



Central Valley Regional Water Quality Control Board

08 March 2021

Stan Gryczko
City of Davis
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Davis, CA 95616

Certified Mail
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NOTICE OF APPLICABILITY

WATER QUALITY ORDER 2012-0010-DWQ
AQUIFER STORAGE AND RECOVER PROJECTS
THAT INJECT DRINKING WATER INTO GROUNDWATER
CITY OF DAVIS, AQUIFER STORAGE AND RECOVERY PILOT TEST AT WELL 27
YOLO COUNTY

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff received the City of Davis' (hereby, City or Discharger) Notice of Intent (NOI), dated 11 December 2020, for regulatory coverage under *General Waste Discharge Requirements for Aquifer Storage and Recovery Projects That Inject Drinking Water into Groundwater*, Water Quality Order WQ 2012-0010-DWQ (hereafter, General Order). The NOI included a Form 200, Technical Report, documentation of CEQA exemption, and documentation of well registration with the US Environmental Protection Agency Underground Injection Control Program. The City proposes to conduct an Aquifer Storage and Recovery (ASR) pilot test for information that will be used in a feasibility study for implementation of an ASR Program.

Based on the information provided in the NOI, the proposed ASR pilot test meets the required conditions for coverage under the General Order. This Notice of Applicability (NOA) serves as formal notice that the General Order is applicable to the City's ASR pilot test as described below. The discharge is hereby assigned WQ 2012-0010-DWQ-RB5S-0006.

You should familiarize yourself with the entire General Order and its attachments enclosed with this letter. The ASR pilot test must be operated in accordance with the requirements contained in the General Order; Standard Provisions and Reporting Requirements for Waste Discharge Requirements (SPRRs) dated 1 March 1991; and with the information submitted in the NOI. Sampling, monitoring, and reporting requirements must be completed in accordance with the attached Monitoring and

KARL E. LONGLEY SCD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

Reporting Program (MRP) R5-2021-0801. The facility specific MRP was developed after review of your NOI as described in the enclosed memorandum.

BACKGROUND

The City uses both groundwater and surface water resources to meet its water supply needs. Groundwater was historically produced from the Intermediate Aquifer but beginning in the 1990's, the City installed several wells in the Deep Aquifer. The Intermediate and Deep Aquifer is found at depths between 200 and 700 feet below ground surface (bgs) and between 700 and 2,700 feet bgs, respectively. The Deep Aquifer generally has higher quality groundwater, and more groundwater is currently produced from the Deep Aquifer than the Intermediate Aquifer. Since 2016, surface water has been sourced from the Sacramento River through the Woodland-Davis Clean Water Agency (WDCWA). Due to reliability concerns of WDCWA surface water supply, the City is pursuing water supply alternatives to (1) provide a reliable water supply to meet existing and future needs and (2) improve the quality of the potable water provided to residents.

ASR PILOT TEST DESCRIPTION

The overall objective of the pilot test is to observe the hydrologic response of the Intermediate Aquifer to brief ASR Operations at Well 27, a City water supply well. Well 27, the injection well, is located off Sycamore Lane just east of Highway 113 in the City of Davis. For the purpose of groundwater monitoring during pilot testing, a multi-completion, nested observation well will be constructed adjacent to Well 27 to monitor groundwater levels and water quality in each of the water producing zones (Shallow Aquifer, Intermediate Upper Aquifer, and Intermediate Lower Aquifer). The location of Well 27 and proposed observation well is shown on Attachment A, which forms part of this NOA by reference.

The pilot test will include approximately one day of pre-test activities to fine tune well operations, recharge rates, and monitoring procedures prior to initiation of the pilot test. Following the pre-test activities, the pilot test will consist of one cycle of recharge (approximately 5-days of injection at approximately 300 gallons per minute) using high-quality drinking water from the City's surface water supply (provided by WDCWA), a 15-day storage period of the recharged water within the aquifer, and recovery/extraction of the stored water (approximately 2 to 3 days). Duration of injection and recovery activities may vary based on actual recharge and recovery rates during the pilot test. A limited volume of water (approximately 7 acre-feet) will be injected as part of the pilot test and depth to water will be monitored to ensure that levels remain at or greater than 5 feet bgs. Following completion of the pilot test, Well 27 will be returned to its previous working condition.

