



FACTSHEET
(pursuant to NAC 445A.236)

Permittee Name: TITANIUM METALS CORPORATION
P.O. BOX 2128
HENDERSON, NV - 89009

Permit Number: NV0000060

Location: TITANIUM METALS CORPORATION, CLARK
181 NORTH WATER STREET, BLACK MOUNTAIN INDUSTRIAL CENTER,
HENDERSON, NV - 89015
LATITUDE: 36.085833, LONGITUDE: -114.986111
TOWNSHIP: 22 S, RANGE: 62 E, SECTION: 07, 12, 13,15, 18

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Outfall City	Outfall State	Outfall Zip	Outfall County	Latitude	Longitude	Receiving Water
001	001	External Outfall		HENDERSON	NV	89015	CLARK	36.085833	-114.986111	LAS VEGAS WASH VIA PITTMAN BYPASS PIPELINE
002	002	External Outfall		HENDERSON	NV	89015	CLARK	36.085833	-114.986111	LAS VEGAS WASH VIA PITTMAN BYPASS PIPELINE
SUM	SUM	Sum		HENDERSON	NV	89015	CLARK	36.085833	-114.986111	LAS VEGAS WASH VIA PITTMAN BYPASS PIPELINE

General:

Titanium Metals Corporation (TIMET) manufactures titanium metal products from titanium dioxide (rutile ore) by a series of chemical processes that include chlorination, purification, magnesium recovery, vacuum distillation, and final melting at the Henderson, Nevada facility located in the eastern portion of the Black Mountain Industrial (BMI) Complex. Over the next 5 years, TIMET is expected to handle and produce 435,000 lbs/day of titanium tetrachloride (TiCl₄), produce 101,270 lbs/day of titanium, wash 10,400 lbs/day of scrap titanium, and cast 106,600 lbs/day of titanium. In 2005, TIMET incorporated a treatment system for process effluent streams, known as the Water Conservation Facility (WCF). The WCF treats the process waste streams from the production of titanium metal and TiCl₄ by neutralization, precipitation, clarification, and filtration. The process waste streams to be treated in the WCF are the air pollution control Spent Caustic stream, the Continuous Sludge Dryer (CSD) stream, treated groundwater, and the Other Process Water (OPW) stream that is also known as Acid Drain effluent. The CSD effluent consists of continuous sludge dryer solids sluiced to the WCF with OPW water. The OPW stream includes: titanium recycling wash water, annual plant wash-down water, and initial storm water runoff that impinges on the production area. The WCF neutralized, clarified and filtered liquid is then treated by reverse osmosis (R/O) to achieve a high-quality R/O permeate that is discharged to the Las Vegas Wash (Wash) as National Pollutant Discharge Elimination System (NPDES) Outfall 002. The R/O concentrate stream produced in the WCF is managed on-site through high density polyethylene (HDPE)-lined, leak-detected evaporation ponds under the groundwater discharge permit NS2000510. The filtered solids produced (approximately 25 tons/day) are transported in a leak-proof container, held within double containment, and shipped to an approved disposal or treatment site. TIMET also uses various double-lined holding ponds for temporary storage of fluids before they are sent to the WCF for treatment.

Currently, groundwater is pumped from a series of wells on the TIMET property and the extracted water is treated through an air stripper for removal of volatile organic compounds (VOCs). The treated groundwater

is then injected into a trench at the north end of the property under Underground Injection Control permit GU07RL-51041. Under the direction of the Nevada Division of Environmental Protection (NDEP) Bureau of Industrial Site Cleanup (BISC), TIMET will cease operations under the UIC permit and will begin discharging groundwater from their groundwater extraction system into the WCF system for additional total dissolved solids (TDS) treatment. This flow may be routed to the WCF ponds prior to receiving further treatment in the WCF.

In fall 2015, TIMET anticipates bringing their crystallizer treatment system on-line. Brine water from the HP-1, HP-6, and GW-1 ponds will be pumped into the crystallizer at a maximum rate of 120 gallons per minute. The crystallizer will boil the brine water, ultimately producing steam. Solids that accumulate in the remaining water will be removed by a centrifuge and the solid salts produced will be managed as solid waste. The only liquid stream discharged will be the condensed steam, in the form of distilled water. The distilled water will be held in a distilled water tank until it is discharged to the reverse osmosis permeate tank for mixing. This mixed water will be discharged under Outfall 002 to the Wash via the Pittman Bypass. TIMET also discharges a mixture of storm water; once-through, non-contact cooling water; descaling water; and swamp cooler water from Outfall 001 to the Wash via the Pittman Bypass.

