May Day Idaho Mine Complex

George Robinson-President
3926 North State Highway 67
Sedalia, Colorado 80135
303.832.7664

DRMS Recd:
8/18/23

August 18, 2023

Mr. Dustin Czapla
Colorado Division of Reclamation Mining and Safety
1313 Sherman Street, Rm 215
Denver, Colorado 80216

Re: OBJECTION TO

Sunrise Mining, LLC
May Day Idaho Mine Complex File No. M-1981 185
Acreage Release Request (AR-1)
Remove 141.5 acres from permit area.

Dear Mr. Czapla:

Wildcat Mining Corporation (WMC) is the owner of the Idaho Mine (141.5 acres) which is presently one of two mining units that comprise Permit No. M1981-185Permit). WMC's Idaho Mine is also the subject of a formal effort by Sunrise Mining Company (Sunrise) to be removed and released from the May Day Idaho Mine Complex that is subject to the Permit. Wildcat objects to the removal and release of the Idaho Mine from the Permit.

WMC is the entity that expended the time, effort and resources to obtain the Permit in 2017, which is a matter of record. In the interim period, WMC has attempted to work with Sunrise to move the joint May Day -Idaho mine project forward but with little cooperation or assistance from Sunrise.

Considering this recent effort by Sunrise to remove the Idaho Mine from the Permit, WMC respectfully requests the Division's consideration and adoption of a resolution that addresses the company's concerns as briefly set forth herein. These concerns have not been addressed or implemented by Sunrise to date. We respectfully request the following concerns be addressed and resolved, at a minimum, prior to any consideration of the removal of the Idaho acreage from the May Day Idaho Mine Permit.

- The Idaho spring and observation well located on the 141.5 acres within the May Day Mine Permit be sampled prior to the May Day Mine bond being released. During the monitoring period, WMC requests split samples and copies of all laboratory analytical results.

  A hydrogeology report in WMC's possession prepared by Dr. David Gonzales-Fort Lewis College. Dr. Gonzales determined the May Day historical flooded mine workings may be a potential

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recharge source to the Idaho Spring. See CDRMS May Day Idaho Mine Permit-M-1981-185 "Updated Surface and Groundwater Characterization-2017 M-1981-185 Volume 1, 51 pages"[1] As a result of the potential recharge to the Idaho Spring, WMC requests a **water quality waiver from the Division and CDPHE** in the likely event future spring or ground water quality concerns are identified.

- WMC requests that Sunrise maintain the installed stormwater management system at the Chief Portal located on the Idaho Mine property and the related, disturbed areas (including roads) pursuant to a **WMC visitor's agreement[2].** (Sunrise Mining visitors access agreement to the Idaho mining claims terminated on 10.22.2021).

- Surface and mineral lands and permit boundaries associated with the May Day and Idaho Mine sites must be surveyed, staked or pinned and recorded for regulatory purposes and for WMC's documentation.

- To minimize and prevent the potential for surface and ground water quality degradation from the May Day mining operations, Sunrise should be required to determine and obtain regulatory acceptance that a mine bulkhead is not required.

- Sunrise must be required to return WMC's mining equipment from the May Day Mine site and store the equipment in WMC's on-site warehouse.

On behalf of WMC, I look forward to discussing these and other matters with you in the near future. Please advise if you would like to discuss any of these issues directly as I stand ready and willing to do so.

Regards

George M.L. Robinson-President
Wildcat Mining Corporation -Idaho Mine
3926 North State Hwy 67
Sedalia, Colorado
80135

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[1] Submitted via e-mail to Mr. Dustin Czapla on August 18,

[2] (Sunrise Mining visitors access agreement to the Idaho mining claims was terminated on 10.22.2021 and has NOT been renewed).

Updated Surface and Groundwater Characterization-2017
M-1981-185
VOLUME 1

May Day Idaho Mine Complex

Prepared for
Colorado Division of Reclamation Mining and Safety
January 22, 2017

Surface and Groundwater Characterization

May Day Idaho Mine Complex
La Plata County, Colorado

Prepared for:
Colorado Division of Reclamation Mining and Safety
M-1981-185
January 22, 2017

Prepared by:

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May Day Idaho Mine Complex
La Plata County, Colorado

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La Plata County, Colorado
January 19, 2017

1.0 INTRODUCTION

The May Day Idaho Mine Complex is located in the southern portion of the San Juan Mountain approximately 15 miles west of Durango, Colorado. The OPERATOR plans to operate a gold (Au) and silver (Ag) underground mine with the intention of commencing mining in 2017 pending the receipt of all necessary permits and authorization. One major environmental study that has been ongoing since 2007 is the baseline characterization of surface and groundwater resources associated with the 274 acre mine permit boundary. The following provides an overview of the mining district and a site water resource assessment.

2.0 BACKGROUND

In 1874, a few cabins of Parrott City, later renamed Mayday, were one of a handful of scattered settlements in the La Plata Mountains a sub-area of the San Juan Mountains. Mayday is the entry to the La Plata mining district, also referred to as the California Mining District (Figure 1). This District is famous for epithermal Au-Ag telluride mineralization, but also has been mined for base-metal deposits some of which contain platinum-group elements (Eckel, 1933, 1949; Werle, 1983; Werle and others, 1984).

Metal mining in the La Plata Mountains dates back to the middle of the 18th century when Escalante's expedition of 1776 discovered workings from earlier Spanish mining efforts (Bancroft, 1890). The first recorded discovery of ore deposits in the district was in 1873 when placer gold was discovered in the La Plata River, along with what was named the Comstock Lode.

Gold-placer deposits never yielded significant rewards, but hundreds of load claims were filed in 1875 with the discovery of silver-gold deposits in the district (Petre, 1898; Eckel, 1949).

Significant metal production in the LaPlata Mountains was realized mostly between 1900 and 1940 (Eckel, 1949) with the discovery of economic deposits at several mines: the subject May Day-Idaho as well as the Neglected, Gold King, Incas, and Red Arrow.

It is estimated that the May Day Idaho Mine complex produced over two thirds of the total production in the district with the May Day Idaho mine complex accounting for about half the total wealth generated (Eckel, 1949). Total recorded production from the La Plata district through 1949 was about 213,000 ounces of gold, 2,035,000 of silver, 296,000 pounds of copper, 738,000 pounds of lead, and 8,000 pounds of zinc (Eckel, 1949; Vanderwilt, 1947, Del Rio, 1960 summarized by Neubert, 1992). Other productive mines were later developed, including the Bessie G mine (Saunders and May, 1986)

The May Day Idaho mine complex is located on the southern flank of the La Plata Mountains; represent some of the oldest and most productive mines in the La Plata mining district. Mining on these properties started in 1902 and continued until around 1937. During this early period the mines produced around 133,000 ounces of gold, 1,140,000 ounces of silver, 24,000 pounds of lead, 8,000 pounds of zinc, and 1,500 pounds of copper (Eckel, 1949; Neubert, 1992). The May Day mine alone produced approximately 75,000 ounces of gold and 759,000 ounces of silver. There have been several attempts to explore and mine the deposits on this property since World War II, as well as the present operation.

The precious-metal deposits in the La Plata Mountains are telluride mineralization associated with potassic igneous rocks (e.g. Mutschler and others, 1991, 1992; Mutschler and Mooney, 1993: Richards, 1995; Kelly and Ludington, 2002). The deposits in the La Plata district represent the most recognized Au-Ag telluride deposits in southwestern Colorado. Recent work in the deposits of the May Day Mine has revealed a complex history of mineralization involving an early phase dominated by base metals which was followed by a later stage of Au-Ag mineralization. (Gonzales, 2011)

Access to the La Plata district mining district is excellent. Major highways and roadways allow access to the May Day-Idaho mine complex.

3.0 PURPOSE

The primary purpose of this study is to characterize surface and ground water and provide a conceptual model of ground water flow in the general vicinity of the May Day Idaho Mine Complex. The secondary purpose of the conceptual model is to provide a postulated flow regime description that accommodates discharge from the Idaho No. 1 mine portal and to describe potential sources of that discharge. The majority of the data for this study is from literature and collected water quality data as noted in the document. In addition; specific additional information regarding onsite conditions was provided by Dr. David Gonzales which he provided (anecdotal personal communication).

4.0 GEOGRAPHY

The area in question is located on the nose of a southerly sloping hillside bounded on the southeast by Little Deadwood Gulch and on the west by the La Plata River. The elevation increases in a northerly direction to the La Plata River drainage divide which is located approximately 8 miles north of the mine.

The May Day No.1 and No. 2 and the Idaho No. 1 and No. 2 Mine Portals are located in the Little Deadwood Gulch watershed that drains into the La Plata River (See Figure 2).

The portal of the Idaho No. 1 mine is situated at approximately 8,792 feet above mean sea level (AMSL). The portal of the May Day Mine No. 1 is located approximately 9,235 feet AMSL.