Extracted water from the pilot test will be discharged into the adjacent drainage channel in accordance with the City's *National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4)*, WQ Order 2013-0001-DWQ. The City must ensure that the extracted water for discharge is pollutant free to maintain

compliance with the Discharge Prohibitions in WQ Order 2013-0001-DWQ. The channel discharges to the Willow Slough Bypass 5.6 miles to the northeast. The extracted water will be collected for laboratory analysis in accordance with MRP R5-2021-0801.

ELIGIBILITY

Based on information included in the Technical Report, the proposed ASR pilot test is consistent with the requirements set forth in Attachment C of the General Order and meets the following eligibility requirement:

1. Injected water will be treated and delivered to the injection well consistent with the requirements of a California Department of Public Health domestic water supply permit.
2. Existing Well 27 used for the pilot test was constructed in compliance with California Well Standards.
3. Injected water for the pilot test will be of quality that will ensure compliance with the General Order.
4. The pilot test is not restricted by local ordinance, prohibition, or other law or regulation. On 11 December 2020, the City of Davis has filed a Notice of Exemption with the Office of Planning and Research seeking a categorical exemption Class 6, Section 15306.

MONITORING AND REPORTING PROGRAM

The City shall comply with the monitoring and reporting program requirements prescribed in the attached MRP R5-2021-0801. The monitoring network shall be installed prior to initiating the pilot test. The construction of the observation well or any proposed monitoring well(s) shall meet the local agency well standards. Permits for all new wells and any well abandonment work must be obtained from the local agency environmental health department.

ADDITIONAL TECHNICAL REPORTS FOR SUBMITTAL

The City shall submit a *Technical Addendum* no later than **90 days** after completion of the pilot test in accordance with the items presented in MRP R5-2021-0801. The *Technical Addendum* shall also include a *Well Installation Report* for the constructed observation well in accordance with Attachment B (Section 2) of this NOA.

GENERAL INFORMATION AND REQUIREMENTS

This NOA authorizes implementation of the proposed ASR Pilot Test under Order 2010-0010-DWQ for Well 27 cited in the Technical Report and discussed in this NOA. In accordance with Prohibition B.4 of the General Order, operation of a pilot test shall not exceed beyond **24 months** from the date this NOA is issued.

The City shall comply with the Prohibitions, Requirements, Groundwater and Surface Water Limitations, and Provisions of the General Order. All ASR functions must be operated in accordance with the requirements contained in the General Order and the NOI and supporting documentation.

Please review this NOA carefully to ensure that it completely and accurately reflects the proposed discharge. If the discharge violates the terms or conditions of the General Order, including MRP R5-2021-0801, the Central Valley Water Board may take enforcement action, including the assessment of an administrative civil liability as authorized by provisions of the California Water Code.

The required annual fee specified in the annual billing from the State Water Resources Control Board shall be paid until this NOA is officially terminated. You must notify this office in writing if the discharge regulated by this Order ceases so that coverage under the General Order can be terminated and to avoid unnecessary billing.

DOCUMENT SUBMITTALS

All monitoring reports and other correspondence should be converted to searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50 MB should be emailed to: centralvalleysacramento@waterboards.ca.gov.

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email or any documentation submitted to the mailing address for this office:

Facility Name: City of Davis ASR Pilot Test at Well 27, Yolo County
Program: Non-15 Compliance
Order: WQ 2012-0010-DWQ-RB5S-0006
CIWQS Place ID: CW-871533

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to:

Central Valley Regional Water Quality Control Board
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Now that the Notice of Applicability has been issued, the Board's Compliance and Enforcement section will take over management of your case. Brendan Kenny is your new point of contact for questions regarding compliance with the Order. All monitoring and technical reports should be submitted to him. If you find it necessary to make a change to your permitted operations, Brendan will direct you to the appropriate Permitting staff. You may contact Brendan at (916) 464-4635 or at brendan.kenny@waterboards.ca.gov.