Discharge Characteristics:

Below are average values for each of the constituents monitored in Outfalls 001 and 002 from November 2009 through June 2015.

Outfall 001

Flow: 3.58 MGD
 pH: 8.25 S.U
 Temperature: 80.87 °F
 Ammonia as N: 0.12 mg/L
 Oil and Grease: 4.42 mg/L
 Phosphorous: 0.04 mg/L
 Total Dissolved Solids: 696.76 mg/L
 Total Inorganic Nitrogen: 0.69 mg/L
 Dissolved Copper: 0.02 mg/L
 Perchlorate: 0.0025 mg/L
 Titanium: 0.10 mg/L
 Chloride: 154.48 mg/L
 Hardness: 290.00 mg/L
 Magnesium: 25.65 mg/L

Outfall 002

Flow: 0.068 MGD
 pH: 7.67 S.U.
 Temperature: 90.06 °F
 Chromium: 0.002 lbs/day
 Lead: 0.001 lbs/day
 Nickel: 0.001 lbs/day
 Oil and Grease: 0.324 lbs/day
 Phosphorous: 0.007 lbs/day
 Total Dissolved Solids: 1166.5 mg/L
 Total Suspended Solids: 0.743 lbs/day
 Titanium: 0.036 lbs/day
 Ammonia as N: 0.140 lbs/day
 Arsenic: 5.850 µg/L
 Hardness: 29.630 mg/L
 Mercury: 0.0002 µg/L

Selenium: 0.010 µg/L
Silver: 2.820 µg/L
Total Inorganic Nitrogen: 1.00 mg/L
Vanadium: 18.043 µg/L

Substantial compliance with the current permit is a condition of permit renewal.

Receiving Water:

The two outfalls (001 and 002) will discharge to the Wash via the Pittman Bypass. The water quality standards for the Wash, from Telephone Line Road to the confluence of the discharges from the City of Las Vegas and the Clark County wastewater treatment plants, are found in NAC 445A.2156.

Summary of Changes From Previous Permit:

TIMET has requested to add distillate water from the newly constructed crystallizer treatment system to the R/O permeate tank which discharges to the Wash via Outfall 002. Additionally, the discharge of treated groundwater from the property has been added to the incoming WCF streams that eventually discharge via Outfall 002.

Outfall 002 mass-based effluent limits for total chromium (Cr), lead (Pb), nickel (Ni), titanium (Ti), oil and grease (OG), and total suspended solids (TSS) have been modified with the expected increase in Ti production levels at the facility. Concentration based effluent limits for Cr, Pb, and Ni have been added for Outfall 002 because the numerical limits, based upon the geometric mean of the hardness data from November 2009 through June 2015 and the limitations as found in NAC 445A.1236, are more protective of the Wash than the technology-based effluent limitations (TBELs) calculated in accordance with In accordance with Title 40 of the Code of Federal Regulations (CFR) Chapter 1-Part 421-Primary and Secondary Titanium Subcategory.

The Outfall 002 limits for pH have been modified to comply with the water quality standards presented in NAC 445A.2156 and 40 CFR Part 421 Subpart AB-Primary and Secondary Titanium Subcategory. A pH limitation for the mixed Outfall 001 and 002 waters has been added as part of the SUM Outfall to ensure that the discharge is in compliance with the NAC 445A.2156 water quality standard for pH.

The Outfall 002 Monitoring Requirements and Limitations, WCF Treated Stream, No Inclusion of Extracted Groundwater from Groundwater Remediation System table and requirements has been removed from the permit since extracted groundwater has now been added to the WCF system stream.

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) and Total Petroleum Hydrocarbons (TPH): The requirement to sample Outfall 001 for BTEX and TPH when an OG sample exceeds 15 mg/L has been removed. The OG results have not exceeded 5.4 mg/L since at least November 2009 and have been non-detect since January 2013. The contracted lab is certified to use EPA Method 1664A, which is an appropriate test method for this parameter, and the method detection limit of 3 mg/L is lower than the range expected in the water. Together, this information justifies an exception to backsliding for the removal of this monitoring requirement.

Monitoring for boron and selenium has been added to this permit due to the 303(d) listing of these parameters as pollutants of concern in the Las Vegas Wash.

