Phelan Piñon Hills CSD
Established 2008

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P.O. Box 294049
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ENGINEERING COMMITTEE MEETING AGENDA

October 18, 2023 – 4:30 P.M.
Phelan Community Center
4128 Warbler Road, Phelan, CA 92371
& Via Conference Call (see below)

ENGINEERING COMMITTEE MEETING – 4:30 P.M.

Call to Order – Pledge of Allegiance

Roll Call

1) **Approval of Agenda**

2) **Public Comment** – Under this item, any member of the public wishing to directly address the Board on any item of interest that may or may not be within the subject matter jurisdiction of the Board, but not listed on the agenda, may do so at this time. However, the Board is prohibited by law from taking any action on any item not appearing on the agenda unless the action is otherwise authorized by the Brown Act. Any member of the public wishing to directly address the Board on any item listed on the agenda may do so when the item is being considered by the Board. *If you wish to address the Board, please do so by the method listed on the first page of this agenda.* Speakers are requested to be brief in their remarks. The Chair may limit each speaker to a comment period of five (5) minutes.

3) **Approval of Minutes**

4) **Oeste Recharge Study Project**

5) **Discussion Regarding Water System**
   - Pumps and Wells Services Agreement
   - 10-Year Tank Rehabilitation & Maintenance Service
   - Water Quality
   - Service Line Replacement Program Update
   - Other Repairs/Replacements/Updates/Maintenance

6) **Smithson Springs Update**

7) **State Regulations Update**

8) **Review of Current Projects**
   - New Well No. 15
   - Well No. 17
   - Tank 6A

9) **Staff Reports**

10) **Review of Action Items**
    a) **Prior Meeting**

Mission Statement:

The Mission of the Phelan Piñon Hills Community Services District is to efficiently provide authorized services and maximize resources for the benefit of the community.

Authorized Services:

- *Water*
- *Parks & Recreation*
- *Street Lighting*
- *Solid Waste & Recycling*

- MWA Monitoring Wells – Depth to Water, Water Quality, & Drill Logs
- Hot Spot Map
- Smithson Spring Flows
- Hydrographs
- Presentation on Chromium-6 to Board in October

b) **Current Meeting**

11) **Set Agenda for Next Meeting** – November 15, 2023

12) **Adjournment**

Pursuant to Government Code Section 54954.2(a), any request for a disability-related modification or accommodation, including auxiliary aids or services, that is sought in order to participate in the above-agendized public meeting should be directed to the District's General Manager at (760) 868-1212 at least 24 hours prior to said meeting.

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To provide public comment, or otherwise participate remotely, select the meeting you wish to attend on the District's website and then click the "Join Remote Meeting" option.

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Written Comments:
You may also email your public comment to the Board Secretary at ksevy@pphcsd.org by the meeting start time listed on this agenda. Your comment will be added to the record by the Board Secretary.

Please check the District website for updates on this meeting. We encourage you to sign up for our email notifications by emailing ksevy@pphcsd.org or by visiting our website and completing the signup form at www.pphcsd.org under the "Agendas and Minutes" tab.

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SPECIAL ENGINEERING COMMITTEE MEETING MINUTES

September 20, 2023 – 4:30 p.m.
Phelan Community Center
4128 Warbler Road, Phelan, CA 92371
& Remotely Via Zoom or Conference Call

Board Members Present: Mark Roberts, Director (Chair)
Rebecca Kujawa, President

Staff Present: George Cardenas, Engineering Manager
Sean Wright, Water Operations Manager
Chris Cummings, Water Operations Assistant Manager
Tony De La Rosa, Engineering Technician
Jennifer Oakes, Executive Management Analyst
Aimee Williams, Asst. Board Clerk/Administrative Specialist

Call to Order
Director Roberts called the meeting to order at 4:30 p.m.

Roll Call
All Committee Members were present at Roll Call.

1) **Approval of Agenda**
Vice President Roberts moved to approve the Agenda. President Kujawa seconded the motion. Motion passed unanimously.

2) **Public Comment** – None

3) **Approval of Minutes**
Vice President Roberts moved to approve the Minutes. President Kujawa seconded the motion. Motion passed unanimously.

4) **Oeste Recharge Study Project**
Mr. Wright provided an update. A report was included in the packet.

5) **Discussion Regarding Water System**
- **Pumps and Wells Services Agreement**
- **10-Year Tank Rehabilitation & Maintenance Service**
- **Water Quality**
- **Service Line Replacement Program**
- **Other Repairs/Replacements/Updates/Maintenance**

Mr. Wright reported on system repairs, tank maintenance, water meter replacement program, the fill station, and Tropical Storm Hillary damage throughout the District. A written report was provided in the agenda packet.

6) **Smithson Springs Update**
Mr. Wright reported that the vegetation is getting thick and overgrown; will report flows at next month's meeting.

7) **State Regulations Update**
Ms. Oakes reported that there are no new updates, just ongoing implementation of state programs.

8) **GIS Presentation**
Mr. Cardenas and Mr. De La Rosa provided a presentation on the GIS system.

9) **Review of Current Projects**
- **New Well No. 15**
- **Well No. 17**
- **Tank 6A**

Mr. Wright and Mr. Cardenas provided updates on the current projects.

10) **Staff Reports**
Nothing new to report; a written report is in the agenda packet.

11) **Review of Action Items**
a) **Prior Meeting** – Complete
b) **Current Meeting**
- MWA Monitoring Wells – Depth to Water, Water Quality, & Drill Logs
- Hot Spot Map
- Smithson Spring Flows
- Hydrographs
- Presentation on Chromium-6 to Board in October

12) **Set Agenda for Next Meeting** – October 18, 2023
- Remove Item 8

13) **Adjournment**
With no further business before the Committee, the meeting adjourned at 5:52 p.m.

Agenda materials can be viewed online at www.pphcsd.org

JULY 21, 2022

OESTE MONITORING WELL CLUSTER
WELL CONSTRUCTION REPORT
MOJAVE WATER AGENCY
PINON HILLS, CALIFORNIA

PREPARED FOR:

Mojave Water Agency

HARGIS + ASSOCIATES, INC.
ENGINEERING • HYDROGEOLOGY

OESTE MONITORING WELL CLUSTER
WELL CONSTRUCTION REPORT
MOJAVE WATER AGENCY
PINON HILLS, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

ABC	ABC Liovin Drilling
ARCH	Air rotary casing hammer
ASTM	American Society for Testing and Materials
bgs	Below ground surface
H+A	Hargis + Associates, Inc.
MWA	Mojave Water Agency
PVC	Polyvinyl chloride
the Site	APN 309908101 at the west end of Cayucos Drive, Piñon Hills, California
SPLP	Synthetic Precipitation Leaching Procedure

OESTE MONITORING WELL CLUSTER
WELL CONSTRUCTION REPORT
MOJAVE WATER AGENCY
PINON HILLS, CALIFORNIA

1.0 INTRODUCTION

This Oeste Monitoring Well Construction Report has been prepared by Hargis + Associates, Inc. (H+A) on behalf of the Mojave Water Agency (MWA), for the monitoring well cluster located on parcel APN 309908101 at the west end of Cayucos Drive, Piñon Hills, California (the Site) (Figure 1). Activities described in this report were conducted in accordance with the MWA approved scope of services for monitoring well construction management (H+A, 2021).

The MWA parcel of land adjacent to the California Aqueduct near Phelan, California is intended to be used as a future recharge basin site to meet water delivery obligations to the Oeste Subarea. Existing hydrogeologic information in the area is sparse, and the Oeste monitoring well cluster was installed to fill in data gaps to aid in assessing the feasibility of the proposed aquifer recharge activities; measure and track recharge activities; and provide a long-term monitoring point for the Oeste Subarea. The cluster includes a regional water table monitoring well (ORMW1) and a potential perched zone monitoring well (ORMWP). The well cluster provides valuable data related to subsurface lithologic conditions, groundwater levels, and groundwater quality.

H+A was responsible for providing construction management during the drilling and construction of the wells to ensure that drilling-related activities were conducted in accordance with Technical Specifications specified in the driller contract documents (MWA, 2021). MWA contracted directly with the drilling contractor, ABC Liovin Drilling (ABC).

2.0 CONSTRUCTION ACTIVITIES

The following sections describe the general construction activities by task. The Technical Specifications provide a general description of well drilling, well construction, and well development procedures. This report describes the preparation, drilling, installation, development, and Site clean-up for the monitoring wells.

2.1 PERMITTING AND UTILITY CLEARANCE

Permitting requirements included obtaining County of San Bernardino well construction permits. Permit applications were prepared and submitted by ABC, with review by H+A and MWA. Approved well permits are provided in Appendix A.

Prior to mobilization, H+A conducted a Site visit with MWA and ABC to review rig and drilling footprints and well locations which were cleared for underground utilities by Underground Service Alert. The two well locations located at the northeast corner of the Site were designated with a separation of approximately 33 feet between wells (Figure 2). Well locations were cleared down to approximately 6 to 8 feet below ground surface (bgs) using air-knife excavation.

2.2 BOREHOLE DRILLING

The following sections summarize details of borehole drilling. Monitoring well ORMWP was drilled during the period December 20, 2021 through January 3, 2022. Monitoring well ORMW1 was drilled during the period January 31, 2022 through February 8, 2022.

2.2.1 Drilling of ORMWP

The borehole for monitoring well ORMWP was advanced using sonic drilling methods. Temporary steel casing was driven into the formation using a telescoping approach, with 10-inch diameter casing to 100 feet bgs, 8-inch diameter casing to 320 feet bgs, 6-inch diameter casing to 375 feet bgs, and 4-inch diameter casing to 400 feet bgs (Table 1). The sonic well borehole was drilled using a Terrasonic 600 drill rig.

Terrasonic 600 drill rig

The ORMWP borehole was advanced to a total depth of 400 feet bgs. From the recovered core, which could be as large as seven inches in diameter in the uppermost interval, a narrower core was subsampled and saved to standard core boxes for lithologic description and archiving. Lithologic logging and soil sampling were conducted during borehole drilling as described in Section 2.2.3.

2.2.2 Drilling of ORMW1

The borehole for ORMW1 was advanced using the air rotary casing hammer (ARCH) drilling method. Temporary steel casing is driven into the formation using a hydraulic hammer, with a standard tricone bit of similar diameter drilling just ahead of the casing. Compressed air is used as the circulating fluid, thus no water is added during the drilling process. The temporary casing was advanced using a telescoping approach, with 11¾-inch diameter casing to 240 feet bgs and 10-inch diameter casing to the total depth of 660 feet bgs (Table 1). The ORMW1 borehole was drilled using a Speedstar 50K rotary drill rig configured for ARCH.

Speedstar 50K rotary drill rig configured for ARCH

The well borehole was advanced to the total depth of 660 feet bgs. Drill cutting samples were collected for lithologic description at 5-foot intervals using a sieve-type catcher placed below the cyclone where the air stream with drill cuttings discharges into a hopper. Undisturbed soil core samples were collected from predetermined intervals using a modified California split-spoon sampler driven by a standard 140-pound hammer. Lithologic logging and soil sampling were conducted during borehole drilling as described in Section 2.2.3.

2.2.3 Lithologic Logging and Soil Sampling

Lithologic logging was performed to define the lithology of geologic materials and to characterize subsurface geologic and hydrogeologic conditions. Lithologic logs were compiled based on the description of continuous core samples obtained during sonic drilling of monitoring well ORMWP and on description of drill cutting samples recovered at land surface during ARCH drilling of monitoring well ORMW1.

Soil type was characterized using the Unified Soil Classification System (American Society for Testing and Materials [ASTM], 2009). Soil color was described using Munsell Soil Color Charts (Munsell Soil Color Charts, 1992). Grain size was estimated using ASTM standards (ASTM, 2009). Lithologic logs are included in Appendix B.

Subsamples of continuous core obtained during drilling of ORMWP were submitted to an environmental laboratory for a laboratory leaching test using Synthetic Precipitation Leaching Procedure (SPLP). Sample intervals were selected to target fine grained zones with the potential for mineralogy that may result in leaching of constituents that may negatively affect groundwater quality. The test used synthetic water with chemical and physical properties similar to the State Project water that will be used for future recharge. Results of leachate sampling have been summarized (Tables 2 and 3) and laboratory reports are included in Appendix C. A data verification was conducted and all reported data is valid.

Undisturbed soil samples obtained during drilling of ORMW1 were submitted to a geotechnical laboratory for analysis of grain size distribution, effective porosity, dry bulk density, vertical hydraulic conductivity, and unsaturated zone soil retention curves. Sample intervals were selected to represent a range of observed lithology. Soil physical properties are summarized in Table 4. Geotechnical laboratory reports are provided in Appendix D.

2.3 WELL CONSTRUCTION

Following drilling of each borehole, H+A and MWA determined the final well design for ORMWP and ORMW1 based on lithology and apparent depth to water encountered during drilling. Final as-built monitoring well construction details are provided in Table 1 and Figures 3 and 4.

2.3.1 Monitoring Well ORMWP

Construction of well ORMWP was completed on January 5, 2022. ORMWP was installed in a dry borehole, and is intended to act as a monitoring well screened in soil that may become saturated above a potential perching layer during future recharge events. Well construction details for ORMWP are summarized in Table 1 and Figure 3.

The bottom seal (portion of the borehole below the target depth for well construction) was backfilled with 50 percent No. 8 granular bentonite / 50 percent Monterey No. 3 sand by weight. The bentonite/sand seal was emplaced by pouring materials into the dry borehole from the surface, utilizing the temporary casing as a tremie pipe. The bentonite/sand seal was emplaced into the borehole from the bottom up, withdrawing the temporary casing as the borehole was backfilled.

Nominal 2-inch diameter Schedule 80 polyvinyl chloride (PVC) well screen (0.020-inch factory slotted) and nominal 2-inch diameter Schedule 80 PVC blank well casing was used to construct the monitoring well. Centralizers were installed at the top and bottom of the screen interval and at approximate 40-foot intervals along the blank well casing.

A filter pack consisting of Monterey No. 3 sand was emplaced dry in the annulus between the well screen and the borehole wall. A filter pack transition seal (intermediate seal) consisting of 50 percent No. 8 granular bentonite / 50 percent Monterey No. 3 sand by weight was emplaced into the annulus above the filter pack using the temporary casing as a tremie pipe, as described above. The temporary casing was gradually withdrawn as the bentonite/sand level rose during emplacement. The sanitary seal consists of neat cement grout containing 5 percent bentonite emplaced from the top of the intermediate seal to 2 feet bgs. From approximately 2 feet bgs to land surface, the annulus was filled with concrete in order to set the above-ground monument vault (see Section 2.3.3).

2.3.2 Monitoring Well ORMW1

Construction of monitoring well ORMW1 was completed on February 14, 2022. Well construction details for ORMW1 are summarized in Table 1 and Figure 4. Prior to beginning well construction activities, the bottom of the borehole was tagged at 552 feet bgs, indicating slough filled the bottom 8 feet of the borehole.

Nominal 4-inch diameter Schedule 80 PVC well screen (0.020-inch factory slotted) and nominal 4-inch diameter Schedule 80 PVC blank well casing was used to construct the well. Centralizers were installed at the top, center and bottom of the screen interval and at approximate 40-foot intervals along the blank well casing.

A filter pack consisting of Monterey No. 3 sand was emplaced in the annulus between the well screen and the borehole wall, using the temporary casing as a tremie pipe. A filter pack transition seal (intermediate seal) consisting of 50 percent medium bentonite chips / 50 percent 8 x 16 No. 12 mesh sand by volume was emplaced into the annulus above the filter pack using the temporary casing as a tremie pipe, as described above. The temporary casing was gradually withdrawn as the bentonite/sand level rose during emplacement. The sanitary seal consists of neat cement grout containing 5 percent bentonite was emplaced from the top of the intermediate

seal to 3 feet bgs. From approximately 3 feet bgs to land surface, the annulus was filled with concrete in order to set the above-ground monument vault (Section 2.3.3).

2.3.3 Surface Completion

Monitoring wells were completed with above-ground monument-type well vaults. Well vaults are constructed of steel tubing set in concrete slightly above the surrounding land surface (Figures 3 and 4). Well vaults are surrounded by steel bollards set in concrete. The monument vault and bollards are painted bright yellow for visibility.

2.4 GEOPHYSICAL LOGGING

Following construction of ORMW1, geophysical logging was conducted using downhole wireline logging tools within the PVC well casing and screen. Geophysical logging was performed on February 15, 2022, by Pacific Surveys, Claremont, California. Geophysical logs are provided in Appendix E.

The following logs were run in the borehole:

- Gamma Ray; and
- Electromagnetic Induction (Dual Induction)

Geophysical logs were used to generally confirm subsurface geology based on samples collected during ARCH drilling operations. The dual induction log was also collected to assess the moisture condition of the formation surrounding the borehole, to allow comparison of its present condition with changes in soil moisture following initiation of future recharge events.

2.5 WELL DEVELOPMENT AND GROUNDWATER SAMPLING

Well development was not conducted at ORMWP because the well was dry at the time of installation.

Initial development of ORMW1 was performed immediately following placement of the filter pack and consisted of gentle swabbing to settle the filter pack. No settling occurred; thus no additional filter pack sand was added.

Final development of monitoring well ORMW1 was performed during the period March 1 through March 16, 2022. Monitoring well development details have been provided (Table 5; Appendix F). Development methods for monitoring well ORMW1 incorporated swabbing, bailing, pumping and dual-tube airlifting. Water generated during well development was discharged to the land surface on-property.

Bailing of monitoring well ORMW1 was conducted to remove approximately 10 feet of sediment from the bottom of the screen interval. Bailing proved to be minimally effective despite attempts using several bailer designs. While approximately 2.9 feet of sediment and 38 gallons of water was bailed from the bottom of the well, additional sediment entered the well during the process, resulting in approximately 20 feet of sediment at the bottom of the well. After consultation with ABC and MWA, it was decided to discontinue bailing and attempt to remove the remaining sediment using dual-tube air lifting. Due to airline submergence limitations, it was not anticipated that effective development via dual-tube airlifting would be possible without increasing the level of submergence in the well by adding municipal potable water from the adjacent hydrant. Therefore, pumping development and subsequent collection of the initial groundwater sample was conducted prior to resuming removal of the sediment via air lifting/addition of hydrant water to ensure the sample is representative of groundwater conditions and not impacted by the addition of hydrant water to the well.

During pumping development, the well was pumped at a rate of approximately two gallons per minute, and approximately 364 gallons of water was removed by pumping. Turbidity decreased throughout pumping development, with a final turbidity of 3.7 nephelometric turbidity units indicating that the well was sufficiently developed (Appendix F). At the end of pumping development on March 2, 2022, the initial groundwater sample was collected from ORMW1 by

MWA personnel. Approximately 6.7 casing volumes of water was removed from the well by bailing and pumping prior to collecting the initial groundwater sample. Chain-of-custody documentation was enclosed with the sample shipment and groundwater samples were analyzed by the MWA laboratory. Results of groundwater sample analysis have been summarized in Table 5 and the laboratory report is included in Appendix G. A data verification was conducted and all reported data is valid.

Dual tube airlifting to attempt removal of the sediment remaining in the bottom of the well was conducted on March 14 to 16, 2022. To maintain adequate submergence, municipal potable water was added from the adjacent hydrant as needed. It was necessary to add a total of approximately 136,150 gallons of municipal water to maintain circulation. After approximately 9½ hours of airlifting and removal of 1,725 gallons of water, approximately 7 feet of sediment remained at the bottom of the well.

2.6 SITE CLEANUP, WELL SURVEY, AND WELL COMPLETION REPORT

After well installation and development the Site was cleaned up and left in restored condition. Drill cuttings were spread out over land surface, without disturbing Joshua trees that occur on the property. Litter and other waste were removed from the drill site. MWA conducted a site walk with H+A and ABC staff and approved the restored site conditions.

Following well installation and surface completion, a survey of well locations and elevations was conducted by MWA. The survey was conducted on March 23, 2022. The MWA Well Canvassing Sheet for ORMW1 is provided in Appendix H.

A Well Completion Report for each well was submitted to the California Department of Water Resources on April 4, 2022 (Appendix I).

3.0 REFERENCES

American Society for Testing and Materials (ASTM), 2009. Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Designation D2488. Annual Book of ASTM Standards; Volume 04.08, Soil and Rock Building Stones. Philadelphia, Pennsylvania: ASTM.

Hargis + Associates, Inc. (H+A), 2021. Letter from S. Prazen to R. Hampson, Mojave Water Agency (MWA), re: Scope of Work and Cost Estimate for Monitor Well Construction Management and Hydrogeology Support for Infiltration Testing, Oeste Demonstration Recharge Project. September 7, 2021.

Mojave Water Agency (MWA), 2021. Oeste Recharge Well (Project No. 449) Contract Documents.

Munsell Soil Color Charts, 1992 edition. Newburgh, New York: Kollmorgen Instruments Corporation.

TABLES

TABLE 1

MONITORING WELL CONSTRUCTION SUMMARY

WELL IDENTIFIER	DATES DRILLED AND INSTALLED	DRILLING METHOD	LAND SURFACE ELEVATION (feet msl)	TOTAL DEPTH OF BOREHOLE (feet)	BOREHOLE DIAMETER (inches)	SCREEN AND CASING DIAMETER[a] (inches)	BLANK WELL CASING INVERVAL (feet bgs)		SCREEN INVERVAL (feet bgs)		BOTTOM SEAL INVERVAL (feet bgs)		BOTTOM SEAL MATERIAL	FILTER PACK INVERVAL (feet bgs)		FILTER PACK SAND SIZE	INTERMEDIATE ANNULAR SEAL INVERVAL (feet bgs)		INTERMEDIATE ANNULAR SEAL MATERIAL	SANITARY SEAL[b] (feet bgs)	
							TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM		TOP	BOTTOM		TOP	BOTTOM		TOP	BOTTOM
ORMWP	12/20/21 - 1/5/22	SONIC	3466.5	400	10 to 100' 8 to 320' 6 to 375' 4 to 400'	2	0	271	271	291	291	400	Bentonite/ Sand[d]	269	291	#3	21	269	Bentonite/ Sand[d]	0	21
ORMW1	1/31/22 - 2/14/22	ARCH	3466.2	660	11 3/4 to 240' 10 to 660'	4	0	560	560	640	NA	NA	--	549	652[e]	#3	22	549	Bentonite/ Sand[c]	0	22

Notes:

[a] = Well screens and well casing are schedule 80 polyvinyl chloride. All well screens are 0.020-inch slot.

[b] = Sanitary seal consists of Type I/II neat Portland cement with approximately 5% bentonite, uppermost 2-3 feet of borehole backfilled with concrete.

[c] = Medium bentonite chips and 8x16 No. 12 mesh sand, 1:1 ratio by volume.

[d] = No. 8 granular bentonite and #3 filter pack sand, 1:1 ratio by weight.