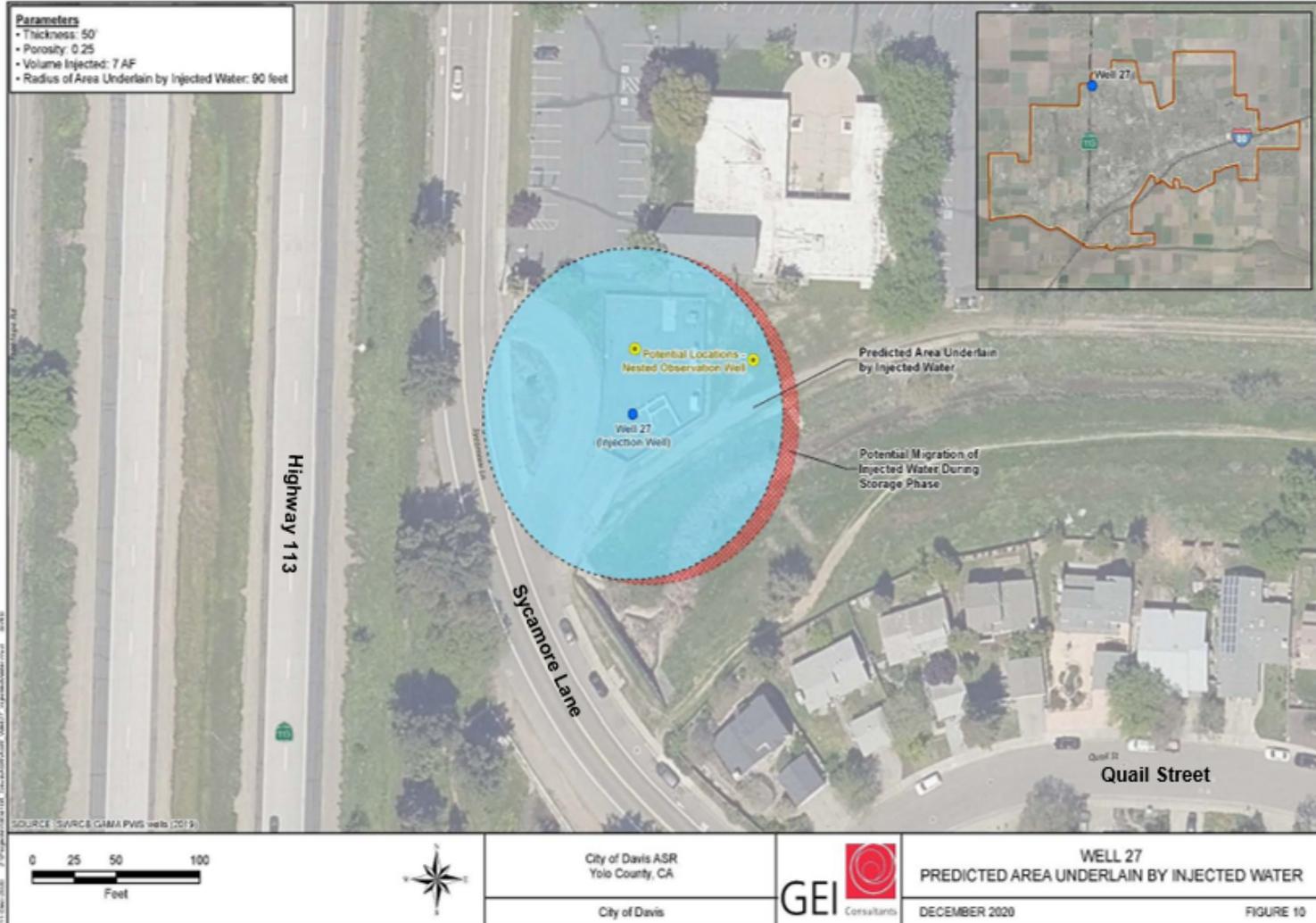


for Patrick Pulupa
Executive Officer

Attachments: Attachment A – Site Map
Attachment B – Monitoring Well Installation Workplans and
Monitoring Well Installation Reports