5.0 CLIMATOLOGY

The May Day Idaho Mine Complex is located in the Little Deadwood Gulch drainage of San Juan National Forest (sub basin 14680105). The climate in this portion of the central Rocky Mountains in southwestern Colorado can be variable with notable differences in microclimate due to slope, aspect, and elevation. Elevations on the site range from 8,600 feet (AMSL) along the La Plata River floodplain to approximately 9,600'.

Typical mid-summer afternoon temperatures are in the upper 70 degrees Fahrenheit (F^o), with nighttime around 40^oF[1]. Conversely, the wintertime high temperatures are around 40^oF, with nighttime in the low 10^oF (Figure 3). In general, since temperatures decrease with elevation with mountainous terrain, the lower portion of the site may be warmer than the higher locations. Summer afternoon temperatures can decrease about 4 to 5^oF per thousand feet in elevation.

The average annual precipitation for this area is 18.0". This tends to be received throughout the year with most months receiving at or greater than 1" of rain or water equivalent as snow (Figure 4). Late summer through early fall receives the most moisture with July and December typically getting over 2 inches. On average, rainfall is lightest in midsummer, with June being the driest month. Deviations from these averages are high both within months and between years.

In summer, Baldy Peak and the surrounding ranges are effective thunderstorm generators whenever the regional air masses are sufficiently moist. The last half of July and much of December are particularly prone to mountain thunderstorms. Snow and soft hail are possible from mountain storms even in July and December.

Winter precipitation generally falls as snow from October through April. The mean annual snowfall for this area over the last 50 years has been 80" with over 15" per month falling between December and February (Figure 5). A portion of this snow melts during the warmer days; however, some snow accumulates without melting during midwinter, particularly in north-facing, shaded and level areas. This accumulation and melt results in an average on ground snow depth of 12 to 15" during January and February. The remainder of the snow melts during May and June resulting in water run-off.

[1] All climate data is from the Fort Lewis weather station as reported by the High Plains Regional Climate Center: http://www.hprcc.unl.edu/cgi-bin/cli_perl_lib/cliMAIN.pl?co3016 available July 16, 2010.

6.0 SURFACE WATER HYDROGEOLOGY

6.1 General Characteristics

The La Plata River is a 70-mile-long river (110 km) that is tributary to the San Juan River and San Juan County, New Mexico. This small river originates at the western foot of Snow Storm Peak in the La Plata Mountains of southwestern Colorado, approximately 35 miles north of the New Mexico State line. The La Plata flows in a southerly direction until it joins the San Juan River at the western edge of the city of Farmington, New Mexico, about 19 miles south of the Colorado State line.

6.2 Surface Water Monitoring

The May Day Idaho mine project area is drained by Little Deadwood Gulch, and the La Plata River. The Little Deadwood Gulch drainage area is approximately 450 acres. There are two surface water quality monitoring stations on Little Deadwood Gulch Drainage, two surface water quality monitoring stations on the La Plata River and one sampling station in the wetlands adjacent to the La Plata River.

Surface water and groundwater quality monitoring station locations are depicted on Figure 6. One monitoring station is located on the La Plata River (LP-01) up steam of the active mine site activities and one surface water monitoring station (LP-02) is located downstream. Surface water samples are also obtained from a historical mine tailings pond which is a designated wetland. The wetland is located within the La Plata River floodplain and within the May Day Idaho mine permit area.

There are two surface sampling stations on Little Deadwood Gulch-one station is located upgradient of the May Day Idaho permit area (DG-1) and down gradient of the adjacent Incas mine site. The second monitoring station is located on Little Deadwood Gulch (DG-2) immediately down gradient of the May Day No. 2 mine affected area.

The OPERATOR has conducted surface water sampling from the project area since 2007. Site water quality sampling and characterization is ongoing and will continue during mining to determine and report if the environmental baseline water quality characteristics have changed over time.

6.3 Surface Water Quality

Surface water quality and flow data are presented in Section 7.3. In summary, surface water quality data indicates there are no constituents of concern, where total dissolved solids are less than 100 milligrams per liter (mg/l). Surface water pH ranges from 7.3 to 8.1, and alkalinity is typically less than 50 mg/l.

Groundwater has low manganese concentrations (typically less than 0.050 mg/l), whereas, the sulfate high was 190 mg/l (but typically less than 50 mg/l). There are no analyzed trace metals of concern.

7.0 GROUNDWATER HYDROGEOLOGY

7.1 Geology

The La Plata Mountains are a laccolithic type mountain group produced by the domal uplift of sedimentary rocks intruded by igneous stocks, dikes and sills (Eckel, 1949). Sedimentary rocks present within the La Plata district are shown within Table 1.

The mine sites are located at the northern boundary of the San Juan Hydrogeologic Basin (Topper *et. al.*, 2003). The Morrison Formation aquifer is the only designated hydrogeologic unit of the San Juan Basin present within the permit area. Insufficient data exists in the northern part of the San Juan Basin, including the May Day Idaho mine site, thus precluding the preparation of representative potentiometric surface maps (Dam *et. al.*, 1990).

Levings *et. al*. (1996) prepared a conceptual model describing groundwater flow within the San Juan Basin and the relevant controlling factors. The Morrison Formation is underlain by a confining layer (Wanakah Formation).

The conceptual model of the San Juan basin developed by Levings *et. al.* (1996) includes the following components:

- Precipitation on outcrops;
- Stream channel loss as streams cross outcrops. (losing stream) ;
- Discharge;
- Springs and seeps in topographically low parts of the outcrop; and
- Discharge from outcrop to stream channels.

The Mayday and Idaho mines are located within southward-dipping sedimentary rocks cut by a series of east-west faults. Ore-bearing veins are north-trending, mainly found within the Entrada Formation (Eckel, 1949).

The general stratigraphic relationship (from youngest to oldest) is:

- Morrison Formation. Consists of upper Brushy Creek member bentonitic mudstone and lower Salt Wash member interbedded fine-grained gray sandstone and green-gray mudstone. The Morrison formation unit does not host economic mineralization.

- Junction Creek Sandstone. Light-gray to tan, highly cross-bedded to massive, fine- to coarse-grained eolian sandstone (ore bearing).

- Wanakah Formation. Consists of two members. The upper marl member is mostly white to tannish to pale-reddish colored, fine-grained sandstone, mudstone, and marl. The Pony Express Limestone member consists of medium- to dark-gray, very thin-bedded to laminated, micritic and algal limestone. The Pony Express member is locally brecciated, intruded by sand dikes, and is host for mineralization.

- Entrada formation. Light-gray to white, fine- to coarse-grained highly cross-bedded ore-bearing sandstone. The Entrada sandstone frequently has prominent large-scale cross-bedding and hosts gold mineralization

- Dolores formation. Mostly dark-red-brown to purple-brown shale and siltstone and brown, gray, and red-brown lenticular sandstone and limestone-pebble conglomerate.

The May Day Idaho Fault System consists of two eastward-trending reverse faults, each with a downthrown to the south with vertical displacement along the two faults of 350-475 feet (Eckel, 1949).

Based on Eckel's mapping (Figure 7), the Idaho No. 1 portal is situated on a west southwesterly facing slope with the surface geology consisting of the Entrada Sandstone (Figure 7). The Idaho No. 1 tunnel generally follows an easterly trend along the Idaho Fault. At the entrance to the Idaho No. 1, this places the Dolores Formation (northern fault block) in contact with the Entrada Formation (southern block) in this area with the Idaho No. 1 apparently following the fault where the offset has occurred.

The May Day No. 1 portal appears to be in the Morrison formation proximal to the May Day fault. Again, based on Eckel's mapping, there is a thin sliver of Junction Creek sandstone on the up thrown side of the May Day fault that is in contact with the Morrison Formation on the downthrown side of the fault. In this vicinity, the Idaho fault is extremely close to the May Day fault (approximately 200 feet north) and the May Day No. 1 entry appears to cross both faults. While, this is based on mapping (by others), this would presumably create an access to all of the major geologic/hydrogeologic units in this area.

The Mayday and Idaho mines are located within southward-dipping sedimentary rocks cut by a series of east-west faults. The sedimentary units associated with the mines are presented in Table 1. Ore-bearing veins are north-trending, mainly found within the Entrada Formation (Eckel, 1949). The Mayday Idaho Fault System includes two eastward-trending reverse faults, each with a down throw to the south with vertical displacement along the two faults of 350-475 feet.

There is little published information regarding groundwater conditions in the vicinity of the mine site. A review of well permits (Appendix A) indicates that most wells are located either within La Plata River alluvial material, the sandstone (presumed to be the Morrison Formation) north of the fault system or the Mancos Shale south of the fault system.

One main, perennial spring has been identified on the Idaho Mine site at an elevation of approximately 8,778 feet, located within the Entrada Formation.

7.2 GROUNDWATER

Groundwater in the area is characterized as low flow through porous media and along fractures and faults. Fracturing of the local formations locally increases the secondary permeability; as a result, the transmissivity (flow) also is increased locally. Offsets due to faulting create discontinuous hydrologic blocks which tend to prevent or impede porous flow.

