

## STATEMENT OF BASIS

### Ground Water Discharge Permit Permit No. UGW490010

City of Provo Public Works (Provo)  
1377 South 350 East  
Provo, UT 84606

January 2023

#### Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules <sup>1</sup>(Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water<sup>2</sup>. As defined by the Ground Water Rules, such facilities include ponds. <sup>3</sup>The Ground Water Rules are based on an anti-degradation strategy for ground water protection as opposed to non-degradation; therefore, discharge of contaminants to ground water may be allowed provided that current and future beneficial uses of the ground water are not impaired and the other requirements of Rule 317-6-6.4.A are met.<sup>4</sup> Following this strategy, ground water is divided into classes based on its quality<sup>5</sup>; and higher-quality ground water is given greater protection<sup>6</sup> due to the greater potential for beneficial uses. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the facility operations, maintenance, best available technology<sup>7</sup>, and the hydrogeologic and climatic conditions of the site, to ensure that the operation would not contaminate ground water.

#### Basis for Permit Issuance

Under Rule 317-6-6.4A, DWQ may issue a ground water discharge permit if:

- 1) The applicant demonstrates that the applicable class TDS limits, ground water quality standards protection levels and permit limits established under R317-6-6.4E will be met;
- 2) The monitoring plan, sampling and reporting requirements are adequate to determine compliance with applicable requirements;
- 3) The applicant is using best available technology to minimize the discharge of any pollutant; and
- 4) There is no impairment of present and future beneficial uses of ground water.

#### Overview

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<sup>1</sup> Utah Admin. Code Rule 317-6

<sup>2</sup> [https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP\\_PermitInfo.pdf](https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP_PermitInfo.pdf)

<sup>3</sup> Utah Admin Code Rule 317-6-6.1A

<sup>4</sup> Preamble to the Ground Water Quality Protection Regulations of the State of Utah, sec. 2.1, August, 1989

<sup>5</sup> Utah Admin. Code Rule 317-6-3

<sup>6</sup> Utah Admin. Code Rule 317-6-4

<sup>7</sup> Utah Admin. Code Rule 317-6-1(1.3)

Ground Water Discharge Permit No. UGW490010 is a new permit that covers ground water discharge from two Aquifer Storage and Recovery (ASR) infiltration facilities at two locations in Provo, Utah – Rock Canyon and Riverview Park. Rock Canyon location water will be drawn from the existing culinary system via booster station/ pipeline and transferred to the infiltration area which consists of an existing dry streambed and existing channel features. Riverview Park Location water will be drawn from the Provo River and West Union Canal to infiltrate via the existing constructed water feature in the park, following water feature modifications needed to facilitate long-term infiltration at this location. The purpose of this ASR project is to recharge ground water in the area.

## **Background**

### **a. Subsurface Conditions**

Provo City is located in northern Utah Valley, which is part of a north-south trending basin, with the Wasatch Mountains providing the eastern boundary. The basin fill sediments beneath the ASR facilities consist mainly of interbedded sand and gravel that contain variable amounts of silt and clay. Multiple unconfined and confined aquifers have been recognized in the basin-fill sediments in northern Utah Valley including pre-Lake Bonneville unconfined aquifer, the shallow Pleistocene confined aquifer, the deep Pleistocene aquifer, and the Quaternary-Tertiary aquifer<sup>1</sup>. Provo City municipal wells pump from the confined aquifers found in these basin-fill sediments.

### **b. Ground Water Quality and Ground Water Classification**

Water quality data from the monitor wells indicate that ground water has an average total dissolved solids (TDS) content of 340 mg/L at the Rock Canyon site and 413 mg/L at the Riverview Park site. Based on monitoring results from monitoring wells MW-RC1D, MW-RC2, MW-RC3, MW-RV1, MW-RV2, and MW-RV3, ground water at the sites is classified as Class IA, in accordance with UAC R317-6-3.2.A.

Concentrations of other constituents derived from monitoring wells are contained in Table 2 of the permit. Results show existing ground water does not violate Utah Ground Water Quality standards found in R317-6-2.1.

## **Protection Levels**

Ground Water Protection Levels have been established for TDS, nitrate, chlorine, and pH, and are included in table below and in Table 3 of the ground water discharge permit. These key parameters were selected for compliance water monitoring based on the data submitted by Provo and concerns in the region. Protection Levels were set in accordance with Utah Administrative Code (UAC) R317-6-4.2 and UAC R317-6-2.1.

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<sup>1</sup> Cederberg, J.R., P.M. Gardner, and S.A. Thiros, 2009. Hydrology of Northern Utah Valley, Utah County, Utah, 1975-2005, U.S. Geological Survey Scientific Investigations Report 2008-5197 ver. 2.0.

**Ground Water Protection Levels**

Locations	TDS, mg/L*	Nitrate, mg/L**	Chlorine, mg/L**	pH***
Rock Canyon Influent MW-RC1D MW-RC2	500	2.5	1.0	6.5- 8.5
Riverview Park Influent MW-RV2	500	2.5	1.0	6.5- 8.5

\* Based on Class 1A requirements  
 \*\* 0.25 times the Water Quality Standard  
 \*\*\* Water Quality Standard

**Compliance Monitoring Program**

Provo has numerous wells and sampling locations located throughout both ASR facilities locations. Ground water is required to be sampled and analyzed **quarterly** for TDS, nitrate, chlorine, pH, sulfate, and metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), for the term of the permit. Provo may request reduced frequency after one year of monitoring. Monitoring will be completed at a minimum at monitoring wells MW-RC1D, MW-RC2, and MW-RV2, and influent sampling locations. Results will be compared to Ground Water Protection Levels presented in this permit and Utah Ground Water Quality Standards. The Compliance Monitoring report schedule is as follows:

Monitoring Period	Report Due Date
January – March	May 1
April – June	August 1
July- September	November 1
October -December	February 1

Regulatory decisions made as a result of ground water monitoring must consider the background variability of ground water quality. Provo will not be required to take corrective action if it can be verified that changes in ground water quality are a result of other factors not related to their operations.

**Corrective Action Plan**

A corrective action plan is required for facilities that have already violated Ground Water Quality Standards. Groundwater quality standards have not been exceeded at the Rock Canyon and Riverview Park facilities; therefore, no Corrective Action Plan is required. However, if groundwater quality standards were to be violated in the future a corrective action plan appropriate for addressing the violation would be prepared.

**Public Notice**

Began: October 21, 2022  
Ended: November 21, 2022

The Public Notice of the draft permit was published in the Provo Newspaper.

No comments were received during the Public Notice period.

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