



**FACTSHEET**  
**(pursuant to NAC 445A.236)**

**Permittee Name:** SOUTHERN NEVADA WATER AUTHORITY  
100 CITY PARKWAY  
LAS VEGAS, NV 89106

**Permit Number:** NV0024253

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

**Designation:** MINOR NPDES

**New/Existing:** NEW

**Location:** WEIR #5 - LAS VEGAS WASH, CLARK  
NORTHSHORE ROAD, HENDERSON, NV 89124  
LATITUDE: 36.129489, LONGITUDE: -114.889908  
TOWNSHIP: T21S, RANGE: R63E, SECTION: 13

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Latitude	Longitude	Receiving Water
001	WEIR #5 DISCHARGE TO LAS VEGAS WASH	External Outfall		36.129489	-114.889908	LAS VEGAS WASH
01U	UPSTREAM MONITORING	Receiving Water - Ambient		36.122247	-114.904886	LAS VEGAS WASH

**Permit History/Description of Proposed Action**

This is a new permit. The Permittee, Southern Nevada Water Authority (SNWA), has applied for a new National Pollutant Discharge Elimination System (NPDES) permit NV0024253 for the Lower Las Vegas Wash Weir 5 project. The Permittee is proposing to pump near-surface groundwater to the Las Vegas Wash to allow for construction of a new grade control structure (Weir 5). The project is designed to prevent erosion and headcutting of the wash channel. Construction of Weir 5 will reduce flow velocities and erosion potential by flattening the channel slope and dissipating energy. The permit allows for the discharge of near-surface groundwater to the Las Vegas Wash via 30 dewatering wells and two surface diesel pumps at a rate of 6,000 gallons per minute (gpm), or 8.64 million gallons per day (MGD). All pumps will be connected to a pipe routing the groundwater to a single discharge location (Outfall 001). The proposed discharge is expected to last 24 months. The NPDES permit is valid for five years.

**Facility Overview**

The Weir 5 project site is located in and around the Las Vegas Wash at Lake Mead segment (NAC 445A.2158) on approximately 15 acres of public land managed by the U.S. Department of the Interior National Parks Service. The project is located within the Lake Mead National Recreation Area, east of Lake Las Vegas, approximately 1 mile downstream of the North Shore Road bridge in Clark County.

**Outfall Summary**

Outfall 001 is for the discharge of near-surface groundwater to the Las Vegas Wash via 30 dewatering wells and two surface diesel pumps. All pumps will be connected to a pipe routing the groundwater to a single discharge location.

Outfall 01U is an upstream monitoring location within the Las Vegas Wash at the North Shore Road bridge.

### **Effluent Characterization**

This is a new permit. Although the discharge has not yet commenced, the discharge will consist of intercepted groundwater. Groundwater samples, which are expected to be representative of quality of the effluent to be discharged, were collected and submitted with the application. Most of the groundwater constituents meet the water quality standards (WQS) in NAC 445A.2158 and NAC 445A.1236 for the beneficial uses: aquatic life, irrigation, watering of livestock, recreation not involving contact with the water, propagation of wildlife, and maintenance of a freshwater marsh.

The Weir 5 project site is downgradient to and outside of the perchlorate plume zone related to the Black Mountain Industrial (BMI) Complex. Per a memo dated April 13, 2023, the Bureau of Industrial Site Cleanup (BISC) determined that, following a review of the groundwater quality data under the lower sections of the Las Vegas Wash downstream of the BMI Complex, the groundwater chemistry at the project location strongly links to the surface water chemistry and the shallow groundwater at this location is likely a recirculation of the surface water in the Las Vegas Wash (see Attachment A to this fact sheet). BISC also concluded that there is no data that shows direct groundwater flow pathways to the project location originating from the groundwater under the BMI Complex. The proposed permit requires the Permittee to monitor and report perchlorate concentrations in the dewatering discharge on a monthly basis to characterize the effluent and ensure protection of waters of the State.

The dewatering activity associated with the weir construction has the potential to temporarily elevate turbidity and total suspended solids (TSS).

### **Pollutants of Concern**

Pollutants of concern are any pollutant or parameters that are believed to be present in the discharge and could affect or alter the physical, chemical, or biological conditions of the receiving water. Based on the nature of dewatering activities and groundwater quality data submitted with the application, pollutants of concern include alpha-endosulfan, arsenic, barium, boron, cadmium, chromium, copper, fluoride, manganese, nitrogen, perchlorate, sulfate, sulfide, total dissolved solids, TSS, turbidity, and zinc. Monitoring and sampling for these parameters are required to determine compliance with the applicable effluent limitations and ensure protection of waters of the State.

### **Receiving Water**

The receiving water is the Las Vegas Wash. All surface flows in the Las Vegas Valley near the project site are tributaries to the Inner Las Vegas Bay and Lake Mead via the Las Vegas Wash. Surface water within the Las Vegas Wash has four major components: reclaimed water, urban runoff, shallow groundwater, and stormwater. The lowest 1-day average flow that occurs (on average) once every 10 years (1Q10) for the Las Vegas Wash within the vicinity of the project is 205 cubic feet per second (cfs) and the lowest 7-day average flow that occurs (on average) once every 10 years (7Q10) is 227 cfs.

### **Applicable Water Quality Standards/Beneficial Uses**

The WQSs for the nearest downstream control point, the Las Vegas Wash at Lake Mead (NAC 445A.2158) apply. WQSs for the Las Vegas Wash at Lake Mead include beneficial uses for aquatic life, irrigation, watering of livestock, recreation not involving contact with the water, propagation of wildlife, and maintenance of a freshwater marsh.

Additional WQSs applicable to this receiving water include toxic materials (NAC 445A.1236). Furthermore, narrative water quality standards applicable to all surface waters (NAC 445A.121) apply.

### **303 (d) Listing Status**

Section 305(b) of the Clean Water Act (CWA) requires states to report on the overall condition of aquatic resources. Section 303(d) of the CWA requires states to develop lists of all impaired waterbodies and

create a priority listing of waterbodies for which plans are needed to restore water quality. Combining requirements of these two sections produces the integrated report, which provides an overall assessment of the quality of surface water resources within the state. This report, required biennially by U.S. EPA, also describes the extent to which current conditions are protecting the designated beneficial uses of Nevada's surface waters. The Division's most recent integrated report is the Nevada 2020-2022 Water Quality Integrated Report (published February 2022).

According to Nevada's 2020-2022 Water Quality Integrated Report, none of the designated beneficial uses are currently impaired for the Las Vegas Wash at Lake Mead.

### **TMDL**

Per section 303(d)(1)(C) of the CWA, states are required to develop Total Maximum Daily Loads (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. TMDLs for total ammonia and total phosphorus are applicable to the Las Vegas Wash at the Lake Mead segment (NAC 445A.2158).

