

FACTSHEET
(pursuant to NAC 445A.236)

Permittee Name: GOLD STANDARD VENTURES (US) INC.
2320 LAST CHANCE ROAD
ELKO, NV 89801

Permit Number: NV0024267

Permit Type: MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL FACILITY
THAT DISCHARGES NON-PROCESS WASTEWATER

Designation: MINOR NPDES

New/Existing: NEW

Location: SOUTH RAILROAD MINE, ELKO
APPROXIMATELY 20 MILES SOUTHEAST, CARLIN, NV 89822
LATITUDE: 40.473686, LONGITUDE: -115.979434
TOWNSHIP: T30N, RANGE: R53E, SECTION: 13, 14, 15, 16, 20, 21, 22, 23, 24,
25, 26, 27, 28

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Latitude	Longitude	Receiving Water
001	DIXIE OUTFALL 001	External Outfall		40.471651	-115.978584	UNNAMED TRIBUTARY TO DIXIE CREEK
002	UPSTREAM OF DIXIE OUTFALL	Receiving Water - Ambient		40.470476	-115.980131	UNNAMED TRIBUTARY

Permit History/Description of Proposed Action

The Permittee, Gold Standard Ventures (US) Inc., has applied for a new National Pollutant Discharge Elimination System (NPDES) permit NV0024267 for the South Railroad Mine project located approximately 20 miles southeast of Carlin, within Elko County, Nevada. The Permittee is proposing to discharge treated, intercepted groundwater to an unnamed tributary, that flows into Dixie Creek, via a pipeline.

Facility Overview

The South Railroad Project is a proposed open pit gold mine. To advance mining below the water table, groundwater will be withdrawn from dewatering wells and an in-pit sump. A portion of extracted groundwater will be consumed through mine operations. Extracted groundwater that exceeds mine operation needs will be sent to a water treatment plant to reduce concentrations of constituents (like arsenic), which occur naturally in the groundwater.

The proposed water treatment plant will consist of chemical precipitation, ultra filtration, pH adjustment, and cooling. At the outfall, the treated water will discharge through a plunge pool, to dissipate energy and prevent erosion, prior to entering the unnamed tributary of Dixie Creek. Sludge from the treatment process will be transmitted to lined holding ponds for settling. Following settling, water from the pond will be returned

to water treatment plant for treatment. The solids from the holding ponds will be placed in a lined facility for mining waste. Mine process solution and mine contact water will also be contained in lined facilities and not discharged.

The Nevada Division of Environmental Protection - Bureau of Mining Regulation and Reclamation has pending application NEV2020120.

Outfall Summary

Outfall 001 – This external outfall is for the facility's effluent being discharged into the unnamed tributary of Dixie Creek.

Outfall 002 - This receiving water outfall is for the monitoring of hardness within the unnamed tributary, upstream of the pipeline discharge (Outfall 001).

Effluent Characterization

As no infrastructure or treatment systems are currently in place, there have been no prior discharges to the unnamed tributary that flows into Dixie Creek.

Pollutants of Concern

Pollutants of concern are any pollutants, or parameters, that are believed to be present in the discharge and could affect or alter the physical, chemical, or biological condition of the receiving water.

Samples obtained from the proposed project area (from two groundwater monitoring wells) during the past three (3) years, indicates the quality of the untreated groundwater having concentrations that exceed baseline water quality numbers as determined by antidegradation review done by the Nevada Division of Environmental Protection (Division). Those parameters include Antimony, Arsenic, Barium, Fluoride, Iron, Manganese, Sulfate, and Thallium, along with Temperature which has a total maximum daily load (TMDL) approved by the Environmental Protection Agency (EPA) on December 16, 2010.

Receiving Water

The treated groundwater will be discharged through a pipeline to an unnamed tributary, which flows into Dixie Creek.

Applicable Water Quality Standards/Beneficial Uses

The WQSs for the nearest downstream control point, "Humboldt River, South Fork at Humboldt River" (NAC 445A.1466) apply. These WQSs include water quality criteria to protect the following beneficial uses: watering of livestock, irrigation, aquatic life, recreation involving contact with the water, recreation not involving contact with the water, municipal or domestic supply, industrial supply, and propagation of wildlife. Standards for toxic materials applicable to designated waters (NAC 445A.1236) also apply. Along with the associated standards for total ammonia as defined under NAC 445A.118, along with the standards applicable to all surface waters prescribed under NAC 445A.121 and beneficial uses as defined under NAC 445A.122.

