GROUNDWATER GRANT PROGRAM

FINAL PROJECT REPORT

Grantee:	Alameda County Water District
Title:	Old Jarvis Road Irrigation Well Destruction Project
Agreement No.:	D1712501
Date:	March 30, 2022
Project Type:	Groundwater Implementation
Total Project Cost:	$413,931.00

Funding for this Project has been provided in full or in part through an agreement with the State Water Resources Control Board (State Water Board). The contents of this document do not necessarily reflect the views and policies of the State Water Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

GROUNDWATER GRANT PROGRAM

FINAL PROJECT REPORT

Submitted by: Alameda County Water District

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Executive Summary

The Alameda County Water District (ACWD) is located in the southeast portion of the San Francisco Bay area and encompasses the Niles Cone Groundwater Basin (Niles Cone). ACWD's managed-aquifer-recharge efforts are providing overall chloride plume stability but do not address potential inflow of saltwater into the lower drinking water aquifers through vertical conduits such as abandoned wells. Saltwater intrusion in the Niles Cone poses a direct threat to ACWD's Mowry Wellfield and could affect ACWD's ability to deliver potable water to the community. The persistent presence of saltwater in the lower aquifers limits the volume and flow rates of water pumped. Unrestricted pumping would risk drawing saltwater into the Mowry Wellfield which, in turn, would render it unusable. Eliminating or limiting the inflow of saltwater intrusion into the lower aquifers will expedite the reclamation of the lower aquifers from saltwater intrusion. The Project involved the destruction of two abandoned legacy irrigation wells that appeared to have been acting as preferential pathways for saltwater to enter into active water production aquifers. ACWD has identified and was able to locate two abandoned irrigation wells in the vicinity of monitoring wells that document the highest chloride levels in the lower aquifers. These two abandoned wells (5S/2W-02D001 and 5S/2W-02D005, hereafter referred to as Well D001 and Well D005, respectively) were targeted in the Old Jarvis Road Irrigation Well Destruction Project (Project) for destruction because they are located in an area of high chloride concentrations in the lower aquifers which, based on their depth and construction, could interconnect the Newark and Centerville-Fremont aquifers. At the location of wells D001 and D005, the highly brackish Newark Aquifer overlies the confined, moderately brackish Centerville Aquifer. Generally, confining aquitards are believed to prevent vertical flow from overlying (and more brackish) aquifers to lower (and less brackish) aquifers. The abandoned wells represented possible compromises to the beneficial barrier quality of the aquitards.

Both wells were located in the northeastern portion of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge), a wildlife preserve operated by the United States Fish and Wildlife Service (US Fish and Wildlife) located in the southwest area of the Niles Cone along the San Francisco Bay margin.

The primary goals of the Project were to:

- Limit the volume of saltwater intruding into the lower drinking water aquifers.
- Assess the effectiveness of the Project on improving groundwater quality.
- Perform outreach to community residents and businesses.

The Project scope included activities performed across the following five (5) budget line items in Exhibit B of Agreement No. D1712501 (Agreement):

Task 1. Administrative Activities: Communication and reporting performed to keep the Project on schedule and budget.

Task 2. Planning Activities: Prior to conducting field activities, ACWD finalized well locations, secured a drilling contractor, and acquired all necessary permits, including special use permits from US Fish and Wildlife and all requisite documentation under the California Environmental Quality Act (CEQA).

Task 3. Implementation: Field activities to perform the well destructions, including mobilization to the Project site, site preparation, removal of all pumping equipment and appurtenances, drilling out the wells to the extent practicable, using neat cement (i.e., grout) and explosive detonation to seal the borings, and restoration of the Project site to pre-construction conditions.

ACWD and its drilling contractor, Nor-Cal Drilling, Inc. (NorCal) of Yuba City, California, mobilized to the Project site on December 21, 2020. On January 8, 2021, Well D001 was tagged at 440 feet below ground surface (bgs), pipe was removed, and a 2-inch steel tremie pipe was placed at the bottom of the hole. On January 14, 2021, Well D001 was perforated using explosive charges placed at specific intervals of the Well (every 10 feet from 290 feet bgs to 310 feet bgs). ACWD-approved cement (from a nine-cubic yard [CY] truck) was then pumped and tremied into the well from the bottom of the hole to approximately 5 feet bgs, and the detonation was initiated. Following detonation, it was discovered that the tremie was lodged into the boring, unable to be removed. In order to grout the hole to the surface, a 3-inch steel tremie was placed in the hole and an additional 9-CY cement truck arrived to pump additional grout into the hole through the 3-inch tremie to 2 feet bgs. On January 15, 2021, the top 5 feet of conductor casing at Well D001 was removed, the excavation was backfilled to surface, and equipment was mobilized to Well D005.

From January 20 to 21, 2021, concrete was encountered at Well D005 that resulted in limited access to the Well. On January 25, 2021, after clearing the concrete, a mangled 55-gallon drum (originally thought to be the remnants of the Well casing) was discovered covering the well casing. Below the drum, the well casing was filled with broken concrete debris. Following evaluation and extensive discussions between staff at US Fish and Wildlife, State Water Board, ACWD, and NorCal Drilling, a solution was reached in September 2021 to destroy Well D005 by an alternative method, drilling four adjacent borings ("barrier wells") around Well D005 and placing explosive charges in the barrier wells in order to destroy the well from its exterior, rather than its interior, as was initially planned. On October 6, 2021, the four barrier wells were perforated using explosive charges at specific intervals of the Well, including at 20 feet bgs (with extra booster) and every 10 feet from 80 feet bgs to 120 feet bgs, hence completing destruction of Well D005. Equipment and materials were demobilized from the site on October 8 and 18, 2021.

Task 4. Monitoring and Performance: Monitoring of the Project performance will be performed by ACWD during its semi-annual groundwater monitoring events and will be reported in its annual Groundwater Monitoring Reports.

Monitoring wells screened in the lower aquifers will be analyzed for chlorides to evaluate the ongoing effectiveness of the Project. Ongoing sampling of these monitoring wells will achieve one of the Project goals to assess the effectiveness of the Project on improving groundwater quality. The results of this evaluation will be reported in ACWD's annual Groundwater Monitoring Reports in which ACWD will evaluate chloride concentrations basin-wide and the effects of this Project on saltwater intrusion.

Task 5. Outreach: Public notification through delivery of notification letters (providing the estimated date of drilling activities, hours of work, purpose of the Project, potential impacts on the neighborhood, a site map, and contact information for ACWD's project manager) and public process to select a drilling contractor.

ACWD identified residents and businesses up to 0.25 miles of each drilling site and delivered notification letters to each address by United States Postal Service. The notification letters provided the estimated date that drilling activities were expected to begin, the hours of work, the purpose of the Project, the potential impacts that the Project may have on their neighborhood, and a site map. The letter also identified ACWD's Project Manager and provided contact information so that any questions or concerns could be addressed during and after normal business hours. In addition, the letter invited residents and businesses to join an ACWD virtual community information meeting held on December 8, 2020. No responses were received.

Table 1. Comparison Table of Proposed and Actual Project Accomplishments

Grant Agreement Description	Actually Completed / Constructed
Destroy two (2) abandoned irrigation wells	**Destroyed two (2) abandoned irrigation wells on January 14, 2021, and October 6, 2021.**
Conduct pre-, during, and post-construction photo monitoring of the Project site and submit to the Grant Manager.	Conducted pre-, during, and post-construction photo monitoring of the Project site and submitted to the Grant Manager (see Appendix B).
Submit GPS information for Project site(s) and well location(s) for this Project to the Grant Manager.	Submitted GPS information for Project site and well locations to the Grant Manager on October 16, 2018, and February 11, 2020.
Prepare a PAEP.	Prepared a PAEP and submitted a draft to the State Water Board on August 4, 2020, and final to the State Water Board on August 25, 2020.

Grant Agreement Description	Actually Completed / Constructed
Submit the final CEQA document to the Grant Manager.	Submitted the final CEQA documentation (Notice of Completion, NOI, and Draft Initial Study/Mitigated Negative Declaration) to the Grant Manager via State Clearinghouse on September 1, 2020.
Obtain written environmental clearance from the State Water Board confirming the State Water Board has made its own environmental findings and concurred that implementation/construction may proceed.	Written environmental clearance obtained from the State Water Board on January 7, 2021.
Finalize the Well Locations Report and submit to the Grant Manager for approval.	Finalized the Well Locations Report and submitted to the Grant Manager for approval on June 9, 2020.
Prepare the Well Destruction Design Plans and submit to the Grant Manager for approval.	Prepared the Well Destruction Design Plans and submitted to the Grant Manager for approval on August 20, 2020.
Submit the Notice to Proceed and awarded contract for the Project to the Grant Manager.	Submitted the Notice to Proceed and awarded contract for the Project to the Grant Manager on December 11, 2020.
Prepare a Well Destruction Report and submit to the Grant Manager.	Prepared the Well Destruction Report (see Appendix D) and submitted to the Grant Manager on March 30, 2022.
Submit copies of the outreach materials and web links to the Grant Manager.	Submitted copies of the outreach materials and web links to the Grant Manager on August 25, 2020.
Place a sign in a prominent location on the construction site and shall maintain the sign in good condition for the duration of the construction period.	Sign placed on the Project site on December 21, 2020, and remained in good condition throughout duration of Project until November 11, 2021.
Submit quarterly progress reports within forty-five (45) days following the end of the calendar quarter (March, June, September, and December) to the Grant Manager.	Submitted quarterly progress reports on 11/13/2018, 3/14/2019, 5/22/2019, 8/08/2019, 10/31/2019, 2/01/2020, 5/14/2020, 8/14/2020, 11/15/2020, 2/12/2021, 5/13/2021, 8/12/2021, 11/15/2021, and 2/25/2022.
Prepare and submit to the Grant Manager, for review and comment, a draft final Project Report in a format provided by the Grant Manager.	Submitted draft final Project Report to the Grant Manager on February 28, 2022.

Grant Agreement Description	Actually Completed / Constructed
Prepare a Final Project Report that addresses, to the extent feasible, comments made by the Grant Manager on the draft Final Project Report. Submit one (1) reproducible master copy and an electronic copy of the final. Upload an electronic copy of the final report in pdf format to the FAAST system.	Completion of this task TBD.
Final Project Summary. Prepare a brief summary of the information contained in the Final Project Report, using a format provided by the Grant Manager, include accomplishments, recommendations, and lessons learned, as appropriate. Upload an electronic copy of the Final Project Summary in pdf format to the FAAST system	Completion of this task TBD.
The results of the final inspection and certification shall be submitted to the Grant Manager.	Completion of this task TBD.

Notes:

CEQA = California Environmental Quality Act
EDF = Electronic Deliverable Format
FAAST = Financial Assistance Application Submittal Tool
GAMA = Groundwater Ambient Monitoring and Assessment
GPS = Global Positioning System
NOI = Notice of Intent
PAEP = Project Assessment Evaluation Plan
TBD = to be determined

Project Background

The Alameda County Water District (ACWD) is located in the southeast portion of the San Francisco Bay area and encompasses the Niles Cone Groundwater Basin (Niles Cone). Groundwater monitoring in the Niles Cone began in the early 1900s, with consistent monitoring for water levels and chlorides starting around the late 1950s. Annual reports have been produced starting in the 1960s (as part of the Annual Survey Report and, later, as a standalone annual Groundwater Monitoring Report) documenting the health of the Niles Cone and movement of saltwater in the groundwater basin. ACWD's ongoing semiannual monitoring program involves groundwater sampling and collection of groundwater elevation data for monitoring wells screened in distinct aquifer zones for the purposes for evaluating groundwater basin health and saltwater intrusion (as chlorides). These data are analyzed, evaluated, and reported, on an annual basis, in ACWD's Groundwater Monitoring Report. Along with the annual reports that monitor the movement of saltwater in the basin over time, several studies on geology, groundwater movement, and groundwater modeling in the Niles Cone have been conducted by universities, California Department of Water Resources (DWR), the United States Geological Survey, and ACWD.

Presently, groundwater modeling efforts (confirmed by the semiannual groundwater monitoring program) indicate that ACWD's managed-aquifer-recharge efforts are providing overall chloride plume stability but do not address potential inflow of saltwater into the lower aquifers through vertical conduits (addressed under the scope of this Project). This limits the operational efficiency of ACWD and the operational capabilities of ACWD's Mowry Wellfield. Eliminating or limiting the inflow of saltwater intrusion into the lower aquifers will expedite the reclamation of the lower aquifers from saltwater intrusion.

Problem Statement

Four joint DWR and ACWD studies have been conducted to identify saltwater intrusion in the Niles Cone, with the latter two studies directly targeting the delineation of the intruding saltwater plume. The latest study (completed in April 2016) identified an area where saltwater from the shallower impacted Newark Aquifer may be entering the deeper Centerville-Fremont Aquifers. Based on the information, ACWD identified and located two abandoned irrigation wells in the vicinity of monitoring wells installed as part of the 2016 study that document the highest chloride levels in the lower aquifers. These wells were targeted in the Project for destruction to eliminate as potential sources of saltwater intrusion because they are located in an area of high chloride concentrations in the lower aquifers which, based on their depth, could interconnect the Newark and Centerville-Fremont aquifers. Generally, the confining aquitards are believed to prevent vertical flow from overlying (and more brackish) aquifers to lower (and less brackish) aquifers. The abandoned wells represent possible compromises to the beneficial barrier quality of the aquitards. Saltwater

intrusion in the Niles Cone poses a direct threat to ACWD's Mowry Wellfield and could affect ACWD's ability to deliver potable water to the community.

Site Location

The Project site is on the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge), a wildlife preserve operated by the United States Fish and Wildlife Service (US Fish and Wildlife) located in the southwest area of the Niles Cone along the San Francisco Bay margin. The Project wells are located in the northeastern portion of the Refuge, as shown on Figure 1. As discussed above, a plume of saltwater has been identified in the Centerville-Fremont Aquifers within the western/central portion of the Niles Cone and appears to be following an ancient stream channel located directly in line with ACWD's Mowry Wellfield.

Figure 1. Area Map of the Project Site.

Project Description

The Project involved the destruction of two abandoned legacy irrigation wells at the Project site.

Project Purpose

The purpose of the Project was to destroy two abandoned legacy irrigation wells (5S/2W-02D001 and 5S/2W-02D005) in the western section of the Niles Cone that were acting as potential preferential pathways for saltwater to enter into active water production aquifers. Destruction of the wells will assist in limiting the amount of saltwater intrusion impacting drinking water sources and threatening ACWD's Mowry Wellfield.

Project Goals

The primary goals of the Project were as follows:

- Limit the volume of saltwater intruding into the lower drinking water aquifers.
- Assess the effectiveness of the Project on improving groundwater quality.
- Perform outreach to community residents and businesses.

The Project goals will be accomplished through achieving the following desired Project outcomes:

- Decrease the concentration of chlorides in the lower aquifers.
- Lessen the threat to three production wells at the Mowry Wellfield.
- Continued sustainable management of the groundwater basin.
- Ongoing evaluation of Project effectiveness through ACWD's semiannual monitoring program.
- Informing the community about the Project's purpose and importance of protecting the groundwater basin, especially for nearby residents and businesses.

Accomplishing the Project goals involves effectively decreasing the concentration of chlorides in the lower aquifers such that the threat to production wells at the Mowry Wellfield is lessened and will allow for the continued sustainable management of the Niles Cone. Because the effective decrease in concentration of chlorides is a metric which will be evaluated over time, the two major outcomes from the Project will be anticipated and reported through continued implementation of ACWD's semiannual groundwater monitoring program. However, the goal of performing outreach to community residents and businesses was accomplished through successful public engagement activities, including distribution of notification letters and holding a public meeting.

Project Scope

The Project scope included activities performed across the following five tasks, in accordance with Agreement No. D1712501 (Agreement). Any deviations from the below Project scope are discussed in the subsequent sections describing the corresponding tasks performed (i.e., CEQA/Permitting/Project Methodology, Field Activities, Monitoring and Reporting, and Public Outreach).

Task 1. Administrative Activities: Communication and reporting performed to keep the Project on schedule and budget. Includes the following subtasks:

1.1 **Coordination and Communication**: Constant discussions were needed between ACWD, the State, US Fish and Wildlife, and the contractor to avoid miscommunications and ensure the job run smoothly. This required occasional meetings, document preparation, telephone conferences, and consultation with specialists.

1.2 **Budget**: ACWD tracked and reviewed the project budget and prepared a budget summary report to the State on a quarterly basis. ACWD prepared intermediate invoices when appropriate and will prepare a final invoice at the end of the project. Any budget modifications that needed to be done due to unforeseen issues were discussed with the State prior to implementation.

1.3 **Reporting**: ACWD submitted quarterly progress reports to the State which included an executive summary, description of project status, description of major accomplishments, discussion of any issues or concerns that may affect the schedule or budget, discussion of activities planned for the following quarter, cost, and schedule information. The quarterly report format followed the outline specified in the grant agreement.

Upon completion of the project, ACWD prepared a Draft Final Project Report for review by the State that included all data, permits, field notes, well logs, development logs, chemical analyses, and permeability analyses. The Draft Final Project Report is a comprehensive document that included a comparison of the planned schedule with the actual timeline, discussion of major problems encountered, a summary of all costs, and a detailed description and analysis of project results. The Draft Final Project Report contains all information specified in the grant agreement and follows ACWD's quality control document procedures which requires the technical review of at least two senior staff, both registered professionals. ACWD finalized the report upon receipt of comments from the State Water Board.

Task 2. Planning Activities: Prior to conducting field activities, ACWD finalized well locations, secured a drilling contractor, and completed permit processing. Each subtask is described below:

2.1 **Finalize Well Locations:** The locations identified in ACWD's Final Well Locations Report for this project are the general locations for the former wells. These wells were identified as possible preferential

pathways for saltwater to enter the lower aquifers that are the source for groundwater of ACWD's Mowry Wellfield. The former wells are located on property operated by the US Fish and Wildlife Service. ACWD had discussed the proposed well locations with US Fish and Wildlife Service staff and they indicated a willingness to issue special use permits, biological assessment, and supply in-kind services to destroy the well at the sites.

2.2 **Drilling Contractor Selection:** ACWD prepared contract specifications for the project and broadly advertised the project through the Daily Construction Service, McGraw-Hill, Inc. Exchange (Dodge Report), Sierra Contractors Exchange, and the Contractor's Information Network. ACWD also directly solicited bids from drilling contractors with the technical capabilities to destroy the proposed wells. ACWD has considerable experience with this task from four previous DWR Local Groundwater Assistance grant projects, six phases of similar types of monitoring well projects, and implementation of a number of ACWD owned and operated wells that have been destroyed over time. After the bids were opened in a public process in which contractors were invited to attend, the lowest bid that complied with ACWD's bidding requirements was recommended for acceptance. A staff report with this recommendation was placed on the agenda for the Board of Directors' meeting on October 8, 2020, and all interested parties and the public were invited to attend the meeting. The Board of Directors adopted a resolution accepting the proposal and the contract was awarded to Nor-Cal Drilling, Inc (NorCal).

2.3 **Permitting Process**: ACWD has established a long and good working relationship with the U.S. Fish and Wildlife Service. ACWD has installed and is presently maintaining groundwater monitoring wells on property and easements owned and operated by the US Fish and Wildlife Service. ACWD is very familiar with the process of obtaining special use permits from the US Fish and Wildlife Service and they had indicated a willingness to issue special use permits for the well sites. ACWD administers the Well Ordinance program and was able to internally coordinate the required well drilling permits and inspection activities. This task also included activities needed in preparing California Environmental Quality Act and National Environmental Policy Act documents for the project.

Task 3. Implementation: The well locations were surveyed and staked prior to equipment mobilization. A backhoe was then be utilized to expose the well head and clear an area for the drilling equipment to setup over the well.

Field activities to perform the well destructions, including mobilization to the Project site, site preparation, removal of all pumping equipment and appurtenances, drilling out the wells to the extent practicable, using neat cement (i.e., grout) and explosive detonation to seal the borings, and restoration of the Project site to pre-construction conditions.

After mobilizing to the Project site, ACWD and its drilling contractor, NorCal, tagged the depth to Well D001 at 440 feet below ground surface (bgs), removed the pipe, and a 2-inch steel tremie pipe was placed at the bottom of the hole. Well D001 was perforated on January 14, 2021, using explosive charges placed at specific intervals of the Well. ACWD-approved cement was then pumped and tremied into the well from the bottom of the hole to approximately 5 feet bgs, and the detonation was initiated. Following detonation, it was discovered that the tremie was lodged into the boring, unable to be removed. To grout the hole to the surface, a 3-inch steel tremie was placed in the hole and an additional 9-CY cement truck arrived to pump additional grout into the hole through the 3-inch tremie to 2 feet bgs. On January 15, 2021, the top 5 feet of conductor casing at Well D001 was removed, the excavation was backfilled to surface, and equipment was mobilized to Well D005.

From January 20 to 21, 2021, concrete was encountered at Well D005 that resulted in limited access to the Well. On January 25, 2021, after clearing the concrete, a mangled 55-gallon drum (originally thought to be the remnants of the Well casing) was discovered covering the well casing. Below the drum, the well casing was filled with broken concrete debris. Following evaluation and extensive discussions between staff at US Fish and Wildlife, State Water Board, ACWD, and NorCal Drilling, a solution was reached in September 2021 to destroy Well D005 by an alternative method, drilling four adjacent borings ("barrier wells") around Well D005 and placing explosive charges in the barrier wells to destroy the well from its exterior, rather than its interior, as was initially planned. On October 6, 2021, the four barrier wells were perforated using explosive charges at specific intervals of the Well, including at 20 feet bgs (with extra booster) and every 10 feet from 80 feet bgs to 120 feet bgs, hence completing destruction of Well D005. Equipment and materials were demobilized from the site on October 8 and 18, 2021.

All field operations were completed under the direct supervision of a professional geologist licensed in the State of California. The licensed professional reviewed all procedures and protocols outlined for the project and assured that Standard of Practice for the work was followed and documented. A well completion report was completed, and a copy is included in this Final Project Report (Appendix D).

Task 4. Monitoring and Performance: Monitoring of the project performance will be performed by ACWD during its semi-annual groundwater monitoring events and will be reported in its annual Groundwater Monitoring Reports.

Monitoring wells screened in the lower aquifers will be analyzed for chlorides to evaluate the ongoing effectiveness of the Project. Ongoing sampling of these monitoring wells will achieve one of the Project goals to assess the effectiveness of the Project on improving groundwater quality. The results of this evaluation will be reported in ACWD's annual Groundwater Monitoring Reports in which ACWD will evaluate chloride concentrations basin-wide and the effects of this Project on saltwater intrusion.

Task 5. Outreach: In addition to the public notification and public process used in selecting a contractor as described in Task 2.2, ACWD identified all residents and businesses within 0.25 miles of each drilling site and delivered notification letters to each address by United States Postal Service. The notification letters provided the estimated date that drilling activities were expected to begin, the hours of work, the purpose of the project, the potential impacts that the project may have on their neighborhood, and a site map. The letter also identified ACWD's Project Manager and provided contact information so that any questions or concerns could be addressed during and after normal business hours. In addition, the letter invited residents and businesses to join an ACWD virtual community information meeting held on December 8, 2020. No responses were received.

Project Costs

The grant award from the State Water Board for this Project totaled $206,965. Under Task 1 (Administrative Activities), ACWD tracked and reviewed the Project budget and all Project expenditures, prepared budget summary reports and reported them to the State Water Board in quarterly progress reports, and prepared intermediate and final invoices for the Project.

The following table summarizes the final budget allocations for the Project, as specified in the Agreement:

Proposition 1 GROUNDWATER GRANT PROGRAM - BUDGET SUMMARY				
Budget Category	**Grant Funds**	**Local Match Funds**	**Total**	**% Local Match**
1. Direct Project Administration Costs	$10,179	$10,180	$20,359	50%
2. Planning/Design/Engineering/Environmental	$31,716	$31,716	$63,432	50%
3. Construction/Implementation	$163,002	$163,002	$326,004	50%
4. Monitoring/Performance	$0	$0	$0	Not Applicable
5. Education/Outreach	$2,068	$2,068	$4,136	50%
Grand Total:	$206,965	$206,966	$413,931	50%

Table 2. Budget Summary

Project Schedule

The following table summarizes the Project schedule, including the due dates and dates of submittal for Project deliverables. The table below is the table included under the "**Summary of Work Completed to Date**" section of the 2nd Quarter 2021-2022 Progress Report, dated February 25, 2022, and reflects the work complete through December 31, 2021.

Work Item	Items for Review #	Estimated Due Date (Critical in Red)	% Of Work Complete	Date Submitted
A-3 Project-Specific Scope of Work				
1 Project Management				
1.2	Notification of Upcoming Meetings, Workshops, and Trainings	15 Working Days Prior	100%	1/7/2019 3/15/2019
1.3	Detailed Project Schedule	May 31, 2020	100%	Original Scope: 10/16/2018 2/6/2020 (update)
1.4	Periodic and Final Site Visits		90%	1/30 2019 6/4/2019
1.5	Pre-, During, and Post Implementation Photos		100%	
2. General Compliance Requirements/Project Effectiveness and Performance				
2.1	GPS Information	April 30, 2020	100%	Original Planned Well Locations: 10/16/2018 2/11/2020
2.2	Project Assessment and Evaluation Plan	August 2020	100%	December 15, 2020
3. Permitting and Environmental Compliance				
3.1	Approvals, Entitlements, or Permits	October 2020	100%	August 2021
3.2.1	Final CEQA	September 2020	100%	January 8, 2020
4. Well Location Investigation				
4.1	Draft Wells location Report	April 2020	100%	Possible Well Locations: 2/3/2020 (update) 5/24/2020
4.2	Final Well Location Report	May 2020	100%	6/19/2020
5. Well Destruction Design Plans				
5.1	Well Destruction Design Plans	August 2020	100%	8/20/2020
5.2	Advertise Bid Documentations and Bid Summary	August 2020	100%	9/2/2020
6 Implementation				
6.1	6.1 Notice to proceed and Award Contract	December 2020	100%	12/11/2020
6.2	Proposed Changes During Implementation	September 2021	100%	Updated Change April 1, 2021
6.3	Well Destruction Report	March 2022	30%	March 30, 2022
7. Public Outreach				
7.1	Outreach Materials and web Link	August 2020	90%	August 25, 2020
7.2	Meeting material, sign-up sheets, Documentation of Meeting	After Each Meeting	90%	

Work Item	Items for Review #	Estimated Due Date (Critical in Red)	% Of Work Complete	Date Submitted
Exhibit – A-5 Reporting				
	(a) Progress Reports	Quarterly, Within 45 days of End of Quarter	30%	1Q2018-19: 11/13/2018 2Q2018-19: 3/14/2019 3Q2018-19: 5/22/2019 4Q2018-19: 8/08/2019 1Q2019-20: 10/31/2019 2Q2019-20: 2/01/2020 3Q2019-20: 5/14/2020 4Q2019-20: 8/14/2020 1Q 2020/21: 11/15/20 2Q 2020/21: 2/12/2021 3Q 2020/21: 5/13/2021 4Q 2020/21: 8/12/2021 1Q2021-22: 11/15/2021 2Q2021-22: 2/25/2022
	(b) As Needed Information or Reports		0%	
	(c) Final Reports		0%	
	(c)(1) Draft Final Project Report	February 28 2022	0%	
	(c)(2) Final Project Report	March 31, 2022	0%	
	(c)(3) Final Project Summary	Before Work Completion Date	0%	
	(c)(4) Final Project Inspection and Certification	Before Work Completion Date	0%	
Exhibit B – Funding provisions				
4(b)	Final Disbursement Request	May 2022		
9(b)(4)	Disbursement Requests			No. 1: 4/30/2019 No. 2: 6/4/2019 No. 3: 8/08/20 No. 4: 10/31/2019 No. 5: 12/31/2019 No. 6: 4/16/2020 No. 7: 8/14/2020 No. 8: 11/15/2020 No. 9: 2/12/2021 No. 10: 5/13/2021 No. 11: 8/12/2021 No. 12: 11/15/2021 No. 13: 2/25/2022

Table 3. Project Schedule

Progress Report Narrative

Summary of Activities for the Reporting Period

Work conducted during the reporting period includes:

Item 1. Project Management

- Prepared first quarter Project Summary and Invoice #12 and submitted on November 15, 2021.
- On November 8, 2021, conducted pre-inspection of the sites in preparation for final walkthrough.

Item 2. General Compliance Requirements/Project Effectiveness and Performance

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- Fish & Wildlife completed final a walkthrough of the Project site on March 30, 2022, and confirmed via email on the same day that final site conditions were acceptable.

Item 3. Permitting and Environmental Compliance

- On November 8, 2021, informed Fish & Wildlife field activities were complete. Fish & Wildlife completed a final walkthrough of the Project site on March 30, 2022, and confirmed via email on the same day that final site conditions were acceptable.

Item 4. Well Location Investigation

- Completed.

Item 5 Well Destruction Design Plans

- Completed.

Item 6 Implementation

- Completed.

Item 7 Public Outreach

- Completed.

Summary of Items for Review

- Second Quarter 2021-2022 Billing Invoice Documentation is in review (Invoice #14).
- Final Project Report is in review.

Summary of Items in Progress

- Item No. 1.2 Notification of Upcoming Meetings (Cumulative 100% Complete)
  - **Fish & Wildlife completed Final Field Walkthrough on March 30, 2022.**

- Item No. 1.3 Detailed Project Schedule (Cumulative 100% Complete)
  - **Completed.**

- Item No. 1.4 Periodic and Final Site Visits (Cumulative 100% Complete)
  - **ACWD Final Field Walkthrough on November 8, 2021.**
  - **Fish & Wildlife Final Field Walkthrough on March 30, 2022.**

- Item No. 1.5 Pre-, During, Post Construction Photos (Cumulative 100% Complete)
  - **Completed.**

- Item No. 2.1 GPS Information (Cumulative 100% Complete)
  - **Completed.**

- Item No. 2.2 Project Assessment and Evaluation Plan (Cumulative 100% Complete)
  - **Completed.**

- Item No. 3.1 Approvals, Entitlements, or Permits (Cumulative 100% Complete)
  - **Completed.**

- Item No. 3.21 Final CEQA (Cumulative 100% Complete)
  - **Completed**

- Item No. 4.1 Draft Well Location Report (Cumulative 100% Complete)
  - **Completed and submitted.**

- Item No. 4.2 Final Well Location Report (Cumulative 100% Complete)
  - **Completed and submitted.**

- Item No. 5.1 Well Destruction Design Plans (Cumulative 100% Complete)
  - **Completed.**

- Item No. 5.2 Advertise Bid Documents and Bid Summary (Cumulative 100% Complete)
  - **Completed.**

- Item No. 6.1 Notice to Proceed and Award Contract (Cumulative 100% Complete)
  - **Completed.**

- Item No. 6.2 Proposed changes during implementation (Cumulative 100% Complete)
  - **Completed.**

- Item No. 6.3 Well Destruction Report (Cumulative 100% Complete)
  - **Included as Appendix D of this Final Project Report. Completed.**

- Item No. 7.1 Outreach materials and Web Links (Cumulative 100% Complete)
  - **Completed.**

- Item No. 7.2 Meeting materials, Sign-in Sheet(s), and Photo Documentation (Cumulative 100% Complete)
  - **Completed.**

CEQA/Permitting/Project Methodology

Under Task 2 (Planning Activities), ACWD finalized the locations of the two irrigation wells, secured a drilling contractor for the Project (Nor-Cal Drilling, Inc. [NorCal]), and acquired all necessary permits, including special use permits from US Fish and Wildlife and all requisite documentation under the California Environmental Quality Act (CEQA). All acquired permits (as well as necessary approvals) are included as Appendix A.

The following CEQA documents were required and completed for the Project:

- Mitigated Negative Declaration (MND)
- MND filing to Clearinghouse and Alameda County Clerk
- MND 30-day Public Notice period completed on October 2, 2020
- MND adopted during ACWD Board Meeting on October 8, 2020

The following permits and approvals were obtained to complete the Project:

- US Fish and Wildlife completed Historic Cultural Review and issued a revised Special Use Permit (SUP) on December 10, 2020
- US Fish and Wildlife completed Historic Cultural Review on December 10, 2020
- Updated SUP issued on December 14, 2020
- ACWD Well Destruction Permits issued on December 16, 2020
- ACWD Board approved of selected Drilling Contractor during ACWD Board Meeting on October 8, 2020
- Updated Endangered SUP issued from the Refuge on December 14, 2020
- ACWD Well Destruction Permits issued December 16, 2020

Field Activities

Under Task 3 (Implementation), ACWD completed the primary Project goal of overseeing the proper destruction of two abandoned irrigation wells located at the Project site. Destruction of the wells included mobilization to the Project site, site preparation, removal of all pumping equipment and appurtenances, drilling out the wells to the extent practicable, placement of neat cement (i.e., grout) and explosive charges to seal the borings, and restoration of the Project site to pre-construction conditions. All field operations were conducted under the supervision of a Professional Geologist licensed in the State of California. A photographic log of site activities (including pre-, during, and post-construction photos from each destroyed well location) is provided in Appendix B. Field notes and forms are provided in Appendix C.

ACWD and its drilling contractor, NorCal, mobilized to the site on December 21, 2020. Wildlife exclusion fencing was installed at both well locations (5S/2W-02D001 and 5S/2W-02D005, hereafter referred to as Well D001 and Well D005, respectively) per US Fish and Wildlife requirements.

The following sections describe the site activities conducted at Well D001 and Well D005. Well Destruction Reports for both Well D001 and D005 are included as Appendix D.

Well 5S/2W-02D001

On December 22, 2020, Well D001 was tagged to 423 feet below ground surface (bgs) and video logged. Because the original depth of the well is assumed to be 450 feet bgs, the tagged depth indicated the presence of approximately 27 feet of slough material. The video log for Well D001 showed the casing was open and clear. The well column pipe was removed at 167 feet bgs from Well D001 on December 23, 2020. All column pipe, line shaft rod, and submersible pump were removed from Well D001 with a smeal rig on January 4 and 5, 2021. An oily sheen was observed in the water emanating from Well D001 on January 4, 2021.

In the process of removing and cutting the final column pipe from Well D001 on January 5, 2020, oil began to flow from the pipe and plastic sheets and rags were used to contain the water and prevent it from impacting the vegetation. Absorbent pads and wattles were also used to contain the impacted water on January 6, 2021. A sample of the effluent oil was collected on January 8, 2021, and analyzed for EPA Method 1664 (oil and grease) and EPA Method 1664-SG (oil and grease with silica gel clean-up). Analytical results are provided in Appendix E. The results indicated that more than 63% of the oil and grease was non-polar, indicating that the oil was likely plant-based (i.e., food-grade oil). Production wells commonly utilize food-grade oil, and the analytical results are consistent with a highly degraded food-grade vegetable-based oil. Therefore, the effluent was not considered an environmental risk.

On January 7, 2021, 4-inch steel airlift piping and 1.25-inch air hose were installed into Well D001 and used to airlift water to an onsite wastewater tank due to the presence of oil. Per recommendation from NorCal

Drilling, absorbent pads were used to soak oil globules from the tanks prior to discharge; this method was determined to be appropriate and approved by Mark Brown (Manager, US Fish and Wildlife), Rachel Tertes (US Fish and Wildlife), and ACWD staff on January 7, 2021. A total of approximately 3,500 gallons of treated wastewater were discharged to the grass, with approximately 1,100 gallons discharged on January 7, 2021 (across two fills and discharges of one tank), and approximately 2,400 gallons discharged on January 8, 2021.

On January 8, 2021, Well D001 was tagged at 440 feet bgs and pipe was removed and a 2-inch steel tremie pipe was placed at the bottom of the hole. On January 14, 2021, well destruction activities began at Well D001 with Tylor McMillan's Well Service; see Well Destruction Work Plan provided in Appendix C. A 100-gram detonation cord with blasting caps placed on the end of each side of the 300-foot booster was lowered into the well using explosive charges placed at specific intervals of the Well (every 10 feet from 290 feet bgs to 310 feet bgs). ACWD-approved cement (from a nine-cubic yard [CY] truck) was then pumped and tremied into the well from the bottom of the hole to approximately 5 feet bgs, and the detonation was initiated. Following detonation, it was discovered that the tremie was lodged into the boring, unable to be removed. In order to grout the hole to the surface, a 3-inch steel tremie was placed in the hole and an additional 9-CY cement truck arrived to pump additional grout into the hole through the 3-inch tremie to 2 feet bgs. On January 15, 2021, the top 5 feet of conductor casing at Well D001 was removed with a cutting torch, and the excavation was backfilled to surface.

Well 5S/2W-02D005

On December 22, 2020, during hand digging to locate Well D005, a rusty, deteriorated steel barrel (approximate dimensions 2.5 feet in diameter, 3.5 feet in length) and gravel pipe were uncovered. Further, a discharge pipe, pump, broken concrete, and soil potentially impacted with total petroleum hydrocarbons (TPH) were found inside the well on December 23, 2020. Following hand-digging, the well remained in a pit approximately 6 feet bgs.