Generally, recharge to the groundwater system is from:

- Precipitation and snow melt on outcrops; and
- Stream channel loss to the formations as streams cross outcrops or fractures

Generally, discharges to the groundwater system are from springs and seeps in topographically lower parts of the outcrop.

In general, the underlying porous media (Table 2) would have the following relative hydrogeologic properties based on the composition of the formations and limited laboratory tests by Trautner Geotechnical Consultants (Appendix B).

When examining the recharge potential for the site, it would appear to be extremely low as the underlying geologic formations are generally low permeability layered material which would inhibit water recharge from the slopes to the underlying formations. In addition to the low permeability material, onsite observations indicate that the alluvial/fluvial cover on the hillsides is extremely thin and the hillsides are relatively steep gradient (30%). These two factors will tend to reduce the time of concentration of any overland flow from precipitation or snow melt events thus minimizing the amount of recharge that could enter the ground water system. Additionally, the faulting in the area has caused offsets of geologic formations that place units of differing permeability and porosity in contact with each other thus effectively limiting the flow of potential recharge water from areas of high potential to lower potential. Frequently, if geologic formations of differing permeability are in contact on slopes where recharge is occurring, the near surface recharge is forced back to the surface and either perched springs or enhanced vegetation such as aspen, can be found along these zones. Finally, this same faulting has created small, isolated areas for potential recharge to infiltrate the bedrock in the local vicinity (within the upgradient watershed areas). For recharge to be effective in the environment presented by Southern Colorado, large areas of exposure are needed to collect runoff and snowmelt for effective recharge.

It has been noted that where the La Plata River and Little Deadwood Gulch flow across more permeable formations, such as the Entrada sandstone, the streams are losing streams in that flow upstream of the formational contacts maybe taken up by the formation that it is crossing. Once less permeable bedrock is encountered, the streams again exhibit an increase in surface flow.

The nature of the fracture lengths and apertures of the fracturing are not well characterized within the La Plata drainage. However, as the vast majority of the fractures are in-filled with vein deposits, it is not unreasonable to speculate that there is a thin zone of fractures in the porous media adjacent to the in-filled veins and that the veins themselves are relatively impermeable. Therefore, any flow from the porous media that intersects the veins, follows the vein deposits based on the potentiometric heads. When an underground working intersects a vein, it offers a line sink (drain) for the intercepted groundwater to discharge into the workings probably from the enhanced permeability zone in the fractures adjacent to veins and faults.

Observations of occurrence of water and also staining and evidence of water inflow into the various underground workings in the immediate vicinity of the Idaho and May Day Mines supports the contention that there is only minor groundwater flow locally in the upper formations that will contribute to flow in the mine area(s).

The OPERATOR installed four groundwater wells and one seep to characterize groundwater quality, and to determine potential well yields and to determine groundwater flow direction:

- The Idaho well (Permit #285909) was initially drilled, however no water was encountered to a depth of 225 feet below ground surface (bgs) in general proximity of the Idaho Seep (Appendix C);

- The well in close proximity to May Day No. 2 mine portal was completed at a depth of 205 feet bgs with a production rate estimated to be 1.5 gpm (Permit #285910). The static water level eight hours after drilling stabilized at 53.6 feet bgs.

- A well was also completed adjacent to May Day No. 1 mine portal. The well (Permit #287129) was competed at a depth of 180 feet bgs with an estimated production rate of 0.1 gpm. The static water level after eight hours of drilling; stabilized at 131.8 feet bgs

- A twenty foot well (Permit #287229) completed in the La Plata River alluvium production rate was estimated to be 18 gallons per minute (gpm) with a static water level of 8 feet (bgs)..

With the exception of the alluvial well, the completed monitoring wells are characterized as low producing (< 2 gpm). The Idaho and May Day No. 2 well have surface elevation of approximately 8,810 feet above mean sea level (amsl) and static water levels estimated to be at an elevation of 8,640 feet (amsl). The water level elevation in the La Plata River is approximately 8,650 feet (amsl). The water producing zones in the completed wells is approximately the same elevation of the La Plata River and suggests the La Plata River may be recharging the completed Idaho and May Day No. 2 wells. Static water levels will be observed during future monitoring events to determine if the recharge flux is towards or from the monitoring wells.

Well completion records are summarized in appendix C.

7.3 SURFACE AND GROUNDWATER QUALITY

Site water quality grab sampling commenced in 2007 with quarterly sampling commencing in 2010. Surface water sampling was collected from five stations in 2010 Two sampling sites were located on the La Plata River and another two were located on Little Deadwood Gulch a tributary to the La Plata River. The fifth sample location was established (May, 2011) in a historic tailings pond less than 10 feet from the LaPlata River.

Four groundwater wells were installed and sampled in 2012. A well was located in the La Plata River alluvium and the others were located near the Idaho building, May Day No. 1 portal and the May Day No. 2 portal

7.3.1 Surface Water Quality

The water quality reference information follows:

- Table 3a Analyte list;
- Table 3b Analytical methods used and laboratory detection limits;
- Table 3c Groundwater quality standards;
- Table 3d Sampling frequency summary.

Surface water samples were taken in accordance with the following Operators Standard Operating Procedures (SOPs):

- Surface Water and Seep Sampling(SOPs) ;
- Stream Flow Measurements(SOPs); and
- Sample Chain of Custody(SOPs)

Surface water samples have been obtained from the La Plata upstream (SW-1-Table 4) and La Plata downstream of the mine site (SW-2-Table 5); Deadwood Gulch above (DG-1 Table 6), below (DG-2-Table 7) the mine site on Deadwood Gulch and samples from the Wetlands (Wetlands Table 8). Surface water sampling sites were established in May of 2010 with the exception of the wetland sampling site. The wetland sampling site was established in May 2011 at the request of CDRMS. It is important to note that samples were not obtained from a sampling site if there were no flows, or if the site was snow covered as noted in the November, 2010 through 2016 sampling results.

The Colorado Division of Public Health and the Environment Water Quality Control Division (CDPHE) stream classification associated with the May Day Idaho Mine Complex is CosJLP01 with a “temporary use” water quality designation. The segment is described as the “main stem of the La Plata River, including all wetlands and tributaries from the source to the Hay Gulch diversion south of Hesperus” Colorado. The surface water quality standards pertaining to the mine site are summarized in Tables 2 through 4, (5CCR 1002-31). The Basic Standards and Methodologies for Surface water are presented with the exception of providing a standard for total residual chlorine, sulfide and asbestos.

Since five (5) quarterly samples have been obtained from the Upper Deadwood Gulch sampling (DG-1) station and two from the designated La Plata Wetlands sampling site (LP-1), future l sampling/testing at these site will be performed on a biannual basis (twice a year).

In general, surface water quality characteristics can be considered excellent. Dissolved metals, totals and total recoverable solids and nutrients, are low. The pH is consistently recorded at 7.3 and less than 8. The existing water quality meets physical, biological, inorganic and metal standards for the period of record. In addition, the Division stated the OPERATOR after "five sampling events, water quality analytes have repeatedly registered undetectable concentrations in the analysis will be deleted from future surface water sampling events: aluminum, ammonia, antimony, beryllium, boron, cadmium, cobalt, cyanide, lead, iron, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, uranium, vanadium. Thus, these analytes have been removed from further sampling /analytical events.

7.3.2 Groundwater Quality

Groundwater samples have been taken from the Idaho seep and four wells (one alluvial and the others are proximal to the mine portals. The Idaho seep (Table 9), the May Day No. 1 Portal Area Table 10; the May Day No. 2 Portal Area (Table 11); La Plata River Alluvium (Table 12), and the Idaho Well (Table 13).

Ground water samples were taken in accordance with the Standard Operating Procedures for the following:

- Purging and Sampling Monitoring Wells;
- Groundwater Sampling;
- Monitoring Well Installation;
- Well development; and
- Pumping Tests

Site groundwater quality can also be considered excellent. Total metals are low and nutrients are non-existent. The pH is consistently recorded at 7.3 or above and less than 8. Colorado Department of Public Health and the Environment (CDPHE) pH discharge limits range between 6.5 and 9. Groundwater quality conforms to Colorado Groundwater water quality standards (Table 3)[2]. Water quality testing was not required for the following parameters: coliforms, asbestos, chlorophenol, color corrosivity, foaming agents, odor, phenol, gross alpha particle activity and beta/photon emitters. (Dustin Czapla, Environmental Protection Special Correspondence May 29, 2012). In addition, The OPERATOR analyte list would be reduced if "after five sampling events, analytes that repeatedly register undetectable concentrations in the analysis may be eliminated subject to DRMS approval. (Czapla, Dustin, May 29, 2012) Based on

[2] CDPHE WQCC (5CCR 1002-41, the Basic Standards for Groundwater-Tables 2-4

sampling results the following elements will be deleted from future groundwater sampling events: aluminum, ammonia, antimony, beryllium, boron, cadmium, cobalt, cyanide, lead, mercury, molybdenum, silver, thallium, uranium, and vanadium.