303 (d) Listing Status

Water quality standards (WQSs) for Dixie Creek are delineated under the Nevada 2020-2022 Water Quality Integrated Report (WQIR), published by the Division.

According to Nevada's 2020 – 2022 WQIR, the following beneficial uses for Dixie Creek are not supported:

- The Aquatic Life beneficial use is impaired by Total Phosphorus.
- The Recreation Involving Contact with the Water beneficial use is impaired by *Escherichia coli* (*E. coli*) and Total Phosphorus.

Note: The unnamed tributary to Dixie Creek was not a part of the sources accessed under Nevada's 2020-

2022 WQIR.

TMDL

Per Section 303(d)(1)(C) of the Clean Water Act (CWA), states are required to develop TMDLs for parameters that do not meet water quality standards for a waterbody. TMDLs are implemented during the permitting process by limiting the load of that parameter that may be discharged to the receiving water. The temperature TMDL for Dixie Creek was approved by the EPA on December 16, 2010. This temperature TMDL applies to Dixie Creek from its origin to its confluence with the Humboldt River.

Waste Load Allocation

The existing temperature TMDL for Dixie Creek does not assign any waste load allocations for point source discharges.

Compliance History

Not Applicable - this is a new permit.

Proposed Effluent Limitations

The discharge shall be limited and monitored by the Permittee as specified below.

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 3.46 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
Flow rate	30 Day Average	<= 3.31 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
Color, apparent (unfiltered sample) ^[5]	Daily Maximum		<= 43.75 Color - Platinum Cobalt Unit (col unit (pc))	Effluent Gross	001	Monthly	DISCRT
Temperature, water deg. centigrade ^[2]	Daily Maximum	<= 20 Degrees Centigrade (deg C)		Effluent Gross	001	Continuous	DISCRT
Turbidity ^[4]	Daily Maximum		<= 10 Nephelometric Turbidity Units (NTU)	Effluent Gross	001	Monthly	VISUAL
Alkalinity, total (as CaCO ₃) ^[5]	Daily Minimum		>= 72.65 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Antimony, total (as Sb) ^[5]	Daily Maximum		<= 14.6 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Arsenic, total (as As) ^[5]	Daily Maximum		<= 29 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Barium, total (as Ba) ^[5]	Daily Maximum		<= 200 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Chloride (as Cl) ^[5]	Daily Maximum		<= 47 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Coliform, fecal general ^[5]	Daily Maximum		<= 603.5 Colony Forming Units per 100ml T (CFU/100mL)	Effluent Gross	001	Monthly	DISCRT
Copper, total (as Cu) ^[6]	Daily Maximum		<= 20 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Copper, dissolved (as Cu) ^[6]	Daily Maximum		<= 20 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
E. coli ^[4]	Daily Maximum		<= 410 Most Probable Number per 100ml (MPN/100mL) ^[1]	Effluent Gross	001	Monthly	DISCRT
Fluoride, total (as F) ^[5]	Daily Maximum		<= 360 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Lead, total (as Pb) ^[6]	Daily Maximum		<= 5 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Lead, dissolved (as Pb) ^[6]	Daily Maximum		<= 11.64 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Manganese, total (as Mn) ^[5]	Daily Maximum		<= 115 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Mercury, total (as Hg) ^[6]	Daily Maximum		<= 0.225 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Mercury, dissolved (as Hg) ^[6]	Daily Maximum		<= 0.225 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Nitrogen, ammonia total (as N) ^[5]	Daily Maximum		<= 0.146 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Nitrogen, nitrate total (as N) ^[5]	Daily Maximum		<= 0.2 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Nitrogen, nitrite total (as N) ^[5]	Daily Maximum		<= 0.0493 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Oxygen, dissolved (DO) ^[4]	Daily Minimum		>= 6 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
pH, maximum ^[5]	Daily Maximum		<= 8.7 Standard Units (SU)	Effluent Gross	001	Monthly	DISCRT
pH, minimum ^[5]	Daily Minimum		>= 7.2 Standard Units (SU)	Effluent Gross	001	Monthly	DISCRT
Phosphorus, total (as P) ^[4]	Daily Maximum		<= 0.1 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Solids, total dissolved ^[5]	Daily Maximum		<= 264 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Solids, total suspended ^[4]	Daily Maximum		<= 25 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Sulfate (as S) ^[5]	Daily Maximum		<= 67 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Thallium, total (as Tl) ^[5]	Daily Maximum		<= 1.3 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Zinc, total (as Zn) ^[5]	Daily Maximum		<= 200 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Zinc, dissolved (as Zn) ^[5]	Daily Maximum		<= 26.2 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Beryllium, total (as Be)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Boron, total (as B)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Cadmium, dissolved (as Cd)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Cadmium, total (as Cd)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Chromium, total (as Cr)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Iron, total (as Fe)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Molybdenum, total (as Mo)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Nickel, total (as Ni)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Nickel, total recoverable ^[3]	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Selenium, total (as Se)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Silver, dissolved (as Ag)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT

Notes (Discharge Limitations Table):

1. CFU/100 mL or MPN/100mL.
2. The temperature total maximum daily load (TMDL) for Dixie Creek was approved by the EPA on December 16, 2010.
3. Analysis should be for the dissolved fraction.
4. Tier 1 Parameter based on WQS un NAC 445A.1466
5. Tier 2 Parameter determined by RPA using WQS, Baseline Values, and IBV.
6. Tier 2 Parameter of Concern determined by TBELs as defined under 40 CFR Part 440 Subpart J.

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Chromium, Hexavalent [As CR] (Chromium (VI))	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Chromium, Trivalent [As CR] (Chromium (III))	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Cyanide, total (as CN)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Sulfide, total (as S)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Acrolein	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Aldrin	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
.alpha.-Endosulfan	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
.beta.-Endosulfan	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Benzene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Bis(2-chloroethyl) ether	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Chlordane (tech mix. and metabolites)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Vinyl Chloride (Chloroethylene (Vinyl))	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Chlorpyrifos	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dichlorophenoxyacetic Acid (2 4-D)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
DDT	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
4,4-DDT	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Demeton	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Diazinon	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Dibutyl phthalate	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,3-Dichlorobenzene (M-Dichlorobenzene)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,2-Dichlorobenzene (O-Dichlorobenzene)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,4-Dichlorobenzene (P-Dichlorobenzene)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,2-Dichloroethane	Daily Maximum		M&R Micrograms per Liter	Effluent Gross	001	Annual	DISCRT

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
			(ug/L)				
1,1-Dichloroethylene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dichlorophenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,1-Dichloropropene (Dichloropropenes)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,3-Dichloropropene (Dichloropropenes)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Dieldrin	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Di-2-ethylhexyl phthalate	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Diethyl phthalate	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Dimethyl phthalate	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2-Methyl-4,6-Dinitrophenol (4,6-Dinitro-2-Methylphenol)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dinitrophenol (Dinitrophenols)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Endosulfan, total	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Endrin	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Ethylbenzene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Fluoranthene (Fluoranthene (Polynuclear Aromatic Hydrocarbon))	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Azinphos-Methyl (Guthion)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Heptachlor	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Heptachlor epoxide	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Hexachlorocyclopentadiene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Isophorone	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Lindane	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Malathion	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Methoxychlor	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Mirex	Daily Maximum		M&R Micrograms per Liter	Effluent Gross	001	Annual	DISCRT

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
			(ug/L)				
Monochlorobenzenes	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Nitrobenzene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Nonylphenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Parathion	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Pentachlorophenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Phenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Polychlorinated biphenyls (PCBs)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Silvex	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4,5-TP(silvex) acids/salts, whole water sample	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Carbon Tetrachloride (Tetrachloromethane (Carbon Tetrachloride))	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Toluene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

Discharge Limitations Table for Sample Location 001 (Dixie Outfall 001) To Be Reported Annually

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Toxaphene	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Tributyltin	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
1,1,1-Trichloroethane	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Trichloroethylene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Trihalomethane, tot.	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT

Discharge Limitations Table for Sample Location 002 (Upstream Of Dixie Outfall) To Be Reported Monthly^[1]

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Hardness, total (as CaCO ₃) ^[2]	Daily Maximum		M&R Milligrams per Liter (mg/L)	Receiving Water	002	Daily When Discharging ^[3]	DISCRT

Notes (Discharge Limitations Table):

1. The Permittee shall establish a sampling point upstream of the discharge point that is safe, accessible, and is representative of the receiving water.
2. Calculated limit. Refer to the Water Quality Based Limitations Section, of the Fact Sheet, for further information.
3. Creek should be measured daily when flowing. See Special Approvals / Conditions Table, Item 5, for allowance when unnamed creek is not flowing.