On January 15, 2021, equipment was mobilized to Well D005 following completion of destruction activities at Well D001. From January 20 to 21, 2021, a 16-inch conductor casing was placed over the well casing and water jetting was used to attempt to advance into the well, removing fill and cutting casing as possible; however, concrete obstructions were repeatedly encountered and resulted in blockages. Where necessary, a digging bar was used to break up concrete and water was pumped from the casing. On January 21, a blockage at 13 feet bgs was encountered that could not be cleared following multiple attempting, including welding metal prongs to the end of the rod to attempt to loosen the obstruction. On January 25, 2021, during additional attempts to obtain clearance around the well, the metal exposed at the surface was found to be not the abandoned irrigation well, but rather a mangled 55-gallon drum. Remnants of the drum were removed, and the abandoned well was found below it at approximately 6 feet bgs. The well casing was filled

with broken concrete debris, and removal of the debris found an apparent pump drive shaft (approx. 2 feet below the well casing rim) and cement that appeared to have been poured in place (approx. 11 feet bgs).

On February 2, 2021, ACWD and State Water Board staff met to discuss four (4) potential options to destroy Well D005, including:

1. Leaving the casing as-is and sealing the upper portion of the well;
2. Drilling out the cement and steel in the well with a steel cutting bit and powerful drill rig;
3. Drilling a larger-diameter casing around the well and attempting to loosen the casing to a point where it could be pulled; and
4. Destroying the well from the outside by drilling between 4-6 boreholes around the well, installing barrier casing, add demolition charges, and perforating the casing from the outside.

On February 2, 2021, additional attempts using a winch to pull the 2-inch drive rod of the pump at Well D005 were unsuccessful. Drilling was then conducted with a 5-inch tricone bit and air rotary until refusal was reached at 26 feet bgs. Due to refusal, intermittent site cleanup and limited demobilization activities were conducted through February 25, 2021, until a solution for well destruction could be achieved for Well D005.

Following evaluation and extensive discussions between staff at US Fish and Wildlife, State Water Board, ACWD, and NorCal Drilling, a solution was reached in September 2021 to move forward with the fourth option discussed above. Well D005 was destroyed by drilling four adjacent borings ("barrier wells") around Well D005 and conducting explosive detonations in the barrier wells in order to destroy the well from its exterior (rather than its interior, as was initially planned). A conceptual sketch of this alternate destruction approach is provided as Figure 2. On September 27, 2021, barrier trenching and installation was completed. Drilling, logging, and installation of the first, second, and third and fourth barrier wells was completed on September 29, 30, and October 1, 2021, respectively. Each barrier well was completed with 6-inch PVC casing at a total depth of 120 feet bgs. 2-inch steel tremie pipes were installed in all barrier wells.

The detonation cord for all wells was placed to 120 feet bgs with four boosters placed from 80 to 120 feet bgs and an additional charge placed at 20 feet bgs to sever the PVC casings on the barrier wells. The four barrier well were tremie grouted with neat cement to surface through the 2-inch steel tremie pipes. On October 6, 2021, the four barrier wells were perforated using explosive charges at specific intervals of the Well, including at 20 feet bgs (with extra booster) and every 10 feet from 80 feet bgs to 120 feet bgs, hence completing destruction of Well D005. Following detonation, grout was observed to have dropped in all four borings. The remaining barrier well PVC casings were removed, the borings were completed to surface with neat cement, and control casings were removed. On October 7, 2021, the top 5 feet of the Well D005 well casing was removed with a cutting torch, the excavation was backfilled and compacted, and site cleanup was

completed, including removal of wildlife exclusion fencing. Equipment and materials were demobilized from the site on October 8 and 18, 2021.

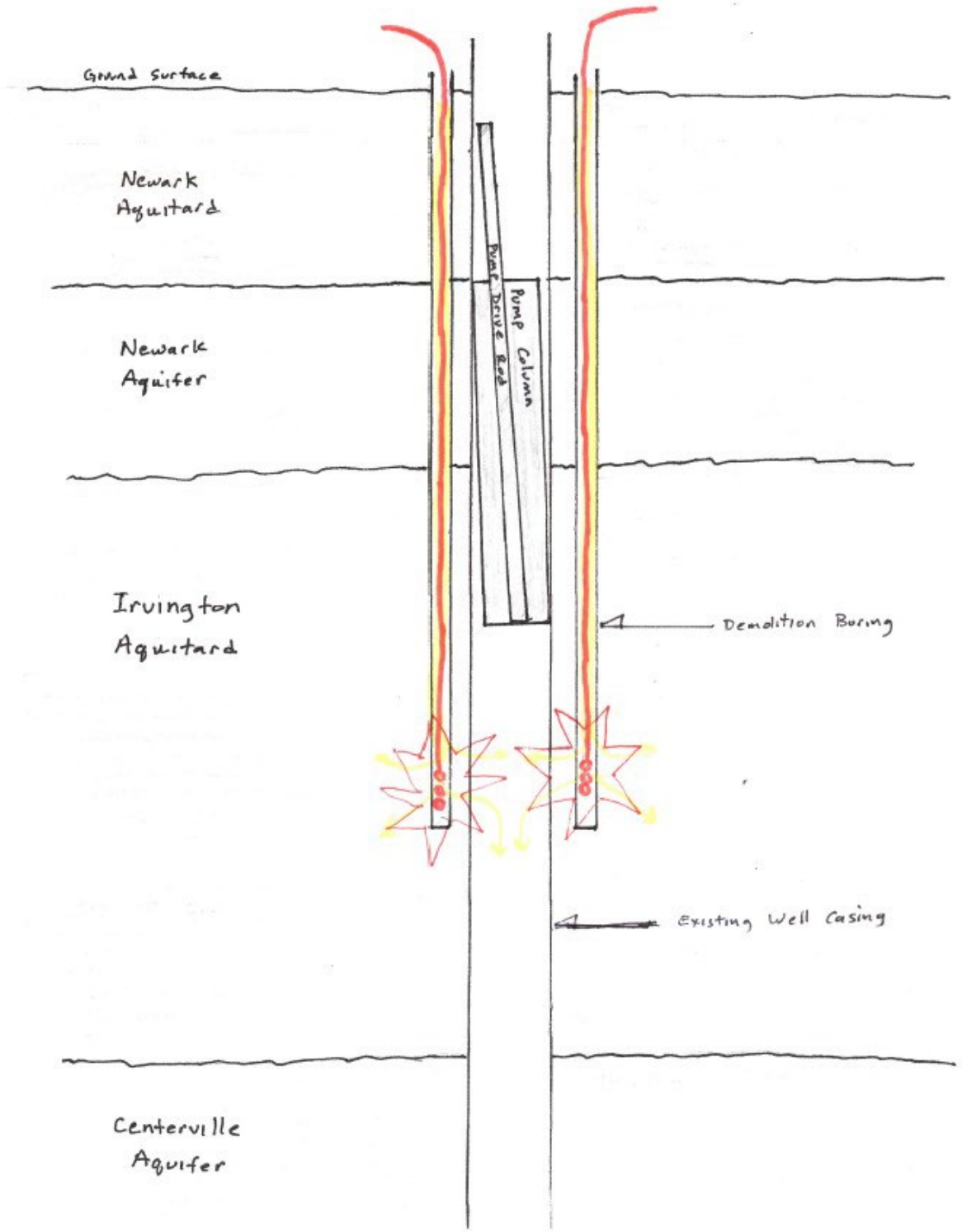


Figure 2. Conceptual Drawing for Alternate Destruction Approach for Well D005

Monitoring and Reporting

Overview

Effectiveness of the Project will be measured in quantifiable decreases in chloride concentrations near the Project area over time. ACWD's semiannual monitoring program collects groundwater samples from groundwater monitoring wells specifically monitoring the lower aquifers and analyzes them for chlorides. Analysis of groundwater samples over time and trend evaluation will be used to determine the effectiveness of this Project in decreasing the input of saltwater into the lower aquifers. Modeling efforts indicate that up to a 14% drop in chloride concentrations in the lower aquifer zones is possible over the next 70 years.

Monitoring of the effectiveness and performance of the Project will be achieved by ACWD through its semiannual groundwater monitoring program. Based on groundwater quality data obtained during the semiannual groundwater monitoring program, ACWD will evaluate the effectiveness of the Project. The results of this evaluation will be reported in ACWD's annual Groundwater Monitoring Reports in which ACWD will evaluate chloride concentrations basin-wide and the effects of this Project on saltwater intrusion.

Monitoring Locations

Existing wells in ACWD's monitoring well network will be sampled during ACWD's semiannual monitoring program. Monitoring wells screened in the lower aquifers will be analyzed for chlorides to evaluate the ongoing effectiveness of the Project. See Figure 3 for the locations of monitoring wells in ACWD's existing monitoring network that will be sampled for chlorides during ACWD's semiannual groundwater monitoring program. These wells were chosen due to their proximity to – and, therefore, their potential to be in hydraulic communication with – Well D001 and Well D005. Ongoing sampling of these monitoring wells will achieve one of the Project goals to assess the effectiveness of the Project on improving groundwater quality.

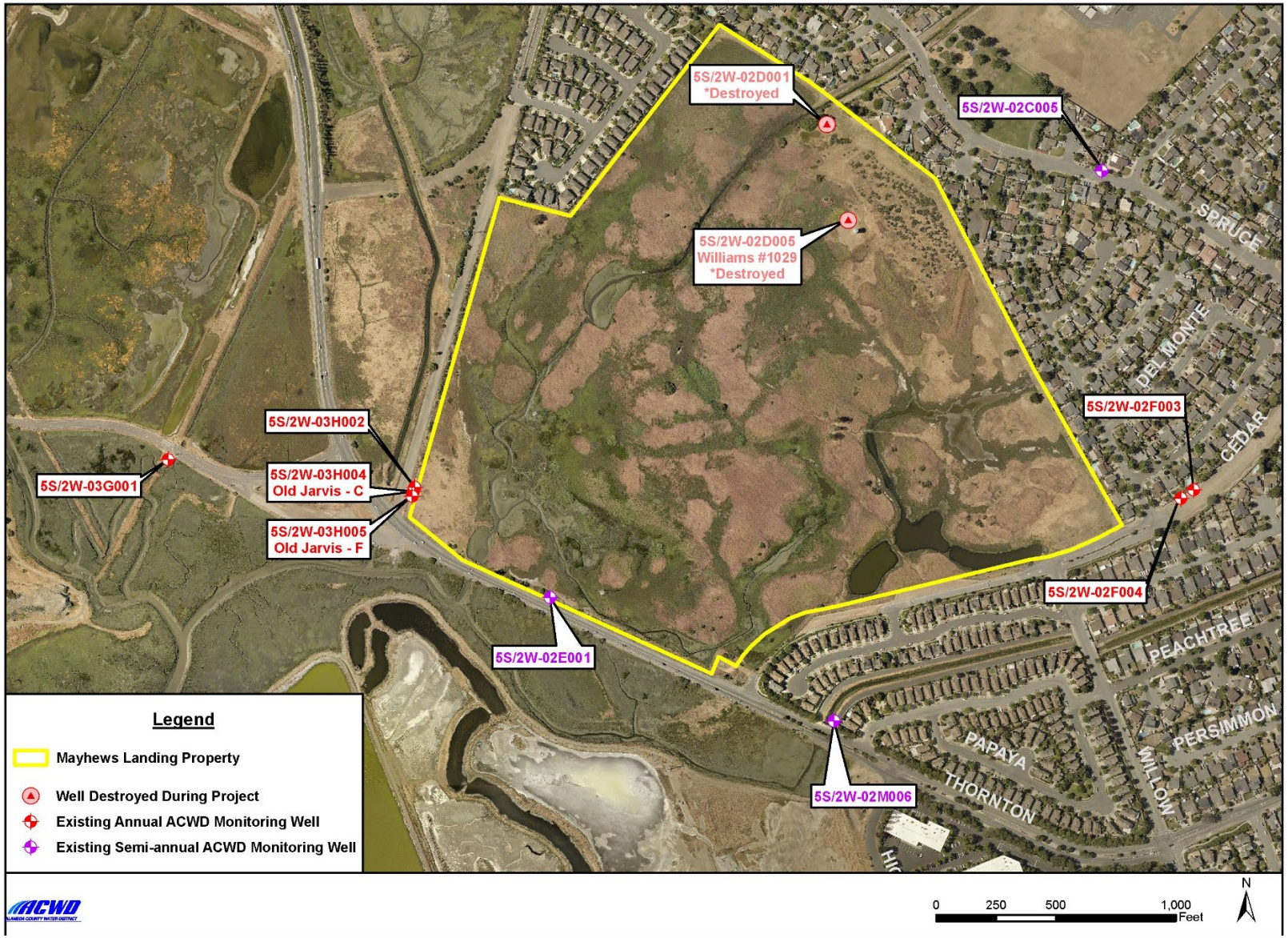


Figure 3. Existing Wells in ACWD Monitoring Well Network Located in the Vicinity of the Project Site

Public Outreach

Under Task 5 (Outreach), ACWD identified residents and businesses up to 0.25 miles of each drilling site and delivered notification letters to each of the addressed via United States Postal Service; see Appendix F for the notification letter that was distributed. The notification letters provided the estimated date that drilling activities were expected to begin, the hours of work, the purpose of the Project, the potential impacts that the Project may have on their neighborhood, and a site map. The letter also identified ACWD's Project Manager and provided contact information so that any questions or concerns could be addressed during and after normal business hours.

In addition, the letter invited residents and businesses to join an ACWD virtual community information meeting held on December 8, 2020. No responses were received.

Project Evaluation and Effectiveness

ACWD developed a Project Assessment and Evaluation Plan (PAEP) for the Project describing how the performance of the Project would be assessed, evaluated, and reported. ACWD submitted a draft PAEP to the State Water Board on August 4, 2020, and received comments from the State Water Board on August 24, 2020. Revised drafts were subsequently submitted and a final, signed version was submitted on December 15, 2020.

PAEP Results and Discussion

The desired outcomes of the Project were to decrease the concentration of chlorides in the lower aquifers such that the threat to production wells at the Mowry Wellfield is lessened and allow for the continued sustainable management of the Niles Cone. To this end, the following Project goals were identified:

- Assess the effectiveness of the Project on improving groundwater quality
- Limit the volume of saltwater intruding into the lower aquifers that are a source of drinking water
- Perform outreach to community residents and businesses

Table 4 below (comprised of three tables) presents the Project Performance Measures Tables provided as part of the PAEP and summarizes each of the Project goals organized under their respective main activity categories.

So far, the Project has met one of these goals: to perform outreach to community residents and businesses (as part of the 'Education, Outreach, and Capacity-Building' category). This goal was met through performing

public outreach activities, including issuance of notification letters, holding public meetings, posting Project information banner at the site, and interfacing with the public at the Project site on an ad hoc basis.

As discussed in the Monitoring and Reporting section above, whether the Project has met the other two goals (to limit the volume of saltwater into the lower aquifers and to assess the effectiveness of the Project on improving groundwater quality) will be evaluated on an ongoing basis through implementation of ACWD's semiannual groundwater monitoring program.

During execution of the Project, several challenges were encountered that affected the approach, schedule, and feasibility of implementing the Project. Namely, concrete and metal debris encountered while attempting to destroy Well D005 required development of an alternate approach to destroying the well. While ultimately successful, modification of the Project plan required extensive discussions with Project staff (including the State Water Board, ACWD, and US Fish and Wildlife), modifications to the agreement with the drilling contractor, and additional staff resources to complete rescheduled field activities. Lessons learned from this experience include:

- Development of contingency plans during the planning phase to accommodate nonstandard well constructions (e.g., blockages);
- Incorporation of potential time delays in receiving required reviews, permits, and access agreements;
- Preparation of spill kits in case of presence of oil in effluent water; and
- Emphasis on continued coordination and communication with all partners and stakeholders in the Project.

In its ongoing mission to improve the quality of groundwater in the Niles Cone Groundwater Basin, ACWD will continue to seek opportunities to remove potential sources of groundwater quality degradation, including destruction of abandoned wells which may serve as preferential pathways to saltwater intrusion. ACWD would certainly consider and evaluate similar projects in the future that could accomplish this mission.

Project Performance Measures Tables

Planning, Research, Monitoring, and Assessment

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1. Assess the effectiveness of the Project on improving groundwater quality.	1. Ongoing evaluation of Project effectiveness through ACWD's semiannual monitoring program.	1. ACWD's annual Groundwater Monitoring Report.	1. Evaluation and trend analysis of groundwater samples over time to determine the effectiveness of this Project in decreasing the input of saltwater into the lower aquifers.	1. ACWD's semiannual monitoring program collects groundwater samples from groundwater monitoring wells specifically monitoring the lower aquifers and analyzes them for chlorides.	1. In its annual Groundwater Monitoring Report, ACWD will evaluate chloride concentrations basin-wide and the effects of this Project on saltwater intrusion.

Water Conservation, Water Supply Reliability Enhancement, and Recycling

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1. Limit the volume of saltwater intruding into the lower aquifers that are a source of drinking water.	1. Decreased input of saltwater into the lower aquifers. 2. Lessen the threat to three domestic production wells at the Mowry Wellfield. 3. ACWD can more efficiently operate and sustainably manage the groundwater basin.	1. Concentrations of chlorides in groundwater samples collected from monitoring wells screened in the lower aquifers.	1. Measurable decreases in chloride concentrations near the Project area over time.	1. ACWD's semiannual monitoring program collects groundwater samples from groundwater monitoring wells specifically monitoring the lower aquifers and analyzes them for chlorides.	1. Decrease in saltwater concentration (as chlorides) in the source area of up to 14% over a 70-year period. 2. Decrease in mass of saltwater (as chlorides) entering the lower aquifers.

Education, Outreach, and Capacity-Building

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1. Perform outreach to community residents and businesses.	1. Knowledge of the Project's purpose, potential impacts, and Project Manager contact information among nearby residents and businesses.	1. Notification letters left as door hangers.[1] 2. Questions or concerns raised by nearby residents or businesses.	1. Increase in knowledge of the Project's purpose, potential impacts, and personnel among nearby residents and businesses.	1. Provision of notification letters of Project information and the opportunity to raise questions and concerns about the Project.	1. Questions or concerns raised by nearby residents or businesses are addressed by ACWD staff to the satisfaction of the inquirer.

Notes:

1. Note that notification letters were delivered via United States Postal Service

Table 4. Project Performance Measures

Conclusions

The goals of the Project were to assess the effectiveness of the Project on improving groundwater quality, limit the volume of saltwater intruding into the lower aquifers that are a source of drinking water, and perform outreach to community residents and businesses. Accomplishing these goals involves effectively decreasing the concentration of chlorides in the lower aquifers such that the threat to production wells at the Mowry Wellfield is lessened and will allow for the continued sustainable management of the Niles Cone. Because the effective decrease in concentration of chlorides is a metric which will be evaluated over time, the two major outcomes from the Project will be anticipated and reported through continued implementation of ACWD's semiannual groundwater monitoring program. However, the goal of performing outreach to community residents and businesses was accomplished through successful public engagement activities, including distribution of notification letters, and holding a public meeting.

In addition, the Project was completed within budget and within the timeframe of the Project schedule. ACWD is committed to maintaining the Project site over time to prevent potential damage or groundwater contamination for at least 20 years, or until the environmental outcome identified in the Grant Agreement has been achieved.

While there are many components that contribute to the successful design and construction of a project of this scope and scale, several key aspects of successful implementation of the Project include:

- Frequent communication with the State Water Board and transparency about Project progress and issues;
- Frequent communication with Project partners about task progress and issues;
- Frequent communication and coordination with the drilling contractor to ensure timely execution of Project goals and to develop creative strategies for Project implementation, if necessary;
- Ensuring that staff with a depth and breadth of field experience are included on the Project team to promote ease of decision-making and efficient use of Project expenses;
- Project team flexibility that allowed for real-time changes in Project scope;
- Availability of the Project team (ACWD, State Water Board, US Fish and Wildlife, and contractor) to allow for quick turnaround of ideas and solutions; and
- Continued vision of Project goals despite initial Project plan; although Project implementation did not proceed as initially planned, Wells D001 and D005 were still destroyed in a manner such that it is likely that Project goals will be met.

During execution of the Project, several challenges were encountered that affected the approach, schedule, and feasibility of implementing the Project. Lessons learned and recommendations for future projects include:

- Development of contingency plans during the planning phase to accommodate nonstandard well constructions (e.g., blockages);
- Preparation of spill kits in case of presence of oil in effluent water; and
- Emphasis on continued coordination and communication with all partners and stakeholders in the Project.

Appendix A – Permits and Approvals

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay National Wildlife Refuge Complex
1 Marshlands Road, Fremont CA 94555

June 20, 2018

Mr. Douglas T. Young
Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94538-6348

Subject: Endangered Species Consultation on Irrigation Well Destruction at Old Jarvis Road/ Mayhews Unit of the Don Edwards San Francisco Bay National Wildlife Refuge, Alameda County, California (SFB-2018-1)

Dear Mr. Young:

The Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) has reviewed the proposed to destroy four legacy irrigation wells in the western portion of the Niles Cone Groundwater Basin. The purpose of the well destruction is to prevent saltwater intrusion into the local aquifer. We understand that Alameda County Water District will be destroying four legacy irrigation wells within the Mayhews Unit of the Refuge. We have evaluated the proposed Project in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). All 4 well sites are located in ruderal vegetation that is deemed low potential/ low quality habitat for salt marsh harvest mouse (*Reithrodontomys raviventris raviventris*) habitat. We have identified conservation measures in your revised Special Use Permit that shall be implemented at all 4 locations to avoid and minimize potential effects on the harvest mouse. We have determined that the proposed Project is not likely to adversely affect the endangered California Ridgway's rail (*Rallus obsoletus obsoletus*) since work will occur outside the rail breeding season (Feb. 1-August 31) and will not be occurring within tidal marsh habitat.

Unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated or proposed that may be affected by the proposed Project, no further action pursuant to the Act is necessary. If you have any questions regarding our response, please contact Jared Underwood (Jared_Underwood@fws.gov) at (510) 792-0222.

Sincerely,

Anne Morkill
Manager, San Francisco Bay
National Wildlife Refuge Complex

TAKE PRIDE IN AMERICA

Tracking No.: SFB-2018-1

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Rachel Tertes
Telephone Number: (510) 792-0222 (Ext 148)
Date: June 20, 2018

I. Region: 8; San Francisco Bay NWR Complex

II. Refuge: Don Edwards San Francisco Bay NWR

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris raviventris*)
California Ridgway's rail (*Rallus obsoletus obsoletus*)

B. Proposed species and/or critical habitat within the action area: None

C. Candidate species within the action area: None

D. **Include species/habitat occurrence on a map.**

IV. Geographic area or station name and action: Mayhews Unit of the Don Edwards San Francisco Bay NWR

Action: Old Jarvis Road Irrigation Well Destruction Project. Removal of 4 legacy irrigation wells on the Refuge

V. Location (attach map): Figure 1.

A. Ecoregion Number and Name:
3 - Central Valley / San Francisco Bay Ecoregion

B. County and State: Alameda County, California

C. Section, township, and range (or latitude and longitude):
4 well sites located at:

Latitude: 37.529670 Longitude: -122.063060

D. Distance (miles) and direction to nearest town:
All sites are located within the City of Newark or on Refuge property

E. Species/habitat occurrence:

California Ridgway's Rail

The California Ridgway's rail is endemic to tidally influenced salt and brackish marshes of California. Historically, the California Ridgway's rail occurred in tidal marshes along California's coast from Morro Bay, San Luis Obispo County, to Humboldt Bay, Humboldt County. Currently, Ridgway's rails are known to occur in tidal and muted marshes in the San Francisco bay. California Ridgway's rails are typically found in the intertidal zone and sloughs of salt and brackish marshes dominated by pickleweed (*Salicornia virginica*), Pacific cordgrass (*Spartina foliosa*), gumplant (*Grindelia stricta var. angustifolia*), saltgrass (*Distichlis spicata*), jaumea (*Jaumea carnosa*), and adjacent upland refugia. They may also occupy habitats with other vegetative components, which include, but are not limited to, bulrush (*Scirpus americanus and S. maritimus*), cattails (*Typha spp*.), and Baltic rush (*Juncus balticus*). The California Ridgway's rail typically feeds on benthic invertebrates, but its diet is wide ranging, and includes seeds, and occasionally small mammals such as the harvest mouse.

Annual call count surveys are conducted to detect Ridgway's rails during the early breeding season. There are 4 listening stations at the Mayhews Unit, however these stations do not adequately cover the area of the proposed project. No Ridgway's rails have been detected within the 4 stations in the Mayhews Unit during call count surveys since surveys began in 2011. However at least one Ridgway's rail was observed in Mayhews in 2018 (Underwood pers comm) and rails are found throughout adjacent tidal marsh, including Newark Slough and LaRiviere Marsh.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse is a rodent endemic to the salt and brackish marshes of the Bay and adjacent tidally influenced areas. The salt marsh harvest mouse has evolved to a life in tidal marshes. Specifically, they have evolved to depend mainly on dense pickleweed as their primary cover and food source and may utilize a broader source of food and cover that includes saltgrass and other vegetation typically found in the salt and brackish marshes of this region. In natural systems, harvest mice can be found in the middle and high tidal marsh and upland transition zones. Upland refugia is an essential habitat component during high tide events. The historic range of the species included tidal marshes within the Bays of San Francisco, San Pablo and Suisun.

Salt marsh harvest mice have been surveyed in the Mayhews Unit several times throughout the years, including 1985, 1996, 1997, 2005, and 2013. Salt marsh harvest mice are present throughout the Mayhews Unit.

VI. Description of proposed action:

Project Area and Background

Alameda County Water District (ACWD) is located in the southeast portion of the San Francisco Bay area and encompasses the Niles Cone Groundwater Basin (Niles Cone). The proposed project site is located in the southwest area of the Niles Cone along the San Francisco Bay

margin (Figure 1). ACWD's project "Old Jarvis Road Irrigation Well Destruction Project" proposes the destruction of four legacy irrigation wells at the project site that appear to be acting as preferential pathways for saline water to enter into active water production aquifers.

Since its formation, ACWD has strived to protect the Niles Cone from over-pumping and saltwater intrusion. Saltwater intrusion was detected as early as the 1920s in the shallow aquifer (Newark Aquifer), and gradually worsened over four decades of declining water levels in the Below Hayward Fault Aquifers. Under San Francisco Bay, itself, there is a strong degree of communication between bay water and the underlying Newark Aquifer. This interconnection enabled saltwater intrusion in the Niles Cone from the early 1900s to the early 1960s when pumping caused the piezometric heads in the inland part of the Newark Aquifer to drop tens of feet below sea level. Saltwater in the Newark Aquifer migrated inland and ultimately reached the Hayward Fault and impacted the lower aquifers (Centerville-Fremont Aquifers). Overdraft was attributed to trends of increased water use from the 1900s to early 1960s, including heavy pumping for agriculture, exports by private water companies, quarry dewatering, and then increased urban demand with population growth and suburbanization of the region in the post-World War II era. Vertical conduits may have also resulted from abandoned wells screened between the Newark Aquifer and the Centerville-Fremont Aquifers that were inundated by bay water in the Newark Aquifer.

As early as the 1920's ACWD began the process of increasing groundwater levels by installing earthen dams along Alameda Creek during the spring and summer months to impound creek water and allow natural seepage to recharge the groundwater basin. In the 1930's, ACWD acquired its first recharge pond, to increase percolation of Alameda Creek water into the Niles Cone. Another key milestone was in 1961, when the Legislature enacted the Replenishment Assessment Act of the Alameda County Water District (Chapter 1942 of the Statutes of 1961, as amended in 1970 and 1974), which enshrined ACWD's rights to buy and sell water, perform groundwater replenishment, store water in "underground reservoirs," require metering of wells, and collection replenishment fees to help pay for groundwater replenishment, imported water for such replenishment, and other actions to protect the groundwater basin. The promulgation of the Act was timely, as in 1962, ACWD became the first contractor for importation of State Water Project (SWP) water.

In addition to importing water for groundwater recharge, actions were also taken in the 1960s and 1970s to control groundwater pumping. Other key milestones included: the first of three rubber dams were installed to improve recharge operations in 1972; the Aquifer Reclamation Program (ARP) was implemented to augment the removal of saltwater from the groundwater basin through groundwater pumping in areas with documented saltwater intrusion in 1974; and completion of the Quarry Lakes Restoration Project was completed to enhance the artificial and natural recharge to the groundwater basin in 1999.

Well levels in the Newark Aquifer were restored above sea level by 1972, and have been maintained above sea level ever since, except for a brief period in 1990 (to accommodate installation of a diversion pipe in the Quarry Lakes). Water levels are typically not just above sea level, but are above by at least 10 feet, enabling significant progress in restoring water quality from legacy of salt water intrusion. Managed-aquifer-recharge at ACWD's recharge facilities accounts for most of the replenishment to the groundwater basin.

ACWD has realized a significant amount of success with the reclamation of approximately 25% to 30% of the Niles Cone. An area of great concern has been identified in the western/central portion of the groundwater basin where a plume of saltwater has been identified in the Centerville-Fremont Aquifers and appears to be following an ancient stream channel directly in line with ACWD's Mowry Wellfield. A total of four joint Department of Water Resources/ACWD studies have been conducted to identify saltwater intrusion in the groundwater basin with the latter two studies directly targeting the delineation of this plume. The latest study (completed in April 2016) seems to identify an area were saltwater from the impacted Newark Aquifer is entering the Centerville-Fremont Aquifers. This area is presently a wildlife preserve operated by the United States Fish and Wildlife Service (Don Edwards San Francisco Bay National Wildlife Refuge). ACWD has identified four abandoned irrigation wells at the site in the vicinity to locations which document the highest chloride levels in the lower aquifers. It is these four abandoned irrigation wells that the proposed project "Old Jarvis Road Irrigation Well Destruction Project" is targeting to destroy and eliminate as a source saltwater intrusion.

Scope of Project

This project is for the destruction of four abandoned irrigation wells (Figure 2) that may be acting as a preferential pathway for saltwater from San Francisco Bay to impact groundwater in the lower aquifers (Centerville and Fremont Aquifers) and threatens the Mowry Wellfield. The destruction of these wells will limit the volume of saltwater intruding into the lower aquifers and enable ACWD more efficiently operate its aquifer reclamation and recharge operations. The elimination of this saltwater source will also allow ACWD to better sustainably manage the basin.

A total of four abandoned legacy irrigation wells will be destroyed on property operated by the United States Fish and Wildlife Service, Don Edwards San Francisco Bay National Wildlife Refuge, (US Fish and Wildlife Service). At each of the well sites, the well will be exposed and any debris will be drilled out to the total depth of the well (total well depths will be estimated using nearby well logs). Total well depth will be confirmed by the drilling operations either by encountering the bottom well cap or native soil (as determined by a professional geologist inspecting a bottom soil sample). Due to the age of the wells and the expected poor condition of the steel material of the well, explosive detonation or mechanical perforations, and neat cement or a sand cement slurry grout will be used to seal each well. The well destruction reports will be included in the final report for this project.

Upon completion of the well destruction activities, ACWD will monitor the effectiveness of the project, over time, through evaluation of its on-going bi-annual monitoring program. The analytical results will be included in ACWD's annual Groundwater Monitoring Report.

Description of Work

Destruction of the four abandoned irrigation wells is divided into five tasks. The five tasks are: 1) Project Administration; 2) Planning Activities; 3) Implementation; 4) Monitoring and Performance; and 5) Outreach. A detailed description of the work items to be performed for each task is presented below:

- *Task 1: Project Administration*

  Throughout the project, communication and reporting are necessary to keep it on schedule and budget. Each subtask is described below:

  1.1) Coordination and communications

  Constant discussions between ACWD, the State, US Fish and Wildlife Service, and the contractor will need to done to avoid miscommunications and have the job run smoothly. This will require occasional meetings, document preparation, telephone conferences, and possible consultation with specialists.

  1.2) Budget

  ACWD will track and review the project budget and prepare a budget summary report to the State on a quarterly basis. ACWD will prepare intermediate invoices when appropriate and prepare a final invoice at the end of the project. Any budget modifications that need to be done due to unforeseen issues will be discussed with the State prior to implementation.

  1.3) Reporting

  ACWD will submit quarterly progress reports to the State which will include an executive summary, description of project status, description of major accomplishments, discussion of any issues or concerns that may affect the schedule or budget, discussion of activities planned for the following quarter, cost and schedule information. The quarterly report format will follow the outline specified in the grant agreement.

  Upon completion of the project, ACWD will prepare a draft final report for review by the State that will include all data, permits, and field notes,. The final report will be a comprehensive document that will include a comparison of the planned schedule with the actual timeline, discussion of major problems encountered, a summary of all costs, and a detailed description and analysis of project results. The draft final report will follow ACWD's quality control document procedures which requires the technical review of at least two senior staff, both registered professionals. Upon receipt of comments from the State, ACWD will finalize the report.

- *Task 2: Planning Activities*

  Prior to conducting field activities, ACWD will finalize well locations, secure a drilling contractor, and complete permit processing. Each subtask is described below:

  2.1) Finalize Well Locations

  The locations identified in this proposal are the general locations for the wells. These wells were identified as possible preferential pathways for saltwater to enter into the lower aquifers that are the source for groundwater of ACWD's Mowry Wellfield. The wells are located on property operated by the US Fish and Wildlife Service. ACWD has already discussed the proposed well locations with US Fish and Wildlife Service staff and they have indicated a willingness to

issue special use permits, biological evaluation, and supply in-kind services to destroy the well at the sites.

2.2) Drilling Contractor Selection

ACWD will prepare contract specifications for the proposed project, and will broadly advertise the project through the Daily Construction Service, McGraw-Hill, Inc. Exchange (Dodge Report), Sierra Contractors Exchange, and the Contractor's Information Network. ACWD will also directly solicit bids from drilling contractors with the technical capabilities to destroy the proposed wells. ACWD has considerable experience with this task from four previous DWR Local Groundwater Assistance grant projects, six phases of similar types of monitoring well projects, and implementation of a number of ACWD owned and operated wells that have been destroyed over time. After the bids are opened in a public process in which contractors are invited to attend, the lowest bid that complies with ACWD's bidding requirements is recommended for acceptance. A staff report with this recommendation is placed on the agenda for the next Board of Directors' meeting and all interested parties and the public are invited to attend the meeting. If there are no comments from the public, the Board of Directors adopts a resolution accepting the proposal and the contract is awarded to the drilling contractor.

2.3) Permitting Process

ACWD has installed and is presently maintaining groundwater monitoring wells on property and easements owned and operated by the US Fish and Wildlife Service. ACWD is very familiar with the process of obtaining special use permits from the US Fish and Wildlife Service and, as mentioned above, they have indicated a willingness to issue special use permits for the well sites. ACWD administers the Well Ordinance program and will be able to internally coordinate the required well drilling permits and inspection activities. This task will also include activities needed in preparing any needed CEQA and NEPA documents for the project.

- *Task 3: Implementation*

The Project Area, which consists of four well locations, will be staked by US Fish and Wildlife Service and ACWD prior to mowing and ground clearing. The existing firebreak (mowed annually) will provide primary access to each well. The well locations will be reacquired using a magnetometer to identify the specific location. Once the wells are located, vegetation will be cleared within the footprint of work area and will be enclosed with silt-fencing. A backhoe will then be utilized to expose the well head and clear an area for the drilling equipment to setup over the well.

The wells will be drilled out by a drilling contractor licensed in the State of California with a valid C-57 license. When the drills are spinning the bit, noise levels reach 78-80 decibels. Idling noise levels are lower. All wells will be measured and an appropriately sized drill head will be use to remove all debris in the well. Each well will be drilled out to the total depth of the well (total well depths were estimated using nearby well logs to be approximately 350 feet). Total well

depth will be confirmed by the drilling operations either by encountering the bottom well cap or native soil (as determined by a professional geologist inspecting a bottom soil sample). The type of drilling equipment that can perform the expected task can vary greatly and the selected equipment would be option of the winning contractor. Standard equipment needed for drilling to this depth normally includes: 1) a 20 to 30 foot long flatbed with mounted drilling equipment; 2) a 20 to 25 foot long support flatbed truck with additional drill stems, bags of cement, and water; 3) containers for storing cuttings and drilling mud; 4) a crew of three (one driller and two helpers), and 5) an ACWD inspector with a ACWD pickup truck. Occasional visits by an ACWD licensed professional and representatives from the State of California may also occur (vehicles brought to the site by these individuals would be parked on the adjacent city street). Placement of the equipment can generally be configured to the available space but typically an area approximately 90 feet by 60 feet would be the expected maximum working square area required.

Due to the age of the wells and the expected poor condition of the steel material of the well casing, explosive detonation or mechanical perforations, will be used to perforate each well. Explosive detonation occurs underground and noise levels are below ambient levels. Upon confirmation of achieving total well depth, logs of nearby wells will be review and a perforation interval determined. Upon perforation, the neat cement or sand cement slurry in the well casing will intrude into the breaks in the casing and seal up the well. The well destruction reports will be included in the status updates and final report for this grant project.