[e] = In ORMW1, slough fills the bottom of the borehole from 652 feet to 660 feet bls

ARCH = air rotary casing hammer
bgs = below ground surface
msl = mean sea level
NA = Not applicable

TABLE 2

METALS IN SOIL LEACHATE SAMPLES

Well Identifier	Sample Identifier	Depth, feet bgs	METAL CONCENTRATIONS IN LEACHATE, MICROGRAMS PER LITER												
			Aluminum	Arsenic	Barium	Chromium, total	Chromium, hexavalent	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Vanadium	Zinc
ORMWP	MW-1-120	120	9,250	3.81	78.2	13.1 E	< 10 E	16.1	11,900	5.62	3,980	210	6.98	43.7 E	< 25
ORMWP	MW-1-291	291	7,850	2.66	73.1	18.5 E	< 10 E	23.2	12,100	5.67	5,030	193	17.9	33.8 E	45.8
ORMWP	MW-1-340	340	3,590	2.03	39.9	< 10.0 E	< 10 E	6.33	3,990	2.23	2,790	82.2	2.33	42.2 E	< 25

Notes:

bgs = below ground surface
< = less than; value is limit of detection
E = estimated

No other metals were detected in leachate samples

TABLE 3

GENERAL MINERALS AND COMMON IONS IN SOIL LEACHATE SAMPLES

Well Identifier	Sample Identifier	Depth, feet bgs	CONCENTRATIONS IN LEACHATE, MICROGRAMS PER LITER								
			Cyanide	Orthophosphate	Bromide	Calcium	Chloride	Fluoride	Nitrate	Sulfate	Sodium
ORMWP	MW-1-120	120	< 5 E	< 30 E	< 10,000	5,790	< 10,000	< 1,500	< 1,000 E	< 50,000	20,100
ORMWP	MW-1-291	291	< 5 E	< 30 E	< 10,000	7,500	< 10,000	< 1,500	< 1,000 E	< 50,000	24,100
ORMWP	MW-1-340	340	< 5 E	< 30 E	< 100,000	10,700	< 100,000	< 15,000	< 10,000 E	< 500,000	58,200

Notes:

bgs = below ground surface
< = less than; value is limit of detection
E = estimated

TABLE 4

SOIL PHYSICAL PROPERTIES

WELL IDENTIFIER	SAMPLE ID	SAMPLE DEPTH	DRY BULK DENSITY	TOTAL POROSITY	EFFECTIVE POROSITY	SATURATED VERTICAL HYDRAULIC CONDUCTIVITY
		feet bgs	g/cc	%Vb	%Vb	ft/d
ORMW1	Oeste-Recharge-224	224-224.5	1.65	40.6	29.8	0.058
ORMW1	Oeste-Recharge-260	260-260.5	1.84	32.6	24.1	0.044
ORMW1	Oeste-Recharge-501	501-501.5	1.59	45.1	27.8	0.011
ORMW1	Oeste-Recharge-660	660-660.5	1.69	38.9	31.5	0.530

Notes:

bgs = below ground surface
g/cc = gram per cubic centimeter
%Vb = percent of bulk volume
ft/d - feet per day

TABLE 5

MONITORING WELL DEVELOPMENT SUMMARY

WELL IDENTIFIER	DATES DEVELOPED	DEVELOPMENT METHOD	DURATION (minutes)	VOLUME (gallons)	TOTAL VOLUME (gallons)
ORMW1	3/1/22-3/2/22 and 3/14/22-3/16/22	Bail	600	38	2,127
		Pump	203	364	
		Airlift	575	1,725	

TABLE 6

ORMW1 GROUNDWATER QUALITY SUMMARY

ANALYTE	RESULT	UNITS	REPORTING LIMIT	METHOD
Alkalinity in CaCO3 units	**170**	mg/L	2	SM 2320B
Aluminum dissolved ICAP/MS	ND	ug/L	20	EPA 200.8
Anion Sum - Calculated	**6.1**	meq/L	0.001	SM 1030E
Antimony dissolved ICAP/MS	ND	ug/L	1	EPA 200.8
Apparent Color	ND	ACU	3	SM 2120B
Arsenic dissolved ICAP/MS	ND	ug/L	1	EPA 200.8
Barium dissolved ICAP/MS	**32**	ug/L	2	EPA 200.8
Beryllium dissolved ICAP/MS	ND	ug/L	1	EPA200.8
Bicarb.Alkalinity as HCO3calc	**200**	mg/L	2	SM2330B
Bicarbonate as CaCO3	**170**	mg/L	-	SM2320B
Boron Dissolved ICAP	ND	mg/L	0.05	EPA200.7
Cadmium dissolved ICAP/MS	ND	ug/L	0.5	EPA200.8
Calcium Dissolved ICAP	**61**	mg/L	1	EPA200.7
Calcium Total ICAP	**62**	mg/L	1	EPA200.7
Carbonate (as CaCO3)	ND	mg/L	2	SM2330B
Carbonate as CO3, Calculated	ND	mg/L	2	SM2330B
Cation Sum - Calculated	**6.2**	meq/L	0.001	SM1030E
Cation/Anion Difference	**1.3**	%	-	SM1030E
Chloride	**2.3**	mg/L	0.5	EPA300.0
Chromium dissolved ICAP/MS	**22**	ug/L	1	EPA200.8
Copper dissolved ICAP/MS	**3.1**	ug/L	2	EPA200.8
Dissolved Silica	**21**	mg/L	0.5	EPA200.7
Field pH	**6.79**	pH Units	-	EPA150.1
Fluoride	**0.18**	mg/L	0.05	SM4500F-C
Hexavalent Chromium by 218.6	**21**	ug/L	0.02	EPA218.6
Hydroxide (as CaCO3)	**0.0031**	mg/L	-	SM2320B
Iron Dissolved ICAP	ND	mg/L	0.01	EPA200.7
Iron Total ICAP	ND	mg/L	0.01	EPA200.7
Iron_Ferric	ND E	mg/L	0.5	SM3500
Iron_Ferrous	ND	mg/L	0.1	SM3500FeB
Langelier Index - 25 degree	**-0.55**	None	-14	SM2330B
Langelier Index at 60 degrees C	NA	None	-14	SM2330B
Lead dissolved ICAP/MS	ND	ug/L	0.5	EPA200.8
Magnesium Dissolved ICAP	**24**	mg/L	0.1	EPA200.7
Magnesium Total ICAP	**24**	mg/L	0.1	EPA200.7
Manganese dissolved ICAP/MS	**5.5**	ug/L	2	EPA200.8
Mercury dissolved ICAP/MS	ND	ug/L	0.2	EPA200.8
Nickel dissolved ICAP/MS	ND	ug/L	5	EPA200.8
Nitrate as Nitrogen by IC	**0.3**	mg/L	0.05	EPA300.0
Nitrate as NO3 (calc)	**1.3**	mg/L	0.22	EPA300.0
Nitrite as NO2 (calc)	ND	mg/L	0.16	Default
Nitrite Nitrogen by IC	ND	mg/L	0.05	EPA300.0
Orthophosphate as P	**0.033**	mg/L	0.01	SM4500P-E

TABLE 6

ORMW1 GROUNDWATER QUALITY SUMMARY

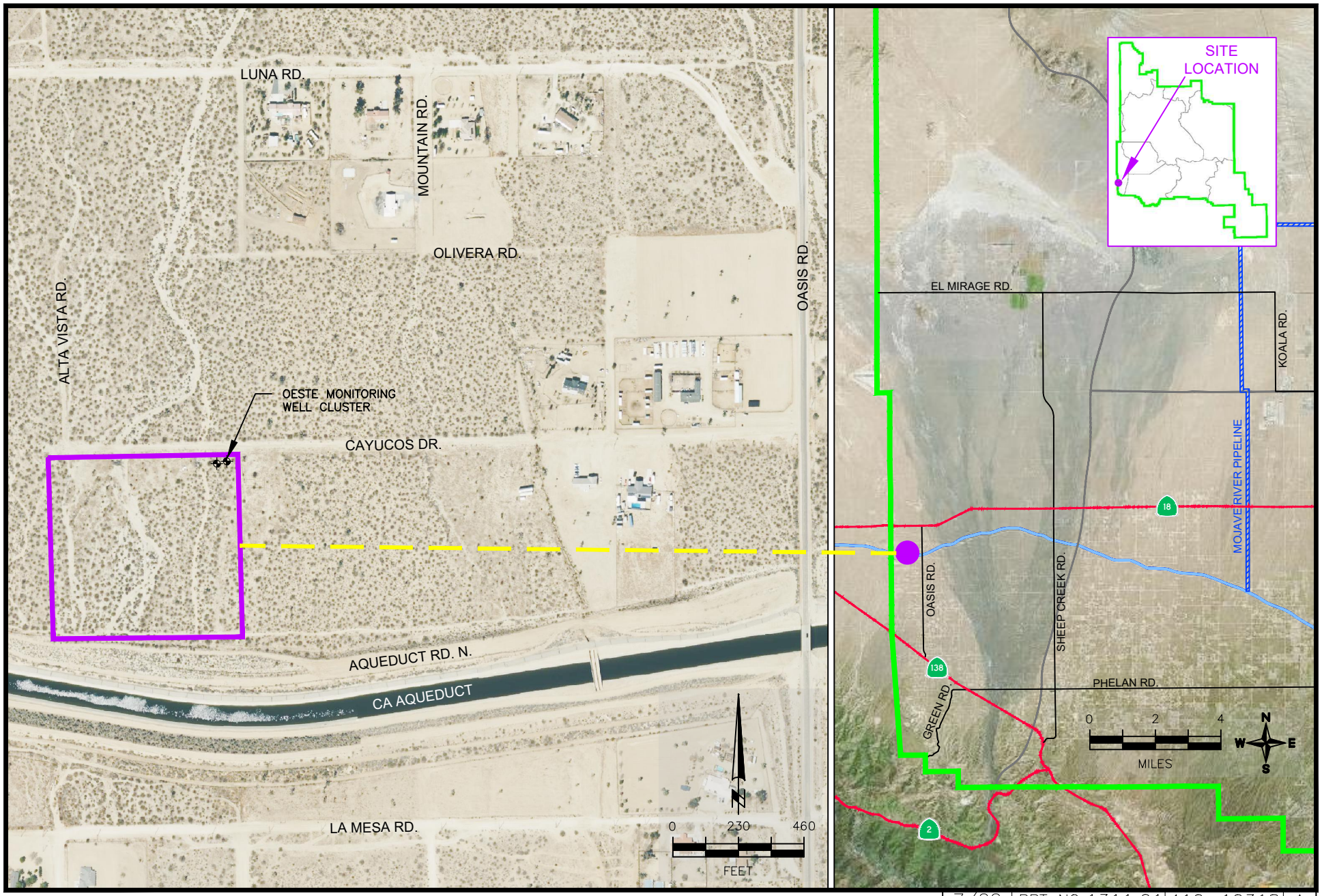
ANALYTE	RESULT	UNITS	REPORTING LIMIT	METHOD
Orthophosphate as PO4	0.1	mg/L	0.031	SM4500P-E
Oxidation Reduction Potential	**397 E**	mV	-	ASTMD1498
PH (H3=past HT not compliant)	**8.1**	pH Units	0.1	SM4500-HB
Potassium Dissolved ICAP	**6.3**	mg/L	1	EPA200.7
Potassium Total ICAP	**6.1**	mg/L	1	EPA200.7
Selenium dissolved ICAP/MS	ND	ug/L	5	EPA200.8
Sodium Dissolved ICAP	**24**	mg/L	1	EPA200.7
Sodium Total ICAP	**24**	mg/L	1	EPA200.7
Source Temperature Degrees C	**25.7**	Degrees C	-	FIELD/SM2550B
Specific Conductance, 25 C	**570**	umho/cm	10	SM2510B
Sulfate	**130**	mg/L	0.5	EPA300.0
Thallium dissolved ICAP/MS	ND	ug/L	1	EPA200.8
Total Dissolved Solids (TDS)	**360**	mg/L	10	E160.1/SM2540C
Total Hardness as CaCO3 by ICP (calc)	**250**	mg/L	3	SM2340B
Total Nitrate, Nitrite-N, CALC	**0.3**	mg/L	0.05	EPA300.0
Total phosphorus as P	**0.035**	mg/L	0.02	SM4500-PE/EPA365.1
Total phosphorus as PO4- Calc.	**0.11**	mg/L	0.0305	SM4500-PE/EPA365.1
Turbidity	**1.9**	NTU	0.1	EPA180.1
Uranium Diss by ICPMS as pCi/L	**2.1**	pCi/L	-	EPA200.8
Uranium dissolved ICAP/MS	**3.1**	ug/L	1	EPA200.8
Vanadium Dissolved ICAP/MS	**5.5**	ug/L	3	EPA200.8
Zinc dissolved ICAP/MS	**820**	ug/L	20	EPA200.8

* Sample collected March 2, 2022

Notes:

C = degrees celcius
E = Estimated
mg/l = milligrams per liter
NTU = nephelometric turbidity unit
pCI/L = picocurries per liter
umho/cm = micromhos per centimeter
ug/l = micrograms per liter

FIGURES

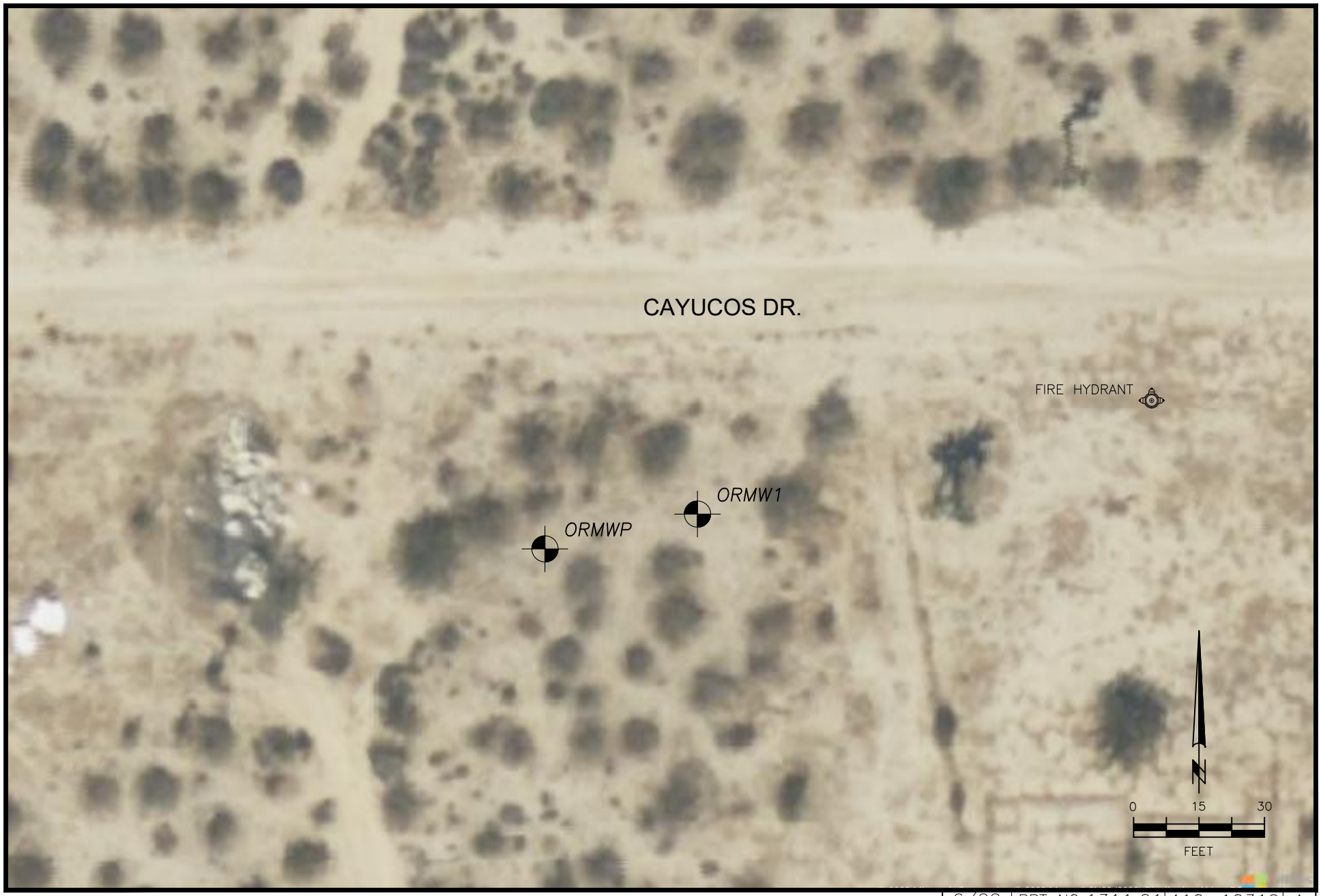


Jul 20, 2022 – 12:02pm ESS – T:\2022\1200-1299\1296 Mojave Water Agency\H+A Basemaps\410-10318.dwg

7/22	RPT NO.1311.01	410-10318	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 1.
WELL SITE LOCATION MAP



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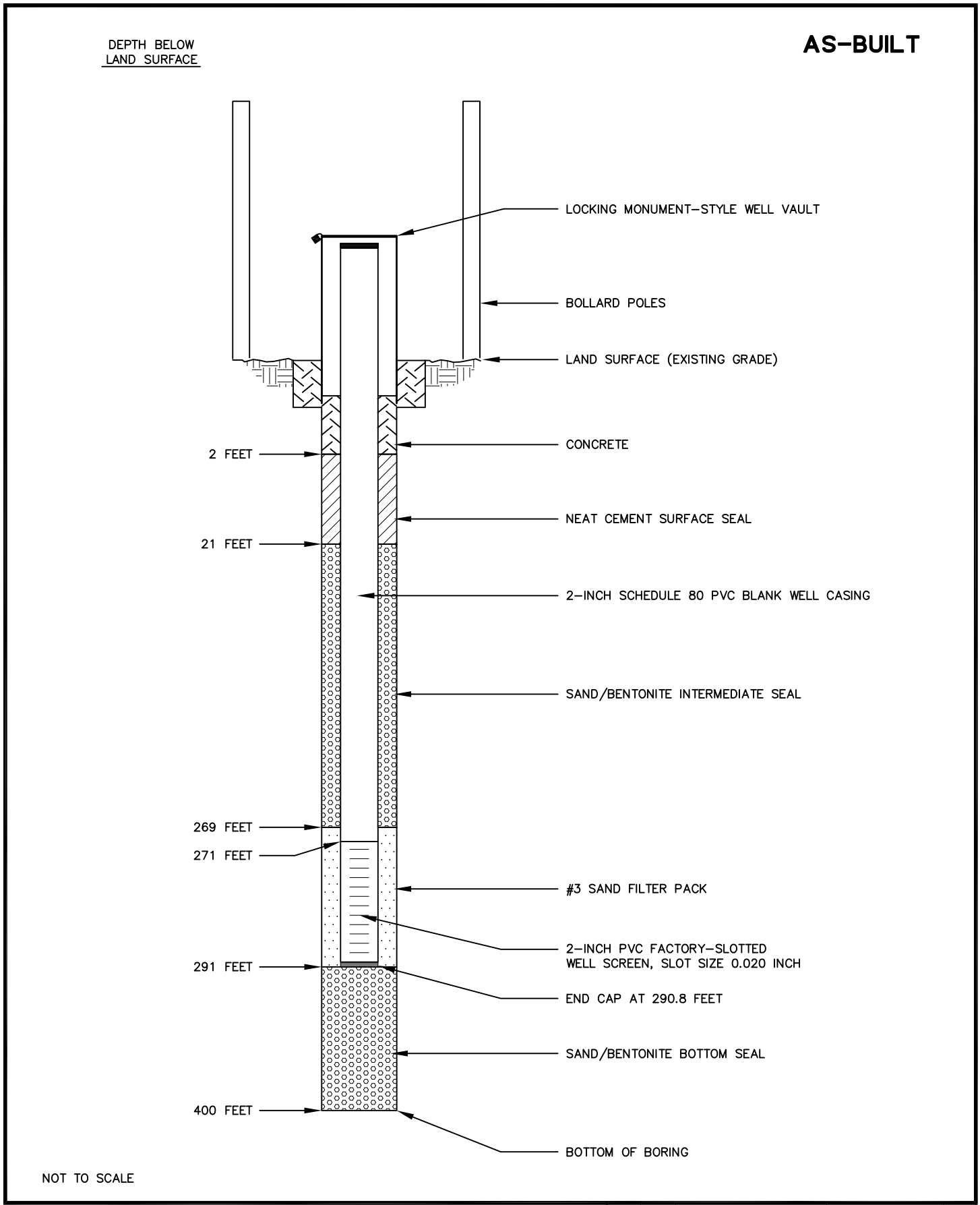
6/22	RPT NO.1311.01	410-10319	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 2.
MONITORING WELL LOCATION DETAIL



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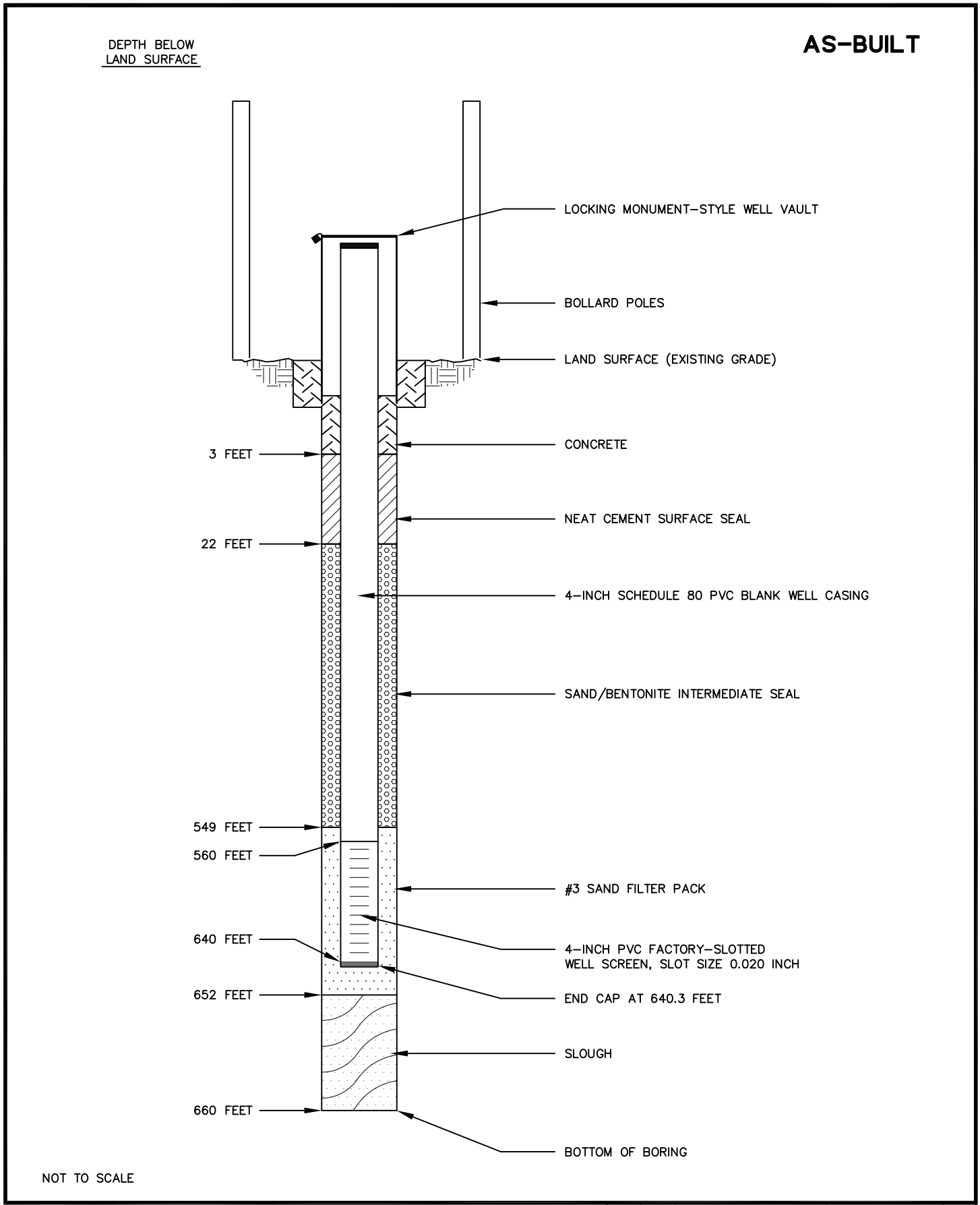
HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

7/22	RPT NO.1311.01	710-0961	A

FIGURE 3.
SCHEMATIC CONSTRUCTION DIAGRAM,
MONITORING WELL ORMWP



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HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

7/22	RPT NO.1311.01	710-0962	A

FIGURE 4.
SCHEMATIC CONSTRUCTION DIAGRAM,
MONITORING WELL ORMW1

APPENDIX A
WELL CONSTRUCTION PERMITS

385 N Arrowhead Ave, 2nd floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323
Email: EHS.CustomerService@dph.sbcounty.gov
www.SBCounty.gov
www.sbcounty.gov/dph/dehs
Phone: (800) 442-2283

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

APPLICATION FOR WELL PERMIT

MW-1

THIS SECTION TO BE COMPLETED BY APPLICANT • HEALTH PERMITS ARE NOT TRANSFERABLE

1 – PROPERTY INFORMATION

Property Owner: Mojave Water Agency			Phone Number: (760) 946-7061
Site Address: 535 Cayucos Rd	City: Pinon Hills	State: CA	Zip: 92371
Assessor's Parcel Number: 309908101	Email:		
Township: N/S Tier: 5N	E/W Range: 7W	Section: 30	
Well Head: Latitude (decimal): 34.487858	Longitude (decimal): -117.650081		
Property Owner's Mailing Address: 13846 Conference Center Dr.	City: Apple Valley	State: CA	Zip: 92307

2 – CONSULTANT INFORMATION

Name of Consultant: Hargis and Associates, Inc.	Email: SPRAZEN@HARGIS.COM		Phone Number: 858-410-7404
Address: 9171 Towne Centre Drive, Suite 375	City: San Diego	State: CA	Zip: 92122

3 – REGISTERED WELL DRILLER INFORMATION

Name of Driller: ABC Liovin Drilling, Inc.		Phone Number: 562-981-8575
Email:	jack@abcdrilling.com	C-57 License Number: 422904

Return well permit to ☒ Well Driller ☐ Consultant ☐ Property Owner Return by ☐ Mail ☒ Email

4 – TYPE OF WORK

☒ New ☐ Reconstruction ☐ Destruction

Date of Work: 12/13/2021	Start Date: 12/13/2021	Completion Date: 12/31/2021	Estimated groundwater depth: 550-600 ft

5 – WELL TYPE

☐ Agriculture	☐ Geothermal	☐ Industrial
☐ Cathodic	☐ Horizontal	☒ Monitoring/Observation
☐ Community/PWS/City – **Specify Use Below**	☐ Residential – cannot be used as a community well	☐ Test
Use:		☐ Other

6 – ANNULAR SEAL

Seal Depth (ft.): 21

☐ Driven Conductor Diameter (in.) ☒ Wall (gauge) (in.): SCH 80 ☒ Drilling method: Sonic

☒ Sealing Material: Cement Bentonite Grout ☒ Thickness (in.): 2

Sealing material shall be placed in one continuous pour. Annular seal thickness must be at least 2 inches for public water supply wells.

ITEMS 7 THROUGH 10 TO BE ESTIMATED FOR NEW WELLS, EXACT FOR ALL OTHER WELLS

7 – DIMENSIONS

Proposed Depth of Well (ft.)	Existing Depth of Well (ft.)	Diameter of Bore (in.)
400		8

8 – CASING INSTALLED

☒ Casing Material ☐ ATSM/AWWA/APPI

From (ft.)	To (ft.)	Diameter (in.)	Wall (Gauge)
300	0	2	SCH 80

Gravel Pack ☒ Yes ☐ No		From (ft.): 325	To (ft.): 295
Specify Other Backfill Material: Bentonite Seal		From (ft.): 295	To (ft.): 21
		400	325

9 – PERFORATIONS (list all if applicable)			
From (ft.) 320	To (ft.) 300	Well Screen Size 0.020	Pumping Rate (gpm) unknown
10 – SEALED ZONES (list all if applicable)			
From (ft.) 295	To (ft.) 0	400-325	

11 – PLOT PLAN

a) In perspective to the well site, sketch and label the following items **on a separate paper**: well lot property lines, other wells (include abandoned wells), sewage disposal systems (sewers, septic tanks, leaching fields, seepage pits, cesspools), lakes and ponds, watercourses and animals or fowl kept.

b) Indicate the distance, in **feet**, of any of the above which are within 500 ft. of the well site. The plot plan needs to be drawn to scale (½ inch = 100 feet). Show the approximate drainage pattern of the property and show access roads to the well site within 500 feet.

c) ☒ None of the above is within 500 feet.

d) Solid or Liquid Disposal Site within Two Miles ☐ Yes ☑ No Location

12 – METHOD OF CONSTRUCTION OR DESTRUCTION

Provide the method of construction/destruction in the space below or as an attachment if more space is needed. The method shall be in accordance with the standards recommended in the California Department of Water Resources Bulletin No. 74-81 and 74-90. Title 22 standards shall also be followed for public water supply wells.

I will submit water well drillers report to Environmental Health Services within 30 days of completion, and will construct or destroy well/borings in accordance with the permit application and Water Well Standards Bulletin 74-81 & 74-90.

Monitoring wells will be constructed with 2" or 4" flush thread PVC, filter pack will be clean washed sand and placed with tremie to at least 2' above the slotted well screen, a 2-5' bentonite plug will be placed and hydrated with clean water. The annular seal material will consist of neat cement with 5% bentonite and pumped in an upward motion with tremie pipe from the top of the bentonite to within 2' of the surface, a protective well cover will finish the installation.