Summary of Changes From Previous Permit

Not Applicable - this is a new permit.

Technology Based Effluent Limitations

Technology based effluent limitations (TBELs) are based on effluent guidelines which are national wastewater discharge standards that are developed by the U.S. EPA on an industry-by-industry basis. The facility falls under the following industry type:

- Title 40 of the Code of Federal Regulations (CFR) Part 440 Subpart J - Chloride, Copper, Fluoride, Gold, Lead, Molybdenum, Silver, Sulfate, TDS, and Zinc Ores Subcategory.

The proposed permit establishes more stringent effluent limitations for copper, lead, mercury, pH, and zinc. Consistent with the WQSs for the South Fork at the Humboldt River and Dixie Creek, as prescribed under NAC 445A.1236 and NAC 445A.1466, along with stricter limits as determined by the antidegradation review done by the Division, to disallow for any degradation of the waters.

Water Quality Based Effluent Limitations

Per NAC 445A.1236, the standards for toxic materials apply. As there have been no discharges to the unnamed tributary which flows into Dixie Creek from the South Railroad Mine to date, there are several unknowns associated with the proposed discharge. Furthermore, the Division does not currently know what the proposed treatment system will consist of. It is for these reasons that the Division selected the most conservative concentration limits for the toxic materials based on either interim baseline water quality standards or the most stringent concentrations listed under the applicable beneficial uses, as listed under NAC 445A.1236. For those utilizing the NAC 445A.1236 concentration limits, if there was no 96-hour limit listed for a constituent, then the 1-hour limit was used.

For all the Tier 1 parameters, the WQBELs are based on the water quality criteria in the NAC 445A.1466, for the Humboldt River, South Fork at the Humboldt River. For Tier 2 parameters, the WQBELs are based on the antidegradation value (either Baseline Value or Interim Baseline Value (IBV)).

Tier 1 Parameters based on the WQSs as prescribed under NAC 445A.1466:

The proposed permit establishes the daily maximum limit of 410 Most Probable Number per 100mL (MPN/100mL) for *E. Coli*.

The proposed permit establishes the daily minimum limit of 6 mg/L for Dissolved Oxygen.

The proposed permit establishes the daily maximum limit of 0.10 mg/L for Phosphorus.

The proposed permit establishes the daily maximum limit of 25 mg/L for TSS.

The proposed permit establishes the daily maximum limit of 10 Nephelometric Turbidity Units (NTU) for Turbidity.

Tier 2 Parameters, as determined by the Division's Reasonable Potential Analysis using WQSs, Baseline Values, or IBVs:

The proposed permit establishes the daily maximum limit of 43.75 Platinum Cobalt Units (PCU) for Color.

The proposed permit establishes the daily minimum limit of 72.65 mg/L for Alkalinity.

The proposed permit establishes the daily maximum limit of 14.6 micrograms per liter (ug/L) for Antimony.

The proposed permit establishes the daily maximum limit of 29 ug/L for Arsenic.

The proposed permit establishes the daily maximum limit of 200 ug/L for Barium.

The proposed permit establishes the daily maximum limit of 47 mg/L for Chloride.

The proposed permit establishes a daily maximum limit of 603.5 MPN/100mL for Fecal Coliform.

The proposed permit establishes the daily maximum limit of 360 ug/L for Fluoride.

The proposed permit establishes the daily maximum limit of 115 ug/L for Manganese.

The proposed permit establishes the daily maximum limit of 0.146 mg/L for Ammonia.

The proposed permit establishes the daily maximum limit of 0.2 mg/L for Nitrate (as N).

The proposed permit establishes the daily maximum limit of 0.0493 ug/L for Nitrite (as N).

The proposed permit establishes the daily maximum limit of 8.7 Standard Units (S.U.) and a daily minimum of 7.2 S.U. for pH.

The proposed permit establishes the daily maximum limit of 264 mg/L for TDS.