A numerical limit was set for dissolved copper (Outfall 001) based upon the geometric mean of the hardness data from November 2009 through June 2015 and the dissolved copper limitation as found in NAC 445A.1236.

Mass-based limits for total ammonia as N and total phosphorus (TP) have been changed to Monitor and Report (M&R) for Outfalls 001 and 002. 30-day average limits for these constituents have been included as part of the SUM Outfall, which will be representative of the sum of all facility NPDES discharges. Outfall 002 total ammonia sampling has been modified from quarterly to monthly so that the monitoring frequency is

consistent with Outfall 001.

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 from Outfalls 001 and 002. The discharge shall be limited, sampled, and monitored by the Permittee as specified below.

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

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 10.19 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Phosphorus, total (as P)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Nitrogen, ammonia total (as N)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Nitrogen, ammonia total (as N)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Nitrogen, inorganic total	30 Day Average		<= 10 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Oil & grease	Daily Maximum		<= 15 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Oil & grease	30 Day Average		<= 10 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Temperature, water deg. fahrenheit	Daily Maximum	M&R Degrees Fahrenheit (deg F)		Effluent Gross	001	Monthly	DISCRT
Temperature, water deg. fahrenheit	30 Day Average	M&R Degrees Fahrenheit (deg F)		Effluent Gross	001	Monthly	DISCRT

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

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
pH, maximum	Daily Maximum		<= 9 Standard Units (SU)	Effluent Gross	001	Continuous	METER
pH, minimum	Daily Minimum		>= 6.5 Standard Units (SU)	Effluent Gross	001	Continuous	METER
pH, maximum	30 Day Average		M&R Standard Units (SU)	Effluent Gross	001	Continuous	METER
pH, minimum	30 Day Average		M&R Standard Units (SU)	Effluent Gross	001	Continuous	METER
Solids, total dissolved	Daily Maximum		<= 2600 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS
Solids, total dissolved	30 Day Average		<= 2300 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	COMPOS

Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Hardness, total (as CaCO ₃)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Hardness, total (as CaCO ₃)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Boron, total (as B)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Selenium, total (as Se)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Copper, dissolved (as Cu)	Daily Maximum		<= 22.20 Micrograms per Liter (ug/L)	Effluent Gross	001	Quarterly	COMPOS
Perchlorate (ClO ₄)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Perchlorate (ClO ₄)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Magnesium, total (as Mg)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Magnesium, total (as Mg)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Chloride (as Cl)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Chloride (as Cl)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
			M&R				

Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Titanium, total (as Ti)	Daily Maximum		Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS
Titanium, total (as Ti)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	001	Quarterly	COMPOS

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Hardness, total (as CaCO ₃)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Monthly	COMPOS
Solids, total dissolved	Daily Maximum		<= 3000 Milligrams per Liter (mg/L)	Effluent Gross	002	Monthly	COMPOS
Flow rate	Daily Maximum	<= 0.576 Million Gallons per Day (Mgal/d)		Effluent Gross	002	Continuous	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	002	Continuous	METER
Nitrogen, ammonia total (as N)	30 Day Average	M&R Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Phosphorus, total (as P)	30 Day Average	M&R Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Titanium, total (as Ti)	Daily Maximum	<= 0.799 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Titanium, total (as Ti)	Monthly Average	<= 0.347 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Nickel, total (as Ni)	Daily Maximum	<= 0.829 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Nickel, total (as Ni)	Monthly Average	<= 0.557 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Lead, total (as Pb)	Daily Maximum	<= 0.422 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Lead, total (as Pb)	Monthly Average	<= 0.196 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Chromium, total (as Cr)	Daily Maximum	<= 0.557 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Chromium, total (as Cr)	Monthly Average	<= 0.226 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Solids, total suspended	Daily Maximum	<= 301.76 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Solids, total suspended	Monthly Average	<= 143.54 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Oil & grease	Daily Maximum	<= 147.22 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Oil & grease	Monthly Average	<= 88.332 Pounds per Day (lb/d)		Effluent Gross	002	Monthly	COMPOS
Temperature, water deg. fahrenheit	Daily Maximum	M&R Degrees Fahrenheit (deg F)		Effluent Gross	002	Monthly	DISCRT
Temperature, water deg. fahrenheit	30 Day Average	M&R Degrees Fahrenheit (deg F)		Effluent Gross	002	Monthly	DISCRT
pH, minimum	Daily Minimum		>= 7.5 Standard Units (SU)	Effluent Gross	002	Continuous	METER
pH, maximum	Daily Maximum		<= 10.0 Standard Units (SU)	Effluent Gross	002	Continuous	METER
pH, minimum	Monthly Average Minimum		M&R Standard Units (SU)	Effluent Gross	002	Continuous	METER
pH, maximum	Maximum Monthly Average		M&R Standard Units (SU)	Effluent Gross	002	Continuous	METER
Chromium, total recoverable	Value		<= 100 Micrograms per Liter (ug/L)	Effluent Gross	002	Monthly	COMPOS
Lead, dissolved (as Pb)	Value		<= 7.83 Micrograms per Liter (ug/L)	Effluent Gross	002	Monthly	COMPOS
Nickel, total (as Ni) ^[1]	Value		<= 127.75 Micrograms per Liter	Effluent Gross	002	Monthly	COMPOS

