


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

Date: August 4, 2015
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Water Quality Standards and Technical Services Section
Facility: Flowserve Corporation; UPDES No. 0024422
Receiving water: Reflecting pond -> unnamed ditch -> Spring Creek

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

Flowserve engineers, manufactures, and tests control valves and components. The company uses culinary city water to perform hydrostatic tests on its finished valves. Flows from the valve testing areas combine in a collection tank and drain through a 12" outlet pipe to a manhole on the northwest corner of the building. The manhole discharges (Outfall 001) to a reflecting pond that also receives effluent from Springville City Wastewater Treatment Plant (SCWWTP). Water from the reflecting pond flows to an unnamed ditch and ultimately to Spring Creek.

The design flow (maximum daily flow) from the facility is 4000 gpm. Discharge is intermittent, depending on whether or not testing is being performed.

Data from the facility's permit renewal application was used to characterize pH and temperature.

Receiving Water

The discharge from this facility flows to a reflecting pond that also receives effluent from Springville City Wastewater Treatment Plant (SCWWTP), thence to an unnamed ditch and ultimately to Spring Creek. Spring Creek, as per UAC R317-2-13.5 has designated uses of 2B, 3C, 4.

- *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.*

Utah Division of Water Quality
Wasteload Analysis
Flowserve Corporation UPDES No. UT0024422

- *Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.*

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). Due to a lack of flow records at this site, complicated hydrology (discharge to a small pond which flows to a constructed ditch prior to entering Spring Creek) this wasteload makes the conservative assumption of a 7Q10 flow equal to zero. As a result, end-of pipe limits equal the water quality standards.

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. In this case, because the background flow is assumed to be zero, no mixing was considered.

Parameters of Concern

Due to the nature of the discharge (flow-through culinary water for valve testing) the discharge was determined to have negligible potential to add pollutants to the receiving water with the possible exception of oil and grease. No additional parameters of concern were identified in consultation with the permit writer.

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 (in this case, the water quality standards.

An Anti-degradation Level II review is not required since 1) the water quality of the receiving water will not be lowered by the proposed activity and, 2) the UPDES permit is being renewed and the proposed effluent concentration value and pollutant loading is equal to or less than the existing effluent concentrations value and pollutant loading). [R317-2-3.5b.1]

TMDL

Spring Creek is listed as impaired for total ammonia (Class 3B use) on the 2014 303(d) list. Utah Lake is listed as impaired for total dissolved solids (Class 4 use) total phosphorous (Class 3B use) and PCBs in fish tissue (Class 3B use) on the 2014 303(d) list. The receiving waters do not have approved TMDLs for any of these constituents.

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.

**Utah Division of Water Quality
Wasteload Analysis
Flowserve Corporation UPDES No. UT0024422**

The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (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 LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

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