13 – AGREEMENT AND SIGNATURE

I have read this application and agree to comply with all laws regulating the type of work being performed.

Property Owner's Signature: X R. Hampson	Date: 11/29/2021
Print Property Owner's Name: Robert Hampson	
C-57 Contractor's Signature: X	Date: 12/13/2021
Print Contractor's Name: Ivan Liovin	

For Office Use Only DISPOSITION OF PERMIT

☒ Sent to Water Agency

☐ Water Agency conditions or recommendations attached

☐ Denied

☒ Approved subject to the following:

For Office Use Only DISPOSITION OF PERMIT	
Permit Number:	2021120818
Expiration Date:	6-13-2022
WP Number:	WP0037564

A. ☐ Notify the Division's Safe Drinking Water Program at (800) 442-2283 at least seventy two (72) hours in advance to make an inspection of the following operations: (Inspections are conducted Monday – Friday between 8:00 AM to 5:00 PM). Failure to cancel or reschedule appointments may result in an additional hourly fee.

- ☐ Prior to sealing of the annular space or filling of the conductor casing.
- ☐ After installation of the surface protective slab and pumping equipment.
- ☐ After installation of the surface features.
- ☐ During destruction of wells, prior to pouring the sealing material.

B. ☒ Submit to the Division, within thirty (30) days after completion of work, a copy of:

☒ Water Well Driller's Report ☐ Bacterial Analysis ☐ Inorganic Chemical Analysis ☐ General Physical

☐ Radiological Analysis ☐ Nitrate as Nitrogen ☐ Organic Chemical Analysis ☐ General Mineral

Comments

For Office Use Only

Fee: 320.00	FA Number:	Record ID:	PE Number: 4555
Late Fee: ☐ Y ☒ N	Designated Employee: jheri y	Received By: joshua s	Date: 11-30-21
Check One: ☒ New ☐ Transfer ☐ Reactivate		Changes (please specify): 105990	

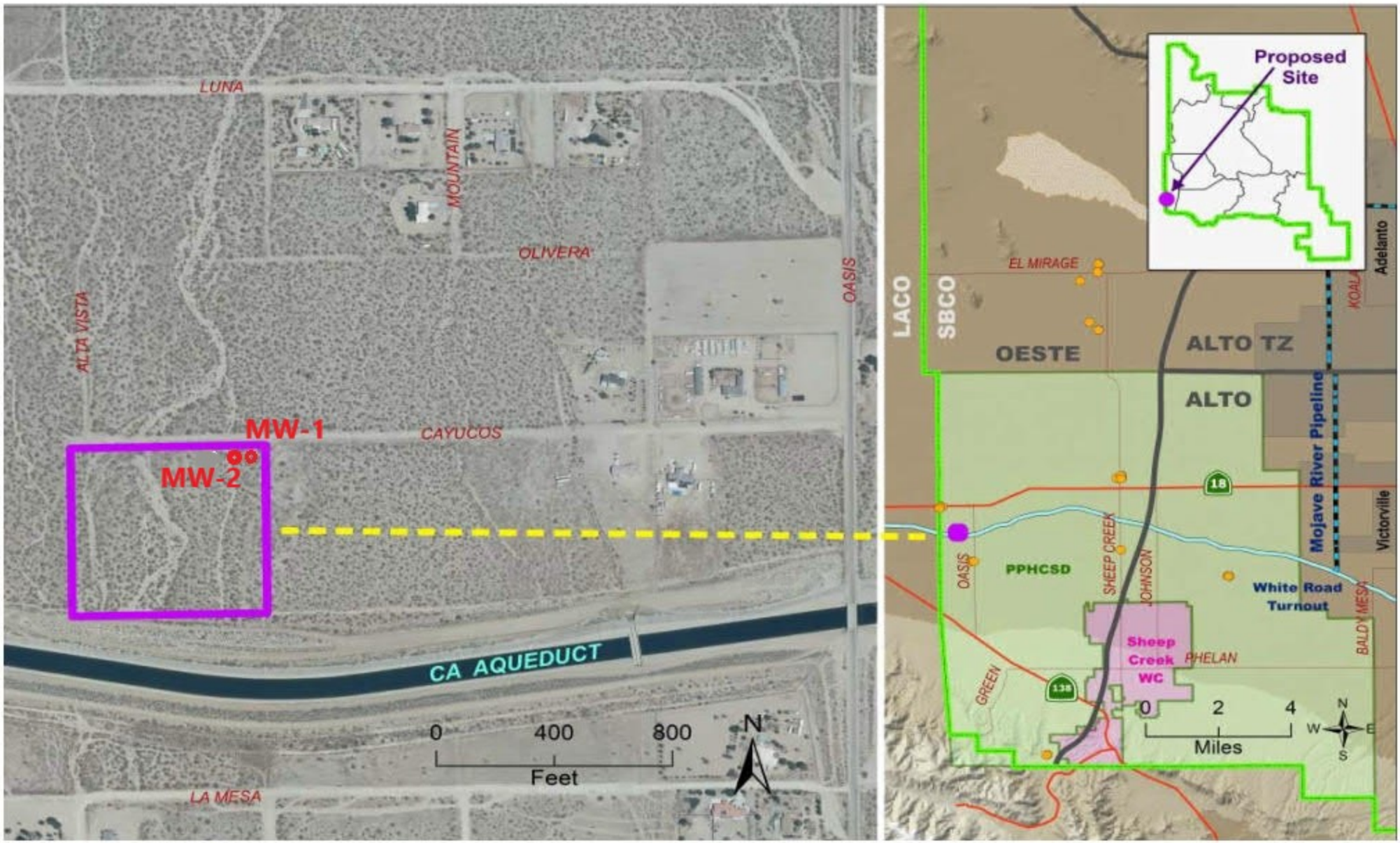

FIGURE 1. SITE LOCATION

385 N Arrowhead Ave, 2nd floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323
Email: EHS.CustomerService@dph.sbcounty.gov
www.SBCounty.gov
www.sbcounty.gov/dph/dehs
Phone: (800) 442-2283

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

MW-2

APPLICATION FOR WELL PERMIT

THIS SECTION TO BE COMPLETED BY APPLICANT • HEALTH PERMITS ARE NOT TRANSFERABLE

1 – PROPERTY INFORMATION

Property Owner: Mojave Water Agency			Phone Number: (760) 946-7061
Site Address: 535 Cayucos Rd		City: Pinon Hills	State: CA / Zip: 92372
Assessor's Parcel Number: 309908101		Email:	
Township: N/S Tier: 5N		E/W Range: 7W	Section: 30
Well Head: Latitude (decimal): 34.487845		Longitude (decimal): -117.650374	
Property Owner's Mailing Address: 13846 Conference Center Dr.		City: Apple Valley	State: CA / Zip: 92307

2 – CONSULTANT INFORMATION

Name of Consultant: Hargis and Associates, Inc.		Email: SPRAZEN@HARGIS.COM	Phone Number: 858-410-7404
Address: 9171 Towne Centre Drive, Suite 375		City: San Diego	State: CA / Zip: 92122

3 – REGISTERED WELL DRILLER INFORMATION

Name of Driller: ABC Liovin Drilling, Inc.			Phone Number: 562-981-8575
Email:		jack@abcdrilling.com	C-57 License Number: 422904
Return well permit to: ■ Well Driller ☐ Consultant ☐ Property Owner			Return by: ☐ Mail ■ Email

4 – TYPE OF WORK

■ New ☐ Reconstruction ☐ Destruction

Date of Work: 1/10/2022	Start Date: 1/10/2022	Completion Date: 1/31/2022	Estimated groundwater depth: 550-600 ft

5 – WELL TYPE

☐ Agriculture	☐ Geothermal	☐ Industrial
☐ Cathodic	☐ Horizontal	■ Monitoring/Observation
☐ Community/PWS/City – **Specify Use Below**	☐ Residential – cannot be used as a community well	☐ Test
Use:		☐ Other

6 – ANNULAR SEAL

Seal Depth (ft.): 21

☐ Driven Conductor Diameter (in.) ■ Wall (gauge) (in.): SCH 80 ■ Drilling method: Air Rotary

■ Sealing Material: Cement Bentonite Grout ■ Thickness (in.): 3

Sealing material shall be placed in one continuous pour. Annular seal thickness must be at least 2 inches for public water supply wells.

ITEMS 7 THROUGH 10 TO BE ESTIMATED FOR NEW WELLS, EXACT FOR ALL OTHER WELLS

7 – DIMENSIONS

Proposed Depth of Well (ft.)	Existing Depth of Well (ft.)	Diameter of Bore (in.)
650		10

8 – CASING INSTALLED

■ Casing Material ☐ ATSM/AWWA/APPI

From (ft.)	To (ft.)	Diameter (in.)	Wall (Gauge)
560	0	4	SCH 80

Gravel Pack ■ Yes ☐ No		From (ft.): 650	To (ft.): 555
Specify Other Backfill Material: Bentonite Seal		From (ft.): 555	To (ft.): 21

9 – PERFORATIONS (list all if applicable)			
From (ft.) 560	To (ft.) 640	Well Screen Size 0.020	Pumping Rate (gpm) unkown

10 – SEALED ZONES (list all if applicable)	
From (ft.) 555	To (ft.) 0

11 – PLOT PLAN

a) In perspective to the well site, sketch and label the following items **on a separate paper**: well lot property lines, other wells (include abandoned wells), sewage disposal systems (sewers, septic tanks, leaching fields, seepage pits, cesspools), lakes and ponds, watercourses and animals or fowl kept.

b) Indicate the distance, in **feet**, of any of the above which are within 500 ft. of the well site. The plot plan needs to be drawn to scale (½ inch = 100 feet). Show the approximate drainage pattern of the property and show access roads to the well site within 500 feet.

c) ☒ None of the above is within 500 feet.

d) Solid or Liquid Disposal Site within Two Miles ☐ Yes ☑ No Location

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13 – AGREEMENT AND SIGNATURE

I have read this application and agree to comply with all laws regulating the type of work being performed.

Property Owner's Signature: X R. Hampson	Date: 11/29/2021
Print Property Owner's Name: Robert Hampson	
C-57 Contractor's Signature: X	Date: 12/13/2021
Print Contractor's Name: Ivan Liovin	

For Office Use Only DISPOSITION OF PERMIT

☒ Sent to Water Agency
☐ Water Agency conditions or recommendations attached
☐ Denied
☒ Approved subject to the following:

For Office Use Only	
Permit Number:	2021120819
Expiration Date:	6-14-2022
WP Number:	WP0037565

A. ☐ Notify the Division's Safe Drinking Water Program at (800) 442-2283 at least seventy two (72) hours in advance to make an inspection of the following operations: (Inspections are conducted Monday – Friday between 8:00 AM to 5:00 PM). Failure to cancel or reschedule appointments may result in an additional hourly fee.

- ☐ Prior to sealing of the annular space or filling of the conductor casing.
- ☐ After installation of the surface protective slab and pumping equipment.
- ☐ After installation of the surface features.
- ☐ During destruction of wells, prior to pouring the sealing material.

B. ☒ Submit to the Division, within thirty (30) days after completion of work, a copy of:

☒ Water Well Driller's Report ☐ Bacterial Analysis ☐ Inorganic Chemical Analysis ☐ General Physical
☐ Radiological Analysis ☐ Nitrate as Nitrogen ☐ Organic Chemical Analysis ☐ General Mineral

Comments

For Office Use Only

Fee: 320.00	FA Number:	Record ID:	PE Number: 4555
Late Fee: ☐ Y ☒ N	Designated Employee: jheri y	Received By: joshua s	Date: 11-30-21
Check One: ☒ New ☐ Transfer ☐ Reactivate		Changes (please specify): sr0105989	

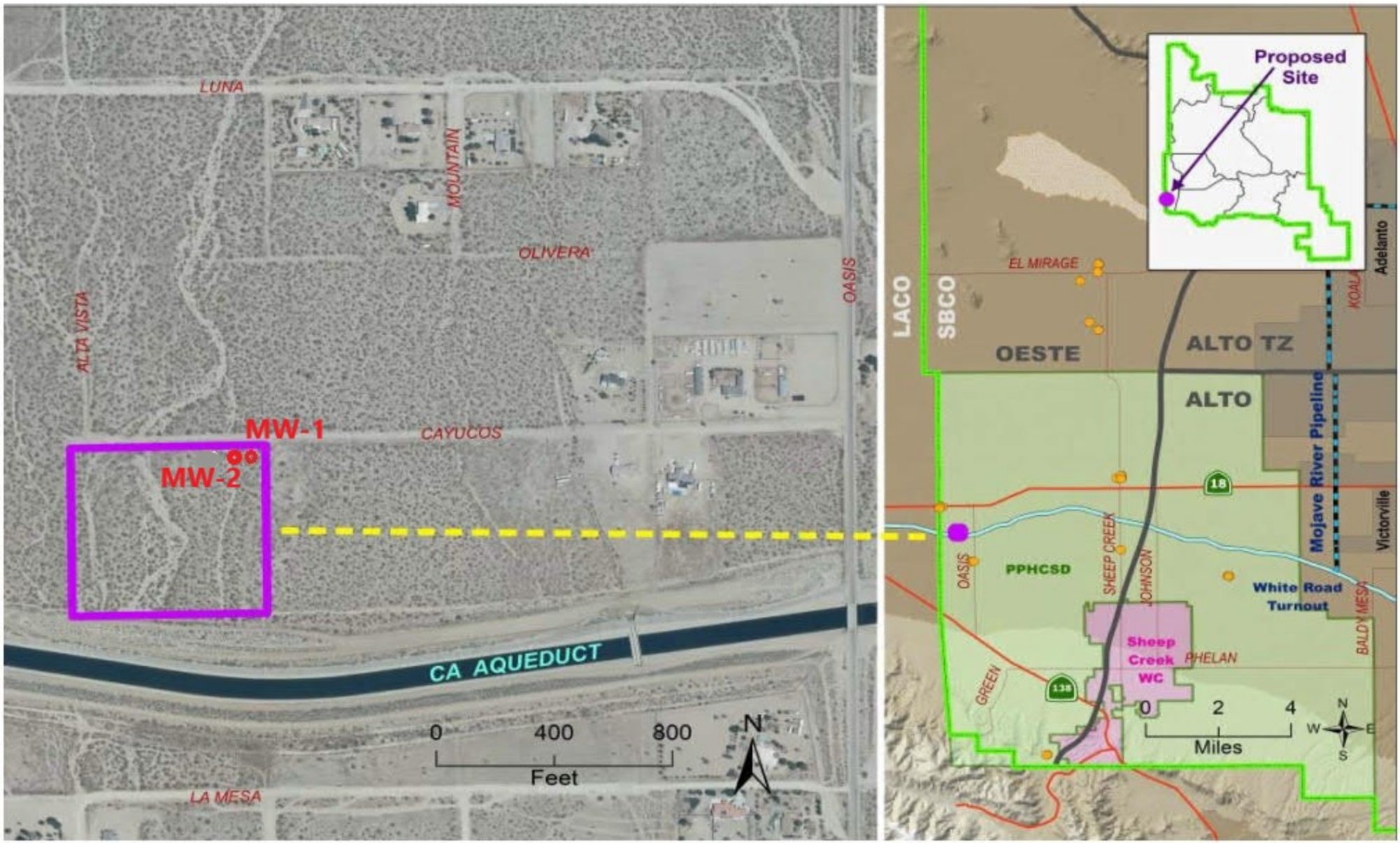


FIGURE 1. SITE LOCATION

APPENDIX B
LITHOLOGIC LOGS

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

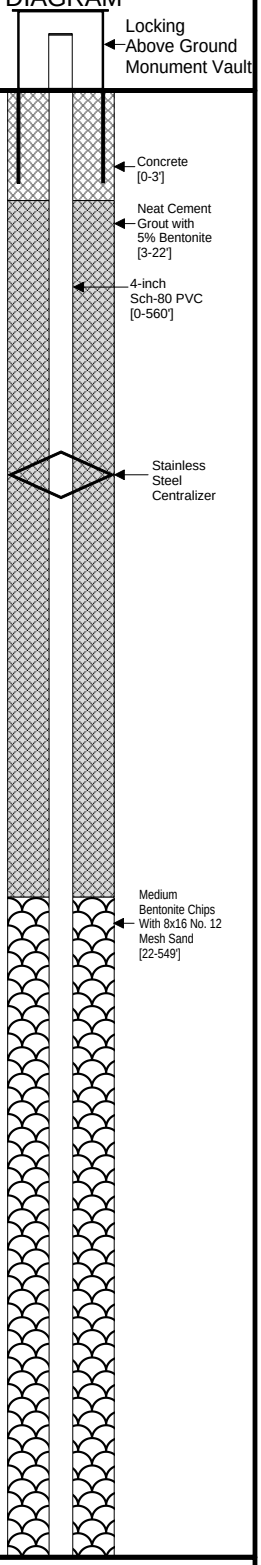
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
0					Utility clearance backfill
15			SW-SM		SAND WITH SILT AND GRAVEL (20/70/10) Brown (10YR 4/3), dry to slightly moist, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; some coarse sand may be crushed gravel; gravel size indeterminate.
20			SM		SILTY SAND (5/75/20) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded; trace gravel; micaceous.
25			SP-SM		SAND WITH SILT (0/90/10) Dark grayish brown (10YR 4/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.
30			SM		SILTY SAND (0/80/20) Brown (10YR 4/3), dry, fine- to very fine-grained, well sorted / poorly graded, angular; micaceous.
35			SM		SILTY SAND (0/60/40) Dark yellowish brown (10YR 3/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; grains predominantly granitic.
40			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 4/3), dry,

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

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PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

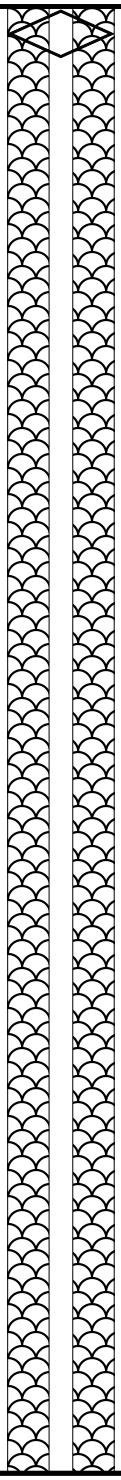
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
40					fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.
45			SP		SAND (5/90/5) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace gravel.
50			SP-SM		SAND WITH SILT (5/85/10) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
55			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
60			SP-SM		SAND WITH SILT AND GRAVEL (20/70/10) Brown (10YR 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; some coarse sand may be crushed gravel; few possible schist clasts; few carbonate-cemented nodules,
65			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
70			SP-SM		SAND WITH SILT (0/90/10) Same as above.
75			SP		SAND (0/95/5) Brown (10YR 4/3), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt.
80			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
80					5/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular.	
85			SP		SAND (0/95/5) Brown (10YR 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt.	
90			SM		SILTY SAND (0/85/15) Brown (10YR 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
95			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt.	
100			SW-SM		SAND WITH SILT AND GRAVEL (30/60/10) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; some coarse sand may be crushed gravel.	
105			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), dry, nonplastic; sand fine- to medium-grained, predominantly fine.	
110			ML		SANDY SILT (0/30/70) Sand fine-grained, trace medium to coarse, otherwise same as above.	
115			SM		SILTY SAND (0/70/30) Dark grayish brown (2.5Y 4/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
120			SP		SAND (0/95/5) Grayish brown (2.5Y 5/2), dry,	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 | DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* | DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* | BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* | GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* | TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
120					fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace silt.	
125			SW		SAND (0/95/5) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt.	
130			SP-SM		SAND WITH SILT (10/80/10) Brown (10YR 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
135			SM		SILTY SAND (5/75/20) Yellowish brown (10YR 5/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
140			SM		SILTY SAND (10/60/30) Dark grayish brown (2.5Y 4/2), otherwise same as above.	
145			SM		SILTY SAND (5/65/30) Otherwise same as above.	
150			SP-SM		SAND WITH SILT (0/90/10) Dark grayish brown (2.5Y 4/2), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; micaceous.	
155			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
160			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

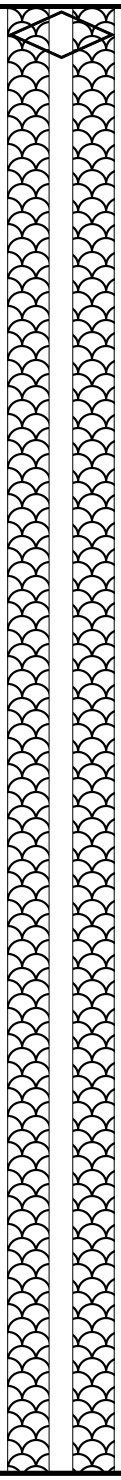
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
160					5/3), otherwise same as above.
165			SP-SM		SAND WITH SILT (0/90/10) Fine- to very fine-grained, trace medium, well sorted / poorly graded, otherwise same as above.
170			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
175			SP-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
180			SM		SILTY SAND (5/75/20) Brown (10YR 4/3), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
185			SP		SAND (0/95/5) Olive brown (2.5Y 4/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; possible trace gravel, some coarse sand may be crushed gravel.
190			SM		SILTY SAND WITH GRAVEL (30/40/30) Brown (10YR 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; some coarse sand may be crushed gravel.
195			SP-SM		SAND WITH SILT (5/85/10) Yellowish brown (10YR 5/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
200			SP		SAND (0/95/5) Yellowish brown (10YR 5/4), dry,

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 | DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* | DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* | BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* | GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* | TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
200					fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt.	
205			SP		SAND (0/95/5) Fine- to coarse-grained, predominantly fine, moderately sorted/graded, otherwise same as above.	
210			SP		SAND (0/95/5) Olive brown (2.5Y 4/4), dry, fine- to medium-grained, predominantly fine, moderately sorted/graded, angular; trace silt.	
215			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
220			SW		SAND (0/95/5) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt.	
225			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; approximately 10%-20% gravel noted at top of core barrel (223-223.5 feet), consistent with cuttings from grab sample.	
230			SP		SAND (5/90/5) Light yellowish brown (10YR 6/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel, some coarse sand may be crushed gravel.	
235			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel, some coarse sand may be crushed gravel.	
240			SW-SM		SAND WITH SILT (10/80/10) Otherwise same as	

MONITORING WELL ORMW1

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
240					above; gravel appears to be broken fragments of larger clasts.	
245			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
250			SP		SAND (T/95/5) Dark yellowish brown (10YR 4/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
255			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry, fine-grained, well sorted / poorly graded, subangular.	
260			SW		SAND (10/90/T) Dark grayish brown (2.5Y 4/2), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/4), dry, medium dense, fine- to very fine-grained, well sorted / poorly graded, subangular.	
265			SM		SILTY SAND (0/80/20) Brown (10YR 5/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
270			ML		SANDY SILT (0/30/70) Light olive brown (2.5Y 5/3), dry, nonplastic; sand fine- to very fine-grained, trace medium to coarse.	
275			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/3), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular.	
280			SM		SILTY SAND (0/60/40) Dark grayish brown (2.5Y	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
280					4/2), dry, fine- to very fine-grained, with coarse, gap graded, angular to subangular; possibly interbedded.	
285			ML		SANDY SILT (0/25/75) Light olive brown (2.5Y 5/3), dry, nonplastic; sand fine- to very fine-grained, trace medium.	
290			ML		SANDY SILT (0/30/70) Grayish brown (2.5Y 5/2), otherwise same as above.	
295			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
300			ML		SANDY SILT (0/40/60) Dark grayish brown (2.5Y 4/2), dry, low plasticity; sand very fine- to medium-grained.	
305			ML		SANDY SILT (0/40/60) Dark grayish brown (2.5Y 4/2), dry, nonplastic; sand very fine- to coarse-grained, predominantly fine.	
310			SM		SILTY SAND (0/80/20) Dark grayish brown (2.5Y 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
315			SP-SM		SAND WITH SILT (0/90/10) Grayish brown (2.5Y 5/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular.	
320			SP-SM		SAND WITH SILT (0/90/10) Same as above.	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

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PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
320					
325			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine-grained, trace medium, otherwise same as above.
330			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
335			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, well sorted / poorly graded, angular; micaceous.
340			SP-SM		SAND WITH SILT (5/85/10) Yellowish brown (10YR 5/4), dry, medium dense, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace gravel to 1" length; thin silty interbed at 339.3 feet.
345			ML		SILT WITH SAND (0/20/80) Dark yellowish brown (10YR 4/4), dry, low to medium plasticity; sand fine-grained; trace clay.
350			ML		SANDY SILT (0/40/60) Low plasticity; sand fine- to medium-grained, trace coarse, otherwise same as above.
355			SM		SILTY SAND (5/75/20) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.
360			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), dry,

WELL CONSTRUCTION DIAGRAM

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
360					fine-grained, trace medium, well sorted / poorly graded, angular to subangular.	
365			SM		SILTY SAND (0/75/25) Grayish brown (10YR 5/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
370			SP-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3), trace gravel, otherwise same as above.	
375			SM		SILTY SAND (0/85/15) Light olive brown (2.5Y 5/4), dry, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular.	
380			SW		SAND (10/85/5) Light olive brown (2.5Y 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
385			SM		SILTY SAND (0/60/40) Brown (7.5YR 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
390			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/4), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular.	
395			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular; possible trace gravel, some coarse sand may be crushed gravel.	
400			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
400					5/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; micaceous.	
405			SM		SILTY SAND (10/70/20) Grayish brown (2.5Y 5/2), dry, fine-grained, trace medium, with coarse, gap graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel; possibly interbedded.	
410			ML		SANDY SILT (0/30/70) Olive brown (2.5Y 4/3), dry, nonplastic; sand fine- to medium-grained, predominantly fine.	
415			SM		SILTY SAND (5/75/20) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
420			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
425			SM		SILTY SAND (0/85/15) Light olive brown (2.5Y 5/4), dry, fine-grained, trace medium, well sorted / poorly graded , angular to subangular; with small carbonate nodules.	
430			SM		SILTY SAND (0/70/30) Dark grayish brown (2.5Y 4/2), dry, fine- to very fine-grained, well sorted / poorly graded, angular to subangular.	
435			SP-SM		SAND WITH SILT (0/90/10) Very dark grayish brown (2.5Y 3/2), dry, fine-grained, trace medium, well sorted / poorly graded, angular to subangular.	
440			SM		SILTY SAND (0/70/30) Very dark grayish brown	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
440					(2.5Y 3/2), dry, fine- to very fine-grained, well sorted / poorly graded, subangular.	
445			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular.	
450			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), dry, nonplastic; sand very fine- to coarse-grained, predominantly fine; coarser grains are carbonate-cemented fragments.	
455			ML		SANDY SILT (0/30/70) Olive brown (2.5Y 4/4), otherwise same as above.	
460			ML		SANDY SILT (0/30/70) Same as above.	
465			SW-SM		SAND WITH SILT (5/85/10) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
470			SM		SILTY SAND (5/75/20) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, gravel fraction composed of carbonate-cemented nodules, some coarse sand may be crushed gr	
475			SM		SILTY SAND (0/80/20) Olive (5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
480			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), dry,	