All field operations will be under the direct supervision of a professional geologist licensed in the State of California. The licensed professional will review all procedures and protocols outlined for the project and assure that Standard of Practice for the work proposed is followed and documented. A well completion report will be completed and a copy will be included in the final report. The estimated amount of time to complete the project is four weeks (approximately 4 days per well).

- *Task 4: Monitoring and Performance*
  Monitoring of existing on-site monitoring wells to evaluate the effectiveness of the project will performed by ACWD during its bi-annual groundwater monitoring event and will be reported in its annual Groundwater monitoring Report.

- *Task 5: Outreach*
  In addition to the public notification and public process used in selecting a contractor as described in Task 2.2, ACWD will identify all residents and businesses within 0.25 miles of each drilling site and directly deliver notification letters that will be left as door hangers. The notification letters will provide the estimated date that drilling activities are expected to begin, the hours of work, the purpose of the project, the potential impacts that the project may have on their neighborhood, and a site map. In addition, the letter will identify ACWD's project manager and provide contact information so that any questions or concerns can be addressed during and after normal business hours.

Requested Access Periods

The proposed project is scheduled to occur from September 1, 2018 through December 31, 2018.

VII. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III.

Salt marsh harvest mouse (*Reithrodontomys raviventris raviventris*):
Salt marsh harvest mice are presumed to be present in all pickleweed marshes. No elements of this project will require any access into tidal marshes where they are likely to occur. All four wells are located in ruderal vegetation adjacent to tidal marsh, within habitat that is considered low quality for mice. The existing habitat provides potential high tide refugia and therefore work will not be allowed during king tides (see Conservation Measures below). In addition, silt fencing will be installed to prevent all small mammals from entering the project area during well removal. As a result, we do not anticipate any project-related harm to individual mice or their habitat.

Project-related noise will occur, but most equipment use, such as truck traffic and mowing, will not increase noise levels substantially above ambient conditions. Moderate levels of ambient noise levels are already produced from heavy traffic on the adjacent Thornton Avenue. Project related activities such as well drilling and well demolition may increase sound levels above ambient conditions for short periods of time. Due to the limited temporal nature of elevated noise conditions, we anticipate only temporary, discountable levels of harassment to any mice in the nearby marsh habitat.

Therefore, we have determined that implementation of the proposed action, including Conservation Measures, may affect but is not likely to adversely affect the salt marsh harvest mouse.

California Ridgway's rail (*Rallus obsoletus obsoletus*): Ridgway's rails are assumed to be present in all tidal and muted tidal marshes with appropriate vegetation, including portions of the Mayhews Unit. No elements of this project will require any access into tidal marshes, therefore we do not anticipate any direct harm to individual Ridgway's rails or to their habitat.

Project-related noise will occur, but most equipment use, such as truck traffic and mowing, will not increase noise levels substantially above ambient conditions. Moderate levels of ambient noise levels are already produced from heavy traffic on the adjacent Thornton Avenue. Project related activities such as well drilling and well demolition may increase sound levels above ambient conditions for short periods of time. Due to the limited temporal nature of elevated noise conditions, we anticipate only temporary, discountable levels of harassment to any rails in the nearby marsh habitat.

Therefore, we have determined that implementation of the proposed action, including Conservation Measures, may affect but is not likely to adversely affect the California Ridgway's

rail. In addition, since all work will be limited to the non-breeding season, so there will be no effects to breeding individuals, chicks or eggs.

B. Explanation of conservation measures to be implemented to reduce adverse effects:

General Conservation Measures

1. A worker awareness program will be presented to all construction personnel before they start work on the project. The program shall summarize relevant laws and regulations that protect biological resources, discuss sensitive habitats and listed species with the potential to occur in the work zone, explain the role and authority of the biological monitors, and review applicable avoidance measures to protect listed species and habitats.

2. Prior to any construction activities onsite, a review of all required permits and notifications will be performed to ensure requirements for environmental compliance are fully understood, specific limits of activities and work are defined and understood, and all environmental clearances and access, encroachment agreements, and permissions have been obtained from the appropriate agencies and parties.

3. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal.

4. Pre-construction surveys for special-status plant and wildlife species that are known or have a high potential to occur in the project area will be conducted prior to construction by Service staff.

5. Prior to construction activities, environmentally sensitive areas will be flagged or fenced in order to clearly delineate the extent of the construction. Project limits will be established and defined with physical markers to define access routes and maintenance areas to the minimum area necessary to complete the project; this includes locating access routes and maintenance areas outside of any drainages or creeks.

6. To reduce potential impacts from infestation by non-native Spartina, pepperweed, and other invasive, non-native plant species, all equipment (including personal gear) will be inspected and cleaned of soil, seeds, and plant material prior to arriving on site to prevent introduction of undesirable plant species. Equipment and personal gear will be subject to inspection.

7. All work will occur during normal daylight working hours.

8. All foods and food-related trash items will be enclosed in sealed trash containers and removed from the site at the end of each workday.

9. No pets will be allowed on the project site.

10. All equipment will be maintained such that there will be no leaks of machine fluids such as gasoline, diesel, or oils.

11. Place equipment left on project site overnight over plastic mats in order to prevent fluid leakage into soils.

12. Hazardous materials such as fuels and oils will be stored in sealable containers in a designated location that is at least 200 feet from any aquatic habitat.

13. Oil and other hazmat spill contingency plans must be implemented.

14. All equipment and personnel should stay within designated project site area to avoid disturbing sensitive species.

15. To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6 inches deep will be secured against animal entry at the close of each day. Methods that can be employed include: covering holes with plywood or similar materials, providing escape ramps, or surrounding the hole/trench with filter fabric fencing to exclude wildlife.

California Ridgway's Rail Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the California Ridgway's rail and suitable habitat.

1. Work activities within 50 feet of potential California clapper rail habitat will not occur within two hours before or after extreme high tides (6.5 feet or above measured at the Golden Gate Bridge adjusted to the timing of local high tides) or when the marsh plain is inundated, which could prevent individuals from reaching available cover.

2. Project will not be conducted during the Ridgway's rail breeding season (February 1-August 31) to avoid impacts to breeding adults, chicks and eggs.

Salt Marsh Harvest Mouse Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the salt marsh harvest mouse and their habitats.

1. All wetland vegetation within the project area and within a 2-foot buffer around the project area shall be removed by hand using only non-mechanized hand tools (*i.e.*, trowel, hoe, rake, and shovel) or weed whacker prior to the initiation of work within these areas. Vegetation shall be removed to bare ground or stubble no higher than 1 inch. Vegetation removal shall start at the center of the project area and work its way towards the salt marsh or the better salt marsh habitat.

2. To minimize or avoid the loss of individual salt marsh harvest mice, construction activities will not occur within two hours before or after extreme high tides (6.5' or

above, as measured at the Golden Gate Bridge adjusting to the timing of local tides), when the marsh plain is inundated, because protective cover for mice is limited and activities could prevent them from reaching available cover or push them into the project area.

3. To prevent salt marsh harvest mice from moving through the proposed project site during construction, temporary exclusion fencing shall be placed around a defined work area prior to the start of construction activities. The temporary exclusion fencing shall be installed immediately after the hand removal of all wetland vegetation (as described above) from the work area and a 2-foot buffer around the work area for each well (approximately 90 feet by 60 feet; see Task 3). The fence shall be made of a heavy plastic sheeting material that does not allow salt marsh harvest mice to pass through or climb, and the bottom shall be buried to a depth of 4 inches so that salt marsh harvest mouse cannot crawl under the fence. Fence height shall be at least 12 inches higher than the highest adjacent vegetation with a maximum height of 4 feet. All supports for the exclusion fencing shall be placed on the inside of the work area. Once work is completed for a well, the fencing should be removed and put in place around the next well.

4. Before the start of work each day, an approved worker will check for animals in or under any equipment and vehicles within the project area. If a salt marsh harvest mouse is encountered, work will stop, and the Service and CDFW will be notified immediately for guidance on how to proceed.

VIII. Effect determination and Concurrence/Approvals: *Biological Opinion Needed **Conference: Coordination with ES Field Office Needed

A. Listed species/designated critical habitat:

Determination	Refuge Mgr. Initials
No effect to species/critical habitat	_____Concurrence
May affect, but is not likely to adversely affect species/critical habitat	__X__ Concurrence
California Ridgway's rail Salt marsh harvest mouse	
May affect, and is likely to adversely affect species/critical habitat	_____*Formal Consultation

B. Proposed species/proposed critical habitat: NA

C. Candidate species: NA

Supervisory Wildlife Biologist — Date: 6/20/2018

IX. Complex Project Leader Evaluation:

A. Concurrence X Non-concurrence _____

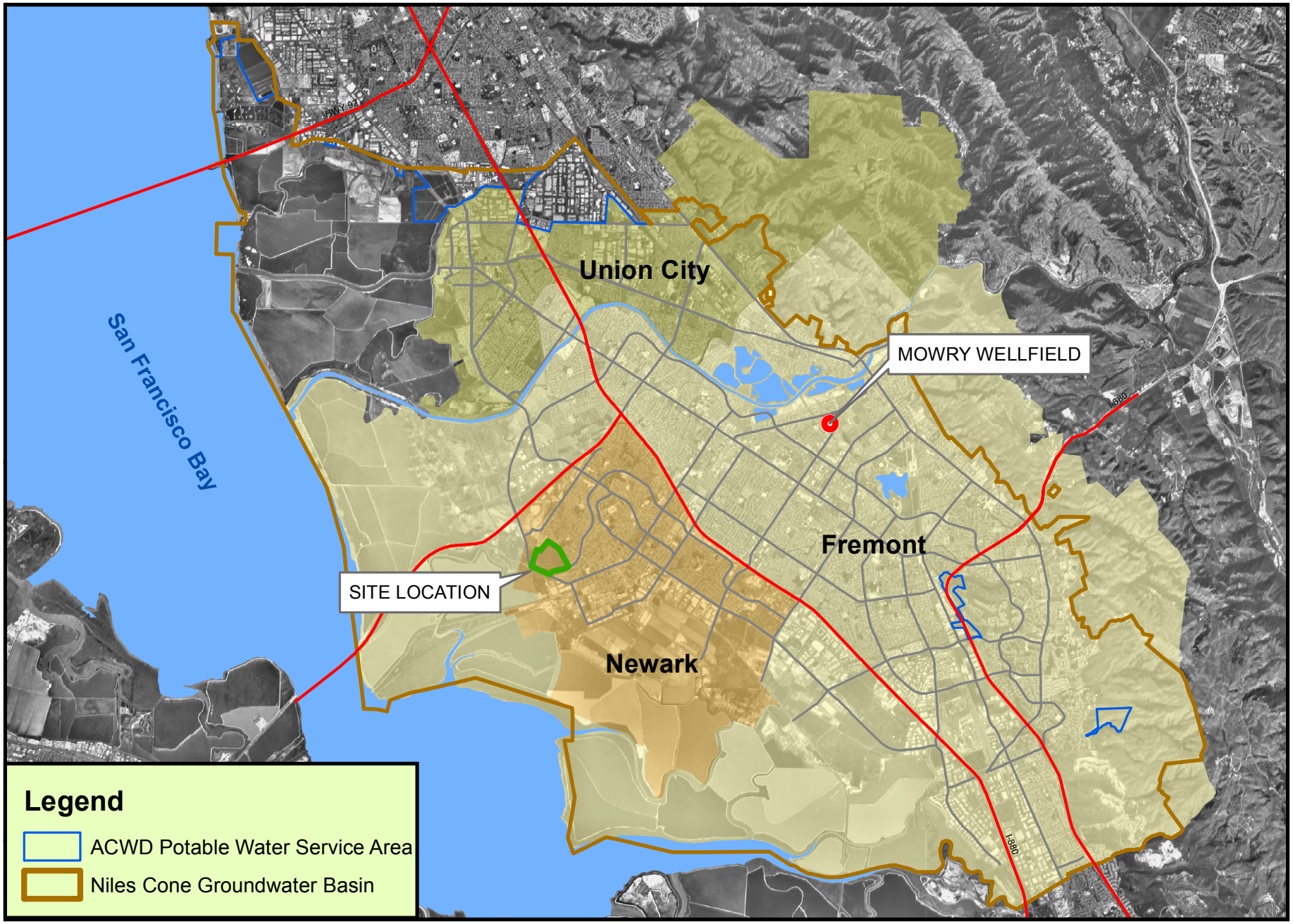
B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Project Leader, SFBNWR Complex — Date: 6/20/2018



ACWD
ALAMEDA COUNTY WATER DISTRICT

SITE LOCATION MAP
FIGURE 1

N

0 1.5 3 Miles

ACWD
ALAMEDA COUNTY WATER DISTRICT

WELL LOCATION MAP
FIGURE 2

N
0 250 500 Feet

Finding of No Significant Impact and Decision for the Old Jarvis Well Demolition Project

Don Edwards San Francisco Bay National Wildlife Refuge, Alameda County, California

The U.S. Fish and Wildlife Service (Service) is issuing a special use permit (SUP) to the Alameda County Water District for the demolition of two legacy irrigation wells on the Don Edwards San Francisco Bay (NWR or Refuge). These legacy irrigation wells appear to be the source of a brackish water plume that extends up to and threatens the District's Mowry Wellfield. Destruction of these legacy wells would assist the District in achieving local water quality objectives.

Selected Action

ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

Under the Proposed Action, the Service would issue a SUP to the District to demolish two legacy irrigation wells on the Mayhews Unit of the Refuge. Demolition work is anticipated to begin in October 2020 and would require approximately two weeks to complete. Construction staging and project work would occur within an approximately 7,500-square-foot area around each wellhead. At each of the well sites, the well would be exposed and any debris or equipment in the well would be removed to the total depth of the well. Total well depth would be confirmed by the drilling operations either by encountering the bottom well cap or native soil (estimated depths of the two wells are approximately 250 and 450 feet, respectively). Due to the age of the wells and the expected poor conditions of the steel material of the well, explosive well perforation would be utilized in lieu of creating perforations by means of a mills knife. Cement or a sand cement slurry grout would then be used to seal each well.

The District adopted a mitigated negative declaration on October 8, 2020, incorporating the following mitigation measures for project construction. These mitigation measures are incorporated into the proposed action to minimize construction related impacts:

1. Biological Resources

a. A worker awareness program shall be presented to all construction personnel before they start work on the project. The program shall summarize relevant laws and regulations that protect biological resources, discuss sensitive habitats and listed species with the potential to occur in the work zone, explain the role and authority of the biological monitors, and review applicable avoidance measures to protect listed species and habitats.
b. Prior to any construction activities on site, a review of all required permits and notifications shall be performed to ensure requirements for environmental compliance are fully understood, specific limits of activities and work are defined and understood, and all environmental clearances and access, encroachment agreements, and permissions have been obtained from the appropriate agencies and parties.
c. The number of access routes, size of staging areas, and total area of the activity shall be limited to the minimum necessary to achieve the project goal.
d. Preconstruction surveys for special-status plant and wildlife species that are known or have a high potential to occur in the project area shall be conducted prior to construction by USFWS staff.
e. Prior to construction activities, environmentally sensitive areas shall be flagged or fenced in order to clearly delineate the extent of the construction. Project limits shall be established and defined with physical markers to define access routes and maintenance areas to the minimum area necessary to complete the project; this includes locating access routes and maintenance areas outside of any drainages or creeks.
f. To reduce potential impacts from infestation by non-native spartina (*Spartina alterniflora*), pepperweed (*Lepidium latifolium*), and other invasive, non-native plant species, all equipment (including personal gear) shall be inspected and cleaned of soil, seeds, and plant material prior to arriving on site to prevent introduction of undesirable plant species. Equipment and personal gear shall be subject to inspection.
g. All work shall occur during normal daylight working hours.
h. All foods and food-related trash items shall be enclosed in sealed trash containers and removed from the site at the end of each workday.
i. No pets shall be allowed on the project site.
j. All equipment shall be maintained such that there will be no leaks of machine fluids such as gasoline, diesel, or oils.
k. Equipment left on the project site overnight shall be placed over plastic mats in order to prevent fluid leakage into soils.
l. Hazardous materials such as fuels and oils shall be stored in sealable containers in a designated location that is at least 200 feet from any aquatic habitat.
m. Oil and other hazmat spill contingency plans shall be implemented.

n. All equipment and personnel should stay within designated project site areas to avoid disturbing sensitive species.
o. To prevent entrapment of animals, all excavations, steep-walled holes, or trenches more than 6 inches deep shall be secured against animal entry at the close of each day. Methods that can be employed include: covering holes with plywood or similar materials, providing escape ramps, or surrounding the excavation, hole, or trench with filter fabric fencing to exclude wildlife.

2. California Ridgway's Rail
    a. Work activities within 50 feet of potential California Ridgway's rail habitat shall not occur within 2 hours before or after extreme high tides (6.5 feet or above as measured at the Golden Gate Bridge adjusted to the timing of local high tides), when the marsh plain is inundated, which could prevent individuals from reaching available cover.
    b. The project shall not be conducted during the Ridgway's rail breeding season (February 1-August 31) to avoid impacts to breeding adults, chicks, and eggs.
3. Salt Marsh Harvest Mouse
    a. All wetland vegetation within the project area and within a 2-foot buffer around the project area shall be removed by hand using only non-mechanized hand tools (i.e., trowel, hoe, rake, and shovel) or a weed whacker prior to the initiation of work within these areas. Vegetation shall be removed to bare ground or stubble no higher than 1 inch. Vegetation removal shall start at the center of the project area and work its way toward the salt marsh habitat.
    b. To minimize or avoid the loss of individual salt marsh harvest mice, construction activities will not occur within 2 hours before or after extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge adjusting to the timing of local tides), when the marsh plain is inundated, because protective cover for mice is limited and activities could prevent them from reaching available cover or push them into the project area.
    c. To prevent salt marsh harvest mice from moving through the proposed project site during construction, temporary exclusion fencing shall be placed around a defined work area prior to the start of construction activities. The temporary exclusion fencing shall be installed immediately after the hand removal of all wetland vegetation (as described above) from the work area and a 2-foot buffer around the work area for each well (approximately 90 feet by 60 feet). The fence shall be made of a heavy plastic sheeting material that does not allow salt marsh harvest mice to pass through or climb, and the bottom shall be buried to a depth of 4 inches so that salt marsh harvest mice cannot crawl under the fence. Fence height shall be at least 12 inches higher than the highest adjacent vegetation with a maximum height of 4 feet. All supports for the exclusion fencing shall be placed on the inside of the work area. Once work is completed for a well, the fencing should be removed and put in place around the next well.

d. Before the start of work each day, an approved worker shall check for animals in or under any equipment and vehicles within the project area. If a salt marsh harvest mouse is encountered, work shall stop, and the USFWS and the California Department of Fish and Wildlife shall be notified immediately for guidance on how to proceed.

4. Noise
    a. Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
    b. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site.
    c. Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities.
    d. Ensure that all general construction related activities are restricted to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday.
    e. Designate a "disturbance coordinator" at the City who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.
5. Cultural Resources
    a. Should an archaeological deposit be encountered during project subsurface demolition activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the California Register of Historical Resources), the District shall be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recording the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations shall be prepared and submitted to the District for review, and the final report shall be submitted to the Northwest Information Center at Sonoma State University. Significant archaeological materials shall be submitted to an appropriate local curation facility and used for future research and public interpretive displays, as appropriate.
6. Geology and Soils

a. If fossil remains or paleontologically sensitive bedrock is exposed during project construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist shall be contacted to review the find. The project team (the District and the paleontologist) shall develop and implement a plan for impact avoidance. Should avoidance be infeasible due to engineering requirements, the project team shall develop and implement a plan to offset the loss of paleontological data through the implementation of a data recovery project, including paleontological recovery. If determined to be a unique paleontological resource, the potentially significant impacts caused by construction may be mitigated through monitoring during construction activity (beyond the area of the initial find), and, if warranted by potential finds, recovery of fossils; preservation, stabilization, and identification of collected resources; curation of resources into a museum repository; and preparation of a final report documenting the monitoring methods and results, to be submitted to the District.

7. Air Quality
    a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
    b. All haul trucks transporting soil, sand, or other loose material off site shall be covered.
    c. All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
    d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
    e. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of the California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
    f. All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
    g. A publicly visible sign shall be posted with the telephone number and person to contact at the District regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.

This alternative was selected over the No Action Alternative because it will eliminate a source of a brackish water plume that threatens local water quality. This alternative is the Service's

proposed action because it would result in a minimal impact on physical and biological resources, while meeting the Service's mandates under the National Wildlife Refuge System Improvement Act of 1997.

Other Alternatives Considered and Analyzed

ALTERNATIVE A – NO ACTION ALTERNATIVE

Under the No Action Alternative, the Service would not issue an SUP to the District. The abandoned irrigation wells would remain on the Mayhews Unit of the Refuge and continue to be a source of elevated chlorides. The Service would continue to manage the Mayhews Unit consistent with the 2012 Final Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan. There would be no construction related impacts and the abandoned irrigation wells would remain on the Mayhews Unit of the Refuge. These two wells would continue to be a source of elevated chlorides and source of a brackish water plume that threatens the District's Mowry Wellfield and local water quality; therefore, this alternative was not selected.

Summary of Effects of the Selected Action

An Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) to provide decision-making framework that 1) explored a reasonable range of alternatives to meet project objectives, 2) evaluated potential issues and impacts to the refuge, resources and values, and 3) identified mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the effects associated with both the Proposed Action and No Action alternatives. It is incorporated as part of this finding.

Implementation of the agency's decision would be expected to result in the following environmental effects:

1. Biological Resources
    a. Access to the well sited is through upland areas supporting ruderal vegetation; no sensitive natural communities are present. All construction will occur within the upland habitat. Therefore, the project will have no adverse effects on sensitive natural communities, including wetlands. However, there is salt marsh adjacent to the project site, which is habitat for two federally and State-listed species. The proposed action includes mitigation measures to minimize any impacts to the salt marsh harvest mouse and the Ridgway's rail.
2. Water Resources
    a. Project construction would require minimal grading and disturbance. No streams or rivers would be affected by project construction. During demolition activities, some excavated soil would be exposed and disturbed, drainage

patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and the transport of sediment downstream compared with existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. However, the Proposed Action includes the installation of silt fencing around the project site. Installation of silt fencing, in addition to the mitigation measures incorporated into the project description for biological resources, would minimize any impacts to water quality during construction, including those impacts associated with soil erosion, and siltation. Following demolition of the existing irrigation wells the ground surface would be returned to pre-construction conditions which means the project would not increase the rate and volume of stormwater runoff. Therefore, the project would have minor construction related impacts and no long-term operational impacts.

3. Geology and Soils
    a. The project area and surrounding vicinity is generally level and is not located within an earthquake-induced or rainfall-induced landslide zone. Construction activities that could increase erosion from water or wind include vegetation removal and clearing, and drilling of the existing wells. However, construction specification include the placement of silt fencing around the work area which would minimize any potential erosion. In addition, mitigation measures implemented for air quality (fugitive dust control measures) also minimize potential impacts from soil erosion. The project would have minor effects to geology and soils.
4. Noise
    a. Demolition of the two abandoned irrigation wells would result in short-term noise impacts on the nearby residential development. Maximum construction noise would be short-term (two weeks), generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone.
    b. Short-term noise impacts would occur during limited vegetation clearing site preparation activities. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would not occur once the wells are demolished. While noise levels would be elevated, they would not exceed the City of Newark's construction noise standards. Therefore, there would be minor short-term impacts related to noise and no noise related operational impacts from the project.
5. Cultural Resources
    a. The Refuge's 2012 assessment for the Comprehensive Conservation Plan, the Northwest Information Center records search, and field survey of the project site did not identify any cultural resources on site. LSA, LLC, was contracted to conduct a cultural resources study for the proposed action. No precontact

resources were observed. Although the existing wells meet the general age requirement of 50 years for consideration as historic properties under Section 106 of the National Historic Preservation Act of 1966 (as amended) as historical resources, the Service determined that the wells do not meet the eligibility criteria for listing in the National Register of Historic Places. Consultation with the State Historic Preservation Officer (SHPO) was completed on November 10, 2020. The SHPO concurred with the Service's determination that the project be considered No Historic Properties Affected (36 CFR 800.4(d)(1)). However, because it cannot be entirely ruled out that archaeological cultural resources could be encountered during construction, the District would stop all ground-disturbing activities within 25 feet if an archaeological deposit were encountered during project subsurface demolition activities until a qualified archaeologist can determine the appropriate course of action.

6. Air Quality
    a. During demolition of the two abandoned irrigation wells, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, hauling, and other activities. Construction-related effects on air quality would be greatest during the site preparation phase due to the disturbance of soils necessary to clear the well area. In compliance with the SUP, vegetation around the well areas would be cleared primarily with hand tools, which would result in minimal amounts of pollutants. A backhoe would then be utilized to expose the well head and clear an area for the drilling equipment to setup over the well. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. The selected action includes mitigation measures for fugitive dust which means that construction activities would not result in adverse air quality impacts.
    b. In addition to dust-related PM10 emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO2, NOx, ROGs and some soot particulate (PM2.5 and PM10) in exhaust emissions. These emissions would be temporary and limited to the immediate area surrounding the construction site. The Proposed Action would have minor effects to air quality.

Measures to mitigate and/or minimize adverse effects are incorporated into the selected action. These measures are described above, under the Selected Action.

Refuges, by their nature, are unique areas protected for conservation of fish, wildlife, and habitat. The selected action will not have a significant impact on refuge resources and uses for several reasons:

1. The action will result in beneficial impacts to the human environment, with only negligible adverse impacts to the human environment as discussed above.
2. The adverse effects of the proposed action on air, water, soil, biological and cultural resources, geology, and noise are expected to be minor and short-term.
3. The action is not in an ecologically sensitive area;
4. The action will not adversely affect threatened or endangered species; or any Federally-designated critical habitat;
5. The action is not expected to impact any cultural or historical resources;
6. The action will not impact any wilderness areas;
7. There is no scientific controversy over the impacts of this action and the impacts of the proposed action are relatively certain.
8. The proposal is not expected to have significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988 because the project would take place in upland habitat.

Public Review

The proposal has been thoroughly coordinated with all interested and/or affected parties. The District notified local Native American tribes of the proposed action. Tribes have 30 days following notification of a project to request consultation with the lead agency. None of the tribes contacted for this project responded to the District's invitation to consult within the 30-day notification period.

On September 23, 2020, the Service released the EA for seven days of public review and comment. The public had the opportunity to review both the Initial Study/Mitigated Negative Declaration, which was prepared by the District and was available to the public during the month of September as well as the draft EA. The Service did not receive public comments on the draft EA.

Finding of No Significant Impact

Based upon a review and evaluation of the information contained in the EA as well as other documents and actions of record affiliated with this proposal, the Service has determined that issuing a SUP to the Alameda County Water District for the removal of two legacy irrigation wells on the Don Edwards San Francisco Bay National Wildlife Refuge does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102 (2) (c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required.

Decision

The Service has decided to issue a SUP to the District that would allow construction of the project to begin in December 2020.

Assistant Regional Director, Refuges

ALAMEDA COUNTY WATER DISTRICT
43885 South Grimmer Blvd. • P.O. Box 5110
Fremont, CA 94537-5110
Permitting & Scheduling (510) 668-4460

APPLICATION FOR DRILLING PERMIT

ACWD ORDINANCE NO. 2010-01

Application Received Date: 12/14/20 By: MS | Permit Issued Date: 12/16/20 | Permit Expiration Date: 2/16/21 | Job No. 21246 | Permit No. 2020-0462 | Well No. 5S/2W-02D001

JOB ADDRESS: APN 092A0501 03413 USFWS PROPERTY
8650 JARVIS AVE, NWK @ OLD JARVIS RD

PROPERTY OWNER
NAME: US Fish & Wildlife
ADDRESS: 1 MARSHLANDS ROAD
FREMONT
TELEPHONE: (510) 377-8375

CONSULTING ENGINEER
NAME: ACWD
ADDRESS: 43885 SOUTH GRIMMER BLVD
FREMONT
TELEPHONE: 510 651-1760 RG/CEG/RCE NO.

DRILLING CONTRACTOR
NAME: Nor-Cal Pump & Well Drilling, Inc.
ADDRESS: 1325 Barry Rd
Yuba City, CA 95993
E-MAIL ADDRESS: norcalpump@yahoo.com
TELEPHONE: (530) 674-5861 STATE LIC. NO. 908591

When properly signed

THIS APPLICATION IS A VALID PERMIT

to perform only work described below at the given job address, in accordance with ACWD Ordinance No. 2010-01 and all other applicable laws and regulations. Discontinuation of work may result in revocation of permit. ***Permittee must schedule the work in advance with ACWD.*** *ACWD's approval of drawings, designs, specifications, work plans, reports or incidental work and materials shall not relieve the permittee of responsibility for the technical adequacy of the work. Except for special circumstances, all work to be inspected must be performed within ACWD work hours – 7:00 a.m. to 4:30 p.m., Monday through Friday.*

PLEASE CHECK TYPE OF PROPOSED WORK
Each well or other excavation requires a separate permit application form unless otherwise indicated.
Only one specific type of work can be checked per permit application.

WELLS
☐ CONSTRUCTION ☐ REPAIR ☒ DESTRUCTION

☒ Water Well

Monitoring Well:
- ☐ Chemical Investigation
- ☐ Injection Well (for Chemical Cleanup)
- ☐ Geotechnical Investigation

☐ Geothermal Heat Exchange Well

☐ Dewatering Well *(Multiple dewatering wells may be grouped together on the same permit application form)*
Quantity: _____

EXPLORATORY HOLES
☐ CONSTRUCT./DESTRUCT.

Multiple exploratory holes of the same type may be grouped together on the same permit application form.
- ☐ Chemical Investigation
- ☐ Injection Boreholes
- ☐ Soil Vapor Sampling
- ☐ Geotechnical Investigation

Quantity: _____

OTHER EXCAVATIONS
☐ CONSTRUCTION ☐ REPAIR ☐ DESTRUCTION

- ☐ Cathodic Protection Well
- ☐ Inclinometer
- ☐ Vibrating Wire Piezometer
- ☐ Elevator Shaft

Multiple other excavations of the same type may be grouped together on the same permit application form for the following:
- ☐ Cleanup Site Excavation(s)
- ☐ Wick Drains
- ☐ Shaft, Tunnel, or Directional Borehole (s)
- ☐ Support Piers, Piles, or Caissons
- ☐ Other: _____ Quantity: _____

DESCRIPTION OF PROPOSED WORK:
See attached work plan.

TOTAL ESTIMATED COST
$_____

PERMIT CONDITIONS:
~~Monitoring~~ WATER Well Destruction to comply with attached Specs and current ACWD Standards

FEES: ☐ Private ☐ City ☒ Governmental Agency

GUARANTEE OF PERFORMANCE: ☐ Cash Deposit ☐ Bond

REFUND: Amount $_____ Reason: _____

FEES/DEPOSIT: Date Received _____ Estimated Amount $_____
Check No. _____ Actual Amount $_____
Cash _____ Difference $ N/A

ACWD SITE NO. N/A
APPROVED FOR SCHEDULING BY: [signature] DATE: 12/17/20
APPROVED BY: [signature] DATE: 12/17/20

I hereby agree to comply with all conditions of this permit in accordance with ACWD Ordinance No. 2010-01 and to furnish the District a completed copy of D.W.R. Drillers Report (form 188) within sixty (60) days after completion as well as any chemical testing results within thirty (30) days after completion.

Title: Vice President Signature: [signature] Date: 12/09/2020

Representing: Nor-Cal Pump & Well Drilling, Inc. Name (printed): Harkrishan Heer

ACWD #458 11-12

ALAMEDA COUNTY WATER DISTRICT
43885 South Grimmer Blvd. • P.O. Box 5110
Fremont, CA 94537-5110
Permitting & Scheduling (510) 668-4460

APPLICATION FOR DRILLING PERMIT

ACWD ORDINANCE NO. 2010-01

Application Received Date: 12/14/20	By: AS	Permit Issued Date: 12/16/20	Permit Expiration Date: 2/10/21	Job No. 21246	Permit No. 2020-0103 Well No. 5S/2W-02D05

JOB ADDRESS: APN 092A0501034116 USFWS PROPERTY
8650 JARVIS AVE, NWK @ OLD JARVIS RD

PROPERTY OWNER
NAME: US Fish & Wildlife
ADDRESS: 1 MARSHLANDS RD FREMONT
TELEPHONE: 510 377-8375

CONSULTING ENGINEER
NAME: ACWD
ADDRESS: 43885 South Grimmer Blvd Fremont
TELEPHONE: 510 651-1760 RG/CEG/RCE NO.

DRILLING CONTRACTOR
NAME: Nor-Cal Pump & Well Drilling, Inc.
ADDRESS: 1325 Barry Rd
Yuba City, CA 95993
E-MAIL ADDRESS: norcalpump@yahoo.com
TELEPHONE: (530) 674-5861 STATE LIC. NO. 908591

When properly signed

THIS APPLICATION IS A VALID PERMIT

to perform only work described below at the given job address, in accordance with ACWD Ordinance No. 2010-01 and all other applicable laws and regulations. Discontinuation of work may result in revocation of permit. ***Permittee must schedule the work in advance with ACWD.*** *ACWD's approval of drawings, designs, specifications, work plans, reports or incidental work and materials shall not relieve the permittee of responsibility for the technical adequacy of the work. Except for special circumstances, all work to be inspected must be performed within ACWD work hours – 7:00 a.m. to 4:30 p.m., Monday through Friday.*

PLEASE CHECK TYPE OF PROPOSED WORK
Each well or other excavation requires a separate permit application form unless otherwise indicated.
Only one specific type of work can be checked per permit application.

WELLS	EXPLORATORY HOLES	OTHER EXCAVATIONS
☐ CONSTRUCTION ☐ REPAIR ☒ DESTRUCTION	☐ CONSTRUCT./DESTRUCT.	☐ CONSTRUCTION ☐ REPAIR ☐ DESTRUCTION
☒ Water Well	*Multiple exploratory holes of the same type may be grouped together on the same permit application form.*	☐ Cathodic Protection Well ☐ Inclinometer
Monitoring Well:		☐ Vibrating Wire Piezometer ☐ Elevator Shaft
☐ Chemical Investigation	☐ Chemical Investigation	*Multiple other excavations of the same type may be grouped together on the same permit application form for the following:*
☐ Injection Well (for Chemical Cleanup)	☐ Injection Boreholes	☐ Cleanup Site Excavation(s) ☐ Wick Drains
☐ Geotechnical Investigation	☐ Soil Vapor Sampling	☐ Shaft, Tunnel, or Directional Borehole (s) ☐ Support Piers, Piles, or Caissons
☐ Geothermal Heat Exchange Well	☐ Geotechnical Investigation	
☐ Dewatering Well *(Multiple dewatering wells may be grouped together on the same permit application form)*		
Quantity:	Quantity:	☐ Other: Quantity:

DESCRIPTION OF PROPOSED WORK:
See attached work plan.

TOTAL ESTIMATED COST
$

PERMIT CONDITIONS:
~~Monitoring~~ Water Well Destruction to comply with attached Specs and current ACWD Standards.

FEES: ☐ Private ☐ City ☒ Governmental Agency
GUARANTEE OF PERFORMANCE: ☐ Cash Deposit ☐ Bond
REFUND: Amount $ Reason:

FEES/DEPOSIT: Date Received Estimated Amount $
Check No. Actual Amount $
Cash Difference $ N/A

ACWD SITE NO. N/A
APPROVED FOR SCHEDULING BY: FOR DATE: 12/17/20
APPROVED BY: 12/17/20 DATE: 12/17/20

I hereby agree to comply with all conditions of this permit in accordance with ACWD Ordinance No. 2010-01 and to furnish the District a completed copy of D.W.R. Drillers Report (form 188) within sixty (60) days after completion as well as any chemical testing results within thirty (30) days after completion.

Title: VICE - PRESIDENT Signature: Date: 12/09/2020

Representing: Nor-Cal Pump & Well Drilling, Inc. Name (printed): Harkrishan Heer

ACWD #458 11-12

Don Edwards San Francisco Bay National Wildlife Refuge
General Activities Special Use Permit

Permit #: 2020-12 revised

(For Official Use Only)

Permit Term: From: 12/10/2020 To: 3/1/2021

1) Permittee Name/Business: Douglas Young, Alameda County Water District

2) Permit Activity Type: Access for the purpose of well destruction at Mayhews Landing

2) Permit Status:
- [x] Approved — *If approved, provide special conditions (if any) in the text box below.*
- [ ] Denied — *If denied, provide justification in the text box below.*

This project is for the destruction of two abandoned legacy irrigation wells at the Mayhews Unit of Don Edwards San Francisco Bay NWR. At each of the well sites, the well will be exposed and any debris will be drilled out to the total depth of the well.Due to the age of the wells and the expected poor condition of the steel material of the well, explosive detonation or mechanical perforations, and neat cement or a sand cement slurry grout will be used to seal each well. Access subject to conditions on the next page and in the Biological Evaluation SFB-2018-1 dated June 20, 2018.

