



# STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor

Leo M. Drozdoff, P.E., Director

Colleen Cripps, Ph.D., Administrator

## FACT SHEET

(Pursuant to NAC 445A.874)

**Project Name:** Dayton Valley ASR Program  
**Type of Project:** Aquifer Storage & Recovery  
**Permit Number:** UNEV2006200  
**Facility Name:** Dayton Valley Aquifer Storage and Recovery (ASR) Program  
**Facility Address:** Lyon County, NV  
**Permittee:** Lyon County Utilities Department  
**Permittee Address:** 34 Lakes Blvd., Suite 103  
 Dayton, Nevada 89403  
**Legal Description:** T16N, R21E, Sections 1, 12-14, 24, & 25; T16N, R22E, Sections 3-10, 15-22, & 28-31; T17N, R22E Sections 21, 22, 27-29, & 31-34, MDB&M, Lyon County, Nevada.  
**Number of Permitted Wells:** Five (5)  
**Permit Action:** Renewal

### A. Description of Injection well

**Location:** One (1) injection well, located in SE ¼ SE ¼ Section 24, T16N, R21E, MDB&M Lyon County, Nevada. The well is named Eldorado ASR-1 or EASR-1. Groundwater in the vicinity of EASR-1 ranges from 156-159 feet below ground surface. An additional four (4) wells located in the any of the following: T16N, R21E, Sections 1, 12-14, 24, & 25; T16N, R22E, Sections 3-10, 15-22, & 28-31; T17N, R22E Sections 21, 22, 27-29, & 31-34, MDB&M, Lyon County, Nevada.

Latitude 39° 14'23"  
 Longitude 119° 33'50"

#### Well Construction:

Well Name/No.	Type of Construct.	Water Level	Total Depth	Screen Interval
EASR-1	28" borehole; 18" mild steel casing with 18" stainless steel Fulflo Louvered screen; well contains a 4" ASR injection tube outside of 18" casing		407'	185'-318', 333'-380'
EASR-1-MW-1	11" borehole, 4-in sched 80 PVC, cement seal to 196'	158.7'	281'	200'-280'

**Injectate Characteristics:** All injectate will be groundwater treated through Lyon County Utilities Department (LCUD) municipal water distribution system. The TDS of

the injectate ranges from 280 - 440 mg/l and meets all drinking water standards for the constituents tested.

**Receiving Water Characteristics:** The quality of the receiving groundwater aquifer meets all drinking water standards. Typical receiving water values are: TDS = 420 mg/l, pH = 7.48, arsenic < 0.005 mg/l, sulfate = 91 mg/l, chloride = 18 mg/l, sodium = 59 mg/l, iron < 0.01 mg/l, barium = 0.036 mg/l, and nitrate = 0.69 mg/l.

### **Wellhead Protection Areas**

Dayton Well # 4 water well is approximately ½ mile to the NNW from the ASR well and lies within a 2-, 5-, or 10-year groundwater protection area and within a 6000-foot buffer zone for any public water supply well.

### **B. Synopsis of Project**

A summary of Lyon County Utilities Department's artificial recharge program is given below:

Aug 2014	Draft permit for renewal
2008-2014	No injection
Apr 2008	Permit issued for EASR-1
Feb 2008	Draft permit for permanent permit
Dec 2007	Major Modification / Permanent Application
May 2007	Issue 2 <sup>nd</sup> temporary permit for pilot project
Mar 2007	Change of plans not use Rolling A well water, only groundwater for 21-day pilot test
Feb 2007	Change of plans to inject from Rolling A well for 2.5 months
Jan 2007	Issue temporary permit for pilot test - was not used
Dec 2006	Draft temporary permit for pilot test
Mid-2006	Change of plans to conduct pilot test - use temporary permit
2005	Project proposal and initiation
2005	Injection applications to Nevada Division of Environmental Protection

The project area is located in the Dayton Valley area (see map). The purpose of LCUD's Aquifer Storage and Recovery (ASR) program is to store a portion of the water that is extracted from induction (production) wells. Groundwater injected into the aquifer comes from production wells in the area that are permitted by the Nevada State Engineer and the Nevada Division of Environmental Protection (NDEP) Bureau of Safe Drinking Water. Water from the production wells (Dayton #3 and Dayton #4) is treated with chlorine and pumped into the distribution system up to the ASR well EASR-1 during the pilot test.

The Permittee conducted a pilot test for approximately 21 days to test the injection performance and determine the viability of the project. The average injection rate was proposed to be about 150-250 gallons per minute (gpm) into EASR-1.

There was also a tracer test conducted during the 2007 pilot test. Rhodamine WT (a surface and groundwater tracer) was used. On the third or fourth day of the test, 600 mL of 20% liquid solution was released into well EASR-1 at the current inflow rate. NDEP and Division of Water Resources requested an addition within minutes, instead of over an hour. Projected concentration was 3,500 ppb at the point of injection. NDEP calculated dilution is 170-250 ppb at 25 feet from wellbore. *Three concentrations have been established under the NSF Standard 60; 0.1 mg/L for drinking water, 10 mg/L for water entering a drinking water plant prior to treatment and distribution), and 100 mg/L for groundwater not associated with drinking water production. (source: Federal Register Vol 63 No. 40 1998)*

The pilot test showed successful results; therefore, the pilot well EASR-1 is going to remain as a part of the Lyon County ASR Program with a potential of an additional four (4) ASR wells in the future. Each well will require individual review and approval prior to use.

Lyon County plans to ultimately use the Rolling "A" well water for injection; however, the Rolling "A" well and distribution system does not have the capability to supply the water to the injection wellhead. The Rolling "A" well was introduced into the distribution system treated with sodium hypochlorite in 2008; however, will not be used to inject into EASR-1 for aquifer storage and recovery. Lyon County plans to install a pump station to deliver the Rolling "A" water to the injection well in the future. For 2008 recharge, Lyon County used Dayton Wells #3 and #4 to supply the water for injection which is the same water source used as a part of the pilot project. The permit will need to be re-evaluated prior to the use of Rolling "A" water.

LCUD has not injected any water since 2008. The water source for any future injection test will need to be re-evaluated prior to injection.

**C. Proposed Effluent Limitations and Special Conditions**

Refer to Part I.A of the permit.

**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 groundwater 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 groundwater of the State of Nevada subject to the conditions contained within the permit was sent to the Dayton Courier newspaper for publication no later than September 10, 2014. The notice is being mailed 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.

Prepared by: Alan Pineda  
Date: August 2014

