

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
Bureau of Water Pollution Control (BWPC)
Fact Sheet
(pursuant to NAC 445A.236)

Applicant: Antler Peak Gold Inc.
P. O. Box 2610
Winnemucca, Nevada, 89446

Permit: NV0023345

Location: Esmeralda Project
2800 Lucky Boy Pass Road
Hawthorne, Mineral County, Nevada 89415
Latitude: 38° 17' 49" N;
Longitude 118° 53' 27" W
Township 5 N, Range 28 E, Section 7, 8, 17, & 18 MDB&M

Location of Discharge:

Latitude: 38° 18' 10" N;
Longitude 118° 53' 37" W
Township 5 N, Range 28 E, Section 7 MDB&M

General: The Applicant has applied for renewal of National Pollutant Discharge Elimination System (NPDES) permit NV0023345, to discharge up to 4.32 million gallons per day (MGD), daily maximum, of treated groundwater, pit lake water, and mine decline sump water to Days Creek, an ephemeral stream, a tributary to Bodie Creek, also an ephemeral stream. From Bodie Creek, surface water flows into Rough Creek, an intermittent stream, and then to the East Walker River. The facility will require continued dewatering to develop the mines and to continue gold production, as well as to provide safe working conditions. It may be necessary to dewater the pit lake to fully develop the mines. Because the Applicant proposes to discharge pit lake water and mine decline sump water, mine drainage under 40 CFR Part 440, this permit is classified as a major NPDES permit.

The facility is located in Mineral County approximately 22 miles southwest of the town of Hawthorne, near the historic mining town of Aurora. The Aurora Mining District has been mined intermittently since the discovery of gold and silver in 1860. Mineral processing and the management of all mineral processing fluids at this site are permitted under Water Pollution Control Permit NEV87072 issued by the Nevada Division of Environmental Protection (NDEP) Bureau of Mining Reclamation and Regulation (BMRR). Construction and discharge activities at this facility were also previously authorized by Permits TNEV2003108 (BMRR) and TNEV2004327 (BWPC).

The Esmeralda Project was previously known as the Aurora Project and operated by Nevada Goldfields, Inc. (NGI) and the Aurora Partnership (AP). NGI acquired the Humboldt Pit from AP in 1997 to compliment the NGI Prospectus, Martinez, Juniata, Chesco, Last Chance, and Ann Pits and the Prospectus, Chesco, and Martinez Declines. The property and mining facilities were purchased by Metallic Ventures (U.S.), Inc. in March 2000 out of bankruptcy. Under Metallic Ventures

(U.S.), Inc., the mine and facilities went into temporary closure in June, 2005. In 2008, the property and mining facilities were purchased by Antler Peak Gold Inc., a subsidiary of Great Basin Gold Limited, and the permit was modified to reflect the new ownership in early 2009. The application to renew the permit is made by Antler Peak Gold Inc. (APGI).

At the time of formulation of the original permit in 2004, the Division received letters of support for the discharge from the Walker Lake Working Group and the Board of Mineral County Commissioners. These groups supported the discharge because Walker Lake is in a critical condition and in much need of water to save it from becoming too alkaline for the survival of the native fish species, Lahontan cutthroat trout and Tui chub.

Mine Dewatering Discharges:

Under previous mine operation scenarios, groundwater infiltrated into two of the three declines at rates exceeding the process make-up water requirements. Two dewatering wells, the Martinez and the Prospectus, were constructed to intercept the flow to these two declines; the Chesco decline is normally dry. The dewatering wells decreased, but did not eliminate, the flow to the sumps.

Under temporary permit TNEV2003108, BMRR authorized the Applicant to construct two rapid infiltration basins (RIBs) to manage the excess water. The RIBs did not perform as anticipated, requiring an alternative water disposal/beneficial use option. It was determined by the Permittee at that time that they would pursue the option of discharge to surface waters under the NPDES program, with the attendant NPDES discharge permit. The two former RIBs were re-designated as settling ponds for use prior to discharge to Days Creek; a third settling pond may be constructed to provide retention capacity for increased discharge flow. The treatment system also includes polymer flocculent addition to the decline sump water for sediment removal and smaller settling basins near the mines. All water to be discharged to surface waters, the East Walker River via Days Creek, etc., must flow through the settling pond system. Due to the mixing that occurs in the settling ponds, the quality of the individual sources of dewatering water is not required.

On April 9, 2004, the Applicant submitted a Channel Stability Evaluation, prepared by SRK Consulting Engineers and Scientists to demonstrate that settling pond discharge flows up to 3,000 gallons per minute, 4.32 MGD, are within the capacity of the Days Creek channel, tributary to Bodie Creek. The Evaluation concluded that, with minor channel improvements immediately downgradient of the settling ponds, discharge flows up to 3,000 gpm are within the capacity of the Days Creek ephemeral stream channel.

The permit also gives the Permittee the operational flexibility to discharge well and/or sump water that meets the appropriate Profile I criteria to the pit lake during maintenance or upset conditions. The amount of additional monitoring required by any discharge to the pit lake will discourage the routine use of this option. During the term of this permit (2004-2009), no water has been discharged from the mine workings or dewatering wells to the pit lake.

During the term of the 2004 permit, discharge to Days creek occurred from December 2004 to June 2005. Discharge has not occurred since June 2005 through December 2009. Discharge Monitoring Reports (DMRs) submitted under permits TNEV2003470 (1 Monthly DMR), TNEV2004327 (6 Monthly DMRs), and NV0023345 (5 Quarterly DMRs) report the following discharge quality:

Parameter		Permit Limit	Average	Maximum	Minimum
Flow (MGD):	30-Day Average	1.152	0.45	0.54	0.23
	Daily Maximum	1.152	0.77	1.01	0.47
pH (Standard Units)		6.5-9.0	8.22	8.47	7.68
Dissolved Oxygen (mg/L)		≥ 5	12	13	11
Total Ammonia as N (mg/L)		Calculated per NAC445A.144	0.43	1.1	<0.1
Total Dissolved Solids (mg/L)		390	385	638	310
Total Petroleum Hydrocarbons (mg/L)		1	<0.5	0.53	<0.5
Total Phosphates as P (mg/L)		0.1	<0.02	<0.05	<0.02
Total Nitrogen (mg/L):	30-Day Average	0.9	<0.2	<0.3	<0.2
	Daily Maximum	1.7			
Total Hardness as CaCO ₃ (mg/L)		M&R	247.0	346	130
Total Sulfate as SO ₄ (mg/L)		250	92.6	128	71
Total Sulfide as S (mg/L)		2	<2	<2	<2
Tot. Suspended Solids (mg/L):	30-Day Average	20	21.7	230	<5
	Daily Maximum	30			
Antimony (µg/L)		146	3.8	6	<3
Arsenic (µg/L)		50	20.5	40	13
Barium (µg/L)		2000	72.5	330	32
Boron(µg/L)		750	136.1	530	8
Cadmium (µg/L):	30-Day Limit	2.307 ⁽¹⁾	<1	3	<1
	Daily Maximum	10.876 ⁽¹⁾			
Total Chromium (µg/L)		100	2.6	<20	<1
Copper (µg/L):	30-Day Limit	25.60 ⁽²⁾	4.75	27	<1
	Daily Maximum	41.55 ⁽²⁾			
Iron (µg/L)		1000	347.8 (178.8) ⁽⁶⁾	1700 (300) ⁽⁶⁾	90
Lead: (µg/L):	30-Day Limit	10.06 ⁽³⁾	<2	<7	<1
	Daily Maximum	258.13 ⁽³⁾			
Manganese (µg/L)		200	146	410	60
Mercury: (µg/L):	30-Day Limit	0.012	<0.2	<0.2	<0.1
	Daily Maximum	2			
Molybdenum (µg/L)		19	16.6	23	13
Nickel (µg/L)		13.4	3.57	6	2
Selenium(µg/L):	30-Day Limit	5	<5	<20	<5
	Daily Maximum	20			
Silver (µg/L)		19.22 ⁽⁴⁾	<2	<20	<1
Thallium (µg/L)		13	<0.5	<1	<0.5
Zinc (µg/L):	30-Day Limit	228.04 ⁽⁵⁾	36.9	120	<10
	Daily Maximum	251.77 ⁽⁵⁾			
Chloride: (mg/L)		19	6.83	8.8	5
Fluoride (µg/L)		1000	278.9	700	190
Total Cyanide(µg/L):	30-Day Limit	5.2	<5	<20	<2
	Daily Maximum	22			