3) Are there additional special conditions attached to the permit? (•) Yes ( ) No ( ) N/A

4) Are other licenses/permits required, and have they been verified? (•) Yes ( ) No ( ) N/A

5) Are Insurance and/or Certification(s) required, and have they been verified? ( ) Yes (•) No ( ) N/A

6) Record of Payments: ( ) Full ( ) Partial (•) Exempt

7) Is a surety bond or security deposit required? ( ) Yes ( ) No (•) N/A

This permit is issued by the U.S. Fish and Wildlife Service and accepted by the applicant signed below, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the notice, conditions, and requirements included or attached. A copy of this permit should be kept on-hand so that it may be shown at any time to any refuge staff

8) Permit approved/issued by: (Signature and title)

Rachel Tertes

Date: 12/10/20

9) Permit accepted by: (Signature of permittee)

Date: 12/14/20

General Conditions and Requirements

1) Responsibility of Permittee: The permittee, by operating on the premises, shall be considered to have accepted these premises with all facilities, fixtures, or improvements in their existing condition as of the date of this permit. At the end of the period specified or upon earlier termination, the permittee shall give up the premises in as good order and condition as when received except for reasonable wear, tear, or damage occurring without fault or negligence. The permittee will fully repay the Service for any and all damage directly or indirectly resulting from negligence or failure on his/her part, and/or the part of anyone of his/her associates, to use reasonable care.

2) Operating Rules and Laws: The permittee shall keep the premises in a neat and orderly condition at all times, and shall comply with all municipal county, and State laws applicable to the operations under the permit as well as all Federal laws, rules, and regulations governing national wildlife refuges and the area described in this permit. The permittee shall comply with all instructions applicable to this permit issued by the refuge official in charge. The permittee shall take all reasonable precautions to prevent the escape of fires and to suppress fires and shall render all reasonable assistance in the suppression of refuge fires.

3) Use Limitations: The permittee's use of the described premises is limited to the purposes herein specified and does not, unless provided for in this permit, allow him/her to restrict other authorized entry onto his/her area; and allows the U.S. Fish and Wildlife Service to carry on whatever activities are necessary for: (1) protection and maintenance of the premises and adjacent lands administered by the U.S. Fish and Wildlife Service; and (2) the management of wildlife and fish using the premises and other U.S. Fish and Wildlife Service lands.

4) Transfer of Privileges: This permit is not transferable, and no privileges herein mentioned may be sublet or made available to any person or interest not mentioned in this permit. No interest hereunder may accrue through lien or be transferred to a third party without the approval of the Regional Director of the U.S. Fish and Wildlife Service and the permit shall not be used for speculative purposes.

5) Compliance: The U.S. Fish and Wildlife Service's failure to require strict compliance with any of this permit's terms, conditions, and requirements shall not constitute a waiver or be considered as a giving up of the U.S. Fish and Wildlife Service's right to thereafter enforce any of the permit's terms or conditions.

6) Conditions of Permit not Fulfilled: If the permittee fails to fulfill any of the conditions and requirements set forth herein, the U.S. Fish and Wildlife Service shall retain all money paid under this permit to be used to satisfy as much of the permittee's obligation as possible.

7) Payments: All payment shall be made on or before the due date to the local representative of the U.S. Fish and Wildlife Service by a postal money order or check made payable to the U.S. Fish and Wildlife Service.

8) Termination Policy: At the termination of this permit the permittee shall immediately give up possession to the U.S. Fish and Wildlife Service representative, reserving, however, the rights specified in paragraph 11 below. If he/she fails to do so, he/she will pay the U.S. Fish and Wildlife Service, as liquidated damages, an amount double the rate specified in this permit for the entire time possession is withheld. Upon yielding possession, the permittee will still be allowed to reenter as needed to remove his/her property as stated in paragraph 11 below. The acceptance of any fee for the liquidated damages or any other act of administration relating to the continued tenancy is not to be considered as an affirmation of the permittee's action nor shall it operate as a waiver of the U.S. Fish and Wildlife Service's right to terminate or cancel the permit for the breach of any specified condition or requirement.

9) Revocation Policy: The Regional Director of the U.S. Fish and Wildlife Service may revoke this permit without notice for noncompliance with the terms hereof, or for violation of general and/or specific laws or regulations governing national wildlife refuges, or for nonuse. It is at all times subject to discretionary revocation by the Director of the Service. Upon such revocation the U.S. Fish and Wildlife Service, by and through any authorized representative, may take possession of said premises for its own and sole use, and/or may enter and possess the premises as the agent of the permittee and for his/her account.

10) Damages: The U.S. Fish and Wildlife Service shall not be responsible for: any loss or damage to property including but not limited to crops, animals, and machinery; injury to the permittee or his/her relatives or to the officers, agents, employees, or any other(s) who are on the premises from instructions; the sufferance from wildlife or employees or representatives of the U.S. Fish and Wildlife Service carrying out their official responsibilities. The permittee agrees to hold the U.S. Fish and Wildlife Service harmless from any and all claims for damages or losses that may arise to be incident to the flooding of the premises resulting from any associated government river and harbor, flood control, reclamation, or Tennessee Valley Authority activity.

11) Removal of Permittee's Property: Upon the expiration or termination of this permit, if all rental charges and/or damage claims due to the U.S. Fish and Wildlife Service have been paid, the permittee may, within a reasonable period as stated in the permit or as determined by the U.S. Fish and Wildlife Service official in charge, but not to exceed 60 days, remove all structures, machinery, and/or equipment, etc., from the premises for which he/she is responsible. Within this period the permittee also must remove any other of his/her property including his/her acknowledged share of products or crops grown, cut, harvested, stored, or stacked on the premises. Upon failure to remove any of the above items within the aforesaid period, they shall become the property of the U.S. Fish and Wildlife Service.

Douglas Young, ACWD
43885 S. Grimmer Blvd.
Fremont, CA 94538
510 668 4452

This permit applies to work on Don Edwards San Francisco Bay National Wildlife Refuge lands portion of the project "Old Jarvis Road Irrigation Well Destruction Project". Permit is subject to all conditions listed in the Biological Evaluation dated June 20, 2018 and conditions listed below.

FOR ANY LAW ENFORCEMENT ISSUES PLEASE CALL DISPATCH AT 415-561-5510. BE PREPARED TO EXPLAIN WHO AND WHERE YOU ARE.

1. PLEASE NOTE THAT DRONE (UAS/UAV) USE IS NOT PERMITTED ON THE REFUGE WITHOUT SPECIAL PERMISSIONS.
2. Permittee or designee must carry a copy of permit and the research / study proposal when on Refuge lands. Permittees and designees will place the appropriate placard on the dashboard of all vehicles while on the Refuge and behind locked gates.
3. Access is for permittee plus assistants by boat in sloughs or by vehicle on the pond system levees.
4. Permittee may not drive on levees for 5 days after any rain or under conditions that may damage the levee. When permittee encounters visitors on Refuge trails, speed will be reduced to prevent dust and unnecessary disturbance of visitors.
5. One refuge barrel lock key(s) (#0137) will be loaned to the permittee and will be returned within two weeks of the termination of this permit or a late fee of $50.00 per key will be assessed. Lost keys will result in a fine of $100.00 per key.
6. All gates opened must immediately be shut and locked behind you. TAKE CARE NOT TO LOCK OUT ANY OTHER LOCKS IN THE CHAIN LOOP.
7. Access to dry ponds, levees, or islands used by snowy plovers and other nesting birds will be limited during the breeding season, 1 March to 15 Sept. Exceptions to this must be cleared by Refuge biologists prior to access.
8. Foot access into salt marsh habitat is prohibited except on boardwalks, railroad grades, and similar structures. However, no access to the marsh along these features will be allowed during the California clapper rail breeding season, 1 February to August 31. Marsh access along these features is also not permitted during extreme high tide events (>6.5 at GG) to reduce impacts to tidal marsh species looking for refugia. Exceptions to this must be cleared by Refuge biologists prior to access.
9. Permittee will not interfere with ongoing Dept. of Agriculture-Wildlife Service's predator management activities. Permittee will not interfere with work by Cargill Salt Division or Refuge visitors using public trails.
10. All work will be conducted in a manner which minimizes disturbance to wildlife and damage to wetland habitat. Noise must be minimized to prevent wildlife disturbance.
11. Permittee will immediately report any active burrowing owl burrows to Refuge Biologists.
12. Permittee will immediately report all sightings or feral cats, dogs, red fox, or active raven and hawk nests (on PG&E towers) observed on the Refuge. Fox dens will not be approached or searched.

13. Data will be shared with the Refuge and partners on a regular basis during the permit period. A final report or summary of work will be sent to the refuge manager upon completion of the research.
14. The U.S. Fish and Wildlife Service and the Don Edwards San Francisco Bay National Wildlife Refuge will be acknowledged in any report, publication, or communication resulting from this permit. A copy of any reports or publications from this data will be sent to the Refuge.

Per Biological Evaluation SFB-2018-1

General Conservation Measures

1. A worker awareness program will be presented to all construction personnel before they start work on the project. The program shall summarize relevant laws and regulations that protect biological resources, discuss sensitive habitats and listed species with the potential to occur in the work zone, explain the role and authority of the biological monitors, and review applicable avoidance measures to protect listed species and habitats.
2. Prior to any construction activities onsite, a review of all required permits and notifications will be performed to ensure requirements for environmental compliance are fully understood, specific limits of activities and work are defined and understood, and all environmental clearances and access, encroachment agreements, and permissions have been obtained from the appropriate agencies and parties.
3. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal.
4. Pre-construction surveys for special-status plant and wildlife species that are known or have a high potential to occur in the project area will be conducted prior to construction by Service staff.
5. Prior to construction activities, environmentally sensitive areas will be flagged or fenced in order to clearly delineate the extent of the construction. Project limits will be established and defined with physical markers to define access routes and maintenance areas to the minimum area necessary to complete the project; this includes locating access routes and maintenance areas outside of any drainages or creeks.
6. To reduce potential impacts from infestation by non-native Spartina, pepperweed, and other invasive, non-native plant species, all equipment (including personal gear) will be inspected and cleaned of soil, seeds, and plant material prior to arriving on site to prevent introduction of undesirable plant species. Equipment and personal gear will be subject to inspection.
7. All work will occur during normal daylight working hours.
8. All foods and food-related trash items will be enclosed in sealed trash containers and removed from the site at the end of each workday.
9. No pets will be allowed on the project site.
10. All equipment will be maintained such that there will be no leaks of machine fluids such as gasoline, diesel, or oils.
11. Place equipment left on project site overnight over plastic mats in order to prevent fluid leakage into soils.
12. Hazardous materials such as fuels and oils will be stored in sealable containers in a designated location that is at least 200 feet from any aquatic habitat.

13. Oil and other hazmat spill contingency plans must be implemented.
14. All equipment and personnel should stay within designated project site area to avoid disturbing sensitive species.
15. To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6 inches deep will be secured against animal entry at the close of each day. Methods that can be employed include: covering holes with plywood or similar materials, providing escape ramps, or surrounding the hole/trench with filter fabric fencing to exclude wildlife.

California Ridgway's Rail Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the California Ridgway's rail and suitable habitat.

1. Work activities within 50 feet of potential California clapper rail habitat will not occur within two hours before or after extreme high tides (6.5 feet or above measured at the Golden Gate Bridge adjusted to the timing of local high tides) or when the marsh plain is inundated, which could prevent individuals from reaching available cover.
2. Project will not be conducted during the Ridgway's rail breeding season (February 1-August 31) to avoid impacts to breeding adults, chicks and eggs.

Salt Marsh Harvest Mouse Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the salt marsh harvest mouse and their habitats.

1. All wetland vegetation within the project area and within a 2-foot buffer around the project area shall be removed by hand using only non-mechanized hand tools (*i.e.*, trowel, hoe, rake, and shovel) or weed whacker prior to the initiation of work within these areas. Vegetation shall be removed to bare ground or stubble no higher than 1 inch. Vegetation removal shall start at the center of the project area and work its way towards the salt marsh or the better salt marsh habitat.
2. To minimize or avoid the loss of individual salt marsh harvest mice, construction activities will not occur within two hours before or after extreme high tides (6.5' or above, as measured at the Golden Gate Bridge adjusting to the timing of local tides), when the marsh plain is inundated, because protective cover for mice is limited and activities could prevent them from reaching available cover or push them into the project area.
3. To prevent salt marsh harvest mice from moving through the proposed project site during construction, temporary exclusion fencing shall be placed around a defined work area prior to the start of construction activities. The temporary exclusion fencing shall be installed immediately after the hand removal of all wetland vegetation (as described above) from the work area and a 2-foot buffer around the work area for each well (approximately 90 feet by 60 feet; see Task 3). The fence shall be made of a heavy plastic sheeting material that does not allow salt marsh harvest mice to pass through or climb, and the bottom shall be buried to a depth of 4 inches so that salt marsh harvest mouse cannot crawl under the fence. Fence height shall be at least 12 inches higher than the highest adjacent vegetation with a maximum height of 4 feet. All supports for the

exclusion fencing shall be placed on the inside of the work area. Once work is completed for a well, the fencing should be removed and put in place around the next well.

4. Before the start of work each day, an approved worker will check for animals in or under any equipment and vehicles within the project area. If a salt marsh harvest mouse is encountered, work will stop, and the Service and CDFW will be notified immediately for guidance on how to proceed.


55/2W-02D001
55/2W-02D005

ACWD
ALAMEDA COUNTY WATER DISTRICT

Well Locations

From: Douglas Young
To: Conkle, Diana@Waterboards
Subject: RE: CEQA Clearance for Agreement D1712501
Date: Thursday, January 7, 2021 9:06:55 AM

EXTERNAL:

Fantastic. Thank You

From: Conkle, Diana@Waterboards <Diana.Conkle@waterboards.ca.gov>
Sent: Thursday, January 7, 2021 8:55 AM
To: Douglas Young <Douglas.Young@acwd.com>
Subject: CEQA Clearance for Agreement D1712501

Hi Doug,

Just letting you know that I got the necessary clearance on the CEQA documents for the well destruction project. You are good to go. There is no need to alter your field schedule.

Thanks,

Diana Conkle
Engineering Geologist
State Water Resources Control Board
Division of Financial Assistance
Phone: (916) 341-5660

Permit #: 2021-24

Don Edwards San Francisco Bay National Wildlife Refuge
General Activity
Special Use Permit

(For Official Use Only)

Permit Term:

From: 9/1/2021 To: 12/31/2021

Permittee Name/Business: Douglas Young/ACWD
Permit Activity Type: General - Access
Permit Status: Approved

If approved, provide special conditions (if any) in the text box below.
If denied, provide justification below.

Renewal of SUP 2020-12 revised. This project is for the destruction of abandoned legacy irrigation well 5S/2W-02D005 at the Mayhews Unit of Don Edwards San Francisco Bay NWR. ACWD and it's contractor will utilize the best alternative drilling and well perforation methods to destroy the old well by using a combination of neat cement or sand slurry mixture and detonation charges. The site will then be regraded to match the surrounding area. Access subject to conditions on the next page and in the Biological Evaluation SFB-2018-1 dated June 20, 2018.

1.	Are there additional special conditions attached to the permit?	☒ Yes	☐ No	☐ N/A
2.	Are other licenses/permits required, and have they been verified?	☒ Yes	☐ No	☐ N/A
3.	Are insurance and/or certification(s) required, and have they been verified?	☐ Yes	☐ No	☒ N/A
4.	Record of Payments:	☐ Full	☐ Partial	☒ Exempt
5.	Is a surely bond or security deposit required?	☐ Yes	☐ No	☒ N/A

This permit is issued by the U.S. Fish and Wildlife Service and accepted by the applicant signed below, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the notice, conditions, and requirements included or attached. A copy of this permit should be kept on-hand so that it may be shown at any time to any refuge staff

Permit approved/issued by: (Signature and title)
Rachel Tertes Wildlife Biologist
Date: 8/25/21

Permit accepted by: (Signature of permittee)
Groundwater Resources Manager
Date: 8/26/21

General Conditions and Requirements

1) Responsibility of Permittee: The permittee, by operating on the premises, shall be considered to have accepted these premises with all facilities, fixtures, or improvements in their existing condition as of the date of this permit. At the end of the period specified or upon earlier termination, the permittee shall give up the premises in as good order and condition as when received except for reasonable wear, tear, or damage occurring without fault or negligence. The permittee will fully repay the Service for any and all damage directly or indirectly resulting from negligence or failure on his/her part, and/or the part of anyone of his/her associates, to use reasonable care.

2) Operating Rules and Laws: The permittee shall keep the premises in a neat and orderly condition at all times, and shall comply with all municipal county, and State laws applicable to the operations under the permit as well as all Federal laws, rules, and regulations governing national wildlife refuges and the area described in this permit. The permittee shall comply with all instructions applicable to this permit issued by the refuge official in charge. The permittee shall take all reasonable precautions to prevent the escape of fires and to suppress fires and shall render all reasonable assistance in the suppression of refuge fires.

3) Use Limitations: The permittee's use of the described premises is limited to the purposes herein specified and does not, unless provided for in this permit, allow him/her to restrict other authorized entry onto his/her area; and allows the U.S. Fish and Wildlife Service to carry on whatever activities are necessary for: (1) protection and maintenance of the premises and adjacent lands administered by the U.S. Fish and Wildlife Service; and (2) the management of wildlife and fish using the premises and other U.S. Fish and Wildlife Service lands.

4) Transfer of Privileges: This permit is not transferable, and no privileges herein mentioned may be sublet or made available to any person or interest not mentioned in this permit. No interest hereunder may accrue through lien or be transferred to a third party without the approval of the Regional Director of the U.S. Fish and Wildlife Service and the permit shall not be used for speculative purposes.

5) Compliance: The U.S. Fish and Wildlife Service's failure to require strict compliance with any of this permit's terms, conditions, and requirements shall not constitute a waiver or be considered as a giving up of the U.S. Fish and Wildlife Service's right to thereafter enforce any of the permit's terms or conditions.

6) Conditions of Permit not Fulfilled: If the permittee fails to fulfill any of the conditions and requirements set forth herein, the U.S. Fish and Wildlife Service shall retain all money paid under this permit to be used to satisfy as much of the permittee's obligation as possible.

7) Payments: All payment shall be made on or before the due date to the local representative of the U.S. Fish and Wildlife Service by a postal money order or check made payable to the U.S. Fish and Wildlife Service.

8) Termination Policy: At the termination of this permit the permittee shall immediately give up possession to the U.S. Fish and Wildlife Service representative, reserving, however, the rights specified in paragraph 11 below. If he/she fails to do so, he/she will pay the U.S. Fish and Wildlife Service, as liquidated damages, an amount double the rate specified in this permit for the entire time possession is withheld. Upon yielding possession, the permittee will still be allowed to reenter as needed to remove his/her property as stated in paragraph 11 below. The acceptance of any fee for the liquidated damages or any other act of administration relating to the continued tenancy is not to be considered as an affirmation of the permittee's action nor shall it operate as a waiver of the U.S. Fish and Wildlife Service's right to terminate or cancel the permit for the breach of any specified condition or requirement.

9) Revocation Policy: The Regional Director of the U.S. Fish and Wildlife Service may revoke this permit without notice for noncompliance with the terms hereof, or for violation of general and/or specific laws or regulations governing national wildlife refuges, or for nonuse. It is at all times subject to discretionary revocation by the Director of the Service. Upon such revocation the U.S. Fish and Wildlife Service, by and through any authorized representative, may take possession of said premises for its own and sole use, and/or may enter and possess the premises as the agent of the permittee and for his/her account.

10) Damages: The U.S. Fish and Wildlife Service shall not be responsible for: any loss or damage to property including but not limited to crops, animals, and machinery; injury to the permittee or his/her relatives or to the officers, agents, employees, or any other(s) who are on the premises from instructions; the sufferance from wildlife or employees or representatives of the U.S. Fish and Wildlife Service carrying out their official responsibilities. The permittee agrees to hold the U.S. Fish and Wildlife Service harmless from any and all claims for damages or losses that may arise to be incident to the flooding of the premises resulting from any associated government river and harbor, flood control, reclamation, or Tennessee Valley Authority activity.

11) Removal of Permittee's Property: Upon the expiration or termination of this permit, if all rental charges and/or damage claims due to the U.S. Fish and Wildlife Service have been paid, the permittee may, within a reasonable period as stated in the permit or as determined by the U.S. Fish and Wildlife Service official in charge, but not to exceed 60 days, remove all structures, machinery, and/or equipment, etc., from the premises for which he/she is responsible. Within this period the permittee also must remove any other of his/her property including his/her acknowledged share of products or crops grown, cut, harvested, stored, or stacked on the premises. Upon failure to remove any of the above items within the aforesaid period, they shall become the property of the U.S. Fish and Wildlife Service.

Douglas Young, ACWD
43885 S. Grimmer Blvd.
Fremont, CA 94538
510 668 4452

This permit applies to work on Don Edwards San Francisco Bay National Wildlife Refuge lands portion of the project "Old Jarvis Road Irrigation Well Destruction Project". Permit is subject to all conditions listed in the Biological Evaluation dated June 20, 2018 and conditions listed below.

FOR ANY LAW ENFORCEMENT ISSUES PLEASE CALL DISPATCH AT 415-561-5510. BE PREPARED TO EXPLAIN WHO AND WHERE YOU ARE.

1. PLEASE NOTE THAT DRONE (UAS/UAV) USE IS NOT PERMITTED ON THE REFUGE WITHOUT SPECIAL PERMISSIONS.
2. Permittee or designee must carry a copy of permit and the research / study proposal when on Refuge lands. Permittees and designees will place the appropriate placard on the dashboard of all vehicles while on the Refuge and behind locked gates.
3. Access is for permittee plus assistants by boat in sloughs or by vehicle on the pond system levees.
4. Permittee may not drive on levees for 5 days after any rain or under conditions that may damage the levee. When permittee encounters visitors on Refuge trails, speed will be reduced to prevent dust and unnecessary disturbance of visitors.
5. One refuge barrel lock key(s) (#0137) will be loaned to the permittee and will be returned within two weeks of the termination of this permit or a late fee of $50.00 per key will be assessed. Lost keys will result in a fine of $100.00 per key.
6. All gates opened must immediately be shut and locked behind you. TAKE CARE NOT TO LOCK OUT ANY OTHER LOCKS IN THE CHAIN LOOP.
7. Access to dry ponds, levees, or islands used by snowy plovers and other nesting birds will be limited during the breeding season, 1 March to 15 Sept. Exceptions to this must be cleared by Refuge biologists prior to access.
8. Foot access into salt marsh habitat is prohibited except on boardwalks, railroad grades, and similar structures. However, no access to the marsh along these features will be allowed during the California clapper rail breeding season, 1 February to August 31. Marsh access along these features is also not permitted during extreme high tide events (>6.5 at GG) to reduce impacts to tidal marsh species looking for refugia. Exceptions to this must be cleared by Refuge biologists prior to access.
9. Permittee will not interfere with ongoing Dept. of Agriculture-Wildlife Service's predator management activities. Permittee will not interfere with work by Cargill Salt Division or Refuge visitors using public trails.
10. All work will be conducted in a manner which minimizes disturbance to wildlife and damage to wetland habitat. Noise must be minimized to prevent wildlife disturbance.
11. Permittee will immediately report any active burrowing owl burrows to Refuge Biologists.
12. Permittee will immediately report all sightings or feral cats, dogs, red fox, or active raven and hawk nests (on PG&E towers) observed on the Refuge. Fox dens will not be approached or searched.

13. Data will be shared with the Refuge and partners on a regular basis during the permit period. A final report or summary of work will be sent to the refuge manager upon completion of the research.
14. The U.S. Fish and Wildlife Service and the Don Edwards San Francisco Bay National Wildlife Refuge will be acknowledged in any report, publication, or communication resulting from this permit. A copy of any reports or publications from this data will be sent to the Refuge.

Per Biological Evaluation SFB-2018-1

General Conservation Measures

1. A worker awareness program will be presented to all construction personnel before they start work on the project. The program shall summarize relevant laws and regulations that protect biological resources, discuss sensitive habitats and listed species with the potential to occur in the work zone, explain the role and authority of the biological monitors, and review applicable avoidance measures to protect listed species and habitats.
2. Prior to any construction activities onsite, a review of all required permits and notifications will be performed to ensure requirements for environmental compliance are fully understood, specific limits of activities and work are defined and understood, and all environmental clearances and access, encroachment agreements, and permissions have been obtained from the appropriate agencies and parties.
3. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal.
4. Pre-construction surveys for special-status plant and wildlife species that are known or have a high potential to occur in the project area will be conducted prior to construction by Service staff.
5. Prior to construction activities, environmentally sensitive areas will be flagged or fenced in order to clearly delineate the extent of the construction. Project limits will be established and defined with physical markers to define access routes and maintenance areas to the minimum area necessary to complete the project; this includes locating access routes and maintenance areas outside of any drainages or creeks.
6. To reduce potential impacts from infestation by non-native Spartina, pepperweed, and other invasive, non-native plant species, all equipment (including personal gear) will be inspected and cleaned of soil, seeds, and plant material prior to arriving on site to prevent introduction of undesirable plant species. Equipment and personal gear will be subject to inspection.
7. All work will occur during normal daylight working hours.
8. All foods and food-related trash items will be enclosed in sealed trash containers and removed from the site at the end of each workday.
9. No pets will be allowed on the project site.
10. All equipment will be maintained such that there will be no leaks of machine fluids such as gasoline, diesel, or oils.
11. Place equipment left on project site overnight over plastic mats in order to prevent fluid leakage into soils.
12. Hazardous materials such as fuels and oils will be stored in sealable containers in a designated location that is at least 200 feet from any aquatic habitat.

13. Oil and other hazmat spill contingency plans must be implemented.
14. All equipment and personnel should stay within designated project site area to avoid disturbing sensitive species.
15. To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6 inches deep will be secured against animal entry at the close of each day. Methods that can be employed include: covering holes with plywood or similar materials, providing escape ramps, or surrounding the hole/trench with filter fabric fencing to exclude wildlife.

California Ridgway's Rail Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the California Ridgway's rail and suitable habitat.

1. Work activities within 50 feet of potential California clapper rail habitat will not occur within two hours before or after extreme high tides (6.5 feet or above measured at the Golden Gate Bridge adjusted to the timing of local high tides) or when the marsh plain is inundated, which could prevent individuals from reaching available cover.
2. Project will not be conducted during the Ridgway's rail breeding season (February 1-August 31) to avoid impacts to breeding adults, chicks and eggs.

Salt Marsh Harvest Mouse Conservation Measures

As part of the proposed Project, the following conservation measures will be implemented to avoid and minimize potential effects on the salt marsh harvest mouse and their habitats.

1. All wetland vegetation within the project area and within a 2-foot buffer around the project area shall be removed by hand using only non-mechanized hand tools (*i.e.*, trowel, hoe, rake, and shovel) or weed whacker prior to the initiation of work within these areas. Vegetation shall be removed to bare ground or stubble no higher than 1 inch. Vegetation removal shall start at the center of the project area and work its way towards the salt marsh or the better salt marsh habitat.
2. To minimize or avoid the loss of individual salt marsh harvest mice, construction activities will not occur within two hours before or after extreme high tides (6.5' or above, as measured at the Golden Gate Bridge adjusting to the timing of local tides), when the marsh plain is inundated, because protective cover for mice is limited and activities could prevent them from reaching available cover or push them into the project area.
3. To prevent salt marsh harvest mice from moving through the proposed project site during construction, temporary exclusion fencing shall be placed around a defined work area prior to the start of construction activities. The temporary exclusion fencing shall be installed immediately after the hand removal of all wetland vegetation (as described above) from the work area and a 2-foot buffer around the work area for each well (approximately 90 feet by 60 feet; see Task 3). The fence shall be made of a heavy plastic sheeting material that does not allow salt marsh harvest mice to pass through or climb, and the bottom shall be buried to a depth of 4 inches so that salt marsh harvest mouse cannot crawl under the fence. Fence height shall be at least 12 inches higher than the highest adjacent vegetation with a maximum height of 4 feet. All supports for the

exclusion fencing shall be placed on the inside of the work area. Once work is completed for a well, the fencing should be removed and put in place around the next well.

4. Before the start of work each day, an approved worker will check for animals in or under any equipment and vehicles within the project area. If a salt marsh harvest mouse is encountered, work will stop, and the Service and CDFW will be notified immediately for guidance on how to proceed.


55/2W-02D001
55/2W-02D005

ACWD
ALAMEDA COUNTY WATER DISTRICT

Well Locations

Appendix B – Photographic Log

Pre-Construction Photos

WELL 5S/2W-02D001

Photograph 1: View of Well 5S/2W-02D001 (D001) during well location efforts.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: July 5, 2018

Photograph 2: Staff from the Alameda County Water District (ACWD) and U.S. Fish and Wildlife Service recording the location of Well D001 with GPS equipment during low tide.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 26, 2019

Photograph 3: ACWD staff potholing to expose Well D001 during low tide.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 26, 2019

Photograph 4: View of Well D001 during on-site pre-bid meeting.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: November 2, 2020

WELL 5S/2W-02D005

Photograph 5: View of Don Edwards San Francisco Bay National Wildlife Refuge during well location efforts.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: June 4, 2019

Photograph 6: Mobilizing equipment to Well 5S/2W-02D005 (D005) site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 15, 2021

Photograph 7: Sign erected at gate of Project site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

During Construction Photos

WELL 5S/2W-02D001

Photograph 8: View of Well D001 following wildlife exclusion fencing installation.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 9: View of Well D001 following wildlife exclusion fencing installation.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 10: Tagging the depth of Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

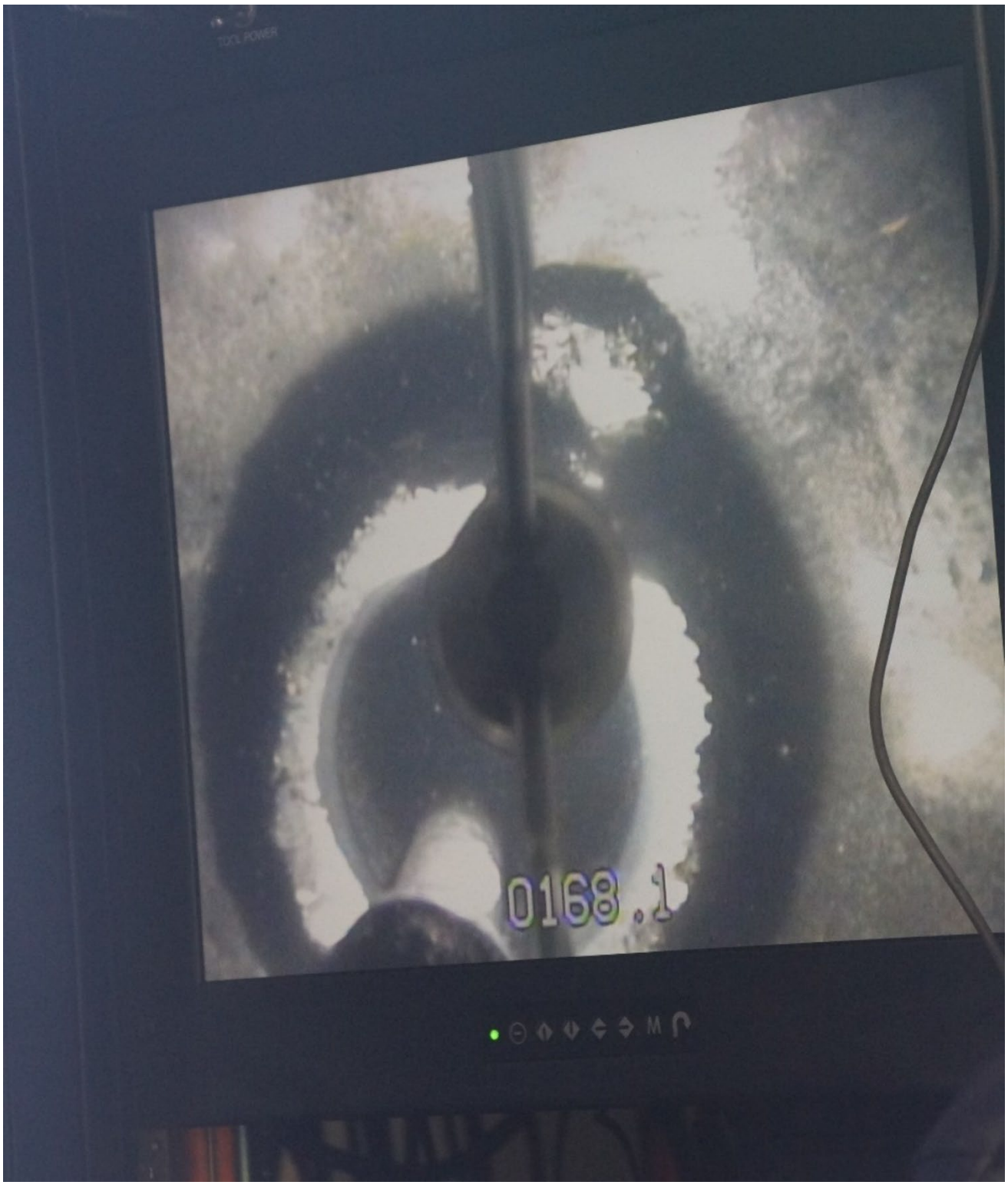
Photograph 11: View of Well D001 following wildlife exclusion fencing installation.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 12: Mobilization of equipment to the Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 13: Drill rig erected at the Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 22, 2020

Photograph 14: View of device used to perform video logging at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 22, 2020

Photograph 15: Video logging device, with centralizer, being lowered into Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 22, 2020



Photograph 16: View of video feed during video logging at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 22, 2020

Photograph 17: Equipment mobilized at the site of Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 18: View of Well D001 prior to well column pipe removal.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 19: Transporting material removed from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 20: Securing open hole at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 21: Secured open hole at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 22: View of support equipment at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 23: View of Well D001; an oily sheen was observed in the water emanating from Well D001.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 4, 2021

Photograph 24: Pulling column pipe using smeal rig at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 4, 2021

Photograph 25: Pulling column pipe using smeal rig at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 4, 2021

Photograph 26: Cutting the final column pipe from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 5, 2021

Photograph 27: Oil flows from the pipe during removal of final column pipe from Well D001 near pump bowl assemblies.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 5, 2021

Photograph 28: View of impacted water that had flowed from final column pipe at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 5, 2021

Photograph 29: View of piping and pump bowl assemblies removed from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 30: View of smeal rig erected at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 31: ACWD staff placing absorbent pads and plastic sheets to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: January 6, 2021

Photograph 32: ACWD staff placing absorbent pads and plastic sheets to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: January 6, 2021

Photograph 33: View of absorbent pads and plastic sheets used to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: January 6, 2021

Photograph 34: View of absorbent pads and plastic sheets used to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: January 6, 2021

Photograph 35: View of rig tool pipe catcher used to catch the pump column and bring it to the surface.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: January 6, 2021

Photograph 36: View of smeal rig deck stationed at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 37: View of drive shaft for line pump removed from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 38: View of column piping and pump bowl assemblies removed from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 39: View of smeal rig erected at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 6, 2021

Photograph 40: Absorbent pads and plastic sheets used to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 6, 2021

Photograph 41: View of Well D001; note oily sheen on water emanating from the well.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 6, 2021

Photograph 42: Absorbent pads and plastic sheets used to contain impacted water at Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 6, 2021

Photograph 43: Straw wattle used to buffer physically treated water prior to discharge at the Well D001 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 7, 2021

Photograph 44: Absorbent pads used to soak oil globules from onsite wastewater tank prior to discharge.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 7, 2021

Photograph 45: Absorbent pads used to soak oil globules from onsite wastewater tank prior to discharge.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Jeremy Bautista Date: January 7, 2021

Photograph 46: Buffering physically treated water through straw wattles prior to discharge.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 7, 2021

Photograph 47: Disposing of absorbent pads, plastic sheeting, and wattle used to manage impacted water.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Pablo Cortez Date: January 8, 2021

Photograph 48: Smeal rig at Well D001 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 8, 2021

Photograph 49: Buffering physically treated water through straw wattles prior to discharge.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 8, 2021

Photograph 50: Drill crew using absorbent pads to soak oil globules from onsite wastewater tank prior to discharge.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Pablo Cortez Date: January 8, 2021

Photograph 51: Smeal rig at close of site activities at Well D001 for the day.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 8, 2021

Photograph 52: Setting up for explosive well destruction activities at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Ava Lazor Date: January 14, 2021

Photograph 53: Setting up for explosive well destruction activities at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 14, 2021

Photograph 54: Setting up for explosive well destruction at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: January 14, 2021

Photograph 55: Lowering in detonation wire at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Ava Lazor Date: January 14, 2021

Photograph 56: Pumping grout into the borehole at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Ava Lazor Date: January 14, 2021

Photograph 57: Lowering in detonation wire at Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Ava Lazor Date: January 14, 2021

Photograph 58: View of top five feet of conductor casing removed from Well D001.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 15, 2021

Photograph 59: Sweeping sidewalk at entrance to site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: February 4, 2021

WELL 5S/2W-02D005

Photograph 60: View of Well D005 following wildlife exclusion fencing installation.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 61: View of Well D005 following wildlife exclusion fencing installation.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: December 21, 2020

Photograph 62: View of wildlife exclusion fencing installed at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 63: View of drill rig stationed at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 64: Discharge piping removed from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 65: Discharge piping removed from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 66: Attempting to remove well appurtenances from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 67: Attempting to remove well appurtenances from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 68: View of well appurtenances removed from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 69: Welding a pulling eye onto the drive rod in order to attempt to remove it.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 70: Using backhoe to excavate soil around Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 71: Downhole view at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 72: Using backhoe to excavate soil around Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 73: Erecting drill rig at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: December 23, 2020

Photograph 74: Setting up equipment to Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: January 19, 2021

Photograph 75: Setting up equipment to Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: January 19, 2021

Photograph 76: Setting up equipment at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: January 19, 2021

Photograph 77: Portion of pipe removed from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 20, 2021

Photograph 78: Drilling contractor at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 20, 2021

Photograph 79: Concrete blockage encountered at Well D005 (ID card for scale).
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 20, 2021

Photograph 80: Drilling contractor working to remove blockages encountered at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: January 20, 2021

Photograph 81: Downhole view at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: February 1, 2021

Photograph 82: Covered borehole at Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Unknown Date: February 3, 2021

Photograph 83: Covered spoils at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: February 4, 2021

Photograph 84: Covered and locked borehole at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: February 4, 2021

Photograph 85: Wildlife exclusion fencing at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: February 4, 2021

Photograph 86: Securing Well D005 prior to destruction, limited site restoration.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: February 9, 2021

Photograph 87: Securing Well D005, limited site restoration prior to regrouping on the approach to destroy the well.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Pablo Cortez Date: February 25, 2021

Photograph 88: Setting up equipment in preparation for barrier well installation at Well D005 site.