MONITORING WELL ORMW1

DATES DRILLED :1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste
PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
No Reaction | Moderate | Weak | Strong | Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
480					fine-grained, trace medium, well sorted / poorly graded, angular; trace silt.	
485			SP-SM		SAND WITH SILT (0/90/10) Otherwise same as above.	
490			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular; with probable thin silt interbed(s) based on small fragments of fines.	
495			SM		SILTY SAND (0/75/25) Yellowish brown (10YR 5/4), dry, fine- to very fine-grained, well sorted / poorly graded, angular.	
500			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/3), dry, low plasticity; sand fine- to medium-grained, predominantly fine.	
			ML		SANDY SILT (0/30/70) Sand fine- to coarse-grained, predominantly fine, otherwise same as above; stiff; with few small carbonate nodules.	
505			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/3), dry, low plasticity; sand fine- to medium-grained, predominantly fine.	
510			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine-grained, trace medium, well sorted / poorly graded, angular.	
515			ML		SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/4), dry to slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules.	
520			ML		SILT WITH SAND (0/15/85) Low plasticity, otherwise	

MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

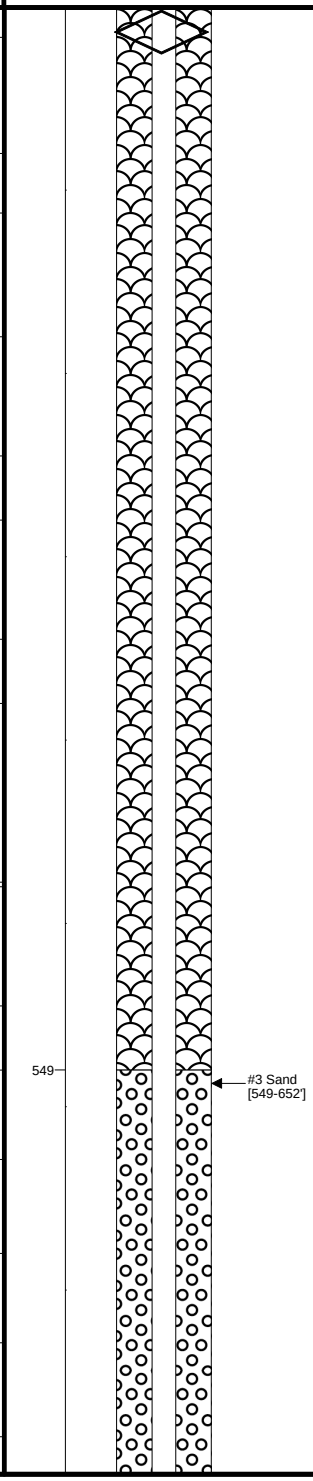
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
520					same as above.
525			ML		SILT WITH SAND (0/15/85) Olive brown (2.5Y 4/3), otherwise same as above.
530			ML		SILT (0/10/90) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; trace fine to coarse sand; most coarser grains are carbonate-cemented fragments or nodules.
535			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules; trace clay.
540			ML		SILT WITH SAND (T/20/80) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules; trace gravel, gravel fraction are carbonate-cemented fragments.
545			ML		SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules.
550			ML		SANDY SILT (0/30/70) Dark yellowish brown (10YR 4/4), slightly moist, low plasticity; sand fine-grained, trace medium.
555			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), moist, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular.
560			SP		SAND (0/95/5) Trace silt, otherwise same as above.

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED :1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

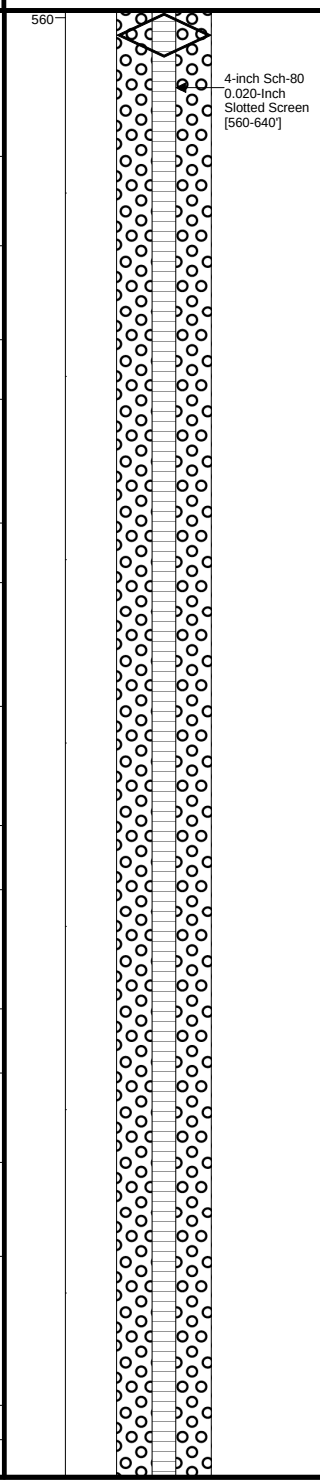
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
560					
565			SW		SAND (5/95/T) Fine- to coarse-grained, poorly sorted / well graded, trace fine gravel, otherwise same as above.
570			SW		SAND (0/100/T) Lacks gravel, otherwise same as above
575			SW		SAND (5/95/T) Trace fine gravel, otherwise same as above.
580			SM		SILTY SAND (0/80/20) Dark yellowish brown (10YR 4/4), wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
585			SW-SM		SAND WITH SILT (10/80/10) Yellowish brown (10YR 5/6), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
590			GP		GRAVEL WITH SAND (75/20/5) Yellowish brown (10YR 5/4), wet, fine, larger clasts may be broken by drilling; sand fine- to coarse-grained; trace silt.
595			SW		SAND WITH GRAVEL (20/75/5) Yellowish brown (10YR 5/4), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; gravel fine, but larger clasts may be broken by drilling; some coarse sand may be crushed gravel.
600			GP-GM		GRAVEL WITH SILT AND SAND (60/30/10)

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED :1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

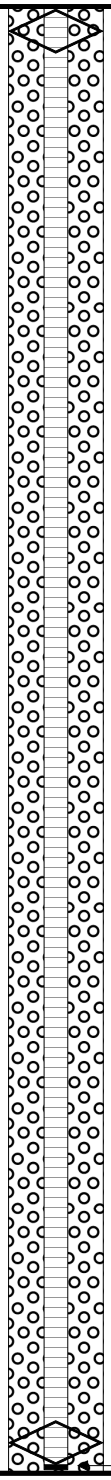
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
600					Yellowish brown (10YR 5/4), wet, fine, larger clasts may be broken by drilling; sand fine- to coarse-grained; 4-inch cobble recovered.
605			SM		SILTY SAND (5/70/25) Brown (10YR 5/3), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
610			SW		SAND WITH GRAVEL (40/55/5) Pale brown (10YR 6/3), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; gravel fine, but larger clasts may be broken by drilling; some coarse sand may be crushed gravel; locally carb
615			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/4 to 5/6), wet, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; fine sand fraction may be higher based on poor cuttings recovery.
620			SM		SILTY SAND (0/60/40) Same as above.
625			SM?		(No recovery; probably dominated by fine sand, same as above).
630			SM?		(Minimal recovery; slight increase in medium to coarse sand fraction, otherwise probably same as above).
635			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4), wet, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular.
640			SM		SILTY SAND (0/85/15) Yellowish brown (10YR 5/4),

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMW1

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.2*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bgs*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

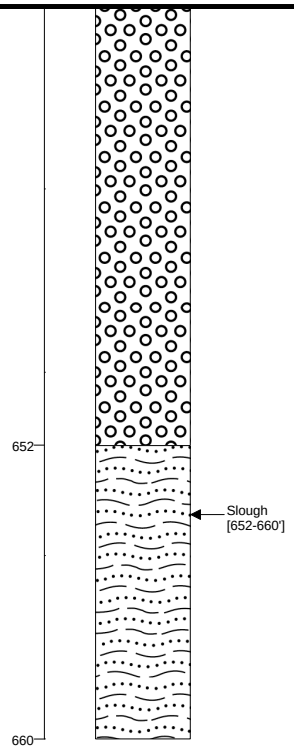
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
640					wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
645			SM?		(No recovery; probably dominated by fine sand, same as above).
650			SM?		(Minimal recovery; slight increase in medium to coarse sand fraction, otherwise probably same as above).
655			SM		SILTY SAND (5/80/15) Brown (10YR 5/3), wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
660			SW-SM		SAND WITH SILT (10/80/10) Brown (10YR 4/3), wet, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel; most coarser grains and clasts are carbonate-cemented fra
			ML		SILT (0/10/90) Yellowish brown (10YR 5/4), wet, very stiff, low to medium plasticity; trace fine to coarse sand, most coarser grains are carbonate-cemented fines; trace clay.
665					
670					

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

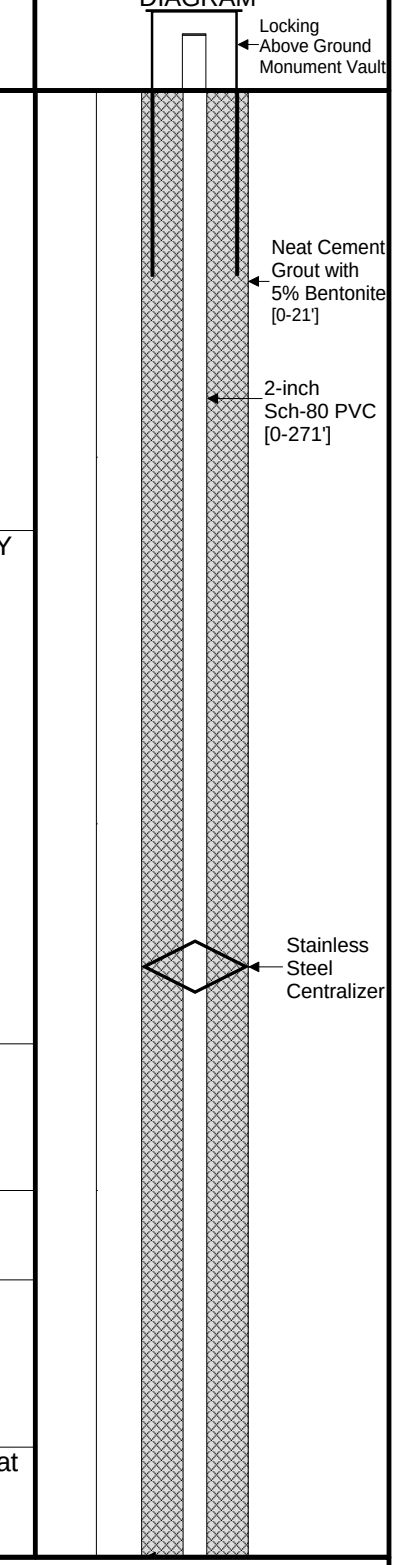
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
0					Utility clearance backfill
5					SAND WITH SILT (10/80/10) Light olive brown (2.5Y 5/4), dry to slightly moist, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel; grains predominantly granitic.
10			SW-SM		
					SAND WITH SILT AND GRAVEL (20/70/10) Otherwise as above; gravel fraction increases with depth; few cobbles to 5" length.
15			SM		SILTY SAND (0/80/20) Brown (10YR 4/3), dry to slightly moist, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.
			SW-SM		SAND WITH SILT AND GRAVEL Same as 13-15 ft.
20			SM		SILTY SAND Same as 15-16 ft; weak HCl reaction at ~19 ft.

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMWP

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOCATION: *Oeste Area-Cayucos St.*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
20			SM		SILTY SAND Same as 15-16 ft; weak HCl reaction at ~19 ft.	21 — Medium Bentonite Chips With #3 Sand [21-269']
25			SW-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel.	
			ML		SANDY SILT (5/40/55) Dark yellowish brown (10YR 4/4), slightly moist, nonplastic; sand fine-grained, trace medium; trace gravel to 3" length.	
30			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; locally trace fine gravel (<5%).	
			SP-SM		SAND WITH SILT (10/80/10) Trace fine gravel, otherwise same as above.	
35			SM		SILTY SAND WITH GRAVEL (15/65/20) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; gravel to 1" length, angular to subangular, granitic; increased silt fraction at 37-38 ft; increased gravel fraction at 39-40 ft; weak HCl reaction at 34-35 ft and 37-38 ft.	
40						

MONITORING WELL ORMWP

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOCATION: *Oeste Area-Cayucos St.*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
40			SM		SILTY SAND WITH GRAVEL (15/65/20) Olive brown (2.5Y 4/3)	
			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; increased medium sand fraction at 43-44 ft.	
			SM		SILTY SAND (10/60/30) Olive brown (2.5Y 4/3), trace fine gravel, otherwise same as above; weak HCl reaction.	
45			SP-SM		SAND WITH SILT (15/75/10) Trace gravel to 3½" length, otherwise same as 41.5-44 ft.	
			SP-SM		SAND WITH SILT (15/75/10) Trace gravel to 3½" length, otherwise same as 41.5-44 ft.	
			SM		SILTY SAND (5/65/30) No HCl reaction, otherwise same as 44-45 ft.	
50			SP-SM		SAND WITH SILT (10/80/10) Same as 41.5-44 ft; trace gravel to 2" length; minor color variation, but texture generally consistent.	
55			SM		SILTY SAND (5/70/25) Olive brown (2.5Y 4/3) to dark yellowish brown (10YR 4/4), dry to slightly moist, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; locally trace gravel to 1" length.	
60						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
60			SM		SILTY SAND (5/70/25) Olive brown (2.5Y 4/3) to dark yellowish brown (10YR 4/4)	
			SM/ SP-SM		SILTY SAND Same as above; to SAND WITH SILT, fine-grained, trace medium to coarse, otherwise same as 41.5-44 ft; probably highly disturbed due to difficulty recovering core interval.	
65			SM		SILTY SAND (0/85/15) Brown (10YR 4/3), dry to slightly moist, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
70			SP		SAND (0/95/5) Olive brown (2.5Y 4/3), dry, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace silt.	
			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry to slightly moist, trace coarse sand, otherwise same as above.	
75					No recovery.	
			SP-SM		SAND WITH SILT Same as 71.5-76 ft; lower contact gradational.	
80						

MONITORING WELL ORMWP

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
80			SP-SM		SAND WITH SILT Same as 71.5-76 ft; lower contact gradational.	
			SP		SAND (0/95/5) Brown (10YR 4/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace silt.	
85			SP-SM		SAND WITH SILT (5/85/10) Olive brown (2.5Y 4/4), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel to 1” length.	
			SM		SILTY SAND (0/75/25) Very dark grayish brown (2.5Y 3/2), otherwise same as above.	
90			SP-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3) to olive brown (2.5Y 4/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel to 2” length, subangular to subrounded, >8” cobble at 89 ft; HCl reaction at 92.5 ft.	
95			SM		SILTY SAND (5/70/25) Light olive brown (2.5Y 5/3), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel, increased gravel fraction to ~10% at 96-97 ft; weak HCl reaction at 99 ft.	
100						

MONITORING WELL ORMWP

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOCATION: *Oeste Area-Cayucos St.*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
100			ML		SANDY SILT (0/30/70) Yellowish brown (10YR 5/4), slightly moist, low to medium plasticity; sand fine- to medium-grained, trace coarse; lower contact gradational.	
			SM		SILTY SAND (5/70/25) Same as 94.5-100 ft; weak HCl reaction at 101 ft; lower contact gradational.	
			SP		SAND (10/85/5) Dark grayish brown (2.5Y 4/2), dry, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace gravel to 1" length; weak HCl reaction at 105 ft and 106 ft.	
105			SP-SM		SAND WITH SILT (5/85/10) Otherwise same as above; weak HCl reaction.	
			SP		SAND (10/85/5) Same as 103-106 ft.	
			SP-SM		SAND WITH SILT (5/85/10) Same as 106-107.5 ft.	
110			SP		SAND (10/85/5) Same as 103-106 ft; weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.	111
			SP-SM		SAND WITH SILT (5/85/10) Fine- to coarse-grained, predominantly medium, otherwise same as 106-107.5 ft; with thin silty interbed(s) at 114 ft; probably highly disturbed due to difficulty recovering core interval.	
115			SM		SILTY SAND (5/80/15) Dark grayish brown (2.5Y 4/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel, locally to 1½" length; HCl reaction at 115-116 ft; weak HCl reaction at 116-120 ft.	
120						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
120		★	ML		SILT WITH SAND (0/15/85) Brown (10YR 5/3), slightly moist, low plasticity; sand fine- to medium-grained.
			SM		SILTY SAND (0/70/30) Brown (10YR 5/3), dry, fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular.
			SP-SM		SAND WITH SILT (0/90/10) Fine- to coarse-grained, predominantly fine, otherwise same as above.
125			ML		SANDY SILT (0/40/60) Brown (10YR 4/3), low plasticity; sand fine-grained, trace medium.
			SM		SILTY SAND (5/65/30) Brown (10YR 4/3) to dark grayish brown (2.5Y 4/2), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel to 1½" length; weak HCl reaction at 126-127.5 ft.
			ML		SANDY SILT (0/40/60) Same as 124-126 ft.
130			SM		SILTY SAND (0/80/20 to 0/60/40) Fine- to medium-grained, trace coarse, moderately sorted/graded, otherwise same as 126-128 ft; weak HCl reaction at 130.5-131 ft.
			SP		SAND (0/95/5) Dark grayish brown (2.5Y 4/2), fine- to medium-grained, predominantly fine, well sorted / poorly graded, angular to subangular; trace silt.
			SP-SM		SAND WITH SILT (5/85/10) Olive brown (2.5Y 4/3), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; weak HCl reaction at 132.5 ft and 133.5 ft.
135			SP		SAND (0/95/5) Same as 131-132 ft; generally coarsens downward.
			SP-SM		SAND WITH SILT (5/85/10) Same as 132-134 ft; weak HCl reaction at 136-137 ft.
			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), fine- to very fine-grained, locally trace medium, well sorted / poorly graded, angular; micaceous.
140					

WELL CONSTRUCTION DIAGRAM

MONITORING WELL ORMWP

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOCATION: *Oeste Area-Cayucos St.*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
140			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), nonplastic; sand fine- to very fine-grained, trace medium; weak HCl reaction at 140.5-141 ft.	
			SP-SM/ SP		SAND (5/90/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; weak HCl reaction at 141-141.5 ft; carbonate fragment at 143 ft.	
145			SW		SAND WITH GRAVEL (25/70/5) Grayish brown (2.5Y 5/2), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; gravel to 2½" length; trace silt.	
			SW/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, locally predominantly fine, poorly to moderately sorted / well to moderately graded, angular to subangular; trace fine gravel, locally to 1½" length, increased gravel fraction at 148.5-149 ft; increased silt fraction at 151.5-152.5 ft; weak HCl reaction at 150-150.5 ft and 151.5-152.5 ft.	
150			SW/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, locally predominantly fine, poorly to moderately sorted / well to moderately graded, angular to subangular; trace fine gravel, locally to 1½" length, increased gravel fraction at 148.5-149 ft; increased silt fraction at 151.5-152.5 ft; weak HCl reaction at 150-150.5 ft and 151.5-152.5 ft.	
155			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; fine- to medium-grained, trace coarse, moderately sorted/graded below 156 ft; weak HCl reaction at 156-157 ft.	
			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, otherwise same as above; increased silt fraction at 161.5-163 ft and 164.5-165 ft; increased gravel fraction at 157.5-158 ft and 161 ft, gravel to 1½" length; possible schist clasts at 158.5	
160						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
160			SP/ SP-SM		and 164.5 ft; weak HCl reaction at 161.5-163 ft and 164.5-165 ft; strong HCl reaction associated with thin (1”-2” thick) caliche layer at 166.5 ft.	
165			ML		SANDY SILT (0/45/55) Grayish brown (2.5Y 5/2), nonplastic; sand fine- to very fine-grained, micaceous.	
			SM		SILTY SAND (0/80/20) Yellowish brown (10YR 5/4), fine- to very fine-grained, well sorted / poorly graded, angular; lower contact gradational.	
170			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Brown (10YR 5/3) to grayish brown (2.5Y 5/2), otherwise same as 157-166.5 ft; locally fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel to 2” length, increased gravel fraction at 170-173 ft, 178-180 ft, 183.5-185 ft and 186-187 ft, gravel predominantly granitic and gneiss; interbed of silty sand (0/80/20), ~3” thick, between 180.5 and 181 ft, fine-grained; weak HCl reaction at 183-183.5 ft and 185.5 ft.	
175			SP/ SP-SM			
180						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
180					SAND (10/85/5) to SAND WITH SILT (5/85/10) Brown (10YR 5/3) to grayish brown (2.5Y 5/2), otherwise same as 157-166.5 ft; locally fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel to 2" length, increased gravel fraction at 170-173 ft, 178-180 ft, 183.5-185 ft and 186-187 ft, gravel predominantly granitic and gneiss; interbed of silty sand (0/80/20), ~3" thick, between 180.5 and 181 ft, fine-grained; weak HCl reaction at 183-183.5 ft and 185.5 ft.	
185						
			SM		SILTY SAND (0/80/20) Brown (10YR 5/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
190			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Same as 169-188 ft.	
			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; weak HCl reaction; lower contact gradational; probably highly disturbed due to difficulty recovering core interval.	
195			SW-SM		SAND WITH SILT (5/85/10) Dark grayish brown (2.5Y 4/2), otherwise same as above; trace fine gravel; very weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.	
			SW		SAND (5/90/5) Brown (10YR 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel to 1" length.	
			SM		SILTY SAND (0/85/15) Yellowish brown (10YR 5/4), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; weak HCl reaction at 198.5-199.5 ft.	
200					SAND (5/90/5) to SAND WITH SILT (5/85/10) Fine- to	

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
200			SP/ SP-SM		medium-grained, predominantly fine, moderately sorted/graded, locally fine- to coarse-grained, poorly sorted / well graded, otherwise same as 169-192 ft; trace fine gravel, locally to 3” length.	
205			SW		SAND WITH SILT AND GRAVEL (40/50/10) Fine- to coarse-grained, poorly sorted / well graded, otherwise same as above; gravel to 2” length.	
			SW/ SP-SM		SAND (10/85/5) Fine- to coarse-grained, poorly sorted / well graded, to SAND WITH SILT (5/85/10), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, otherwise same as 169-188 ft; increased silt fraction at 210-212.5 ft; weak HCl reaction at 210 ft, 211-212.5 ft and 214.5-215 ft.	
210						
215			SP		SAND (0/100/T) Fine-grained, well sorted / poorly graded, angular.	
			SM		SILTY SAND (0/80/20) Fine- to coarse-grained, poorly sorted / well graded, angular to subangular.	
			SW		SAND WITH SILT (5/85/10) Fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel; increased coarse sand and gravel fraction at	
220						

MONITORING WELL ORMWP

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
220			SW-SM		219-220 ft. SAND WITH SILT AND GRAVEL (20/70/10) Otherwise same as above; gravel to 2½" length; weak HCl reaction at 221 ft.	
			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel, locally to 1½" length.	
225					No recovery.	
230			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel to 2" length; weak HCl reaction at 230-234 ft; probably highly disturbed due to difficulty recovering core interval.	
			SM		SILTY SAND (10/70/20) Otherwise same as above; gravel fine; thin (~1" thick) interbed of dark gray sandy silt at 235 ft; probably highly disturbed due to difficulty recovering core interval.	
235			SP		SAND (5/90/5) Olive brown (2.5Y 4/4), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel; lower contact gradational over interval 237-237.5 ft; probably highly disturbed due to difficulty recovering core interval.	
			SP/SP-SM		SAND (0/95/5) to SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4 to 5/6), fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; locally trace silt;	
240						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
240			SP/ SP-SM		micaceous; with interbed(s) of silty sand (0/70/30), otherwise same, at 238.5-239.5 ft.	
			GP		GRAVEL WITH SAND (60/35/5) Gravel to 2" length, with cobbles to 3½" - 4", subangular, granitic; sand fine- to very fine-grained, trace medium to coarse; trace silt.	
245			SW		SAND (0/95/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel to 1" length below 246 ft; probably highly disturbed due to difficulty recovering core interval.	
250			SM		SILTY SAND (0/80/20) Yellowish brown (10YR 5/4), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; lower contact gradational.	
			SW		SAND (0/95/5 to 5/90/5) Otherwise same as 244-249.5 ft; locally trace gravel, increased gravel fraction to 10% and color change to dark grayish brown (2.5Y 4/2) below 256 ft; possible schist clast at 256.5 ft.	
255			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel below 262 ft; weak HCl reaction at 258-259 ft.	
260						

