

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

**Date:** January 15, 2015

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UPDES Permit Section

**Facility:** Saratoga Springs Pool  
UPDES No. UT0025321

**Receiving water:** Utah 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: Man-made watercourse → Utah Lake. The pool discharge flows at an average of .43 GPM or .062 MGD. The combined flow of chlorinated pool water and untreated spring water at the point of compliance before entering Utah Lake is .5 MGD. The combined flow enters a man-made water course on their property to dissipate chlorine and introduce oxygen. The water course terminates into a grated sump and enters a 6 inch green PVC pipe that discharges directly into Utah Lake.

Receiving Water

The discharge flows into Utah Lake which has a use classification of 2B, 3B, 3D and 4, according to *Utah Administrative Code (UAC) R317-2-13*:

*Class 2B -- Protected for secondary contact recreation such as boating, wading, or similar uses.*

*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.*

*Class 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, or 3C, including the necessary aquatic organisms in their food chain.*

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*Class 4 -- Protected for agricultural use including irrigation of crops and stock watering.*

TMDL

Utah Lake is listed on the 2010 303(d) list as impaired for total dissolved solids and total phosphorous.

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.

The previous permit and WLA included an end-of-pipe total residual chlorine (TRC) limit of .019 mg/L (acute criteria). Consistent with this approach, and because TRC is the only identified parameter of concern, no mixing zone analysis was considered.

Parameters of Concern

The only additive to the water prior to the discharge will be chlorine for disinfection purposes as mandated by the Utah County Health Department. Saratoga Springs is a naturally occurring geothermal springs which historically surfaced and drained to Utah Lake. The springs are naturally high in total dissolved solids (TDS) and have elevated temperature. As per *UAC R317-1-3.4 - Pollutants In Diverted Water Returned To Stream* - a user of surface water diverted from waters of the State will not be required to remove any pollutants which such user has not added before returning the diverted flow to the original watercourse. As a result, no effluent limits were calculated for TDS or temperature.

WET Limits

The percent 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. In this case, there is no dilution, and the percent effluent is assumed as 100%.

The WET limit for LC<sub>50</sub> is typically 100% effluent and does not need to be determined by the WLA.

Wasteload Allocation Methods

The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit.

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.

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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 because it is a simple renewal with no increase in load or concentration from the previously permitted facility.

