

**Fact Sheet and Statement of Basis Draft
Class V Area Permit Issuance
UIC Permit Number UTU-49-AP-4C52E67
October 2022**

**Provo City
Provo, Utah 84606**

Figure 1. Provo City UIC Class V Aquifer Storage and Recovery Well.



<p><u>Location:</u> Utah County, Utah</p>	<p><u>Operator:</u> Provo City</p>
<p><u>Facility Contact:</u> Ryan York Public Works Division Public Works Office 1377 S 350 E Provo, Utah 84606 Ryork@provo.org Tel. (801)852-7789</p>	<p><u>Regulatory Contact:</u> Porter Henze Utah Department of Environmental Quality Division of Water Quality UIC Program 195 North 1950 West Salt Lake City, UT 84116 pkhenze@utah.gov Tel. 385-566-7799</p>

Purpose of the Statement of Basis and Fact Sheet

The Utah Division of Water Quality (DWQ) has prepared this draft Fact Sheet and Statement of Basis (FSSOB) for the draft Underground Injection Control (UIC) Class V Well (Category UIC Well 5B4) Permit (Draft Permit) for Provo City. Pursuant to the Utah UIC administrative rules in Utah Administrative Code R317-7 et. seq. and federal regulations in Title 40 of the Code of Federal Regulations (CFR) incorporated by R317-7-1 the purpose of this FSSOB is to briefly describe the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. To meet these objectives, this FSSOB contains:

- Background information on the permit process and names and telephone numbers of contacts for additional information (listed on the first page of this FSSOB above);
- A description of the draft permit review process and public participation;
- A brief discussion of the facility and process;
- Basis for draft permit conditions.

Permit Process

Application and Review Period

In April of 2022 Provo City submitted a UIC Class V Aquifer Storage and Recovery (ASR) permit application for two wells at the Riverwoods and 5600 North. The DWQ completed its review of this application and has completed the provisionally approved Draft Permit.

Public Participation

The Draft Permit was prepared by the DWQ for public notice and public comment. Public comments will be accepted by the DWQ for 30 days following the first day of public notice in the local newspaper that serves the affected community. A hearing may be held by the DWQ if public comments are substantial and the Draft Permit requires revision based on these comments.

Description of Permitted Facility

Provo City proposes an ASR system as an integral part of their public water supply system. The purpose of the recharge and recovery system is to inject excess treated water from Provo's Culinary System into the Pre-Lake Bonneville Aquifer (PLBA).

Site Hydrogeology and Water System

Provo City currently has multiple aquifers and wells to supply water to the City. Provo City lies on an alluvial system of unconsolidated basin-fill sediments. Colluvial, alluvial, fluvial, and lacustrine processes deposited interbedded and alternating sequences of coarser and finer grained sediments, ranging from clays and silts to cobbles and boulders. Several normal faults cause vertical displacement along the Wasatch Front.

A number of unconfined and confined aquifers have been recognized in the unconsolidated basin-fill sediments. Four prominent aquifers include the Pre-Lake Bonneville unconfined aquifer (PLBA), the shallow Pleistocene confined aquifer (SPA), the deep Pleistocene aquifer (DP aquifer), and the Quaternary-Tertiary aquifer (QTA) have been used by Provo City for groundwater. These aquifers vary in thickness and grain size composition, but are separated by fine grained layers that act as confining units. These units generally become thicker towards Utah

Lake. The unconfined PLBA is found adjacent to the mountain front and is composed of thick sequences of sand, gravel, cobbles and boulders with thin, discontinuous interbeds of silt and clay. In the eastern portion of Northern Utah Valley, the thickness of this aquifer can be greater than 1,500 feet. As the PLBA lacks thick, continuous fine-grained confining layers, and is hydraulically connected to other confined aquifers, it is recognized as a major zone of surficial recharge to other confined aquifers sourced by Provo City.

Two wells have been identified to be converted to Injection wells. The 5600 North well was installed in 1975 to a depth of 469 feet with perforated intake intervals between 195 and 402 feet below ground surface (ft bgs). The Riverwoods well was installed in 2003 to a depth of 1,220 feet with multiple screened intervals between 316 and 1,210 ft bgs. Both wells draw from the PLBA and have been a reliable source of production.

Provo City intends to inject any excess water from the Culinary water supply and inject it into the PLBA via the 5600 North and Riverwood wells. Between the two wells, it is expected to inject up to 931 Million Gallons per 6-month period. This amount of water will be beneficial to the residents of Provo City when groundwater elevations have been declining for the past few decades. As the culinary water injected is of drinking water quality there should be no impacts to Underground Sources of Drinking Water. Chemically the water from the well and the culinary supply are very similar. During previous tests, injection caused the groundwater concentrations of Iron, Aluminum and magnesium increased, but are below drinking water standards. The pH of the spring and well water is circumneutral, the Langelier indices are approximately zero, and chloride concentrations are below 10 mg/L indicating little potential for scaling, corrosion, or metal mobilization.

Background Water Quality

The water quality from Provo's culinary water that is injected into the alluvial aquifer is generally a Class I water. Concentrations of dissolved trace metals and organic contaminants are very low and below drinking water standards.

Basis for Requiring Permit

Under UAC R317-7-5.1 and UAC R317-7-5.5 the Director of the DWQ (Director) is authorized to call for a permit for any Class V injection well that may endanger an underground source of drinking water (USDW). The source waters have historically shown the presence of coliform bacteria and the recharge area for the source waters may be subject to spills and to discharge of contaminants (e.g. pesticides, herbicides, fire retardants, etc.), thus it is the determination of the Director that the ASR project and well described above requires a UIC Class V permit.

The Utah Underground Injection Control (UIC) Class V permit is based on the following restrictions to ensure compliance with state and federal UIC Program rules and regulations and Utah Ground Water Quality Protection Program rules and regulations.

Permit Conditions

Part I of the permit is the Authorization to Construct and Inject. Part II includes all general permit conditions required in all UIC permit with the focus on Class III permits. Part III contains all the specific permit conditions required of all Class V ASR wells.

Standard Operating Procedures Plan

Provo City has submitted injection well Operating Plan (Permit Attachment E) that meets the requirements of Part III (E) of this permit. The Plan only includes injection of water via the Riverwoods and 5600 North wells

Monitoring, Testing and Reporting

Injectate Characterization - Each source of injectate will be analyzed for a complete suite of parameters once during the permit cycle. Additionally, any new source for injection will be analyzed for a complete suite of parameters annually for the permit cycle. Once a quarter, the source of the injectate will be analyzed for an abbreviated suite of parameters that include those constituents of concern and those constituents that have historically been detected. The monitoring parameter list and monitoring schedule are detailed in Attachments F of the permit, respectively.