(1) Cadmium permit limit listed calculated using average of all Hardness values reported:

- 30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.7852 \ln(\text{Hardness}) - 3.490\}$
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.128 \ln(\text{Hardness}) - 3.828\}$
- (2) Copper permit limit listed calculated using average of all Hardness values reported:
30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.8545 \ln(\text{Hardness}) - 1.465\}$
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{0.9422 \ln(\text{Hardness}) - 1.464\}$
- (3) Lead permit limit listed calculated using average of all Hardness values reported:
30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{1.273 \ln(\text{Hardness}) - 4.705\}$
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.273 \ln(\text{Hardness}) - 1.460\}$
- (4) Silver permit limit listed calculated using average of all Hardness values reported:
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.72 \ln(\text{Hardness}) - 6.52\}$
- (5) Zinc permit limit listed calculated using average of all Hardness values reported:
30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.8473 \ln(\text{Hardness}) + 0.7614\}$
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{0.8473 \ln(\text{Hardness}) + 0.8604\}$
- (6) See “Rationale for Permit Requirements” section for discussion.

MGD: Million gallons per day. mg/L: Milligrams per liter. $\mu\text{g/L}$: Micrograms per liter.
-N: As nitrogen. SU: Standard units. -P: As phosphorus.

Humboldt Pit Lake Discharges:

Previously, in May 1989, APCI was authorized to discharge 0.08 MGD of Humboldt Pit dewatering water to the East Walker via the same route. Groundwater was first encountered in the pit at a depth of approximately 250 feet. In 1992, NPDES Permit NV0021652 was modified to authorize an increase in the discharge rate to 0.55 MGD. The mine dewatering was discontinued in 1994 and a pit lake formed with a January 31, 2004 reported volume of approximately 60 million gallons. The pit lake elevation is estimated to increase by 0.3 feet for every million gallons of water discharged to the pit. During the term of the 2004 permit, no water has been discharged from the pit lake. Under the BMRR permit (NEV87072), the following pit lake water quality data has been reported:

Parameter	Average	Maximum	Minimum
Total Alkalinity (mg/L)	76.14	98	27
Aluminum (mg/L)	0.192	1.8	<0.045
Antimony(mg/L)	<0.002	0.002	<0.002
Arsenic (mg/L)	0.0042	0.007	<0.002
Barium (mg/L)	0.0388	0.058	0.02
Beryllium (mg/L)	<0.001	0.001	<0.001
Boron (mg/L)	0.0667	0.1	<0.05
Cadmium (mg/L)	<0.001	<0.002	<0.001
Calcium (mg/L)	178.1	210	60
Chloride (mg/L)	11.029	13	3.6
Chromium (mg/L)	0.0020	0.0077	<0.002
Copper (mg/L)	0.0101	0.045	<0.004
Fluoride (mg/L)	0.401	0.66	0.17
Iron (mg/L)	0.1576	1.0	<0.05
Lead (mg/L)	0.0020	0.009	<0.002
Magnesium(mg/L)	49.19	56	15
Manganese(mg/L)	0.0741	0.14	0.028
Mercury (mg/L)	<0.001	<0.002	<0.001
Nickel (mg/L)	0.0087	0.023	<0.01
Nitrate + Nitrite as N (mg/L)	0.246	0.84	<0.05
pH (Standard Units)	8.01	8.29	7.11

Parameter	Average	Maximum	Minimum
Total Alkalinity (mg/L)	76.14	98	27
Selenium (mg/L)	<0.005	<0.01	<0.005
Silver (mg/L)	<0.002	<0.005	<0.002
Sodium (mg/L)	38.71	47	14
Sulfate (mg/L)	620.48	750	190
Thallium (mg/L)	<0.001	0.002	<0.001
Total Dissolved Solids (mg/L)	1020	1200	340
WAD Cyanide(mg/L)	<0.005	<0.01	<0.005
Zinc (mg/L)	<0.02	<0.08	<0.01

Receiving Water Characteristics: The East Walker River at Bridge B-1475, NAC 445A.1655, standards apply to this ephemeral East Walker tributary. The listed beneficial uses of this segment of the East Walker include propagation of aquatic life, water contact recreation, wildlife propagation, irrigation, stock watering, municipal or domestic supply, industrial supply, and non-contact recreation.

Until February 2003, when monitoring of the sampling location was discontinued, the Division monitored the East Fork of the Walker River water quality at sampling location EFE, latitude 38° 26' 0"N, longitude 119° 02' 2" W, near Bridge B-1475. During the period from January 1999 through January 2003 (the most recent data published) the following water quality for the East Fork Walker River was reported:

Parameter	Water Quality Standard	Reported Concentration		
		Average	Maximum	Minimum
Temperature (°C)	$\Delta T=0^6$ Nov-Apr: $\leq 13^7$ May-Jun: $\leq 17^7$ Jul-Oct: $\leq 23^7$	12.7	23.1	0.4
pH (Standard Units)	6.5-9.0 ⁷	8.78	9.54	7.73
Dissolved Oxygen (mg/L)	Nov-May: $\geq 6.0^7$ Jun-Oct: $\geq 5.0^7$	9.11	12.45	2.7
Arsenic ($\mu\text{g/L}$)	50 ¹	7.6	16	4
Boron ($\mu\text{g/L}$)	750 ⁸	100	100	100
Cadmium ($\mu\text{g/L}$)	1.4 ² / 0.19 ³	<1	<2	<1
Chloride (mg/L)	13 ⁶ / 19 ⁷	2.12	3	1
Chromium ($\mu\text{g/L}$)	100 ¹	<2	<5	<2
Copper ($\mu\text{g/L}$)	9.47 ² / 6.52 ³	<20	<20	<20
Hardness as CaCO ₃ (mg/L)	---	69	97	45
Iron ($\mu\text{g/L}$)	1,000 ⁵	255	380	180
Lead ($\mu\text{g/L}$)	43 ² / 1.68 ³	<2	<5	<2
Mercury ($\mu\text{g/L}$)	1.4 ² / 0.77 ³	<0.5	<0.5	<0.5
Nitrate as N (mg/L)	10 ⁴	0.093	.23	0
Selenium ($\mu\text{g/L}$)	20 ² / 5.0 ³	<2	<5	<2
Sulfate, dissolved as SO ₄ (mg/L)	250 ⁴	18.12	40	6
Total Dissolved Solids (mg/L)	320 ⁶ / 390 ⁷	132.7	195	74
Total Nitrogen (mg/L)	0.9 ⁶ / 1.7 ⁷	0.676	1.44	0.26

Parameter	Water Quality Standard	Reported Concentration		
		Average	Maximum	Minimum
Total Phosphorus (mg/L)	0.10 ⁴	0.088	0.28	0.03
Total Suspended Solids (mg/L)	80 ⁴	8.96	26	2
Zinc (µg/L)	85.57 ² / 86.27 ³	<50	<50	<50

Notes: For calculated water quality standards for cadmium, copper, lead, silver and zinc above, a hardness of 69 mg/L as CaCO₃, the 1999 – 2003 average hardness at this monitoring point, was used in the calculation of the standard. Calculations of the standards listed above, based on NAC445A.144, are for the dissolved fraction present for easier comparison to the quality of the discharge, which is reported in dissolved fraction. The water quality standards for these metals listed in NAC 445A.144 are for total recoverable metal.

The cadmium, copper, lead, and mercury average concentrations may not be representative of concentrations in the East Walker River. The detection limits for the majority of these analyses were above the aquatic life chronic toxicity standards.

1. NAC 445A.144 Municipal or domestic supply standard.
2. NAC 445A.144 Aquatic life, 1-hour standard (acute).
3. NAC 445A.144 Aquatic life, 96-hour standard (chronic).
4. NAC 445A.1655 Water quality standard for beneficial use.
5. NAC 445A.144 Aquatic life standard.
6. NAC 445A.1655 Requirement to maintain existing higher quality, annual average.
7. NAC 445A.1655 Requirement to maintain existing higher quality, single value.
8. NAC 445A.144 Irrigation standard

Discharge Flow and Characteristics: The permit includes a permit limitation of 4.32 MGD for the daily maximum discharge, the system design capacity. The permit limit for discharge without pit dewatering is 1.152 MGD. All permit limits proposed are based on appropriate State and Federal standards and criteria in effect at the time of permit renewal.

Quantities: The 2006 303 (d) List for the Walker River Basin, Stateline to Bridge B-1475, Waterbody ID NV09-WR-07, lists an existing Total Maximum Daily Load (TMDL) for Total Suspended Solids (TSS). As stated in Nevada’s December 2002 Continuing Planning Process, there are instances where existing TMDLs may not result in load limits for a discharge. TMDLs were developed for the Walker River as part of the “208 Plan for Undesignated Areas”(NDEP, 1993), however no waste load allocations were made. Included in this 208 Plan is the following language:

“Any discharge which improves the existing water quality and has permitted discharge limits as strict or stricter than the water quality standards can be considered in compliance with an established TMDL.”

The Applicant’s discharge to the East Walker River will comply with this requirement. The TSS permitted load limitation, 1,081 lb/day, is based on the permitted flow, 4.32 MGD, and the TSS water quality effluent limit pursuant to 40 Code of Federal Regulations (CFR) Part 440.104 Subpart J New Performance Standards for the Copper, Lead Zinc, Gold, Silver and Molybdenum Ores Subcategory, 30 mg/L. At the time of 208 Plan development, the East Fork above Yerington (Nordyke E. Station), downgradient of Bridge B-1475, TSS concentration was 107.51 mg/L.

The 2006 303(d) List for NV09-WR-07 lists pH, temperature, and total phosphorus as pollutants or

stressors of concern. Therefore, the permit will require monthly pH meter readings of the discharge and quarterly calculation of the total phosphorus loading without a discharge limitation. Because the discharge will have significant travel distance (approximately 20 kilometers or 12.5 miles) in which to come into equilibrium with the same ambient conditions affecting the Walker River, impact to the river temperature is not anticipated.

Calculation of the loadings of the other monitored parameters will not be required by the permit.

Proposed Effluent Limitations: During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge treated mine dewatering water to the East Walker River through Outfall 001, the Settling Pond Two discharge line. Samples and measurements shall be taken at the following locations:

- i. The diffuser, Outfall 001, on the HDPE discharge line from Settling Pond Two;
- ii. The Settling Pond Two discharge flume;
- iii. The Martinez dewatering well discharge line totalizer;
- iv. The Prospectus dewatering well discharge line totalizer;
- v. The Martinez decline sump discharge line totalizer;
- vi. The Prospectus decline sump discharge line totalizer;
- vii. The Chesco decline sump discharge line totalizer;
- viii. The Humboldt Pit discharge line totalizer;
- ix. Discharge line(s) from each source of water that will be discharged in the subsequent year;
- x. The discharge line(s) from every source (5 maximum) of dewatered solution to the Humboldt Pit;
- xi. The Humboldt Pit Lake;
- xii. The Humboldt Pit monitoring well, MW-5; and
- xiii. The Days Creek sampling point upgradient of the confluence with Bodie Creek, DC-1.

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

Table I.A.: Permit Limitations and Requirements.

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-Day Average	Daily Maximum	Sample Locations	Measurement Frequency	Sample Type
Flow, total (MGD)	1.152/4.32 ¹	1.152/4.32 ¹	ii. ²	Daily	Discrete
Flow, total to Humboldt Pit (MGD)	---	1.44	iii., iv., v., vi., and/or vii.	Continuous	Totalizer(s)/ Calculation
Flow, Martinez dewatering well	Monitor & Report (MGD)		iii. ³	Weekly	Totalizers
Flow, Prospectus dewatering well			iv. ³		
Flow, Martinez decline			v. ³		

