

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(Pursuant to NAC 445A.236)

Permittee Name: U.S. Gypsum Co.
P.O. Box 130
Empire, NV 89405

Permit Number: NEV50020

Location: Town of Empire Wastewater Treatment Plant (WWTP)
S.R. 447 N, Empire, Washoe County, NV
WWTP Entrance:
Latitude: 40° 34' 55" N, Longitude: 119° 20' 44" W
Elevation: 4,000 ft. above sea level
Township 31N, Range 23E, NE¼ SW¼ Section 11

Bureau of Corrective Actions Sites: There is no remediation site managed by the Bureau of Corrective Actions, which is located within a one-mile radius of the Empire WWTP.

Wellhead Protection Area: The Empire WWTP is located within the 6,000 ft Drinking Water Protection Area #4 (DWPA #4) for three supply wells operated by the Empire Water Company. The nearest supply well, located ¾-mile southeast from and up-gradient of the WWTP, is used to supply water for irrigation and dust control in Empire. The WWTP is not located within a delineated wellhead capture zone for these supply wells.

General: U.S. Gypsum Co. manufactures wallboard and mines a gypsum soil amendment in the company town of Empire (pop. 200). To provide domestic wastewater treatment to the employee housing units, two parallel treatment trains consisting of an Imhoff tank and trickling filter plant were constructed in 1950 (east) and 1955 (west), respectively. Presently, the west plant is operational. The east plant is idle but would require some mechanical parts replacement and maintenance overhaul to resume operation, which has been indicated to this Bureau to be able to be completed within one week pending future increased flow demand. Following anaerobic settling (Imhoff tank) and secondary treatment (trickling filter), the effluent is discharged in series-flow to the east (1-acre) and west (¾-acre) evaporation/percolation ponds. Sampling of effluent occurs at the trickling filters' clarifier weir. The east pond is equipped with a recirculation pump and surface-sprinkler system for oxygen addition and odor control. The ponds are unlined but nearby well logs indicate some naturally occurring clay content, which reduces seepage loss and generally maintains 4 feet of operating depth in the east pond. The terminal west pond is usually only sparsely wetted or dry at current lower flows but previously stored water when the town's occupancy was closer to 300 employees and family members. Effluent treatment limits therefore apply at the discharge from the trickling filters' common clarifier weir to the east pond since the two ponds allow some seepage loss. An-aerobically digested sludge from the Imhoff tank is wasted weekly onto an unlined drying bed, air-dried and then periodically disposed of at the Lockwood Landfill in Storey County.

Receiving Water Characteristics: This facility does not presently monitor the groundwater quality at the WWTP. The reported groundwater flow gradient is to the west. West of the evaporation ponds are a playa depression and no development in the general area except for two dirt landing strips operated by the Empire Airport. Depth to the groundwater at the nearest up-

gradient irrigation-supply well located $\frac{3}{4}$ -mile away in Section 11 was indicated to be 159 feet below the land surface (Well Log #3582). Cross-gradient to the WWTP in Section 14, one mile south of the WWTP, are two other supply wells, which had indicated a depth to the groundwater range of between 220 and 240 feet, respectively. Since the probable groundwater depth at the WWTP is in excess of 159 feet and perhaps nearer to 220 to 240 feet, the Division does not require the installation of a monitoring well for this permit renewal

Flow: Individually, each treatment train is rated for 0.025 (30-day average) / 0.030 (daily maximum) Million Gallons per Day (MGD). Company officials have indicated that overhaul and startup of the east plant could be completed with parts procurement within a week should future flow demand increase with additional staffing level. Five year flow averaged 0.023 MGD but had decreased within the past year and a half to 0.015 MGD with reduced staffing demand. Daily per capita flow is estimated at 75 GPD.

DMR Analysis:

- **Flow (influent):** Averaged 0.015 MGD at present staffing levels.
- **BOD₅ (effluent):** Effluent quality discharged from the trickling filter to the east pond averaged 31 mg/l of BOD₅ indicating a general level of secondary treatment standard attainment to minimize pond odors. Some BOD exceedances are noted to occur from the trickling filter with colder weather operation, which can be reduced with increased filter re-circulation for enhanced carbonaceous BOD removal by the attached growth microorganisms. With the recirculation pump and surface sprinkler in operation, the east pond does provide some additional polishing (BOD reduction) prior to seepage loss. BOD removal in the pond comes from naturally occurring microorganisms (bacteria) consuming food and oxygen.
- **TSS (effluent):** Effluent TSS level averaged 19 mg/l prior to the pond discharge point. In the ponds, TSS levels may actually increase due to natural algae growth.
- **pH (effluent):** Effluent pH level averaged 7.9 S.U. prior to the pond. In the ponds, pH levels may elevate up to 9.0 S.U. due to natural algae growth.
- **TN (effluent):** Limited sampling data for Total Nitrogen in the trickling filter effluent has indicated an average level of 22 mg/l suggesting partial nitrogen removal in the Imhoff tank and trickling filter by up to 50% from raw influent levels typically ranging from 40 to 60 mg/l TN in domestic wastewater. Prior to seepage loss, pond effluent TN levels are expected to gradually decline through ammonia volatilization and algae uptake. Treatment facilities, which discharge high TN levels to the environment, may adversely impact groundwater quality through nitrate conversion in the aquifer.

Proposed Effluent Limitations and Special Conditions:**Table 1: Discharge Limitations**

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type or Location
Flow, MGD (East & West Plants Combined)	0.050	0.060	Continuous	Pump Station Timers
BOD ₅ , mg/L (Effluent)	45		Monthly	Clarifier Weir
TSS, mg/L (Effluent)	45		Monthly	Clarifier Weir
pH, Std. Units (Effluent)	6.0 to 9.0		Monthly	Clarifier Weir
Total Nitrogen as N (Effluent), mg/l	M&R		Quarterly	Clarifier Weir

Schedule of Compliance (SOC): There are no SOC requirements proposed for this permit. As of the last site inspection on June 12, 2009, no major process changes have occurred in the past five years. Ongoing maintenance activities documented by the Division included like-kind pump replacement at the pump stations and some embankment stabilization work completed at the evaporation ponds. In addition to the Town Manager (Provisional Certification), the facility has also successfully added two additional Grade II Certified Wastewater (WW) Operators to operate this plant and submit DMR forms. Trickling filter (bio-filtration) treatment plants \leq 1.0 MGD capacity require a Grade II WW licensure (NAC 445A.290).

Procedures for Public Comment: The Notice of the Division's intent to issue (renew) the proposed water pollution control discharge permit for a period of five (5) years, subject to the conditions contained within the permit is being sent to the **Reno Gazette-Journal** newspaper for publication. The notice is also being electronically mailed to interested persons on our public notification mailing list. Anyone wishing to comment on the proposed permit can do so in writing within a period of thirty (30) calendar days of the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **Monday, November 23, 2009, by 5:00 P.M. PST.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.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 (renew) the proposed water pollution control discharge permit to U.S. Gypsum Co. for a period of five (5) years.

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Bureau of Water Pollution Control

Date: October 16, 2009