

FACT SHEET AND STATEMENT OF BASIS
GREAT SALT LAKE MINERALS CORPORATION
UPDES PERMIT NO. UT0000647

**MODIFIED DISCHARGE PERMIT AND STORM WATER PERMIT FOR MINOR
INDUSTRIAL FACILITY**

FACILITY CONTACT:

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DESCRIPTION OF MODIFICATION: This permit modification will be adding a new discharge location from a newly constructed steam plant an internal outfall and eventually to the Great Salt Lake. The discharge will consists of boiler blow down water. The source of this boiler blow down water is the culinary water supplied to the site by Weber Basin Water.

DESCRIPTION OF FACILITY:

Great Salt Lake Minerals Corporation (GSL Minerals) removes water from the Great Salt Lake, and by the process of evaporation, concentrates and removes salt, potash, and magnesium chloride. During this process, more sodium chloride is produced than any other product, but the potash and magnesium chloride are many times more valuable per ton than sodium chloride. In fact, the Company has a large amounts of sodium chloride left in the ponds after harvesting which must, by contract with the State, be returned to the Great Salt Lake (GSL). The salt is returned to the lake by the facility pumping water from the Bear River Bay of the Great Salt Lake, dissolving the remaining salt found in the evaporation ponds and returning them to Bear River Bay. Only materials native to and originally withdrawn from the lake are discharged with these flows. This activity takes place during the “non-solar season” from October to March. Not all outfalls will discharge during that time.

DESCRIPTION OF NEW DISCHARGES:

This permit modification will be adding a new discharge location from a newly constructed steam plant an internal outfall and eventually to the Great Salt Lake. The discharge will consists of boiler blow down water. The source of this boiler blow down water is the culinary water supplied to the site. The flow is estimated to be between 0.05 MGD (average) and 0.09 MGD (maximum). GSLM will be installing two 110 mmBtu/hr boilers that each have a output capacity of 90,000 lb/hr steam.

Both boilers will be fired with natural gas.

The boiler water will be supplied by Weber Basin Water. This water will undergo a 3 stage pretreatment process, that will include water softening, carbon filtration, and reverse osmosis. These three stages shall provide demineralization, solids removal and purification of the water. After input of the pre-treated water to the boiler, the boiler recycle/condensate steam shall be treated with conventional buffering agents for scale control and corrosion inhibition within the boiler.

As stated above the estimated average daily flow from the boilers is expected to be 53,000 gal/day (0.05 MGD) with a daily maximum of 90,000 gal/day (0.09 mgd). This discharge will be to an existing drainage ditch on the facility that leads to Outfall 001. Since the daily average flow from Outfall 001 is 3.8 MGD, Outfall 001-B will be monitored internally before it enters the drainage ditch.

The geographical locations of the new outfall is listed below.

<u>Outfall Number</u>	<u>Location of Discharge Point</u>
001-B	Internal discharge from the Steam plant to onsite storm water system to the Great Salt Lake, Bear River Bay. Latitude 41°16'43" and Longitude 112°13'12"

RECEIVING WATER CLASSIFICATION:

The Facility's discharge out of Outfall 001-B will be to the Great Salt Lake through Outfall 001. The GSL is classified as Class 5. Outfalls 001 discharges to the Bear River Bay, a sub-classification of the Great Salt Lake which is protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

BASIS FOR EFFLUENT LIMITS:

No numeric water quality standards have been established for the Great Salt Lake with the exception of Selenium in Gilbert Bay. (Since this facility does not discharge to Gilbert Bay, the Selenium standards do not apply to this discharge.) As stated in the application letter, this new facility will be regulated under *40 CFR 423 – Steam Electric Power Generations Point Source Category*. However, the facility will only be generating steam for use in Sulfate of Potash plant and the magnesium chloride plant operations. The facility will not operate a turbine, will not generate power and will not distribute electricity internally or to the external power grid. The new facility replaces a facility previously owned by PacifiCorp.

As a new facility, the new source will be subject to the New Source Performance Standards as found in *40 CFR 42.15*. These parameters are pH, Oil and grease, TSS and Total Residual Chlorine. In addition, *40 CFR 423.15 (j)(1)* also identifies Total Chromium and Total Zinc as pollutants on the priority pollutant list that should be monitored and limited in the discharge.

Based on *UAC R317-1-3.2C*, pH must remain in the range of 6.5 to 9.0 standard units. Because oil and grease sources are present in the processing and shipping areas, the potential exists for

their addition to process water. Thus, oil and grease concentrations will be limited to 10 mg/L (based on best professional judgment [BPJ]). A grab sample for Oil and Grease will only be required if a visible sheen is observed in the effluent at Outfall 001-B (Oil and Grease is also monitored at Outfall 001, so an additional visual monitoring for oil and grease will also be done at that location and reported on the DMR forms).

Based on a review of the Level II Anti Degradation Review document the following parameter will be monitored and subjected to the following effluent limitations, Total Dissolved Oxygen. This parameter is being added because the facility is adding an oxygen scavenger as part of the treatment process. The facility is adding a re-aeration process to add oxygen back to the effluent.

SUMMARY OF LIMITATIONS:

Outfall 001-B shall subject to the following self-monitoring, effluent limitations and reporting requirements.

Parameter	Effluent Limitations			
	Maximum Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
Oil & Grease, mg/L	NA	NA	NA	10.0
pH, Standard Units	NA	NA	6.5	9.0
Total Suspended Solids, mg/L	25.0	NA	NA	35.0
Total Residual Chlorine, mg/L	0.2	NA	NA	0.5
Total Dissolved Oxygen, mg/L	NA	NA	4.5	NA
Total Chromium, mg/L	0.2	NA	NA	0.2
Total Zinc, mg/L	1.0	NA	NA	1.0
Dissolved Oxygen mg/L	NA	NA	4.5	NA

NA – Not Applicable

SELF MONITORING AND REPORTING REQUIREMENTS:

Self-Monitoring and Reporting Requirements a/			
Parameter	Frequency	Sample Type	Units
Total Flow a/ b/	Monthly	Measured	MGD
Oil & Grease	Monthly	Visual c/	mg/L
pH	Monthly	Grab	SU
Total Suspended Solids	Monthly	Grab	mg/L
Total Residual Chlorine	Monthly	Grab	mg/L
Total Chromium	Monthly	Grab	mg/L
Total Zinc	Monthly	Grab	mg/L
Dissolved Oxygen	Daily	Instantaneous	mg/L

- a/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- b/ If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- c/ A grab sample for Oil and Grease will be required when a visible sheen is observed in the effluent.

LEVEL I AND LEVEL II ANTI-DEGRADATION

The facility submitted a Draft Level I and Level II Anti Degradation Review Document on July 17, 2012. This document was reviewed by the Division of Water Quality and comments were supplied to the facility. As a result of this review an amended Level I and Level II ADR was submitted on October 2, 2012. These documents have also been reviewed by the Division of Water Quality and are attached as appendixes to this document.

A review of the ADR documents supports the findings that the permit limits in the permit should be set using the New Source Performance Standards as found in *40 CFR 42.15* and that permit limits based on the NSPS will not violate water quality standards in the receiving waters.

PERMIT DURATION:

It is recommended that this permit be effective until the original termination date of September 30, 2013.

Drafted by Lonnie Shull
Environmental Scientist
Utah Division of Water Quality
Drafted July 26, 2012
Updated October 25, 2012