8.0 CONCEPTUAL HYDROLOGIC SITE MODEL- MINE INFLUENCE HYDROGEOLOGIC SITE MODEL

The following is a summary of the results of a conceptual mine site flow modeling for the May Day Idaho mine complex. The May Day mine drainage has been confirmed by observation, whereas, the Idaho Mine drainage has not been field validated because of limited access to the underground workings. As previously discussed, the major controls to groundwater flow are geologic fractures, low permeable sedimentary aquifers and historic underground mine workings. Historic mine workings have partially drained the May Day and Idaho Mines, as briefly discussed in the following sections.

8.1 May Day Mine Property

Figure 7 is a conceptual block model of the geologic and mine workings associated with the overall mine site. The block model illustrates the location of adits, winzes, cross cuts, drifts, faults, veins, geologic formations and structure. Figure 8 illustrates the underground flow direction of May Day No. 1. The monitoring well proximal to the May Day No. 1 portal (MD-1) appears to suggest static water levels respond to thunderstorms and snow melt infiltrating into underground workings. The aquifer adjacent to the May Day No. 1 workings exhibit low permeability (well yields are less than 2.5 gpm) and the underground workings are essentially dry throughout the year, (Gonzales, 2010). The May Day No. 1 Adit and mine workings are above 9,300 feet asl and are approximately 100 feet above the static water level identified in May Day No. 2 (MD-2) water monitoring well.

The flow in the May Day No. 2 mine workings is approximately 45 feet below the May Day No. 2 workings is illustrated on Figure 9. Water identified in May Day No. 2 mine workings appears to originate from fractures and very low flows from the adjacent low permeable geologic sandstone and shale. The May Day No. 2 mine adit drainage conceptual groundwater flow path is illustrated on Figure 9 (Gonzales, 2010). Water accumulation in old workings appears to collect during spring melt runoff from fractures from May Day No.1 and No. 2 mine workings. The maximum flow rate that that has been observed by the Operator from the May Day No. 2 adit is less than 0.5 gallons per minute.

8.2 Idaho Mine Property

The flow in the Idaho mine workings is conceptually illustrated on Figure 10. As previously discussed related to the May Day Mine workings, groundwater in the Idaho mine workings appears to be related to fractures and direct recharge within the Little Deadwood Gulch drainage. Flows from the Idaho (seep) appears to be proportional to the flows observed in Little Deadwood Gulch and to water that may exist in the underground mine workings. Water samples obtained from Upper Little Deadwood Gulch and from the Idaho Seep also suggest the water quality in Little Deadwood Gulch and the spring flow from a historical collapsed Idaho No. 1 adit are comparable.

9.0 CONCLUSIONS

To refine presented conceptual models particularly in the vicinity of the Idaho No. 1 tunnel, a Little Deadwood Gulch water budgets is being developed to define lag time from runoff events to production from the Idaho seep. To accomplish this, periodic flow measurements and field water quality sampling will be obtained from contributing mine workings, when accessible, in order to collaborate the conceptual flow model.

The surface and groundwater quality monitoring program will continue to analyze Idaho seep for common ions to determine if changes in water chemistry can be related to the changes to runoff water quality. In addition, water samples will be (as necessary) sampled from the May Day No 1 and 2 respectively when or if the adits discharge. In addition, if there is a May Day No. 1 seep, water quality samples will be periodically analyzed for common ions. The water quality data will be used to validate flow through the mine areas.

The general lack of water production from the mine workings, the small recharge area of the units above the mine, and the on-site observations, suggest that there are no extensive saturated zones in the mine area.

REFERENCES

a. Technical

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<u>CDPHE</u>

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<u>County</u>

La Plata County Land Use Codes

<u>Colorado Division of Reclamation Mining and Safety</u>

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c. Wildcat Mining Corporation

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FIGURES

May Day Idaho Mine Complex
La Plata County, Colorado

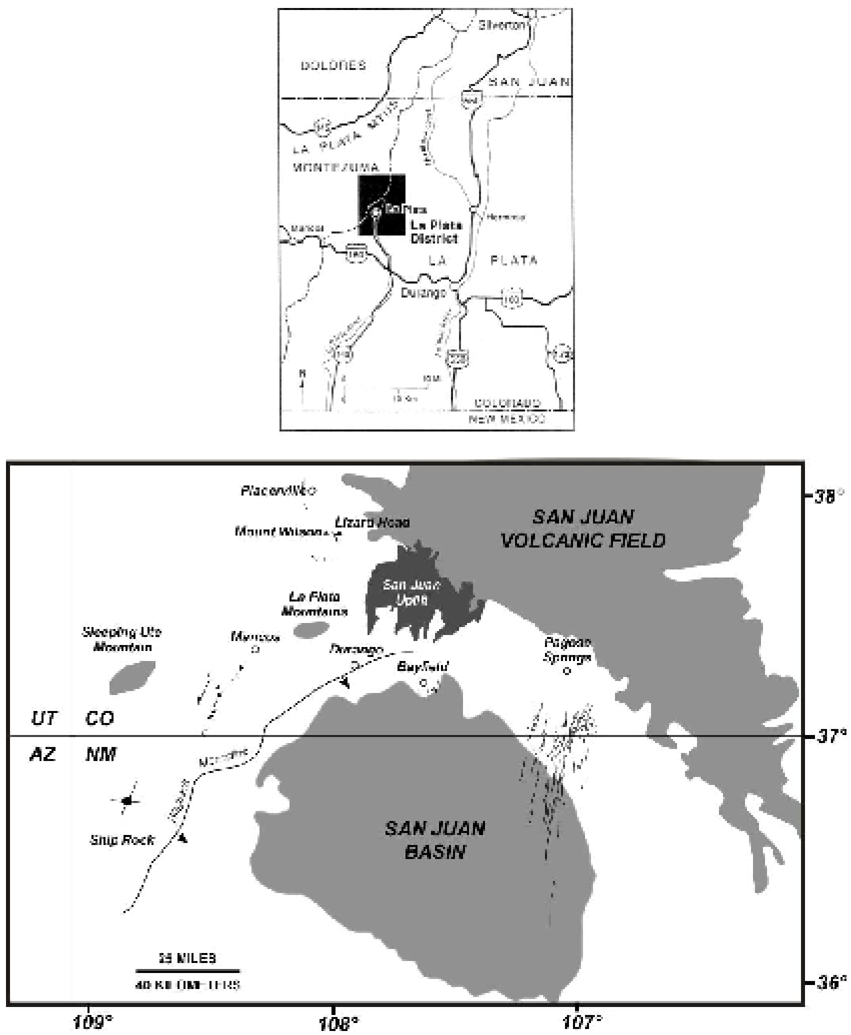


Figure 1: The upper figure shows the location of the La Plata district and main roadways in the vicinity of the district (taken from Cappa, 1998); the black rectangle outlines the region covered in Figure 2 below. The lower figure is a generalized regional map showing the main geographic and physiographic features near the La Plata Mountains. Thin solid lines indicate the general trends of Oligocene-Miocene mafic dikes swarms in southwestern Colorado. The Hogback monocline marks the boundary between the San Juan basin and Four Corner platform.