MONITORING WELL ORMWP

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

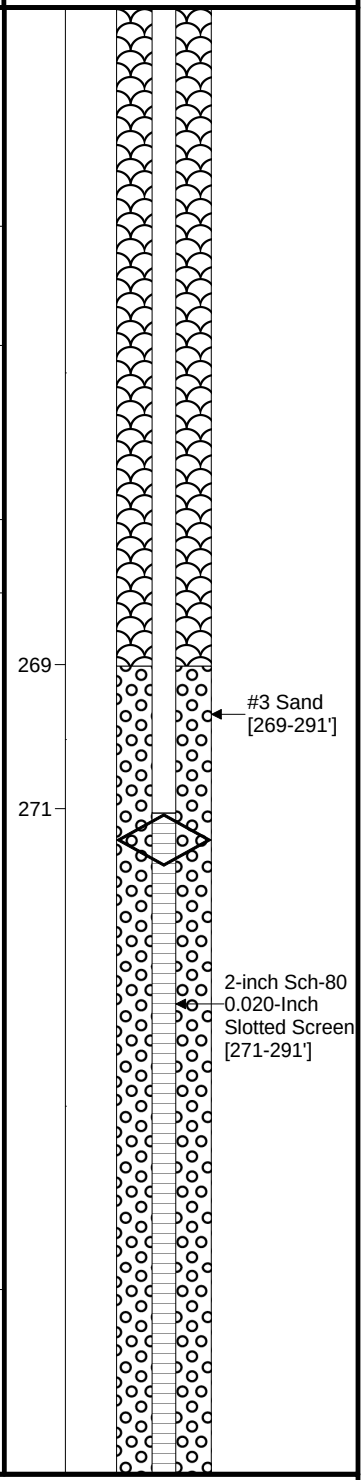
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
260			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel below 262 ft; weak HCl reaction at 258-259 ft.
			SM		SILTY SAND (5/75/20) Light olive brown (2.5Y 5/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel.
265			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3 to 5/4), very fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; micaceous; weak HCl reaction at 266-266.5 ft.
					No recovery.
					SAND WITH SILT (0/90/10) Same as 264.5-267 ft; strong HCl reaction at 268-268.5 ft, weaker HCl reaction at 268.5-269 ft, weak HCl reaction at 270.5-275.5 ft.
270					
275					
			SP		SAND (T/95/5) Light olive brown (2.5Y 5/3), fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt; trace fine gravel; weak HCl reaction at 280.5 ft.
280					

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

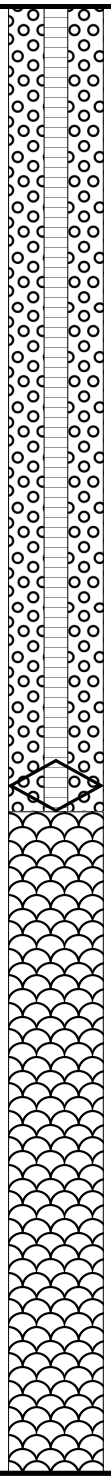
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
280			SP		SAND (T/95/5) Light olive brown (2.5Y 5/3), fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt; trace fine gravel; weak HCl reaction at 280.5 ft.
			SP-SM		SAND WITH SILT (0/90/10) Same as 264.5-267 ft; weak HCl reaction at 285 ft; lower contact gradational.
285			SP		SAND (T/95/5 to 5/90/5) Same as 277.5-281.5 ft; trace fine gravel to ¾" length; lower contact gradational.
290			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), low plasticity; sand very fine- to medium-grained, predominantly fine, trace coarse; weak HCl reaction at 290-291 ft and 291.5-295 ft; lower contact gradational.
295			SP/ ML		SAND (5/90/5) Same as 285-290 ft, interbedded with SANDY SILT (0/40/60), same as above; weak HCl reaction at 295-296.5 ft.
			ML		SANDY SILT (0/30/70) Nonplastic, otherwise same as 290-295 ft; weak HCl reaction at 298-301 ft and 302.5-305 ft.
300					

WELL CONSTRUCTION DIAGRAM



MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
300			ML		SANDY SILT (0/30/70) Nonplastic, otherwise same as 290-295 ft; weak HCl reaction at 298-301 ft and 302.5-305 ft.	
305			SP		SAND (5/90/5) Same as 285-290 ft, gravel to 1" length; thin (~1") carbonate-cemented layer at 308 ft; weak HCl reaction at 308-309 ft.	
310			SP-SM/ SM		SAND WITH SILT (0/90/10) to SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), fine- to very fine-grained, trace medium, locally trace coarse, well sorted / poorly graded, angular to subangular; silt fraction varies; weak HCl reaction at 309.5-314.5 ft; very weak HCl reaction at 315.5-316 ft.	
315			SP		SAND (0/95/5) Fine-grained to fine- to medium-grained, predominantly fine, trace coarse, well sorted / poorly graded to moderately sorted/graded, angular to subangular; trace silt; weak HCl reaction at 317 ft.	
320			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; micaceous; carbonate-cemented layer, several inches thick, at	

MONITORING WELL ORMWP

PROJECT: MWA-OESTE
PROJECT NUMBER: 1311.01

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOCATION: *Oeste Area-Cayucos St.*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

Legend:
- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
320			SP-SM		327 ft; weak HCl reaction at 318.5-320 ft, HCl reaction at 322.5-324 ft, weak HCl reaction at 324.5-328 ft; lower contact gradational over interval 328.5-329 ft.	
325						
330			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), fine-grained, well sorted / poorly graded, angular; trace silt; micaceous.	
			ML		SANDY SILT (0/30/70) Light yellowish brown (2.5Y 6/3), low plasticity; sand fine- to very fine-grained; weak HCl reaction at 331-333 ft; lower contact gradational over interval 332.5-333 ft.	
			SP		SAND (0/95/5) Same as 329-330 ft; coarsens downward.	
			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel.	
335			ML		SANDY SILT (0/30/70) Same as 330-332.5 ft; with few very fine carbonate streaks in intact fragments; weak HCl reaction.	
			SP-SM		SAND WITH SILT (0/90/10) Pale brown (10YR 6/3), otherwise same as 317.5-328.5 ft; lower contact gradational.	
			SM		SILTY SAND (0/70/30) Otherwise same as above; HCl reaction at 338-338.5 ft.	
340			ML		SANDY SILT (0/40/60) Yellowish brown (10YR 5/4), stiff, low to medium plasticity; sand fine- to medium-grained; trace clay; with few carbonate	

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
340			ML		streaks in intact fragments; decreased silt fraction below 341 ft; HCl reaction at 338.5-341 ft, weak HCl reaction at 342.5-343 ft.	
			SP-SM		SAND WITH SILT (5/85/10) Same as 317.5-328.5 ft; trace fine gravel to 1” length; weak HCl reaction.	
345					No recovery.	
			ML		Probable SANDY SILT (0/30/70) Same as 338.5-343 ft; weak HCl reaction at 351-353 ft; highly disturbed due to difficulty recovering core interval.	
350						
			SM		SILTY SAND (0/80/20) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; weak HCl reaction; highly disturbed due to difficulty recovering core interval.	
355						
			SP		SAND (0/95/5) Olive brown (2.5Y 4/3), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; highly disturbed due to difficulty recovering core interval.	
360						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
360			ML		SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/3), low plasticity; sand fine-grained, with coarser sand grains actually carbonate-cemented fragments; HCl reaction; lower contact gradational; highly disturbed due to difficulty recovering core interval.	
			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular to subangular; micaceous; reduced very fine sand fraction at 363-364 ft; HCl reaction at 361-361.5 ft, weak HCl reaction at 362-363 ft and 364-364.5 ft, strong HCl reaction at 364.5 ft.	
365			SM		SILTY SAND (0/60/40) Yellowish brown (10YR 5/4), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace clay; lower contact gradational over interval 365.5-366 ft.	
			SP-SM		SAND WITH SILT (0/90/10) Same as 361-363 ft; weak HCl reaction at 367.5-368.5 ft.	
			ML		SILT (0/10/90) Light yellowish brown (2.5Y 6/3), nonplastic; trace fine sand; weak HCl reaction at 368.5-369 ft, HCl reaction at 369-369.5 ft.	
370			SP-SM		SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; HCl reaction at 369.5-373.5 ft, with carbonate streaks and possible thin caliche layer(s).	
			ML		SILT WITH SAND (0/20/80) Otherwise same as 368.5-369.5 ft; HCl reaction, with carbonate streaks and possible thin caliche layer(s).	
375			SP-SM		SAND WITH SILT (10/80/10) Otherwise same as 369.5-373.5 ft; interbed of clay to sandy clay, ~2" thick, hard, at 375.5 ft; weak HCl reaction at 375.5-376 ft.	
			SM		Probable SILTY SAND Otherwise same as above; weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.	
			SP-SM		SILTY SAND (0/75/25) Yellowish brown (10YR 5/4), fine-grained, trace medium, well sorted / poorly graded, angular to subangular; locally very dense based on intact fragments; lower contact gradational;	
380						

MONITORING WELL ORMWP

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* GROUND SURFACE ELEV: *3466.5*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bgs*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

No Reaction	Moderate
Very Weak	Strong
Weak	Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
380					probably highly disturbed due to difficulty recovering core interval.	
			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), otherwise same as above; locally higher silt content to silty sand (0/80/20); locally fine- to very fine-grained; with thin local interbeds of silt with sand (0/20/80); strong HCl reaction at 381-386 ft; 379-381 ft interval probably highly disturbed due to difficulty recovering core interval.	
385						
			ML		SILT (0/5/95) Light olive brown (2.5Y 5/3), nonplastic to low plasticity; trace fine to coarse sand, some are carbonate-cemented fragments; strong HCl reaction.	
			SP-SM		SAND WITH SILT (0/90/10) Fine- to very fine-grained, otherwise same as 379-386 ft; weak HCl reaction.	
390			ML		SILT WITH SAND (0/20/80) Otherwise same as 386-388 ft; grades downward to SANDY SILT (0/40/60) below 390.5 ft; coarsens downward to very fine sand; weak HCl reaction at 389.5-390 ft, strong HCl reaction at 390-390.5 ft, weak HCl reaction at 390.5-392.5 ft; lower contact gradational.	
			SM/ SP-SM		SILTY SAND (0/60/40) to SAND WITH SILT (0/90/10) Otherwise same as 388-389.5 ft; continues coarsening downward; weak HCl reaction at 392.5-393 ft.	
395			SP		SAND (5/90/5) Grayish brown (2.5Y 5/2), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel; thin caliche layer at base.	
			ML		SILT (0/10/90) Otherwise same as 386-388 ft; laminated; HCl reaction.	
			SP-SM		SAND WITH SILT (5/85/10) Trace fine gravel, otherwise same as 388-389.5 ft; gravel locally coarser to 3" length at 397.5 ft and 399 ft, with marble clast at 399 ft; locally carbonate-cemented with caliche layer(s) at 397.5 ft and 399 ft; strong HCl reaction at 399 ft, weak HCl reaction at 399-400 ft.	
400						

APPENDIX C

SOIL LEACHATE SAMPLE LABORATORY REPORTS

ANALYTICAL REPORT

February 04, 2022

Hargis and Associates

Sample Delivery Group:	L1449323
Samples Received:	01/04/2022
Project Number:	1311..01
Description:	MWA-OETZ

Report To: Greg Cranham
1640 South Stapely Dr., Ste 209
Mesa, AZ 85204

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

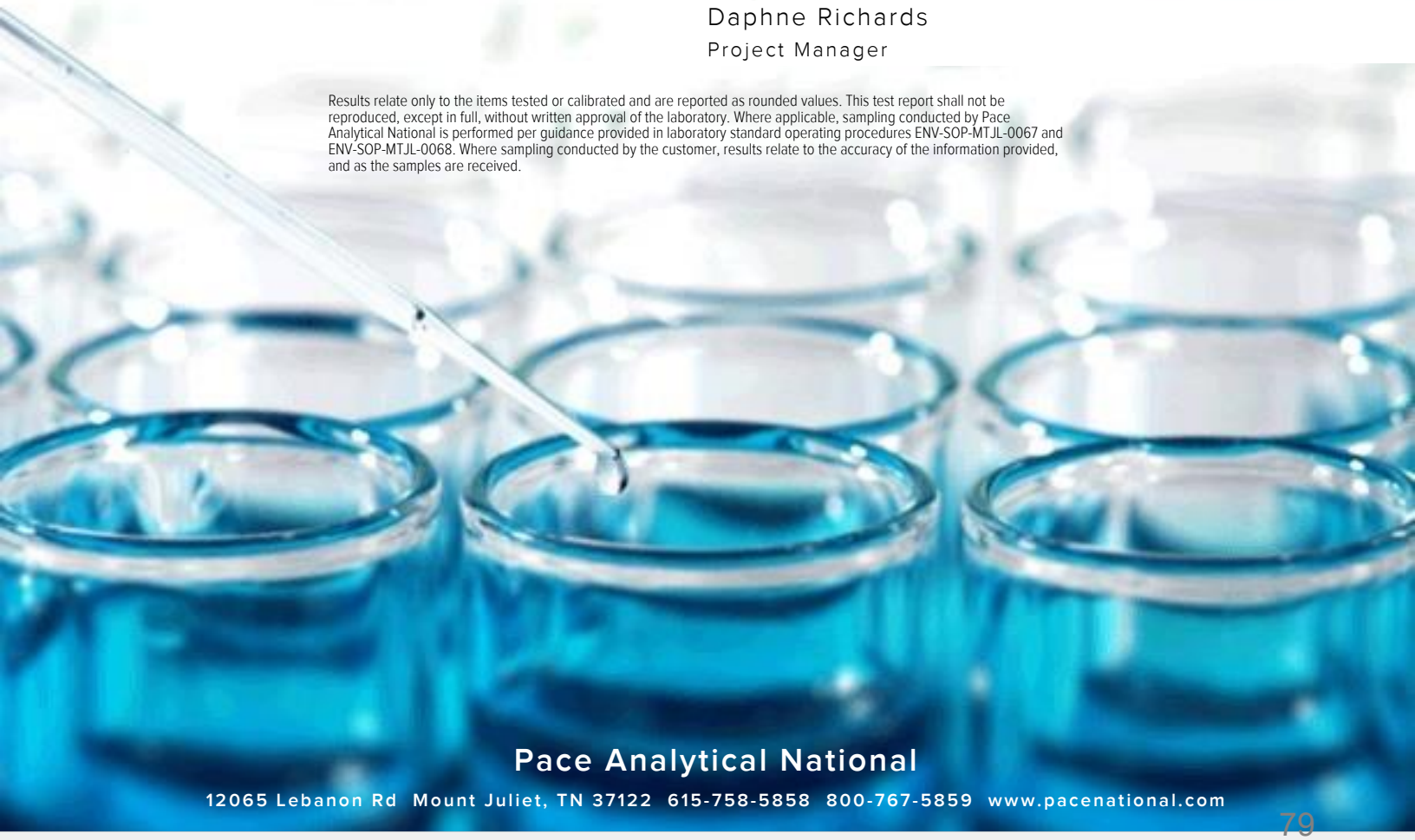


TABLE OF CONTENTS

MW-1-120 L1449323-01 GW

Collected by: Greg Cranham | Collected date/time: 12/23/21 13:30 | Received date/time: 01/04/22 14:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1800166	1	01/11/22 11:00	01/11/22 11:00	CJW	Mt. Juliet, TN
Wet Chemistry by Method 4500CN E-2016	WG1802922	1	01/15/22 17:58	01/18/22 18:34	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500CN G-2016	WG1802922	1	01/18/22 18:34	01/18/22 18:34	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500P E-2011	WG1802353	1	01/14/22 22:01	01/14/22 22:01	ARM	Mt. Juliet, TN
Wet Chemistry by Method 7196A	WG1802664	1	01/14/22 23:24	01/14/22 23:24	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1802834	10	01/14/22 11:15	01/14/22 11:15	LBR	Mt. Juliet, TN
Mercury by Method 7470A	WG1802268	1	01/17/22 09:12	01/17/22 14:40	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1801498	1	01/18/22 13:46	01/23/22 16:27	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	01/28/22 14:55	JDG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	02/04/22 14:54	JPD	Mt. Juliet, TN

MW-1-291 L1449323-02 GW

Collected by: Greg Cranham | Collected date/time: 12/28/21 16:00 | Received date/time: 01/04/22 14:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1800166	1	01/11/22 11:00	01/11/22 11:00	CJW	Mt. Juliet, TN
Wet Chemistry by Method 4500CN E-2016	WG1802922	1	01/15/22 17:58	01/18/22 18:35	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500CN G-2016	WG1802922	1	01/18/22 18:35	01/18/22 18:35	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500P E-2011	WG1802353	1	01/14/22 22:01	01/14/22 22:01	ARM	Mt. Juliet, TN
Wet Chemistry by Method 7196A	WG1802664	1	01/14/22 23:25	01/14/22 23:25	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1802834	10	01/14/22 11:37	01/14/22 11:37	LBR	Mt. Juliet, TN
Mercury by Method 7470A	WG1802268	1	01/17/22 09:12	01/17/22 14:47	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1801498	1	01/18/22 13:46	01/23/22 16:36	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	01/28/22 14:59	JDG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	02/04/22 14:58	JPD	Mt. Juliet, TN

MW-1-340 L1449323-03 GW

Collected by: Greg Cranham | Collected date/time: 12/29/21 12:30 | Received date/time: 01/04/22 14:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1800166	1	01/11/22 11:00	01/11/22 11:00	CJW	Mt. Juliet, TN
Wet Chemistry by Method 4500CN E-2016	WG1802922	1	01/15/22 17:58	01/18/22 18:36	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500CN G-2016	WG1802922	1	01/18/22 18:36	01/18/22 18:36	JER	Mt. Juliet, TN
Wet Chemistry by Method 4500P E-2011	WG1802353	1	01/14/22 22:01	01/14/22 22:01	ARM	Mt. Juliet, TN
Wet Chemistry by Method 7196A	WG1802664	1	01/14/22 23:25	01/14/22 23:25	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1802834	100	01/14/22 18:59	01/14/22 18:59	LBR	Mt. Juliet, TN
Mercury by Method 7470A	WG1802268	1	01/17/22 09:12	01/17/22 14:49	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1801498	1	01/18/22 13:46	01/23/22 16:38	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	01/28/22 14:42	JDG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1808081	1	01/28/22 10:17	02/04/22 14:41	JPD	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne Richards
Project Manager

Metals (ICP) by Method 6010D

Client ID	Lab Sample ID	Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
MW-1-120	L1449323-01	Aluminum	9250		200	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Barium	78.2		5.00	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Calcium	5790		1000	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Chromium	13.1	B1	10.0	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Iron	11900		100	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Magnesium	3980		1000	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Manganese	210		10.0	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Sodium	20100		3000	1	01/23/2022 16:27	WG1801498
MW-1-120	L1449323-01	Vanadium	43.7	B1	20.0	1	01/23/2022 16:27	WG1801498
MW-1-291	L1449323-02	Aluminum	7850		200	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Barium	73.1		5.00	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Calcium	7500		1000	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Chromium	18.5	B1	10.0	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Iron	12100		100	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Magnesium	5030		1000	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Manganese	193		10.0	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Sodium	24100		3000	1	01/23/2022 16:36	WG1801498
MW-1-291	L1449323-02	Vanadium	33.8	B1	20.0	1	01/23/2022 16:36	WG1801498
MW-1-340	L1449323-03	Aluminum	3590		200	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Barium	39.9		5.00	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Calcium	10700		1000	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Iron	3990		100	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Magnesium	2790		1000	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Manganese	82.2		10.0	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Sodium	58200		3000	1	01/23/2022 16:38	WG1801498
MW-1-340	L1449323-03	Vanadium	42.2	B1	20.0	1	01/23/2022 16:38	WG1801498

Metals (ICPMS) by Method 6020B

Client ID	Lab Sample ID	Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
MW-1-120	L1449323-01	Arsenic	3.81		2.00	1	01/28/2022 14:55	WG1808081
MW-1-120	L1449323-01	Copper	16.1		5.00	1	02/04/2022 14:54	WG1808081
MW-1-120	L1449323-01	Lead	5.62		2.00	1	01/28/2022 14:55	WG1808081
MW-1-120	L1449323-01	Nickel	6.98		2.00	1	02/04/2022 14:54	WG1808081
MW-1-291	L1449323-02	Arsenic	2.66		2.00	1	01/28/2022 14:59	WG1808081
MW-1-291	L1449323-02	Copper	23.2		5.00	1	02/04/2022 14:58	WG1808081
MW-1-291	L1449323-02	Lead	5.67		2.00	1	01/28/2022 14:59	WG1808081
MW-1-291	L1449323-02	Nickel	17.9		2.00	1	02/04/2022 14:58	WG1808081
MW-1-291	L1449323-02	Zinc	45.8		25.0	1	01/28/2022 14:59	WG1808081
MW-1-340	L1449323-03	Arsenic	2.03		2.00	1	01/28/2022 14:42	WG1808081
MW-1-340	L1449323-03	Copper	6.33		5.00	1	02/04/2022 14:41	WG1808081
MW-1-340	L1449323-03	Lead	2.23		2.00	1	01/28/2022 14:42	WG1808081
MW-1-340	L1449323-03	Nickel	2.33		2.00	1	02/04/2022 14:41	WG1808081

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		1/11/2022 11:00:45 AM	WG1800166

Wet Chemistry by Method 4500CN E-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide	ND	H3	5.00	1	01/18/2022 18:34	WG1802922

Wet Chemistry by Method 4500CN G-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide,amenable	ND	H3	5.00	1	01/18/2022 18:34	WG1802922

Wet Chemistry by Method 4500P E-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Phosphate,Ortho	ND	H3	30.0	1	01/14/2022 22:01	WG1802353

Wet Chemistry by Method 7196A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	H3 M2	10.0	1	01/14/2022 23:24	WG1802664

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	ND		10000	10	01/14/2022 11:15	WG1802834
Chloride	ND		10000	10	01/14/2022 11:15	WG1802834
Fluoride	ND		1500	10	01/14/2022 11:15	WG1802834
Nitrate as (N)	ND	H3	1000	10	01/14/2022 11:15	WG1802834
Nitrite as (N)	ND	H3	1000	10	01/14/2022 11:15	WG1802834
Sulfate	ND		50000	10	01/14/2022 11:15	WG1802834

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	01/17/2022 14:40	WG1802268

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	9250		200	1	01/23/2022 16:27	WG1801498
Barium	78.2		5.00	1	01/23/2022 16:27	WG1801498
Beryllium	ND		2.00	1	01/23/2022 16:27	WG1801498
Boron	ND		200	1	01/23/2022 16:27	WG1801498
Calcium	5790		1000	1	01/23/2022 16:27	WG1801498
Chromium	13.1	B1	10.0	1	01/23/2022 16:27	WG1801498
Cobalt	ND		10.0	1	01/23/2022 16:27	WG1801498
Iron	11900		100	1	01/23/2022 16:27	WG1801498
Magnesium	3980		1000	1	01/23/2022 16:27	WG1801498
Manganese	210		10.0	1	01/23/2022 16:27	WG1801498
Molybdenum	ND		5.00	1	01/23/2022 16:27	WG1801498
Potassium	ND		2000	1	01/23/2022 16:27	WG1801498

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sodium	20100		3000	1	01/23/2022 16:27	WG1801498
Vanadium	43.7	B1	20.0	1	01/23/2022 16:27	WG1801498

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	ND		4.00	1	01/28/2022 14:55	WG1808081
Arsenic	3.81		2.00	1	01/28/2022 14:55	WG1808081
Cadmium	ND		1.00	1	01/28/2022 14:55	WG1808081
Copper	16.1		5.00	1	02/04/2022 14:54	WG1808081
Lead	5.62		2.00	1	01/28/2022 14:55	WG1808081
Nickel	6.98		2.00	1	02/04/2022 14:54	WG1808081
Selenium	ND		2.00	1	01/28/2022 14:55	WG1808081
Silver	ND		2.00	1	01/28/2022 14:55	WG1808081
Thallium	ND		2.00	1	01/28/2022 14:55	WG1808081
Uranium	ND		20.0	1	01/28/2022 14:55	WG1808081
Zinc	ND		25.0	1	01/28/2022 14:55	WG1808081

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		1/11/2022 11:00:45 AM	WG1800166

Wet Chemistry by Method 4500CN E-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide	ND	H3	5.00	1	01/18/2022 18:35	WG1802922

Wet Chemistry by Method 4500CN G-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide,amenable	ND	H3	5.00	1	01/18/2022 18:35	WG1802922

Wet Chemistry by Method 4500P E-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Phosphate,Ortho	ND	H3	30.0	1	01/14/2022 22:01	WG1802353

Wet Chemistry by Method 7196A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	H3	10.0	1	01/14/2022 23:25	WG1802664

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	ND		10000	10	01/14/2022 11:37	WG1802834
Chloride	ND		10000	10	01/14/2022 11:37	WG1802834
Fluoride	ND		1500	10	01/14/2022 11:37	WG1802834
Nitrate as (N)	ND	H3	1000	10	01/14/2022 11:37	WG1802834
Nitrite as (N)	ND	H3	1000	10	01/14/2022 11:37	WG1802834
Sulfate	ND		50000	10	01/14/2022 11:37	WG1802834

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	01/17/2022 14:47	WG1802268

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	7850		200	1	01/23/2022 16:36	WG1801498
Barium	73.1		5.00	1	01/23/2022 16:36	WG1801498
Beryllium	ND		2.00	1	01/23/2022 16:36	WG1801498
Boron	ND		200	1	01/23/2022 16:36	WG1801498
Calcium	7500		1000	1	01/23/2022 16:36	WG1801498
Chromium	18.5	B1	10.0	1	01/23/2022 16:36	WG1801498
Cobalt	ND		10.0	1	01/23/2022 16:36	WG1801498
Iron	12100		100	1	01/23/2022 16:36	WG1801498
Magnesium	5030		1000	1	01/23/2022 16:36	WG1801498
Manganese	193		10.0	1	01/23/2022 16:36	WG1801498
Molybdenum	ND		5.00	1	01/23/2022 16:36	WG1801498
Potassium	ND		2000	1	01/23/2022 16:36	WG1801498

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sodium	24100		3000	1	01/23/2022 16:36	WG1801498
Vanadium	33.8	B1	20.0	1	01/23/2022 16:36	WG1801498

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	ND		4.00	1	01/28/2022 14:59	WG1808081
Arsenic	2.66		2.00	1	01/28/2022 14:59	WG1808081
Cadmium	ND		1.00	1	01/28/2022 14:59	WG1808081
Copper	23.2		5.00	1	02/04/2022 14:58	WG1808081
Lead	5.67		2.00	1	01/28/2022 14:59	WG1808081
Nickel	17.9		2.00	1	02/04/2022 14:58	WG1808081
Selenium	ND		2.00	1	01/28/2022 14:59	WG1808081
Silver	ND		2.00	1	01/28/2022 14:59	WG1808081
Thallium	ND		2.00	1	01/28/2022 14:59	WG1808081
Uranium	ND		20.0	1	01/28/2022 14:59	WG1808081
Zinc	45.8		25.0	1	01/28/2022 14:59	WG1808081

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		1/11/2022 11:00:45 AM	WG1800166