Final Project Report, Old Jarvis Road Irrigation Well Destruction Project

Photographed by Douglas Young Date: September 28, 2021

Photograph 89: Setting up drill rig in preparation for barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 28, 2021

Photograph 90: View of soil cuttings from barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 28, 2021

Photograph 91: Casing installation for barrier wells at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 28, 2021

Photograph 92: Containment of cuttings during barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 29, 2021

Photograph 93: Logged soil samples during barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: September 29, 2021

Photograph 94: View of in-progress barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: September 30, 2021

Photograph 95: View of barrier well installation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 1, 2021

Photograph 96: Lowering detonation wire into barrier wells at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 6, 2021

Photograph 97: View of barrier wells following detonation at Well D005 site.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 6, 2021

Photograph 98: View of casings following destruction of Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 6, 2021

Photograph 99: Top five feet of casing removed from Well D005.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 7, 2021

Photograph 100: Excavation at Well D005 following removal of top five feet of casing.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 7, 2021

Post-Construction Photos

WELL 5S/2W-02D001

Photograph 101: View of Well D001 site following site restoration.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: January 15, 2021

Photograph 102: View of Well D001 site following site restoration.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Anton Shorno Date: January 19, 2021

Photograph 103: Moving equipment offsite during partial demobilization.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Jeremy Bautista Date: February 9, 2021

Photograph 104: Well D001 site following site restoration activities.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Douglas Young Date: February 25,2021

WELL 5S/2W-02D005

Photograph 105: View of Well D005 site immediately following backfill.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 7, 2021

Photograph 106: View of Well D005 site following site restoration.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 8, 2021

Photograph 107: View of Well D005 site following site restoration.
Final Project Report, Old Jarvis Road Irrigation Well Destruction Project
Photographed by Pablo Cortez Date: October 8, 2021

Appendix C – Field Notes and Forms

Monitoring Well Destruction

Inspector: Andrew Stevens
Permit No.: 2020-0403 B2 JB
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 12/21/20
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: 1060
Contractor Departure Time:
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: FENCE UP BOTH LOCATIONS, LID OFF

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☐ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

10:30 ARRIVED ON SITE. 1220 LEFT SITE. DRILL CREW ONSITE
1420 DRILL CREW SET UP FENCE AND TAGGED
1600 DRILL RIG ARRIVES ON SITE, PUTTING MATS DOWN
1700 EVERYONE LEFT SITE. LOCKED GATE.
*FENCE WAS DOWN WITH A DITCH WITCH TO 1 FT DOWN AND STAKE POSTS WERE HAMMERED IN. FENCE WAS COVERED

Monitoring Well Destruction

Inspector: Andrew Stevens **Permit No.:** 2020-4082 JB

Job No.: 21246 **Well No.:** 5S/2W-02D001

Date: _____ **Other Well ID:** _____

Job Location: USFWS Property @ Old Jarvis Rd

Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
DR [redacted] (IR TH60)	

Contractor Arrival Time: _____ Contractor Departure Time: _____

Daily Start Depth: _____ ft. Daily Finish Depth: _____ ft.

Daily Drill Bit Size(s): _____

Work Completed Summary: _____

ACWD Meter No.: n/a **Beginning Meter Reading:** _____ **End Meter Reading:** _____

Pictures Taken: ☐ YES ☐ NO File Location: _____

Visitors to Job Site: _____

Delays/Accidents: _____

Destruction Notes

0730 ARRIVED ON SITE OPENED GATE FOR NUCLEAL JOSE AND BRIAN

0815 - PLACE JAMP UNDER RIG THEY NEED WATER. HAVE 225 FT OF PIPE AND 7 7/8 INCH BIT. MENTION THEY NEED BIGGER BIT YESTERDAY THEY TAGGED WELL AT 423 FT SO 27 FT OF SLUDGE. LEFT SITE.

0930 ARRIVED BACK TO SITE. SEND DOWN SITE PHOTOS OF FENCE

1030 LEAVE SITE STILL SETTING UP TO BEGIN DRILLING CONTROL CASING

1255 KS- Arrived @ site - met w/ Han Heer.
- Crew is still mobilizing equipment to site
- they plan to video log the 2 wells
- they will also excavate and locate D005

Monitoring Well Destruction Notes

Inspector: **Permit No.:** 0

1445 - @ D005 - digging with shovel (Norcal crew)
- the location indicated by a stake seems to be where a rusty barrel (steel) is - very deteriorated condition
- diameter ≈ 2.5' and dug to ≈ 3.5' where the barrel ends - dug out
- @ 4' or so - encountered a 2-4" pvc pipe (gravel pipe?) - this may be the well? will come back to this location after D001 is drilled out.

215 - pinged DY, he is coming out to the site.

235 - Crew working on rig and getting things ready for tomorrow

321 Ray Farell of Pacific Surv arrives to camava log hole. Casing appears to be open and clear Camava logged hole, noted drive pipe @ 158' down. Drive sleve casing at 167' down.

415 - Pacific Surv leaves site

420 - Secured well with steel plate with rig kelly on top

425 - Drillers leave site

2:45 - DY arrives on-site

Monitoring Well Destruction

Inspector: _____ **Permit No.:** 2020-4032 JB

Job No.: 21246 **Well No.:** 5S/2W-02D001

Date: 12-23-2020 **Other Well ID:** _____

Job Location: USFWS Property @ Old Jarvis Rd

Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: _____ Contractor Departure Time: _____

Daily Start Depth: _____ ft. Daily Finish Depth: _____ ft.

Daily Drill Bit Size(s): _____

Work Completed Summary: _____

ACWD Meter No.: n/a **Beginning Meter Reading:** _____ **End Meter Reading:** _____

Pictures Taken: ☐ YES ☐ NO File Location: _____

Visitors to Job Site: _____

Delays/Accidents: _____

Destruction Notes

650 - DY arrives at site, opened gate
705 - Driller from NorCal arrives
736 - Rigging down - prep rig to be moved to site 005
820 - Tac welded plate back on 001
903 - Exposed well @ 6' bgs - 12" steel casing (site 005) appears to have discharge / pump pipe inside. well casing filled with dirt / broken concrete / TPH contaminated soil
1130 - attempted to pull on pump pipe w/ backhoe. Did not move
1145 - drillers leave for lunch
1230 - drillers return to site
1245 - welded hookeye to pump pipe

Monitoring Well Destruction Notes

Inspector: **Permit No.:** 0

1:15 Began pulling - unsuccessful (Tried for ½ hr)

1:45 Detached & Boomed Down

2:15 KS Arrive @ Site

3:15 Still waiting for Norcal to leave site

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 01.04.21

Permit No.: 2020-0402
Well No.: 5S/2W-02D001
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
2x crew trucks	
3x trailers	
1x water tank (clean)	

Contractor Arrival Time: 1235
Contractor Departure Time: 1620 ~~1630~~ 20
Daily Start Depth: 167 ft.
Daily Finish Depth: 419 ft.
Daily Drill Bit Size(s):

Work Completed Summary: They were able to fish out the well column pipe from 167' using a hook device they fabricated.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

1235 - Arrive on site. Nor-Cal Pump and Well Drilling (Bryan / José) on site with the Smeal Rig and a crew truck (pic)
1245 - They drive in the crew truck to see if they will get through before they attempt to drive in with the ~~tall~~ Smeal rig Smeal.
1315 - both ~~tall~~ Smeal rig and crew truck now at well site.
1340 - setting up equipment (4" pipe) after lowering up the Smeal Rig (pic)
1400 - Tag well @ 419' (pic)
1405 - oil sheen on water springing from the well (pic)
1420 - lower their hook contraption to try to fish out the column pipe. (pic)
1600 - they are able to fish out the well column pipe @ 167' (pic)
1620 - all leave site (pic)

Monitoring Well Destruction

Inspector: Jeremy Bautista
Permit No.: 2020-0402
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 01.05.2021
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
Crew Trucks (2x)	
Backhoe	
Water Tank + Trailers (3x)	

Contractor Arrival Time: 0729
Contractor Departure Time: 1659
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Removed all column pipe / line shaft and submersible pump. began clean-up of food-grade oil spill.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:

Visitors to Job Site:

Delays/Accidents: Food grade oil spill from final column pipe; Contractor had to go to pick up supplies (1hr)

Destruction Notes

0729 - Arrive on site. Nor-Cal (Brian / José) on site. I let them onto site
0740 - Arrive @ well.
0825 - begin cutting 1st 12' off of the pump casing
0855 - remove 1st 12' of casing
0857 - cut 1st line shaft rod.
0928 - remove 2nd column pipe and line shaft (20')
0953 - remove 3rd column pipe and line shaft (20')
1016 - remove 4th column pipe and line shaft (20')
1030 - remove 5th column pipe and line shaft (20')
1109 - remove 6th column pipe and line shaft (20')
1133 - remove 7th column pipe and line shaft (20')

Monitoring Well Destruction Notes

Inspector: Jeremy Bautista **Permit No.:** 0

1201 - All leave for lunch

1225 - All return to site.

1307 - Remove 8th ~~10th~~ column pipe and line shaft (20')

1325 - Remove 9th column pipe and line shaft (20')

1342 - Remove 10th column pipe and line shaft (20')

1359 - Remove 11th column pipe and line shaft (20')

1420 - Prepping to remove 12th column pipe and when they cut pipe; oil started to come out (pics). Called Doug Young

1435 - Doug tells me that he will call Nor-Cal office to get them to contain oil. I notify the operator that oil needs to be scooped up and contained.

1450 - Brian tells me he will remove last column pipe/shaft (#12) and the pump and cover the well. Then he will go to the store to buy containment supplies.

1517 Cover a small area next to the Smeal rig to place vegetation contaminated (pic) 12th Column and Line Shaft remove along with a 12-bowl submersible pump.

1520 Brian takes 3x scoops of vegetation w/the backhoe

1555 Brian leaves site for supply run

1638 - Brian returns to site with rags and plastic sheets.

1646 - place rags around the well to absorb oil, lay plastic over the vegetation and contamination (pic)

1658 - all leave site.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Jeremy Bautista
Permit No.: 2020-0402
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 01.06.2021
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
Bulk hoe	
Crew trucks (2x)	
3x trailers, 1x clean water tank	

Contractor Arrival Time: 0730
Contractor Departure Time: 1630
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Applied absorbant pads and waddles to contaminated areas

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young
Delays/Accidents:

Destruction Notes

0740- arrive on site. Nor-Cal (José) on site. I let him in
0750 - Nor-Cal (Brian) arrives on site w/ containment supplies
0910- tag well depth @ 430' (pic)
0815- begin cleaning up work area around the rig
0830- Doug Young calls and tells me that the well depth is 450' w/ a steel cap @ 450' at the bottom of the well. I notify Brian who tells me he will leave it up to Hari to determine how to clean out to 450'. Installing Waddles (pic)
0850- threw some oil pads onto areas of suspected contamination (pics)
0910 - begin loading column pipe onto trailer (pic) and clean up
0955- Doug Young arrives on site.
1130-1040- after giving direction about oil clean up and taking photos, Doug leaves site
JB

Monitoring Well Destruction Notes

Inspector: Jeremy Bautista **Permit No.:** 0

1200_ leave site for lunch

1300- arrive back on site. Contractors continue to clean up site

1430- repair/maintain equipment. Waiting for more toolage to arrive from Yuba City yard.

1555- 2x other contractors from Nor-Cal (Gordon /) arrive with a cuttings/water tank (pic) and extra 4" air-lift pipe. (pic)

1600 - hooking up to tow away column pipe/line shaft/pump. (pic)

1630- all leave site together after covering the contaminated area w/ plastic.

1.5 hrs of standby time (1430-1555)

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 01.07.2021

Permit No.: 2020-0402
Well No.: 5S/2W-02D001
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
Backhoe	
Crew Trucks (2x)	
3x Trailers, 1x Clean Water Tank, 1x cuttings tank	

Contractor Arrival Time: 0730
Contractor Departure Time: 1620
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Allan Murillo, Matt Baker, Pablo Cortez
Delays/Accidents:

Destruction Notes

0730 - arrive on site. Nor-Cal (Brian/Jose) already waiting @ gate.
0750 - begin moving 4" steel airlift pipes into location
0850 - cut a knife tip into the leading pipe
0855 - begin installing airlift piping
IIII 11 - 21' = 147' IIII IIII IIII - 20' - 300'
1140 - spoke w/ Doug Young. He tells me that the Demo Contractor (Tylor) will be on site @ 1200 on 01.08.21 and that they plan to destroy well casing @ 1300. He wants pics of boosters, det cord and sacrificial materials. Also confirmed contractors are ok to discharge waste water from well onto ground.
1030 - Allan arrives on site.
1104 - begin installing 1.25" air hose into the 4" steel airlift pipe

Monitoring Well Destruction Notes

Inspector: Jeremy Bautista **Permit No.:** 0

1108 - Install airline to compressor and discharge wastewater line.

1130 - begin airlifting water to wastewater tank. Lots of oil coming out.

1131 - Matt (Bryan) from USFWS (manager) arrives on site. I have Brian shut down compressor

1146 - Matt leaves site after I show him contaminated areas. He is on board w/ the clean up plan but he wants to be notified about the water situation in the tank. He is ok with discharge clean H2O to grass

1155 - speak w/ Doug Young. He says that it will be up to the drillers to decide which way they will dispose of the wastewater. He says that they definitely can't discharge the water in its current state

1201 - leave site for lunch

1245 - arrive @ site. Pablo Cortez also on site

1300 - Pablo Cortez leaves site.

1325 - Allan Murillo leaves site.

1335 - Brian tells me his office suggests using absorbant pads to soak up surface oil and then discharge cleaner water to the field. Then repeat with another tank. I tell him I'll let Doug know and see if he approves it.

1340 - Doug is ok with Nor-Cal's plan for the wastewater. He will run it by Kit

1410 - Kit and Selim both approve. Brian shows me that all oil globules have been soaked up and there is very little sheen on the surface after using absorbant pads.

1415 - Doug calls and confirms that Rachel from USFWS is ok w/ oil-free grass discharge. I notify Brian they are ok to discharge. He estimates current tank volume @ 500 gallons

1435 - Discharge 1st tank; no odor, slight ~~sheen~~ film, no oil globules. ~500 gallons

1440 - ~500 gallons discharged; no odor, slight ~~sheen~~ film, no globules of oil

1455 - fill up 2nd tank w/ ~600 gallons. lots of thick oil. Begin to soak up w/ pads.

1530 - begin 2nd discharge; ~600 gallons; very slight film, no odor, no oil globules.

1540 - complete 2nd discharge; effluent waddle filter shows minimal oil staining; sand/debris mainly

1600 - filled 3rd tank: ~600 gallons, thick oil; ran out of pads to soak up oil; I let Brian know he needs to have oil contained

1620 - all leave site after scooping oil spoils into backhoe bucket and covering drill site.

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0402
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 1-8-21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Spiral rig	
Crew trucks (2x)	
Back hoe	
Trailers (2x)	

Contractor Arrival Time: 7:30
Contractor Departure Time: 16:00
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite with crew.
7:45 Crew begins discharging from tank onto nearby wadelle. Water looks clean.
7:52 Tank empty (~600 gal.). Traces of black at the bottom (pic).
8:00 Began filling tank again.
8:05 Tank full again. Using absorbant pads to remove oil. (pic).
8:18 Cleaned the water. Discharging onto wadelle. No odor, very slight film.
8:28 Tank empty (~600 gal.).
8:34 Tank full again. Cleaning with absorbant pads. Water only had a slight film.

Monitoring Well Destruction Notes

Inspector: **Permit No.:** 0

8:43 Began discharging. Water is clean enough now to discharge continuously onto puddle.

9:00 Driller believes they are at bottom. Encountering a solid obstruction at ~440'. Water coming out is clean. Called Kit Soo and Doug Young. Kit said this depth is acceptable. Left voicemail for Doug.

9:10 Bottom tagged at 440'.

9:56 Pulling out pipe.

10:32 Discharged remaining water from tank (pic). Doug said USFW wanted a sample of the oil for analysis. He grants me permission (via phone call) to leave the site in order to grab sample containers from office.

10:35 Departed site.

11:37 Returned to site. Drillers say they would like to take lunch now. I escort them back to the gate to let them out.

11:45 Drillers leave site.

12:15 Oil sample collected from bucket of oil/water from yesterday.

12:30 Drillers return.

13:12 Putting in tremie pipe, 2" steel (pic).

14:10 Placed tremie pipe to bottom.

15:30 Work is done for the day. Site cleaned up. Tank is being hauled offsite today with oil waste contained therein. I told drillers we need manifests of waste disposal from which ever facility they take it to.

16:00 Departed site with crew.

Monitoring Well Destruction

Inspector: Jeremy Bautista | **Permit No.:** 2020-0402

Job No.: 21246 | **Well No.:** 5S/2W-02D001

Date: 01.14.2021 | **Other Well ID:**

Job Location: USFWS Property @ Old Jarvis Rd

Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
Backhoe; 2x crew trucks	
Clean Water Tank; drill pipe trailer	
Towable Air Compressor	

Contractor Arrival Time: 1032 | Contractor Departure Time:

Daily Start Depth: ft. | Daily Finish Depth: ft.

Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a | **Beginning Meter Reading:** | **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:

Visitors to Job Site: Tylor MacMillan, Doug Young, Allan Roman Murillo I, Ava Lazor

Delays/Accidents: Contractors arrive 1 hr after stated approximate arrival of 0930.

Destruction Notes

0945 - I arrive on site.

1032 - NorCal (Brian/José) arrive on site

1045 - Tylor MacMillan arrives on site

1055 - Tylor informs me of a change in the blast plan. He will use 100 gram detonation cord instead of ~~and~~ 50 g detonation cord to ensure that Trojan Spartan boosters ignite. He plans to place blasting caps on the end of each side of the 300' booster.

1140 - Allan Roman Murillo and Rock & Roll Pumping Concrete pumper arrive on site.

1145 - Tylor begin assembling demo materials.

1210 - Allan leaves site

1235 - Doug Young and Ava Lazor arrive on site.

1240 - cement truck arrives on site.

Monitoring Well Destruction Notes

Inspector: Jeremy Bautista / Brianna Thomas **Permit No.:** 0

1145 Cemex Cement truck arrives at well site with 9 yd³ of 1034 mix (11 sack sand slurry (got a copy of tag)

1150 - Tylor lowers the blasting boosters and det. cord into the well. 2" steel tremie already in the well. Harry from Norfal arrives on site.

1155 - begin pumping cement via pumper and 2" steel tremie

1305 - tag grout @ 323'. Tylor wants to shoot

1315 - I call Kit Soo and let her know there isn't much choice. We have to blast now or the cement will set. She des blasting w/ the 2" tremie stuck @ 440'

1320 - Tylor blasts well. Water drops.

1330 - 2" steel tremie seems to be dogged. Tylor leaves site.

1340 - Harry tells me the Tremie is stuck in the boring and they can't pull it out. He says that they will try to remove as much as they can, then bring out more tremie pipe and try to grout up via tremie to surface. 2" steel tremie is filled w/ 11-sack.

1350 - call Kit Soo and update the situation. They plan to use a 3" steel tremie. She is ok with this

1430 - Pumper tells me that he won't pump the existing trucks of 11-sack on site since they have been here too long. I tell Brian.

1510 - Brian orders 9 yds³ 11-sack more. Doug, Kit, Michelle Myers want the load up to 160' at least. Brianna will come out to cover the job.

1520 - Ava and Allan leave site. Doug gets permission from USFWS (Rachel) to work past sunset.

1530 - 180' of 3" tremie in the hole at this point.

1610 - Brianna Thomas arrives onsite to take over ispection for Jeremy Bautista.

1630 - Jeremy Bautista and Doug Young leave site.

1648 - Cemex cement truck arrives at well site with 9 yd³ of 1034 mix (10.3 sack sand slurry - Kit Soo approves) - I have copy of tag.

1659 - Bugin pumping cement into 3" tremie pipe

1736 - All water tremied out of well, crew is pulling tremie pipe.

1739 - sounding tube filled with 10.3 sack sand slurry.

1817 - All tremie pipe removed, Cement topped off to 5' below surface

Monitoring Well Destruction

Inspector: Brianna Thomas
Permit No.:
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 1/14/2021
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: _____ Contractor Departure Time: _____

Daily Start Depth: _____ ft. Daily Finish Depth: _____ ft.

Daily Drill Bit Size(s): _____

Work Completed Summary: _____

ACWD Meter No.: n/a **Beginning Meter Reading:** _____ **End Meter Reading:** _____

Pictures Taken: ☐ YES ☐ NO File Location: _____

Visitors to Job Site: _____

Delays/Accidents: _____

Destruction Notes

1824- Crew is cleaning cement off tremie pipes, top 5' of casing will be cut and removed later, cement is at 2' below surface now.
1834- steel plate and plastic covering well for protection.
1905- Everyone leaving site.
1910- Gate locked and off site.

Monitoring Well Destruction

Inspector: Pablo A. Cortez
Permit No.: 2020-0402
Job No.: 21246
Well No.: 5S/2W-02D001
Date: 01.15.21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM		MATERIALS RECEIVED TODAY
Smeal rig	Compressor	
Excavator	Water tank	
Crew trucks (2x)		
Trailers (2x)		

Contractor Arrival Time: 7:30
Contractor Departure Time: 16:17
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Excavated around well, removed top 5' of casing, backfilled to surface, cleaned up site.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

7:30	Arrived onsite with NorCal Pump + Well crew.
8:00	Beginning site cleanup.
9:00	Began using excavator to dig around well.
9:20	Hari with NorCal Pump + Well arrives.
9:30	Began cutting well casing with blow torch.
9:53	Removed top 5' of conductor casing.
10:20	Excavation backfilled to surface.
13:20	Site is cleaned up. Soil is leveled off.
14:00	Crew is mobilizing to next site.
15:30	Crew uncovered well 5S/2W-02D005. Well remains in a pit ~6' deep.
15:49	Crew says they are done for today. They will have to

Monitoring Well Destruction Notes

Inspector: Pablo A. Cortez **Permit No.:** 2020-0402

come up with a plan for how they want to proceed with this well. They will let us know on Tuesday when they plan on coming back out.

16:17 Depart site with crew.

Monitoring Well Destruction

Inspector: Andrew Strauss | **Permit No.:** 2020-0403

Job No.: 21246 | **Well No.:** 5S/2W-02D005

Date: 1/19/21 | **Other Well ID:**

Job Location: USFWS Property @ Old Jarvis Rd

Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: 10:30 am | Contractor Departure Time: 4:20 pm

Daily Start Depth: 5 ft. | Daily Finish Depth: 5 ft.

Daily Drill Bit Size(s):

Work Completed Summary: SET CONTROL CASING

ACWD Meter No.: n/a | **Beginning Meter Reading:** | **End Meter Reading:**

Pictures Taken: ☒ YES ☐ NO | File Location:

Visitors to Job Site:

Delays/Accidents:

Destruction Notes

1000 I ARRIVED ON SITE

1030 DRILL CREW ARRIVED ON SITE

1120 DRILLER NEEDS TO LEAVE FOR A PARTS

1300 DRILL CREW SETS CONTROL CASING OVER WELL

1420 DRILL RIG OVER WELL

1620 PUMPED OUT 5FT OF FILL WITH WATER
I SEE 2" STEEL PIPE.
LEFT SITE.

Monitoring Well Destruction

Inspector: Jeremy Bautista | **Permit No.:** 2020-0403

Job No.: 21246 | **Well No.:** 5S/2W-02D005

Date: 01·20·21 | **Other Well ID:**

Job Location: USFWS Property @ Old Jarvis Rd

Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal Rig	
Backhoe	
2x Crew Trucks, 2x flatbed trailers	
1x Water Tank	

Contractor Arrival Time: 0720 | Contractor Departure Time: 1630

Daily Start Depth: 8 ft. | Daily Finish Depth: 13 ft.

Daily Drill Bit Size(s):

Work Completed Summary: removed 22.5" of steel well casing, removed concrete chunks to 13' BGS

ACWD Meter No.: n/a | **Beginning Meter Reading:** | **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO | File Location:

Visitors to Job Site:

Delays/Accidents:

Destruction Notes

0720 - Arrive on site. Nor-Cal (Bryan/Jose) are already waiting on site @ gate

0730 - arrive at well

0830 - weld jet pipe 2" steel and begin lowering into the control casing.

0955 - they're able to remove a chunk of concrete blocking the well. More concrete chunks underneath it. They're having to use a rope to try and loop around each concrete chunk after lifting it up with a rod and hook and then lift it out.

1120 - unable to fish out any more concrete chunks, they decide to try to dig out the top of the well to gain easier access to the concrete.

1147 - leave for lunch

1215 - return from lunch

1330 - Backhoe is having issues. They are working on it.

Monitoring Well Destruction Notes

Inspector: Jeremy Bautista **Permit No.:** 2020-0403

1345- fix the backhoe

1405- cut off 22.5" of the well casing

1430- removed ~10 gal of concrete chunks.

1505 - get the well and they can't get down further than 8' from new well head elevation due to more blockage.

1550 - after using a modified digging bar to try to break up concrete, they resume water jetting.

1610 - cease jetting and pump out all H_2O. measure ~13' from surface where equipment is.

1630 - all leave site

Smeal Rig: Pulstar P38HDHRRXW

212006-1

Monitoring Well Destruction

Inspector: Jeremy Bautista/Allan Roman Murillo
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 01.21.21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Small Rig	
2x crew trucks, 2x trailers	
Backhoe, Water tanks, wastewater tanks, pumps	

Contractor Arrival Time: 0712
Contractor Departure Time:
Daily Start Depth: 13 ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

0710 - I arrive on site w/ Allan.
0712 - Norcal (Bryan/Jose) arrive on site
0717 - arrive at well site.
0734 - Began pumping 600 gals of circulated water into grassy area east of well site.
0748 - Trash pump is not working, They are repairing it.
0758 - Trash pump started working.
0800 - finished discharging circulated water into grassy area east of well site.
0822 - Jeremy Bautista Left site.

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

0925 - Placed 16" conductor casing over remaining well casing Conductor casing was driven 2' into ground and seal was made using bentonite chips. Conductor casing is sitting 5' above grade
1001 - excavated area around well has been filled in. Area around well at grade.
1015 - Jose left site to refill portable water tanks.
1032 - Jose back on site.
1121 - Algae from portable water tank clogged water tanks pump. 600 gal tank is being filled by gravity.
1137 - 600 gal tank is filled.
1145 - Left site with drillers for Lunch
1215 - Returned to site from Lunch
1249 - Placed 2" steel Jet pipe into conductor casing and began lowering pipe while Jetting water.
1310 - Stopped Jetting water into well. Blockage is preventing further advancement into well. Blockage at 13'
1346 - Resumed Jetting water into well. Currently attempting to get past blockage.
1408 - Stopped jetting water into well.
1438. Attempted to push through blockage but they were unsuccessful. Drillers called their boss for direction.
1615 - No direction was given to drillers. Drillers secured equipment for Rain.
1630 - well is secure to remain open over night.
1635 - Left site with drillers.

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 1-22-21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Smeal rig	
Support trucks (2x)	
Excavator	
Water tank, waste water tank	

Contractor Arrival Time: 7:30
Contractor Departure Time: 15:30
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☐ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite with crew. Crew continues where they left off yesterday. Still having issues with blockage at 13'.
11:00 Still trying to troubleshoot the issue. Fixing equipment.
11:15 Placed rods back in the hole. Blockage persists at same depth. Three metal prongs have been welded to the end of the rod in an attempt to loosen the obstruction.
11:38 Drillers are still unable to get past obstruction.
11:55 Depart site with crew for lunch.
12:45 Returned to site with crew. Drillers are waiting to hear from their boss on what to do next.
14:27 Pulled ~~drill~~ Smeal rig off the well. Beginning site cleanup.

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

Driller says there is not much else they can do.

15:30 Departed site with crew.

Monitoring Well Destruction

Inspector: Aaron Stevens
Job No.: 21246
Date:

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: 1330
Contractor Departure Time:
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary:

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☐ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

1330 ~~LEFT~~ OPEN THE GATE FOR THE CONTRACTORS THEY LOAD UP THEIR EQUIPMENT FOR ANOTHER JOB, REPORTEDLY, THEY LOAD WATER TANK AND WATER TRANSFER TANK AND FRONT LOADER. LOCKED GATE AND KEPT SITE.
1615 LEFT SITE.

Monitoring Well Destruction

Inspector: Andrew Starkweather
Job No.: 21246
Date: 2/1/21

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: _____ Contractor Departure Time: _____

Daily Start Depth: _____ ft. Daily Finish Depth: _____ ft.

Daily Drill Bit Size(s): _____

Work Completed Summary: _____

ACWD Meter No.: n/a **Beginning Meter Reading:** _____ **End Meter Reading:** _____

Pictures Taken: ☐ YES ☐ NO File Location: _____

Visitors to Job Site: _____

Delays/Accidents: _____

Destruction Notes

1305 ARRIVED ON SITE.
1340 LET DRILLERS IN GATE
1615 TOOK BOULDERS OF CUTTINGS AND HOLE. BIT IS 5" MODIFIED CLEAN HOLE TO 160' ALONG SIDE METAL PIPE.

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 02.02.21

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
TH-60 Ingersoll Rand Drill Rig	
Water tank, backhoe	
Crew Truck	
Flatbed trailer	

Contractor Arrival Time: 0720
Contractor Departure Time: 1625 (4.5 hrs standby)
Daily Start Depth: 15' ft.
Daily Finish Depth: 26' ft.
Daily Drill Bit Size(s): 5"

Work Completed Summary: Tried to pull the 2" pipe up with winch (unsuccessful)
Drilled from 15-26' (refusal) w/ 5" mud rotary rock bit

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

0715- arrive on site ; open gate
0720 - NorCal (Bryan/Jose) arrive on site.
0750 - start up the drill rig. Plan to attempt pulling 2" pipe up.
0830 - The casing is not budging after they pull with their main line. Begin slowly drilling using the 5" tricone bit and air rotary.
1030 - they reach 26' below grade and the drill bit is getting caught on something hard that is preventing rotation. I take video and send to Doug Young and Kit Soo.
1200 - The drillers have been doing site cleanup and vehicle maint for 1.5 hrs. Break for lunch.
1300 - Return from lunch; resume standby time.
1600 - Bryan tells me that Harry from his office has offered no plans on how to deal with the problem.
1625- all leave site

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 02.03.21

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY

Contractor Arrival Time: 0745
Contractor Departure Time: 1130
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Cleaned up site.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☐ YES ☑ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

0745 - arrive on site. NorCal (Bryan/José) on site. I open gate
0800 - left site.
1130 - Bryan texts me that they are leaving site.
1230 - I arrive on site to double check the gate locks.
1300 - Left site

Monitoring Well Destruction

Inspector: Jeremy Bautista
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 02.04.21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill Rig - IR TH-60	
Crew Truck	
Rental Skid Steer	

Contractor Arrival Time: 1005
Contractor Departure Time: 1330
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Cleaned up site

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

1005- arrive on site. NorCal (Bryan/Jose) waiting at the gate w/a skidsteer.
1020- arrive @ well site. begin scraping the concrete/bentonite spillage east of the well.
1105- Clean up concrete/bentonite flow by scraping (pic)
1205- completed site 001 clean-up/scrape (pic). sent pics to Doug Young
1215- They completed cutting a square into the well lid and attached a combi-lock onto the well (pic)
1245- complete a 2nd scraping run along site D005 concrete/bentonite spillage (pic)
1305- Doug is satisfied.
1330- clean up and grade the dip at the entrance gate (pic). Doug Young approves. All leave site.

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 02.09.21

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
IR TH-60 mud rotary drill rig.	
Crew truck	
Water tank	

Contractor Arrival Time: 1230
Contractor Departure Time: 1330
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Collect IR TH-60 and water tank off site.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

1110 - arrive on site. open gate.
1230 - Nor Cal arrives on site.
1235 - begin TH-60 vehicle inspection.
1330 - take Drill rig and Water Tank and leave site.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Cortez
Job No.: 21246
Date: 2/25/21

Permit No.: ~~2020-0402~~ 2020-0403
Well No.: ~~5S/2W-02D001~~ (pc)
Other Well ID: 5S/2W-02D005

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Trucks (2x)	
Bobcat	

Contractor Arrival Time: 11:00
Contractor Departure Time: 16:50
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Cleaned up site, leveled off soil, removed all equipment and materials.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young
Delays/Accidents:

Destruction Notes

11:20 Arrived onsite. Doug Young is onsite with NorCal Pump + Well crew. Goal for today is to simply clean up the site.
12:00 Doug Young departs.
12:30 NorCal crew departs to get lunch and to pick up a bobcat.
14:25 Crew returns with bobcat. Begins working to separate white bentonite material from stockpiled soil prior to dispersing soil across the site.
15:15 Visqueen sheet with bentonite material loaded onto their truck.
16:00 All remaining soil has been dispersed.
16:40 All items picked up. Site is clean.
16:50 Departed site.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Jeremy Bautista
Job No.: 21246
Date: 09.27.21

Permit No.: 2020-0403
Well No.: 5S/2W-02D005
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Mud Rotary Drill Rig	
F-250 Support Truck	

Contractor Arrival Time: 1355
Contractor Departure Time: 1610
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: trench for barrier + barrier installation complete.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young
Delays/Accidents:

Destruction Notes

1325- arrive on site open gates
1330- Doug Young arrives on site
1355- NorCal Drilling. (Bryan/Juan) arrive on site
1415- NorCal leaves site to rent a trench machine from Cresco on Fremont Blvd.
1440- Doug calls and wants them to log the boring by sampling every 5'.
1450- NorCal returns to site w/ trench machine.
1500- begin trenching barrier
1600- complete trench + barrier. I communicate to Bryan Doug's request to log the first boring. He replies that he'll try to do every 5'.
1610- all leave site.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 9/28/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig	
Support truck	
Tanker truck w/mud mixer	
Trailer	

Contractor Arrival Time: 13:30
Contractor Departure Time: 16:30
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Cleared work area, set up drilling equipment.

ACWD Meter No.: n/a
Beginning Meter Reading:
End Meter Reading:

Pictures Taken: ☐ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

13:30 Arrived onsite. Nor Cal Pump crew is here. Opened gate and let them in.

13:50 Mobilized to ~~site~~ (PC) well location. Crew begins clearing area around the well of bushes, shrubs, etc.

15:05 Moved drill rig over well.

16:00 Moved tanker truck with mud mixer next to drill rig.

16:15 Crew is done for today. Set up drill rig and tanker truck.

16:30 Departed site with crew.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Carter
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 9/29/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig	
Support truck (x2)	
Shaker table	
Tanker truck, waste bin	

Contractor Arrival Time: 7:30
Contractor Departure Time: 16:45
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s): 8 3/4"

Work Completed Summary: Completed setup, drilled to total depth in first borehole, set casing.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite. NorCal Pump crew onsite.
7:45 Arrived at well location. 4 borehole locations were marked around the well casing at 12" away from the well casing.
9:15 Driller departs to get waddles. 2 crew members remain.
9:55 Raised tower on drill rig.
10:10 Began drilling with 8 3/4" bit.
10:15 Stopped drilling at ~6".
10:45 Third driller returns with waddles. Crew was unable to get the waste bin they ordered onto the property because the trailer that was used to deliver the bin was too long to fit through the gate. For now, the crew plans to put cuttings on the ground

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

(with plastic on ground) and place waddles around them.

12:15 Began drilling again with mud shaker system now set up.

13:05 Doug Young arrives onsite.

14:15 Depart site.

15:00 Returned to site. Drillers have reached 120' in first borehole.

15:55 Placed 6" PVC casing in the hole down to the bottom.

16:00 Doug Young departs.

16:45 I depart site with crew.

* Note: waste bin arrived today.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 9/30/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig	
Tanker truck + Shaker table	
Support trucks (x2)	
Waste bins (x2), Excavator	

Contractor Arrival Time: 7:30
Contractor Departure Time: 16:50
Daily Start Depth: 0 ft.
Daily Finish Depth: 60 ft.
Daily Drill Bit Size(s): 8 3/4 "

Work Completed Summary: Completed second boring, set casing and tremie pipe, began third boring.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young, Rachel Tertes, Michael Gervas
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite with crew. First boring was completed yesterday.
8:10 Placed 2" steel tremie pipe to bottom of boring.
9:00 Drilling underway on second boring.
9:06 Waste bin delivery arrives (second bin).
10:15 Currently at 80'.
11:27 Drilled to 120' total depth.
11:52 Placed 6" PVC casing to bottom.
12:20 Doug Young arrives onsite.
12:30 Set tremie pipe in second boring.
12:39 US Fish + Wildlife reps arrive onsite (Rachel + Michael). Also, drillers depart for lunch.
13:00 USFW reps depart.
13:05 Doug Young departs.

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

13:50	Drillers return from lunch.
14:23	Moved drill rig to third boring and raised drill mast. Preparing to drill.
15:00	Began drilling third boring.
16:42	Drilled to 60'. Stopped for the day.
16:50	Departed site with crew.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Carter
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10/1/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig	
Support trucks (x2)	
Tanker truck + mud shaker	
Excavator, Waste bins (x2)	

Contractor Arrival Time: 7:30
Contractor Departure Time: 15:00
Daily Start Depth: 60 ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s): 8 3/4"

Work Completed Summary: Completed third and fourth borings, installed casings and tremie pipes. All holes ready for blasting.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite with drill crew.
7:55 Resume drilling the third boring.
9:00 Drilled to 120' total depth.
9:24 Installed 6" PVC casing to bottom of boring.
9:53 Installed 2" steel tremie pipe.
10:25 Moved drill rig over 4th and final location and began drilling.
12:30 Drilled to 120' in 4th boring.
13:15 Installed 6" PVC casing in hole. Crew breaks for lunch.
13:45 Crew resumes work.
14:05 Installed 2" steel tremie pipe in 4th hole.
15:00 Holes have been flushed and crew is done for today. Everything

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

is ready for blasting next week. Depart site with crew.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10/6/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Crane	
Drill rig	
Excavator, Mud shaker, waste bins (x2)	
Support truck, Tanker truck	

Contractor Arrival Time: 8:00
Contractor Departure Time: 17:45
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Blasted all 4 borings, pulled out casings, grouted borings.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site: Doug Young, Ava Lazor,
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite, Awaiting for crew to arrive.
8:00 Crew arrives. Mobilized to well location. Began making preparations for arrival of blaster.
9:07 Patriot Environmental Services contractor arrives to collect soil samples from cuttings pile for disposal purposes.
9:19 Patriot contractor departs.
9:30 Tyler McMillan (blasting contractor) arrives.
10:57 Doug Young and Ava Lazor arrive.
11:04 Two holes have been loaded with explosives by Tyler. Det. cord placed to 120' with boosters (4) placed from 80' to 120' with an additional charge placed at 20' to sever the PVC casing.

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

11:12 Concrete pump contractor from Rock 'N' Ready arrives onsite.

11:30 Diana Conkle with the Regional Board arrives onsite.

11:41 Tyler has loaded the remaining 2 holes with explosives as described above. (cemex)

12:30 Cement truck arrives. 11-sack sand slurry verified on cement tag.

12:40 Began tremie grouting.

14:35 All 4 holes have been tremie grouted to surface.

14:56 All 4 holes have been detonated. Grout dropped in all 4 borings.

15:20 Tyler departs site. Also, cement truck ran out of cement while trying to top off holes. Another cement truck is on the way.

16:20 PVC casings (what remained of them) have been pulled out.

16:42 Another cement truck arrives.

17:00 Finished topping off holes at surface.

17:23 (pc) ~~3 of~~ The 4 metal control casings have been pulled out.

17:45 Drill crew departs. Concrete pump contractor remains and is cleaning out his equipment.

17:55 Depart site with concrete pump contractor.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Cortez
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10/7/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig, crane	
Excavator, tanker truck, mud shaker	
Support truck	
Waste bins (x2)	

Contractor Arrival Time: 7:30
Contractor Departure Time: 15:30
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Finished site cleanup, removed top 5' of well casing.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

7:30 Arrived onsite with drill crew.
9:37 Began digging around well casing with excavator.
9:50 Excavated to 5' below grade.
10:10 Cut off the remainder of the 2" pump shaft with a blow torch to match the top of the remaining well casing. The temporary well casing that the drillers placed over the well was also removed. 5' clearance achieved.
11:15 Excavation backfilled and soil cuttings from drilling have been loaded into waste bin. Excavation was compacted while backfilling.
11:50 Silt fencing removed. Drillers stop to break for lunch.
12:00 Depart site with drillers.

Monitoring Well Destruction Notes

Inspector: 0 **Permit No.:** 2020-0403

13:20 Returned to site with drillers.

14:30 Site cleanup is complete. All that remains now is to remove drilling equipment from the site.

15:30 Crew is finished for today. Departed site with crew. Well destruction complete.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Pablo Carter
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10/8/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
Drill rig	
Crane, support truck, trailer	
Excavator, waste bins (x2)	
Tanker truck, mud shaker	

Contractor Arrival Time: 8:30
Contractor Departure Time: 13:30
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Removed excavator, portable toilet, crane, and trailer from the site.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

8:30 Arrived onsite with drill crew.
11:38 Drillers began moving portable restroom offsite for pickup and will break for lunch after that.
11:45 Departed site with crew.
13:30 Returned to site with crew. Driller says they are done for today and are taking the crane and trailer off site. Drill rig, waste bins, tanker truck, and mud shaker will remain onsite for now. They are still waiting on a vac truck to suck out the drill fluid from the shaker and they still have to arrange for the removal of the waste bins. Drillers depart site.
14:00 Departed site.

ALAMEDA COUNTY WATER DISTRICT

Monitoring Well Destruction

Inspector: Jeremy Bautista
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10/18/21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
TH-60 Mud Rotary Drill Rig	
F550 Crew Support Truck	
Mud Shaker Truck/Trailer	
Patriot Vac Truck / Roll-out truck	

Contractor Arrival Time: 1000
Contractor Departure Time: 1545
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Removed rollout bins and demobed shaker trucks. Also vacuum cleared the shaker trucks

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

1030- arrive on site. NorCal (Bryan/Juan) on site since 1000.
1045- arrive @ destruction site. begin setting up for shaker clean-out.
1110- roll-out truck arrives on site from Patriot
1200- 1st rollout bin is removed from site.
1235- roll-out bin truck arrives on site to collect 2nd bin.
1420- roll-out truck leaves site w/ 2nd bin; some spilled and the vac truck will clean it up.
1545- all leave site will return @ 0800 on 10-19-21 to pick up the TH-60 (all other eq. is gone) and do a final clean up.

Tylor McMillan's Well Service

9530 Hageman Rd. STE B #349 Bakersfield CA, 93312
Phone: (916) 761-5224 Email: mcmillans521@gmail.com
Website: www.wellblaster.com

Date: October 6, 2021

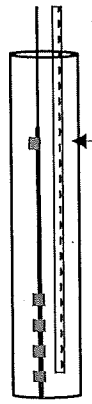
BLASTING WORK PLAN

Well: Old Jarvis Road Well 5

Location: 37.5326370
-122.564975

Plan date and time : Pending

Four Wells Drilled Around One Old Well
Casing 6 -inch ID PVC to 120 feet



Detonating Cord

Start	20 feet
Intervals	Linear
End	120 feet
Strength	50 grain
Total	100 feet

Booster Placement

Start	80 feet
Intervals	10 feet
End	120 feet
Total	5 Boosters

Total Explosives
2.68 lbs.

Boosters

Density g/cc	1.55	g/cc		
Detonation Velocity	24,000	ft/s	7,315	m/s
Casing Diameter	6	inches		
Charge Wt.	8	Kg	8,000	grams
Detonation pressure	207	k/bar		
Total energy ea.	746,495	k/bar		
Pressure at casing	6,600.45	k/bar	98,802,064	psi
Pressure at 10 feet	0.10		1,544	psi

Explosive Cord

Density g/cc	1.60	g/cc		
Detonation Velocity	22,000	ft/s	6,706	m/s
Casing Diameter	6	inches		
Grains	50	gr/ft	3.24	g/ft
Detonation pressure	**180**	**k/bar**		
Total energy pef ft.	**22**	**k/bar**		
Pressure at casing	**0.77**	**k/bar**	**11,569**	**psi**

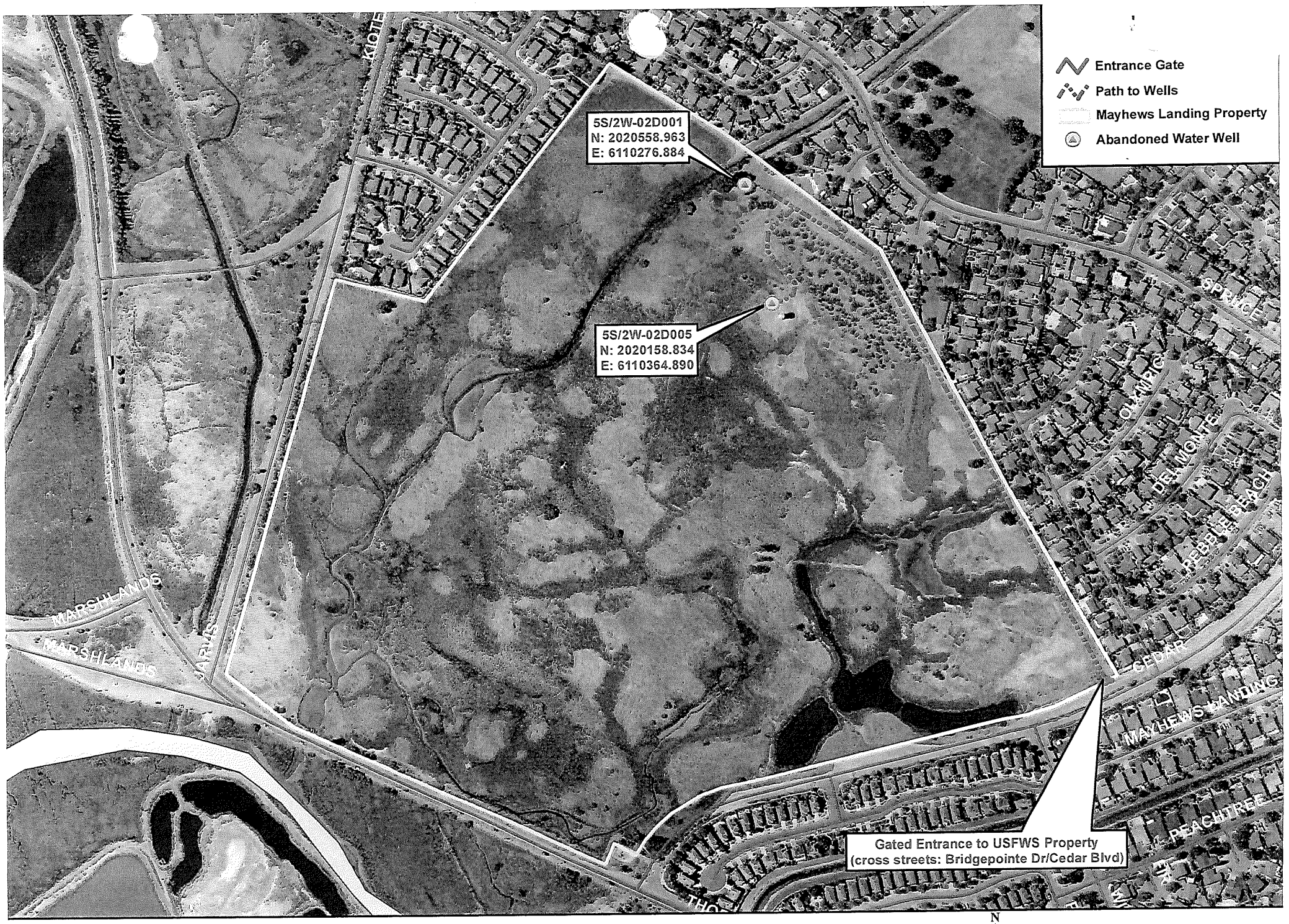
***These are estimated pressure for a empty well**

Site procedure

1. Check site and measure well depth
2. Clear work site of all unessential personal
3. Lower charges and drop pipe into the well
4. Pump sealing material to top of well
5. Check and clear blast area (sound blast warning)
6. Arm explosives
7. Confirm area clear (final blast warning)
8. Detonate charge
9. Check hole and sound all clear
10. Refill cement to top of well to form a mushroom cap

Name of Blaster Preparing Plan: Tylor McMillan

*Tylor McMillan's Well Service reserves the right to change or modify the charge in any way necessary to maintain the safety of all personnel onsite and in surrounding areas.



ACWD
ALAMEDA COUNTY WATER DISTRICT

Well Locations

M.3-7

Monitoring Well Destruction

Inspector: Jeremy Bautista
Permit No.: 2020-0403
Job No.: 21246
Well No.: 5S/2W-02D005
Date: 10.19.21
Other Well ID:

Job Location: USFWS Property @ Old Jarvis Rd
Contractor: Nor-Cal Pump and Well Drilling

Major Equipment and Materials On-site

ITEM	MATERIALS RECEIVED TODAY
TH-60 Drill Rig	
F-550 Support Truck	

Contractor Arrival Time: 0835
Contractor Departure Time: 0910
Daily Start Depth: ft.
Daily Finish Depth: ft.
Daily Drill Bit Size(s):

Work Completed Summary: Final site check. TH-60 Drill Rig demobe.

ACWD Meter No.: n/a **Beginning Meter Reading:** **End Meter Reading:**

Pictures Taken: ☑ YES ☐ NO File Location:
Visitors to Job Site:
Delays/Accidents:

Destruction Notes

0800 - arrive on site.
0835 - NCP arrives on site. I drive to drill site. Do a final site check and everything looks good.
0910 - Mobe TH-60 out of gate. They remove curb-boards and smooth out the dirt that is in between the gate and the sidewalk. Left site.

CUSTOMER

WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

CEMEX

41196409

1565 Russell Ave - Santa Clara, CA 95054

NOTE: Excess water is detrimental to concrete quality. Increased water in concrete mix reduces strength and durability and increases shrinkage. Buyer accepts responsibility for water added on job site, which exceeds accepted water/cement ratio and workability specifications.

Plant:	Begin Loading:	To Job:	Arrive Job:	Start Unload:	Finish Unload:	Leave Job:	Return Plant:
44370	11:31	11:40	12:30	12:40			

Total Amount for This Ticket Not Including Standby Charges:

☐ Cash ☐ Check ☐ Charge	Check # / Auth Code:	Signature of Driver Receiving Cash:	Cash Received:	Total COD Order Amount to Collect Without Standby Charges:

Customer Code:	Customer Name:	Customer Job Number:	Order Code / Date:
3137366	NOR-CAL PUMP & WELL DRILLING INC		3323

Project Code:	Project Name:	Deputy Weighmaster:	Order P.O. Number:
41248890	AB219-DLD JARVIS ROAD IRRI	RICHARD WYRSCH	20-5015

Ticket Date:	Delivery Address:	Map Page:
01/14/21	BRIDGEPOINT DR & CEDAR BLVD	

Delivery Instructions: FREMONT

Ticket Number: 29432095

Due On Job:	Slump:	Load:	Truck Number:	Driver Number:	Driver Name:	End Use:
12:38	10.0	1	10074190	443708	EPLING, GOEBEL G J	OTHER

LOAD QUANTITY	CUMULATIVE QUANTITY	ORDERED QUANTITY	MATERIAL CODE	PRODUCTION DESCRIPTION	UOM	UNIT PRICE	AMOUNT
9.00	9	18	1603335	SAND 3/4 C+S 50% DS	CYDS		
X 1.00	1	1	1590944	AB 219 PER LOAD SURCHARGE	PC		
9.00	9		1591158	SUMMERSET 70 RETARDER	DS		
1.00	1		1241781	FUEL SURCHARGE	EA		
1.00	1		1208749	ENVIRONMENTAL CHARGE	EA		

"HAS ANY ONE CALLED YOU OUT ON SAFETY?"

Pump Washout Into Mixer

Driver Counter: _____

Previous Truck: _____

Concrete Disposal Fee

Partial ____ Full Load

Water Added IN GALLONS:	Curb Line Crossed At Owner's Agent's Request:	AUTHORIZED SIGNATURE	SUB TOTAL
X _____ INITIALS	X _____ INITIALS	Print Name: _____ Date _____ Signature above signifies receipt and acceptance of the listed materials and acknowledgement of and agreement to the CEMEX terms and conditions.	TAX TOTAL

BATCH DATA: 41196409

Truck	Load Size	Mix Code	Disp Tick	Seq	Time	Date
07419	9.00 CYDS	1603335	29432095	W1	11:31	1/14/21

% Var	% Moisture	Actual Wat	Tot.Wat	Tria
-0.09%	3.45% A	85.25 gl	85.25	

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This Delivery Ticket incorporates herein by reference Buyer's previously executed Credit Application, if any, Seller's Standard Terms and Conditions, Seller's Quotation, if any, and Seller's Order Confirmation (including limitations of warranties), as if fully set forth on this Delivery Ticket ("Agreement"). Seller will provide the Standard Terms and Conditions upon request. Buyer agrees that, unless otherwise noted on the front hereof, all quantities and items were delivered as indicated and further expressly agrees to pay in accordance with the Agreement.

AGGREGATE / CEMENT / CONCRETE PRODUCTS / FLY ASH

Aggregate products are naturally occurring materials including limestone, dolomite, granite, volcanic rock, sand, gravel, and other siliceous materials. Cement products include Portland cement, masonry, pozzolan (Type IP), roof tile, and stucco. Concrete products include Portland cement and aggregate products including limestone, dolomite, granite, volcanic rock, sand, gravel, and other siliceous materials. These products, including fly ash, may contain more than 0.025% crystalline silica.

CAUTION!

Hazards: Products contain components that may cause eye irritation, skin irritation, eye burns, allergic skin reactions, and respiratory tract irritations. Dusts from handling, crushing, grinding, cutting, and or drilling may contain silica. Reference respective SDS for additional Hazard Information.

Safety: Avoid contact with eyes and prolonged contact with skin. Wear gloves, eye protection, and appropriate protective clothing. If being exposed to dust above applicable regulatory limits wear appropriate NIOSH Approved respiratory protection. Wash skin thoroughly with mild soap and water after handling. Reference respective SDS for additional Safety Information.

First Aid: In case of eye contact, cautiously rinse eyes with water for several minutes and, if applicable, remove eye contacts. If inhaled, remove affected to fresh air. If on skin, wash skin thoroughly with mild soap and water. If concerned or irritations persist, get medical attention. Reference respective SDS for additional First Aid Information.

CEMEX
10100 Katy Freeway, Suite 300
Houston, Texas 77043
For more information please visit www.cemexusa.com.

V9 combined
12/17

Este ticket de entrega incluye como referencia al comprador (ya previamente ejecutada en su aplicación de crédito); cualquier término estándar, condiciones del vendedor, propuestas del vendedor y orden de confirmación del vendedor (con limitaciones y garantías), como acuerdo total del ticket de entrega ("Contrato"). El vendedor proveerá los términos estándares y condiciones detallados en caso de así ser requeridos. Con este documento, el comprador acepta los mismos ya antes mencionados y que las cantidades y materiales fueron entregados como se expresa en el mismo. Acepta pagar el monto de acuerdo al contrato; al menos que se identifique con una nota al frente de este documento.

AGREGADOS / CEMENTO / PRODUCTOS DE CONCRETO / CENIZAS VOLANTES

Los productos de agregados son materiales naturales como piedra caliza, dolomita, granito, roca volcánica, arena, grava y otros materiales silicios. Los productos de cemento incluyen Cemento de tipo Portland, de albañilería, pozzolan (tipo IP), azulejo de azotea y estuco. Los productos de concreto incluyen cemento Portland y productos de agregados como piedra caliza, dolomita, granito, roca volcánica, arena, grava, y otros materiales silicios. Estos productos incluyen cenizas volantes (fly ash) la cual puede contener más de 0.025% de silicio cristalino.

¡CUIDADO!

Riesgos: Los productos contienen componentes que pueden causar irritación ocular, irritación de la piel, quemaduras en los ojos, reacciones alérgicas en la piel e irritaciones de las vías respiratorias. Los polvos de manejo, trituración, molienda, corte y / o perforación pueden contener silicio. Consulte la SDS respectiva para obtener información adicional sobre peligros.

Seguridad: Evite el contacto con los ojos y el contacto prolongado con la piel. Use guantes, protección para los ojos y ropa protectora adecuada. Si está expuesto a polvo por encima de los límites reglamentarios aplicables use la protección respiratoria aprobada por NIOSH apropiada. Lave bien la piel con agua y jabón suave después de la manipulación. Consulte la SDS respectiva para obtener información de seguridad adicional.

Primeros auxilios: En caso de contacto con los ojos, enjuáguese con cuidado los ojos con agua durante varios minutos y, si aplica, remueva sus lentes de contacto. Si se inhala, retire los afectados al aire libre. Si entra en contacto con la piel, lave bien la piel con agua y jabón suave. Si le preocupan o persisten las irritaciones, busque atención médica. Haga referencia a la SDS repectiva para información adicional de primeros auxilios.

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Houston, Texas 77043
Para más información visita www.cemexusa.com.

V9 combinado
12/17

CUSTOMER

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CEMEX

41196441

1555 Russell Ave - Santa Clara, CA 95054

NOTE: Excess water is detrimental to concrete quality. Increased water in concrete mix reduces strength and durability and increases shrinkage. Buyer accepts responsibility for water added on job site, which exceeds accepted water/cement ratio and workability specifications.

Plant:	Begin Loading:	To Job:	Arrive Job:	Start Unload:	Finish Unload:	Leave Job:	Return Plant:
4437A	15:51	1605	1659	1651			

Total Amount for This Ticket Not Including Standby Charges:

Cash / Check / Charge	Check # / Auth Code:	Signature of Driver Receiving Cash:	Cash Received:	Total COD Order Amount to Collect Without Standby Charges:

Customer Code: 3137366 Customer Name: NOR-CAL PUMP & WELL DRILLING INC

Customer Job Number:

Order Code / Date: 3323

Project Code: 41248880 Project Name: AB219-OLD JARVIS ROAD IRRI

Deputy Weighmaster: RICHARD WYRSCH

Order P.O. Number: 20-5015

Ticket Date: 01/14/21 Delivery Address: BRIDGEPOINT DR & CEDAR BLVD

Map Page:

Delivery Instructions: FREMONT-

Ticket Number: 29432474

Due On Job:	Slump:	Load:	Truck Number:	Driver Number:	Driver Name:	End Use:
16:40	10.00	3	10064543	443768	HILL, CHERYL	OTHER

LOAD QUANTITY	CUMULATIVE QUANTITY	ORDERED QUANTITY	MATERIAL CODE	PRODUCTION DESCRIPTION	UOM	UNIT PRICE	AMOUNT
9.00	27	36	1603335	SAND 1034 C+S 50% DS	CYDS		
1.00	3	1	1590944	AB 219 PER LOAD SURCHARGE	PC		
9.00	27	1	1591159	SUMMERSET 70 RETARDER	DS		
1.00	0	0	1247817	FUEL SURCHARGE	EA		
1.00	0	0	1202749	ENVIRONMENTAL CHARGE	EA		

" HAS ANY ONE CALLED YOU OUT ON SAFETY? "

Pump Washout into Mixer

Drum Counter: ____/____/____

Previous Truck: 10071873

Concrete Disposal Fee

____Partial ____Full Load

Water Added IN GALLONS:	Curb Line Crossed At Owner's Agent's Request:	AUTHORIZED SIGNATURE	SUB TOTAL
X ____ INITIALS	X ____ INITIALS	Print Name: ____ Date	TAX
		Signature above signifies receipt and acceptance of the listed materials and acknowledgement of and agreement to the CEMEX terms and conditions.	TOTAL

BATCH DATA:

41196441

Truck	Load Size	Mix Code	Disp Tick	Seq	Time	Date
064543	9.00 CYDS	1603335	29432474	W1	15:51	1/14/21

Material	Design Qty	Required	Batched	Var	% Var	% Moisture	Actual Wat	Tot.Wat	Trim
CONSND33	2292.00 lb	21349.98 lb	21260.00 lb	-89.98	-0.42%	3.50% M	86.15 gl	86.15	
CEMENT	517.00 lb	4653.00 lb	4650.00 lb	-3.00	-0.06%				
SLAG120	517.00 lb	4653.00 lb	4620.00 lb	-33.00	-0.71%				
WATER	50.0 gal	228.5 gal	227.7 gal	-.8	-0.35%		227.7 gl	227.7	-15.0 gl
HYD_STAB	5.17 oz	46.53 oz	45.00 oz	-1.53	-3.29%				100.00 %

Actual Num Batches: 1 Manual 15:50:36

Load Total: 32433 lb Design W/C: 0.404 Water/Cement: 0.283 A Design Water: 450.0 gl Actual Water: 313.8 gl To Add: 136.2 gl

Slump: 10.00 in # Adjust Water: 0.0 gl / Load Trim Water:-15.0gl / CYD Note: Manual feed oc

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10100 Katy Freeway, Suite 300
Houston, Texas 77043
For more information please visit www.cemexusa.com.

V9 combined
12/17

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Primeros auxilios: En caso de contacto con los ojos, enjuáguese con cuidado los ojos con agua durante varios minutos y, si aplica, remueva sus lentes de contacto. Si se inhala, retire los afectados al aire libre. Si entra en contacto con la piel, lave bien la piel con agua y jabón suave. Si le preocupan o persisten las irritaciones, busque atención médica. Haga referencia a la SDS repectiva para información adicional de primeros auxilios.

CEMEX
10100 Katy Freeway, Suite 300
Houston, Texas 77043
Para más información visita www.cemexusa.com.

V9 combinado
12/17

INVOICE

WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

CEMEX

41670836

900 Whipple Road - Union City, CA 94587

NOTE: Excess water is detrimental to concrete quality. Increased water in concrete mix reduces strength and durability and increases shrinkage. Buyer accepts responsibility for water added on job site, which exceeds accepted water/cement ratio and workability specifications.

Plant:	Begin Loading:	To Job:	Arrive Job:	Start Unload:	Finish Unload:	Leave Job:	Return Plant:
4438A	11:31	1158	1225	1235			

Total Amount for This Ticket Not Including Standby Charges:

Cash / Check / Charge	Check # / Auth Code:	Signature of Driver Receiving Cash:	Cash Received:	Total COD Order Amount to Collect Without Standby Charges:

Customer Code:	Customer Name:	Customer Job Number:	Order Code / Date:
3137366	NOR-CAL PUMP & WELL DRILLING INC		3208

Project Code:	Project Name:	Deputy Weighmaster:	Order P.O. Number:
41248880	AB219-OLD JARVIS ROAD IRRI	FRANK UNPINGCO	20-5015

Ticket Date:	Delivery Address:	Map Page:
10/06/21	CEDAR BLVD & BRIDGEPOINTE DR	

Delivery Instructions: NEWARK- XS- PEBBLE BEACH AVE- LOOK FOR THE FLAGGER

Ticket Number: 29892903

Due On Job:	Slump:	Load:	Truck Number:	Driver Number:	Driver Name:	End Use:
12:00	10.00	1	10063505	443010	MORENO, ROLANDO	OTHER

LOAD QUANTITY	CUMULATIVE QUANTITY	ORDERED QUANTITY	MATERIAL CODE	PRODUCTION DESCRIPTION	UOM	UNIT PRICE	AMOUNT
9.00	9	9	1603335	SAND 1034 C+S 50% DS	CY		
1.00	1	1	1590944	AB 219 PER LOAD SURCHARGE	PC		
9.00	9	1	1591161	SUMMERSET 90 RETARDER	DS		
1.00		0	1247817	FUEL SURCHARGE	EA		
1.00		0	1202749	ENVIRONMENTAL CHARGE	EA		

" HAS ANY ONE CALLED YOU OUT ON SAFETY? "

Pump Washout into Mixer ____
Drum Counter: ____/____/____ Concrete Disposal Fee
Previous Truck: ____Partial ____Full Load

Water Added IN GALLONS:	Curb Line Crossed At Owner's Agent's Request:		
X ____ INITIALS	X ____ INITIALS	X ____ AUTHORIZED SIGNATURE Print Name: ____ Date ____ Signature above signifies receipt and acceptance of the listed materials and acknowledgement of and agreement to the CEMEX terms and conditions.	SUB TOTAL TAX TOTAL

BATCH DATA:

41670836

Truck	Load Size	Mix Code	Disp Tick	Seq	Time	Date
063505	9.00 CYDS	1603335	29892903	B2	11:32	10/6/21

Material	Design Qty	Required	Batched	Var	% Var	% Moisture	Actual Wat	Tot.Wat	Trim
CONSND33	2292.00 lb	21453.12 lb	21460.00 lb	6.88	0.03%	4.00% M	98.91 gl	98.91	
CEMENT	517.00 lb	4653.00 lb	4655.00 lb	2.00	0.04%				
SLAG	517.00 lb	4653.00 lb	4645.00 lb	-8.00	-0.17%				
WATER	50.0 gal	342.1 gal	341.0 gal	-1.1	-0.33%		341.0 gl	341.0	-1.0 gl
HYD STAB	15.51 oz	139.59 oz	138.00 oz	-1.59	-1.14%				100.00 %

Actual Num Batches: 3 Manual 11:31:30
Load Total: 33614 lb Design 0.404 Water/Cement 0.395 A Design 450.0 gl Actual 439.9 gl To Add: 10.1 gl
Slump: 10.00 in # Adjust Water: 0.0 gl / Load Trim Water:-1.0 gl / CYD

This Delivery Ticket incorporates herein by reference Buyer's previously executed Credit Application, if any, Seller's Standard Terms and Conditions, Seller's Quotation, if any, and Seller's Order Confirmation (including limitations of warranties), as if fully set forth on this Delivery Ticket ("Agreement"). Seller will provide the Standard Terms and Conditions upon request. Buyer agrees that, unless otherwise noted on the front hereof, all quantities and items were delivered as indicated and further expressly agrees to pay in accordance with the Agreement.

AGGREGATE / CEMENT / CONCRETE PRODUCTS / FLY ASH

Aggregate products are naturally occurring materials including limestone, dolomite, granite, volcanic rock, sand, gravel, and other siliceous materials. Cement products include Portland cement, masonry, pozzolan (Type IP), roof tile, and stucco. Concrete products include Portland cement and aggregate products including limestone, dolomite, granite, volcanic rock, sand, gravel, and other siliceous materials. These products, including fly ash, may contain more than 0.025% crystalline silica.

CAUTION!

Hazards: Products contain components that may cause eye irritation, skin irritation, eye burns, allergic skin reactions, and respiratory tract irritations. Dusts from handling, crushing, grinding, cutting, and or drilling may contain silica. Reference respective SDS for additional Hazard Information.

Safety: Avoid contact with eyes and prolonged contact with skin. Wear gloves, eye protection, and appropriate protective clothing. If being exposed to dust above applicable regulatory limits wear appropriate NIOSH Approved respiratory protection. Wash skin thoroughly with mild soap and water after handling. Reference respective SDS for additional Safety Information.

First Aid: In case of eye contact, cautiously rinse eyes with water for several minutes and, if applicable, remove eye contacts. If inhaled, remove affected to fresh air. If on skin, wash skin thoroughly with mild soap and water. If concerned or irritations persist, get medical attention. Reference respective SDS for additional First Aid Information.

CEMEX
10100 Katy Freeway, Suite 300
Houston, Texas 77043
For more information please visit www.cemexusa.com.

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12/17

Este ticket de entrega incluye como referencia al comprador (ya previamente ejecutada en su aplicación de crédito); cualquier término estándar, condiciones del vendedor, propuestas del vendedor y orden de confirmación del vendedor (con limitaciones y garantías), como acuerdo total del ticket de entrega ("Contrato"). El vendedor proveerá los términos estándares y condiciones detallados en caso de así ser requeridos. Con este documento, el comprador acepta los mismos ya antes mencionados y que las cantidades y materiales fueron entregados como se expresa en el mismo. Acepta pagar el monto de acuerdo al contrato; al menos que se identifique con una nota al frente de este documento.

AGREGADOS / CEMENTO / PRODUCTOS DE CONCRETO / CENIZAS VOLANTES

Los productos de agregados son materiales naturales como piedra caliza, dolomita, granito, roca volcánica, arena, grava y otros materiales silicios. Los productos de cemento incluyen Cemento de tipo Portland, de albañilería, pozzolan (tipo IP), azulejo de azotea y estuco. Los productos de concreto incluyen cemento Portland y productos de agregados como piedra caliza, dolomita, granito, roca volcánica, arena, grava, y otros materiales silicios. Estos productos incluyen cenizas volantes (fly ash) la cual puede contener más de 0.025% de silicio cristalino.

¡CUIDADO!

Riesgos: Los productos contienen componentes que pueden causar irritación ocular, irritación de la piel, quemaduras en los ojos, reacciones alérgicas en la piel e irritaciones de las vías respiratorias. Los polvos de manejo, trituración, molienda, corte y / o perforación pueden contener silicio. Consulte la SDS respectiva para obtener información adicional sobre peligros.

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CEMEX
10100 Katy Freeway, Suite 300
Houston, Texas 77043
Para más información visita www.cemexusa.com.

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12/17

Nor-Cal Pump & Well Drilling, Inc.
Delivering Engineered Solutions

CORPORATE HEADQUARTERS
1325 Barry Road
Yuba City, CA 95993
(530) 674-5861 (530) 674-1525 **Fax**

SUBMITTAL # 002B

NCP JOB # 20-5015

PROJECT OWNER: Alameda County Water District
PROJECT NAME: Old Jarvis Road Irrigation Well Destruction Project
PROJECT NO.: 21246

ROUTING	SENT	REC'D

CONTRACTORS SUBMISSION

TO: ACWD
43885 South Grimmer Blvd.
Fremont, CA 94538
douglas.young@acwd.com

ATTN: Doug Young

DATE: 1/6/2021

Submittal Item Blasting Plan
Spec. Section 1.03B
Activity Number
Supplier/Sub Tylor McMillan's Well Service
Submittal Edition 1st | 2nd X | 3rd | 4th

REVIEW ACTION

ITEM NUMBER	DETAILED DESCRIPTION	Copies Sent	A No Exceptions Taken	B Make Corrections Noted	C Amend and Resubmit	D Reject - See Remarks	E Review Not Required	F Other	Comments
1	Blasting Plan Well 1	e							

SENT BY:
Alberto Vasquez, Director of Operations

REMARKS:

REVIEWED BY:

DATE

REMARKS:

MINIMATE BlastMate III

Serial Number	BA10452 V 10.31-P.17
Trigger Source	Geo 0.0200 in/s
Geo Range	1.25 in/s
Record Time	5.4s Auto 4096 sps
Location:	Old Jarvis Well 1
Client:	Norcal Pump
User Name:	Tylor McMillan
General:	McMil Well Srvc LLC
	Tylor McMillan
	McMil Well Srvc LLC
Extended Notes	
Job Number:	1283
Scaled Distance	20.0 ft., 1.4 lb., 16.9

Trigger Vert at 14:10:20 Jan 14 21

	Tran	Vert	Long	
PPV	0.0387	0.154	0.0644	in/s
ZC Freq	79	46	60	Hz
Time	0.055	0.012	0.068	sec
Accel	0.0597	0.113	0.0663	g
Pk Disp	0.00011	0.00051	0.00023	in

PVS 0.157 in/s at 0.012 Sec

PSPL 131.8 dB(L) at -0.115 Sec
341 Hz

Nor-Cal Pump & Well Drilling, Inc.
Delivering Engineered Solutions

CORPORATE HEADQUARTERS
1325 Barry Road
Yuba City, CA 95993
(530) 674-5861 (530) 674-1525 **Fax**

SUBMITTAL # 001B

NCP JOB # 20-5015

PROJECT OWNER: Alameda County Water District

PROJECT NAME: Old Jarvis Road Irrigation Well Destruction Project

PROJECT NO.: 21246

ROUTING	SENT	REC'D

CONTRACTORS SUBMISSION

TO: ACWD
43885 South Grimmer Blvd.
Fremont, CA 94538
douglas.young@acwd.com

ATTN: Doug Young

DATE: 1/6/2021

Submittal Item Grout Mix
Spec. Section 1.03B
Activity Number
Supplier/Sub Cemex
Submittal Edition 1st | 2nd X | 3rd | 4th

ITEM NUMBER	DETAILED DESCRIPTION	Copies Sent	REVIEW ACTION: A No Exceptions Taken	B Make Corrections Noted	C Amend and Resubmit	D Reject - See Remarks	E Review Not Required	F Other	Comments
1	Cemex Grout Mix	e							

SENT BY:
Alberto Vasquez, Director of Operations

REMARKS:

REVIEWED BY:

DATE

REMARKS:

Date 1/6/2021
Submittal # BA-052684 Version: 1.Revised
Project: # 3137366-41248880 AB219 - Old Jarvis Road Irrigation Well Destruction
Customer Name: Nor-Cal Pump Station
Project Contact: Albert Vasquez

To whom it may concern,

CEMEX is pleased to submit the following concrete mix proportions for the above referenced project:

These concrete mixes have been proportioned in accordance with the requirements of the ACI 318, 301,or 211; applicable industry standard practices; project specifications provided by the customer; or by the customer specific request (local standards).

When placing orders for this project, please order by concrete mix design number.

Mix Code	Mix Description	Usage
1603335	**SAND 1034 C+S 50% DS**	**11 Sack Slurry**

The concrete as delivered to the project will meet or exceed the design strength specified on the delivery ticket when sampled at the point of discharge from the ready mix truck and evaluated with the latest version of ACI 318, ACI 301 and ASTM C-94. The testing laboratory for the project must be certified in accordance with the provisions of ASTM C-1077. The concrete must be in compliance with the submitted mix design and must be tested in strict accordance with the latest version the the applicable ASTM standards.

Chemical admixtures are added in accordance with the chemical admixture manufacturer's recommendations. CEMEX may make adjustments to the admixture dosages at their own discretion in order to meet changes in project site demands.

In accordance with ASTM C-94, and to comply with the latest version of ACI 318; CEMEX requests to be included on the distribution list for all the concrete test reports

In order for the customer to ensure that it receives the concrete with its expected concrete design strength, the customer is responsible for ensuring that the field sampling has been done per ASTM C-172 and ASTM C-31; the testing laboratory is certified in accordance with ASTM C-1077, and testing fully complies with ASTM C-39.

Mix designs submitted can contain premium aggregates (e.g. Orca rock). Premium aggragates are very hard and durable. Care must be taken when considering the saw cutting procedures concerning slabs containing premium aggregates. It is the responsibilty of the saw cutting contractor to apply the appropriate techniques to achieve acceptable joint lines in the concrete.

CEMEX does not commit to a single source of aggregate, cementitious, or admixtures; and reserves the right to change the raw materials included in the products listed at any time, as long as the mixes comply with the project performance specifications.

1001 Shannon Court, Suite D
Livermore, CA 94550-9479
Phone (925) 960-1440

Dear Valued Customer,

As your company and CEMEX move forward into the future working together to produce quality projects, there is a way for you to help us streamline your concrete mix design submittal process. Field test data (back up data) is the best tool to prove the performance of our mix designs.

A steady stream of current field test data would allow us to turn submittal requests around faster as well as meet historic strength data that engineers are looking for. If we can receive field test data from your current project, we may be able to use that data on your next project. In some instances, having current test data may allow the use of more economical concrete mixes.

ASTM C-94 Section 6.8 (2017) states, "The purchaser shall ensure that the manufacturer is provided copies of all reports of tests performed on concrete samples taken to determine compliance with specification requirements. Reports shall be provided on a timely basis."

For your convenience, you can email test data to our email addresses at lily.nguyen@cemex.com, roberte.folley@cemex.com, or eric.waisanen@cemex.com or send the test data to CEMEX Technical Services Lab, 1001 Shannon Court, Suite D, Livermore, CA 94550-9479.

Thank you very much for your help.

CEMEX
Technical Services

1001 Shannon Court, Suite D

Phone (925) 960-1440

Concrete Mix Design Submittal

Date Issued : 1/6/2021
Submittal No.: BA-052684
Project ID: 3137366-41248880
Version: 1.R Plant: F38

Customer: NOR-CAL PUMP & WELL DRILLING INC
Project: AB219 - Old Jarvis Road Irrigation Well Destructio
Usage: 11 Sack Slurry

Mix Number : **1603335** **SAND 1034 C+S 50%DS**

Material Type	Description	Standard	Design Quantity	Volume (ft3)
Cement	Type II/V Cement	C150	517 lb	2.63
Slag	Slag Cement Grade 120	C989	517 lb	2.86
Fine Aggregate	Hanson Concrete Sand	C33	2292 lb	14.02
Water	Water	C1602	50.0 gal	6.68
		Air Content		0.81
		Yield	3743 lb	27

Design Strength (f'c) at 28:
Target Slump: Flowable
Air Content: 3 %
Design Unit Weight: 138.6 lb/ft3
Design W/C+P Ratio:
Design Volume: 27 ft3

CEMEX has no knowledge or authority regarding where this concrete mix is to be placed or its intended application. It is the sole responsibility of the Customer to ensure that the mix parameters of compressive strength, water cement ratio, cement content, pumpability, and air content, are appropriate for the environment conditions at the project site.
The customer acknowledges and confirms that this information is confidential and is being disclosed to the recipient for the purpose of review only. By accepting this information, the recipient agrees:
-to maintain this information in confidence at all times,
-to not disclose this information, in whole or in part, by way of summary or analysis, to anyone except as explicitly agreed to by CEMEX.

COMMENTS:
* Admixture dosages may vary and may be adjusted for ambient temperature, jobsite conditions, and placement time requirements.
* All design parameters are specifically for point of discharge only. CEMEX cannot guarantee any slump, air, or other properties at the point of placement after concrete has been pumped or conveyed to the point of placement.
* The air listed in the mix design above is entrapped naturally. No air entrainment or air entrainment admixture is present in the mix.
* Slump will be flowable

Alyssa Chao

Alyssa Chao Submittal Representative

Eric Waisanen

4200 E Jurupa St.
Suite 312
Ontario, CA 91761
Telephone (909) 974-5469
FAX (909) 974-5525

CEMENT MILL TEST REPORT

Cement Identified as:

Plant: Cemex Construction Materials Pacific LLC

Location: Victorville, CA

Date: 9/11/2020

Prod dates: Beginning: 8/28/2020 Ending: 9/3/2020 Ref . No 44085

STANDARD CHEMICAL REQUIREMENTS (ASTM C114)	ASTM C150 / AASHTO M 85 SPECIFICATIONS	TYPE I	TYPE II	TYPE V	TEST RESULTS
Silicon Dioxide (SiO2), %	Minimum	----	----	----	20.1
Aluminum Oxide (Al2O3), %	Maximum	----	6.0	----	4.0
Ferric Oxide (Fe2O3), %	Maximum	----	6.0	----	3.7
Calcium Oxide (CaO), %		----	----	----	62.1
Magnesium Oxide (MgO), %	Maximum	6.0	6.0	6.0	4.6
Sulfur Trioxide (SO3), % **	Maximum	3.0	3.0	2.3	3.2
Loss on Ignition (LOI), %	Maximum	3.5	3.5	3.5	2.2
Insoluble Residue, %	Maximum	1.5	1.5	1.5	0.90
Sodium Oxide (Na2O), %		----	----	----	0.28
Potassium Oxide (K2O), %		----	----	----	0.43
Equivalent Alkalies (Na2O+.658K2O), %	Maximum	0.60	0.60	0.60	0.56
CO2(%)		----	----	----	1.2
Limestone (%)	Maximum	5.0	5.0	5.0	2.7
CaCO3 in limestone	Minimum	70.0	70.0	70.0	79.4
Inorganic addition	Maximum	5.0	5.0	5.0	1.3
Tricalcium Silicate (C3S), %	Maximum	----	----	----	54
Dicalcium Silicate (C2S), %		----	----	----	16
Tricalcium Aluminate (C3A), %	Maximum	----	8	5	4
Tetracalcium Aluminoferrite (C4AF), %		----	----	----	11
Heat Index (C3S + 4.75C3A)	Maximum		100		73
(C4AF + 2C3A) or (C4AF + C2F), %	Maximum	----	----	25	19
PHYSICAL REQUIREMENTS					
Heat of Hydration (ASTM C1702)	Informational data only				
7 days, kj/kg (cal/g)	Most recent value				301(72.4)
(ASTM C204) Blaine Fineness, cm^2/gm	Minimum	2600	2600	2600	4257
(ASTM C430) -325 Mesh, %		----	----	----	98
(ASTM C191) Time of Setting (Vicat)					
Initial Set, minutes	Minimum / Maximum	45 / 375	45 / 375	45 / 375	116
Final Set, minutes		---	---	---	281
(ASTM C451) False Set, %	Minimum	50	50	50	87
(ASTM C185) Air Content, %	Maximum	12	12	12	6.1
(ASTM C151) Autoclave Expansion, %	Maximum	0.80	0.80	0.80	0.05
(ASTM C87) Normal Consistency, %		----	----	----	26
(ASTM C1038) Expansion in Water %	Maximum	0.020	0.020	0.020	0.001
(ASTM C109) Compressive Strength, psi (MPa)					
1 Day		----	----	----	2180(15)
3 Day	Minimum	1740(12.0)	1450(10.0)	1160(8.0)	3830(26.4)
7 Day		2760(19.0)	2470(17.0)	2180(15.0)	4590(31.7)
28 Day (strength for Ref. No. 44057)	Minimum			3050(21.0)	5990(41.3)

*** The performance of CEMEX Type II, Type V has proven to be improved with sulfur trioxide levels in excess of the 2.3% limit for Type V. Note D in ASTM C150 allows for additional sulfate, provided expansion as measured by ASTM C1038 does not exceed 0.020%.*

CEMEX hereby certifies that this cement meets or exceeds the chemical and physical Specifications of:

ASTM C150-19A Type I, Type II, and Type V Low Alkali portland cements
ASTM C1157-17 Type GU Hydraulic Cement
AASHTO M 85-19 Type I, Type II, and Type V Low Alkali portland cements
CalTrans, Section 90-2.01 T II Modified and Type V (2006)
CalTrans, Section 90-1.02B (2) (2010-2018)
Arizona DOT Standard Specification 1006-2.01 Hydraulic Cement
Nevada DOT Specification 701.03.01
C465 qualification data will be made available upon request

By:

Quality Control Manager
CEMEX - Victorville Cement Plant
16888 North "E" St., 'Victorville, CA 92394

4200 E Jurupa Street
Suite 312
Ontario, CA 91761
Telephone (909) 974-5469
FAX (909) 974-5525

CEMENT MILL TEST REPORT

Cement Identified as:

Plant: Cemex Construction Materials Pacific LLC
Location: Victorville, CA
Production Dates:

Date: **9/11/2020**

Beginning **August 28, 2020**
Ending **September 3, 2020**

Reference No. **44085**

Additional Data

Inorganic and Limestone Addition

Inorganic Addition		Limestone Addition	
Amount (%)	1.27	Amount (%)	2.7
SiO2 (%)	12.82	SiO2 (%)	5.26
Al2O3 (%)	3.22	Al2O3 (%)	2.06
Fe2O3 (%)	2.22	Fe2O3 (%)	1.19
CaO (%)	41.07	CaO (%)	53.83
SO3 (%)	0.30	SO3 (%)	0.03

Base Cement Phase Composition

C3S (%)	56
C2S (%)	17
C3A (%)	4
C4AF (%)	11

We certify that the above described data represents the materials used in the cement manufacured during the production period indicated

By: _____

Quality Control Manager
CEMEX - Victorville Cement Plant
16888 North "E" St., 'Victorville, CA 92394

3990 E Concours Street
Suite 200
Ontario, CA 91764
Telephone (909) 974-5469
FAX (909) 974-5525

CEMENT MILL TEST REPORT

Cement Identified as: **Date:** **5/8/2020**

Plant: Cemex Yaqui Plant

Location: Hermosillo, Sonora, Mexico

Ref . No: **April-20**

STANDARD CHEMICAL REQUIREMENTS (ASTM C114)	ASTM C150 / AASHTO M 85 SPECIFICATIONS	TYPE I	TYPE II	TYPE V	TEST RESULTS
Silicon Dioxide (SiO2), %	Minimum	----	----	----	20.3
Aluminum Oxide (Al2O3), %	Maximum	----	6.0	----	3.7
Ferric Oxide (Fe2O3), %	Maximum	----	6.0	----	3.1
Calcium Oxide (CaO), %		----	----	----	64.0
Magnesium Oxide (MgO), %	Maximum	6.0	6.0	6.0	0.9
Sulfur Trioxide (SO3), % **	Maximum	3.0	3.0	2.3	4.4
Loss on Ignition (LOI), %	Maximum	3.5	3.5	3.5	2.7
Insoluble Residue, %	Maximum	1.50	1.50	1.50	0.9
Sodium Oxide (Na2O), %		----	----	----	0.2
Potassium Oxide (K2O), %		----	----	----	0.4
Equivalent Alkalies (Na2O+.658K2O), %	Maximum	0.60	0.60	0.60	0.51
CO2(%)		----	----	----	1.9
Limestone (%)	Maximum	5.0	5.0	5.0	5.0
CaCO3 in limestone	Minimum	70.0	70.0	70.0	85.3
Inorganic process addition	Maximum	5.0	5.0	5.0	---
Tricalcium Silicate (C3S), %	Maximum	----	----	----	59
Dicalcium Silicate (C2S), %		----	----	----	12
Tricalcium Aluminate (C3A), %	Maximum	----	8	5	5
Tetracalcium Aluminoferrite (C4AF), %		----	----	----	9
Heat Index (C3S + 4.75C3A)	Maximum		100		81
(C4AF + 2C3A) or (C4AF + C2F), %	Maximum	----	----	25	19
PHYSICAL REQUIREMENTS					
Heat of Hydration (ASTM C1702)	Informational data only				
7 days, kj/kg (cal/g)	Most recent value				310(74.2)
(ASTM C204) Blaine Fineness, cm^2/gm	Minimum	2600	2600	2600	4050
(ASTM C430) -325 Mesh, %		----	----	----	96
(ASTM C191) Time of Setting (Vicat)					
Initial Set, minutes	Minimum / Maximum	45 / 375	45 / 375	45 / 375	210
Final Set, minutes		---	---	---	300
(ASTM C451) False Set, %	Minimum	50	50	50	83
(ASTM C185) Air Content, %	Maximum	12	12	12	6.6
(ASTM C151) Autoclave Expansion, %	Maximum	0.80	0.80	0.80	0.07
(ASTM C187) Normal Consistency, %		----	----	----	25
(ASTM C1038) Expansion in Water %	Maximum	0.020	0.020	0.020	0.004
(ASTM C109) Compressive Strength, psi (MPa)					
1 Day		----	----	----	2540(17.5)
3 Day	Minimum	1740(12.0)	1450(10.0)	1160(8.0)	4240(29.2)
7 Day	Minimum	2760(19.0)	2470(17.0)	2180(15.0)	5230(36.1)
28 Day	Minimum			3050(21.0)	6730(46.4)

** The performance of CEMEX Type II, Type V has proven to be improved with sulfur trioxide levels in excess of the 2.3% limit for Type V.

Note D in ASTM C150 allows for additional sulfate, provided expansion as measured by ASTM C1038 does not exceed 0.020%.

CEMEX hereby certifies that this cement meets or exceeds the chemical
and physical Specifications of:

ASTM C150-19A Type I, Type II, and Type V Low Alkali portland cements
ASTM C1157-17 Type GU Hydraulic Cement
AASHTO M 85-19 Type I, Type II, and Type V Low Alkali portland cements
CalTrans, Section 90-2.01 T II Modified and Type V (2006)
CalTrans, Section 90-1.02B (2) (2010-2018)
Arizona DOT Standard Specification 1006-2.01 Hydraulic Cement
Nevada DOT Specification 701.03.01
C465 qualification data will be made available upon request

By:

Quality Control Manager
CEMEX - Victorville Cement Plant
16888 North "E" St., 'Victorville, CA 92394

3990 E Concours Street
Suite 200
Ontario, CA 91764
Telephone (909) 974-5469
FAX (909) 974-5525

CEMENT MILL TEST REPORT

Cement Identified as:
Plant: Cemex Yaqui Plant
Location: Hermosillo, Sonora, Mexico

Date: **5/8/2020**

Ref . No: **43922**

Additional Data

Limestone Addition

Amount (%)	5.0
SiO2 (%)	10.1
Al2O3 (%)	0.7
Fe2O3 (%)	0.8
CaO (%)	47.5
SO3 (%)	0.2

Base Cement Phase Composition

C3S	62
C2S	13
C3A	5
C4AF	10

We certify that the above described data represents the materials used in the cement manufactured during the production period indicated

By:

Quality Control Manager
CEMEX - Victorville Cement Plant
16888 North "E" St., 'Victorville, CA 92394

LEHIGH
HEIDELBERGCEMENT Group

Lehigh Southwest Cement Company

SALES & MARKETING
3000 Executive Pkwy, Suite 240
San Ramon, CA 94583
Telephone (925) 244-6500
FAX (925) 244-6586

PLANT LOCATION
Tanshan Tan-Ang Materials Co., LTD
Sanjiang Town Along the Road
Tangshan, China
(86-316) 3177158

TERMINAL LOCATION
Port A Harbor Road
Port of Stockton, CA 95203
Telephone (209) 465-1921
FAX (209) 465-1083

AASHTO R18

LEHIGH SLAG CEMENT TEST REPORT

Specification: ASTM C 989 Grades 100 & 120

Report Date: 11-Aug-2020

STANDARD CHEMICAL AND PHYSICAL REQUIREMENTS	TEST RESULTS	ASTM C 989 SPECIFICATIONS	
		Grade 100	Grade 120
Sulfur Trioxide (SO_3), %	4.67	----	----
Sulfur Sulfide (S),%	1.310	2.5	2.5
Alumium Oxide (Al_2O_3),%	15.7	----	----
Chloride (Cl),%	0.01	----	----
Equivalent Alkalies (Na2O + 0.658 K2O), %	0.60	----	----
(ASTM C 204) Blaine Fineness, m^2/km	453	----	----
(ASTM C 430) 325 Mesh, % Passing	96.0	80 Min	80 Min
Density	2.91	----	----
(ASTM C 185) Air Content, %	4.8	12 Max	12 Max
SLAG ACTIVITY INDEX, %			
7 Day Individual	87	----	----
7 Day Average of last 5	93	----	----
28 Day Individual	113	90 Min	110 Min
28 Day Average of last 5	120	95 Min	115 Min
COMPRESSIVE STRENGTH, psi			
7 Day Reference Cement	3980	----	----
28 Day Reference Cement	5250	5000 psi Min	5000 psi Min
7 Day Slag and Cement Reference	3710	----	----
28 Day Slag and Cement Reference	6280	----	----

This GGBFS meets the requirements of ASTM C 989-18 (Grade 100 and Grade 120)

AASHTO M 302
GGBFS original source is Tangshan Tan-Ang Materials Co., LTD, China
AASHTO Practice R18 accredited laboratory

Morgan Johnson, Technical Services Manager

Slag Cement Test Report

CTC ID: 302
Slag Source: Rizhao Monthly sample
Sample Date: June 2020
Report Date: 7/16/2020
Sample Log CTC ID: 2020-325

Cemex USA, Tampa Technical Center
6725 78th St, Riverview, FL, 33578
Phone: (813) 671-2266
Fax: (813) 677-7597

Specifications: ASTM C 989 Grades 100 & 120

Chemical and Physical Requirements	Test Result	Specifications	
Sulfur Trioxide (SO_3) (ASTM C114), %	2.97	---	
Sulfide Sulfur (S) (ASTM C114), %	0.66	2.5 Max	
Chloride (Cl) (ASTM C114), %	0.016	---	
Aluminum Oxide (Al_2O_3) (ASTM C114), %	17.3	---	
Blaine Fineness (ASTM C204), m^2/kg	488	---	
Fineness Retained - 45 Micron (ASTM C430), %	0.2	20 Max	
Specific Gravity (ASTM C188)	2.89	---	
Air Content (ASTM C185), %	3	12 Max	
Mortar Expansion (ASTM C1038) 14-day ,%	0.008	0.020 Max	
Total Equivalent Alkalies (Na_20+0.685 K_20), (ASTM C114), %	0.57	---	
Slag Activity Index (ASTM C109)		**Grade 100**	**Grade 120**
7 Day - Individual, %	105	---	---
7 Day - Average of last 5, %	106	---	---
28 Day - Individual, %	117	90 Min	110 Min
28 Day - Average of last 5, %	124	95 Min	115 Min
Compressive Strength (ASTM C109)		**Specifications**	
7 Day - Reference Cement, psi	5017	---	
28 Day - Reference Cement, psi	6601	5,000 Min	
7 Day Slag and Cement Reference, psi	5257	---	
28 Day Slag and Cement Reference, psi	7691	---	
Reference Cement (ASTM C114 & C150)		**Specifications**	
Cement Type	Type II	Type I-Type II	
Total Equivalent Alkalies (Na_20+0.685 K_20), %	0.60	0.6 Min/ 0.9 Max	

This GGBFS meets requirements of ASTM C 989-18a and AASHTO M 302-15

- ☐ Grade 100 ASTM C989
- ☐ Grade 100 AASHTO M302
- ☑ Grade 120 ASTM C989
- ☑ Grade 120 AASHTO M302

Yareliz Rios

By: Yareliz Rios
Chemist at Cemex Technical Center USA

Hanson
HEIDELBERGCEMENT Group

OAKLAND MARINE
4501 TIDEWATER AVENUE
OAKLAND, CA 94601
510.261.8533

05/06/2020

Cemex
erickr.francisco@cemex.com
Attn : Erick Francisco

Project Reference: General Information

The typical physical properties of the aggregate are summarized below. SMARA #' s:91-38-0003, 91-38-0002

110101-CONCRETE SAND

Procedure	Sieve/Test	Average	Unit	CALTRANS Fine Agg PCC OR
	3/8" (9.5mm)	100	%	99.5-100
	#4 (4.75mm)	96	%	95-100
	#8 (2.36mm)	84	%	65-95
	#16 (1.18mm)	64	%	55-75
	#30 (.6mm)	42	%	34-52
	#50 (.3mm)	21	%	16-28
	#100 (.15mm)	2	%	2-12
	#200 (75µm)	0.7	%	0-8
	FM	2.89		2.68-3.02
	SE	92	%	≥75

X – Values
#16 = 65 # 30 = 43 # 50 = 22

CTM - 206	Specific gravity, bulk SSD	2.64	
CTM - 206	Absorption	1.0 +/- .3 %	
CTM - 229	Durability	80	
CTM - 214	Sodium Sulfate Soundness	2.0 %	10 % max
C - 117	Material Finer Than No. 200	<1 %	
CTM-213	Organic Impurities	Satisfactory	
CTM-515	Rel. Mortar Strength	95 %	
CTM - 212	Unit Weight (dry rodded) pcf	pcf	
C - 123	Lightweight Pieces (Coal & Lignite)	0.4 %	
C - 142	Clay Lump and Friable Particles	1.0 %	
C – 1293	Alkali Silica Reactivity	0.021 % (Innocuous)	0.04 % max

This product complies with the CalTrans Standard Specifications, 2018, Section 90 for Fine Aggregate for Concrete Sand.

Should you have questions regarding this aggregate material, please do not hesitate to call your Sales Representative

Tylor McMillan's Well Service

9530 Hageman Rd. STE B #349 Bakersfield CA, 93312
Phone: (916) 761-5224 Email: mcmillans521@gmail.com
Website: www.wellblaster.com

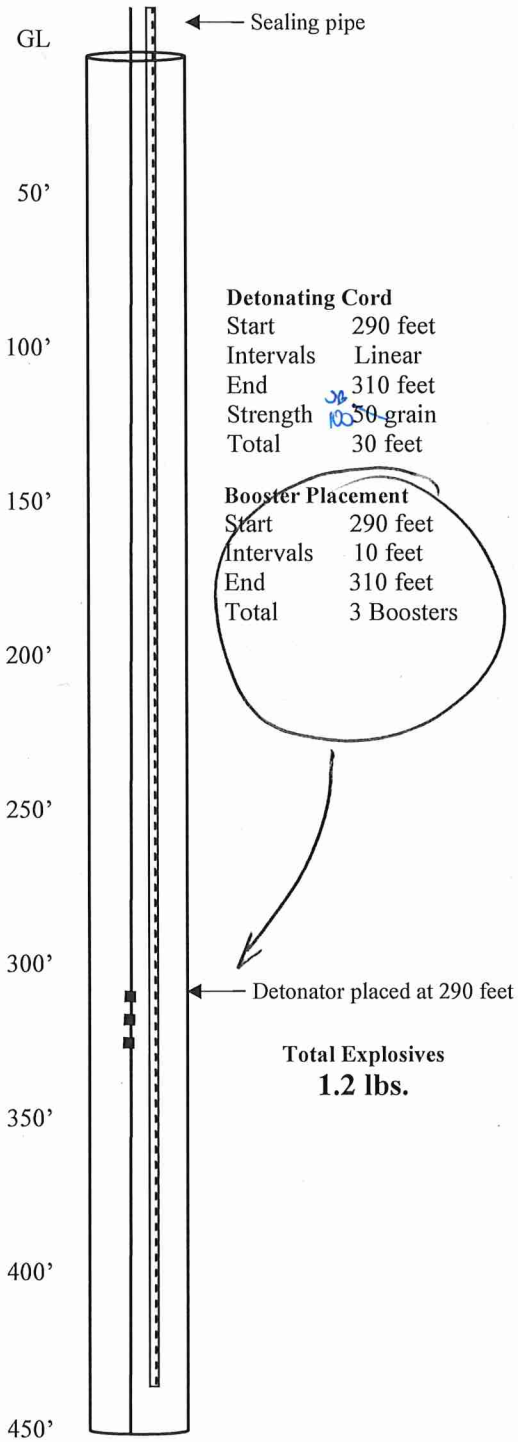
Date: January 6, 2021

BLASTING WORK PLAN

Well: Old Jarvis Road Well 1
Casing 12 -inch ID Steel to 450 feet

Location: 37.5332937
-122.0569035

Plan date and time : Pending



Boosters				
Density g/cc	1.55	g/cc		
Detonation Velocity	24,000	ft/s	7,315	m/s
Casing Diameter	**12**	inches		
Charge Wt.	**0.15**	**Kg**	150	grams
Detonation pressure	207	k/bar		
Total energy ea.	13,997	k/bar		
Pressure at casing	15.47	k/bar	231,567	psi
Pressure at 10 feet	0.00		29	psi
Explosive Cord				
Density g/cc	1.60	g/cc		
Detonation Velocity	22,000	ft/s	6,706	m/s
Casing Diameter	**12**	inches		
Grains	**50**	gr/ft	3.24	g/ft
Detonation pressure	**180**	**k/bar**		
Total energy pef ft.	**22**	**k/bar**		
Pressure at casing	**0.19**	**k/bar**	**2,892**	**psi**

***These are estimated pressure for a empty well**

Site procedure

1. Check site and measure well depth
2. Clear work site of all unessential personal
3. Lower charges and drop pipe into the well
4. Pump sealing material to top of well
5. Check and clear blast area (sound blast warning)
6. Arm explosives
7. Confirm area clear (final blast warning)
8. Detonate charge
9. Check hole and sound all clear
10. Refill cement to top of well to form a mushroom cap

Name of Blaster Preparing Plan: Tylor McMillan

*Tylor McMillan's Well Service reserves the right to change or modify the charge in any way necessary to maintain the safety of all personnel onsite and in surrounding areas.

Tylor McMillan's Well Service

9530 Hageman Rd. STE B #349 Bakersfield CA, 93312
Phone: (916) 761-5224 Email: mcmillans521@gmail.com
Website: www.wellblaster.com

Date: October 6, 2021

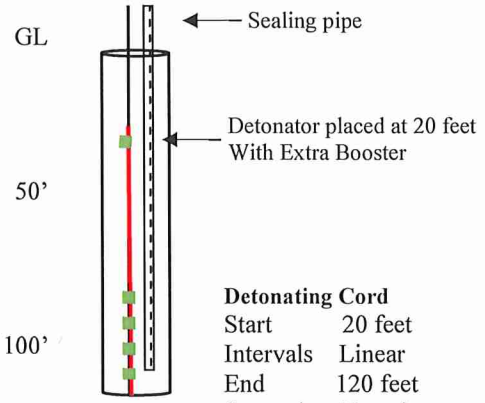
BLASTING WORK PLAN

Well: Old Jarvis Road Well 5

Four Wells Drilled Around One Old Well
Casing 6 -inch ID PVC to 120 feet

Location: 37.5326370
-122.564975

Plan date and time : Pending



Detonating Cord

Start	20 feet
Intervals	Linear
End	120 feet
Strength	50 grain
Total	100 feet

Booster Placement

Start	80 feet
Intervals	10 feet
End	120 feet
Total	5 Boosters

Total Explosives
2.68 lbs.

Boosters

Density g/cc	1.55	g/cc		
Detonation Velocity	24,000	ft/s	7,315	m/s
Casing Diameter	**6**	inches		
Charge Wt.	**8**	**Kg**	8,000	grams
Detonation pressure	207	k/bar		
Total energy ea.	746,495	k/bar		
Pressure at casing	6,600.45	k/bar	98,802,064	psi
Pressure at 10 feet	0.10		1,544	psi

Explosive Cord

Density g/cc	1.60	g/cc		
Detonation Velocity	22,000	ft/s	6,706	m/s
Casing Diameter	**6**	inches		
Grains	**50**	gr/ft	3.24	g/ft
Detonation pressure	**180**	**k/bar**		
Total energy pef ft.	**22**	**k/bar**		
Pressure at casing	**0.77**	**k/bar**	**11,569**	**psi**

***These are estimated pressure for a empty well**

Site procedure

1. Check site and measure well depth
2. Clear work site of all unessential personal
3. Lower charges and drop pipe into the well
4. Pump sealing material to top of well
5. Check and clear blast area (sound blast warning)
6. Arm explosives
7. Confirm area clear (final blast warning)
8. Detonate charge
9. Check hole and sound all clear
10. Refill cement to top of well to form a mushroom cap

Name of Blaster Preparing Plan: Tylor McMillan

*Tylor McMillan's Well Service reserves the right to change or modify the charge in any way necessary to maintain the safety of all personnel onsite and in surrounding areas.

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date	Name	Affiliation	Time - In	Time - Out	Reason
12/21/20	ALBERTO VASQUEZ	NORCAL PUMP	1000	1700	WELL DESTRUCTION
12/21/20	Rachel Terles	USFWS	10 00	12:15	land owner
12/21/20	AVA LAZOR	ACWD	1000	12:15	Pre-construction site walk
12/21/20	DOUGLAS YOUNG	ACWD	1000	1345	"
12/21/20	ANTON STURMS	ACWD	10 30	1700	PRE CONSTRUCTION /
12/21/20	GERMAINE BROWN	NORCAL pump	11:30	1700	WELL ABANDONMENT
12/21/20	Jose Oresel	NORCAL Pump	11 30	1700	well Abandon
12/21/20	Don Chandler	Nor-Cal Pump	11:30	1700	well "
12-21-20	Hari Heer	NorCal	4 :	1700	WELL
12/21/20	JOSE SANCHEZ	NORCAL	4:09	1700	WELL
12/21/20	BRYAN SALAS	NORCAL	4:10	1700	WELL
DAY 2 12/22/20	ANTON STURMS	ACWD	7:30		WELL
12/22/20	Bryan Salas	NCP	7:30	1625	well Demo
12/22/20	Jose Sanchez	NCP	7:30	1625	Well Demo
12/22/20	KIT SOO	ACWD	12:55	1625	" "
12-22-20	HARI HEER	NCP	11:A	1625	
12-22-20	~~Doug~~ Young	ACWD	15:45	1625	" "
12-22-20	Ryan Farrell	Pacific Surveys	18:22	[redacted]	Camara log
DAY 3 12/23/20	Doug Young	ACWD	6:50	350	well destruction
12/23/20	Bryan	NOR CAL Pump	7:00am	350	well destruction
12/23/20	Jose Sanchez	NOR CAL PUMP	7:10am	350	well destruction
"	KIT SOO	ACWD	2:15	350	

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.04.21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	~~07~~ 1235	1630	inspection
			↓	
Bryan Salas	NCP	12:30 pm	4:20 pm	Well Destruction
Jose Sanchez	NCP	12:30 pm	4:20 pm	"

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.05.21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0730	1658	Inspection
			↓	
Bryan Salas	NCP	7:30 am	4:55 pm	Well Demo
Jose Sanchez	NCP	7:30 am	4:55 pm	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01-06-21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0740	1630	inspection
Dan Young	ACWD	9:55	11:25	site visit
Bryan Salas	NCP	8:00 am	1630	well Demo
Jose Sanchez	NCP	7:30 am	↓	well Demo
Gordon Hancock	NCP	3:55 pm		Delivery
Pavel Zuykov	NCP	3:55 pm		Delivery

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.07.21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0730	1620	Inspection
Bryan Salas	NCP	7:30am	4:15 pm	Well Demo
Jose Sanchez	NCP	7:30am	4:15 pm	Well Demo
Allan R. Murillo	ACWD	11:00am	1:00 pm	cross training

Daily Sign-in Sheet
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 1/8/21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Cortez	ACWD	7:30	16:00	Inspection
Bryan Salas	NCP	7:30 am	↓	Well Demo
Jose Sanchez	NCP	7:30 am		Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.14.21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0945	1630	inspection
Bryan Salas	NCP	10:40am	1910	Well Demo
Jose Sanchez	NCP	10:45am	1910	Well Demo
Tyler Mumma	TMWS	10:56AM	1330	Demo
[illegible]	R+R Pumping	11:46	1910	pumping Concrete
Allan R. Murillo	ACWD	11:40	1520	cross training
Doug Young	ACWD	1220	1624	
Ava Lazor	ACWD	12:20	1520	observation.
Hari [illegible]	WC-IE	12:20	1420	
Brianna Thomas	ACWD	16:10	1910	Inspection

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 1-15-21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Carter	ACWD	7:30	16:17	Inspector
Bryan Salas	NCP	7:30	↓	Well Demo
Jose Sanchez	NCP	7:30		Well Demo
HARI HEER	NCP	8:30	↓	

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 1/19/21

Name	Affiliation	Time - In	Time - Out	Reason
Aaron S[illegible]	ACWD	10:00		Well
Bryan Salas	NCP	10:30		Well Demo
Jose Sanchez	NCP	10:30		Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01·20·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0720	1630	Inspection
Bryan Salas	NCP	0720	↓	Well Demo
Jose Sanchez	NCP	0720	↓	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01·21·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0710	0822	Well Destruction Inspection
Allan R. Murillo	ACWD	0710	1635	well Destruction Inspector
Bryan Salas	NCP	0710	1635	Well Demo
Jose Sanchez	NCP	0710	1635	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 1-22-21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Cortez	ACWD	7:30	15:30	Inspection
Bryan Salas	NCP	7:30	15:30	Well Demo
Jose Sanchez	NCP	7:30	15:30	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 1/25/21

Name	Affiliation	Time - In	Time - Out	Reason
Aaron Sturino	ACWD	11:30	1500	Well
Bryan Salas	NCP	1335	1500	
Jose Sanchez	NCP	1335	1500	

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 2/1/21

Name	Affiliation	Time - In	Time - Out	Reason
Andrew [illegible]	Acwd	1305	1615	Well
Brian [illegible]	NCP	1340	1615	Well
Jose Sanchez	NCP	1340	1615	Well

Daily Sign-in Sheet
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 02·02·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0720	1630	Inspection
Bryan Salas	NCP	↓	↓	Well
Jose Sanchez	NCP	↓	↓	Well

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 02·03·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0745		Inspection
Bryan Salas	NCP	7:45 am		Well
José Sanchez	NCP	7:45am		Well

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 02·04·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	1005	1330	Inspection
Bryan Salas	NCP	1005	↓	Clean up
Jose Sanchez	NCP	1005	↓	Clean up

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 2/25/21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Cortez	ACWD	11:20	16:50	Inspector
[illegible]	NCP	11:am	16:50	Dem
[illegible]	NCP	11:Am	16:50	Demo
Douglas Young	ACWD	11:00	12:20	Demob ob

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 09·287·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	1325	1610	Well Dest. Inspection
Bryan Salas	NCP	1:35 pm	4:10 pm	Well Demo
Jose Sanchez	NCP	1:35 pm	4:10 PM	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 9/28/21