Figure 1-California Mining District

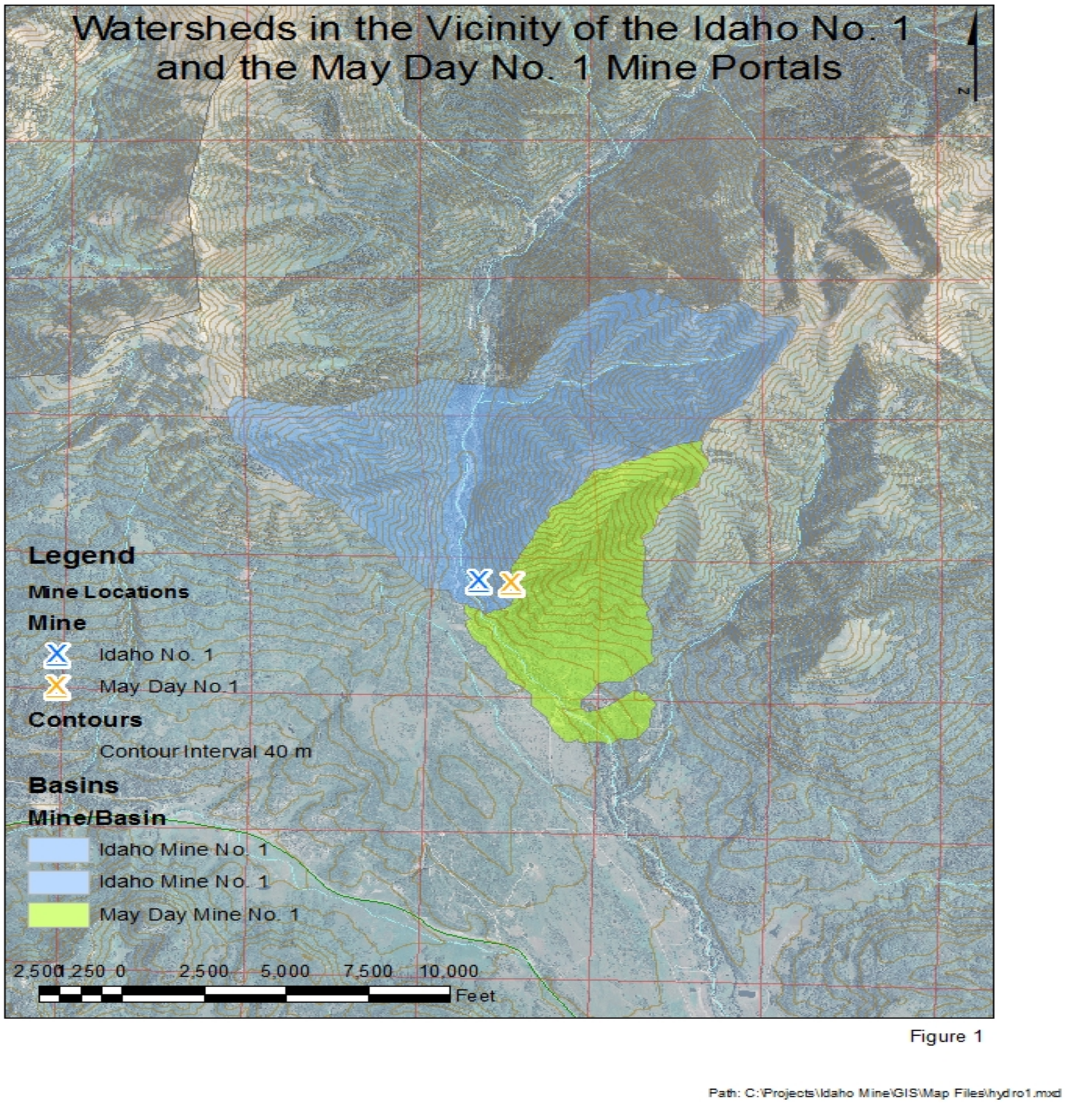
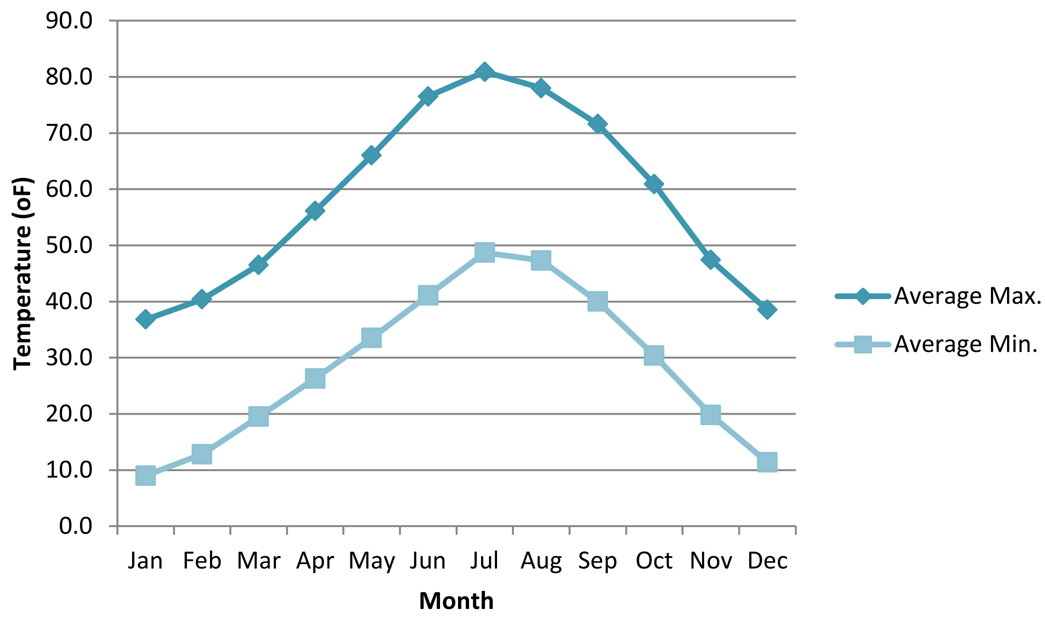


Figure 2

Watersheds in the Vicinity of the

Idaho No. 1 and the May Day No. 1 Mine Portals

Figure 3 . Average Temperature at Fort Lewis Weather Station



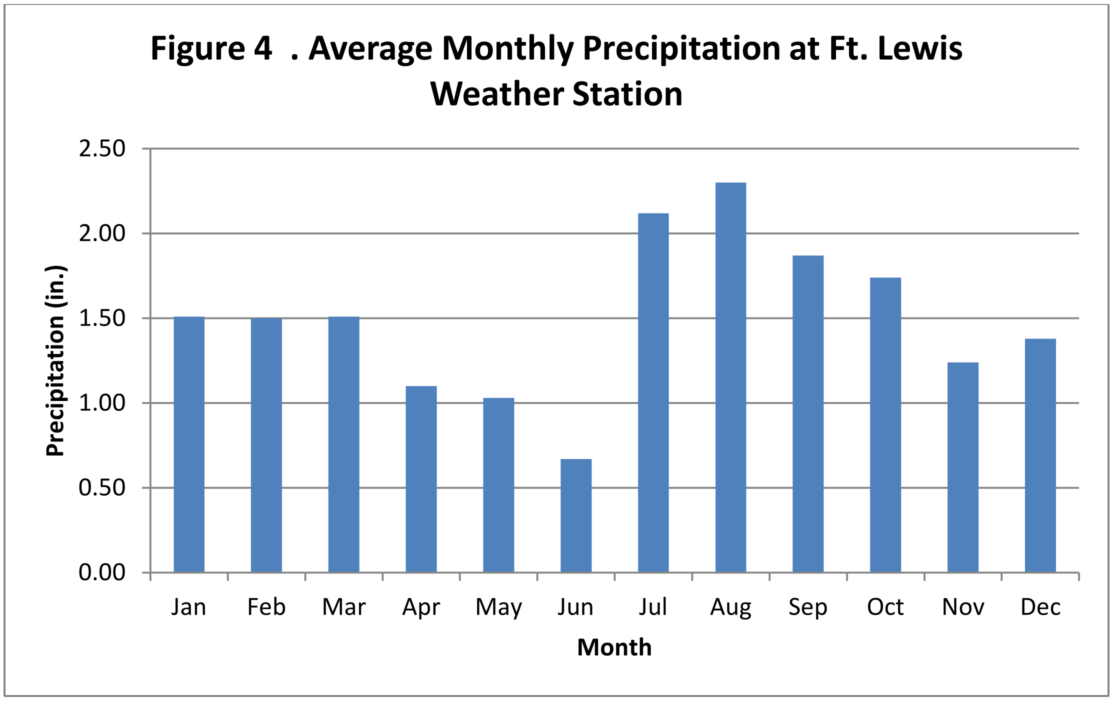


Figure 4 . Average Monthly Precipitation at Ft. Lewis Weather Station
Precipitation (in.)
2.50
2.00
1.50
1.00
0.50
0.00
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

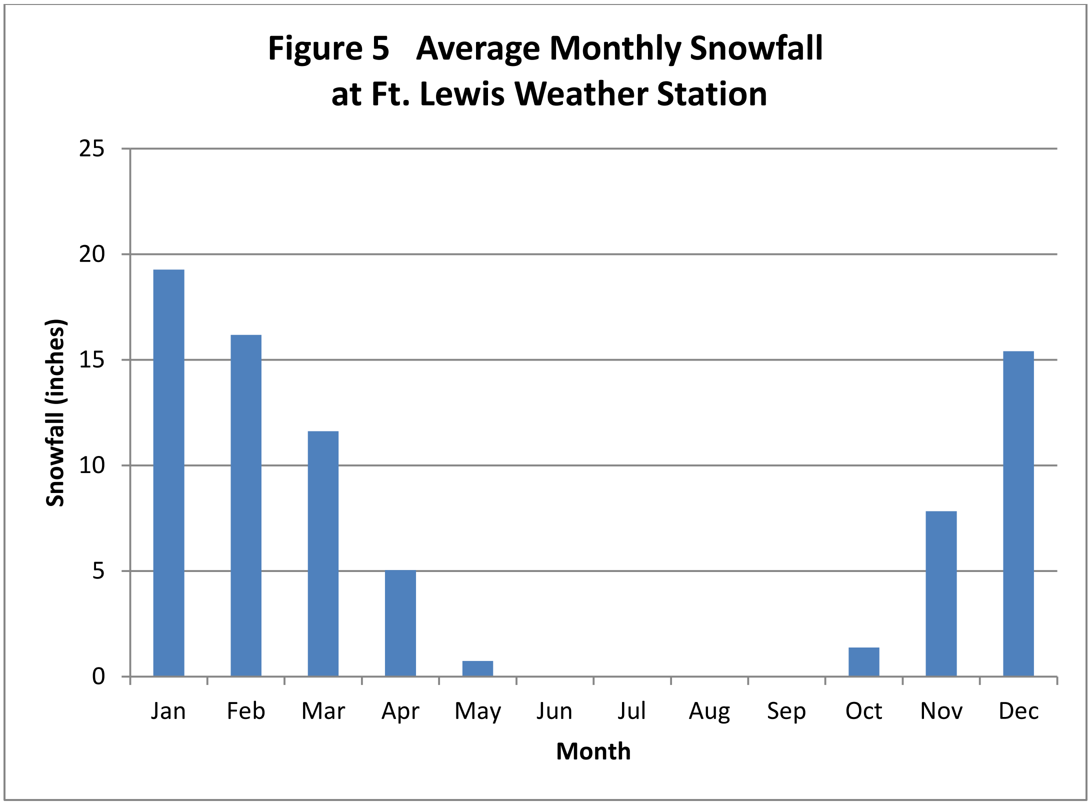


Figure 5 Average Monthly Snowfall
at Ft. Lewis Weather Station
25
20
15
10
5
0
Snowfall (inches)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