The proposed permit establishes the daily maximum limit of 67 mg/L for Sulfate.

The proposed permit establishes the daily maximum limit of 1.3 ug/L for Thallium.

The proposed permit establishes the daily maximum limit of 26.2 ug/L for Dissolved Zinc.

The proposed permit establishes the daily maximum limit of 200 ug/L for Zinc.

Tier 2 Parameters as determined by TBELs in 40 CFR Part 440 Subpart J and Baseline Values, or IBVs.

The proposed permit establishes the daily maximum limit of 20 ug/L for Copper.

The proposed permit establishes the daily maximum limit of 20 ug/L for Dissolved Copper.

The proposed permit establishes the daily maximum limit of 5 ug/L for Lead.

The proposed permit establishes the daily maximum limit of 11.64 ug/L for Dissolved Lead.

The proposed permit establishes the daily maximum limit of 0.225 ug/L for Mercury.

The proposed permit establishes the daily maximum limit of 0.225 ug/L for Dissolved Mercury.

Tier 2 Parameters, based on the temperature criterion in NAC 445A.1466 and associated total daily

maximum load (TMDL) for Dixie Creek:

The proposed permit establishes the daily maximum limit of 20 degrees Celsius for Temperature.

NAC 445A.1236 Metal Hardness Criteria

Furthermore, NAC 445A.1236 lists water quality criteria for seven (7) metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, chromium (III), copper, lead, nickel, silver, and zinc. The 95th percentile receiving water hardness value, based on the Nevada Antidegradation Permit Writers' Guidance (July 2025) requirements, was used to determine water quality criteria for hardness-dependent metals that are sufficiently protective of aquatic life. The Division reviewed approximately three (3) years of water quality data for the unnamed creek and Dixie Creek, achieving interim baseline values (IBV), and found the hardness data to be normally distributed. Based on the concentrations reported and the associated EPA approved methods for calculating hardness, the Division recommended a 95th percentile value of 172.58 mg/L for hardness to be sufficiently protective of aquatic life under most conditions for the unnamed tributary into Dixie Creek. Therefore, the Division has used the 95th percentile value of 172.58 mg/L to calculate the applicable water quality criteria for hardness-dependent metals listed in NAC 445A.1236.

Reasonable Potential Analysis (RPA)

Section 301(b)(1)(c) of the CWA requires effluent limitations necessary to meet WQSs, and 40 CFR Section 122.44(d) requires permits to include conditions that are necessary to achieve WQSs established under Section 303 of the CWA, including state narrative criteria for water quality. Federal regulations at 40 CFR 122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The process to determine whether a WQBEL is required as described in 40 CFR 122.44(d)(1)(i) is referred to as an RPA. Furthermore, NAC 445A.243 requires the Division to consider the establishment of effluent limitations necessary to meet WQSs.

For conducting the RPA, the Division used a mass-balanced approach to determine the expected critical downstream receiving water concentration using statistics recommended in the United States Environmental Protection Agency's Technical Support Document (TSD) for Water Quality-Based Toxic Control for statistically calculating the projected maximum effluent concentration (i.e., Table 31 of the TSD using the 99 percent probability basis and 99 percent confidence interval). For purposes of the RPA, the critical receiving water flow was assumed to be zero (i.e., no dilution); therefore, the critical effluent pollutant concentrations were compared with the most restrictive water quality criteria under NAC 445A.1236 and NAC 445A.1466 to determine if the discharge has reasonable potential to cause, or contribute to, an excursion above a State WQS.

As the facility has yet to discharge to the unnamed tributary to Dixie Creek, the Division does not have effluent data to conduct an RPA, with the exception of reported groundwater sampling done. The attached RPA is based on these concentrations to establish baseline constituents of concern. Therefore, to be conservative, effluent limitations, based on WQS and antidegradation values (baseline water quality and IBV), have been incorporated into the permit. If, during the next renewal review process, the water quality data shows a reasonable potential (via an RPA) for any constituent, the Division will retain that constituent with a limit and may increase the sampling frequency for that constituent during the next permit renewal cycle. Limits for constituents that prove no reasonable potential may be removed and/or the sampling frequency may be decreased in future permits unless new information proves otherwise.