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
			(ug/L)				

Notes (Discharge Limitations Table):

1. Only report the dissolved portion.

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Magnesium, total (as Mg)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Magnesium, total (as Mg)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Boron, total (as B)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Trichloroethylene	Daily Maximum		<= 5 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Tetrachloroethylene	Daily Maximum		<= 5 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Chloroform	Daily Maximum		<= 80 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Carbon tetrachloride	Daily Maximum		<= 5 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Perchlorate (ClO ₄)	Daily Maximum		<= 18 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Radiation, Gross Beta Particle Activity	Daily Maximum		<= 4 Millirems per Year (mrems/yr)	Effluent Gross	002	Quarterly	COMPOS
Alpha gross radioactivity	Daily Maximum		<= 15 Picocuries per Liter (pCi/L)	Effluent Gross	002	Quarterly	COMPOS
Uranium, natural, total	Daily Maximum		<= 30 Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
			<= 30				

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Uranium, natural, total	30 Day Average		Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Vanadium, total (as V)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Vanadium, total (as V)	30 Day Average		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Silver, total (as Ag)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Silver, total (as Ag)	30 Day Average		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Selenium, total (as Se)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Selenium, total (as Se)	30 Day Average		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Molybdenum, total (as Mo)	Daily Maximum		<= 6.16 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Molybdenum, total (as Mo)	30 Day Average		<= 1.65 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Mercury, total (as Hg)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Mercury, total (as Hg)	30 Day Average		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Manganese, total (as Mn)	Daily Maximum		<= 0.2 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Manganese, total (as Mn)	30 Day Average		<= 0.2 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Iron, total (as Fe)	Daily Maximum		<= 1.0 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Iron, total (as Fe)	30 Day Average		<= 1.0 Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Arsenic, total (as As)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Arsenic, total (as As)	30 Day Average		M&R Micrograms per Liter (ug/L)	Effluent Gross	002	Quarterly	COMPOS
Aluminum, total (as Al)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Aluminum, total (as Al)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Hardness, total (as CaCO ₃)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Hardness, total (as CaCO ₃)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Sulfate, total (as SO ₄)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
Sulfate, total (as SO ₄)	30 Day Average		M&R Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS
			<= 17				

Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Nitrogen, inorganic total	Daily Maximum		Milligrams per Liter (mg/L)	Effluent Gross	002	Quarterly	COMPOS

Discharge Limitations Table for Sample Location Sum (Sum) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Nitrogen, ammonia total (as N) ^[1]	30 Day Average	<= 1.0 Pounds per Day (lb/d)		Effluent Gross	SUM	Monthly	CALCTD
Phosphorus, total (as P) ^[1]	30 Day Average	<= 1.0 Pounds per Day (lb/d)		Effluent Gross	SUM	Monthly	CALCTD
pH, minimum ^[2]	Daily Minimum		>= 6.5 Standard Units (SU)	Effluent Gross	SUM	Continuous	METER
pH, maximum ^[2]	Daily Maximum		<= 9.0 Standard Units (SU)	Effluent Gross	SUM	Continuous	METER

Notes (Discharge Limitations Table):

1. Sum of Outfalls 001 and 002.
2. pH meter readings must be obtained after Outfalls 001 and 002 are combined and before the discharge enters the Las Vegas Wash.