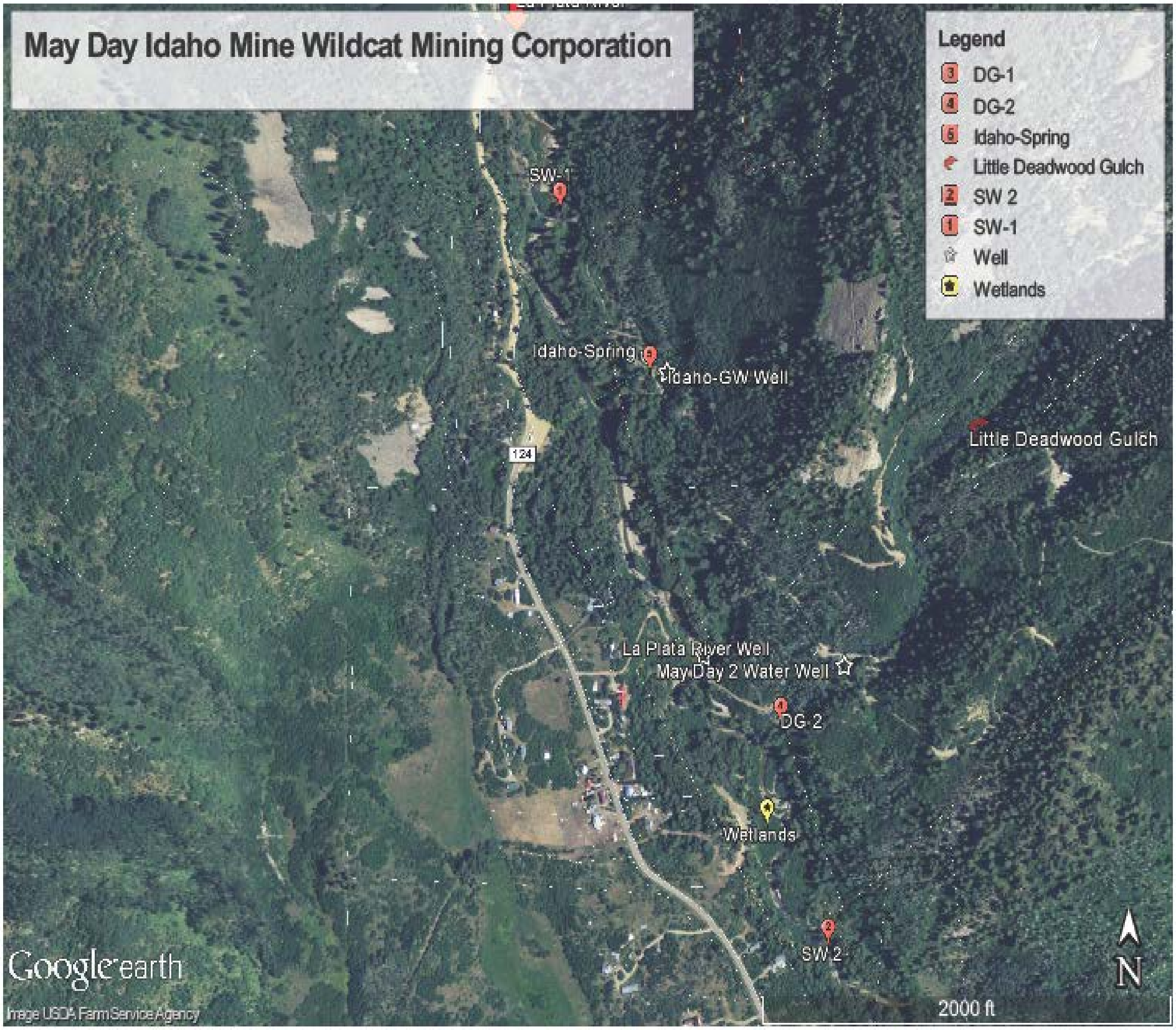


Figure 6

Surface and Groundwater Monitoring Network
Water May Day Idaho Mine Complex
La Plata County, Colorado

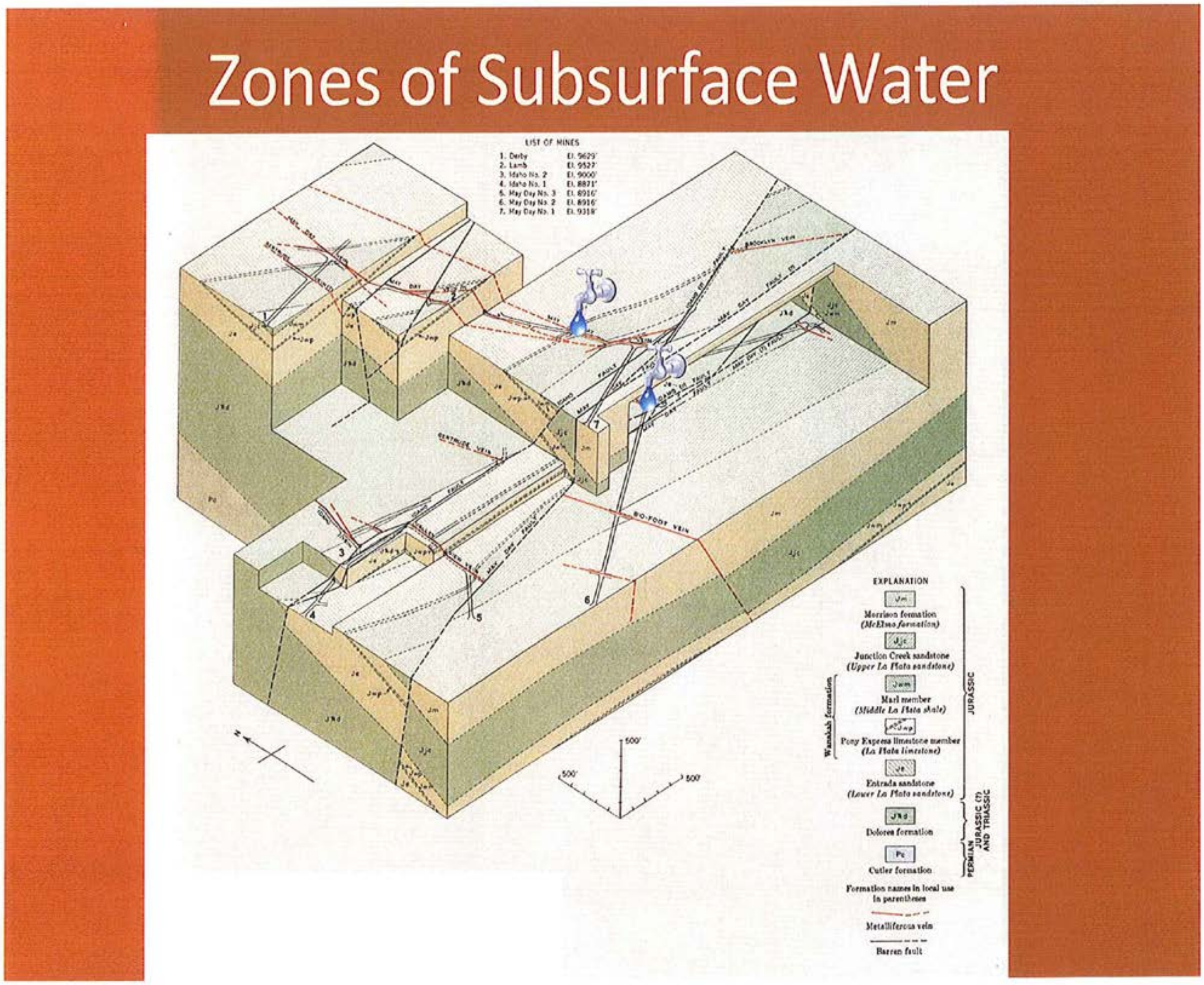


Figure 7
Zones of Subsurface Water May Day Idaho Mine Complex
La Plata County, Colorado