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-Day Average	Daily Maximum	Sample Locations	Measurement Frequency	Sample Type
Flow, Prospectus decline			vi. ³		
Flow, Chesco decline			vii. ³		
Flow, Humboldt Pit			viii.		
Hardness (mg/L as CaCO ₃)	Monitor & Report		i.	Monthly	Discrete
Cadmium, total ⁴ (µg/L)	(5)	(5)	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Copper, total ⁴ (µg/L)	(6)	(6)	i.	Monthly ⁹	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Lead, total ⁴ (µg/L)	(7)	(7)	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Manganese, total ⁴ (µg/L)	---	200	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Total Nitrogen – N (mg/L)	0.9 ⁸	1.7	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
pH (SU) (Field Measurement)	---	6.5 ≤ pH ≤ 9.0	i.	Monthly	Meter Reading
	Monitor & Report		ix.	Annually ¹⁷	
Selenium, total ⁴ (µg/L)	5.0	20	i.	Monthly ⁹	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Silver, total ⁴ (µg/L)	---	(10)	i.	Monthly ⁹	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Sulfate (mg/L)	---	250	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Sulfide (µg/L)	---	2	i.	Monthly ⁹	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Total Dissolved Solids (mg/L)	320 ⁸	390	i.	Monthly	Discrete
	Monitor & Report		xiii.	Quarterly	
			ix.	Annually ¹⁷	
Total Petroleum Hydrocarbons, extractable (mg/L)	---	1.0	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Total Suspended Solids (mg/L)	20	30	i.	Monthly	Discrete
	Monitor & Report		xiii.	Quarterly	
			ix.	Annually ¹⁷	
Total Suspended Solids (lb/day)	1,081	---	i.	Monthly	Calculation
Antimony, total ⁴ (µg/L)	---	146	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Arsenic, total ⁴ (µg/L)	----	50 ¹¹	i.	Monthly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-Day Average	Daily Maximum	Sample Locations	Measurement Frequency	Sample Type
Chloride (mg/L)	13 ⁸	19	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Dissolved Oxygen (mg/L)	---	(12)	i., xiii. ¹³	Quarterly	Discrete
Fluoride (µg/L)	---	1,000	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Iron, total ⁴ (µg/L)	---	1,000	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Mercury, total (µg/L)	0.77 ¹⁴	1.4	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Molybdenum, total ⁴ (mg/L)	1.65	6.16	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Temperature (°C) (Field Measurement)	---	(15)	i., xiii. ¹³	Monthly	Meter Reading
Total Ammonia –N (mg/L)	(16)	(16)	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Total Phosphates –P (mg/L)	0.10 ⁸	---	i.	Quarterly	Discrete
	Monitor & Report		ix.	Annually ¹⁷	
Total Phosphorus (lb/day)	Monitor and Report		i.	Quarterly	Calculation
Barium (µg/L)	---	2,000	i.	Annually ¹⁷	Discrete
Boron (µg/L)	---	750	i.	Annually ¹⁷	Discrete
Chromium, total (µg/L)	---	100	i.	Annually ¹⁷	Discrete
Cyanide, total (µg/L)	5.2	22	i.	Annually ^{17, 18}	Discrete
Nickel, total ⁴ (µg/L)	---	13.4	i.	Annually ¹⁷	Discrete
Thallium, total ⁴ (µg/L)	---	13	i.	Annually ¹⁷	Discrete
Zinc, total ⁴ (µg/L)	(19)	(19)	i.	Annually ¹⁷	Discrete
Whole Effluent Toxicity Test	Monitor and Report ²⁰		i.	Annually ¹⁷	Composite
Nevada Profile Analyte List (See Attachment)	Monitor and Report		x., xi. ²¹	Initially, weekly ²²	Discrete
			xii. ²³	Initially, monthly	
Surface Elevation (ft. AMSL)	Monitor and Report		xi.	Initially, weekly ²²	Measurement
Static Water Elevation (ft. AMSL)	Monitor and Report		xii.	Initially, weekly ²²	Measurement

Footnotes:

- 1: Includes discharge of water from Humboldt Pit Lake, under specific conditions and limitations.
- 2: Measured at discharge flume.
- 3: Flows to the Humboldt Pit shall be monitored daily and reported separately from the flows to the

settling ponds.

- 4: Analyze as Total Recoverable Metal per 40 CFR § 136. 30-Day and Daily Maximum limits are the Chronic and Acute Aquatic Life water quality standards, respectively, approved by USEPA on March 29, 2010
- 5: Cadmium, total
 30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.7409 \ln(H) - 4.719\}$
 Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.0166 \ln(H) - 3.924\}$
- 6: Copper, total
 30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.8545 \ln(H) - 1.702\}$
 Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{0.9422 \ln(H) - 1.700\}$
- 7: Lead, total
 30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{1.273 \ln(H) - 4.705\}$
 Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.273 \ln(H) - 1.460\}$
- 8: Annual average.
- 9: The Permittee may request a reduction in the monitoring frequency from monthly to quarterly after twelve consecutive months in which the constituent is not detected with a method detection level of less than the 30-day average discharge limitation for selenium or the daily maximum discharge limitation for silver and sulfide.
- 10: Silver, total
 Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{1.72 \ln(H) - 6.59\}$
- 11: In response to the US EPA's October 2001 decision to reduce the arsenic drinking water maximum contaminant level to 10 $\mu\text{g/L}$ and to require water systems to meet this standard by January 2006, the Division is reviewing NAC 445A.144, Standards for Toxic Materials Applicable to Designated Waters. If the State arsenic standard is revised during the term of this permit, the daily maximum discharge limitation will be modified accordingly as a minor modification.
- 12: Nov. – May: $\geq 6.0 \text{ mg/L}$;
 June – Oct. $\geq 5.0 \text{ mg/L}$.
- 13: Monitoring at DC-1, xiii., is not required if the discharge meets the dissolved oxygen and temperature discharge limitations at Outfall 001, i.
- 14: The Permittee must analyze the discharge at least annually with a reportable detection limit at or below the chronic aquatic life standard, 0.77 $\mu\text{g/L}$.
- 15: Nov. – Apr.: $\leq 13^\circ \text{C}$;
 May – June: $\leq 17^\circ \text{C}$;
 Jul. – Oct.: $\leq 23^\circ \text{C}$.
- 16: Total Ammonia (mg nitrogen/L), for cold water fisheries:

$$\text{30-day Average: } \left[\frac{0.0577}{1 + 10^{7.688 - pH}} \right] + \left[\frac{2.487}{1 + 10^{pH - 7.688}} \right] \times \text{MIN} [2.85, 1.45 \times 10^{0.028 \times (25 - T)}]$$

$$\text{Daily Maximum: } \left[\frac{0.275}{1+10^{7.204-pH}} \right] + \left[\frac{39.0}{1+10^{pH-7.204}} \right]$$

MIN: Means the lesser of the two values separated by the comma.

T: Discharge temperature in degrees Celsius.

- 17: Annual analyses shall be conducted in the fourth quarter of the calendar year.
- 18: Any detection of cyanide shall trigger a reporting requirement as delineated under Part II.A.4.b.
- 19: Zinc, total
30-day Average: concentration ($\mu\text{g/L}$) = $\exp\{0.8473 \ln(H) + 0.884\}$
Daily Maximum: concentration ($\mu\text{g/L}$) = $\exp\{0.8473 \ln(H) + 0.884\}$
- 20: See Parts I.A.20. and I.A.2.d.
- 21: The Humboldt Pit Lake water shall be sampled at the Humboldt Pit haul road, HPL-1.
- 22: The Humboldt Pit Lake and all discharges to the Humboldt Pit Lake shall be monitored prior to discharge and weekly during the period of discharge. The pit lake shall be monitored bi-weekly for two months after the discharge ceases.
- 23: The Humboldt Pit monitoring well, MW-5, shall be monitored prior to discharge to the pit lake and monthly during the period of discharge and for six months after the discharge ceases.
- MGD: Million gallons per day. lb/day: Pounds per day.
mg/L: Milligrams per liter. $\mu\text{g/L}$: Micrograms per liter.
-N: As nitrogen. SU: Standard units.
-P: As phosphorus. °C: Degrees Celsius.
H: Hardness (as mg/L CaCO_3)

Schedule of Compliance:

The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the schedule of compliance.