Proposed Technology Based Effluent Limitations:

TBELs have been created for Outfall 002, in accordance with 40 CFR Part 421-Primary and Secondary Titanium Subcategory. This outfall will be limited in accordance with the Best Practicable Technology (BPT) guidelines for OG and TSS; and the Best Available Technology (BAT) guidelines for Cr, Pb, Ni, and Ti. The BAT limitations are the most stringent of the TBELs that apply for these constituents. OG and TSS are limited according to the BPT because the BAT does not address these conventional pollutants. TIMET daily production levels, 40 CFR 421 BAT and BPT effluent guidelines, and the BAT and BPT equations used to calculate the limits are provided below:

TIMET Daily Production Levels

TiCl4 produced: 435,000 lbs/day

TiCl4 handled: 435,000 lbs/day

Titanium produced: 101,270 lbs/day

Scrap titanium washed: 10,400 lbs/day

Titanium cast: 106,600 lbs/day

BPT and BAT Effluent Limitations

Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the BPT currently available for OG and TSS can be found in the 40 CFR 421.302(a,c,d,g,h,m,n) BPT Limitations for the Primary and Secondary Titanium Subcategory tables. Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the BAT economically achievable for Cr, Pb, Ni, and Ti can be found in the 40 CFR 421.303(a,c,d,g,h,m,n) BAT Limitations for the Primary and Secondary Titanium Subcategory tables.

BPT and BAT Equations

(Daily Max=DM; Maximum Monthly Average=MMA)

(a) Chlorination off-gas wet air pollution control

Equation 1A: $\{[DM \text{ (lbs/1000000 lbs) of TiCl}_4 \text{ produced}] \times [435,000 \text{ lbs TiCl}_4 \text{ per day}]\} / [1000000 \text{ lbs}]$

Equation 1B: $\frac{\{[\text{MMA (lbs/1000000 lbs) of TiCl}_4 \text{ produced}]\times[435,000 \text{ lbs TiCl}_4 \text{ per day}]\}}{[1000000 \text{ lbs}]}$

(c) TiCl₄ handling wet air pollution control

Equation 2A: $\frac{\{[\text{DM (lbs/1000000 lbs) of TiCl}_4 \text{ handled}]\times[435,000 \text{ lbs TiCl}_4 \text{ per day}]\}}{[1000000 \text{ lbs}]}$

Equation 2B: $\frac{\{[\text{MMA (lbs/1000000 lbs) of TiCl}_4 \text{ handled}]\times[435,000 \text{ lbs TiCl}_4 \text{ per day}]\}}{[1000000 \text{ lbs}]}$

(d) Reduction area wet air pollution control

Equation 3A: $\frac{\{[\text{DM (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

Equation 3B: $\frac{\{[\text{MMA (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

(g) Sodium reduction container reconditioning wash water

Equation 4A: $\frac{\{[\text{DM (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

Equation 4B: $\frac{\{[\text{MMA (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

(h) Chip crushing wet air pollution control

Equation 5A: $\frac{\{[\text{DM (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

Equation 5B: $\frac{\{[\text{MMA (lbs/1000000 lbs) of Ti produced}]\times[101,270 \text{ lbs Ti per day}]\}}{[1000000 \text{ lbs}]}$

(m) Scrap detergent wash water

Equation 6A: $\frac{\{[\text{DM (lbs/1000000 lbs) scrap washed}]\times[10,400 \text{ lbs scrap washed per day}]\}}{[1000000 \text{ lbs}]}$

Equation 6B: $\frac{\{[\text{MMA (lbs/1000000 lbs) scrap washed}]\times[10,400 \text{ lbs scrap washed per day}]\}}{[1000000 \text{ lbs}]}$

(n) Casting crucible wash water

Equation 7A: $\frac{\{[\text{DM (lbs/1000000 lbs) Ti cast}]\times[106,600 \text{ lbs Ti cast per day}]\}}{[1000000 \text{ lbs}]}$

Equation 7B: $\frac{\{[\text{MMA (lbs/1000000 lbs) Ti cast}]\times[106,600 \text{ lbs Ti cast per day}]\}}{[1000000 \text{ lbs}]}$

Total Allowable Discharge

The Daily Maximum for each constituent was calculated as the sum of each set of A equations. The Maximum Monthly Average for each constituent was calculated as the sum of each set of B equations. The total allowable discharge (lbs/day) for each constituent limited by 40 CFR.421 can be found below (Constituent: DM, MMA):

OG: 147.222, 88.332

TSS: 301.76; 143.54

Cr: 0.557; 0.226

Pb: 0.422; 0.196

Ni: 0.829; 0.557

Ti: 0.799; 0.347

Rationale for Permit Requirements:

Monitoring is required to assess the quality of the discharge water and to ensure that the discharges will not impact the beneficial uses of the Las Vegas Wash.