### **Waste Load Allocation**

Per a memo from the Bureau of Water Quality Planning dated June 9, 2017, dewatering discharge activities within the general Las Vegas area are "...assumed to be part of the base phosphorus load recognized in the 1989 Las Vegas Wash Total Phosphorus TMDL Load Allocation." Therefore, there is no waste load allocation (WLA) for total phosphorus associated with this permit. Although the permit does not include a WLA for total phosphorus, the Permittee is required to monitor and report the mass load discharged to the Las Vegas Wash for the Division's information. Furthermore, the Permittee is required to monitor and report total ammonia loads discharged to the Las Vegas Wash to obtain data which will assist in determining if there is a need for an individual WLA for this project.

### **Compliance History**

This is a new permit for a new dewatering project.

### **Proposed Effluent Limitations**

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

### Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Quarterly<sup>[1]</sup>

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 8.64 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	CALCTD
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	CALCTD
Cadmium, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Manganese, total recoverable	Daily Maximum		<= 795 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Manganese, total recoverable	30 Day Average		<= 795 Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Nitrogen, ammonia total (as N)	Daily Maximum	M&R Pounds per Day (lb/d) <sup>[2]</sup>	M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Perchlorate (ClO <sub>4</sub> )	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Monthly	DISCRT
Phosphorus, total (as P)	Daily Maximum	M&R Pounds per Day (lb/d) <sup>[2]</sup>	M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Solids, total suspended	Daily Maximum		<= 135 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Turbidity	Value		M&R Nephelometric Turbidity Units (NTU)	Effluent Gross	001	Continuous <sup>[3]</sup>	METER
Turbidity, increase over background	Value		M&R Nephelometric Turbidity Units (NTU)	Effluent Gross	001	Continuous <sup>[3]</sup>	CALCTD <sup>[4]</sup>

### Notes (Discharge Limitations Table):

1. All samples shall be taken initially within five (5) business days from the beginning of the discharge. If the discharge continues for longer than one (1) month, sample collection shall be repeated on a monthly basis.
2. Calculated based on the daily maximum flow.
3. Monitor turbidity visually continuously when construction dewatering activities are occurring. If visual turbidity is present that originates from the discharge location, sample the outfall using a handheld turbidimeter or other field instrument: record all values in a water quality logbook, and report maximum daily values at Outfall 001 as well as the difference in turbidity compared to the instream monitoring point (Sample Location 01U). For the purposes of this permit, visual turbidity is present where there is a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast that can be identified by an observer. At a minimum, regardless of whether a visual sediment plume is observed, the Permittee shall collect weekly effluent turbidity samples and record all values in a water quality logbook. The Permittee shall follow calibration condition as set forth in the special condition section of this permit.
4. Turbidity increase over background shall be calculated based on concurrent samples collected in the effluent and the Las Vegas Wash at Sample Location 01U. If the effluent turbidity is measured at a level greater than or equal to 100 NTU greater than the turbidity measured at the corresponding in-stream monitoring point (Sample Location 01U) and persists for more than 30 minutes as a result of dewatering activities, the Permittee shall cease operations and re-evaluate the best management practices (BMPs) to mitigate turbidity prior to recommencing construction dewatering activities.

**Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Arsenic, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Beryllium, total recoverable (as Be)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Boron, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Chromium, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Copper, total recoverable	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
Fluoride, total (as F)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Iron, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Lead, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Mercury, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Molybdenum, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

**Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Nickel, total recoverable	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Selenium, total recoverable	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Silver total recoverable	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
Zinc, total recoverable	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
Chlordane (tech mix. and metabolites)	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
Dieldrin	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Endrin	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

### Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Heptachlor	Daily Maximum		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
Pentachlorophenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Toxaphene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
Hydrocarbons, total petroleum	Daily Maximum		M&R Milligrams per Liter (mg/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
2,4,5-TP(silvex) acids/salts, whole water sample	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-D Salts And Esters (2 4-D)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-D, isobutyl ester in sediments	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-DB	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				



**Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
2,4-DDD (O,P-DDD)	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-DDE (O,P-DDE)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Di-tert-pentylphenol, total	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
2,4-Dichlorophenoxyacetic Acid (2 4-D)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dimethylphenol	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
2,4-Dinitrophenol, dry weight	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dinitrotoluene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
2,4-Dinitrotoluene, dry weight	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
			M&R				

**Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Chlorpyrifos	Daily Maximum		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
Demeton	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
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
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
Dimethyl phthalate	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
Hexachlorocyclopentadiene	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	001	Annual	DISCRT
			M&R				

**Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Isophorone	Daily Maximum		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 (ug/L)	Effluent Gross	001	Annual	DISCRT
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
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
			M&R				

### Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Annually<sup>[1]</sup>

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Silvex	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

#### Notes (Discharge Limitations Table):

- All samples shall be taken initially within five (5) business days from the beginning of the discharge. If the discharge continues for longer than one year, sample collection shall be repeated on an annual basis.

**Discharge Limitations Table for Sample Location 01U (Receiving Water - Ambient) To Be Reported Quarterly**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Turbidity	Value		M&R Nephelometric Turbidity Units (NTU)	Instream Monitoring	01U	Continuous <sup>[1]</sup>	METER

Notes (Discharge Limitations Table):

1. Monitor turbidity visually continuously when construction dewatering activities are occurring. If visual turbidity is present that originates from the discharge location, sample the outfall using a handheld turbidimeter or other field instrument: record all values in a water quality logbook, and report, for each outfall, maximum daily values as well as the difference in turbidity between the effluent and the instream monitoring point (Sample Location 01U). For the purposes of this permit, visual turbidity is present where there is a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast that can be identified by an observer. The Permittee shall follow calibration condition as set forth in the special condition section of this permit.

**Summary of Changes From Previous Permit**

This is a new permit for a new dewatering project.

**Technology Based Effluent Limitations**

No technology-based effluent limitations are applicable to this discharge.

**Water Quality Based Effluent Limitations**

The proposed permit establishes an effluent limit for TSS in accordance with the WQSs for designated beneficial uses listed at NAC 445A.2158.

The proposed permit establishes effluent limits for manganese in accordance with the WQSs for toxic materials applicable to designated waters at NAC 445A.1236 and the mixing zone approved by the Division, as described in this fact sheet.

**Reasonable Potential Analysis (RPA)**

Section 301(b)(1)(c) of the CWA requires effluent limitations necessary to meet WQSs, and Title 40 of the Code of Federal Regulation (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 section 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 water quality-based effluent limit (WQBEL) is required as described in 40 CFR 122.44(d)(1)(i) is referred to as a reasonable potential analysis, or RPA. Furthermore, NAC 445A.243 requires the Division to consider the establishment of effluent limitations necessary to meet WQSs.