Wet Chemistry by Method 4500CN E-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide	ND	H3	5.00	1	01/18/2022 18:36	WG1802922

Wet Chemistry by Method 4500CN G-2016

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide,amenable	ND	H3	5.00	1	01/18/2022 18:36	WG1802922

Wet Chemistry by Method 4500P E-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Phosphate,Ortho	ND	H3	30.0	1	01/14/2022 22:01	WG1802353

Wet Chemistry by Method 7196A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	H3	10.0	1	01/14/2022 23:25	WG1802664

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	ND		100000	100	01/14/2022 18:59	WG1802834
Chloride	ND		100000	100	01/14/2022 18:59	WG1802834
Fluoride	ND		15000	100	01/14/2022 18:59	WG1802834
Nitrate as (N)	ND	H3	10000	100	01/14/2022 18:59	WG1802834
Nitrite as (N)	ND	H3	10000	100	01/14/2022 18:59	WG1802834
Sulfate	ND		500000	100	01/14/2022 18:59	WG1802834

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	01/17/2022 14:49	WG1802268

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	3590		200	1	01/23/2022 16:38	WG1801498
Barium	39.9		5.00	1	01/23/2022 16:38	WG1801498
Beryllium	ND		2.00	1	01/23/2022 16:38	WG1801498
Boron	ND		200	1	01/23/2022 16:38	WG1801498
Calcium	10700		1000	1	01/23/2022 16:38	WG1801498
Chromium	ND		10.0	1	01/23/2022 16:38	WG1801498
Cobalt	ND		10.0	1	01/23/2022 16:38	WG1801498
Iron	3990		100	1	01/23/2022 16:38	WG1801498
Magnesium	2790		1000	1	01/23/2022 16:38	WG1801498
Manganese	82.2		10.0	1	01/23/2022 16:38	WG1801498
Molybdenum	ND		5.00	1	01/23/2022 16:38	WG1801498
Potassium	ND		2000	1	01/23/2022 16:38	WG1801498

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sodium	58200		3000	1	01/23/2022 16:38	WG1801498
Vanadium	42.2	B1	20.0	1	01/23/2022 16:38	WG1801498

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	ND		4.00	1	01/28/2022 14:42	WG1808081
Arsenic	2.03		2.00	1	01/28/2022 14:42	WG1808081
Cadmium	ND		1.00	1	01/28/2022 14:42	WG1808081
Copper	6.33		5.00	1	02/04/2022 14:41	WG1808081
Lead	2.23		2.00	1	01/28/2022 14:42	WG1808081
Nickel	2.33		2.00	1	02/04/2022 14:41	WG1808081
Selenium	ND		2.00	1	01/28/2022 14:42	WG1808081
Silver	ND		2.00	1	01/28/2022 14:42	WG1808081
Thallium	ND		2.00	1	01/28/2022 14:42	WG1808081
Uranium	ND		20.0	1	01/28/2022 14:42	WG1808081
Zinc	ND		25.0	1	01/28/2022 14:42	WG1808081

Method Blank (MB)

(MB) R3751066-1 01/18/22 18:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Cyanide	U		1.80	5.00

L1451411-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1451411-02 01/18/22 18:44 • (DUP) R3751066-3 01/18/22 18:45

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	22.5	25.9	1	14.0		20

L1451558-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1451558-03 01/18/22 18:54 • (DUP) R3751066-6 01/18/22 18:55

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3751066-2 01/18/22 18:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	100	97.5	97.5	87.1-120	

L1451548-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1451548-02 01/18/22 18:49 • (MS) R3751066-4 01/18/22 18:50 • (MSD) R3751066-5 01/18/22 18:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	100	ND	94.9	108	94.9	108	1	90.0-110			12.9	20

L1451645-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1451645-03 01/18/22 18:57 • (MS) R3751066-7 01/18/22 18:58 • (MSD) R3751066-8 01/18/22 18:59

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	100	ND	101	99.8	101	99.8	1	90.0-110			1.20	20

Method Blank (MB)

(MB) R3750230-1 01/14/22 22:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Phosphate,Ortho	U		14.0	30.0

L1449323-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1449323-01 01/14/22 22:01 • (DUP) R3750230-3 01/14/22 22:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphate,Ortho	ND	ND	1	0.000		20

L1451198-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1451198-08 01/14/22 22:07 • (DUP) R3750230-4 01/14/22 22:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphate,Ortho	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3750230-2 01/14/22 22:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphate,Ortho	245	237	96.9	85.0-115	

L1451274-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1451274-02 01/14/22 22:10 • (MS) R3750230-5 01/14/22 22:10 • (MSD) R3750230-6 01/14/22 22:11

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphate,Ortho	500	567	1060	1060	99.4	99.4	1	80.0-120	E1	E1	0.000	20

Method Blank (MB)

(MB) R3750237-1 01/14/22 23:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chromium,Hexavalent	U		3.00	10.0

L1449323-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1449323-03 01/14/22 23:25 • (DUP) R3750237-6 01/14/22 23:26

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3750237-2 01/14/22 23:23 • (LCSD) R3750237-3 01/14/22 23:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	500	513	495	103	99.0	80.0-120			3.57	20

L1449323-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449323-01 01/14/22 23:24 • (MS) R3750237-4 01/14/22 23:25 • (MSD) R3750237-5 01/14/22 23:25

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	500	ND	204	202	40.2	39.8	1	85.0-115	M2	M2	0.985	20

Method Blank (MB)

(MB) R3750304-2 01/14/22 11:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Bromide	U		353	1000
Chloride	567	E4	379	1000
Fluoride	U		64.0	150
Nitrate	U		48.0	100
Nitrite	U		42.0	100
Sulfate	U		594	5000

Laboratory Control Sample (LCS)

(LCS) R3750304-1 01/14/22 10:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40000	39700	99.3	80.0-120	
Chloride	40000	40100	100	80.0-120	
Fluoride	8000	8250	103	80.0-120	
Nitrate	8000	7930	99.1	80.0-120	
Nitrite	8000	8290	104	80.0-120	
Sulfate	40000	40200	100	80.0-120	

QUALITY CONTROL SUMMARY

L1449323-01,02,03

Method Blank (MB)

(MB) R3750628-1 01/17/22 14:30

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.100	0.200

Laboratory Control Sample (LCS)

(LCS) R3750628-2 01/17/22 14:37

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	2.89	96.5	80.0-120	

L1449323-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449323-01 01/17/22 14:40 • (MS) R3750628-3 01/17/22 14:42 • (MSD) R3750628-4 01/17/22 14:44

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	ND	2.99	3.10	99.5	103	1	75.0-125			3.63	20

Method Blank (MB)

(MB) R3752751-1 01/23/22 16:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Aluminum	U		56.1	200
Barium	U		0.736	5.00
Beryllium	U		0.330	2.00
Boron	U		20.0	200
Calcium	U		79.3	1000
Chromium	2.02	E4	1.40	10.0
Cobalt	U		0.840	10.0
Iron	U		18.0	100
Magnesium	U		85.3	1000
Manganese	U		0.934	10.0
Molybdenum	U		1.16	5.00
Potassium	U		261	2000
Sodium	U		504	3000
Vanadium	6.31	E4	4.99	20.0

Laboratory Control Sample (LCS)

(LCS) R3752751-2 01/23/22 16:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10000	10500	105	80.0-120	
Barium	1000	962	96.2	80.0-120	
Beryllium	1000	1030	103	80.0-120	
Boron	1000	1030	103	80.0-120	
Calcium	10000	10300	103	80.0-120	
Chromium	1000	914	91.4	80.0-120	
Cobalt	1000	975	97.5	80.0-120	
Iron	10000	10100	101	80.0-120	
Magnesium	10000	10500	105	80.0-120	
Manganese	1000	1020	102	80.0-120	
Molybdenum	1000	1050	105	80.0-120	
Potassium	10000	9730	97.3	80.0-120	
Sodium	10000	10200	102	80.0-120	
Vanadium	1000	1060	106	80.0-120	

L1440581-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1440581-02 01/23/22 16:08 • (MS) R3752751-4 01/23/22 16:14 • (MSD) R3752751-5 01/23/22 16:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10000	1710	12700	12400	110	107	1	75.0-125			2.57	20
Barium	1000	565	1510	1500	94.5	93.7	1	75.0-125			0.550	20
Beryllium	1000	ND	1050	1050	105	105	1	75.0-125			0.542	20
Boron	1000	ND	1110	1090	108	106	1	75.0-125			1.87	20
Calcium	10000	376000	380000	377000	41.7	12.6	1	75.0-125	M3	M3	0.768	20
Chromium	1000	11.4	918	912	90.7	90.1	1	75.0-125			0.644	20
Cobalt	1000	ND	1020	1010	102	101	1	75.0-125			0.631	20
Iron	10000	ND	10200	10100	101	100	1	75.0-125			0.959	20
Magnesium	10000	ND	10200	10000	102	100	1	75.0-125			2.17	20
Manganese	1000	ND	1020	1010	102	101	1	75.0-125			0.462	20
Molybdenum	1000	177	1240	1230	106	106	1	75.0-125			0.402	20
Potassium	10000	42600	52000	51500	93.4	88.8	1	75.0-125			0.881	20
Sodium	10000	64100	72300	71200	81.9	70.8	1	75.0-125		M3	1.54	20
Vanadium	1000	ND	1100	1080	110	108	1	75.0-125			1.24	20

Method Blank (MB)

(MB) R3754705-1 01/28/22 14:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		1.03	4.00
Arsenic	U		0.180	2.00
Cadmium	U		0.150	1.00
Lead	U		0.849	2.00
Selenium	U		0.300	2.00
Silver	U		0.0700	2.00
Thallium	U		0.121	2.00
Uranium	U		0.0700	20.0
Zinc	U		3.02	25.0

Method Blank (MB)

(MB) R3757050-1 02/04/22 14:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Copper	U		1.51	5.00
Nickel	U		0.816	2.00

Laboratory Control Sample (LCS)

(LCS) R3754705-2 01/28/22 14:39

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	50.0	46.4	92.7	80.0-120	
Arsenic	50.0	47.7	95.4	80.0-120	
Cadmium	50.0	51.7	103	80.0-120	
Lead	50.0	48.9	97.8	80.0-120	
Selenium	50.0	59.4	119	80.0-120	
Silver	50.0	49.0	97.9	80.0-120	
Thallium	50.0	48.6	97.3	80.0-120	
Uranium	50.0	48.5	97.0	80.0-120	
Zinc	500	473	94.7	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3757050-2 02/04/22 14:37

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Copper	50.0	49.2	98.3	80.0-120	
Nickel	50.0	56.5	113	80.0-120	

L1449323-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449323-03 01/28/22 14:42 • (MS) R3754705-4 01/28/22 14:49 • (MSD) R3754705-5 01/28/22 14:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	ND	45.7	44.5	91.4	89.1	1	75.0-125			2.57	20
Arsenic	50.0	2.03	50.6	50.1	97.2	96.0	1	75.0-125			1.15	20
Cadmium	50.0	ND	51.0	50.8	102	102	1	75.0-125			0.368	20
Lead	50.0	2.23	51.6	51.7	98.8	99.0	1	75.0-125			0.111	20
Selenium	50.0	ND	58.3	58.4	117	117	1	75.0-125			0.213	20
Silver	50.0	ND	48.4	49.0	96.8	98.0	1	75.0-125			1.30	20
Thallium	50.0	ND	46.6	46.3	93.2	92.5	1	75.0-125			0.692	20
Uranium	50.0	ND	48.7	48.5	97.0	96.7	1	75.0-125			0.391	20
Zinc	500	ND	501	505	97.0	97.9	1	75.0-125			0.876	20

L1449323-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449323-03 02/04/22 14:41 • (MS) R3757050-4 02/04/22 14:47 • (MSD) R3757050-5 02/04/22 14:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	50.0	6.33	59.7	60.8	107	109	1	75.0-125			1.93	20
Nickel	50.0	2.33	57.5	57.4	110	110	1	75.0-125			0.203	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B1	Target analyte detected in method blank at or above the method reporting limit.
E1	Concentration estimated. Analyte exceeded calibration range. Reanalysis not possible due to insufficient sample.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above MDL.
H3	Sample was received and / or analysis requested past holding time.
M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

F065

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 12/30/21 PAGE 1 OF 1

PROJECT NAME: MWA-OESTE	PROJECT No./TASK No.: 1311.01
PROJECT MANAGER: STACIA PRAZEN	Phone No.: (858)455-6500
QA MANAGER: GREG CRANHAM	Fax No.:
SAMPLER (SIGNATURE):	SAMPLER (PRINTED): GREG CRANHAM

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	Time	MATRIX: Soil	Groundwater	Surface water	PRESERVATION: HCl	HNO_3	NaOH	H_2SO_4	Ice	SAMPLE CONTAINERS: 8-oz glass jar	2-oz glass jar
-01	MW-1-120	12/23/21	13:30	X							X	2	1
-02	MW-1-291	12/28/21	16:00	X							X	1	
-03	MW-1-340	12/29/21	1230	X							X	1	

ANALYSIS REQUESTED: SPLP (EPA 1312); PCN Leachate for Nitrate/Nitrite (300.0); EAH Method (6010B); Hex Chrome (7199); pH (9045); TDS (sm 2540C); Mercury (7470); HOLD 120 INSTRUCTIONS

ESTIMATED CONCENTRATION RANGE (ppb) FOR VOA'S

SPECIAL HANDLING: USE LEACHING WATER PER INSTRUCTIONS BY EMAIL

LABORATORY INFORMATION: PACE ANALYTICAL, SIGNAL HILL, (615) 773-7541, L149323, L1447639

REMARKS: HOLD FOR INSTRUCTIONS

Sample Receipt Checklist

COC Seal Present/Intact:	Y / N	If Applicable	
COC Signed/Accurate:	Y / N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y / N	Pres.Correct/Check:	Y N
Correct bottles used:	Y / N		
Sufficient volume sent:	Y / N		
RAD Screen <0.5 mR/hr:	Y N		

Total number of Containers per analysis: 5 2

Total No. of Containers: 7

Relinquished by:	Date	Time	Company	Received by:	Date	Time	Company
	12/30/21	11:45	HTA		12/30/21	11:45	PACE
	1/3/22	1630	PACE		1/4/22	1430	PACE

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:
- ☐ No. of containers correct
- ☐ custody seals secure
- Temp. @ receipt _____ °C
- ☐ received good condition/cold
- ☐ conforms to COC document

Shipment Method: HAND DELIVER

Send Results to: STACIA PRAZEN SPRAZEN@TARGETSCOM

☒ 9171 TOWNE CENTRE DRIVE, SUITE 375, SAN DIEGO, CA 92122 (858) 455-6500

☐ 1640 SOUTH STAPLEY DRIVE, SUITE 209, MESA, AZ 85204 (480) 345-0888

☐ 7400 NORTH ORACLE ROAD, SUITE 202, TUCSON, AZ 85704 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

ORIGINAL: LABORATORY YELLOW: QA MANAGER PINK: FIELD/TASK MANAGER

Relog L1447633 HARGMAZ

R5

Please relog L1447633, all samples for SPLP analysis for the following tests:

Metals- CAM17 + B, Ca, Fe, Mg, K, Na, Al, Mn, U
Hexavalent chromium
Bromide
Chloride
Nitrate
Nitrite
Sulfate
Fluoride
Cyanide
Cyanide, amenable
Orthophosphate

Thanks

Time estimate: oh **Time spent:** oh

Members

DR Daphne Richards (responsible)

APPENDIX D
GEOTECHNICAL LABORATORY REPORTS

INTEGRATED GEOSCIENCES LABORATORIES, LLC
*Environmental * Geotechnical * Core Analysis*

6016 Centralcrest Street • Houston, Texas 77092
Telephone (713) 316-1800 • Fax (877) 255-9953

April 4, 2022

Stacia Prazen
Project Manager,
Hargis + Associates, Inc..
3131 Camino del Rio North, Suite 355,
San Diego, CA 92108.

Re: IGS Labs File No: **2203-53**
Project Name: **Mojave Water Agency - Oeste**
Project Number: **1311.01**
Site Location: **Pinon Hills, California**

Subject: Final Report: Effective Porosity-(ASTM D425), Dry Bulk Density-(ASTM D2937), Hydraulic Conductivity – (ASTM D5084), Soil Moisture Retention Curve – (ASTM D6836), and Grain Size Distribution – (ASTM D422).

Dear Stacia Prazen,

Please find enclosed report for Physical Properties analyses conducted on soil samples received from your **"Mojave Water Agency - Oeste"** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

Integrated Geosciences Laboratories appreciate the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
Integrated Geosciences Laboratories, LLC.

Wumi Andrew

Laboratory Technician.
Encl.

Integrated Geosciences Laboratories, LLC.

Project Name: Mojave Water Agency - Oeste
Project Number: 1311.01
Site Location: Pinon Hills, California

IGS Labs File No: 2203-53
Client: Hargis + Associates, Inc.
Date Received: 3/28/2022

TEST PROGRAM - 20220328

Serial Number	COC Sample ID	Date; Time Sampled	Depth (feet)	Matrix Type	Soil Moisture Retention Curve ASTM D6836	Effective Porosity mod. ASTM D425	Grain Size Analysis ASTM D422	Hydraulic Conductivity ASTM D5084	Bulk Density ASTM D2937	Comments
	Date Received: 20220328							VERTICAL		
1	Oeste-Recharge-224	02/2/22; 16:00	224-224.5	Soil		X	X	X	X	1- [2" X 6" stainless steel tube]
2	Oeste-Recharge-260	02/3/22; 14:00	260-260.5	Soil	X	X	X	X	X	1- [2" X 6" stainless steel tube]
3	Oeste-Recharge-501	02/7/22; 09:45	501-501.5	Soil	X	X	X	X	X	1- [2" X 6" stainless steel tube]
4	Oeste-Recharge-660	02/8/22; 10:25	660-660.5	Soil		X	X	X	X	1- [2" X 6" stainless steel tube]
	TOTAL				**2**	**4**	**4**	**4**	**4**	**4**

Laboratory Test Program Notes

1. Standard TAT for basic analysis is 10-15 business days.

Integrated Geosciences Laboratories, LLC

PHYSICAL PROPERTIES DATA - DRAINAGE (EFFECTIVE) POROSITY

IGS Labs File No: 2203-53
Client: Hargis + Associates, Inc.
Report Date: 4/4/2022

Project Name: Mojave Water Agency - Oeste
Project No: 1311.01
Site Location: Pinon Hills, California

				METHODS:	API RP 40 / ASTM D2216	API RP40	Mod. ASTM D425	Mod. ASTM D425
SAMPLE ID.	IGS Labs ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	MOISTURE CONTENT, % weight	DENSITY BULK, g/cc	TOTAL POROSITY (2), %Vb	EFFECTIVE POROSITY, %Vb
Oeste-Recharge-224	1	224-224.5	V	20220329	4.3	1.52	40.6	29.8
Oeste-Recharge-260	2	260-260.5	V	20220329	2.6	1.69	32.6	24.1
Oeste-Recharge-501	3	501-501.5	V	20220329	11.9	1.44	45.1	27.8
Oeste-Recharge-660	4	660-660.5	V	20220329	17.4	1.49	38.9	31.5

Integrated Geosciences Laboratories, LLC

DRY BULK DENSITY OF IN-PLACE SOIL and TOTAL POROSITY (CALCULATED)

(Methodology: ASTM D2937, calculation)

IGS Labs File No: 2203-53
Client: Hargis + Associates, Inc.
Report Date: 4/4/2022

Project Name: Mojave Water Agency - Oeste
Project No: 1311.01
Site Location: Pinon Hills, California

SAMPLE ID.	IGS Labs ID	DEPTH, ft.	ANALYSIS DATE	TOTAL SAMPLE VOLUME, cc	MOISTURE CONTENT, % wt	VOLUMETRIC WATER CONTENT, fraction Vb	DRY BULK DENSITY, g/cc	TOTAL (1) POROSITY, fraction Vb	VOLUME OF SOLIDS, cc	VOLUME OF VOIDS, cc	VOID RATIO	SATURATION
Oeste-Recharge-224	1	224-224.5	20220401	61.72	4.5	0.075	1.65	0.385	38.0	23.8	0.626	0.194
Oeste-Recharge-260	2	260-260.5	20220401	61.72	3.0	0.055	1.84	0.312	42.5	19.3	0.454	0.175
Oeste-Recharge-501	3	501-501.5	20220401	61.72	12.6	0.201	1.59	0.408	36.5	25.2	0.690	0.491
Oeste-Recharge-660	4	660-660.5	20220401	61.72	21.8	0.369	1.69	0.374	38.6	23.1	0.598	0.988

(1) Total Porosity by calculated method
Specific gravity used for calculation of total porosity is 2.68 to 2.70.
Water = 0.9981 g/cc; Vb = Bulk Volume

Integrated Geosciences Laboratories, LLC

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

IGS Labs File No: 2203-53
Client: Hargis + Associates, Inc.
Report Date: 4/4/2022

Project Name: Mojave Water Agency - Oeste
Project No: 1311.01
Site Location: Pinon Hills, California

SAMPLE ID.	IGS Labs ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	CONFINING PRESSURE, psi	HYDRAULIC GRADIENT, (Dimensionless)	EFFECTIVE (2,3) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (2,3), cm/s
Oeste-Recharge-224	1	224-224.5	V	20220404	25.0	65	20.245	2.05E-05
						65	20.150	2.04E-05
						65	20.249	2.05E-05
						Average:-	20.215	2.05E-05
Oeste-Recharge-260	2	260-260.5	V	20220404	25.0	71	15.806	1.58E-05
						73	15.448	1.55E-05
						72	15.729	1.58E-05
						Average:-	15.661	1.57E-05
Oeste-Recharge-501	3	501-501.5	V	20220404	25.0	66	3.881	3.88E-06
						66	3.875	3.87E-06
						66	3.939	3.94E-06
						Average:-	3.899	3.90E-06
Oeste-Recharge-660	4	660-660.5	V	20220404	25.0	14	188.007	1.88E-04
						14	188.026	1.88E-04
						15	186.185	1.86E-04
						Average:-	187.406	1.88E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to water and hydraulic conductivity measured at saturated conditions.
Water = filtered Laboratory Fresh (tap) or Site water.

Integrated Geosciences Laboratories, LLC

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

METHODS: API RP40/ASTM D2216

IGS Labs File No:	**2203-53**	**Project Name:**	**Mojave Water Agency - Oeste**
Client:	**Hargis + Associates, Inc.**	**Project Number:**	**1311.01**
Report Date:	**04/04/22**	**Site Location:**	**Pinon Hills, California**

			METHODS:	**API RP 40 / ASTM D2216**	**API RP 40**		**API RP 40**		**API RP 40**
					DENSITY		**POROSITY, %Vb (2)**		
SAMPLE ID	**IGS Labs ID**	**DEPTH, (feet)**	**SAMPLE ORIENTATION (1)**	**MOISTURE CONTENT, (% weight)**	**DRY BULK, (g/cc)**	**GRAIN, (g/cc)**	**TOTAL**	**AIR FILLED**	**TOTAL PORE FLUID SATURATIONS (3), (% PV)**
Oeste-Recharge-260	2	260-260.5	V	0.6	1.72	2.73	37.0	29.3	22.9
Oeste-Recharge-501	3	501-501.5	V	11.6	1.44	2.70	46.7	26.0	46.2

NOTES:

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

Integrated Geosciences Laboratories, LLC

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

METHODS: API RP40/EPA 9100

IGS Labs File No:	**2203-53**	**Project Name:**	**Mojave Water Agency - Oeste**
Client:	**Hargis + Associates, Inc.**	**Project Number:**	**1311.01**
Report Date:	**04/04/22**	**Site Location:**	**Pinon Hills, California**

				25 PSI CONFINING STRESS		
SAMPLE ID	**IGS Labs ID**	**DEPTH, (feet)**	**SAMPLE ORIENTATION (1)**	**SPECIFIC PERMEABILITY TO AIR, millidarcy (2)**	**EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)**	**HYDRAULIC CONDUCTIVITY, cm/s (4)**
Oeste-Recharge-260	2	260-260.5	V	333	0.338	3.35E-07
Oeste-Recharge-501	3	501-501.5	V	532	0.226	2.23E-07

NOTES:

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

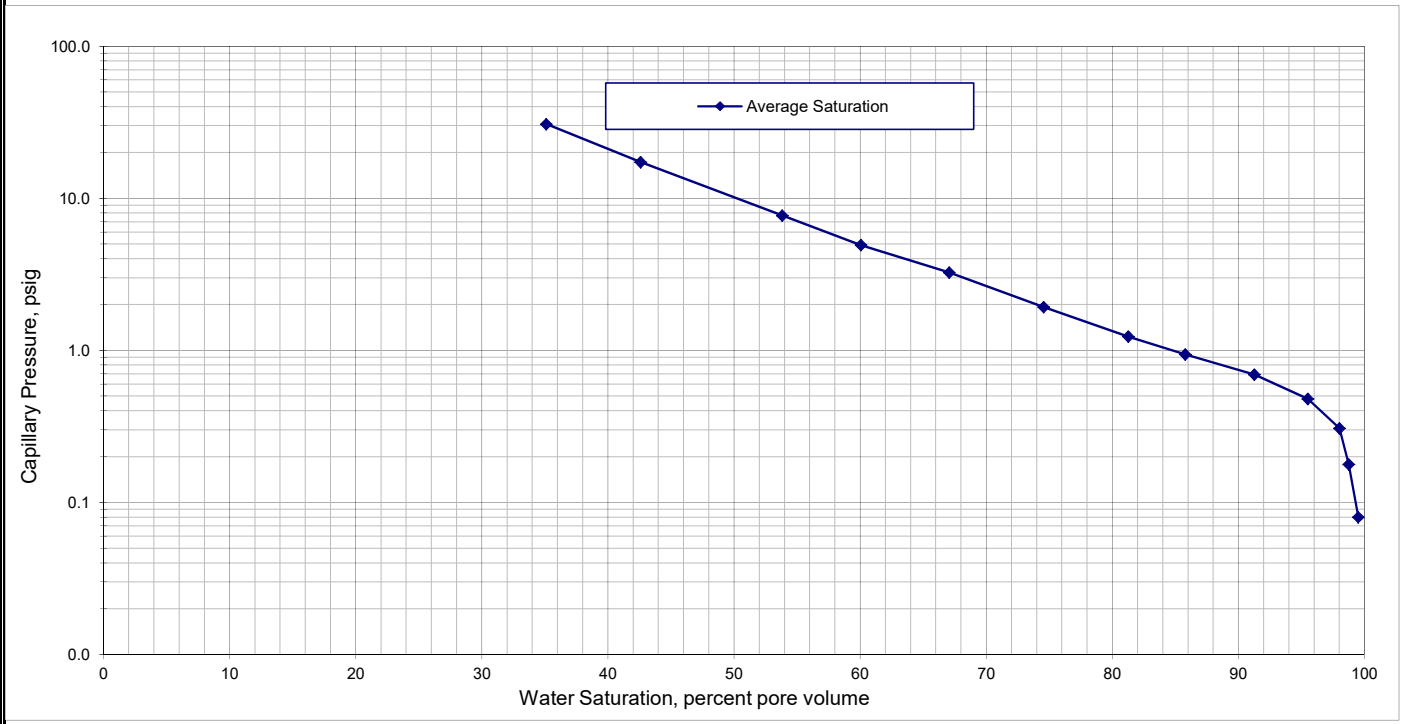
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