- a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- b. **By MMM DD, 2010** (Within sixty (60) days of the permit effective date), the Permittee shall submit to the Division necessary updates to the Operations and Maintenance Manual.
- c. Within fifteen (15) days of the completion of Settling Pond Three construction, the Permittee shall submit to the Division as-built drawings of all three settling ponds and the delivery pipelines and pond volume calculations for the three settling ponds. The as-built drawings and calculations shall be stamped by a Nevada licensed Professional Engineer.
- d. At least thirty (30) days prior to discharge from the settling ponds, the Permittee shall

install a Tracon Trapezoidal flume (Trap-MD-01), or equivalent, to measure the flow at Outfall 001.

- e. Approximately twenty-four (24) hours, (\pm 2 hours), after the start of discharge from the Humboldt Pit Lake to the settling pond system, the Permittee shall obtain a discrete water sample from Outfall 001 and have this sample analyzed for all monitored effluent parameters. These analyses shall not replace any monthly, quarterly, or annual analyses required by other sections of this permit.

This schedule of compliance item will not apply, if the Permittee treats the water to reduce the TDS concentration to 320 mg/L or less and the sulfate concentration to 250 mg/L or less.

- f. Ten (10) days after the start of discharge from the Humboldt Pit Lake to the settling pond system, the Permittee shall obtain a 24-hour composite effluent sample from Outfall 001 and initiate the whole effluent testing procedure per Part I.A.19. These analyses shall be in addition to the annual whole effluent testing required by Part I.A.1.b., unless discharge from the pit lake starts in the fourth quarter of a calendar year.
- g. At least one hundred fifty (150) days prior to the discharge of more than 1.152 MGD, daily maximum, the Permittee shall submit to the Division a stream channel stability analysis for the portions of Days, Bodie, and Rough Creeks that will convey the discharge to the East Walker River. The analysis shall at a minimum evaluate stream channel capacity, stream channel bank and bed stability, and sediment transport. Based on this analysis, the Permittee may be required to implement mitigative measures to minimize the impact of the increased flow.
- h. At least one hundred eighty (180) days prior to the discharge of water from the Humboldt Pit Lake that does not comply with the NAC 445A.1655 total dissolved solids 320 mg/L standard and/or the 250 mg/L sulfate standard, the Permittee shall submit to the Division a permit application including but not limited to a mixing zone study or similar documentation to justify the discharge of this water, all appropriate permit application forms, and the appropriate permit application fee.

Rationale for Permit Requirements:

The Applicant is proposing to utilize a flocculation/settling treatment process with up to three settling ponds which will result in compliance with East Walker River water quality criteria at Outfall 001, the diffuser downgradient of Settling Pond Two, except for temperature, dissolved oxygen, and potentially total dissolved solids and sulfate. Due to the absence of flow in the ephemeral Days Creek and the approximately 15,000 feet of channel from the discharge point to the confluence with Bodie Creek, the Division will not require mixing zone calculations for temperature and dissolved oxygen at Bodie Creek. The slope along the ephemeral channel ranges from 2 – 5 percent and will result in an undetermined but significant degree of stream aeration.

Because the state aquatic life standards, NAC 445A.144, are at least as stringent as the new source performance standards daily maximum effluent guidelines for the copper, lead, zinc, gold, silver, and molybdenum ores subcategories, 40 CFR Part 440.104, the state standards were used to

establish the permit discharge limitations. This analysis was limited to the reported range of hardness in the East Walker River for the copper, zinc, lead, mercury, and cadmium; and pH standards. The NAC 445A.1655 total suspended solids (TSS) beneficial use standard, 80 mg/L, is less restrictive than the 40 CFR Part 440.104 daily maximum standard of 30 mg/L. The TSS discharge limitation rationale is stated below.

Days Creek, Bodie Creek, and Rough Creek are not class waters, but are tributary to the East Walker River.

Flow, total: The total flow rate limitation in the previous permit, 4.32 MGD, is based on the maximum predicted dewatering rate including Humboldt Pit dewatering. The discharge will not approach this flow rate unless the Applicant decides to dewater the Humboldt Pit Lake. The stream stability study, conducted April 9 2004, supported discharge flows up to 3000 gallons per minute, with minor channel reinforcement work immediately below the pond outlet, with no impact to the stability of Days Creeks. The proposed permit renewal maintains the previous permit limits.

The flow to the Humboldt Pit Lake is limited to the maximum mine dewatering flow, 1.44 MGD, without the pit lake dewatering component. The discharge to the pit lake will only occur when necessary for maintenance and when the discharge water cannot meet the surface water discharge quality limitations.

Cadmium, total: The total cadmium limitations in the previous permit were based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 cadmium standards listed in the original permit are for the dissolved fraction, therefore, the 0.85 adjustment factor for acute and chronic toxicity respectively has been eliminated from the standard equations.

Based on 2004-2005 discharge data, total cadmium has been reported to range from <1 µg/L to 3 µg/L, with an average of <1 µg/L. Due to fluctuating hardness values, the calculated cadmium standards vary significantly. (Calculated acute standards: 5.273 to 15.907 µg/L; calculated chronic standards 1.394 to 3.006 µg/L). The total cadmium concentrations reported have all been below the calculated acute standards for the reported hardness. Compliance with the calculated chronic standards was determined for all reporting periods, with the exception of May 2004. The calculated chronic standard for that month was 1.39 µg/L, but the discharge was reported as <2 µg/L, the method reporting limit. With the variability of the hardness based calculated standards for cadmium and the low chronic toxicity standards, monthly cadmium monitoring is required.

The total cadmium permit limitations proposed in the permit renewal differ from the previous permit limits. This is due to USEPA-approved revisions of NAC 445A.144, which became effective 09/18/2006. Since total cadmium is limited, the coefficients related to the dissolved metal fraction, as listed in NAC 445A.144, are not used to determine the hardness based permit limits.

Copper, total: The total copper limitations in the previous permit were based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day

average. The NAC 445A.144 copper standards are for the dissolved fraction, therefore, the 0.85 adjustment factor has been eliminated from the standard equations.

Based on 2004-2005 discharge data, total copper has been reported to range from <1 µg/L to 27 µg/L, with an average of 4.75 µg/L. Due to fluctuating hardness values, the hardness based calculated copper standards vary significantly (Calculated acute standards: 22.696 to 57.084 µg/L; calculated chronic standards 14.795 to 34.151 µg/L). The total copper concentrations reported have all been below the calculated acute and chronic standards for the reported hardness. With the variability of the hardness based calculated standards for copper, the permit requires monthly analysis of this constituent.

The total copper permit limitations proposed in the permit renewal differ from the previous permit limits. This is due to USEPA-approved revisions of NAC 445A.144, which became effective 09/18/2006. Since total copper is limited, the coefficients related to the dissolved metal fractions, as listed in NAC 445A.144, are not used to determine the hardness based permit limits.

Lead, total: The total lead limitations in the previous permit are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 lead standards are for the dissolved fraction, therefore, the 0.50 and 0.25 adjustment factors for acute and chronic toxicity respectively were eliminated from the standard equations.

Based on 2004-2005 discharge data, total lead concentrations have been reported to range from <1 to <7 µg/L, with an average of <2 µg/L. Due to fluctuating hardness values, the calculated hardness based lead standards vary significantly (Calculated acute standards: 114.020 to 396.437 µg/L; calculated chronic standards 4.443 to 15.449 µg/L). The total lead concentrations reported have not exceeded the calculated acute or chronic standards for the reported hardness. With the variability of the Hardness based calculated standards for lead, the permit requires monthly analysis of this constituent.