For the purposes of the RPA, the Division utilized the most restrictive water quality criteria in NAC 445A.118, NAC 445A.1236, and NAC 445A.2158 to determine if the discharge has reasonable potential to cause or contribute to an excursion above a state water quality standard. NAC 445A.1236 lists water quality criteria for seven 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, copper, chromium (III), lead, nickel, silver, and zinc. The Bureau of Water Quality Planning recommends calculating a 10th percentile receiving water hardness value to determine water quality criteria for hardness-dependent metals that are sufficiently protective of aquatic life. The Permittee has conducted water quality monitoring in the Las Vegas Wash at Northshore Bridge (Station ID LW0.9) since 2000. Based on 136 hardness samples collected in

the Las Vegas Wash at Station ID LW0.9 from October 2000 through January 2011, the 10th percentile hardness value is 540 mg/L. For hardness over 400 mg/L, Chapter 3 of U.S. EPA's Water Quality Standards Handbook recommends two options: (1) calculate the criterion using a default water effects ratio (WER) of 1.0 and using a hardness of 400 mg/L in the hardness equation; or (2) calculate the criterion using a WER and the actual ambient hardness of the surface water in the equation. Consistent with EPA's recommendation, the Division has calculated the applicable water quality criteria for hardness dependent metals listed at NAC 445A.1236 using a hardness value of 400 mg/L, since the 10th percentile hardness value is greater than 400 mg/L.

The primary pollutant of concern for dewatering discharges is sediment (e.g., suspended solids and turbidity). NAC 445A.2158 includes a single value water quality criteria for TSS of 135 mg/L for protection of the aquatic life beneficial use. Based on the presence of sediment in dewatering discharges and potential for substantial sediment loading to the receiving water if dewatering controls are inadequate, the Division has determined that the discharge has reasonable potential to cause or contribute to an excursion above the water quality criteria for TSS and has included a WQBEL in the permit for this parameter.

Other pollutants of concern include pollutants that are present in the effluent (i.e., the dewatered groundwater). Since the dewatered groundwater will not be treated or altered prior to discharge, the Division considers the groundwater data to be representative of quality of the effluent to be discharged. Additionally, if the groundwater was not withdrawn by the Permittee, it would naturally reach the receiving water due to the hydrological connection between the groundwater and the surface water. Therefore, the Division finds that intake credits are applicable and appropriate for performing the RPA for the discharge from the project.

The Division has considered pollutants in the intake water on a pollutant-by-pollutant basis when determining whether reasonable potential exists to cause or contribute to an exceedance of an applicable water quality standard. The Division considered the following factors in determining whether to apply intake credits:

- The Nevada 2020-2022 Water Quality Integrated Report (published February 2022) does not list the Las Vegas Wash at Lake Mead as impaired for any of the parameters of concern in the intake water.
- The Permittee is proposing to pump near-surface groundwater from the project site to the Las Vegas Wash to allow for construction of a grade control structure (i.e., a weir) in the Las Vegas Wash. Geotechnical and Environmental Services, Inc. (GES) prepared a Groundwater Technical Memorandum (June 2022) for the Permittee, which includes the results of groundwater field and lab analyses, aquifer slug testing, construction dewatering modeling, and analytical data within the project site. As described in the Groundwater Technical Memorandum, most shallow groundwater and all surface flows in the Las Vegas Valley near the project site are tributaries to the Inner Las Vegas Bay and Lake Mead via the Las Vegas Wash. Near-surface groundwater near the Las Vegas Wash is believed to be primarily recharged from surface flows, which have four major components: reclaimed water, urban runoff, shallow groundwater, and stormwater. Due to the project's proximity to the Las Vegas Wash and the naturally high hydraulic conductivity of the sand and gravel soils within the area, the underlying aquifer is considered to be unconfined. Based on the findings provided in the Groundwater Technical Memorandum, the Division has determined that the pollutants in the groundwater being discharged would have reached the vicinity of the outfall in the receiving water within a reasonable period had it not been removed by the Permittee.
- Concurrent sampling conducted by the Permittee in the Las Vegas Wash (at Station ID LW3.4 located 2.5 miles upstream of Northshore Bridge) and the groundwater at Monitoring Well #3 in July 2022 indicated that concentrations of organic and inorganic constituents listed in NAC 445A.1236 are similar within the Las Vegas Wash and the groundwater (see Attachment B to this fact sheet). The only parameter for which the groundwater concentration exceeded the Las Vegas Wash concentration was sulfide; however, sulfide concentrations in the groundwater do not exhibit reasonable potential to cause or contribute to an excursion above the applicable water quality objective in NAC 445A.1236.
- The project will not contribute any additional mass of the intake pollutants to its wastewater, nor does the project alter the intake pollutants chemically or physically in a manner that would cause adverse water quality impacts to occur that would not occur if the pollutants were left in-stream. The construction dewatering phase of the project involves the direct pumping of groundwater to the Las Vegas Wash to achieve a target groundwater elevation that allows for construction of the weir.

- The project will not increase the intake pollutant concentrations at the point of discharge, as compared to the pollutant concentrations in the intake water. As described above, the construction dewatering phase of the project will directly pump groundwater from the underlying aquifer to the Las Vegas Wash. Therefore, the construction dewatering will not increase the intake pollutant concentrations at the point of discharge as compared to the pollutant concentration in the intake water.
- The timing and location of the discharge will not cause adverse water quality impacts to occur that would not occur if the intake pollutants were left in-stream. As described in the Groundwater Technical Memorandum, the near-surface groundwater that the Permittee is proposing to discharge to the Las Vegas Wash is unconfined and will eventually discharge to the Las Vegas Wash and Lake Mead farther downstream regardless of project implementation. Additionally, the Permittee is proposing to discharge groundwater at a rate of 6,000 gallons per minute, which represents approximately 6.5 percent of the 1Q10 (205 cfs) and approximately 6 percent of the 7Q10 (227 cfs) for the Las Vegas Wash in the vicinity of the discharge based on data collected at U.S. Geological Survey Stream Gage 09419800 (Las Vegas Wash Below Lake Las Vegas Near Boulder City, NV).
- The permitted dewatering project is expected to last 24 months and will provide for installation erosion control structures in the Las Vegas Wash, which are necessary to prevent erosion and headcutting of the wash channel and protect critical infrastructure.

Based on the above findings, the Division has considered the presence of the pollutants in the intake water in performing the RPA. To perform the RPA, the Division compared the maximum observed groundwater concentrations (which are representative of the intake and effluent quality) to the maximum observed background receiving water concentrations and applicable water quality criteria.

- If the maximum observed groundwater concentration is below the applicable water quality criterion, the Division concluded that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of water quality criteria.
- If the maximum observed groundwater concentration is greater than the applicable water quality criterion, but below the maximum observed background receiving water concentration, the Division concluded that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of water quality criteria since it will not contribute to increased concentrations of the pollutant in the receiving water and its presence in the discharge is attributable to concentrations in the intake water.
- If the maximum observed groundwater concentration exceeded both the maximum observed background receiving water concentration and applicable water quality criteria, the Division concluded that the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality criteria and established effluent limitations in the permit.

