FACT SHEET
(pursuant to NAC 445A.401)

Permittee: **M-I SWACO LLC**

Facility Name: **Greystone Mine**

Permit Number: **NEV2004100 (NEW 2012, Rev. 00)**
(Fact Sheet Revision 00)

A. Location and General Description

Location: The Greystone Mine is an open pit barite mining operation and physical separation facility operation located in Lander County, Nevada, approximately 25 miles south southeast (by air) of the town of Battle Mountain and 55 miles north northeast (by air) of the town of Austin. The mine is located within the historic Bullion Mining District and is bordered by the Whirlwind Valley to the north, Crescent Valley to the east, Carico Lake Valley to the south and the Shoshone Mountain Range to the west. A finishing mill and bulk loadout/packaging facility is located in Battle Mountain at 2 North Second Street, but is not associated with this Permit.

The Greystone Mine is located within portions of Sections 25 and 26, Township 28N, Range 45E, Mount Diablo Baseline and Meridian (MDB&M). The Greystone site occupies a total of 400 acres, of which 213 acres are public land administered through the Bureau of Land Management (BLM)—Battle Mountain District. The remaining 187 acres are private land owned by M-I SWACO LLC (M-I), the Permittee of record. The Greystone Mine has the unique distinction of being the largest barite operation in the United States, with 320,000 tons shipped in 2012.

Site Access: From Battle Mountain, proceed south approximately 20 miles on State Route (S.R.)-305 to the site of the Greystone Reload Facility, located on the east side of the highway. Proceed approximately 16 miles east on Mill Creek Road to the Greystone Mine site. From Austin, proceed north approximately 70 miles on S.R.-305 to the site of the Greystone Reload Facility, located on the east side of the highway. Proceed east on the Lander County Road to the Greystone Mine site.

General Description: Having been constructed and operational since the 1950's, the Greystone Mine pre-dates the Nevada Division of Environmental Protection (the Division) mining regulation program and had only been permitted under the Division's mining reclamation program prior to the issuance of this Water Pollution Control Permit (WPCP) in 2013. The facility consists of one main pit, two smaller inactive pits, several waste rock disposal facilities (WRDFs), ore stockpiles, a Crushing and Screening Plant, Jig Plant, Process Sediment Dam (PSD-a tailings impoundment), ore stockpiles, product loadout areas, fueling, and maintenance areas.

Because of the age of the facility, the Division requested in early 2013 that a containment

integrity assessment be performed by a Nevada Registered Professional Engineer to demonstrate containment competency. The assessment was completed in April 2013 and most of the suggested improvements have been completed or are currently underway.

During active operations, run-of-mine (ROM) barite ore is transported to a crushing, screening and gravity separation facility located on site to produce a rough barite concentrate. The barite concentrate is trucked to a transfer facility (Greystone Reload Facility) and then transported to Battle Mountain for grinding, packaging, bulk loadout, and shipment to the end user via truck or rail. No chemicals are authorized for use in the process.

B. Synopsis

Background/History: Most barite mined in Nevada is used by the petroleum and natural gas industry where it is used in the formulation of drilling mud for the purpose of increasing the mud's hydrostatic pressure to compensate for high-pressure zones experienced during drilling. Barite used as a drilling mud requires a specific gravity (SG) of at least 4.1 and be relatively free of iron. Specifications for barite used by the mining industry are less stringent.

Because barite is a low-cost, bulk industrial mineral commodity, distance between the source and end user plays a significant role in determining the economic feasibility of a barite deposit.

The demand for high-SG barite, suitable for use in drilling fluids, led to the discovery of several high quality deposits in Nevada's Lander, Eureka and Elko Counties during the 1930's and 1940's. The Greystone and neighboring Mountain Springs Deposits were discovered during the 1940's, by the Magnet Cove Barium Corporation (Magcobar), in an attempt to identify and develop economically feasible barite deposits, suitable for use as drilling fluid and in close proximity to the west Texas and California oil fields.

Magcobar was purchased by Dresser Industries (Dresser) in 1949, a leading supplier of oil field equipment. Magcobar became a separate division within Dresser, under the name Dresser-Magcobar. Dresser-Magcobar began development of the Greystone Deposit in the early 1950's and by the end of 1954, the Greystone Mine was operational.