Surface Geology (Eckel, 1949) Hydrogeology Block Model (Gonzales, 2010)

Connection between May Day 1 and 2 via winzes, raises and ore shoots (developed from 1890 to 1940)

It is also possible fractures are conveying water underground from upper levels to lower mine workings

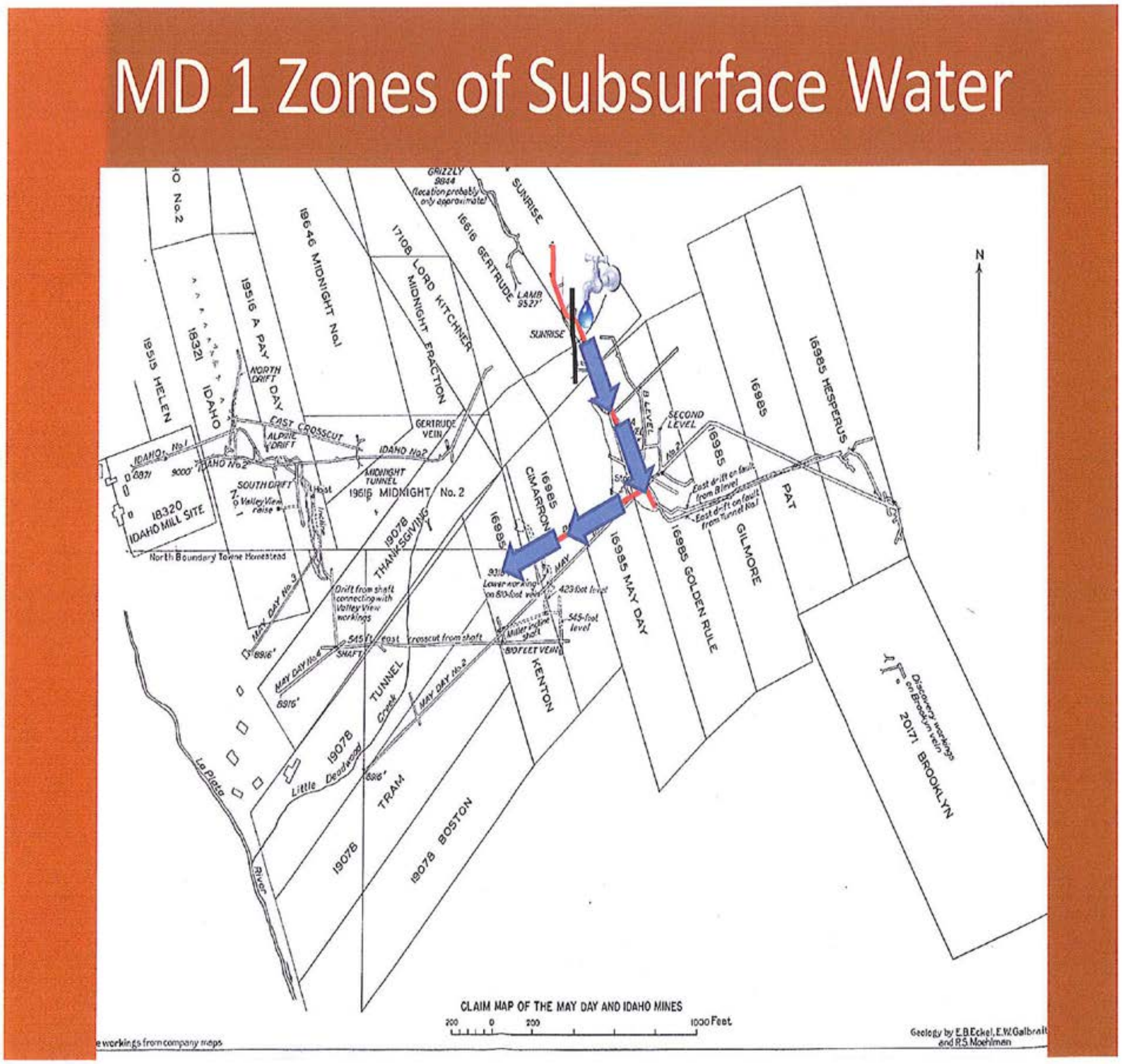


Figure 8
May Day (MD) 1 Zones of Subsurface Water
May Day Idaho Mine Complex
La Plata County, Colorado

(Gonzales, 2010)

Geologic units have low permeability-Low flows related to fractures and water contributed by upper mine workings.

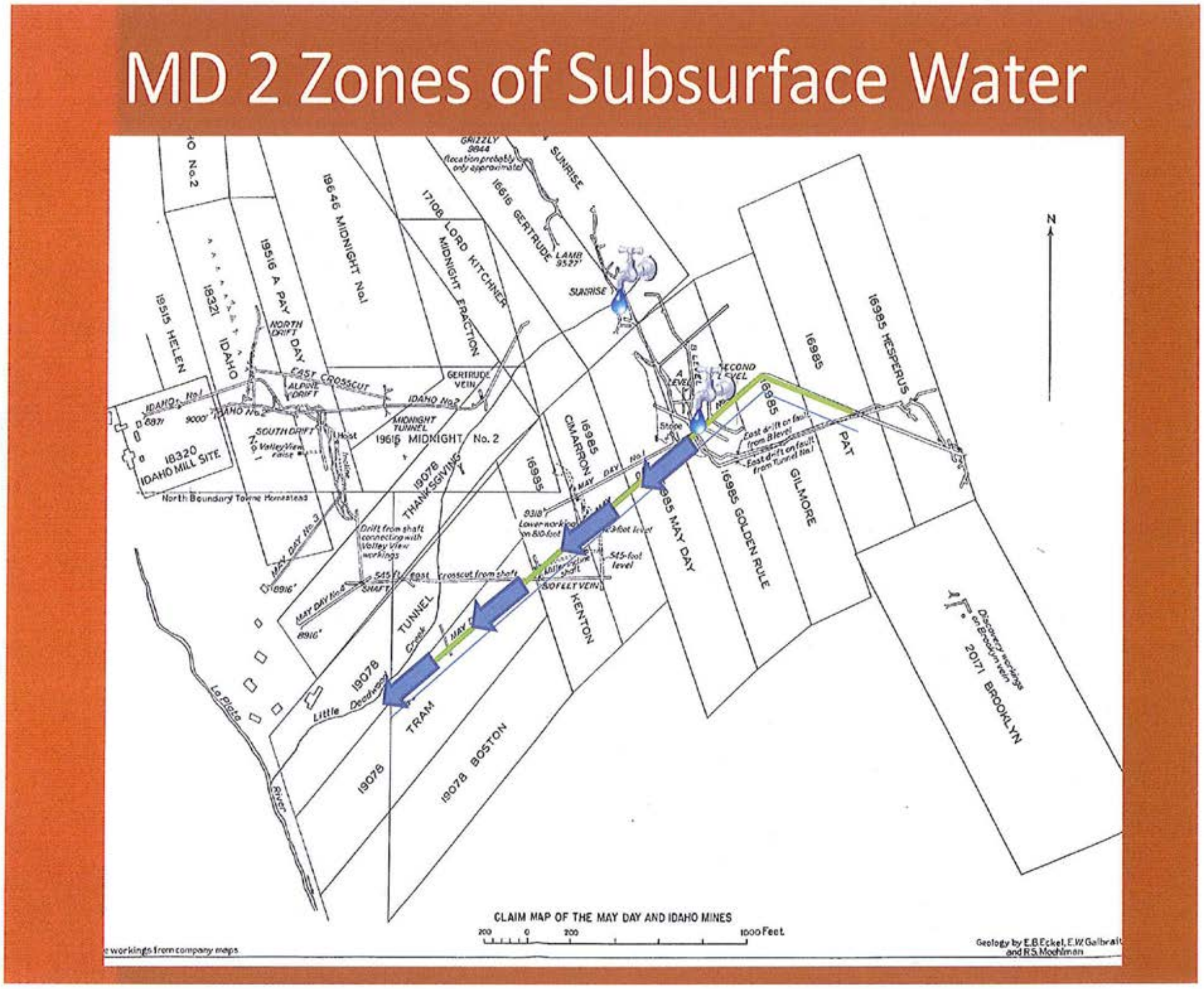


Figure 9

May Day (MD) 2 Zones of Subsurface Water
May Day Idaho Mine Complex
La Plata County, Colorado

(Gonzales, 2010)

May Day No. 1 Fractures appear to intersect Little Deadwood Creek allowing discharge into the underground workings. Flows in the lower workings are increased during spring flow snow and thunderstorm runoff events.

