

**NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET**

(Pursuant to NAC 445A.874)

Permittee Name: Carson City Public Works
Permittee Address: 3505 Butti Way, Carson City NV 89701
Project Name: North West Carson City Aquifer Storage and Recovery
Permit Number: UNEV2010204
Injection Wells (#): Three (3)
Permit Action: Draft UIC Permit - Renewal

Date drafted: November 2016

Type of Project: Aquifer Storage & Recovery

A. Description of Injection well

Location: Three (3) injection wells, Carson City, Nevada.

Well	Well Address	Sec T & R
10B	2200 W. College Parkway	SE SE Sec 1 T.15N., R19E.
51	1900 W. Winnie Lane	NW SW Sec 7 T.15N., R20E.
55	2057 W. College Parkway	NE NE Sec 12 T.15N., R19E.

Injectate Characteristics: Injectate will be surface water treated through CCPW's Quill drinking water treatment plant and distributed municipal water distribution system, some pumped ground water may be in distribution system during the injection cycle. Proposed rates will be 65 - 600 gpm depending on the well. Wells shall receive a maximum of 75% of the wells pumping and an average of 65% of the wells pumping capacity. The TDS of the injectate is 78 mg/l, pH = 7.9, chloride = 3 mg/l, sodium = 7-11 mg/l, sulfate = 0.8 mg/l, magnesium = 1.6 mg/l, arsenic = 1 mg/l, iron = 0.17 mg/l; and meets all drinking water standards for the constituents tested. Chloroform has ranged from 5-41 ug/l in 2008-2009. Residual chlorine values have ranged from 0.2 - 1.27 mg/l over past 3 years.

Receiving Water Characteristics: The quality of the receiving ground water aquifer meets all drinking water standards and has a TDS values up to 150 mg/l and pH of 7.9. Other values include arsenic = 2-6 mg/l, sulfate = 3-5 mg/l, Chloride = 2-10 mg/l, fluoride = 0.10 mg/l, sodium = 5-12 mg/l, iron = 0.1 mg/l, and nitrate as NO3= 0.5 - 3.7 mg/l. Choroform has been detected at values up to 69 ug/l in well 48.

Wellhead Protection Areas

- _Y_ Injection well/Facility within a 2-, 5-, or 10-year ground water protection area
Y Injection well/Facility within 7000-foot buffer zone for any public water supply well

B. Synopsis of Project

The Carson City Public Work Dept proposes to inject excess treated domestic water into the Eagle Valley hydrologic basin on the west side of the community. The water will be injected via four (4) wells number 48, 10b, 51 and 55. These wells were constructed as Aquifer Storage and Recovery (ASR) wells between 2000-2005. An ASR well has dual capabilities, it was constructed to pump a ground water aquifer and also inject water into the aquifer. These wells have been used since construction to pump ground water into the City's domestic water system.

During the winter months, Carson City has adequate surface water volume to meet most of the communities water needs. The raw surface water is treated at the Quill Water Treatment facility. The treatment process includes diatomaceous earth pressure filtration and chlorination. During the summer months, additional ground water is pumped into the system to address the increase demands required for lawns, gardens and landscape areas. Each well provides chlorination of the ground water. The treated surface water and ground water is transported in the City's domestic water system and subsequently mixed together. During the winter months, ARS wells 48, 10b, 51 and 55 are not needed to supply ground water to the domestic system and are shut down. During this period, these wells will be used to inject excess treated domestic water into the Eagle Valley hydrologic basin. Each well's injection rate will be limited to an average of 65% of the wells existing pumping capacity.

The wells shall be pumped in the summer months. Sampling will occur during pumping period to monitor chemical activity within the aquifer.

A summary of artificial recharge program is given below:

2016	Renew permit - currently using three (3) wells for injection, changed from four in original application, injection occurred in 2011-13. No injection in 2015-16 season.
2011	Well 48 removed from permit, monitoring related to Well 48 was removed.
2010	Original UIC Application received - UNEV2010204 - Four (4) injection wells
2005	Wells 10B, 51 & 55 were completed
2000	Well 48 was completed

C. Proposed Effluent Limitations and Special Conditions

Refer to Part I.A of the permit.

Water levels within each ASR well will be limited by the Permittee and the UIC permit to 25 feet below ground surface.

E. Rationale for Permit Requirements

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime. Verification will be performed to ensure that injected fluid quality remains constant and meets drinking water standards. In particular, NDEP is concerned that recharge projects do not create chlorinated organics in the ground water due to the chlorination treatment of injected water.

E. Proposed Determination

The Division has made the tentative determination to issue the permit.

F. Procedures for Public Comment

The Notice of the Division's intent to renew the permit authorizing the facility to discharge to the ground water of the State of Nevada subject to the conditions contained within the permit, was sent to the *Nevada Appeal* newspaper for publication no later than November 9, 2016. The notice is being sent to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice.

The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination. A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator or any interested agency, person or group of

persons. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

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