Enclosures: Monitoring and Reporting Program R5-2021-0801
Review Memorandum of the City of Davis' ASR Pilot Test
WQ 2012-0010-DWQ (Discharger only)
SPRRs (Discharger only)

Cc: Debbie Anderson, Yolo County Environmental Health, Woodland (via email)
Chris Petersen, GEI Consultants, Sacramento (via email)
Rodney Fricke, GEI Consultants, Sacramento (via email)
Brendan Kenny, CVRWQB, Rancho Cordova (via email)
Howard Hold, CVRWQCB, Rancho Cordova (via email)
Elizabeth Lee, CVWQCB, Rancho Cordova (via email)
Jim Marshall, CVWQCB, Rancho Cordova (via email)



Approximate Scale
As Noted Above



Drawing Reference:
Notice of Intent, GEI,
11 December 2020

SITE MAP
City of Davis
ASR Pilot Test at Well 27
Yolo County

ATTACHMENT B

**REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORKPLANS AND
MONITORING WELL INSTALLATION REPORTS**

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 – Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project.
- Brief description of local geologic and hydrogeologic conditions.
- Proposed monitoring well locations and rationale for well locations.
- Topographic map showing facility location, roads, and surface water bodies.
- Large, scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features.

B. Drilling Details:

- On-site supervision of drilling and well installation activities.
- Description of drilling equipment and techniques.
- Equipment decontamination procedures.
- Soil sampling intervals (if appropriate) and logging methods.

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details:
 - Borehole diameter.
 - Casing and screen material, diameter, and centralizer spacing (if needed).
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws).
 - Anticipated depth of well, length of well casing, and length and position of perforated interval.
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack.
 - Anticipated screen slot size and filter pack.

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.).
- Parameters to be monitored during development and record keeping technique.
- Method of determining when development is complete.
- Disposal of development water.

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):

- Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey.
- Datum for survey measurements.
- List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.).

F. Schedule for Completion of Work

G. Appendix: Groundwater Sampling and Analysis Plan (SAP)

- The Groundwater SAP shall be included as an appendix to the workplan and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.
- Provide a detailed written description of standard operating procedures for the following:
 - Equipment to be used during sampling.
 - Equipment decontamination procedures.
 - Water level measurement procedures.
 - Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged).
 - Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used).
 - Purge water disposal.
 - Analytical methods and required reporting limits.
 - Sample containers and preservatives.
 - Sampling:
 - General sampling techniques.
 - Record keeping during sampling (include copies of record keeping logs to be used).
 - QA/QC samples.
 - Chain of Custody
 - Sampling handling and transport.

SECTION 2 – Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:

- Purpose of the well installation project.
- Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells.
- Number of monitoring wells installed and copies of County Well Construction Permits.
- Topographic map showing facility location, roads, surface water bodies.
- Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

- On-site supervision of drilling and well installation activities.
- Drilling contractor and driller's name.
- Description of drilling equipment and techniques.
- Equipment decontamination procedures.
- Soil sampling intervals and logging methods.
- Well boring log:
 - Well boring number and date drilled.
 - Borehole diameter and total depth.
 - Total depth of open hole (same as total depth drilled if no casing or back-grouting occurs).
 - Depth to first encountered groundwater and stabilized groundwater depth.
 - Detailed description of soils encountered, using the Unified Soil Classification System.

C. Well Construction Details (in narrative and/or graphic form):

- Well construction diagram, including:
 - Monitoring well number and date constructed.
 - Casing and screen material, diameter, and centralizer spacing (if needed).
 - Length of well casing, and length and position of perforated interval.
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack.
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws).

D. Well Development:

- Date(s) and method of development.
- How well development completion was determined.
- Volume of water purged from well and method of development water disposal.
- Field notes from well development should be included in report.

E. Well Survey (survey the top rim of the well casing with the cap removed):

- Identify the coordinate system and datum for survey measurements.

- Describe the measuring points (i.e. ground surface, top of casing, etc.).
- Present the well survey report data in a table.
- Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix.