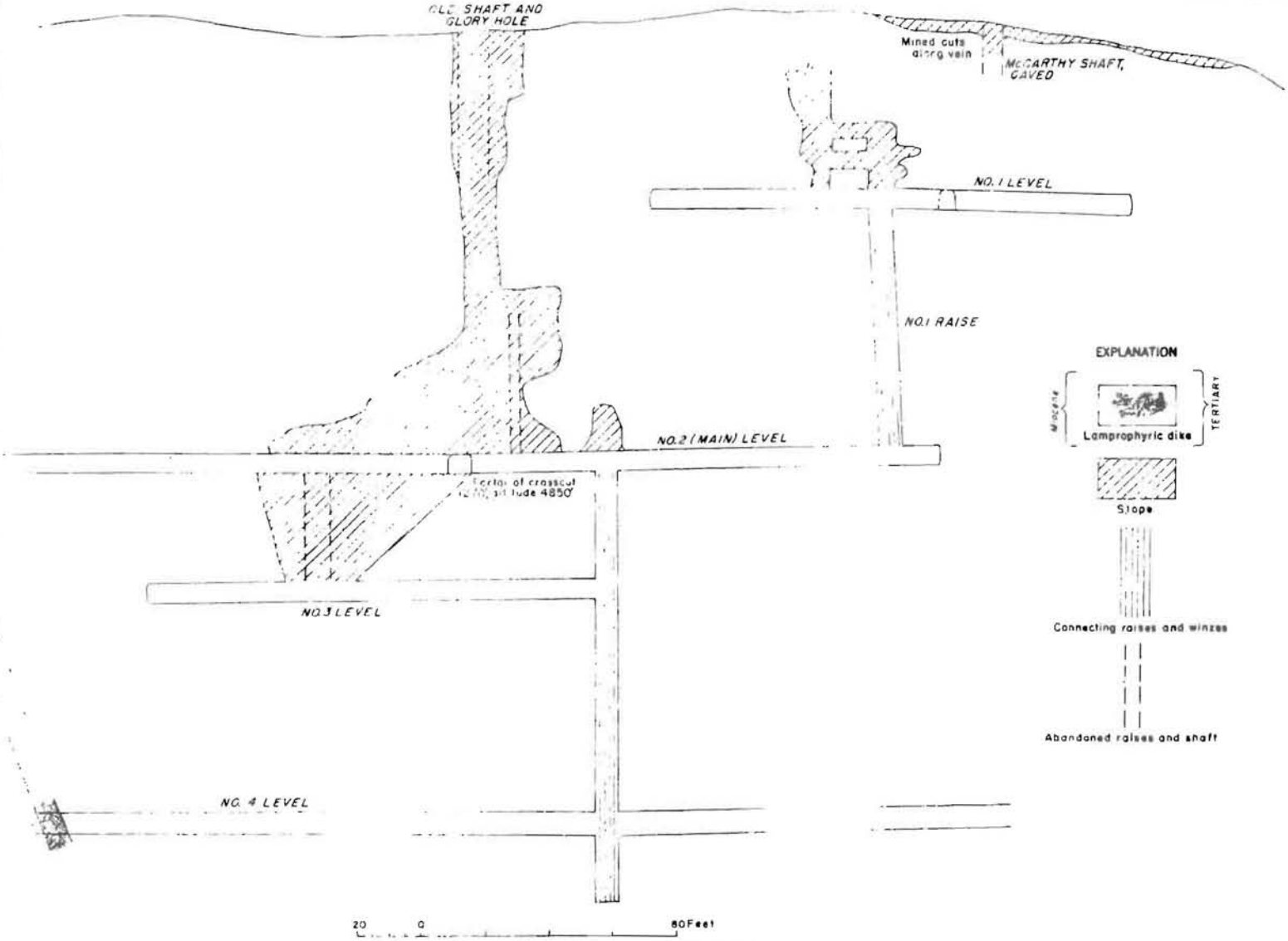
CLEVELAND MINE

The Cleveland mine is in upper Eldorado Gulch, across the gulch from the Cloverleaf mine (formerly MacCarthy), in sec. 6, T. 6 N., R. 6 E. It is one of the oldest mines in the Gambrinus district but, like so many of the old properties, had remained idle from the nineties until taken over by the Cloverleaf Metals Co. in 1937. Most of the older workings in the upper tunnel level were rehabilitated, disclosing two winzes below the tunnel level. Much new work was done from a long crosscut some distance below. As ore of commercial grade was not uncovered at the deeper level, the work was abandoned early in August 1938. An ore shoot about 100 feet long, from which considerable gold was milled in the early days, is reported. A plan of the old and recent workings is shown in plate 43.

The Cleveland fissure strikes about N. 65° W. and dips 60° to 65° SW., the dip increasing with depth. It contains a vein 1 to 2 feet thick, exceptionally as much as 4 feet thick. In places additional quartz seams occur alongside. The fissure shows a marked reverse movement, with prominent vertical striations and grooves on slickensided surfaces. The vein is thicker and the subsidiary seams more numerous where the dip is not so steep. The fissure zone contains much gouge, especially on the footwall.

The lode has been considerably disturbed by Miocene shearing and has been cut by several faults and many minor slips. These faults strike N. 20°–30° E. and dip about 65° SE. One has offset the lode 40 feet horizontally, and grooves and striations on the slickensided plane show that the movement has been northeastward at a low angle. These striations dip southwest at an angle of 20°. The lode has also been cut by a Miocene dacite porphyry dike 15 to 20 feet wide, exposed, however, only in the lower workings (pl. 43).

The ore is like that in the Cloverleaf and consists of the early barren and younger auriferous quartz, as well as minor amounts of the second-stage quartz, with scant amounts of galena, sphalerite, and minute crystals of arsenopyrite. The sulfides are so meagerly represented as to escape detection except in the mill concentrate. The ore deposition, as elsewhere, has been attended with but slight alteration of the fractured wall rock.



LONGITUDINAL SECTION OF THE CLOVERLEAF MINE

732858 O - 47 (Face