Integrated Geosciences Laboratories, LLC

AIR/WATER CAPILLARY PRESSURE TABULAR DATA
ASTM D6836; Method E (Centrifugal Method: air displacing water)

IGS Labs File No:	**2203-53**	**Project Name:**	**Mojave Water Agency - Oeste**
Client:	**Hargis + Associates, Inc.**	**Project No:**	**1311.01**
Report Date:	**04/04/22**		

Capillary Pressure		Height Above Water Table,	Sample ID: Oeste-Recharge-260	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	14.6
0.080	5.62	0.185	99.5	14.5
0.178	12.5	0.411	98.8	14.4
0.308	21.6	0.712	98.0	14.3
0.481	33.8	1.11	95.5	14.0
0.692	48.7	1.60	91.3	13.3
0.942	66.2	2.18	85.8	12.5
1.23	86.5	2.85	81.3	11.9
1.92	135	4.45	74.5	10.9
3.25	228	7.52	67.1	9.8
4.92	346	11.4	60.1	8.8
7.69	541	17.8	53.8	7.9
17.3	1216	40.0	42.6	6.2
30.8	2163	71.2	35.1	5.1

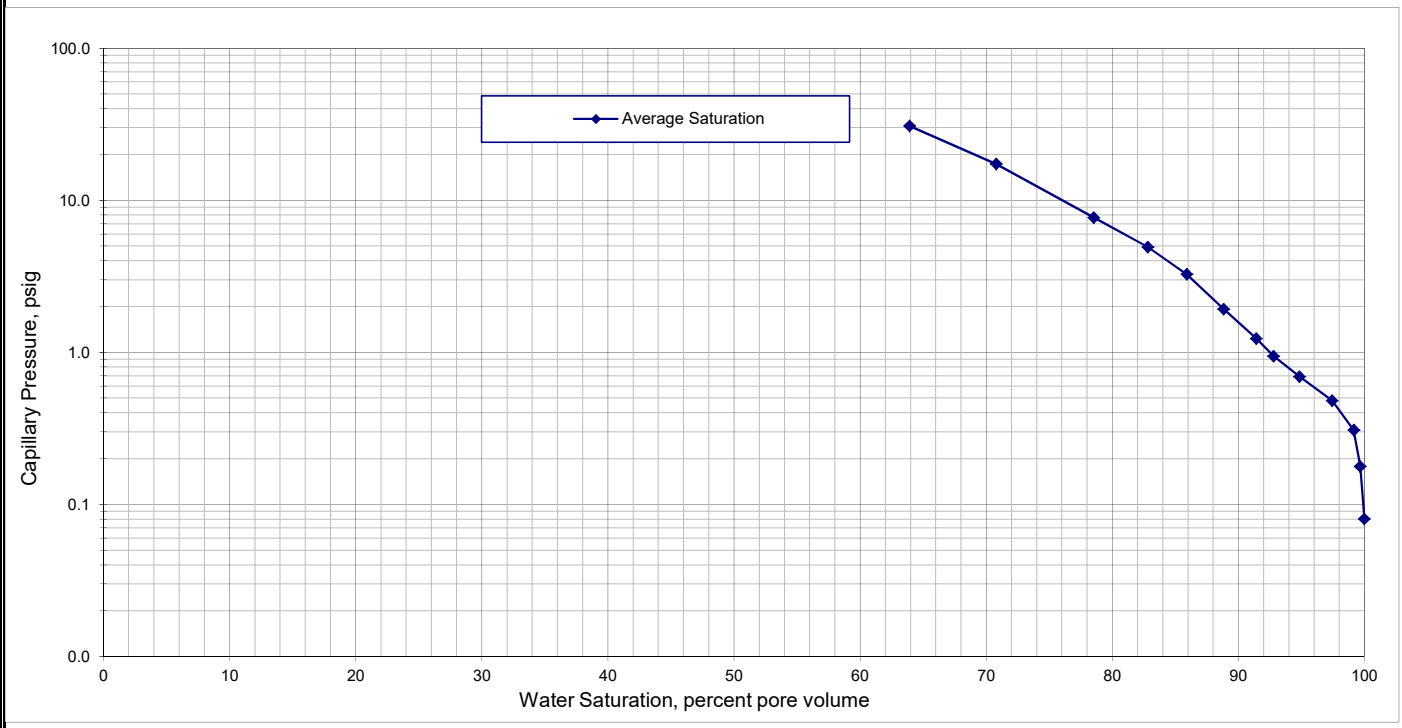


Integrated Geosciences Laboratories, LLC

AIR/WATER CAPILLARY PRESSURE TABULAR DATA
ASTM D6836; Method E (Centrifugal Method: air displacing water)

IGS Labs File No:	**2203-53**	**Project Name:**	**Mojave Water Agency - Oeste**
Client:	**Hargis + Associates, Inc.**	**Project No:**	**1311.01**
Report Date:	**04/04/22**		

Capillary Pressure		Height Above Water Table,	Sample ID: Oeste-Recharge-501	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	23.0
0.080	5.64	0.186	100.0	23.0
0.178	12.5	0.412	99.7	22.9
0.308	21.7	0.714	99.1	22.8
0.482	33.9	1.12	97.4	22.4
0.694	48.8	1.61	94.8	21.8
0.944	66.4	2.19	92.8	21.3
1.23	86.7	2.85	91.4	21.0
1.93	136	4.46	88.8	20.4
3.26	229	7.54	85.9	19.7
4.93	347	11.4	82.8	19.0
7.71	542	17.8	78.5	18.0
17.3	1220	40.1	70.8	16.3
30.8	2168	71.4	63.9	14.7



Integrated Geosciences Laboratories, LLC.

PARTICLE SIZE SUMMARY
(METHODOLOGY: ASTM D422)

PROJECT NAME:	**Mojave Water Agency - Oeste**		**Hargis + Associates, Inc.**
PROJECT NO:	**1311.01**	**IGS Labs File No:**	**2203-53**
SITE LOCATION:	**Pinon Hills, California**	**Report Date:**	**4/4/2022**

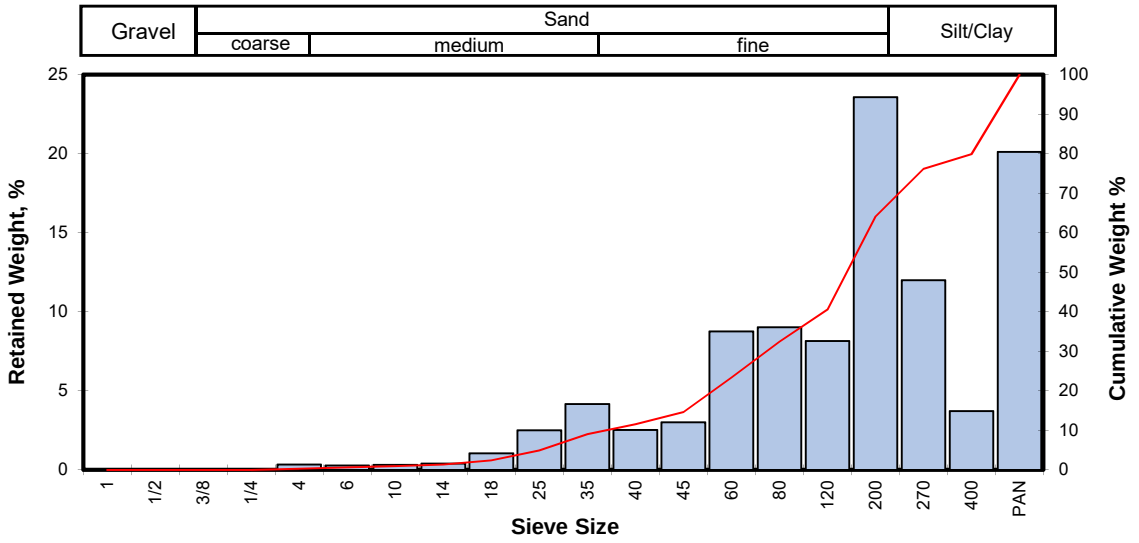
Sample ID	IGS Labs ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent						
					Gravel	Sand Size					Silt/Clay
						Coarse	Medium	Fine	Silt	Clay	
Oeste-Recharge-224	1	224-224.5	Fine sand	0.102	0.35	0.60	10.66	52.55	15.72	20.11	35.84
Oeste-Recharge-260	2	260-260.5	Fine sand	0.420	22.47	11.44	16.05	32.91	9.31	7.82	17.12
Oeste-Recharge-501	3	501-501.5	Fine sand	0.106	0.00	0.17	9.59	51.47	22.01	16.75	38.77
Oeste-Recharge-660	4	660-660.5	Fine sand	0.122	0.56	1.23	11.85	53.94	11.21	21.21	32.42

(1) Based on Mean from Trask

Integrated Geosciences Laboratories, LLC.

Sieve Analysis Results - ASTM D422

Client:	Hargis + Associates, Inc.	IGS Labs ID:	**IGS Labs File No:** 2203-53
Project:	Mojave Water Agency - Oeste	1	**Sample ID:** Oeste-Recharge-224
Project No:	1311.01		**Depth, ft:** 224-224.5



Opening (Inches)	Opening (Millimeters)	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.43	0.35	0.35
0.1324	3.364	-1.75	6	0.34	0.28	0.63
0.0787	2.000	-1.00	10	0.39	0.32	0.95
0.0557	1.414	-0.50	14	0.48	0.39	1.35
0.0394	1.000	0.00	18	1.28	1.05	2.40
0.0278	0.707	0.50	25	3.05	2.51	4.90
0.0197	0.500	1.00	35	5.08	4.17	9.08
0.0166	0.420	1.25	40	3.09	2.54	11.61
0.0139	0.354	1.50	45	3.68	3.02	14.64
0.0098	0.250	2.00	60	10.66	8.76	23.39
0.0070	0.177	2.50	80	11.00	9.03	32.43
0.0049	0.125	3.00	120	9.92	8.15	40.57
0.0029	0.074	3.75	200	28.72	23.59	64.16
0.0021	0.053	4.25	270	14.61	12.00	76.16
0.0015	0.037	4.75	400	4.53	3.72	79.89
			PAN	24.49	20.11	100.00
TOTALS				121.75	100.00	100.00

Cumulative Weight Percent greater than: Weight percent	Phi Value	Particle Size: Inches	Particle Size: Millimeters	Passing (grams)	Cumulative Weight Passing (percent)
5	0.51	0.0276	0.701	121.75	100.00
10	1.09	0.0185	0.469	121.75	100.00
16	1.58	0.0132	0.335	121.75	100.00
25	2.09	0.0093	0.235	121.75	100.00
40	2.96	0.0050	0.128	121.32	99.65
50	3.30	0.0040	0.102	120.98	99.37
60	3.62	0.0032	0.081	120.59	99.05
75	4.20	0.0021	0.054	120.11	98.65
84	3.78	0.0029	0.073	118.83	97.60
90	2.36	0.0077	0.195	115.78	95.10
95	1.18	0.0174	0.441	110.70	90.92
				107.61	88.39
				103.93	85.36
				93.27	76.61
				82.27	67.57
				72.35	59.43
				43.63	35.84
				29.02	23.84
				24.49	20.11
				0.00	0.00

Measure	Trask	Inman	Folk-Ward
Median, phi	3.30	3.30	3.30
Median, in.	0.0040	0.0040	0.0040
Median, mm	0.102	0.102	0.102
Mean, phi	2.79	2.68	2.89
Mean, in.	0.0057	0.0062	0.0053
Mean, mm	0.145	0.156	0.135
Sorting	2.080	1.100	0.651
Skewness	1.113	-0.565	-3.949
Kurtosis	0.329	-0.696	0.130
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Coefficient of Curvature, $Cc = (D_{30})^2/(D_{60} \times D_{10})$

D_{30} = 0.199

Cc = 1.039982045

Coefficient of Uniformity, $Cu = D_{60} / D_{10}$

D_{60} = 0.081

D_{10} = 0.469

Cu = 0.173549419

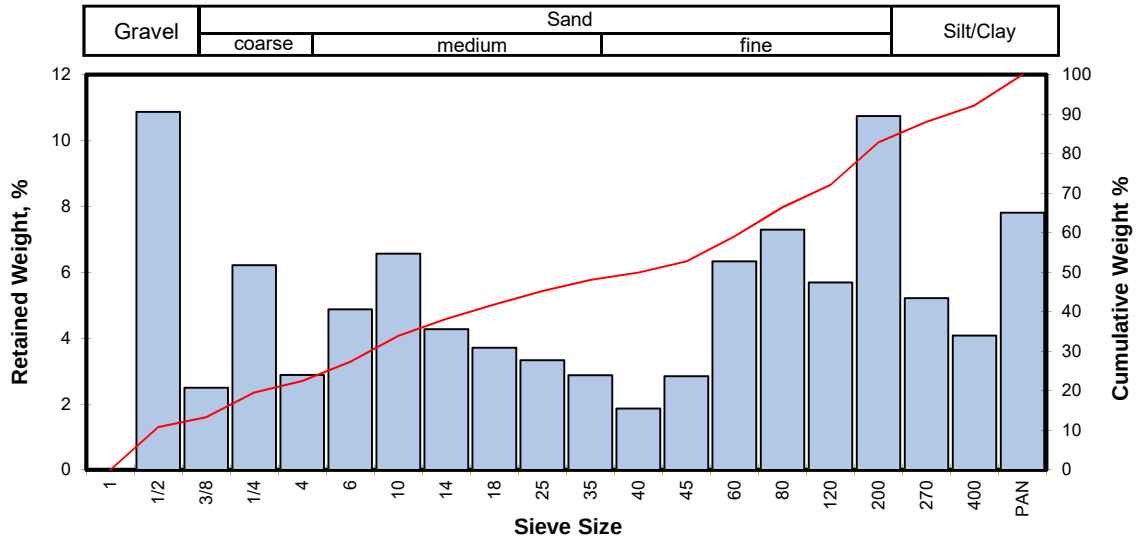
Description	Retained on Sieve #	Weight Percent	Passing through	Cumlative Weights Percent Passing
Gravel	4	0.35	1	100.00
Coarse Sand	10	0.60	4	99.65
Medium Sand	40	10.66	10	99.05
Fine Sand	200	52.55	40	88.39
Silt	<200	15.72	200	35.84
Clay	Pan	20.11		
	Total	100	Total	

Phone: (713) 316-1800

Integrated Geosciences Laboratories, LLC.

Sieve Analysis Results - ASTM D422

Client:	Hargis + Associates, Inc.	IGS Labs ID:		**IGS Labs File No:**	2203-53
Project:	Mojave Water Agency - Oeste	2		**Sample ID:**	Oeste-Recharge-260
Project No:	1311.01			**Depth, ft:**	260-260.5



Opening (Inches)	Opening (Millimeters)	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	25.40	10.87	10.87
0.3740	9.500	-3.25	3/8	5.84	2.50	13.37
0.2500	6.351	-2.67	1/4	14.52	6.22	19.59
0.1873	4.757	-2.25	4	6.74	2.89	22.47
0.1324	3.364	-1.75	6	11.39	4.88	27.35
0.0787	2.000	-1.00	10	15.34	6.57	33.91
0.0557	1.414	-0.50	14	9.99	4.28	38.19
0.0394	1.000	0.00	18	8.66	3.71	41.90
0.0278	0.707	0.50	25	7.78	3.33	45.23
0.0197	0.500	1.00	35	6.72	2.88	48.10
0.0166	0.420	1.25	40	4.35	1.86	49.97
0.0139	0.354	1.50	45	6.64	2.84	52.81
0.0098	0.250	2.00	60	14.80	6.34	59.14
0.0070	0.177	2.50	80	17.04	7.29	66.44
0.0049	0.125	3.00	120	13.30	5.69	72.13
0.0029	0.074	3.75	200	25.11	10.75	82.88
0.0021	0.053	4.25	270	12.20	5.22	88.10
0.0015	0.037	4.75	400	9.54	4.08	92.18
			PAN	18.26	7.82	100.00
TOTALS				233.62	100.00	100.00

Cumulative Weight Percent greater than: Weight percent	Phi Value	Particle Size: Inches	Particle Size: Millimeters	Passing (grams)	Cumulative Weight Passing (percent)
5	-4.18	0.7157	18.178	233.62	100.00
10	-3.72	0.5203	13.216	208.22	89.13
16	-3.00	0.3155	8.013	202.38	86.63
25	-1.99	0.1565	3.975	187.86	80.41
40	-0.26	0.0470	1.194	181.12	77.53
50	1.25	0.0165	0.420	169.73	72.65
60	2.06	0.0094	0.240	154.39	66.09
75	3.20	0.0043	0.109	144.40	61.81
84	3.86	0.0027	0.069	135.74	58.10
90	4.48	0.0018	0.045	127.96	54.77
95	3.04	0.0048	0.122	121.24	51.90
				116.89	50.03
				110.25	47.19
				95.45	40.86
				78.41	33.56
				65.11	27.87
				40.00	17.12
				27.80	11.90
				18.26	7.82
				0.00	0.00

Measure	Trask	Inman	Folk-Ward
Median, phi	1.25	1.25	1.25
Median, in.	0.0165	0.0165	0.0165
Median, mm	0.420	0.420	0.420
Mean, phi	-1.03	0.43	0.70
Mean, in.	0.0804	0.0293	0.0242
Mean, mm	2.042	0.744	0.614
Sorting	6.044	3.430	2.809
Skewness	1.567	-0.241	-0.373
Kurtosis	0.147	0.053	0.570
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Coefficient of Curvature, $Cc = (D_{30})^2/(D_{60} \times D_{10})$

D_{30} = 3.049

Cc = 2.929860433

Coefficient of Uniformity, $Cu = D_{60} / D_{10}$

D_{60} = 0.240

D_{10} = 13.216

Cu = 0.018161405

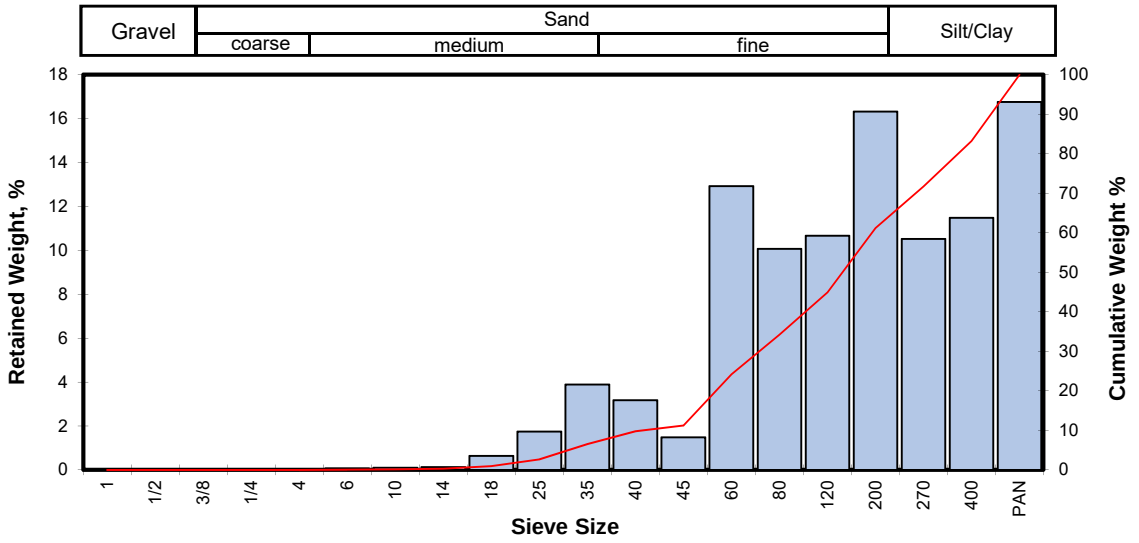
Description	Retained on Sieve #	Weight Percent	Passing through	Cumlative Weights Percent Passing
Gravel	4	22.47	1	100.00
Coarse Sand	10	11.44	4	77.53
Medium Sand	40	16.05	10	66.09
Fine Sand	200	32.91	40	50.03
Silt	<200	9.31	200	17.12
Clay	Pan	7.82		
	Total	100	Total	

Phone: (713) 316-1800

Integrated Geosciences Laboratories, LLC.

Sieve Analysis Results - ASTM D422

Client:	Hargis + Associates, Inc.	IGS Labs ID:	**IGS Labs File No:** 2203-53
Project:	Mojave Water Agency - Oeste	3	**Sample ID:** Oeste-Recharge-501
Project No:	1311.01		**Depth, ft:** 501-501.5



Opening (Inches)	Opening (Millimeters)	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.11	0.07	0.07
0.0787	2.000	-1.00	10	0.17	0.10	0.17
0.0557	1.414	-0.50	14	0.20	0.12	0.30
0.0394	1.000	0.00	18	1.03	0.63	0.93
0.0278	0.707	0.50	25	2.85	1.75	2.68
0.0197	0.500	1.00	35	6.33	3.90	6.58
0.0166	0.420	1.25	40	5.16	3.18	9.76
0.0139	0.354	1.50	45	2.41	1.48	11.24
0.0098	0.250	2.00	60	21.00	12.93	24.17
0.0070	0.177	2.50	80	16.36	10.07	34.25
0.0049	0.125	3.00	120	17.32	10.66	44.91
0.0029	0.074	3.75	200	26.51	16.32	61.23
0.0021	0.053	4.25	270	17.10	10.53	71.76
0.0015	0.037	4.75	400	18.65	11.48	83.25
			PAN	27.21	16.75	100.00
TOTALS				162.41	100.00	100.00

Cumulative Weight Percent greater than: Weight percent	Phi Value	Particle Size: Inches	Particle Size: Millimeters	Passing (grams)	Cumulative Weight Passing (percent)
5	0.80	0.0227	0.576	162.41	100.00
10	1.29	0.0161	0.409	162.41	100.00
16	1.68	0.0123	0.311	162.41	100.00
25	2.04	0.0096	0.243	162.41	100.00
40	2.77	0.0058	0.147	162.41	100.00
50	3.23	0.0042	0.106	162.30	99.93
60	3.69	0.0030	0.077	162.13	99.83
75	4.39	0.0019	0.048	161.93	99.70
84	4.54	0.0017	0.043	160.90	99.07
90	2.84	0.0055	0.140	158.05	97.32
95	1.42	0.0147	0.374	151.72	93.42
				146.56	90.24
				144.15	88.76
				123.15	75.83
				106.79	65.75
				89.47	55.09
				62.96	38.77
				45.86	28.24
				27.21	16.75
				0.00	0.00

Measure	Trask	Inman	Folk-Ward
Median, phi	3.23	3.23	3.23
Median, in.	0.0042	0.0042	0.0042
Median, mm	0.106	0.106	0.106
Mean, phi	2.78	3.11	3.15
Mean, in.	0.0057	0.0046	0.0044
Mean, mm	0.145	0.116	0.113
Sorting	2.258	1.426	0.807
Skewness	1.012	-0.087	-3.470
Kurtosis	0.364	-0.782	0.108
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Coefficient of Curvature, $Cc = (D_{30})^2/(D_{60} \times D_{10})$

D_{30} = 0.211

Cc = 1.407522787

Coefficient of Uniformity, $Cu = D_{60} / D_{10}$

D_{60} = 0.077

D_{10} = 0.409

Cu = 0.18910452

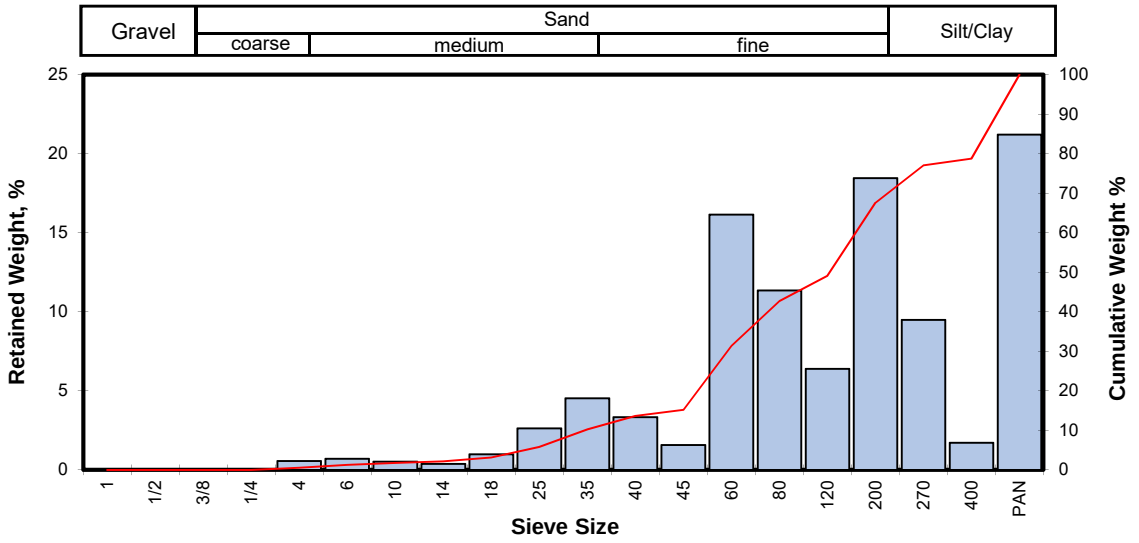
Description	Retained on Sieve #	Weight Percent	Passing through	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.17	4	100.00
Medium Sand	40	9.59	10	99.83
Fine Sand	200	51.47	40	90.24
Silt	<200	22.01	200	38.77
Clay	Pan	16.75		
	Total	100	Total	

Phone: (713) 316-1800

Integrated Geosciences Laboratories, LLC.