Proposed Water Quality Based Effluent Limits (monthly/weekly/daily)

E. coli and fecal coliform are required to be sampled for as effluent reaching the confluence and flowing into the South Fork of the Humboldt River, for which the most restrictive beneficial uses under NAC 445A.1466, being irrigation and recreation involving contact with the water, have prescribed limits.

Inorganic Constituents, Organic Compounds, and Volatile Organic Compounds, as listed under NAC 445A.1236, shall be sampled annually during this permit term to obtain initial water quality data. If, during the renewal review process, the water quality data shows a reasonable potential for any constituent, the Division will retain that constituent with a limit and may increase the sampling frequency for that constituent during the next permit renewal cycle. Constituents that prove no reasonable potential may have a decrease in sampling frequency and may have the limit removed in future permits unless new information proves otherwise.

Alkalinity, ammonia (as N), antimony, arsenic, barium, beryllium, boron, cadmium, dissolved cadmium, chromium, copper, dissolved copper, color, iron, lead, dissolved lead, manganese, mercury, dissolved mercury, molybdenum, nickel, dissolved nickel, nitrate (as N), nitrite (as N), dissolved oxygen, pH, phosphorus, selenium, dissolved silver, thallium, temperature, TSS, turbidity, zinc, dissolved zinc, shall be sampled monthly during this permit term to obtain initial water quality data. Constituents that prove no reasonable potential may have a decrease in sampling frequency and may have the limit removed in future permits unless new information proves otherwise.

Basis for Effluent Limitations

Temperature is based on the criteria set forth under NAC 445A.1466, and the established total maximum daily load for Dixie Creek. If not limited and monitored, temperature has the potential to affect wildlife, cause potential algal blooms, increase pollutant toxicity, and affect chemical reactions.

Toxic materials standards are defined under NAC 445A.1236, standards for toxic materials applicable to designated waters, to allow for the adherence to the CWA.

The Division's Baseline Water Quality Study was based on reported constituents along with established water quality standards found under NAC 445A.1466, to protect and prevent degradation to the water quality of a surface source.

Pursuant to NAC 445A.1236, water quality criteria for seven metals—cadmium, chromium (III), copper, lead, nickel, silver, and zinc—are dependent on the hardness of the receiving water. As hardness decreases, the corresponding water quality criteria become more stringent to reflect the increased toxicity of these metals under softer water conditions and to ensure adequate protection of aquatic life.

In accordance with the Nevada Antidegradation Permit Writers' Guidance (July 2025), the 95th percentile hardness value of the receiving water was used to derive criteria for these hardness-dependent metals. This approach ensures that criteria are protective of aquatic life under most environmental conditions.

The Division evaluated approximately three years of water quality data from the unnamed tributary to Dixie Creek and Dixie Creek. Statistical analysis confirmed that the hardness data were normally distributed, supporting the use of percentile-based evaluation.

Based on reported concentrations and EPA-approved methods for calculating hardness, the Division recommended a 95th percentile hardness value of 172.58 mg/L. This value is considered sufficiently protective of aquatic life under most conditions in the unnamed tributary to Dixie Creek. Accordingly, the Division used the 95th percentile value to calculate the applicable water quality criteria for the hardness-dependent metals listed in NAC 445A.1236.

Color is required to be monitored to ensure water quality to the unnamed tributary and Dixie Creek is maintained to ensure the health of aquatic life along with eliminating any secondary human health risks (from direct contact or consumption of organisms from the unnamed tributary or Dixie Creek). Note: The most restrictive beneficial use for the Color criterion in NAC 445A.1466 is Municipal and Domestic Supply beneficial use. It will also protect the other beneficial uses (e.g., aquatic life) but is designed to protect the Municipal or Domestic Supply beneficial use and have been applied to this permit.

The most restrictive beneficial use for the Fecal Coliform criterion in NAC 445A.1466 is Irrigation. It will also

protect the other beneficial uses (e.g., recreation) but is designed to protect the Irrigation beneficial use.

Anti-backsliding

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR 122.44(l) prohibit backsliding and require effluent limitations in a reissued permit to be as stringent as those in the previous permit. As this is a new permit, backsliding is not applicable.

Antidegradation

In April 2024, the Division promulgated antidegradation regulations NAC445A.303 through 445A.3049, establishing a framework to preserve the high quality of the State's surface waters.