M-I Drilling Fluids was formed in 1986 with the merger of Dresser-Magcobar and IMCO Services, a subsidiary of the Halliburton Company, a leading supplier of drilling fluids and equipment to the oil industry. In an effort to enter the lucrative oilfield drilling fluids market, Smith International Inc. (SII), an oilfield services and technology company, purchased Dresser's 64 percent interest in M-I Drilling Fluids (M-I) in 1994.

In late 1994, M-I purchased SWACO (a mining, mineral processing, and supplier of oilfield technologies) to form M-I SWACO. M-I SWACO acquired Anchor Drilling Fluids (1996) and Summit Drilling Fluids (1997) to become the world's largest supplier of drilling fluids. In 1998 SII bought Halliburton's remaining 36 percent interest in M-I SWACO.

In 1999, SII and Schlumberger (an oilfield services company), created a joint venture (M-I SWACO LLC) which continued until 2010, when Schlumberger purchased SII. M-I SWACO LLC was incorporated into Schlumberger; however it remains a separate company.

Incorporation into the NDEP-BMRR Water Pollution Control Permitting Program: All mining facilities that have the potential to degrade waters of the state and are not explicitly exempted pursuant to Nevada Administrative Code (NAC) 445A.387 are subject to NAC 445A.350 through NAC 445A.447. The exempted mining facilities are only limited to sand and gravel, cinder, diatomaceous earth, slate, shale, gypsum, clay, or crushed stone operations. The Greystone facility was incorporated into the NDEP-BMRR Permitting Program beginning in 2004.

Geology and Hydrology: The Greystone Mine barite deposit lies within a belt some 50 to 75 miles wide along a north-northeast trending zone that parallels the Antler orogenic belt. The ore bodies are controlled structurally and stratigraphically along regional and local structural breaks in siliceous eugeosynclinal rocks of lower to middle Paleozoic age. Evidence for the origin of the barite includes sedimentary and hydrothermal features, indicating that localization probably took place along fractures in the sea floor.

The barite deposits in the southwestern portion of the zone are generally limited to fissure vein types, whereas the deposits in the northeastern half of the zone include both fissure vein and replacement type deposits, with the replacement type having been by far the most common and productive. These deposits were probably formed by barium-rich solutions that originated at depth. Minor amounts of pyrite and galena (common in barite deposits south of I-80) and the absence of visible alteration effects, implies that barite is of sedimentary origin. The barite occurs in formations of widely differing ages, suggesting a replacement origin. In addition, the presence of fissure veins further suggests that the barite deposits were formed from barium-rich solutions introduced after the rock was consolidated.

Greystone Mine deposit is located in the northeastern half of the zone. The barite replaces thin-bedded limestones interbedded with chert, siliceous argillite, and argillite of the Pumpernickel Formation. Groundwater beneath the Greystone Mine site ranges from 6,017 to 6,230 feet above mean sea level (amsl) and from 42 to 160 feet below ground surface (bgs). The groundwater gradient runs southeast. Background groundwater frequently exceeds Profile I reference values for arsenic, iron, and manganese.

There are several ephemeral creeks and drainages within a one mile radius of the Greystone Mine site. Mill Creek Road parallels Trout Creek for a distance of ¼ mile from the reload facility east and then parallels Mill Creek for a distance of 10 miles to Mill Creek Summit. Both creeks are ephemeral. Berms constructed on the access road shoulder prevent run-off into the creeks. The access road is a designated county road (Lander County) with the contractor hauling the crushed barite ore from Greystone Mine to Battle Mountain having assumed maintenance responsibilities.

Ore, Tailings, Waste Rock and Overburden Characterization: As stated previously, the Greystone Mine has operated since the mid-1950s; however it has only been until recently that the facility began to routinely collect and characterize ores, waste rock, process solutions, tailings, and groundwater. Meteoric Water Mobility Procedure-Profile I constituent analysis (MWMP-Profile I) and ANP/AGP (Acid Neutralization/Acid Generation Potential) have been obtained from recent samples of barite ore, pit waste, jig tailings, and overburden and these results indicate that most of the material analyzed is non-PAG, with the only exception being a small set of waste rock and jig tailings samples which were inconclusive.

Because of the nature of barite ores and the result of similar experiences with nearby barite operations, a more accurate indicator of acid generating potential would be an evaluation of sample reactivity over the long-term (20-week), humidity cell tests (HCTs). HCT test results are ongoing for the Greystone low grade ore, tailings, and waste rock samples. A revised Waste Rock Management Plan is being prepared to address the management of any PAG waste rock material if encountered. Management methods may include encapsulation with non-PAG waste rock during active placement within the waste rock dumps or in the event larger quantities are encountered and encapsulation is no longer feasible, the construction of engineered waste rock containment structures will be required at the Greystone Mine site.

