



State of Utah

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DIVISION OF WATER QUALITY  
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Director

**MEMORANDUM**

TO: Kim Shelley, Permit Writer

FROM: Chris Bittner, Standards Coordinator

DATE: June 27, 2014

SUBJECT: Antidegradation Review for the Salt Lake City Water Reclamation Facility 2014 UPDES Permit UT0021725

*Summary: Based on the information provided in the Final Salt Lake City Facility Effluent Screening Summary Report (January, 2014) submitted by Salt Lake City, the uses designated in R317-2-12 and existing uses of the receiving waters (Northwest Oil Drain→Salt Lake Sewage Canal→Farmington Bay, Great Salt Lake) will be protected and water quality-based effluent limits are not required (UAC R317-8-4.2(4)a.2.). The collection of additional data from the receiving waters during the effective period of this permit is required to reduce the uncertainties regarding this conclusion for ammonia, mercury, and selenium. Additional flow data for the receiving waters is also required to support a determination whether chronic whole effluent toxicity monitoring should be required.*

Receiving Waters and Designated Uses (UAC R317-2-12):

Northwest Oil Drain and Salt Lake Sewage Canal

Class 2B protected for infrequent primary and secondary contact recreation.

Class 3E severely habitat-limited waters. Narrative Standards will be applied to protect these waters for aquatic wildlife

Northwest Oil Drain → Salt Lake Sewage Canal → Farmington Bay

Class 5D protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain

**Level I Antidegradation Review**

At the Division of Water Quality's (Division's) request, Salt Lake City prepared and submitted the Final Salt Lake City Facility Effluent Screening Summary Report (Screening Report) in support of their permit renewal application. The purpose of this request was twofold: 1) to document that the effluent will not violate water quality standards, and 2) determine if water quality-based effluents are required for the permit. Water quality-based effluents are required

when the effluent has “reasonable potential” to cause or contribute to a violation of a water quality standard.

The Level I antidegradation review requirements are that existing uses will be protected (UAC R317-2-3.1). For the affected receiving waters, existing uses are the same as the designated uses. The receiving waters for this effluent do not have numeric water quality criteria for the protection of aquatic life and therefore, R317-8-4.2(4)(a)6 applies:

Where the State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard the Director will establish effluent limits using one or more of the following options:

- a. Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the Director determines will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or rule interpreting its narrative water quality criteria supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents:
- b. Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 307(a) of the CWA, supplemented where necessary by other relevant information; or
- c. Establish effluent limitations on an indicator parameter for the pollutant of concern, provided:

The screening approach taken was to compare the pollutant concentrations in the effluent to freshwater numeric criteria. If the effluent pollutant concentrations meet freshwater numeric criteria, the conclusion is that the aquatic life uses of the receiving waters will not be impaired. Consistent with a screening process, failure to meet the freshwater criteria is not an indication that the aquatic life uses won't be supported but does indicate that further analysis is needed to make a determination.

As documented in the Screening Report, the effluent from SLC's reclamation facility meets acute and chronic freshwater numeric criteria. This is further supported by the acute whole-effluent toxicity (WET) testing record of no failures. However, additional data is needed to decrease the uncertainties associated with ammonia concentrations and chronic toxicity. As discussed in Section 3.5 of the Screening Report, many unmeasured factors will decrease ammonia concentrations and toxicity. This permit includes a compliance schedule to collect data to measure ammonia concentrations in the Northwest Oil Drain and Salt Lake Sewage Canal prior to reaching Farmington Bay. Should this new data indicate that the uses aren't being supported, the permit will be reopened and modified to that the uses remain supported.

Limited data was collected during 2013 using an analytical method of sufficient sensitivity to measure mercury concentrations. Previous mercury monitoring has resulted in mercury not being detected but the analytical method detection limits are insufficient to support a reasonable potential determination. Therefore, this permit includes a monitoring requirement to collect more data using more sensitive analytical methods to supplement the 2013 data.

Limited data was also collected in 2013 from the Northwest Oil Drain for selenium. This data shows that selenium concentrations in the Northwest Oil Drain meet the freshwater chronic numeric criterion prior to Farmington Bay. However, this data is limited in time and may not capture the variability in selenium concentrations. Therefore, the compliance schedule includes a requirement for additional characterization of selenium concentrations in the Northwest Oil Drain and Salt Lake Sewage Canal.

Salt Lake City conducts extensive monitoring of pollutant concentrations in their effluent. This data, coupled with Salt Lake City's participation in a pretreatment program supports that observed effluent concentrations are representative of future concentrations. Based on this data and the comparison to freshwater numeric criteria, the Division concludes that no pollutants have reasonable potential and water quality-based effluent limits are not required. The self-monitoring and reporting requirements are recommended to be conserved from the previous permit to support future reasonable potential determinations.

## **Level II Antidegradation Review**

In accordance with UAC R317-2-3.5.b.1.(b), a Level II antidegradation review is not required because there is no change to effluent concentrations or loading compared to the previous permit.

## **WET Testing**

Salt Lake City currently conducts acute WET monitoring consistent with Utah's 1991 WET Implementation Guidance. To provide a higher degree of confidence in the conclusion of no adverse impacts to the designated uses, chronic WET monitoring is being considered. Chronic WET testing is conducted using the predicted dilution of the receiving water but these data (flow in Northwest Oil Drain and Salt Lake City Sewage Canal) are currently unavailable. This data will be collected as required by the compliance schedule. Based on the outcome of this study, the Division will reevaluate whether acute WET monitoring is sufficiently protective or if chronic WET monitoring should be required.

