FACT SHEET
(Pursuant to Nevada Administrative Code (NAC) 445A.401)

Permittee Name: **Meridian Rossi Corporation**

Project Name: **Austin Gold Venture Mine (aka Inspiration Mine)**

Permit Number: **NEV0060006**
Review Type/Year/Revision: **Renewal 2016, Revision 00**

A. Location and General Description

Location: The Austin Gold Venture Mine is located approximately eight miles south of the town of Austin in Lander County. The mill site and tailings impoundment lie on the western side of the Toiyabe Range within the Reese River valley. The open pits and waste rock dumps are located east of the mill site within the Birch Creek drainage of the Toiyabe Range. The mill site was connected to the pits by a seven-mile long haul road. The entire project lies within Township 18 North, Range 43 East. The mill site and tailings impoundment are located entirely within Section 27. The mine and dumps reside within Sections 25 and 36. All mine components, with the exception of portions of the haul road connecting the pits (sections 26, 34, and 35) with the mill site are located on United States Forest Service (USFS) managed lands. Those portions of the main haul road not located on public lands are located on patented mining claims. The number of acres disturbed by this facility is approximately 200, including haul and exploration roads.

General Description: The mine is a pre-regulation facility in post-closure status. Mining operations began in 1986 and ceased in 1989. This facility was an open pit mine with two pits. There were limited underground workings in the Main Pit. Overburden dumps are located near the pits. The ore was transported from the pits to the mill over the seven-mile long haul road. The ore was processed in conventional cyanide leach tanks with precious metal recovery by carbon adsorption and electro-winning and deposited into the tailings impoundment located adjacent to the mill site.

In addition to the mill, tailings impoundment, open pits, and overburden dumps, the facility consisted of office/operations buildings, a low grade ore stockpile, and haul and exploration roads. The mill and all structures have since been removed. On January 15, 2014 the USFS closed the Plan of Operations and released the reclamation bond. However, due to the on-going sulfate seep from the waste rock dump, the Nevada Division of Environmental Protection (the Division) has not approved a June 11, 2015 request by Austin Gold Venture to close the Water Pollution Control Permit (WPCP).

B. Synopsis

The project was initially permitted to Inspiration Mines, Inc. on January 24, 1991. The WPCP was renewed (Inspiration Gold, Inc.) on March 31, 1992 and expired on March 31, 1997. The WPCP was renewed (Meridian Minerals Corporation) on December 31, 1997 and expired on December 31, 2002. The WPCP was again renewed in 2010 and expired on October 9, 2015.

Birch Creek Drainage Facilities

The geology within the mined areas is complex. There are three major lithologic formations (Ninemile Shale, Valmy, and Antelope Valley Limestone) in addition to four major thrust faults within the Birch Creek drainage. The Valmy Formation has the potential to release acid mine drainage. Both the Ninemile Shale and the Antelope Valley Limestone provide a significant acid buffering potential. The ore was recovered from the Ninemile and Antelope Valley Limestone formations. Waste rock consists of all three formations. Alluvium and colluvium are present in the Birch Creek valley bottom and in some adjacent ravines. The geologic units of the Birch Creek drainage basin have been strongly faulted resulting in a high degree of fracturing and jointing, and relatively high permeability. It has been reported that all rock in the mined areas have been highly fractured.

Pits (2): The Main Pit was initially a 25-acre operation. Limited underground workings (approximately 1600 linear feet) were accessed in the Main Pit floor following open pit mining. The Main Pit was constructed in Antelope Valley Limestone and Ninemile Shale (see Table I below). The underground workings did not encounter the Valmy Formation. The four-acre Satellite Pit is a small excavation within a limited watershed. This pit was constructed in the Valmy Formation.

Table 1: Summary of Open Pit Physical Data (all values below are approximate)

Parameter	Satellite Pit	Main Pit	Underground Workings
	All elevations in feet above mean sea level		
Max. Elevation	8280	8650	8080
Final Floor Elevation*	7980	8200	N/A
Min. Elevation of Original Excavation	7940	8200	7971
Approx. Volume Removed (10^3 cu. yd.)	382	7744	7
Volume Valmy (%)	81	37	0
Volume A.V. Limestone & Shale (%)	19	63	100
Area of Valmy (%)	68	30	N/A
Area of A.V. Limestone & Shale (%)	32	70	N/A

***** *Elevation after Pit made to free drain*
Ninemile Shale (Shale)
Valmy Formation (Valmy)
Antelope Valley Limestone (A.V. Limestone)

Post mining monitoring indicated that water was slowly accumulating in the underground workings and the Main Pit. Spring surface runoff was identified as the primary source of this impounded water. To preclude future water quality problems, the entrance to the underground workings was blocked and buried; the

pit was partially backfilled to encourage free drainage. Since this work was completed in 1994, ponded water within the Main Pit has not been observed.

The Satellite Pit was completed in 1987. In 1989, this pit was also partially backfilled (making it resemble a side cut) to ensure it free drains. There is an intermittent seep located at the back of the Satellite Pit. This seep water, although of neutral pH, tends to be elevated for sulfate, total dissolved solids (TDS), and some additional parameters. A limestone-lined conveyance channel was constructed from the mouth of the pit to the Satellite Pit sediment basin constructed below the pit area and adjacent to Birch Creek. This sediment basin, following significant meteorological events, has been known to contain water from stormwater runoff, including water from the Satellite Pit. However, the Satellite Pit contribution has always been considered negligible. Water quality in Birch Creek adjacent to this sediment basin (station AGV-2) was monitored for more than 20 years with no indication of water quality degradation in Birch Creek.

Overburden Dumps (12): Overburden material was placed in 12 dumps surrounding the two pits. Grading and drainage work on the Main Pit dumps was completed in 1993 and reshaping of the lower Satellite dumps was completed in 1991.

All 12 overburden dumps contain some Valmy Formation. Higher volume Valmy Formation dumps were re-contoured, covered with top soil, and seeded. Some portions of dumps were rock-armor faced. Drainage was diverted around the reshaped dumps to minimize infiltration. Sediment basins and check dams were constructed to control drainage from the upper dumps, preventing erosion to the lower dumps. There have been no reports of seepage from 10 of the 12 dumps (the two exceptions, Main Pit overburden dumps 8200 and 8150, are discussed below).

Engineered Structures: There are three types of engineered structures designed for long-term solution management: drainage systems, sediment basins, and rock check dams.

Drainage Systems (3): Beaver Slide, Satellite, and Dump Gulch sub-watersheds.

The two former drainages are ephemeral with very limited flow or data collected post reclamation as vegetation reestablished.

Sediment Basins (9): All unlined. Blue Fill basins (2); AGV-5 basin (1); 8225 basin (1); Main Pit basin (1); Satellite Pit basin (1); and the Dump Gulch basins (3). The Dump Gulch basins are discussed in more detail below.

Rock Check Dams (4): Dump Gulch (3) and Blue Fill (1).

Visual observation for over the past 20 years has demonstrated that all engineered structures are stable.

Dump Gulch: Dump Gulch is one of the three mined area sub-watersheds that flow into the Birch Creek drainage. Prior to mining, several perennial

springs/seeps were reportedly discharging 5-15 gallons per minute year around, this in addition to seasonal springtime meteoric input. Pre-mining water quality is not known.

Main Pit overburden dumps (8200 and 8150 dumps) are located within this 350-acre steep hydrologic sub-basin. Both dumps were initially placed angle of repose over the existing perennial seeps/springs at the lower elevations of Dump Gulch canyon. These buried seeps/springs now daylight at the toe of the 8150 overburden dump and continue to flow in a well-defined channel year-round. In 1993/94, these two dumps were reworked with a goal to minimize dump material interaction with meteoric water.

Surface water monitoring station AGV-7 is located in the Dump Gulch drainage approximately 800 feet downstream of the toe of the 8150 dump where the flows emanating from the dump daylight. This station is about 600 feet up-gradient of the Dump Gulch Sediment Basins.

Dump Gulch Sediment Basins: Dump Gulch flowed directly into Birch Creek prior to the construction of the three Dump Gulch sediment basins. In 1992, three large sediment basins (in series) were constructed downstream of the 8200/8150 dumps, up-gradient of and adjacent to Birch Creek. The basins were constructed to capture surface water and sediment coming from Dump Gulch disturbed areas prior to entering Birch Creek.

The first basin (Sediment Basin 1) typically impounds water on a year around basis. The water fills the basin in spring and might spill over into the second basin in early spring at peak runoff. For the majority of the year, Sediment Basin 1 does not outflow to Sediment Basin 2. There is no record of any of the three basins discharging directly to Birch Creek. Sediment Basin 1 water quality will continue to be monitored.

The three Dump Gulch sediment basins are engineered structures. They should present no long-term stability concerns.

The Permittee will continue to monitor performance and stability of all engineered structures (drainage systems, sediment basins, and rock check dams) within the Birch Creek drainage.

Birch Creek: The segment of Birch Creek adjacent to the mine was initially classified as a Class A Water (NAC 445A.124). NAC 445A.124 contained both water quality standards and designated beneficial uses.

NAC 445A has since been amended. The designated beneficial uses for Birch Creek '*…from its origin to the national forest boundary'* are now codified in NAC 445A.1988 and are as follows:

-Livestock - Watering of livestock
-Irrigation
-Aquatic - Propagation of aquatic life
-Contact Recreation involving contact with the water
-Noncontact Recreation not involving contact with the water

-Municipal - Municipal or domestic supply, or both
-Wildlife - Propagation of wildlife

All three sub-watersheds (Beaver Slide, Satellite, and Dump Gulch) are considered Birch Creek 'origins/tributaries'.

Specific water quality standards for this Birch Creek segment are provided in NAC 445A.1988. Applicable general water quality standards are contained in NAC 445A.121 *'Standards applicable to all surface waters';* NAC 445A.122 *'Standards applicable to beneficial uses';* and NAC 445A.1236 *'Standards for toxic materials applicable to designated waters'*.

NAC 445A.1988 does not contain specific water quality standards related to requirements to maintain existing higher quality.

1. Birch Creek – Pre-mining Surface Water Chemistry

Prior to development of the Inspiration Mine, Birch Creek was not studied extensively, hence only very limited data are available. One water quality sample (1982) of Birch Creek (location unknown) indicated water quality with a neutral pH, a TDS concentration of 315 milligrams per liter (mg/L), low sulfate (52 mg/L), and relatively high alkalinity (176 mg/L). Selenium was not recorded.

2. Birch Creek - Existing WPCP Monitoring Stations

A comprehensive surface water quality monitoring program for Birch Creek was initiated in 1989 and continues to date. Surface water monitoring stations were located both within Birch Creek (AGV-2 and AGV-3a) and also within each of the three Birch Creek sub-watersheds: Beaver Slide (AGV-5), Satellite (AGV- 6), and Dump Gulch (AGV-7).

AGV-2: Birch Creek just downstream from the Satellite Pit sediment basin. This station would catch any inputs from the Satellite Pit, the Satellite dumps, and the Beaver Slide area. Birch Creek flows in this reach are intermittent.

AGV-3/3a: This monitoring station is just downstream of all mine related disturbance and the Beaver Slide, Satellite, and Dump Gulch drainages. This station is also located just downgradient of all three sediment ponds. The station AGV-3 was moved about 100 yards downstream after the Dump Gulch sediment basins were constructed in order to detect any leakage for the basins into Birch Creek. This new station was named AGV-3a. Birch Creek flows in this reach are intermittent.

3. Birch Creek / Dump Gulch - Post-Mining Surface Water Chemistry

In general, Birch Creek reflects excellent water quality. Table 2 below contains the record (1989-2013) of overall average for parameters of concern or those parameters currently elevated for Birch Creek/Dump Gulch monitoring stations.

Table 2 - Birch Creek / Dump Gulch Parameters Considered of Interest or Currently Elevated (all approximate values in mg/L)

Monitoring Station	Sulfate	TDS	Selenium	Alkalinity
AGV-2	40	250	≤ 0.01	160
AGV-3/3a	18	175	≤ 0.005	120
AGV-7	1200	1900	0.030	215

The pH at all three monitoring stations has always been recorded as between 6.5 and 9.0 standard units.

AGV-2: Surface waters do not appear to have been impacted by mining and water quality may be considered to be of pre-mining quality. All Table 2 parameters have been stable over the 20 years of monitoring.

AGV-3/3a: AGV-3 and AGV-3a do not appear to have been impacted by mining or by Dump Gulch input. All Table 2 parameters have been stable over the 20 years of monitoring.

AGV-7: It appears that sulfides present in the 8200/8150 dumps are having a negative impact on Dump Gulch water quality. Water quality monitoring data show magnesium, TDS, selenium, and sulfate concentrations higher in Dump Gulch flows than Birch Creek flows. Other parameters however, are not routinely elevated in Dump Gulch flows. Sulfate, TDS, and selenium concentrations had generally increased annually since monitoring began in 1989. Since 2005 however, the rate of increase has basically ceased and it appears that concentrations have stabilized for all three parameters. Beginning in 2003, magnesium has consistently exceeded the reference value of 150 mg/L, averaging approximately 200 mg/L. Alkalinity has remained stable throughout the record.

