

**Utah Division of Water Quality  
Statement of Basis  
ADDENDUM  
Wasteload Analysis and Antidegradation Level I Review**

**Date:** September 2, 2023

**Prepared by:** Suzan Tahir  
Standards and Technical Services Section

**Facility:** ATI TITANIUM  
UPDES No. UT0025755

**Receiving water:** Unnamed ditch → Gilbert Bay → Great Salt Lake

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

**Discharge**

Outfall 001: the outfall is deactivated and not discharging 0.00 MGD.

**Receiving Water**

The receiving water for Outfalls 001 is an unnamed ditch, which is an intermittent stream that discharges to Gilbert Bay and then Great Salt Lake.

Per UAC R317-2-13.11, the designated beneficial uses for Gilbert Bay are: 2B 3B 3D, 3E, 5A and 5E.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*

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- *Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*
- *Class 3E - Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.*
- *Class 5A Gilbert Bay -Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds.*
- *Class 5E Transitional Waters along the Shoreline of the Great Salt Lake Geographical Boundary - All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation.*

**Flow**

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). The unnamed ditch is an intermittent stream that has no flow for large parts of the year. As a result, the annual critical low flow was determined to be zero. As a result, water quality based effluent limits revert to end-of-pipe water quality standards.

**TMDL**

According to DWQ's 2022 303(d) Assessment, Gilbert Bay (Gilbert Bay open water south of the Union Pacific Causeway and below 4208 feet, excluding all of Farmington Bay, transitional wetlands below 4208 feet, and State Waterfowl Management Areas, UT-L-16020310-001\_00) supports all assessed uses.

**Protection of Downstream Uses**

Per UAC R317-2-8, *all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.* For this discharge, 3B numeric aquatic life use criteria apply to the immediate receiving water (Gilbert Bay).

**Mixing Zone**

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. Because the critical low flow for the receiving water is zero, **no mixing zone** was considered.

### **Parameters of Concern**

Potential parameters of concern identified for the discharge/receiving water were pH, iron, selenium and titanium based on review of the past permit. In the future, additional parameters of concern may become apparent as a result of reasonable potential analysis, technology-based standards, or other factors as determined by the UPDES Permit Writer.

### **WET Limits**

The percentage of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC<sub>50</sub> (lethal concentration, 50%) percent effluent for acute toxicity and the IC<sub>25</sub> (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC<sub>50</sub> is typically 100% effluent and does not need to be determined by the WLA.

Because the critical low flow of the receiving water was determined to be zero, WET limits for Outfall 001 for IC<sub>25</sub> should be based on 100% effluent.

### **Wasteload Allocation Methods**

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in Appendix A.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al. 2002).

Models and supporting documentation are available for review upon request.

### **Antidegradation Level I Review**

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this facility. The proposed permit is a simple renewal, with no increase in flow or concentration over that which was approved in the existing permit.

### **Documents:**

WLA Document : *ATI\_WLADoc\_2023.docx*

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**References:**

Utah Division of Water Quality. 2022. *Final 2022 Integrated Report on Water Quality*

Utah Division of Water Quality. 2021. *Utah Wasteload Analysis Procedures Version 2.0.*