Per a comment letter and supporting documentation submitted to the Division on October 17, 2023, the Permittee provided rationale that the groundwater sampling data collected on May 11, 2022 is not representative of the requested permitted discharge. The Permittee provided the following conclusions to support removal of data collected during the May 11, 2022 sampling event from consideration for the RPA:

- The chain of custody contains limited information to identify data collection or handling procedures. Therefore, no sampling notes or anomalies are known for this sampling event.
- The lab report associated with this sample does not specify whether the results are representative of dissolved concentrations or total concentrations.
- No specific protocols were followed during the May 11, 2022 sampling event. All other groundwater samples submitted by the Permittee were collected by a single entity with a specified sampling protocol that consisted of pumping and disposing the equivalent of three to five well casing volumes of groundwater prior to sample collection (i.e., purging of the sample wells). For the May 11, 2022 sampling event, these protocols were not followed and the sampler's reported recollection of the event is that the sample was taken from the top of the well without purging the well.
- A split sample collected by the Permittee on July 31, 2023 demonstrated concurrence with the analytical results collected outside of the May 11, 2022 sampling event, supporting the assertion that the elevated concentrations resulting from the May 11, 2022 sampling event were the result of collection and handling procedures.

The Permittee collected additional groundwater manganese and cadmium samples during July 2023 to compare with the May 11, 2022 results. The groundwater manganese result collected on May 11, 2022 (1,700 ug/L) is more than three times greater than the next highest sampling result collected on July 26, 2023 (520 ug/L). Additionally, the groundwater cadmium result collected on May 11, 2022 (1.3 ug/L) was the only detected groundwater sampling result collected by the Permittee. The elevated groundwater sampling results collected on May 11, 2022 themselves are not sufficient to warrant removal from the dataset. However, considering the conclusions provided by the Permittee in addition to the observations that the May 11, 2022 sampling event resulted in significantly greater groundwater concentrations compared to other results, the Division has determined that there are sufficient data quality concerns associated with the May 11, 2022 groundwater sampling event. Therefore, the Division has determined that the May 11, 2022 groundwater sampling event is not representative of the proposed discharge and has not considered the groundwater sampling results collected on May 11, 2022 in conducting the RPA. The permit includes monthly monitoring requirements for manganese and cadmium to characterize the effluent for these parameters that exhibited elevated concentrations in the May 11, 2022 sample and determine compliance with the applicable effluent limits for manganese.

As shown in Attachment C, excluding the groundwater sampling results collected by the Permittee on May 11, 2022, maximum concentrations for manganese in the groundwater are greater than the applicable water quality criteria and maximum background receiving water concentrations. Therefore, the Division finds that the discharge of manganese has reasonable potential to cause or contribute to an exceedance of applicable water quality criteria in the receiving water.

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

The proposed permit establishes a maximum daily effluent limitation for TSS of 135 mg/L in accordance with NAC 445A.2158 to ensure the Permittee is adequately removing sediment from the extracted groundwater prior to discharge to protect the beneficial uses of the receiving water.

Per a comment letter and supporting documentation submitted to the Division on October 17, 2023, the Permittee has requested a physical mixing zone for manganese pursuant to NAC 445A.295 through NAC 445A.302.

Nevada regulations require that each application for a zone of mixing be reviewed in light of the descriptions, statement, plans, histories and other supporting information. NAC 445A.295 recognizes that a zone of mixing for the assimilation of municipal, agricultural, and industrial discharges from point sources which have received the best degree of treatment or control practicable under existing technology may be necessary. The purpose of this limited zone is to provide for a current realistic means of control over such discharges and at the same time achieve the highest attainable level of water quality.

NAC 445A.295 requires that every application for a mixing zone:

- Be made to the Director and be accompanied by a complete and detailed description of the present physical, chemical, biological, and radiological conditions of the receiving waters and of the proposed zone of mixing.
- Include a demonstration that no violation of water quality standards occurs at any point designated by the Director and no appreciable harm to beneficial uses, either designated or actual, will result from the proposed zone of mixing and such other information as the Director may prescribe.
- Identify, by discharge, the individual water quality parameters for which the zone of mixing is requested.
- Be submitted along with an application for a discharge permit or a request for modification of a discharge permit.

The Permittee provided sufficient critical condition information related to low flows (conservative receiving water flows for evaluating mixing) and ambient pollutant data for which the mixing is being requested. Further, the Permittee reported the closest access point for the general public to the receiving water is approximately 2.4 miles downstream of the proposed discharge location and no water is withdrawn for agricultural or drinking water uses between the proposed discharge location and the end of the proposed



mixing zone. Sufficient information is available to evaluate the appropriateness of the proposed mixing zone.

NAC 445A.297 requires that zones of mixing not be granted unless the following criteria can be substantiated:

- The discharge does not substantially endanger human health or safety;
- The mixing zone will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water; and
- The discharge and mixing zone will not cause a violation of water quality standards at any point designated by the Director.

The requested mixing zone is limited to manganese for the applicable water quality criterion of 200 ug/L for protection of irrigation uses at NAC 445A.1236. There are no specified manganese criteria for the protection of human health or aquatic life uses applicable to the receiving water within the proposed mixing zone; therefore, the Division does not expect that discharges of manganese within the proposed mixing zone will substantially endanger human health or safety, nor will they impact the protection and propagation of a balanced, indigenous population of aquatic life and wildlife in and on the receiving water. Typical ranges of manganese in freshwater range from 1 ug/L to 200 ug/L. A review of literature indicates that manganese may be harmful to infant humans in concentration of greater than 300 ug/L if the water is used to make formula. Older children and adults are at increased risk when manganese levels exceed 1,000 ug/L. While elevated manganese concentrations are anticipated within the mixing zone (groundwater monitoring data indicates an observed maximum of 520 ug/L, excluding the May 11, 2022 result), municipal and domestic supply is not a beneficial use for the Las Vegas Wash at Lake Mead, nor does the Division expect potable use within the proposed mixing zone.

The Division must ensure that manganese concentrations within the receiving water will not be sufficiently high to disrupt or harm agricultural uses through irrigation. The Division does not anticipate any water withdrawals within the proposed mixing zone. Further, the irrigation beneficial use is protected outside of the proposed mixing zone and there is no reason to believe that allowing dilution would otherwise impact human health or aquatic life and wildlife. Therefore, consistent with the requirements in NAC 445A.295 through NAC 445A.302, the Division concludes that granting a mixing zone for manganese will not cause a violation of the applicable water quality standards at any point within the receiving water.

As described in the comment letter, the Permittee estimates that complete mixing will occur at approximately 5,127 feet downstream of Outfall 001 if the discharge occurs via a pipe located on the bank of the receiving water. The formula referenced by the Permittee (Yotsukura, 1968) is provided below:

$$L_m = aUB^2/H$$

Where:

$L_m$  = Distance from source to the zone where discharge has been mixed laterally (feet)

$a$  = Constant for a side discharge (2.6)

$U$  = Average stream velocity (feet per second)

$B$  = Average stream width (feet)

$H$  = Average stream depth (feet)

Critical conditions used for evaluating mixing should be representative of reasonable worst-case conditions, as the conditions in the permit must be protective under all reasonable conditions likely to occur during the term of the permit. The applicable criterion for manganese is based on protection of the irrigation beneficial use. Irrigation criteria generally have longer-term durations (i.e., values more consistent with long-term exposure, such as averages). The applicable manganese criterion of 200 ug/L at NAC 445A.1236 is based

on the National Academy of Sciences National Academy of Engineering's, "*Water Quality Criteria 1972*" (The Blue Book). The criterion is based on the continuous use of the water on all soils, indicating long-term duration associated with the criteria. Thus, the Division concludes that the use of averages for the model inputs appears to be acceptable in this case.

The Permittee's input values for the formula were averaged from ranges of stream width, depth, and velocity at specific locations. These locations include the discharge point (Outfall 001), receiving water sampling point (Las Vegas Wash at Northshore Bridge) and other points in between those two locations for which bathymetry data is available.

Using the formula and average input values, the Permittee estimates that complete mixing will occur at approximately 5,127 feet downstream of Outfall 001, with a worst-case scenario for complete mixing at 8,257 feet downstream of Outfall 001. The Division has allowed a mixing zone of 8,257 feet downstream of Outfall 001 to ensure any impacts on the receiving water fall within the mixing zone where allowable exceedances of water quality may occur.

The Permittee proposed the use of a mass-balance equation to evaluate the amount of dilution available within the specific zone of mixing. The use of a mass-balance equation is appropriate when complete mixing is known to occur, and the proposed discharge is expected to be completely mixed 8,257 feet downstream of Outfall 001. The applicable formula is:

$$C = (Q_u C_u + Q_e C_e) / Q$$

Where:

C = Downstream concentration at the edge of the mixing zone

$Q_u$  = Upstream flow

$C_u$  = Upstream concentration of manganese

$Q_e$  = Effluent flow

$C_e$  = Effluent concentration of manganese

In defining the critical conditions for evaluating the pollutant concentration at the edge of the mixing zone, the Permittee used the 7Q10 low flow of 227 cfs to represent the upstream flow ( $Q_u$ ). The Division has determined that the 7Q10 is appropriately conservative given the long-term duration of the applicable criterion.

The Permittee used a manganese concentration of 165 ug/L as the critical upstream receiving water concentration ( $C_u$ ), which is representative of the maximum observed manganese concentration based on 176 samples collected by the Permittee from 2000-2022 at Sampling Location LW0.9 (Las Vegas Wash at Northshore Road). The Division has determined that this value is reasonably conservative for estimating background manganese concentrations.

The Permittee used an effluent flow ( $Q_e$ ) of 13.4 cfs, which is consistent with the proposed pumping rate of 8.64 MGD. The division has determined that this value is reasonably conservative for estimating the loading of manganese into the receiving water.

The Permittee used a manganese concentration of 520 ug/L as the critical discharge concentration ( $C_e$ ), which is representative of the maximum observed manganese concentration based on groundwater samples collected by the Permittee from March 2022 through July 2023. This dataset does not include groundwater data collected during the May 11, 2022 sampling event. The Division has determined that the use of the maximum observed groundwater concentration is reasonable in this scenario.

Based on the mass-balance approach and applying the critical conditions proposed by the Permittee, the

Division anticipates a manganese concentration of 185 ug/L at the edge of the mixing zone, which is below the applicable water quality criterion of 200 ug/L prescribed in NAC 445A.1236. Further, using the mass-balance equation, the Division has determined that manganese concentrations in the discharge up to 795 ug/L would result in compliance with the applicable water quality criterion of 200 ug/L for the protection of irrigation at the edge of the proposed mixing zone.

NAC 445A.298 through NAC 445A.299 require that certain conditions must be met when establishing mixing zones. The Division has evaluated the proposed mixing zone for manganese considering the descriptions, statements, plans, histories, and other supporting information, and has determined the zone of mixing to be appropriate. Further, the proposed mixing zone for manganese is not anticipated to negatively impact the designated uses of the receiving water for aesthetics or acute toxicity.

In determining the size of the mixing zone, the Division reviewed the Permittee's mixing zone application on a case-by-case basis taking into consideration the quality of the proposed discharge and the nature and condition of the receiving water, including the effects of the proposed discharge on the designated or actual beneficial uses of the receiving water and standards for quality of water.

NAC 445A.299 requires that stream-mixing zones in which the standards for water quality may be exceeded must be designed to ensure that a zone of passage is maintained. The allowable stream-mixing must be oriented in the stream in a manner which permits the greatest effectiveness of the zone of passage. Because this mixing zone is limited to manganese and is not anticipated to impact aquatic life, the Division does not anticipate zones of passage to be impacted.

Therefore, the Division has determined that a mixing zone for manganese of 8,257 feet downstream of Outfall 001 is acceptable for this discharge and has applied the maximum allowable effluent limitation for manganese of 795 ug/L in this permit based on the available assimilative capacity in the receiving water.

The effluent limits for manganese are based on the applicable water quality criterion in NAC 445A.1236, the approved mixing zone, and the available assimilative capacity within the receiving water. NAC 445A.243, subsection 4 requires that WQBELs be specified as average and maximum daily quantitative limits. 40 C.F.R. section 122.45(d) requires, unless impracticable, that effluent limitations for continuous discharges be stated as maximum daily limits and average monthly limits. Consistent with NAC 445A.243, subsection 4 and 40 C.F.R. section 122.45(d), the permit establishes the effluent limitation allowable under the approved mixing zone for manganese directly as average monthly and maximum daily effluent limits. Therefore, the proposed permit includes 30-day average and daily maximum effluent limitations for manganese of 795 ug/L. The Division has determined that a monthly sampling frequency for manganese is sufficient for determining compliance with the applicable effluent limitations.

### **Basis for Effluent Limitations**

The Permittee submitted a June 2022 Groundwater Technical Memorandum prepared by Geotechnical & Environmental Services, Inc. (GES) with their application, which provided conceptual modeling of the project site to determine estimated groundwater discharge rates and volumes, approximate well spacing, anticipated area of affect from the dewatering, and estimated time needed to achieve required dewatering depth. As stated in the Groundwater Technical Memorandum, the total estimated discharge from the dewatering wells and surface diesel pumps is 5,400 gpm; however, GES suggests planning for a maximum discharge volume of 6,000 gpm. Based on the findings described in the Groundwater Technical Memorandum, the Permittee requested a maximum discharge flow limit of 6,000 gpm in their application.

The permit includes a daily maximum effluent flow rate threshold of 8.64 MGD, which is equivalent to the 6,000 gpm, based on the Groundwater Technical Memorandum and maximum discharge flow limit requested in the Permittee's application. The permit also includes a requirement to monitor and report the 30-day average effluent flow rate. The daily maximum effluent flow limitation and 30-day average monitoring and reporting requirements will ensure that the Permittee operates within design parameters.

### **Other Required Water Quality Monitoring:**

NAC 445A.2158 does not include water quality criteria for turbidity; however, sediment (e.g., suspended solids and turbidity) is the primary pollutant of concern for dewatering discharges. Therefore, if visual turbidity is present that originates from the discharge location, the proposed permit requires the Permittee to monitor and report the turbidity of the effluent and the turbidity of the Las Vegas Wash at Sample Location 01U to determine the difference between effluent turbidity and background turbidity. For the purposes of this permit, visual turbidity is present where there is a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast that can be identified by an observer. If the effluent turbidity is measured at a level greater than or equal to 100 NTU greater than the turbidity measured at the corresponding instream monitoring point (Sample Location 01U) and persists for more than 30 minutes as a result of dewatering activities, the proposed permit requires the Permittee to cease dewatering activities until mitigation measures, including but not limited to increased BMPs, are identified and enforced. The 100 NTU benchmark value is consistent with the limitations for turbidity established in temporary discharge permits issued by the Division that authorize the operation of heavy equipment (rolling stock) and work in waters of the State. At a minimum, regardless of whether visual turbidity is present, the Permittee shall collect weekly effluent turbidity samples and record all values in a water quality logbook.

The proposed permit requires the Permittee to monitor and report monthly phosphorus and ammonia mass loads discharged to the Las Vegas Wash to assist the Division in determining if there is a need for an individual WLA for this project consistent with the TMDLs for total ammonia and total phosphorus applicable to Lake Mead.

The proposed permit requires the Permittee to monitor and report perchlorate concentrations in the dewatering discharge on a monthly basis, since the project is located downgradient of the perchlorate plume zone related to the Black Mountain Industrial Complex. Monthly monitoring for perchlorate will help to characterize the discharge for this parameter and ensure protection of the designated beneficial uses of waters of the State.

The proposed permit requires the Permittee to monitor and report total recoverable cadmium concentrations in the dewatering discharge monthly to characterize the discharge for this parameter and ensure protection of the designated beneficial uses of waters of the State.

### **Anti-backsliding**

Sections 402(o) and 303(d)(4) of the CWA and federal regulations of 40 CFR 122.44(I) 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**

The Division implements antidegradation requirements through a "requirement to maintain existing higher quality (RMHQ) standards of the receiving water body." RMHQ protection is not applicable during periods of low and high flows of the receiving waterbody, and at a minimum, discharges shall meet the most restrictive standards established per designated beneficial use criteria. NAC 445A.2158 establishes RMHQs for temperature, total inorganic nitrogen, and total dissolved solids, applicable for discharges to the Las Vegas Wash at Lake Mead. Based on the nature of the dewatering discharge, the Division concludes that the pH and temperature of the discharge and total dissolved solids concentrations within the discharge will not result in degradation of the receiving waterbody beyond historical background conditions.

The Division compared available groundwater and receiving water data with the most restrictive beneficial use criteria established per NAC 445A.1236 and NAC 445A.2158 and has concluded that total nitrogen concentrations in both the groundwater and receiving water currently exceed the applicable RMHQ for total inorganic nitrogen. However, as described in the Reasonable Potential Analysis (RPA) section above, the Division has determined that there is a hydrological connection between the groundwater and surface water and the pollutants in the groundwater being discharged would have reached the vicinity of the outfall in the receiving water within a reasonable period had it not been removed by the Permittee. Additionally, total nitrogen concentrations in the groundwater are below the background receiving water concentrations. Therefore, the Division concludes that the discharge of nitrogen will not result in degradation of the

receiving waterbody beyond historical background conditions.

As described in this fact sheet, the Division is allowing a mixing zone of 8,257 feet downstream of Outfall 001 in calculating effluent limits for manganese. NAC 445A.295 states that a zone of mixing for the assimilation of municipal, agricultural, and industrial discharges from point sources which have received the best degree of treatment or control practicable under existing technology may be necessary; however, the allowance of a new mixing zone is expected to result in a lowering of water quality within the zone of mixing. Therefore, the Division has limited the size of the regulatory mixing zone to minimize degradation of the receiving water and ensure that the concentration of manganese will meet the applicable antidegradation protection levels at the downstream edge of the mixing zone.

In determining the size of the mixing zone, the Division reviewed the Permittee’s request on a case-by-case basis taking into consideration the quality of effluent to be discharged and the nature and condition of the receiving water, including the effects of the effluent on the designated or actual beneficial uses of the receiving water and standards for quality of water. The Division is allowing a mixing zone of 8,257 feet downstream of Outfall 001 for manganese, which represents the worst-case scenario for complete mixing of a side-stream discharge. Establishing a mixing zone for manganese of 8,257 feet downstream of Outfall 001 ensures that any degradation of the receiving water falls within the mixing zone where allowable exceedances of water quality may occur. Further, the Division used a mass-balance approach to determine that allowing for manganese concentrations up to 795 ug/L in the discharge will result in compliance with the applicable water quality criterion of 200 ug/L for the protection of irrigation at the downstream edge of the mixing zone. There are no human health or aquatic life water quality criteria applicable to this stretch of the receiving water; therefore, the Division does not expect the mixing zone to substantially endanger human health or safety, nor impact the protection and propagation of a balanced, indigenous population of aquatic life and wildlife in and on the receiving water. The Division’s greatest concern is that manganese concentrations would be sufficiently high to be disruptive or harmful for agriculture uses through irrigation; however, there are no water withdrawals within the vicinity of the proposed mixing zone and the irrigation beneficial use will be protected outside of the designated mixing zone. Therefore, the Division has determined that allowance of the mixing zone for manganese is consistent with the State’s antidegradation policies.

**Special Conditions**

In addition to the effluent limitations and other monitoring requirements described previously in this Fact Sheet, the proposed permit includes the following special conditions.

SA – Special Approvals / Conditions Table

Item #	Description
1	In the event of any exceedances, the Permittee shall report the exceedances to the Division within 24 hours and provide a written response within five (5) business days.
2	Turbidity meter/instruments, when applicable, must be calibrated to a range of 150 NTU; meter calibrations must be performed daily, prior to the first sample collection of the day, in the event of a turbidity plume event. If the effluent turbidity is measured at a level greater than or equal to 100 NTU greater than the turbidity measured at the corresponding in-stream monitoring point (Sample Location 01U) and persists for more than 30 minutes as a result of dewatering activities, the Permittee shall cease operations and re-evaluate the best management practices (BMPs) to mitigate turbidity prior to recommencing construction dewatering activities.

**Discharges From Future Outfalls/ Planned Facility Changes**

This is a new permit for a new dewatering project. The project is planned to last 24 months. There may be similar dewatering projects implemented within the Las Vegas Wash in the future; however, those projects require separate coverage under an individual NPDES permit.

**Corrective Action Sites**

There are no Bureau of Corrective Actions case sites within one mile of the project area.

**Wellhead Protection Program**

After reviewing the location of the project site and the locations of Public Water System (PWS) wells, the Division noted that the closest well is 3.2 miles away. The permit location is not within a Drinking Water Protection Area (DWPA), which is defined by a 3,000-foot radius around the well. Furthermore, the project site is not located within a Well Head Protection Area (WHPA), which represents an approximate 10-year capture zone of a well. It is not anticipated that contamination would reach any PWS well based on the distance to the nearest PWS well.

**Schedule of Compliance:**

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit for review and approval two copies (one electronic and one hard copy) of a new O&M Manual, prepared in accordance with the Division's WTS2 guidance: Minimum Information Required for an Operations and Maintenance Manual. The O&M Manual shall be prepared by a Nevada registered Professional Engineer and shall identify BMPs for controlling discharges of sediment to the Las Vegas Wash.	9/1/2024
2	All Discharge Monitoring Reports (DMRs) and all subsequent DMRs shall be submitted electronically through the Nevada NetDMR website.	7/28/2024

**Deliverable Schedule:**

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

Item #	Description	Interval	First Scheduled Due Date
1	Quarterly DMRs	Quarterly	7/28/2024
2	Annual DMRs	Annually	1/28/2025

**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. **5/20/2024**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

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: **Bonnie Hartley**

Date: **4/18/2024**

Title: **Staff II, Associate Engineer**



**Attachment A: Nevada Division of Environmental Protection Bureau of  
Industrial Site Cleanup Memo**



NEVADA DIVISION OF  
**ENVIRONMENTAL  
PROTECTION**

STATE OF NEVADA  
Department of Conservation & Natural Resources

Joe Lombardo, Governor  
James A. Settelmeyer, Director  
Jennifer L. Carr, Administrator

May 1, 2023

**Memorandum**

To: Andrew Dixon, Chief Bureau of Water Pollution Control

Through: Donnette Barreto, Supervisor, Bureau of Water Pollution Control *DB*

From: James (JD) Dotchin Chief, Bureau of Industrial Site Cleanup *JD*

CC: Alan Pineda, Weiquan Dong

Subject: Groundwater Near Lower Las Vegas Wash on National Park Service Property

The Nevada Division of Environmental Protection (NDEP) Bureau of Industrial Site Cleanup (BISC) has conducted a reviewed the groundwater quality data under the lower sections of the Las Vegas Wash downstream from the Black Mountain Industrial Complex (BMI).

After consultation with NDEP Bureau of Water Pollution Control (BWPC) and internal discussions, BISC has concluded that the shallow groundwater in and around the Lower Weirs located on National Park Service (NPS) land likely originates from surface water recirculation in the Las Vegas Wash. Therefore, the groundwater chemistry at these locations also has strong links to the surface water chemistry. There is no evidence indicating direct groundwater flow pathways originating from the groundwater under BMI at these locations.

The NDEP-BISC supports the requirement for the Permittee to monitor and report Perchlorate and Chlorate concentrations without a discharge limit in dewatering permits associated with this location.

## Attachment B: Concurrent Groundwater and Las Vegas Wash Sampling Results – July 2022

Parameter	Units	Groundwater Concentration <sup>1</sup>	Receiving Water Concentration <sup>2</sup>
<b><i>Inorganic Chemicals</i></b>			
Chromium, Hexavalent	µg/L	ND	0.13
Cyanide, Total	µg/L	ND	ND
Sulfide	µg/L	0.071	ND
<b><i>Organic Chemicals</i></b>			
Aldrin	µg/L	ND	ND
Benzene	µg/L	ND	ND
Bis(2-Chloroisopropyl)Ether	µg/L	ND	ND
Chlordane	µg/L	ND	ND
Chloroethylene	µg/L	ND	ND
2,4-D	µg/L	ND	ND
4,4-DDT	µg/L	ND	ND
Dibutyl Phthalate	µg/L	ND	ND
m-Dichlorobenzene	µg/L	ND	ND
o-Dichlorobenzene	µg/L	ND	ND
p-Dichlorobenzene	µg/L	ND	ND
2,4-Dichlorophenol	µg/L	ND	ND
Dieldrin	µg/L	ND	ND
Di(2-Ethylhexyl)Phthalate	µg/L	ND	ND
Diethyl Phthalate	µg/L	ND	ND
Dimethyl Phthalate	µg/L	ND	ND
4,6-Dinitro-2-Methylphenol	µg/L	ND	ND
2,4-Dinitrophenol	µg/L	ND	ND
Endosulfan	µg/L	ND	ND
Endrin	µg/L	ND	ND
Ethylbenzene	µg/L	ND	ND
Fluoranthene	µg/L	ND	ND
Heptachlor	µg/L	ND	ND
Heptachlor Epoxide	µg/L	ND	ND
Hexachlorocyclopentadiene	µg/L	ND	ND

Parameter	Units	Groundwater Concentration <sup>1</sup>	Receiving Water Concentration <sup>2</sup>
Isophorone	µg/L	ND	ND
Methoxychlor	µg/L	ND	ND
Mirex	µg/L	ND	ND
Monochlorobenzene	µg/L	ND	ND
Nitrobenzene	µg/L	ND	ND
Nonylphenol	µg/L	ND	ND
Pentachlorophenol	µg/L	ND	ND
Phenol	µg/L	ND	ND
PCBs	µg/L	ND	ND
Toluene	µg/L	ND	ND
Toxaphene	µg/L	ND	ND
1,1,1-Trichloroethane	µg/L	ND	ND
Total Trihalomethanes	µg/L	ND	ND

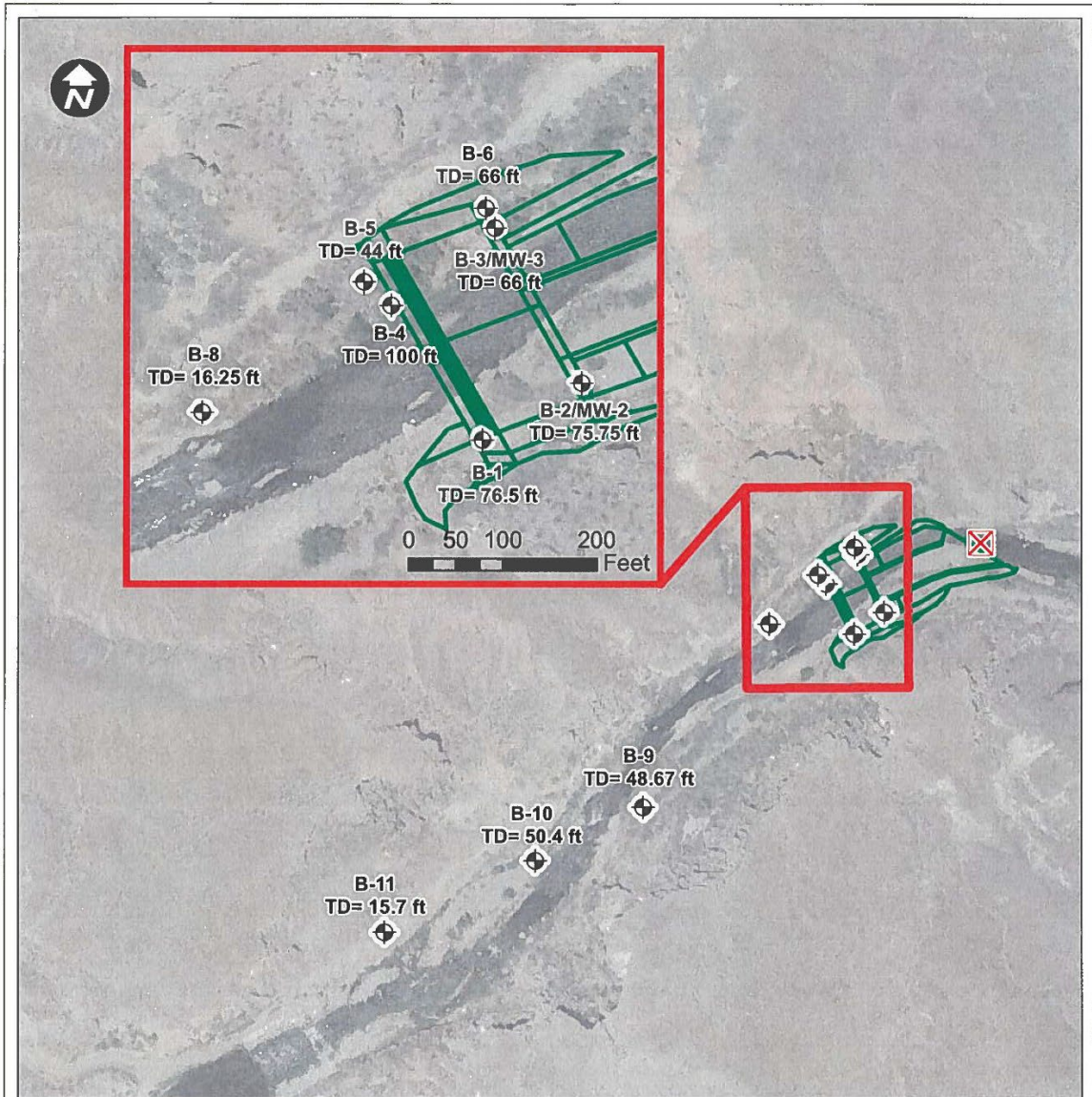
- 1 Groundwater samples were collected at Monitoring Well #3 and are considered to be representative of the effluent to be discharged at Outfall 001. Attachment D provides a map showing the location of Monitoring Well #3 relative to the project location.
- 2 Based on samples collected by the Southern Nevada Water Authority at Sampling Location LW3.4, located 2.5 miles upstream of Sample Location LW0.9 (Las Vegas Wash at Northshore Road).

### Attachment C: Summary of Reasonable Potential Analysis (RPA)

Parameter	Units	Max Groundwater Concentration <sup>1,2,3</sup>	Max Receiving Water Concentration <sup>4</sup>	Most Stringent Water Quality Criteria	Does RP Exist?
<b><i>Metals (Total Recoverable), Cyanide and Phenols</i></b>					
Arsenic, Total Recoverable	µg/L	11	14	50	No
Barium, Total Recoverable	µg/L	31	115	2,000	No
Chromium (III), Total Recoverable	µg/L	58	4.2	100	No
Copper, Total Recoverable	µg/L	84	900	30	No
<b>Manganese, Total Recoverable</b>	<b>µg/L</b>	<b>520</b>	<b>165</b>	<b>200</b>	<b>Yes</b>
Zinc, Total Recoverable	µg/L	7.4	69	390	No
<b><i>Pesticides/PCBs/Dioxins</i></b>					
Alpha-Endosulfan	µg/L	0.0041	ND	0.056	No
<b><i>Other Pollutants</i></b>					
Boron	µg/L	500	650	750	No
Fluoride	µg/L	730	1,200	No Criteria	No
Total Inorganic Nitrogen	mg/L	11	17.3	5.3	No
Sulfate	mg/L	490	1,700	No Criteria	No
Sulfide, Total (as S)	µg/L	0.071	2,400	2.0	No
Perchlorate	µg/L	54	87 <sup>5</sup>	18 <sup>6</sup>	No
Total Dissolved Solids	mg/L	1,410	2,110	3,000	No

Parameter	Units	Max Groundwater Concentration <sup>1,2</sup>	Max Receiving Water Concentration <sup>3</sup>	Most Stringent Water Quality Criteria	Does RP Exist?
<ol style="list-style-type: none"> <li>1 Groundwater samples collected on March 28, 2022 were analyzed for dissolved metals. The March 28, 2022 sample results were converted from dissolved to total recoverable using default U.S. EPA dissolved to total metal translators.</li> <li>2 Groundwater samples were collected at Monitoring Well #3 and are considered to be representative of the effluent to be discharged at Outfall 001. Attachment D provides a map showing the location of Monitoring Well #3 relative to the project location.</li> <li>3 As discussed in this fact sheet, the Division has not considered groundwater samples collected on May 11, 2022 in conducting the RPA due to inconsistencies in sampling and handling procedures.</li> <li>4 Based on samples collected by the Southern Nevada Water Authority from 2000-2022 at Sampling Location LW0.9 (Las Vegas Wash at Northshore Road).</li> <li>5 Maximum receiving water perchlorate concentration following establishment of the Nevada Environmental Response Trust (NERT). NERT was established to remediate historical legacy perchlorate contamination of groundwater in the vicinity of the Las Vegas Wash.</li> <li>6 The Division has established 18 µg/L as a provisional action level for perchlorate in drinking water. In the absence of numeric water quality criteria for perchlorate, the Division is utilizing the provisional action level to interpret the narrative water quality criterion for toxic substances at NAC 445A.121, subsection 4 for purposes of the RPA.</li> </ol>					

# Attachment D: Exploration Location Map – Lower Las Vegas Wash Stabilization Weir 5



### Legend

-  B-1 Approximate Boring Location
-  Approximate Weir Location
-  Approximate Dewatering Discharge Location



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NOTE: Data presented on this map is a compilation of GIS Metadata extracted from a variety of sources. Major Streets, Airports, and Railroads is data obtained from the Southern Nevada GIS Management Office. This data is downloaded by GES for incorporation into drawings generated by GES. Data contained within this page is to be used for informational purposes only. GES has not modified the data contained herein and uses it as it is acquired from the respective agency.

EXPLORATION LOCATION MAP  
 LOWER LAS VEGAS WASH STABILIZATION  
 WEIR 5  
 CLARK COUNTY, NEVADA

Drawn By: JND	Date Drawn: 6/29/2022
Project No. 20215425E1	Figure No. A-2