The antidegradation regulations classify pollutants of concern in surface water or the surface water itself into four tiers, each providing a specific level of protection. Tier 1 and Tier 2 levels of antidegradation protect surface water on a parameter-by-parameter basis whereas Tier 2.5 and Tier 3 surface water have been designated by the State Environmental Commission (Commission) as having a beneficial use of "extraordinary ecological, aesthetic or recreational value".

- Tier 1 level of antidegradation protection has determined that the pollutant of concern exists in the surface water in concentrations above the current WQS. The Division may authorize a new or expanded point source discharge if the Division determines that the water quality will not be degraded below the applicable WQS set forth in NAC 445A.11704 to 445A.2234, inclusive (NAC445A.3041).
- Tier 2 level of antidegradation protection has determined that the pollutant of concern exists in the surface water in concentrations less than the current WQS. The Division shall maintain and protect the baseline water quality or IBV, as applicable, or any requirement to maintain existing higher water quality. The Division may authorize a new or expanded point source discharge that will degrade the baseline water quality or IBV, as applicable, or any requirement to maintain the existing higher water quality if the discharge is approved by the Commission pursuant to NAC 445A.3047 (NAC445A.3042).
- Tier 2.5 and Tier 3 protect the water quality and special characteristics of waterbodies designated as having "extraordinary ecological, aesthetic, or recreational value" (NAC 445A.122). Tier 2.5 allows new non-degrading discharges, whereas Tier 3 prohibits new discharges (NAC 445A.3043 and NAC 445A.3044).

To calculate baseline water quality or IBV the Division:

The Division received from South Railroad water sample test results that were collected from Dixie Creek and tributaries of Dixie Creek from July 1999 to October 2024 on August 14, 2026.

For each pollutant the Division selected the higher value of the 95th percentile or 10% of the WQS for Dixie Creek NAC 445A.1466; and compared that value to the criterion, selecting the most stringent of the two as the baseline water quality or IBV.

The Division determined that Dixie Creek and its tributaries pollutants of concern require Tier 1 and Tier 2 levels of antidegradation protection. Each of the pollutants of concern are identified previously in the Water Quality Based Effluent Limitations Section of this fact sheet.

Pursuant to NAC445A. 3047, South Railroad requested that the Commission make a determination to allow the discharge that will degrade the baseline water quality or IBV.

Following the SEC meeting on September 16, 2026, it was determined that the mine's treatment works could not reliably achieve the originally proposed limits for sulfate, TDS, chloride, and fluoride. Accordingly, the SEC assigned project-specific treatment concentrations for these parameters:

- Sulfate from 25 mg/L to 67 mg/L

- TDS from 239 mg/L to 264 mg/L
- Chloride from 23 mg/L to 47 mg/L
- Fluoride from 357 mg/L to 360 µg/L

The limits for nitrite (as N), ammonia (as N), and nitrate remained unchanged from the original IBV values.

The new limits still are below the Water Quality Standard for Dixie Creek NAC 445A.1466.

WET Testing

Whole effluent toxicity (WET) refers to the aggregate toxic effect to aquatic organisms from all pollutants contained in a facility's wastewater. WET is a tool used to implement the CWA's prohibition of the discharge of toxic pollutants in toxic amounts. NAC 445A.121(4) states that all surface waters of the State, "...must be free from high temperature, biocides, organisms pathogenic to human beings, toxic corrosive or other deleterious substances attributable to domestic or industrial waste or other controllable sources at levels or combinations sufficient to be toxic to human, animal, plant, or aquatic life or in amounts sufficient to interfere with any beneficial uses of the water."

WET tests measure wastewater's effects on specific test organisms' ability to survive, grow, and reproduce. As there have been no discharges to the unnamed tributary to Dixie Creek, no prior WET testing has been conducted. The proposed permit establishes the requirement to conduct an acute WET test once each year to ensure there are no discharges of toxic substances in toxic amounts. If the effluent is determined to be acutely toxic, the WET testing shall be conducted once each quarter until acute toxicity is no longer present (when four (4) consecutive tests show greater than 70 percent survival of organisms exposed to undiluted effluent). If toxicity is found, the Permittee is required to identify pollutants that may require additional controls. When acute toxicity is no longer present the Permittee may revert to conducting the WET test once each year.