Minor flows have been recorded from May Day No. 1 and minor flows from May Day No.2 during spring –sandstone units within the mine are not significant contributors to flows which suggest flows are related to fractures and or underground mine workings

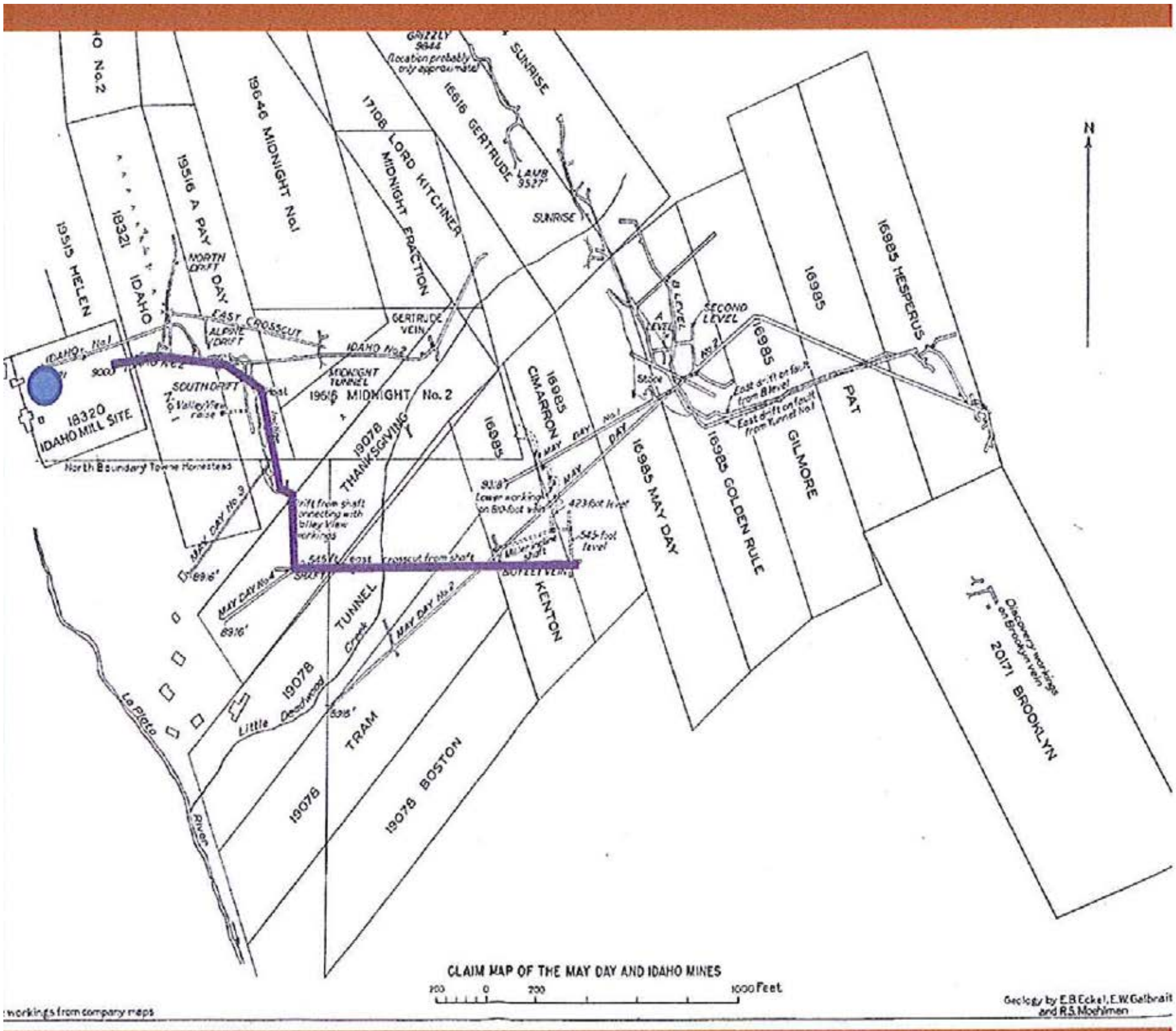


Figure 10
Idaho Mine-545 Level-Valley View Little Deadwood Gulch Drainage
May Day Idaho Mine Complex
La Plata County, Colorado

Gonzales, 2010

Previous OPERATORs indicate that the 545 level is flooded and receives water from fractures. Water is believed to be entering the mine from Little Deadwood Gulch drainage. Flows to the Idaho Seep may be related to water being contributed from the Valley View workings and the 545 levels.

Figures

May Day Idaho Mine Complex
La Plata County, Colorado

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May Day Idaho Mine Complex
La Plata County, Colorado

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May Day Idaho Mine Complex
La Plata County, Colorado

Table 2
Sedimentary rocks of the La Plata Mountains and the corresponding hydrogeologic units of the San Juan Basin.
May Day Idaho Mine Complex
La Plata County, Colorado

Table 3a Analyte list;
Table 3b Summarizes the analytical methods and laboratory detection limits
Table 3c Groundwater quality standards
Table 3d Sampling frequency summary

May Day Idaho Mine Complex
La Plata County, Colorado

Table 4
La Plata River SW-1 Surface Water Quality
May Day Idaho Mine Complex
La Plata County, Colorado

Table 5
La Plata River SW-2 Surface Water Analytical
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La Plata County, Colorado

Table 6
Deadwood Gulch DG-1
Surface Water Analytical
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Table 7
Deadwood Gulch DG-2
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Table 8
Wetlands Surface Water
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La Plata County, Colorado

Table 9
Idaho Seep Water Quality
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Table 10
May Day No. 1 Area Groundwater Quality
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Table 11
May Day No. 2 Area Groundwater Quality
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Table 12
La Plata River Alluvium Groundwater Quality
May Day Idaho Mine Complex
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Table 13
Idaho Mill-Groundwater Water Quality
Water Quality (2012-2013)
May Day Idaho Mine Complex
La Plata County, Colorado

APPENDICES

May Day Idaho Mine Complex
La Plata County, Colorado

Appendix A-Division of Water Resource Registered Wells Completion Records

Appendix B- Porosity Test Results for Entrada and Junction Creek Sandstone Samples

Appendix C- Well Construction and Test Report

Volume 2

Appendix D-Laboratory Analytical Reports;

Appendix A

Division of Water Resource Registered Wells Completion Records

May Day Idaho Mine Complex
La Plata County, Colorado

Appendix B

Porosity Test Results for Entrada and Junction Creek Sandstone Samples

May Day Idaho Mine Complex
La Plata County, Colorado

Appendix C

Well Construction and Test Report

May Day Idaho Mine Complex
La Plata County, Colorado

(Volume 2)

Appendix D-Laboratory Analytical Reports;

May Day Idaho Mine Complex
La Plata County, Colorado

Table 1

Geological Hydrogeologic Characteristics
May Day Idaho Mine Complex
La Plata County, Colorado

Formation	General Description	Porosity	Transmissivity
Morrison Formation	Mudstone with fine grained interbedded sandstone. The Morrison shale has confining layers, while the lower Morrison sandstones are aquifers. Highly fractured- approx. 200 feet thick	0-10% (Freeze and Cherry, 1979)	Low in the upper Morrison. Low to medium in the lower Morrison (Gloyn, 1995).
Junction Creek Sandstone	Fine to coarse grained eolian sandstone. Approximately 100-150 thick-major calcite veins with ore minerals	Average porosity is less than 1% (Trautner, 2011) (Appendix B)	Above average permeabilities and porosities
Wanakah marl	Fine grained sandstone mudstone and marl	Very low to low	Very low to low except in areas of fracture and faults (Gloyn, 1995)
Wanakah - Pony Express Limestone	Laminated micritic and algal limestone-host to replacement minerals, ore bearing veins and mineralized hydrothermal breccia	Very low to low	Very low to low (Gloyn, 1995) except in areas of fracture and faults.
Entrada Formation	Fine to coarse sandstone- eolian approximately 200-250 feet thick-contains stock work breccia and veins-primary ore target	Porosity ranges from 2 to 12.1%. Low porosity due to calcium carbonate cement (Trautner, 2011) (Appendix B)	Very low to low (Gloyn, 1995). No major flows have been observed underground from this formation
Dolores Formation	Shale and siltstone with interbedded sands and conglomerates-2, 000 to 2,500 feet thick. A secondary ore target in some locations	0-10% (Freeze and Cherry, 1979)	Variable generally low.

Table 2

Sedimentary rocks of the La Plata Mountains and the corresponding hydrogeologic units of the San Juan Basin. Units associated with the Mayday and Idaho Mines are shaded.
May Day Idaho Mine Complex
La Plata County, Colorado

Age	Formation	San Juan Basin Hydrogeologic Unit	Hydrologic Characteristics
Upper Cretaceous	Mancos Shale	Confining Layer	Well yields as much as 10 gpm
	Dakota Sandstone	Dakota Aquifer	Well yields as much as 10 gpm
Upper Jurassic	Morrison Formation	Morrison Aquifer	Well yields as much as 25 gpm
	Junction Creek Sandstone		
	Wanakah Formation		
	Entrada Sandstone		Not significant in Colorado
Jurassic and Upper Triassic	Dolores Formation		Not considered significant in Colorado
Permian	Cutler Formation	Base of San Juan Basin	
	Rico Formation		
Pennsylvanian	Hermosa Formation		

(Sources: Eckel, 1949; Topper *et. al.*, 2003)