The aquatic life standards for acute and chronic dissolved lead exposure, listed in NAC 445A.144 and approved by USEPA, were changed effective 09/18/2006. However, the changes were associated with the limits on the dissolved fraction only. Since the total lead permit limitations were not affected by the changes, the equations used to determine the hardness based total lead limits have not changed from the previous permit.

Manganese, total: The total manganese permit limit in the previous permit, 200 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Beneficial Use Standards. This permit limit has been maintained in the proposed renewed permit.

Based on 2004-2005 discharge data, total manganese concentrations have been reported to range from 60 µg/L to 410 µg/L, with an average of 146 µg/L. The discharge exceeded the permit limit twice, once during the term of permit TNEV2003470 (January, 2004, concentration of 230 µg/L), and once during the term of the NPDES permit (April 2005, concentration of 410 µg/L). The permit requires monthly manganese analysis.

pH: The pH limitation is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655. The pH range between 6.5 SU and 9.0 SU is based on the propagation of aquatic life as the most restrictive beneficial use. The permit limits are maintained in the proposed renewed permit.

Based on 2004-2005 discharge data, pH has been reported to range from 7.68 to 8.47 Standard Units, with an average of 8.22 Standard Units. The discharge pH has not exceeded the permit limits. The 2006 303 (d) List for NV09-WR-07 lists pH as a pollutant or stressor of concern. The permit requires monthly pH monitoring.

Selenium, total: The total selenium limitations in the previous permit are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards, with the 1-hour, acute, standard, 20 µg/L, as the daily maximum and the 96-hour, chronic, standard, 5.0 µg/L, as the 30-day average. The permit limits are maintained in the proposed renewed permit.

Based on 2004-2005 discharge data, total selenium was reported in the range of <5 µg/L to <20 µg/L, with an average concentration of <5 µg/L. The discharge selenium concentration has not exceeded the permit limits. Monthly selenium monitoring is required.

Silver, total: The total silver limitation in the previous permit was based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The NAC 445A.144 silver standard is for the dissolved fraction, therefore, the 0.85 adjustment factor has been eliminated from the standard equation.

Based on 2004-2005 discharge data, total silver concentrations were reported to range from <1 µg/L to <20 µg/L, with an average of <2 µg/L. Due to fluctuating hardness values, the calculated hardness based silver lead standards vary significantly (Calculated daily maximum standards: 6.37 to 34.3 µg/L). The total silver concentrations reported have not exceeded the calculated standards for the reported hardness. The permit requires monthly silver monitoring.

The total silver permit limitation proposed in the permit renewal differs from the previous permit limit. This is due to USEPA-approved revisions of NAC 445A.144, which became effective 09/18/2006. Since total silver is limited, the coefficient related to the dissolved metal fraction, as listed in NAC 445A.144, is not used to determine the hardness based permit limit.

Sulfate: The sulfate limitation in the previous permit, 250 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses with municipal or domestic supply as the most restrictive use. The permit limit is maintained in the proposed renewed permit.

Based on 2004-2005 discharge data, sulfate concentrations were reported to range from 71 to 128 mg/L, with an average concentration of 92.6 mg/L. The maximum sulfate concentration in the discharge, 128 mg/L, occurred early in the term of the temporary permit. Due to the elevated sulfate concentration in the pit lake (190-750 mg/L, with an average of 620 mg/L) the permit requires monthly sulfate analysis.

If it becomes necessary to dewater the Humboldt Pit Lake, the Permittee may conduct a Mixing Zone Study or similar study to justify the discharge of pit lake water with sulfate concentration exceeding of 250 mg/L. Permit limits and the characteristics of the mixing zone will be determined based on the study. A major modification of the permit will be required to include a mixing zone.

Sulfide: The sulfide (undissociated hydrogen sulfide) limitation in the previous permit, 2 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The permit limit is maintained in the proposed renewed permit.

Sulfide was not correctly monitored during the periods of the two temporary permits, nor was it monitored correctly during the first month of the NPDES discharge permit. Discharge monitoring data from March-June, 2005 indicate all samples tested had sulfide concentrations of <2 mg/L. The permit requires monthly sulfide monitoring. The Permittee may request reduced monitoring frequency if sulfide is not detected in the discharge at appropriate method detection/reporting limits.

Temperature: East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655 includes both seasonal Beneficial Use Standards, 13°C November through April, 17°C May through June, and 23°C July through October, and Requirement to Maintain Existing Higher Quality (RMHQ) change in temperature standard, $\Delta T = 0^{\circ}\text{C}$.

Atmospheric conditions will affect the temperature of the water in the ephemeral channel and the settling ponds. The temperature of the settling pond discharge is expected to be greater than the temperature of naturally discharging groundwater in warm months and lower than the temperature of naturally discharging groundwater in the cooler months. The ponds are necessary to maximize total suspended solids reduction. The discharged water will flow approximately three miles in the ephemeral Days Creek channel prior to reaching Bodie Creek. The distance from this confluence to the confluence of Rough Creek and the East Walker is approximately 12.5 miles. The discharge water temperature will be further influenced by atmospheric conditions during its flow to the East Walker. As stated earlier because the discharge will have significant travel distance in which to come into equilibrium with the same ambient conditions affecting the Walker River, impact of the permitted discharge on the temperature of the Walker River would be immeasurable. For this reason, the RMHQ standard of $\Delta T = 0^{\circ}\text{C}$ will not be applied in this permit.

During the period of discharge from December 2004 through June 2005, the reported discharge temperatures measured in the field ranged from 4 to 16°C. The seasonal NAC temperature standard was not exceeded for the reported discharges. Temperature is one of the variables in the total ammonia chronic toxicity standard equation and will be monitored at the same frequency as total ammonia in the renewed permit.

Temperature monitoring is also required in Days Creek upstream of its confluence with Bodie Creek.

Total Dissolved Solids: The total dissolved solids (TDS) limitation in the previous permit, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards RMHQ. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005 under both the temporary and NPDES permits, the reported discharge TDS concentration ranged from 310 to 638 mg/L, with an average concentration of 385 mg/L. The highest TDS concentration, which was significantly higher than all other reported values, was reported in the first month of the first temporary permit. Removing this outlying value from the data set results in TDS concentrations ranging from 310 to 430 mg/L, with average of 362 mg/L. The permit will require monthly TDS analysis.

If it becomes necessary to dewater the Humboldt Pit Lake, the draft permit will allow the Applicant to conduct a Mixing Zone Study or similar study to justify the discharge of water with a maximum TDS concentration of 320 mg/L. By restricting the TDS concentration at the diffuser(s) to 320 mg/L, the applicant will be required to treat the Pit Lake water or to blend this water with other sources of dewatering water to meet the limitation. Due to the low seasonal flow in Bodie Creek, the discharge TDS concentration must be limited to prevent an inordinately long mixing zone in Bodie Creek.

Total Petroleum Hydrocarbons (TPH): The extractable TPH discharge limitation in the previous permit is based on the State TPH standard for remediation projects. The TPH permit limit of 1.0 mg/L was not exceeded. The permit limit is maintained in the proposed renewed permit.