4. Birch Creek / Dump Gulch – Exceedances in Water Quality Standards

Pursuant to NAC 445A.1988, the TDS standard for the most restrictive beneficial use [Municipal] is 500 mg/L.

The post-mining water quality of the springs/seeps emanating from the toe of the Dump Gulch dumps does not meet the TDS water quality standard, primarily due to sulfate. Sulfate is a major component of the TDS and is the parameter that has caused the overall TDS increase. Dump Gulch TDS values have consistently exceeded 500 mg/L since 1991. No other NAC 445A.1988 water quality standard is exceeded.

Selenium is listed in NAC 445A.1236 as a 'toxic' material. The most restrictive selenium standard [Aquatic Life] is 0.005 mg/L. This standard is consistently exceeded in Dump Gulch flows, but not in Birch Creek.

Pursuant to NAC 445A.121(7) *'Standards applicable to all surface waters'*; provides that:

> *Wastes from …industrial…sources…containing arsenic, barium, boron, cadmium, chromium, cyanide, fluoride, lead, selenium, silver, copper and zinc…must provide water quality consistent with the mandatory requirements of the 1962 Public Health Service Drinking Water Standards.*

5. Birch Creek – Beneficial Use Impacts

Within Dump Gulch, the only beneficial use standard consistently exceeded is the 'Municipal' standard for TDS; this is due primarily to the presence of dissolved sulfate

NAC 445A.122 '*Standards applicable to beneficial uses*' provides the following:

> *(f) Municipal or domestic supply. The water must be capable of being treated by conventional methods of water treatment in order to comply with Nevada's drinking water standards.*

Within NAC 445A.1988, two additional beneficial uses (*Livestock* and *Irrigation)* are linked to the TDS standard. However, the standard '*S.V. ≤ 500 or the 95th percentile (whichever is less)'* is only applicable to the '*Municipal'* beneficial use. There are no numeric *Livestock/Irrigation* beneficial use TDS/sulfate water quality standards in NAC 445A.

NAC 445A.122 '*Standards applicable to beneficial uses*' provides the following:

> *(a) Watering of livestock. The water must be suitable for the watering of livestock without treatment.*
>
> *(b) Irrigation. The water must be suitable for irrigation without treatment.*

With respect to the '*Livestock'* beneficial use, a review of previously submitted, but unrelated to Birch Creek, Screening Level Ecological Risk Assessments (SLERA) indicate that water with sulfate concentrations below 1,000 mg/L and TDS concentrations below 7,000 mg/L are safe for livestock consumption.

A similar review for an '*irrigation'* beneficial use TDS acceptable concentration would indicate that a TDS concentration below 1,000 mg/L is desirable.

Selenium concentrations exceed NAC 445A.1236 'Aquatic Life' and 'Irrigation' standards, therefore the '*Aquatic - Propagation of aquatic life'* and '*irrigation'* beneficial uses must also be considered impacted.

The Nevada Department of Wildlife and the United States Fish and Wildlife Service (USFWS) had expressed concerns related to potential trace metal impacts (primarily selenium) to Birch Creek aquatic life (macro-invertebrates and fish). As such, the Permittee commissioned a study that culminated in a 2010 synoptic study of priority pollutant metals in the stream water, sediments, stream benthic macroinvertebrates, and resident fish at 12 sites in Birch Creek. Metals levels were compared to water quality and sediment criteria and related to apparent metals sources from both historic and more recent mining in the drainage *(C. M. Falter; March 2012).* The USFWS provided review comments dated 27 July 2012 and Falter responded in comments dated 11 December 2012.

The Division, following a review of these documents, has concluded that:

-Trace metals may be 'stressing' the aquatic environment but this is not conclusive.

-The primary source of trace metals is not clear. There are many tributaries providing input to the Birch Creek drainage.

-Post-mining land use activities, primarily access roads and livestock grazing (significantly the impacts to the Birch Creek riparian zones by cattle), may require more attention.

6. Birch Creek – Future Birch Creek Drainage WPCP Monitoring Plan

The Permittee will continue water quality monitoring of the Birch Creek drainage. Birch Creek at AGV-3a will continue to be sampled annually. In addition, Dump Gulch at AGV-7 will also continue to be sampled annually as will Dump Gulch Sediment Basin 1.

This long-term water quality monitoring has demonstrated that Birch Creek at AGV-2 has never shown any degradation from the mining operation and therefore future monitoring is not required. Beaver Slide and the Satellite sub-watersheds have not impacted Birch Creek and future monitoring is not required. See WPCP Part I.D. Monitoring Requirements for monitoring detail.

Reese River Drainage Facilities

Mill (1): The ore processing facilities were located approximately one mile north of the Dry Canyon drainage and five miles east of the Reese River. The ore was crushed then fed to a flotation circuit. The tailings from flotation were leached in a cyanide leaching circuit with carbon-in-pulp recovery of the precious metals. Following processing, the tailings were delivered to the adjacent tailings impoundment.

Removal of all equipment, tanks, and process components was completed in 1996. The concrete footings were buried on-site; the area was re-contoured, covered with topsoil, and reseeded. Benched areas were blended with existing slopes and generally conform to original contours of the site.

Tailings Impoundment (1): The tailings impoundment is built entirely of borrow material from inside the impoundment area. In its final configuration, the impoundment has an area of approximately 25 acres and contains approximately 718,000 cubic yards (cu. yds.) of tailings. Depth of tailings is approximately 40 feet. The impoundment was constructed with a compacted 12-inch soil layer with a permeability of $1x10^{-6}$ centimeters per second (cm/sec). Average permeability of the undisturbed tailings is approximately $9x10^{-7}$ cm/sec. The tailings material has a net neutralizing potential.

The tailings impoundment is protected by a ditch system to divert potential surface flow from the Toiyabe Range. The system is designed to redirect in excess of the 100-year, 24-hour storm event. No maintenance of this system has been necessary since its construction.

Reclamation consisted of re-grading the surface, addition of topsoil, seeding, a surface drainage diversion, and construction of an emergency spillway. The majority of this work was completed in 1993, with the final work on the emergency spillway outlet completed in 1994.

Ore Stockpile (1): A low grade ore stockpile of about 0.8 acres remains adjacent to the mill site. The stockpile was re-contoured in place, covered with topsoil, and reseeded.

Post closure inspections and monitoring are not required for any remaining Reese River drainage facilities.

C. Receiving Water Characteristics

This facility was constructed in two drainages. The mill and tailings impoundment were constructed within the Reese River drainage and Dry Canyon sub-basin. Dry Canyon is an ephemeral drainage of approximately 2.7 square miles. The tailings facility is located on an alluvial fan. There are no springs in the area. Depth to groundwater in the immediate vicinity of the tailings impoundment is approximately 250 feet. Background groundwater meets NDEP Profile I Reference Values.

The pits and dumps are located within the Birch Creek drainage, at an elevation of between 8,000 and 8,500 feet. Annual precipitation is generally greater than 14 inches/year. Birch Creek is a deeply dissected stream in its upper watershed (mined areas), which originates in springs and seeps. Extensive faulting and jointing in the area of the mines/dumps allow recharge to the groundwater system by lateral and downward migration through permeable zones in the rock units. Flow in Birch Creek is perennial in the lower watershed and intermittent in the upper watershed area.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to construct, operate, and close, subject to the conditions within the Permit, is being sent to the **Battle Mountain Bugle** for publication. The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit 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 discharge 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 renew the Permit.

F. Proposed Limitations, Schedule of Compliance, Monitoring, Special Conditions

See Section I of the Permit.

G. Rationale for Permit Requirements

There is no evidence that the Austin Gold Venture mining operation has directly impacted Birch Creek. However Dump Gulch, formerly a tributary to Birch Creek, appears to have been affected by this mining operation in the form of elevated sulfate and selenium in local sediments (Michael Falter, "Aquatic Environmental Review of Birch Creek, Lander County, Nevada", March 2012). The Permittee is required to continue monitoring Birch Creek and Dump Gulch.

H. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 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 10, April 15, 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is 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. These approaches may be facilitated by minimizing the extent of the toxic water. 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: L. A. Kreskey
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Fact Sheet Revision 01 (Permit Revision 01): Deleted AGV-2, AGV-5, and AGV-6 from future monitoring; reduced water quality monitoring parameters; deleted waste rock dumps, roads, and tailings impoundment ore stockpile from future monitoring. The Division incorporated the requirement to investigate Dump Gulch surface flows with respect to possible degradation of groundwater.