Name	Affiliation	Time - In	Time - Out	Reason
Bryan Salas	NCP	1:30 PM	4:20	Well Demo
Jose Sanchez	NCP	1:30 PM	4:20	Well Demo
Pablo Cortez	ACWD	1:30 PM	4:30	Well Demo inspection

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 9/29/21

Name	Affiliation	Time - In	Time - Out	Reason
Bryan Salas	NCP	7:30am	4:45pm	Well Demo
Alex Robles	NCP	07:30	4:45 pm	well Demo
Jose Sanchez	NCP	7:30	4:45pm	well Demo
Davy Yang	ACWD	1:00	4:00 pm	ACWD
Pablo Cortez	ACWD	7:30	4:45 pm	Well demo inspection

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 9/30/21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Cortez	ACWD	7:30		Inspection
Bryan Salas	NCP	7:30 am	4:30 PM	Well Demo
Jose Sanchez	NCP	7:30	4:30 PM	Well Demo
Alex Reyes	NCP	7:30 AM	16:30	well Demo
Doug Young	ACWD	11:30	1:05 PM	site visit
Rachel Tekes	USFWS	1230	1 pm	site visit
MICHAEL GERVAIS	USFWS	1230	1PM	Site Visit
~~Alex Reyes~~	~~NCP~~			

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10/1/21

Name	Affiliation	Time - In	Time - Out	Reason
Bryan Salas	NCP	7:30 AM	3:00 pm	Well Demo
Alex Robles	NCP	7:30 AM	3:00 pm	Well Demo
Jose Sanchez	NCP	7:30 AM	3:00 pm	Well Demo
Pablo Cortez	ACWD	7:30	3:00 pm	Inspection

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10/6/21

Name	Affiliation	Time - In	Time - Out	Reason
Bryan Salas	NCP	8:00 am	5:45 PM	Well Demo.
Alfonso Torres	NCP	8:00 am	5:45 PM	Well Demo.
Jose Sanchez	NCP	8:00 am	5:45PM	Well Demo.
Pablo Cortez	ACWD	7:30 am	5:~~45~~ 55 PM	Inspection
Oswald Guzman	Patriot	09:07	9:19	Samples
Tyler McMillan	TMWS	09:30 AM	15:20	Blaster
Ava Lopez	ACWD	10:57 AM	12:00	Site Visit
Dan Young	ACWD	10:57	15:12	Site Visit
John Efftimia	Rock N Ready	11:00	5:~~45~~ 55 pm.	Pumping
Diana Conkle	SWRCB	11:30	15:12	Well Demo

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10/7/21

Name	Affiliation	Time - In	Time - Out	Reason
Pablo Cortez	ACWD	7:30	3:30 PM	Inspection
Jose Sanchez	ACWD	7:30	3:30 PM	
Bryan Salas	NCP	7:30	3:30 PM	Clean up
Alfonso Torres	NCP	7:30	3:30 PM	Clean up

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10/8/21

Name	Affiliation	Time - In	Time - Out	Reason
Bryan Salas	NCP	8:30 am	1:30 PM	Clean up
Alfonso Torres	NCP	8:30 am	1:30 PM	Clean up
Jose Sanchez	NCP	8:30 am	1:30 PM	Clean up
Pablo Cortez	ACWD	8:30 am	14:00	Inspection

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10-18-21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	1035	1545	Site Cleanup / Demobe
Edwin Avila	Patriot	10:40	1420	↓
Bryan Salas	NCP	10:00 am	1545	↓
Bryan Salas (José Sanchez)	NCP	10:00am	↓	↓
Felipe Arevalo	Patriot	11:30 AM	1420	

Daily Sign-in Sheet

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 10·19·21

Name	Affiliation	Time - In	Time - Out	Reason
Jeremy Bautista	ACWD	0800	0910	Site Clean-up
Bryan Salas	NCP	0835	↓	↓ / De-mobe
José Sanchez	NCP	↓	↓	↓ / ↓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 12-23-2020

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP)	✓
Plastic beneath equipment to catch spillage	✓
Vegetation cleared 2 feet from fencing	✓
Extra water supply for fire suppression	✓

Daily:

Check for animals beneath and around work area	✓
Check if access roadway is moist (dust control)	✓

Daily Field Checklist

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.04.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 01.05.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 01.06.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 01.07.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 01.14.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 01.20.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 01.21.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 02.02.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 02.03.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246
Date 02.04.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist

Old Jarvis Road Irrigation Well Destruction Project

ACWD Job number 21246

Date 02.09.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 09.27.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP)	✓
Plastic beneath equipment to catch spillage	✓
Vegetation cleared 2 feet from fencing	✓
Extra water supply for fire suppression	✓

Daily:

Check for animals beneath and around work area	✓
Check if access roadway is moist (dust control)	✓ not moist

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 10.18.21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) ✓

Plastic beneath equipment to catch spillage ✓

Vegetation cleared 2 feet from fencing ✓

Extra water supply for fire suppression ✓

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓ not moist

Daily Field Checklist
Old Jarvis Road Irrigation Well Destruction Project
ACWD Job number 21246

Date 10·19·21

Mobilization (twice to 001 and 005):

Exclusion Fencing (se item 3 Page 5 of SUP) _____

Plastic beneath equipment to catch spillage _____

Vegetation cleared 2 feet from fencing _____

Extra water supply for fire suppression _____

Daily:

Check for animals beneath and around work area ✓

Check if access roadway is moist (dust control) ✓

Appendix D – Well Destruction Report

Groundwater Grant Program

Well Destruction Report

Grantee:	Alameda County Water District
Title:	Old Jarvis Road Irrigation Well Destruction Project
Agreement No.:	D1712501
Date:	March 30, 2022
Project Type:	Groundwater Implementation
Total Project Cost:	$413,931.00

Funding for this Project has been provided in full or in part through an agreement with the State Water Resources Control Board (State Water Board). The contents of this document do not necessarily reflect the views and policies of the State Water Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Project Background

Since its formation, the Alameda County Water District (District) has strived to protect the Niles Cone Groundwater Basin (Niles Cone) from over-pumping and saltwater intrusion. Although there has been substantial improvement in the Niles Cone as a result of the District's groundwater management efforts, brackish water still remains in the aquifers. The District identified elevated chloride concentrations in the Centerville-Fremont Aquifers in the vicinity of identified abandoned irrigation wells located on the site of the former Silver Pines Golf Course on property currently owned by the United States Fish and Wildlife Service. Based on the data collected, it was suspected that two abandoned legacy irrigation wells were acting as preferential pathways for saline water to enter the regional Centerville-Fremont Aquifers.

The purpose of the Old Jarvis Road Irrigation Well Destruction Project (Project) was to destroy two abandoned legacy irrigation wells, 5S/2W-02D001 (Well D001) and 5S/2W-02D005 (Well D005), in the western section of the Niles Cone that were acting as potential preferential pathways for saltwater to enter into active water production aquifers. Destruction of the wells will assist in limiting the amount of saltwater intrusion impacting drinking water sources and threatening the District's Mowry Wellfield.

Summary of Changes to Well Destruction Design Plan During Project Implementation

The abandoned legacy irrigation wells were to be destroyed through use of explosive detonation. Each well was to be cleaned out, filled with a sand slurry cement mixture, and explosive perforations conducted at identified aquitard zones. Unless otherwise noted, well destruction was completed as designated in the Well Destruction Design Plan. Required licensing, permits, documentation, blast design, and downhole charge materials, weights, and placement were all completed as described in the California Groundwater Association (CGA) Adopted Standard Article 800 (Explosive Destruction Standard). Following destruction of the wells, Well Completion Reports were filed with the California Department of Water Resources; see Attachment 1.

WELL 5S/2W-02D001

In the process of removing and cutting the final column pipe from Well D001 on January 5, 2020, oil began to flow from the pipe and plastic sheets and rags were used to contain the water and prevent it from impacting the vegetation. Absorbent pads and wattles were also used to contain the impacted water on January 6, 2021. A sample of the effluent oil was

collected on January 8, 2021, and analyzed for EPA Method 1664 (oil and grease) and EPA Method 1664-SG (oil and grease with silica gel clean-up). Analytical results are provided in Appendix E of the Final Project Report. The results indicated that more than 63% of the oil and grease was non-polar, indicating that the oil was likely plant-based (i.e., food-grade oil). Production wells commonly utilize food-grade oil, and the analytical results are consistent with a highly degraded food-grade vegetable-based oil. Therefore, the effluent was not considered an environmental risk.

On January 14, 2021, well destruction activities began at Well D001 with Tylor McMillan's Well Service. Following detonation, it was discovered that the tremie was lodged into the boring, unable to be removed. In order to grout the hole to the surface, a 3-inch steel tremie was placed in the hole and an additional 9-CY cement truck arrived to pump additional grout into the hole through the 3-inch tremie to 2 feet bgs. On January 15, 2021, the top 5 feet of conductor casing at Well D001 was removed with a cutting torch, and the excavation was backfilled to surface.

WELL 5S/2W-02D005

On December 22, 2020, during hand digging to locate Well D005, a rusty, deteriorated steel barrel (approximate dimensions 2.5 feet in diameter, 3.5 feet in length) and gravel pipe were uncovered. Further, a discharge pipe, pump, broken concrete, and soil were found inside Well D005 on December 23, 2020. Due to the discovery these items, the clearing of Well D005 to depth was not possible.

Following evaluation and extensive discussions between staff at United States Fish and Wildlife Service, State Water Board, the District, and Nor-Cal Drilling, Inc., it was decided that Well D005 would be destroyed by drilling four adjacent borings ("barrier wells") around Well D005 and conducting explosive detonations in the barrier wells in order to destroy the well from its exterior (rather than its interior, as was initially planned). A conceptual sketch of this alternate destruction approach is provided below as Figure 1. On September 27, 2021, barrier trenching and installation was completed. Drilling, logging, and installation of the first, second, and third and fourth barrier wells was completed on September 29, 30, and October 1, 2021, respectively. Each barrier well was completed with 6-inch PVC casing at a total depth of 120 feet bgs. 2-inch steel tremie pipes were installed in all barrier wells.

The detonation cord for all wells was placed to 120 feet bgs with four boosters placed from 80 to 120 feet bgs and an additional charge placed at 20 feet bgs to sever the PVC casings on the barrier wells. The four barrier wells were tremie grouted with neat cement to surface through the 2-inch steel tremie pipes. On October 6, 2021, the four barrier wells were perforated using explosive charges at specific intervals of the Well, including at 20 feet bgs (with extra booster) and every 10 feet from 80 feet bgs to 120 feet bgs, hence completing destruction of Well D005. The remaining barrier well PVC casings were removed, the borings were completed to surface with neat cement, and control casings were removed.

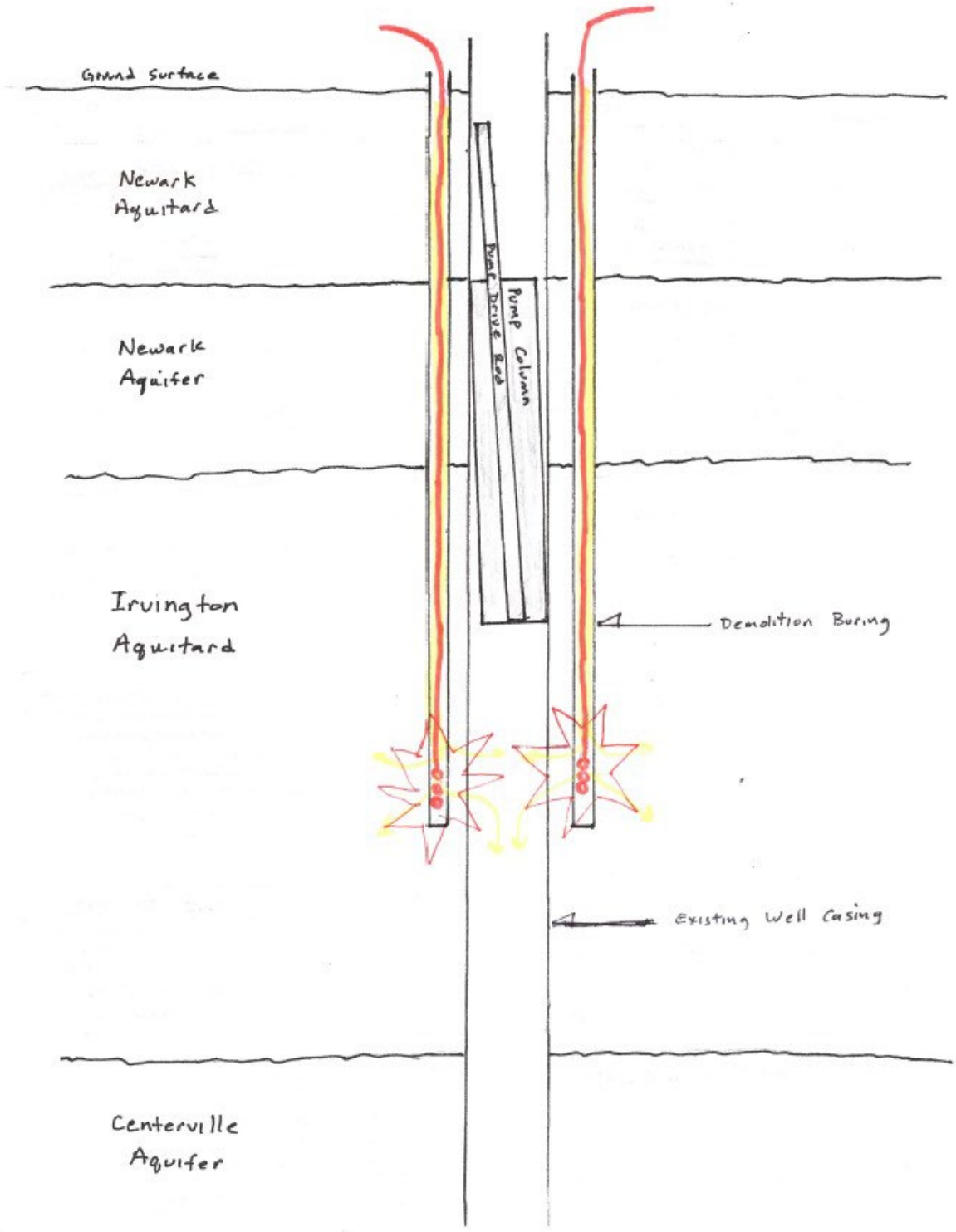


Figure 1. Conceptual Drawing for Alternate Destruction Approach for Well D005

Attachment 1. DWR Well Completion Reports

State of California

Well Completion Report

Form DWR 188 Submitted 1/27/2022

WCR2022-001359

Owner's Well Number 5S/2W-02D005 | Date Work Began | Date Work Ended 10/30/2021

Local Permit Agency Alameda County Water District

Secondary Permit Agency | Permit Number 2020-0403 | Permit Date 12/17/2020

Well Owner (must remain confidential pursuant to Water Code 13752)

Name UNITED STATES FISH AND WILDLIFE SERVICE,

Mailing Address 1 MARSHLANDS ROAD

City FREMONT State CA Zip 94555

Former Use

Activity Destroy

Former Use Water Supply

Well Location

Address 8650 JARVIS AVE

City NEWARK Zip 94560 County Alameda

Latitude 37 31 57.4609 N (Deg. Min. Sec.) Longitude -122 3 23.3125 W (Deg. Min. Sec.)

Dec. Lat. 37.532628 Dec. Long. -122.0564757

Vertical Datum NGVD29 Horizontal Datum WGS84

Location Accuracy 50 Ft Location Determination Method Other

APN 092A050103413

Township 05 S

Range 02 W

Section 02

Baseline Meridian Mount Diablo

Ground Surface Elevation 11.244

Elevation Accuracy 10 Ft

Elevation Determination Method Other

Borehole Information

Orientation Vertical Specify

Drilling Method | Drilling Fluid

Total Depth of Boring | Feet

Total Depth of Completed Well 250 Feet

Water Level and Yield of Completed Well

Depth to first water | (Feet below surface)

Depth to Static Water Level | (Feet) Date Measured

Estimated Yield* | (GPM) Test Type

Test Length | (Hours) Total Drawdown | (feet)

*May not be representative of a well's long term yield.

Destruction Details:

Due to the work previously completed on the well, including excavation surrounding the well, NCP will install a temporary conductor pipe to maintain drill rig stability. Once the conductor is in place, NCP will drill a 7-7/8" borehole approximately 12" from the side of the existing well. This borehole will be drilled to a depth of 120' bgs via mud rotary method. 6" PVC casing will then be placed into the borehole to maintain borehole stability. Tanks will be onsite to contain and filter out drilling fluids resulting from well drilling and construction operations.

Placing a temporary conductor, drilling a borehole and placing 6" PVC casing will be completed 4 times resulting in having 4 open wells surrounding the existing well. Once the 4 wells are constructed and drilling equipment is removed, explosives, based on an approve blasting plan, will be placed in each well along with grout that will be pumped via tremie pipe. All 4 wells will then be blasted at the same time which will result in the destruction of the existing well due to the combined blast force.

After the wells are blasted, additional grout will be pumped into the wells as necessary to a depth of 5' bgs. Any existing PVC or steel pipe remaining will be removed to a depth of 5' bgs and any open hole will be filled in with native material. The well site will be smoothed out confirming to the existing surrounding surface.

Other Observations:

No specific well data exists for irrigation well 5S/2W-02D005. It is assumed to be approximately 250 feet deep with a casing diameter of between 12 to 14 inches. The casing is
visible at the ground surface but is damaged.

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: NOR - CAL PUMP & WELL DRILLING INC (Person, Firm or Corporation)

1325 BARRY ROAD (Address) | YUBA CITY (City) | CA (State) | 95993 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 01/27/2022 (Date Signed) | 908591 (C-57 License Number)

Attachments

UpdatedPermit for Well 5S2W02D005.pdf - Permit

21246 Spec IFB 08-20-2020 95.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — **Latitude Deg/Min/Sec**

W — **Longitude Deg/Min/Sec**

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Submitted 1/27/2022

WCR2022-001360

Owner's Well Number 5S/2W-02D005 | Date Work Began | Date Work Ended 10/15/2021

Local Permit Agency Alameda County Water District

Secondary Permit Agency | Permit Number 2020-0403 | Permit Date 12/16/2020

Well Owner (must remain confidential pursuant to Water Code 13752)

Name UNITED STATES FISH AND WILDLIFE SERVICE,

Mailing Address 1 MARSHLANDS ROAD

City FREMONT State CA Zip 94555

Former Use

Activity Destroy

Former Use Water Supply

Well Location

Address 8650 Jarvis AVE

City Newark Zip 94560 County Alameda

Latitude	Deg.	Min.	Sec.		Longitude	Deg.	Min.	Sec.	
	37	32	56.45	N		-122	3	24.4876	W

Dec. Lat. 37.5490139 Dec. Long. -122.0568021

Vertical Datum Horizontal Datum WGS84

Location Accuracy 10 Ft Location Determination Method Other

APN 092A050103416

Township 04 S

Range 02 W

Section 35

Baseline Meridian Mount Diablo

Ground Surface Elevation 9.020

Elevation Accuracy 30 Ft

Elevation Determination Method Other

Borehole Information

Orientation Vertical Specify

Drilling Method Drilling Fluid

Total Depth of Boring Feet

Total Depth of Completed Well 450 Feet

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level (Feet) Date Measured

Estimated Yield* (GPM) Test Type

Test Length (Hours) Total Drawdown (feet)

*May not be representative of a well's long term yield.

Destruction Details:

1. Check site and measure well depth
2. Clear work site of all unessential personal
3. Lower charges and drop pipe into the well
4. Pump sealing material to top of well
5. Check and clear blast area (sound blast warning)
6. Arm explosives
7. Confirm area clear (final blast warning)
8. Detonate charge
9. Check hole and sound all clear
10. Refill cement to top of well to form a mushroom cap
11. Backfill area with native soils.

Note: For this well a turbine pump that fell into the production well was removed. The well was then filled with concrete to the top.

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: NOR - CAL PUMP & WELL DRILLING INC (Person, Firm or Corporation)

1325 BARRY ROAD (Address) | YUBA CITY (City) | CA (State) | 95993 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 01/27/2022 (Date Signed) | 908591 (C-57 License Number)

Attachments

ACWD Well Permits _ Well Destruction Project.pdf - Permit

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

Appendix E – Analytical Results for Effluent Water from Well D001

eurofins | Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ACCREDITED
CERTIFICATE #'s 5890.01 & 5890.02

Laboratory Report

for

Alameda County Water District
43885 S. Grimmer Blvd
Fremont, CA 94538
Attention: Linnea Hoover, Acting Mgr
Fax: 510-656-3426

NELAP ACCREDITED TNI LABORATORY
Utah ELCP CA00006

Date of Issue
02/01/2021
EUROFINS EATON ANALYTICAL, LLC

DEB: Debbie L Frank
Project Manager

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

* Accredited in accordance with TNI 2016 and ISO/IEC 17025:2017.
* Laboratory certifies that the test results meet all **TNI 2016 and ISO/IEC 17025:2017** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* Test results apply to the sample(s) as received, unless otherwise noted in the comments report (ISO/IEC 17025:2017).
* This report shall not be reproduced except in full, without the written approval of the laboratory.
* This report includes ISO/IEC 17025 and non-ISO 17025 accredited methods.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA000062018
California	2813	**New Hampshire ***	2959
Colorado	Certified	**New Jersey ***	CA 008
Connecticut	PH-0107	**New Mexico**	Certified
Delaware	CA 006	**New York ***	11320
Florida *	E871024	**North Carolina**	06701
Georgia	947	**North Dakota**	R-009
Guam	18-005R	**Oregon ***	CA200003-005
Hawaii	Certified	**Pennsylvania ***	68-565
Idaho	Certified	**Puerto Rico**	Certified
Illinois *	200033	**Rhode Island**	LAO00326
Indiana	C-CA-01	**South Carolina**	87016
Iowa - Asbestos	413	**South Dakota**	Certified
Kansas *	E-10268	**Tennessee**	TN02839
Kentucky	90107	**Texas ***	T104704230-18-15
Louisiana *	LA180000	**Utah (Primary AB) ***	CA00006
Maine	CA0006	**Vermont**	VT0114
Maryland	224	**Virginia ***	460260
Commonwealth of Northern Marianas Is.	MP0004	**Washington**	C838
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264
Mississippi	Certified		

* NELAP/TNI Recognized Accreditation Bodies

Eurofins Eaton Analytical, LLC
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
T | 626-386-1100
F | 866-988-3757
www.EurofinsUS.com/Eaton

The tests listed below are accredited and meet the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation Board/A2LA.
Refer to Certificate and scope of accreditation (5890) found at: https://www.eurofinsus.com/Eaton

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,2,3-TCP (5 PPT & 0.5 PPT)	CA SRL 524M-TCP	x		x
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Algal Toxins/Microcystin	In House Method (3570)			
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D Palin Test	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x		x
Glyphosate + AMPA	In House Method (3618)	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	Legiolert	x		x
Mercury	EPA 200.8	x		x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
Microcystin, Total	EPA 546	x		x
NDMA	EEA/Agilent 521.1 In house method (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphorous	SM 4500P E	x		x
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
Perfluorinated Polutant	In house Method (2434)	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Triazine Pesticides & Degradates	In House (3617)	x		x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x
Field Sampling	N/A			

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Acknowledgement of Samples Received

Addr: **Alameda County Water District**
43885 S. Grimmer Blvd
Fremont, CA 94538

Client ID: ALAMEDA
Folder #: 913187
Project: SPECIAL
Sample Group: Oil and Grease 1664

Attn: Linnea Hoover, Acting Mgr
Phone: 510-669-6538

Project Manager: Debbie L Frank
Phone: (626) 386-1149
PO #: 58293-OB exp: 063021

The following samples were received from you on **January 14, 2021** at **1050**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, LLC.

Sample #	Sample ID	Sample Date
202101140153	5S/2W-02D001	01/08/2021 1215

Oil and Grease by 1664 HEM SGT	Oil and Grease by 1664(subbed)

Test Description

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www.EurofinsUS.com/Eaton

eurofins | Eaton Analytical

CHAIN OF CUSTODY RECORD

750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

Phone: 626 386 1100
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website:

EUROFINS EATON ANALYTICAL USE ONLY: 913187

LOGIN COMMENTS: ______

SAMPLES CHECKED AGAINST COC BY: CB
SAMPLES LOGGED IN BY: O
SAMPLES REC'D DAY OF COLLECTION? [ ] (check for yes)

SAMPLE TEMP RECEIVED AT:
[ ] ______ (Other) IR Gun ID = ______ (Observation= ______ °C) (Corr.Factor ______ °C) (Final = ______ °C)
[X] Monrovia IR Gun ID = 616 (Observation= 2.7 °C) (Corr.Factor -0.2 °C) (Final = 2.5 °C)

Compliance Acceptance Criteria: (Chemistry: 4 ± 2 °C) (Microbiology: < 10°C)

TYPE OF ICE: Real X Synthetic ___ No Ice ___ **CONDITION OF ICE:** Frozen X Partially Frozen ___ Thawed ___ N/A ___

METHOD OF SHIPMENT: Pick-Up / Walk-In / (FedEx) / UPS / DHL / Area Fast / Top Line / Other: ______

772620108011

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME:	**PROJECT CODE:** Special
EEA CLIENT CODE: / **COC ID:**	**SAMPLE GROUP:** Oil and Grease

COMPLIANCE SAMPLES [ ] (check for yes) - Requires state forms [ ]
NON-COMPLIANCE SAMPLES [X] (check for yes)
REGULATION INVOLVED: ______ (eg. SDWA, NPDES, etc.)
Type of samples (circle one): ROUTINE (SPECIAL) CONFIRMATION

SEE ATTACHED KIT ORDER FOR ANALYSES [ ] (check for yes), ***OR***
List ALL ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)

TAT requested: rush by adv notice only STD ___ 1 wk ___ 3 day ___ 2 day ___ 1 day ___

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	FIELD DATA	FIELD DATA	Oil and Grease by 1664 (HEM)	Oil and Grease by 1664 (HEM) SGT												SAMPLER COMMENTS
1/8/21	1215	5S/2W-02D001					1	X												

* **MATRIX TYPES:** **RSW** = Raw Surface Water **RGW** = Raw Ground Water **CFW** = Chlor(am)inated Finished Water **FW** = Other Finished Water **SEAW** = Sea Water **WW** = Waste Water **BW** = Bottled Water **SW** = Storm Water **SO** = Soil **SL** = Sludge **O** = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:		Pablo Cortez	ACWD / Engineering Technician	1/8/2021	1215
RELINQUISHED BY:	[signature]	Erick Villalobos	ACWD / Lab Technician	1/13/2021	
RECEIVED BY:	[signature]	Chuck Brooks	EEA	1.14.21	1050
RELINQUISHED BY:					
RECEIVED BY:					

QA FO 0029.3 (Version 3) (01/13/16) PAGE 1 OF 1

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Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

Alameda County Water District
Linnea Hoover, Acting Mgr
43885 S. Grimmer Blvd
Fremont, CA 94538

Folder Comments

Analytical results for Oil and Grease are submitted by Eurofins Calscience in Garden Grove, CAELAP 2944 exp 9-30-2021

The Comments Report may be blank if there are no comments for this report.

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Hits

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

Alameda County Water District
Linnea Hoover, Acting Mgr
43885 S. Grimmer Blvd
Fremont, CA 94538

Samples Received on:
01/14/2021 1050

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	202101140153	**5S/2W-02D001**				
01/18/2021 15:11	Oil and Grease by 1664(subbed)		93.5		mg/L	0.99
01/18/2021 15:11	Oil and Grease with SGT		59.4		mg/L	1

SUMMARY OF POSITIVE DATA ONLY

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Data

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

Alameda County Water District
Linnea Hoover, Acting Mgr
43885 S. Grimmer Blvd
Fremont, CA 94538

Samples Received on:
01/14/2021 1050

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
5S/2W-02D001 (202101140153)							**Sampled on 01/08/2021 1215**		
				EPA 1664 - Oil and Grease by 1664(subbed)					
	01/18/21 15:11			(EPA 1664)	Oil and Grease by 1664(subbed)	93.5	mg/L	0.99	1
				EPA 1664 HEM-SGT - Oil and Grease by 1664 HEM SGT					
	01/18/21 15:11			(EPA 1664 HEM-SGT)	Oil and Grease with SGT	59.4	mg/L	1	1

Rounding on totals after summation.
(c) - indicates calculated results. Analysis is a calculated result. Reported results are not rounded until the final step before reporting. Therefore methods that use a test result with further calculation may have slight differences in final result than the component analyses.

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Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory QC Summary

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

Alameda County Water District

Analytical Batch:

Analysis Date:

Analyzed by:

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 913187
Project: SPECIAL
Group: Oil and Grease 1664

Alameda County Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%

by

Analytical Batch: **Analysis Date:**

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-48654-1
Client Project/Site: 913187

For:
Eurofins Eaton Analytical
750 Royal Oaks Drive
Monrovia, California 91016

Attn: Jaclyn Contreras

Authorized for release by:
1/27/2021 11:24:12 AM

Lori Thompson, Project Manager I
(714)895-5494
Lori.Thompson@eurofinset.com

Table of Contents

Definitions/Glossary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Job ID: 570-48654-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-48654-1

Comments
No additional comments.

Receipt
The sample was received on 1/15/2021 11:30 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.8º C.

Receipt Exceptions
No preservative noted on container: 202101140153 (570-48654-1)

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 1664A: The reference method requires samples to be preserved to a pH 2. The following sample was received with insufficient preservation at a pH of 6. The sample was preserved to the appropriate pH in the laboratory by using 1:1 H2SO4

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Client Sample ID: 202101140153

Lab Sample ID: 570-48654-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM: Oil and Grease	93.5		0.990	0.792	mg/L	1		1664A	Total/NA
HEM-SGT: Oil and Grease	59.4		0.990	0.798	mg/L	1		1664A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

General Chemistry

Client Sample ID: 202101140153
Date Collected: 01/08/21 12:15
Date Received: 01/15/21 11:30

Lab Sample ID: 570-48654-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	93.5		0.990	0.792	mg/L		01/18/21 09:08	01/18/21 15:11	1
HEM-SGT: Oil and Grease	59.4		0.990	0.798	mg/L		01/18/21 09:08	01/18/21 15:11	1

QC Sample Results

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-122858/1-A
Matrix: Water
Analysis Batch: 122969

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122858

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.00	0.800	mg/L		01/18/21 09:08	01/18/21 15:11	1
HEM-SGT: Oil and Grease	ND		1.00	0.806	mg/L		01/18/21 09:08	01/18/21 15:11	1

Lab Sample ID: LCS 570-122858/2-A
Matrix: Water
Analysis Batch: 122969

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122858

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	35.20		mg/L		88	78 - 114
HEM-SGT: Oil and Grease	20.0	19.80		mg/L		99	64 - 132

Lab Sample ID: LCSD 570-122858/3-A
Matrix: Water
Analysis Batch: 122969

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122858

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	34.60		mg/L		86	78 - 114	2	18
HEM-SGT: Oil and Grease	20.0	18.40		mg/L		92	64 - 132	14	34

QC Association Summary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

General Chemistry

Prep Batch: 122858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-48654-1	202101140153	Total/NA	Water	1664A	
MB 570-122858/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-122858/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-122858/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 122969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-48654-1	202101140153	Total/NA	Water	1664A	122858
MB 570-122858/1-A	Method Blank	Total/NA	Water	1664A	122858
LCS 570-122858/2-A	Lab Control Sample	Total/NA	Water	1664A	122858
LCSD 570-122858/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	122858

Lab Chronicle

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Client Sample ID: 202101140153
Date Collected: 01/08/21 12:15
Date Received: 01/15/21 11:30

Lab Sample ID: 570-48654-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1010 mL	1000 mL	122858	01/18/21 09:08	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			122969	01/18/21 15:11	USUL	ECL 1
	Instrument ID: NOEQUIP									

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-21
California	State	2944	09-30-21
Guam	State	20-003R	10-31-20 *
Nevada	State	CA00111	07-31-21
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	ECL 1
1664A	HEM and SGT-HEM (Aqueous)	1664A	ECL 1

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Eurofins Eaton Analytical
Project/Site: 913187

Job ID: 570-48654-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-48654-1	202101140153	Water	01/08/21 12:15	01/15/21 11:30	

eurofins

Submittal Form

Date: 1/15/202

*REPORTING REQUIRMENTS· *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # 913187 Job # 1000014

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Ship To:
`Eurofins CalScience
7440 Lincoln Way

Garden Grove, CA 92641-1432

Phone 714-895-5494 Fax 714-894-7501

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: Eaton-MonroviaSubContract@eurofinset.com
Eurofins Eaton Analytical, LLC 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical, LLC
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

Provide in each Report the Specified StateCertification # and Exp Date for requested tests + matrix

Samples from CALIFORNIA

570-48654 Chain of Custody

Folder #:	Report Due:
913187	02/04/2021

Sample ID	Client Sample ID for reference onl	Sample Date & Time	Matrix	PWS Systemcode	PWSID
202101140153	5S/2W-02D001	01/08/21 1215	DW		JLS

Sample type·	Sample Event:	Facility ID:	Sample Point ID:	Static ID:

Method	Prep Method	Analysis Requested
EPA 1664 HEM-SGT		Oil and Grease by 1664 HEM SGT
EPA 1664		Oil and Grease by 1664(subbed)

Relinquished by _____ Sample Control Date 1/15/21 Time 1130

Received by _____ Date 1/15/21 Time 1130

Relinquished by _____ Sample Control Date _____ Time _____

Received by· _____ Date _____ Time _____

NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS

An Acknowledgement of Receipt is requested to attn· Jackie Contreras

2 4 1/2 8

1 4 2

Login Sample Receipt Checklist

Client: Eurofins Eaton Analytical

Job Number: 570-48654-1

Login Number: 48654
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix F – Notification Letter

IMPORTANT NOTICE

Old Jarvis Road Irrigation Well Destruction Project

What's happening?

Since its formation, The Alameda County Water District (ACWD) has strived to protect the Niles Cone Groundwater Basin (Niles Cone) from over-pumping and saltwater intrusion. Although there has been substantial improvement as a result of the District's groundwater management efforts, brackish water still remains in the aquifers. The District and the California Department of Water Resources (DWR) recently completed a joint Characterization Project that identified elevated chloride concentrations in the deeper Centerville/Fremont Aquifers in the vicinity of identified abandoned irrigation wells. The irrigation wells are located on property that is currently owned by the United States Fish and Wildlife Service (USFWS) and is part of the Don Edwards National Wildlife Sanctuary. Based on the data collected, it is suspected that the irrigation wells are acting as preferential pathways for saline water to enter and impact the Centerville/Fremont Aquifers. The project will properly destroy two identified wells, the upper portion of the casing will be removed, and the surface area restored.

When will field activities begin?

Field activities are scheduled to start in December 2020 and will be performed by the Alameda County Water District's contractor for this project, Nor-Cal Pump and Drilling.

How long will the field activities take?

The project, in its entirety, is expected to be completed in 2 months (December 2020 – January 2021).

How will I be impacted?

The project is located on USFWS property so limited public interaction at the work sites is expected. Temporary provisions include, moving of heavy equipment, site safety improvements, and other miscellaneous site improvements will occur and, in general, will be out of sight of the public right-of-way. However, some residential homes which backup to the property line will be in visual range of the work sites.

No interruptions to your water service are planned nor expected.

What can I expect during construction?

- ***Visual***

Minimal traffic, including work vehicles and equipment, are expected throughout the course of the project. In addition, the contractor will have small stockpiles of materials, including but not limited to, debris and soil.

- ***Workspace Safety***

Activities will be completed in accordance with all federal, state and local safety regulations and guidelines. Nevertheless, work sites can be dangerous. The sites are on restricted wildlife property and secured for the safety of the wildlife, crew, and the public.

- ***Field Activity Noise***

When field activity is occurring, residents may hear some heavy equipment noise and/or experience vibrations.

- ***Working Hours***

Work hours are anticipated to be Monday through Friday, from 7:00 a.m. to 5:00 p.m. No work is planned on Saturdays, Sundays or ACWD holidays.

Where can I get more information?

Please join us at an ACWD virtual community informational meeting on Tuesday, December 8, 2020, 5:00 p.m. to 6:00 p.m. via Zoom to learn more about this important project. Refer to the project website for directions for the web-based meeting at: https://www.acwd.org/740/Jarvis-Road-Irrigation-Well-Destruction. The Alameda County Water District will be available to provide additional information and address any of your questions and/or concerns. The Project is a joint collaboration between the ACWD and the California State Water Resources Control Board. Funding for this project has been provided in full or in part by Proposition 1 - the Water Quality, Supply, and Infrastructure Improvement Act of 2014 through an agreement with the State Water Resources Control Board.

If you are unable to attend this virtual community informational meeting and would like more information about the project, please contact us at:

Project Manager: Douglas Young
Phone: (510) 668-4452
E-mail: Douglas.Young@acwd.com

ACWD
ALAMEDA COUNTY WATER DISTRICT