Flow: Discharge flow for each outfall is limited to a daily maximum of 10.19 MGD (Outfall 001) and 0.576 MGD (Outfall 002).

pH: Continuous monitoring for pH has been incorporated in this permit to ensure that the discharges do not impact the beneficial uses stated in NAC 445A.2156 and to comply with the standards stated in 40 CFR Part 421 Subpart AB-Primary and Secondary Titanium Subcategory. In accordance with the TBEL pH limitations found in 40 CFR 421.302, pH has been limited to a range of 7.5 to 10.0 for Outfall 002. Outfall 002 pH excursions are permitted; subject to the 40 CFR 401.17 conditions presented in the Special Approvals/Conditions Table. In accordance with the water quality based pH limitations found in NAC 445A.2156, pH is limited to a range of 6.5 to 9.0 for Outfall 001. The pH of the mixed Outfall 001 and 002 waters is limited to a range of 6.5 to 9.0 in accordance with the applicable water quality standard for the Wash. No excursions from the 6.5-9.0 standards are allowed under the NAC.

Temperature: Monthly monitoring for temperature has been incorporated in this permit to ensure that the discharges do not impact the beneficial uses stated in NAC 445A.2156.

Dissolved Copper: This parameter is monitored at Outfall 001 to ensure that the discharge will not impact the beneficial uses of the Las Vegas Wash. The limit for this parameter was calculated using the 96-hour average formula presented in NAC 445A.1236(2) for dissolved copper and the geometric mean of the hardness data from November 2009 through June 2015.

Hardness (as CaCO₃): Hardness shall be monitored in Outfall 001 and Outfall 002 to verify compliance with the dissolved copper and dissolved Pb limits in accordance with NAC 445A.1236(2). Quarterly monitoring of this constituent has been included with the renewal of this permit.

Total Phosphorus and Total Ammonia as Nitrogen: Monitoring for total ammonia and total phosphorus has been incorporated into this permit due to the Wash Total Maximum Daily Load (TMDL) requirements. The Administrator has proposed that in order to permit small volume discharges to the Wash, it is necessary to modify the manner in which the TMDL is allocated. This action does not increase or decrease the TMDL for the Wash. Discharges with less than 1 lb/day of these constituents will be exempt from obtaining an individual waste load allocation (IWLA). Dischargers will be required to monitor and report their flow and concentration to verify that significant quantities of these nutrients are not discharged to the Wash.

Boron and Selenium: Quarterly monitoring requirements for boron and selenium have been incorporated in this permit due to the 303(d) listing of these parameters as pollutants of concern in the Wash.

Total Inorganic Nitrogen (TIN): Monitoring for TIN has been incorporated in this permit to ensure that the discharges do not impact the beneficial uses stated in NAC 445A.2156.

Total Dissolved Solids (TDS): Monitoring of this constituent has been preserved with the renewal of this permit. Monitoring is required due to the 303(d) listing of this parameter as a pollutant of concern in the Wash and to ensure that the discharges do not impact the beneficial uses stated in NAC 445A.2156.

Chloride and Magnesium: Monitoring for magnesium and chloride at Outfall 001 is required to verify that these constituents, which are used in the chemical processes at this facility, do not enter the wastewater stream in sufficient quantities to threaten the water quality of the Wash. Monitoring for magnesium at Outfall 002 is required to verify the presence of these constituents in the discharges.

Titanium and Perchlorate: These constituents are found to be present in this wastewater stream. Monitoring is required to verify that these constituents are not present in the wastewater stream in sufficient quantities to threaten the water quality of the Wash.

Technology-based effluent limitations: In accordance with 40 CFR Part 421-Primary and Secondary Titanium Subcategory, mass-based TBELs have been created for the following Outfall 002 discharge constituents: Cr, Pb, Ni, Ti, OG, and TSS.

Chromium, Lead, and Nickel: Concentration based effluent limits for Cr, Pb, and Ni have been added for Outfall 002 because the numerical limits, based upon the geometric mean of the hardness data from November 2009 through June 2015 and the limitations as found in NAC 445A.1236, are more protective of the Wash than the TBELs calculated in accordance with 40 CFR Part 421-Primary and Secondary Titanium Subcategory.

Historically arsenic, selenium, silver, mercury, and vanadium have been present in the Outfall 002 discharge. Quarterly monitoring of these constituents in Outfall 002 has been included with the renewal of this permit. The 2009 Fact Sheet for this permit suggests that the impacted groundwater extracted during groundwater remediation activities may contain significant amounts of the following constituents: perchlorate, sulfate, carbon tetrachloride, chloroform, tetrachloroethene (PCE), trichloroethene (TCE), aluminum (Al), iron (Fe), manganese (Mn), molybdenum (Mo), total uranium (U), vanadium (V) and various radionuclides and their decay products. Discharge limitations based upon U.S. Environmental Protection Agency (USEPA) Primary Drinking Water Standards have been included for: total U, gross alpha and gross beta, and PCE. The discharge limitation for chloroform is based on USEPA "2006 Edition of the Drinking Water Standards and Health Advisories". Carbon tetrachloride and TCE discharge limitations are based upon the toxic materials standards in NAC 445A.1236(2). The discharge limitation for perchlorate is based upon the perchlorate Nevada Interim Action Level. Mo, Fe, and Mn are limited in accordance with the

beneficial uses as found in NAC 445A.1236(2). Additionally, monitoring of sulfate and Al is required to verify the presence of these constituents in the discharge.

Special Conditions:

See Special Approvals/Conditions Table.

SA – Special Approvals / Conditions Table

Item #	Description
1	<p>In accordance with Title 40 of the Code of Federal Regulations (CFR) Chapter 1-Part 401.17, pH excursions from the Outfall 002 Technology Based Effluent Limitations (TBEL) of 7.5-10.0 are allowed if the Permittee meets the conditions below. pH excursions only apply to TBEL limitations and are not applicable to the water quality based pH limitations found in NAC 445A.2156.</p> <p>(a) Where a Permittee continuously measures the pH of wastewater pursuant to a requirement or option in a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to section 402 of the Clean Water Act, the Permittee shall maintain the pH of such wastewater within the range set forth in the applicable effluent limitations guidelines, except excursions from the range are permitted subject to the following limitations:</p> <p>(1) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and</p> <p>(2) No individual excursion from the range of pH values shall exceed 60 minutes.</p> <p>(b) The Director, as defined in §122.3 of this chapter, may adjust the requirements set forth in paragraph (a) of this section with respect to the length of individual excursions from the range of pH values, if a different period of time is appropriate based upon the treatment system, plant configuration or other technical factors.</p> <p>(c) For purposes of this section, an excursion is an unintentional and temporary incident in which the pH value of discharge wastewater exceeds the range set forth in the applicable effluent limitations guidelines.</p>
2	<p>Each Quarterly Report shall include a listing of all pH excursions during the previous quarter of the calendar year that shall include: dates of excursion(s), length of excursion(s), and pH values during excursion(s).</p>

Flow:

The discharge flow for each Outfall has been limited to a daily maximum of 10.19 MGD (Outfall 001) and 0.576 MGD (Outfall 002).

Corrective Action Sites:

There are two NDEP-Bureau of Corrective Actions (BCA) remediation sites located within a one-mile radius of the permitted facility: H-000855 and H-000539. The BCA does not expect the permitted discharge to have adverse effects on the remediation sites.

Wellhead Protection Program:

The facility is not located within a Drinking Water Protection Area, nor is it located within an established Wellhead Protection Area.

Schedule of Compliance:

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit, for review by the Division, two (2) copies of any updated pages and/or sections of the facility-wide Operations and Maintenance (O&M) Manual that have become invalid since the submittal of the March 2014 TIMET Henderson Water Management Plan. The O&M Manual update shall be prepared by a qualified person familiar with the system operations.	2/1/2016

Deliverable Schedule:

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

Item #	Description	Interval	First Scheduled Due Date
1	Annual Reports	Annually	1/28/2016
2	Quarterly Reports	Quarterly	1/28/2016

Procedures for Public Comment:

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to surface waters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Las Vegas Review 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. **10/20/2015**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined to be appropriate. All public hearings must be conducted to accordance with NAC 445A.238.

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

Proposed Determination:

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

Prepared by: **Briana Johnson**

Date: **9/17/2015**

Title: **Environmental Scientist**