During the period of discharge for the temporary permits, TPH was detected once at a concentration of 0.53 mg/L. TPH has not been detected in discharges under the NPDES permit at a reporting limit of 0.5 mg/L. Because the Applicant is authorized to discharge from decline sumps, the permit will require monthly TPH analysis.

Total Suspended Solids (TSS): The TSS limitation in the previous permit, 20 mg/L for the 30-Day Average and 30 mg/L for the Daily Maximum, is based on the 40 Code of Federal Regulations (CFR) Part 440.104 Subpart J, New Performance Standards for the Copper, Lead Zinc, Gold, Silver and Molybdenum Ores Subcategory. Addition of flocculants prior to the settling ponds is used to control TSS. Permit limits are maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, discharge TSS concentrations range from <5 to 230 mg/L, with an average of 21.7 mg/L. One sampling event under temporary permit TNEV2004327 occurred in April 2004, during a period of high seasonal runoff. Since September 2004, reported TSS concentrations have been below the reporting limit of 5 mg/L. The permit will require monthly TSS analysis.

Although the most recent discharge monitoring reports have demonstrated that the treatment process is capable of treating the discharge to TSS concentrations of less than 10 mg/L, the 40 CFR Part 440.104 daily maximum limit of 30 mg/L TSS has been incorporated into the permit. However, even with the low nutrient concentrations in the dewatering water, there are concerns about algal growth increasing the TSS concentrations in the discharge as the ponds age.

See Quantities section of the fact sheet for TSS loading limitation rationale.

Antimony, total: The total antimony limitation in the previous permit, 146 µg/L, is based on the

Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the discharge antimony concentration ranged from <3 to 6 µg/L, with an average of 3.8 µg/L. The permit will require quarterly total antimony analysis.

Arsenic: The arsenic limitation in the previous permit, 50 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard. If this standard is revised during the term of the permit, the permitted daily maximum discharge limitation will be modified accordingly, as a minor modification. The permit limit, and the ability to change the permit limit in accordance with standard change as a minor modification, are maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the discharge arsenic concentration ranged from 13 to 40 µg/L, with an average of 20.5 µg/L. The permit requires monthly arsenic analysis.

Chloride: The chloride permit limit in the previous permit, 13 µg/L Annual Average and 19 µg/L Single Value, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, RMRQ. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the reported chloride concentrations ranged from 5 to 8.8 mg/L, with an average of 6.83 mg/L. The permit requires quarterly chloride analysis.

Dissolved Oxygen: The East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, includes seasonal dissolved oxygen (DO) standards of greater than or equal to 6.0 mg/L November through May and greater than or equal to 5.0 mg/L June through October. The permit limits are maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the reported discharge dissolved oxygen concentration at the settling pond discharge ranged from 11 to 13 mg/L, with an average of 12 mg/L. Some degree of aeration is also expected during the approximately three-mile flow in the ephemeral Days Creek channel, the slope of which ranges from 2 – 5%. Downstream monitoring will quantify the degree of aeration.

Fluoride: The fluoride limitation in the previous permit, 1,000 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Standards. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the discharge fluoride concentration ranged from 190 to 700 µg/L, with an average of 278.9 µg/L. The permit requires quarterly fluoride monitoring.

Hardness: Hardness is not limited in the NAC or by the permit, but is necessary to calculate several of the total metals standards. Hardness must be determined at the same frequency as the most frequent analysis of these constituents.

During the period of discharge from 2004-2005, the hardness of the discharged water ranged from 130 to 346 mg/L, with an average of 247 mg/L.

Iron, total: The total iron limitation in the previous permit, 1,000 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the discharge total iron concentration ranged from 90 to 1700 µg/L, with an average 347.8 mg/L. Because the one exceedance of 1700 mg/L is approximately 10 times the average of the all other total iron concentrations reported, it is reasonable to disregard this sampling result. Removing this outlying value from the data set results in total iron concentrations ranging from 90 to 300 mg/L, with average of 178.8 mg/L. The permit will require quarterly total iron analysis.

Mercury, Total: The total mercury permit limitations in the original permit were of 2.0 µg/L Daily Maximum, and 0.012 µg/L 30-Day A, based on NAC 445A.144 and the *USEPA National Recommended Water Quality Criteria* chronic toxicity aquatic life criteria for dissolved mercury. This aquatic life criteria was established below commonly available laboratory reporting detection limits or practical quantitative limits. This limit is more restrictive than the 30-Day Average and Daily Maximum effluent limits promulgated in 40 (CFR) Part 440.104 Subpart J, New Performance Standards for the Copper, Lead Zinc, Gold, Silver and Molybdenum Ores Subcategory.

During the period of discharge from 2004-2005, mercury has not been detected in the discharge with a detection limit of 0.2 µg/L. The permit requires quarterly total dissolved mercury analysis to determine compliance with the permit limit, as well as annual analysis at reporting limits appropriate to the aquatic life criteria to demonstrate compliance.

The total mercury permit limitations proposed in the permit, 1.4 µg/L daily maximum and 0.77 µg/L 30-Day average, differ from the previous permit limits. This is due to USEPA-approved revisions of NAC 445A.144, which became effective 09/18/2006. This proposed limit is more restrictive than the 30-Day Average and Daily Maximum effluent limits promulgated in 40 (CFR) Part 440.104 Subpart J, New Performance Standards for the Copper, Lead Zinc, Gold, Silver and Molybdenum Ores Subcategory. Analytical testing with reportable detection limits at or below the 0.77 µg/L chronic aquatic life standard is required at least annually to demonstrate compliance with the dissolved mercury chronic toxicity aquatic life criteria.

Molybdenum, total: The total molybdenum limitation in the previous permit, 19 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. On March 29, 2010, the USEPA approved a modification to the Nevada Standards. The acute and chronic molybdenum standards have been set at 6160 and 1650 µg/L (6.16 and 1.65 mg/L), respectively. The acute and chronic standards have been set as the Daily Maximum and 30-Day Average permit limits, respectively.

During the period of discharge from 2004-2005, eight (8) sampling events were analyzed with appropriate reporting limits. Reported values ranged from 13 to 23 µg/L, with an average of 16.6 µg/L. The permit limit was exceeded the previous permit limit once during the period of discharge.

Quarterly molybdenum monitoring will be required by the permit.

Total Ammonia as N: The total ammonia as nitrogen limitation is based on the Water Quality Criteria for Total Ammonia, NAC 445A.118. The daily maximum is from Table 1: Acute Water Quality Criteria for Total Ammonia for Freshwater Aquatic Life, Cold-Water Fisheries; the 30-day average is from Table 2: Chronic Water Quality Criteria for Total Ammonia for Waters Where Freshwater Fish in Early Life Stages May Be Present. The permit limits are maintained in the proposed renewed permit.

Based on the maximum discharge pH reported during the permit period, the lowest calculated daily maximum standard was 2.27 mg/L. Reported daily maximum total ammonia reported ranged from <0.1 to 1.1 mg/L, with an average of 0.43 mg/L. Based on the reported maximum and minimum temperature and pH of the discharge, the 30-day average standard was calculated to range from 1.05 to 3.61 mg/L. With the exception of one sampling event, all reported total ammonia values were below the lowest calculated 30-day average standard. The one discharge event (1.1 mg/L) which exceeded the lower standard was below the calculated standard for the discharge pH for that event (3.61 mg/L). Quarterly total ammonia monitoring is required by the permit.