Non-PAG Waste rock generated from the mining is transported by dump trucks for placement in assigned waste rock dumps or as pit backfill. Refer to the section *"Mining"* for additional details regarding location and current status.

Mining: The Greystone Mine site is divided into 16 operational units or areas identified as "Area A" though "Area J", "Area KL", and "Area M" through "Area Q" with some overlap of functions between the various areas. Each area has its own unique size and shape which are dictated in part by the topography and claim boundaries. Table 1 lists the Greystone Mine Operational Areas and their approximate locations with respect to Area Q (which includes Deep Pit-1), the most predominant feature at the Greystone Mine.

The mine portion consists of one main pit referred to as "Deep Pit-1" (Area Q), the inactive "JJ Pit" (Area Q) and two backfilled pits, the "East Trend Pit" (Area P) and "Morning Star Deposit" (Area G). Barite concentrate stockpiles and product loadout areas are in Areas M, N, and P. WRDFs include Areas A, B, C, E, F, H, and KL; process components are located in Areas N, O, and P; and the tailings facilities are found in Areas I and J. Administrative offices are located in Area N and the maintenance, laydown, and storage areas are located in Area M.

Conventional open pit mining is used to remove the barite ore with concurrent reclamation. Run-of-mine (ROM) barite ore is obtained from the Deep Pit-1 located in Area Q. The barite ore, assaying 40-45 percent $BaSO_4$, is mined using front-end loaders. The ore is loaded into ore trucks and transported to the mill site at Area O where it is either stockpiled for future processing or delivered directly to the mill facility for barite concentration. The pit is kept dry via the operation of two in-pit wells (South and West Pit Wells). The wells discharge at

a combined rate of 173 gpm to a shotcrete-lined pond. Water collected in the pond is recycled to the crushing, screening, and gravity separation circuit or utilized for dust suppression. There is no discharge of any dewatering water authorized.

The current and final pit floor elevation is 6,160 feet above mean sea level (amsl) and the lowest point on the pit rim has an elevation of 6,425 feet amsl. It is predicted that a pit lake will start forming approximately 28 days after dewatering pumping ceases. Pit lake levels are predicted to stabilize at an elevation of approximately 6,377 feet amsl in 17 years after dewatering terminates. It is predicted that 95 percent of the pit lake recovery will occur within the first 8 years. The pit lake is expected to be a groundwater sink for the following reasons:

1. Evaporative demand exceeds surface water flow components (runoff and precipitation), therefore groundwater inflow is required to make up the deficit.
2. Pre-mining water levels in the area of the pit are above the calculated equilibrium pit lake elevation (6,377 feet amsl).
3. The southern (downgradient) edge of the groundwater aquifer is bounded by a thrust fault which compartmentalizes the bedrock aquifer.

The Deep Pit surface water elevation will recover to a level above the majority of unoxidized, PAG, sulfide-containing wall rock, leaving them submerged. Submergence of PAG materials by the pit lake is expected to help maintain chemically reducing conditions in the hypolimnion of the pit lake. The pit lake recovery sequesters the PAG material from the atmosphere and reduces the potential for acid rock drainage (ARD).

Predictions of pit lake chemistry were made for years 5, 10, and 50. Year 5 time-step predictions indicate the initial development of a lake which is likely to be of relatively low pH (5.4). This is the function of flushing of un-oxidized argillite by emergent groundwater. From year five onward, virtually all sulfide-containing wall rock is predicted on the basis of the lake water balance to be submerged. This rock is assumed within the model to contribute no further chemical load (acidity or solutes) to the lake. Therefore, water quality is predicted to improve beginning in years 5 through 50, with significant changes in pit lake pH to approximately 6.1 SU by year 10 and to 6.38 SU by year 50.

Short-and long-term pit lake management plans include the addition of slaked lime ($Ca(OH)_2$) to be mixed with the pit lake water during the initial years of pit filling to maintain a circum-neutral pH, as needed. pH will be monitored and quantities of lime will be recommended based on the pH of the initial pit lake and the projected groundwater inflow rate of 173 gpm. Pit lake pH will be monitored after lime dosing and quantities of lime added will be modified based on pH monitoring results.

Surface water control structures will be constructed to minimize the surface water runoff contribution to the pit lake. The locations of the control structures will be limited to areas such that no significant additional surface disturbance is caused. The control structures will be designed during preparation of the Final Plan for Permanent Closure and will consist of

berms and/or diversion channels. The control structures will be designed with sufficient capacity to divert water from a 24-hour, 100-year storm event. The stabilization of the open pit will also include strategic placement of safety berms around all major access points of the pit. The berms will be 5-ft high, 14-ft wide, and have a side slope of 1.4:1 pursuant to BLM requirements.

Pit lake monitoring will be conducted initially after a pit lake forms and will include measurement of pit lake elevations and collection of a grab sample for analysis of NDEP Profile I constituents. Lime will be added in a quantity calculated to maintain a neutral pH of 7. After addition of lime, another pit lake sample will be collected to monitor effects of lime dosing. Pit lake monitoring will occur quarterly for the first year once pH levels are correctly adjusted..

Processing: Barite concentrates intended for use as a drilling mud must contain between 65 and 75 percent $BaSO_4$ and have a specific gravity greater than 4.1. To meet these industry-specific criteria, crushing, screening, and gravity separation are utilized at the Greystone Mill Facility.

The Mill Facility is comprised of a three-stage Crushing and Screening Circuit and a Jig Circuit for gravity separation. Makeup water is obtained from the Fresh Water Storage Reservoir. Water from the Crushing and Screening Circuit is conveyed to the Thickener for clarification and returned to the process.

Crushing and Screening Circuit: The Crushing and Screening Circuit is operated as a "wet" crushing system, in which the crushed barite ore is mixed with substantial amounts of water to fluidize the ore for optimum size reduction efficiency. Components include a Telsmith Jaw Crusher (primary crushing), a 4¼-inch Symons Cone Crusher (secondary crushing), a Telsmith 57-inch Cone Crusher (tertiary crushing), and a Telsmith 8-foot by 20-foot Screen, a Kolberg Screen, and a Screw Classifier Circuit. In addition there are numerous transfer conveyors and water conveyance pumps and pipelines. Water used in the crushing system is pumped through an 8-inch diameter high-density polyethylene (HDPE) pipeline from the Process Water Holding Tank at the Jig Plant.

Most water used in the Crusher Circuit is collected in the Classifier Over-Flow Tank located at the low end of the inclined Classifier Box, where it is pumped through an 8-inch HDPE pipeline to the Jig Plant Thickener for reuse in the process. The remaining crusher water, not captured by this tank, is partially entrained within the crushed ore as it is conveyed to the Jig Plant. The remaining water not entrained in the ore freely drains into ditches and sumps down-gradient of the crusher. Currently, the drainage below the crusher is ultimately collected in an un-lined ditch (Crusher Ditch), which conveys the drainage approximately 3,400 feet via gravity to the PSD.

To improve water management within the Crushing and Screening Circuit, a small collection pond/sump was installed immediately downgradient from the Crushing and Screening Plant. The pond/sump is located in an area to collect drainage from the crushers, screens and

incidental drainage from the transfer conveyors within the crusher plant. From this pond/sump, collected crusher drainage is conveyed to the Process Sediment Dam along the existing Crusher Ditch alignment thereby reducing the water losses via the unlined Crusher Ditch. The pond/sump also provides a means to remove accumulated sediment.

Jig Plant Building and Return System: The Jig Circuit is comprised of two banks of six jigs each, followed by four classifiers. The circuit produces two products: a final tailings product, a midlings product (which may be reprocessed in the jig circuit to obtain a low-grade barite product); and a final jig product which is loaded and transported to Battle Mountain for final concentration and packaging. Water from the Jig Circuit is conveyed to a 100-foot diameter Thickener for clarification and returned to the process.

The containment system within the Jig Plant Building consists of a concrete floor with concrete berms and walls. Shallow grooves 2 to 3 inches deep have been cut into the concrete floor to assist in channeling drainage within the Jig Plant. These grooves do not appear to have compromised concrete floor containment and appear to be functional and effective. The concrete of the Jig Plant floor was cleaned and amenable to visual inspection and appeared in good condition with no visible cracks or deterioration.

The grooves and channels constructed into the Jig Plant floor drain process fluids to concrete-lined sumps also constructed below the floor grade. These floor sumps are equipped with pumps which transfer the collected fluids back into the Jig process.

Discharge fluids and product from individual jigs within the Jig Plant building are routed through classifiers. The discharge slurry from all of the classifiers drains to the open-topped Return Tank located on the south side of the Jig Plant building. The solids separated by the classifiers are discharged to their corresponding belt conveyors to either the product or waste piles.

Jig Plant process water sediments present in the Thickener Underflow are deposited in the Process Sediment Dam as slurry. A 6-inch diameter HDPE pipeline conveys the concentrated Thickener Underflow as fine slurry to a collection box which transitions to a buried 6-inch diameter pipeline. The pipeline conveys the Thickener Underflow via gravity towards the Process Sediment Dam through a pipeline and then into an open ditch.

The Thickener Underflow Collection Box will be modified during the 4th quarter plant shutdown to eliminate overspray of slurry at the point where the Underflow Pipeline discharges. The slurry pipeline discharge above the PSD is in the process of being re-routed and new piping is being installed to completely replace the open conveyance ditch to the point of deposition into the PSD.

Fresh Water Storage Reservoir: The Fresh Water Storage Reservoir (WSR) is a cement-grout lined storage pond used to store fresh make-up water used in process operations. Water in the WSR is supplied from two in-pit dewatering wells (West Pit Well and South Pit Well) and two fresh water supply wells (WSW-5 and WSW-8). The WSR was initially constructed

in the mid 1950's and is located north of the mill crusher.

Table 1—Greystone Mine Operational Areas

Area	*Location*	*Comments*
Reload Facility	20 miles south of Battle Mountain on the east side of S.R.-305. Mine is approximately 14 miles east on a winding gravel/dirt road.	Facility contains a small Maintenance Area, Fuel Storage and Dispensing Area, a product stockpile, and laydown area all on private land.
A	West of Area Q and approximately 2,200 feet west of Deep Pit-1. Abuts against Area M to the east and southeast and Area B to the south.	Partially reclaimed WRDF.
B	Southwest of Area Q and approximately 2,500 feet southwest of Deep Pit-1. Abuts against Area A to the north; Area M to the east and northeast; and Area KL to the east.	Historic WRDF situated almost entirely on BLM land. Waste rock has not been added to this dump since 1986 and the top of the dump has been used for equipment storage since then. Meteoric Water Mobility Water Procedure-NDEP Profile I (MWMP-Profile I) and acid base accounting (ABA) results indicated no potential for acid generation (PAG)
C	Northeast of Area Q, approximately 2,500 feet northeast of Deep Pit-1. Abuts against Area D to the south.	Historic WRDF completely on BLM land. A portion of Area C contains a low-grade barite ore stockpile which will eventually be removed and shipped to the Jig Plant for processing. Following stockpile removal, the area will be regraded and reclaimed. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
D	Northeast of Area Q, approximately 1,400 feet northeast of Deep Pit-1. Abuts against Area C to the north and Area Q to the south and west.	Contains several low-grade barite ore stockpiles located mostly on BLM land. Following stockpile removal, the area will be regraded and reclaimed.
E	East of Area Q, approximately 2,200 feet east of Deep Pit-1. Abuts against Area Q and Area P on the west; Area H on the southwest; and Area F on the southeast.	WRDF for the East Trend Pit. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
F	Southeast of Area Q, approximately 2,800 feet southeast of Deep Pit-1. Abuts against Area E on the north and northwest; Area H on the west and southwest; Area J on the southwest, and Area G on the southeast.	WRDF for the East Trend Extension and Deep Pit-1. It lies in a shallow draw almost entirely on private land and also provides access to Area G and the Morning Star Deposit. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
G	Southeast of Area Q, approximately 3,400 feet southeast of Deep Pit-1. Abuts against Area F on the northwest and Area J on the west.	Site of the "Morning Star Deposit", a small barite ore deposit requiring a total excavation of about 160,000 tons. The excavation consisted of several small, shallow cuts. Mining was completed at this deposit in 2002 and a portion of the area was reclaimed. In the fall of 2007 and spring of 2008, all the remaining pits and cuts were backfilled with waste rock from Deep Pit-1 and the East Trend Pits and the area completely reclaimed.
H	Southeast of Area Q, approximately 2,000 feet southeast of Deep Pit-1. Abuts against Area P to the north and northwest; Area E to the north and	Has served intermittently as a WRDF since 1981. The area has also been used as an ore stockpile area and for equipment storage area. The WRDF lies almost entirely upon private land. In 2008, the Greystone Mine

Area	*Location*	*Comments*
	northeast; Area F to the northeast and east; Area J to the south; and Area I to the southwest.	Operating Plan was modified to extend the Area H WRDF to the east to the adjoining Area F WRDF. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
I	South of Area Q, approximately 2,000 feet south of Deep Pit-1. Abuts against Area P to the north Area O to the west and southwest; Area H to the northeast and east; and Area J to the south and southeast.	Location of the Jig Plant tails (primarily chert). MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
J	South of Area Q, approximately 3,600 feet south of Deep Pit-1. Abuts against Area H and Area I to the north; and Area F to the northeast.	Site of the PSD, it consists of clays and fine sands from the Jig plant. The original dam construction design called for a spillway to be constructed in the saddle located at the southeast corner of the pond. In the event the pond does not fill to a level to make the designed spill way feasible, a notch would be made at the west end of the dam to route run-off water around the dam upon completion of the project. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
KL	Southwest of Area Q, approximately 1,200 feet southwest of Deep Pit-1. Abuts against Area M to the west and northwest; Area Q to the north and northeast; Area O to the east, and Area N to the southeast.	WRDF near the decant dam area of the Tailings Pond (Area J). The areas were formerly referred to as areas K and L have been combined and renamed as Area KL. MWMP-Profile I and ABA results were inconclusive regarding PAG. HCTs are ongoing.
M	West of Area Q, approximately 1,400 feet west of Deep Pit-1. Abuts against Area A to the northwest and west; Area B to the west, Area KL to the southeast and east; and Area Q to the northeast.	Includes the Maintenance Shop, Fuel Storage and Dispensing Area, the Equipment Maintenance Shop, a product stockpile, and laydown area.
N	South of Area Q, approximately 2,200 feet south of Deep Pit-1. Abuts against Area O to the north and northeast.	Located entirely upon public land administered by the BLM, just south of the Jig Plant and the patented claim boundary. Area N includes conveyors, stackers, product load-out conveyor, and the Administration Office.
O	South of Area Q, approximately 1,000 feet south of Deep Pit-1. Abuts against Area KL to the northwest, west, and southwest; Area N to the southwest and south, Area I to the east, Area P to the northeast, and Area Q to the north and northeast.	Contains the Jig Plant, Thickener, Water Storage Reservoir and Process Water Holding Tank.
P	Southeast of Area Q, approximately 1,400 feet southeast of Deep Pit-1. Abuts against Area Q on the west, northwest, north, and northeast; Area E on the northeast and east; Area H on the southeast and south; Area I on the southwest; and Area O on the southwest and west.	Site of the now backfilled East Trend Pit and referred to as the SW Layback. This large flat area is used for the temporary stockpiling of the run-of-mine ore.

Area	*Location*	*Comments*
Q	Abuts against Area D on the north and northwest; Area E on the southeast; Area P on the east, southeast, and south; Area O on the south and southwest; Area KL on the southwest; Area M on the west; and Area A on the west and northwest.	Contains the Deep Pit-1 and the inactive JJ Pit.

Monitoring and recordkeeping of the WSR inflows versus the outflows has been incorporated into the WPCP to determine potential water losses from the reservoir into the underlying geologic strata. Through remainder of the mine life (estimated to be less than five years), the WSR liner condition will be routinely inspected for integrity and deterioration.

Process Water Sediment Thickener: The Jig Process Water Sediment Thickener is a 100-foot diameter circular tank with concrete containment walls and floor. Slurry discharge from the jig plant classifiers is pumped from the Jig Plant Return Tank on the south side of the Jig Plant to the process water sediment thickener on the north side of the Jig Plant via a 12-inch diameter HDPE pipeline. A portion of this pipeline is routed through the Jig Plant Building. Other inflows to the process water sediment thickener include:

1. 6-inch diameter HDPE pipeline supplying fresh make-up water from the Water Storage Reservoir or directly from the fresh water supply wells;
2. 4-inch diameter HDPE pipeline supplying make-up water from the New Dam Return pipeline; and
3. An 8-inch diameter HDPE pipeline supplying return water from the crusher.

Process Water Holding Tank: The Process Water Holding Tank or "Swimming Pool" is a large concrete containment used for settling solids out of process water overflow in order for the process water to be re-used back in the Jig Plant process.

Two pumps on the northeast side of the Process Water Holding Tank supply process fluids to either the Jig Plant or crusher. Minor leakage from these pumps drains into an open ditch and into a culvert pipe. From this culvert pipe, the flow is combined with the thickener underflow pipeline through a "Y" connection which then continues by gravity through a 6-inch diameter pipeline and open ditch to the PSD.

New Dam Return Collection System: The New Dam Return system conveys clarified water back to Jig Plant through a 4-inch diameter pipeline

A small steel Process Water Tank is used as a collection and distribution point for "clean" (sediment-free) make-up water for use primarily as process pump gland seals. This tank is supplied by water from the New Dam Return Collection System and from the WSR. Excess fluid from this tank can be added to the PWHT for make-up in the process

Since water from New Dam Return Collection System is mixed in the Process Water Tank

with water from the Fresh Water Storage Reservoir, a check valve has been installed to prevent back flow from the Process Water Tank into the Fresh Water Reservoir.

Ancillary and Support Facilities: Ancillary and support facilities include office trailers, a laydown/ready line area, warehouse and storage buildings, and a maintenance shop and heavy equipment washdown areas.

Fuel and lubricant storage/dispensing facilities are located at the Main Fuel Island, Ore Stockpile, and Reload Facility. In addition, the Shop Facility has an "Oil Island" for lubricant storage and dispensing and a mobile truck is utilized to provide fuel and lubricants to equipment at remote locations.

There are several diesel and gasoline storage tanks present at Main Fuel Island, Ore Stockpile, and Reload Facility. The tanks are of steel construction and have capacities that range between 1,000 and 17,500 gallons.

Heavy equipment washdown areas are located at the maintenance shop and Reload Area. The washdown areas are comprised of a gravel pad which is designed to collect any prevent the release of any oil-contaminated water.

Petroleum Contaminated Soils (PCS) Management: Pursuant to the Spill Prevention Control and Countermeasure Plan, any PCS generated at M-I facilities in Nevada will be collected transported to offsite to a permitted disposal facility.

Receiving Water Characteristics

As stated previously, there are no surface waters within a one mile radius of the Greystone Mine site; however several ephemeral drainages have been identified. The Greystone Mine Access Road parallels Trout Creek for a distance of ¼ mile from the loadout facility east and then parallels Mill Creek for a distance of 10 miles to Mill Creek Summit. Both creeks are ephemeral. Berms constructed on the access road shoulder prevent run-off into the creeks. Although the access road is a designated county road (Lander County), road maintenance is the responsibility of the contractor hauling the crushed barite ore from Greystone Mine to Battle Mountain for further processing.

Groundwater elevation beneath the Greystone Mine site ranges from 6,017 to 6,230 feet amsl and from 42 to 160 feet bgs. The groundwater gradient runs northeast. Background groundwater quality has elevated arsenic, iron, and manganese concentrations above their respective Profile I reference values.

Groundwater elevation at the Greystone Reload Facility is unknown but it believed to be less than 75 feet below the ground surface. Groundwater meets Profile I reference values for all constituents. The well provides washdown water for haul trucks and water for road dust suppression.

D. Procedures for Public Comment

The Notice of the Division's intent to renew the permit, authorizing the facility to construct, operate, and close subject to the conditions contained within the permit, was sent to the **Battle Mountain Bugle**, a newspaper located in Battle Mountain, Nevada, for publication.

The notice was also mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit renewal can do so in writing within a period of 30 days following the date of public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed facility or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through NAC 445A.406.

E. Proposed Determination

The Division has made the tentative determination to issue the permit.

F. Proposed Effluent Limitations, Schedule of Compliance and Special Conditions

Refer to WPCP NEV2004101, Sections I.B. (Schedule of Compliance Items).

G. Rationale for Permit Requirements

The facility is located in an area where annual evaporation is greater than annual precipitation. It must operate under a standard of performance, which authorizes no discharge except for excess accumulations, which are a result of a storm event beyond that required by design for containment.

The primary identification of escaped process fluids is based on the periodic inspection of leak detection systems, monitoring wells, and visual inspections. Monitoring will be in accordance with permit conditions and requirements.

H. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 United States Code (USC) 701-718, it is

unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 Code of Federal Regulations [CFR]10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service are authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with state permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.

Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (covering with netting), and 2) chemical detoxification. Methods, which attempt to make uncovered ponds unattractive to wildlife, are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Prepared by:	*Rob Kuczynski, P.E.*
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