Special Conditions

See the Special Approvals/Conditions Table below:

SA – Special Approvals / Conditions Table

Item #	Description
1	Discharge to the unnamed tributary to Dixie Creek shall not occur until the Division has reviewed and approved final design plans of the new proposed wastewater treatment system. The plans shall be wet stamped by a registered Nevada Professional Engineer.
2	The Permittee shall notify the Division in writing within 14 days of initiating discharge.
3	If the effluent is determined to be acutely toxic, the WET testing shall be conducted once each quarter until acute toxicity is no longer present (when four (4) consecutive tests show greater than 70 percent survival of organisms exposed to undiluted effluent). If toxicity is found, the Permittee is required to identify pollutants that may require additional controls. When acute toxicity is no longer present the Permittee may revert to conducting the WET test once each year.
4	Part B.WET.1.3.1 is not applicable to this permit. See Special Approval/Conditions Item #3 above.
5	Hardness is to be measured daily when the ephemeral unnamed creek is flowing. If the creek is not flowing, and the effluent outfall construction has not been completed, then hardness can be measured in Dixie Creek.

Discharges From Future Outfalls/ Planned Facility Changes

There are no planned discharges from any future outfalls or facility changes.

Corrective Action Sites

There are no Bureau of Corrective Actions (BCA) remediation sites within a one-mile radius of the project.

Wellhead Protection Program

The outfalls are not located within a Wellhead Protection Area, which represents an approximate 10-year capture zone of a well, or within a Drinking Water Protection Area, which is defined by a 3,000-foot radius around a public water system (PWS) well.

Schedule of Compliance:

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	At least 90 days prior to the start of discharge, or within 365 days of permit issuance, whichever comes first, the Permittee shall submit to the Division, for review and approval, two (2) copies (one electronic and one hard copy) of an Operations & Maintenance (O&M) Manual. The O&M Manual shall include a Discharge Plan providing discharge details including routing, methodology and BMPs to be utilized. The O&M Manual shall also include a Sampling and Analysis Plan summarizing the monitoring, sampling, analytical, and data reporting procedures for the proposed sampling locations. Before implementing changes to an approved O&M Manual, the Permittee shall submit the proposed changes to the Division for review and approval. The documentation shall be prepared and wet-stamped by a qualified, licensed Nevada engineer (P.E.).	12/1/2027

Deliverable Schedule:

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	QUARTERLY DISCHARGE MONITORING REPORTS	Quarterly	1/28/2027
2	ANNUAL DISCHARGE MONITORING REPORTS	Annually	1/28/2028

Procedures for Public Comment:

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to groundwater of the State of Nevada subject to the conditions contained within the permit, is being mailed to interested persons on our mailing list and will be posted on our website at <https://ndep.nv.gov/posts>. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **11/28/2026**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX 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 determined to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination:

The Division has made the tentative determination to issue/re-issue the proposed 5-year permit.

Prepared by: **Melissa Hanson**

Date: **10/27/2026**

Title: **Staff II Engineer**

Attachment C

Summary of Reasonable Potential Analysis

Parameter	Units	No. of Effluent Samples	Critical Effluent Concentration	Most Stringent Criterion	Criterion Basis	Does RP Exist?
Metals (Total Recoverable), Cyanide and Phenols						
Antimony, Total Recoverable	ug/L	4	42.62	14.6	RMHQ	Yes
Arsenic, Total Recoverable	ug/L	22	145.3	29	RMHQ	Yes
Barium, Total Recoverable	ug/L	4	663.0	200	RMHQ	Yes
Iron, Total Recoverable	ug/L	22	1,660.5	875	RMHQ	Yes
Lead, Total Recoverable	ug/L	22	3.787	5	RMHQ	No
Manganese, Total Recoverable	ug/L	22	220.22	115	RMHQ	Yes
Thallium, Total Recoverable	ug/L	4	7.6	1.3	RMHQ	Yes
Zinc, Total Recoverable	ug/L	22	86.9	190	Acute Aquatic Life	No
Other Pollutants						
Chloride	mg/L	21	4.82	23	RMHQ	No
Fluoride	ug/L	19	700.90	357	RMHQ	Yes
Sulfate	mg/L	21	52.40	25	RMHQ	Yes
Total Dissolved Solids	mg/L	21	197.44	239	RMHQ	No