Total Phosphates as P: The total phosphates as phosphorus (P) annual average limitation, 0.10 mg/L, is based on the East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, water quality standards for beneficial uses, with propagation of aquatic life as the most restrictive beneficial use. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the discharge total phosphates as P concentration ranged from <0.02 to <0.05 mg/L, with an average of <0.02 mg/L. Quarterly total phosphates monitoring will be required by the permit.

Total Phosphorus: See Quantities section of the fact sheet for the total phosphorus (TP) loading monitoring rationale.

Boron: The boron limitation in the previous permit, 750 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Irrigation Standards. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, discharge boron concentrations ranged from 8 to 530 µg/L, with an average of 136.1 µg/L. Annual boron monitoring will be required by the permit.

Cyanide, total: The total cyanide limitations are based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards. The daily maximum, 22 µg/L, is the 1-hour average, acute, limitation and the 30-day average, 5.2 µg/L, is the 96-hour, chronic, limitation. The permit limits are maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, total cyanide was not detected at a reporting limit of <5 mg/L. One sampling event under temporary permit TNEV2003470 reported total cyanide less than the reporting limit of <20 mg/L. The permit requires annual monitoring of total cyanide.

Nickel, total: The total nickel limitation, 13.4 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standards. This limit is more restrictive than the acute and chronic aquatic life standards calculated using hardness as CaCO₃. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, seven (7) discharge samples were analyzed with appropriate reporting limits. Discharge total nickel concentrations for these samples ranged from 2 to 6 µg/L, with an average of 3.57 µg/L. The permit requires annual nickel analysis.

Zinc, total: The zinc limitations in the previous permit were based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Aquatic Life Standards with the 1-hour, acute, standard as the daily maximum and the 96-hour, chronic, standard as the 30-day average. The NAC 445A.144 zinc standards are for the dissolved fraction; therefore, the 0.85 adjustment factor for acute and chronic toxicity has been eliminated from the standard equations.

Due to fluctuating hardness values, the calculated zinc standards vary significantly. During the period of discharge, the calculated 30-day standard ranged from 132.4 to 303.4 µg/L. The calculated daily maximum standards ranged from 146.2 to 335.0 µg/L. During the period of discharge from 2004-2005, the reported discharge total zinc concentrations ranged from <10 to 120 µg/L, with an average of 36.9 µg/L. The permit requires require annual zinc analysis.

The total zinc permit limitations proposed in the permit renewal differ from the previous permit limits. This is due to USEPA-approved revisions of NAC 445A.144, which became effective 09/18/2006. Since total zinc is limited, the coefficients related to the dissolved metal fractions, as listed in NAC 445A.144, are not used to determine the hardness based permit limit. It should be noted that the Daily Maximum and 30-Day Average permit limitations are identical.

Barium: The barium limitation in the previous permit, 2,000 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the reported discharge barium concentration ranged from 32 to 330 µg/L, with an average of 72.5 µg/L. The permit requires annual barium analysis.

Chromium, total: The total chromium limitation in the previous permit, 100 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or Domestic Supply Standard. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the reported discharge total chromium concentration ranged from <1 to <20 µg/L, with an average of 2.6 µg/L, using half (½) the reported detection limit for non-detect results. Total chromium has only been detected twice, with a maximum definitive concentration of 4 µg/L. The permit requires annual total chromium analysis.

Thallium, total: The total thallium limitation in the previous permit, 13 µg/L, is based on the Standards for Toxic Materials Applicable to Designated Waters, NAC 445A.144, Municipal or

Domestic Supply Standards. The permit limit is maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, the reported discharge total thallium concentrations ranged from <0.5 to <1 µg/L. The permit requires annual total thallium analysis.

Total Nitrogen as N: The East Walker River at Bridge B-1475, Standards of Water Quality, NAC 445A.1655, requirements to maintain existing higher quality, includes annual average, 0.9 mg/L, and single value, 1.7 mg/L, total nitrogen standards. The permit limits are maintained in the proposed renewed permit.

During the period of discharge from 2004-2005, discharge total nitrogen concentrations ranged from <0.2 to <0.3 mg/L. The permit requires monthly total nitrogen as nitrogen analysis.

Whole Effluent Toxicity Test: Acute toxicity testing using a 96-hour juvenile *Pimephales promelas* percent survival test will be included in the permit to verify the cumulative effects of the discharge on aquatic life. WET testing is a standard condition for major NPDES permits.

Humboldt Pit Lake and Humboldt Pit Monitoring Well, MW-5: The Humboldt Pit Lake and Humboldt Pit Monitoring Well monitoring requirements and Profile I limitations have been adapted from the monitoring requirements of temporary permit TNEV2003110 issued to the Applicant by BMRR, and are continued in the renewed permit. The Nevada profile list of analytes, appended to the permit as an attachment, is a combination of primary and secondary drinking water standards that the Division requires for non-contact groundwater analyses. The isolated pit lake is not a tributary to the East Walker and is not a “water of the US.”

Pit lake and well monitoring will only be required if the Applicant must discharge to the pit lake during system maintenance or to avoid non-compliance with the surface water discharge standards. Monitoring will continue for varying time periods after termination of discharge to the pit lake. This data will be used to determine the impact of any discharge on the pit lake. BMRR has primary authority within NDEP for the pit lake water quality and may authorize other discharges to the pit lake.

Proposed Determination:

The Division has made the tentative determination to renew the proposed permit for a five (5) year period.

Procedures for Public Comment:

Notice of the Division's intent to issue a permit authorizing the facility to discharge to surface waters and groundwaters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Mineral County Independent News** and the **Reno Gazette-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until **5:00 P.M. August 30, 2010**, 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 or 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 indicate the interest of the person filing the request and the reasons why a hearing is warranted. Public hearings granted by the Division shall 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.

Prepared by: Janine O. Hartley, P.E.
Bureau of Water Pollution Control
Draft: April 2010

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ATTACHMENT

NEVADA PROFILE ANALYTE LIST
(Values listed for Reference)

METALS

Aluminum	0.20 mg/L
Antimony	0.146 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Boron	---
Calcium	---
Chromium (total)	0.1 mg/L
Copper	1.3 mg/L
Iron	0.60 mg/L
Magnesium	150 mg/L
Manganese	0.10 mg/L
Nickel	0.013 mg/L
Potassium	---
Silver	0.1 mg/L
Sodium	---
Zinc	5.0 mg/L
Arsenic	0.05 mg/L
Cadmium	0.005 mg/L
Lead	0.050 mg/L
Selenium	0.05 mg/L
Thallium	0.013 mg/L
Mercury	0.002 mg/L

INORGANIC COMPOUNDS/CHARACTERISTICS

Alkalinity	---
Chloride	---
Cyanide, WAD	0.20 mg/L
Fluoride	4.0 mg/L
Nitrate (as N)	10 mg/L
Nitrite	---
Nitrate/Nitrite	10 mg/L
pH	6.5 – 8.5 SU
Sulfate	500 mg/L
Total Dissolved Solids	1,000 mg/L

Note: With appropriate metal digestions and filtrations.