Sieve Analysis Results - ASTM D422

Client:	Hargis + Associates, Inc.	IGS Labs ID:	**IGS Labs File No:** 2203-53
Project:	Mojave Water Agency - Oeste	4	**Sample ID:** Oeste-Recharge-660
Project No:	1311.01		**Depth, ft:** 660-660.5



Opening (Inches)	Opening (Millimeters)	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.68	0.56	0.56
0.1324	3.364	-1.75	6	0.86	0.71	1.27
0.0787	2.000	-1.00	10	0.63	0.52	1.79
0.0557	1.414	-0.50	14	0.47	0.39	2.18
0.0394	1.000	0.00	18	1.20	0.99	3.17
0.0278	0.707	0.50	25	3.18	2.62	5.79
0.0197	0.500	1.00	35	5.49	4.53	10.31
0.0166	0.420	1.25	40	4.04	3.33	13.64
0.0139	0.354	1.50	45	1.91	1.57	15.22
0.0098	0.250	2.00	60	19.60	16.16	31.37
0.0070	0.177	2.50	80	13.77	11.35	42.73
0.0049	0.125	3.00	120	7.75	6.39	49.11
0.0029	0.074	3.75	200	22.40	18.47	67.58
0.0021	0.053	4.25	270	11.52	9.50	77.08
0.0015	0.037	4.75	400	2.08	1.71	78.79
			PAN	25.73	21.21	100.00
TOTALS				121.31	100.00	100.00

Cumulative Weight Percent greater than: Weight percent	Phi Value	Particle Size: Inches	Particle Size: Millimeters	Passing (grams)	Cumulative Weight Passing (percent)
5	0.35	0.0309	0.785	121.31	100.00
10	0.97	0.0202	0.512	121.31	100.00
16	1.52	0.0137	0.348	121.31	100.00
25	1.80	0.0113	0.287	121.31	100.00
40	2.38	0.0076	0.192	120.63	99.44
50	3.04	0.0048	0.122	119.77	98.73
60	3.44	0.0036	0.092	119.14	98.21
75	4.14	0.0022	0.057	118.67	97.82
84	3.58	0.0033	0.083	117.47	96.83
90	2.24	0.0083	0.212	114.29	94.21
95	1.12	0.0181	0.460	108.80	89.69
				104.76	86.36
				102.85	84.78
				83.25	68.63
				69.48	57.27
				61.73	50.89
				39.33	32.42
				27.81	22.92
				25.73	21.21
				0.00	0.00

Measure	Trask	Inman	Folk-Ward
Median, phi	3.04	3.04	3.04
Median, in.	0.0048	0.0048	0.0048
Median, mm	0.122	0.122	0.122
Mean, phi	2.54	2.55	2.71
Mean, in.	0.0068	0.0067	0.0060
Mean, mm	0.172	0.170	0.152
Sorting	2.249	1.029	0.631
Skewness	1.046	-0.468	-3.223
Kurtosis	0.383	-0.626	0.135
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Coefficient of Curvature, $Cc = (D_{30})^2/(D_{60} \times D_{10})$

D_{30} = 0.255

Cc = 1.381802556

Coefficient of Uniformity, $Cu = D_{60} / D_{10}$

D_{60} = 0.092

D_{10} = 0.512

Cu = 0.179657058

Description	Retained on Sieve #	Weight Percent	Passing through	Cumlative Weights Percent Passing
Gravel	4	0.56	1	100.00
Coarse Sand	10	1.23	4	99.44
Medium Sand	40	11.85	10	98.21
Fine Sand	200	53.94	40	86.36
Silt	<200	11.21	200	32.42
Clay	Pan	21.21		
	Total	100	Total	

Phone: (713) 316-1800

INTEGRATED GEOSCIENCES LABORATORIES, LLC — CHAIN OF CUSTODY — PAGE 1 OF 1

(formerly PTS Laboratories, Inc.)

COMPANY: Hargis + Associates, Inc.

ADDRESS: CITY ZIP CODE
3131 Camino del Rio North, Suite 355
San Diego, CA 92108

PROJECT MANAGER NAME: EMAIL PHONE #
Stacia Prazen sprazen@hargis.com 858-410-7404

PROJECT NAME: Mojave Water Agency - Oeste

PROJECT NUMBER: 1311.01

SITE LOCATION: Pinon Hills, California

SAMPLER SIGNATURE:

PO #: 1311.01

BILLING ADDRESS: 3131 Camino del Rio North, Ste 355, San Diego CA 92108
BILLING EMAIL: jmckinney@hargis.com
BILLING CONTACT: Jennifer McKinney
BILLING PHONE #: 858-410-7443

TURNAROUND TIME

24 HOURS		5 DAYS	
72 HOURS		NORMAL	X

OTHERS:

SAMPLE INTEGRITY (CHECK): INTACT: TEMP (F)

IGL QUOTE NO/DATE: 08/11/2021

IGL FILE NO: 2203-53

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FEET	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY/HYDRAULIC CONDUCTIVITY PACKAG	PORE FLUID SATURATION PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR-FILLED, WATER-FILLED	PROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), [redacted] ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, [redacted] ASTM D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 ([redacted])	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	RESIDUAL SATURATION BY WATER DRIVE	SOIL MOISTURE RETENTION CURVE (ASTM D6836)		COMMENTS
Oeste-Recharge-224	2/2/2022	16:00	224 - 224.5	1										X		X		X	X									
Oeste-Recharge-260	2/3/2022	14:00	260 - 260.5	1										X		X		X	X							X		Target top of sample tube
Oeste-Recharge-501	2/7/2022	09:45	501 - 501.5	1										X		X		X	X							X		
Oeste-Recharge-660	2/8/2022	10:25	660 - 660.5	1										X		X		X	X									

1. RELINQUISHED BY	2: RECEIVED BY:	1. RELINQUISHED BY	2: RECEIVED BY:
COMPANY Hargis + Associates, Inc.	COMPANY IGS Labs	COMPANY	COMPANY
DATE 3/23/2022 TIME 13:00	DATE 3/28/2022 TIME 14:00	DATE TIME	DATE TIME

APPENDIX E

GEOPHYSICAL LOGS

PACIFIC SURVEYS

DUAL INDUCTION GAMMA-RAY

Job No. 29351

Company ABC LIOVIN DRILLING
Well OESTE RECHARGE WELL
Field PINION HILLS
County SAN BERNARDINO State CA

Location:

517 CAYUCOS DRIVE
GPS: 34.48780 -117.65021

Sec. Twp. Rge.

Other Services:

NONE

Permanent Datum	G.L.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Log Measured From	G.L. 0'		
Drilling Measured From	G.L.		

Date	02/15/2022		
Run Number	ONE		
Depth Driller	640'		
Depth Logger	630'		
Bottom Logged Interval	630'		
Top Log Interval	4'		
Pump Set @	N/A		
Time Pumping Prior to Survey	N/A		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	N/A		
Time Well Ready	12:30 PM		
Time Logger on Bottom	12:50 PM		
Equipment Number	PS-9		
Location	LA		
Recorded By	E. AFOH		
Witnessed By	G. CRANHAM		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String				
Production String	4" ID	PVC	0'	640'
Liner				

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pacific Surveys cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Pacific Surveys' general terms and conditions set out in our current Price Schedule.

Comments

Calibration Report

Database File 29351.db
Dataset Pathname LIM.2
Dataset Creation Tue Feb 15 13:46:34 2022

120

Gamma Ray Calibration Report

Serial Number:	1	
Tool Model:	38	
Performed:	Wed Jun 24 13:31:08 2020	
Calibrator Value:	200.0	GAPI
Background Reading:	12.8	cps
Calibrator Reading:	182.9	cps
Sensitivity:	1.1757	GAPI/cps

Temperature Calibration Report

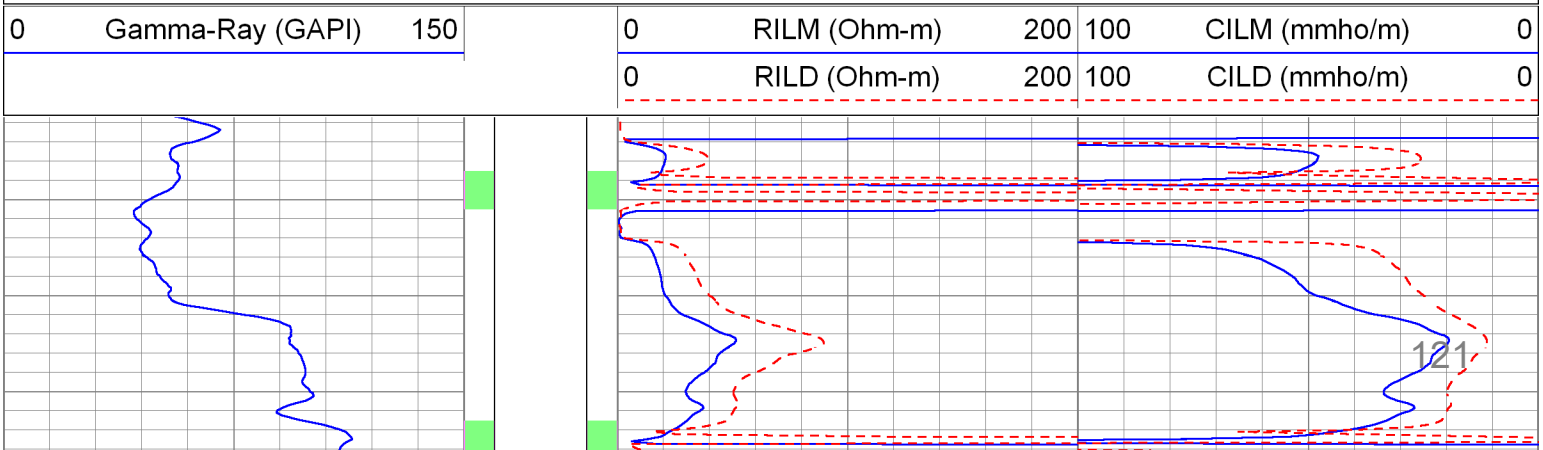
Serial Number:	1			
Tool Model:	38			
Performed:	Wed Jun 24 13:31:27 2020			
	Reference		Reading	
Low Reference:	0.00	degF	0.00	cps
High Reference:	1.00	degF	1.00	cps
Gain:	0.01			
Offset:	22.90			
Delta Spacing	2			

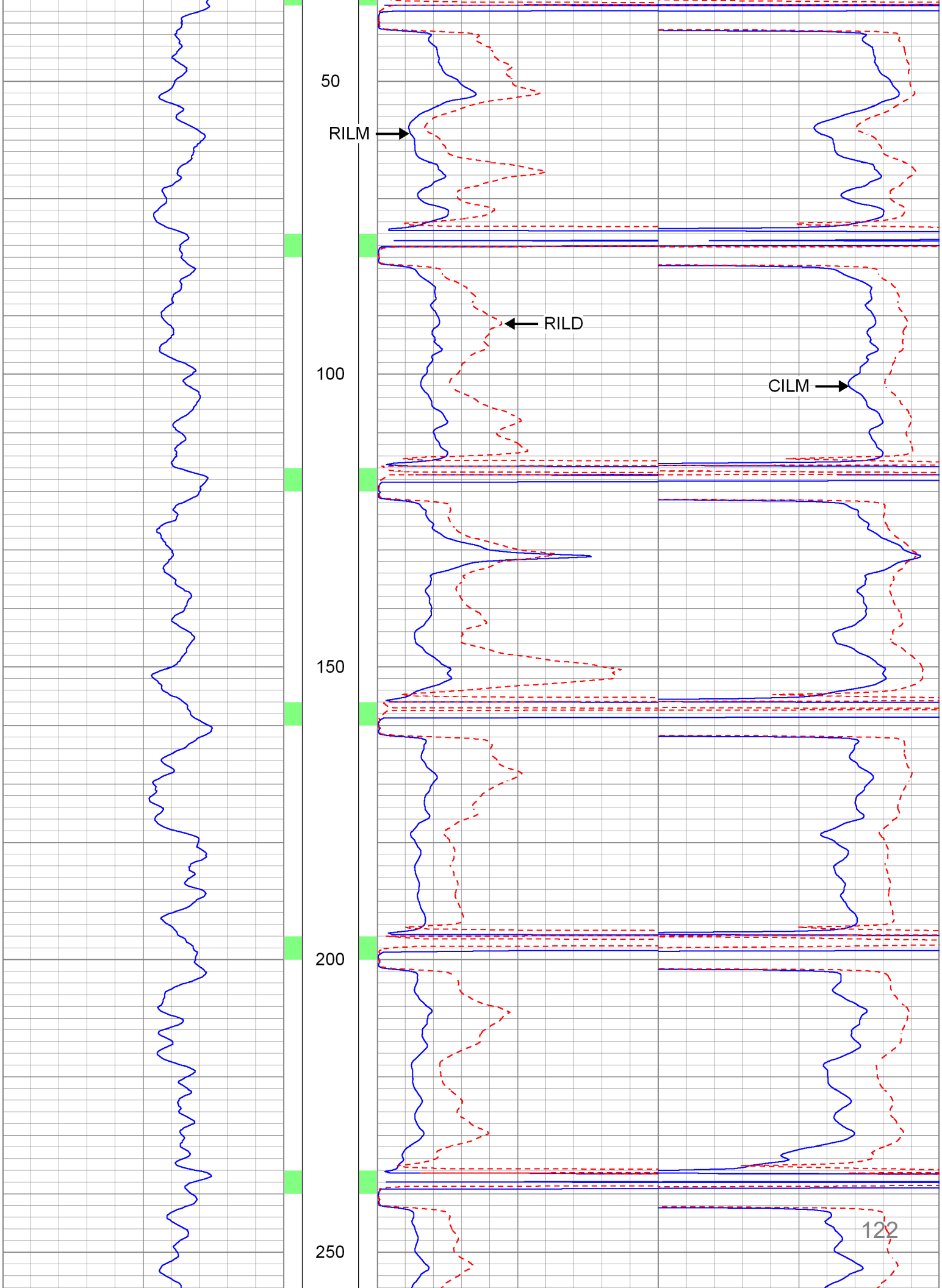
Filter Report

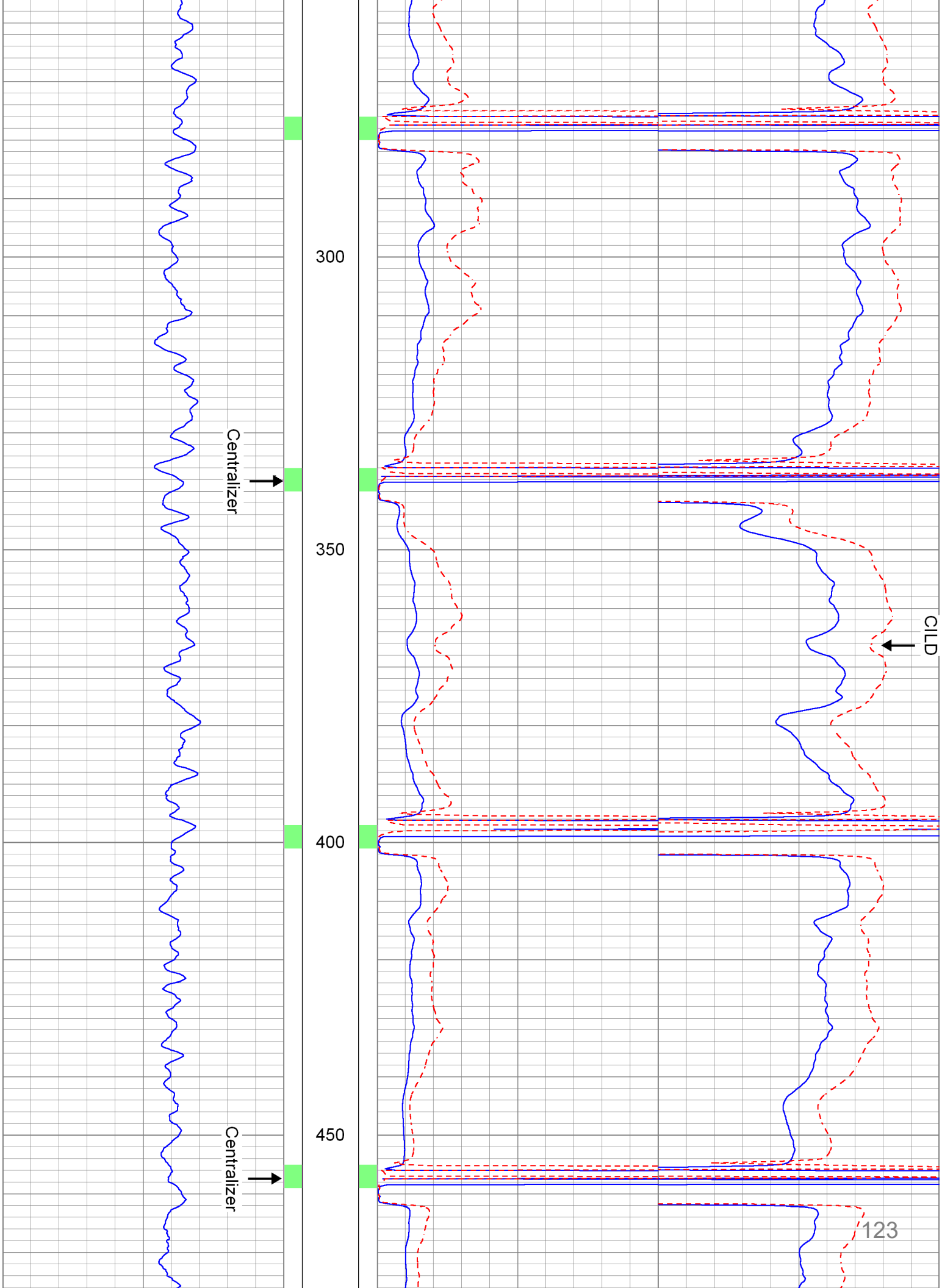
Database File	29351.db
Dataset Pathname	LIM.2
Dataset Creation	Tue Feb 15 13:46:34 2022

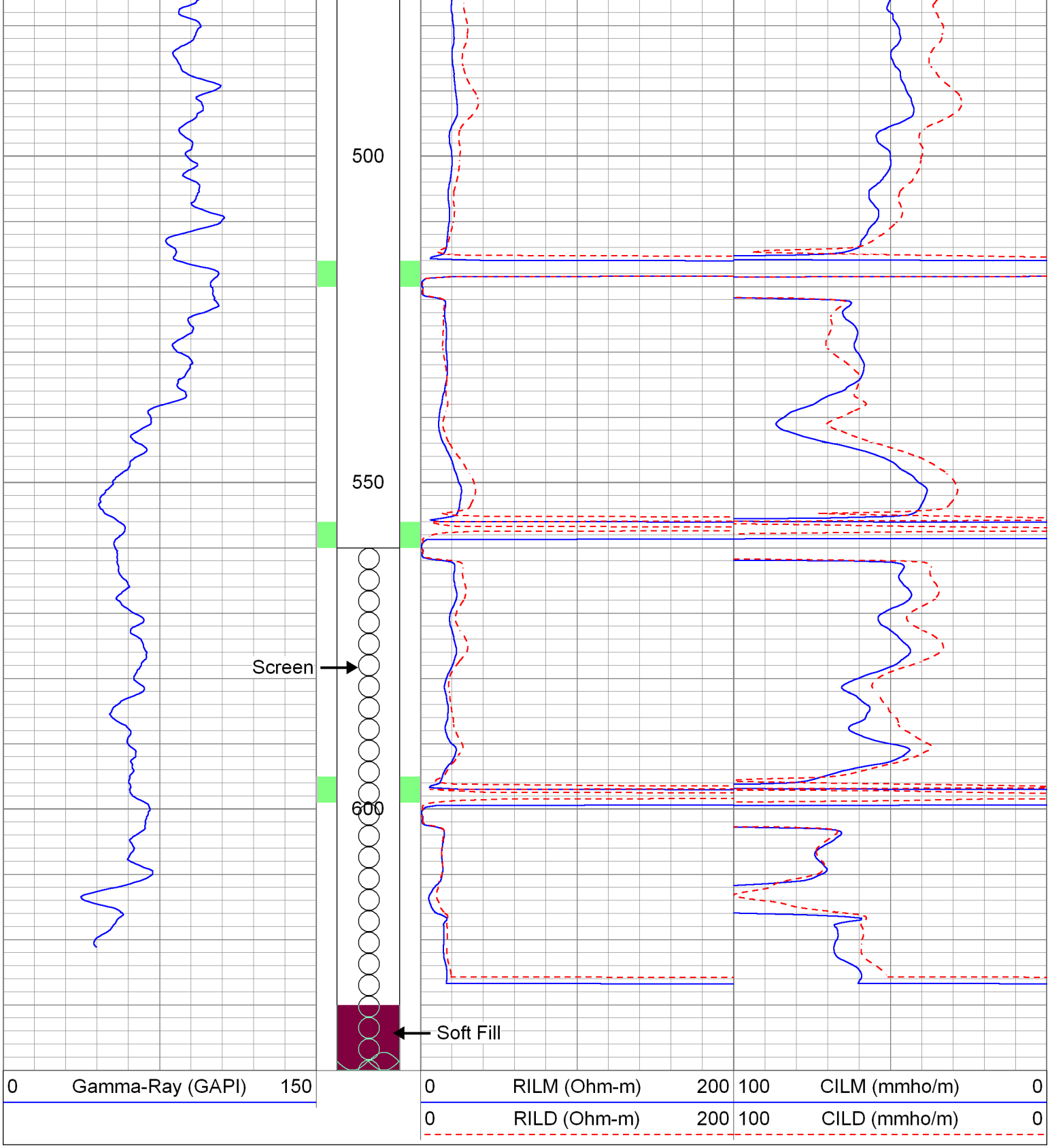
Filter Name	Filter Type	Filter Length
		(ft)
LSPD	Gaussian	8.00
LTEN	Gaussian	6.00
LSPDRT	None	
CILD	Square	3.00
CILM	Square	3.00
GR	Triangle	3.00
TEMP	None	

Database File	29351.db
Dataset Pathname	LIM.2
Presentation Format	dil_ps
Dataset Creation	Tue Feb 15 13:46:34 2022
Charted by	Depth in Feet scaled 1:240




50
RILM
RILD
100
CILM
150
200
250


300
350
400
450
Centralizer
Centralizer
CILD


500
550
600
Screen
Soft Fill
0
Gamma-Ray (GAPI)
150
0
RILM (Ohm-m)
200
0
RILD (Ohm-m)
200
100
CILM (mmho/m)
0
100
CILD (mmho/m)
0

APPENDIX F
DEVELOPMENT SUMMARY

WELL DEVELOPMENT LOG

WELL ID: Oeste-R

DEVELOPMENT CONTRACTOR ABC Liovin PROJECT: 1311.01

STATIC DTW 541.2 CASING DIAMETER 4" SCREEN DIAMETER 4" CASING VOLUME 7.3

DISPOSITION OF DISCHARGE WATER

MONITORING EQUIPMENT USED

DEVELOPMENT METHOD AND EQUIPMENT USED 3" grundfos

COMMENTS

DEVELOMENT LOG				TOTAL	WATER QUALITY				COMMENTS
Date/Time	Flow Rate (gpm)	Depth to Water (ft btoc)	Water Removed (gal)	Water Removed (gal)	pH	EC (mS/cm)	Turbidity (NTU)	Temp. (°C)	
3/2 1232	1.0	541.5	10	10	6.85	0.558	1143	23.76	Begin Purge @ 1222
3/2 1251	1.5	541.5	19	29	6.56	0.547	1064	26.98	
3/2 1312	2.0	541.5	25	44	6.62	0.543	26	27.76	
3/2 1325	2.0	541.5	25	69	6.63	0.542	54	28.05	
3/2 1338	2.0	541.5	25	94	6.69	0.540	53	27.92	
3/2 1351	2.0	541.5	25	119	6.75	0.544	61	27.71	
3/2 1403	2.0	541.5	25	144	6.78	0.544	38	27.93	
3/2 1415	2.0	541.5	25	169	6.77	0.543	21	28.02	
3/2 1427	2.0	541.5	25	194	6.75	0.544	34	28.46	
3/2 1440	2.0	541.5	25	219	6.78	0.543	19	28.14	
3/2 1505	2.0	541.5	25	244	6.81	0.543	16	27.12	
3/2 1517	2.0	541.5	25	269	6.80	0.545	8.5	26.66	
3/2 1530	2.0	541.5	25	294	6.78	0.548	8.8	26.38	
3/2 1545	2.0	541.5	25	319	6.76	0.547	18	26.10	Questionable NTU
3/2 1550	2.0	541.5	25	344	6.76	0.547	6.2	25.92	
3/2 1555	2.0	541.5	10	354	6.79	0.547	4.0	26.10	
3/2 1600	2.0	541.5	10	364	6.79	0.550	3.7	25.77	

PAGE ___ OF ___

APPENDIX G

WATER QUALITY LABORATORY REPORT

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

Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92307
Attention: Melody Bailey

Date of Issue
04/06/2022

EUROFINS EATON ANALYTICAL, LLC

NELAP ACCREDITED TNI LABORATORY
Utah ELCP CA00006

Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

XGI6: Alice Lee
Project Manager

* 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.
* As applicable, this report consists of the cover page, State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms.
* 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	NE-OS-21-13
Arkansas	CA00006	Nevada	CA00006
California	2813	New Hampshire *	2959
Colorado	CA00006	New Jersey *	CA 008
Connecticut	PH-0107	New Mexico	CA00006
Delaware	CA 006	New York *	11320
Florida *	E871024	North Carolina	06701
Georgia	947	North Dakota	R-009
Guam	21-008R	Ohio - 537.1	87786
Hawaii	CA00006	Oregon *	4034
Idaho	CA00006	Pennsylvania *	68-00565
Illinois	200033	Puerto Rico	CA00006
Indiana	C-CA-01	Rhode Island	LAO00326
Iowa – Asbestos	413	South Carolina	87016
Kansas *	E-10268	South Dakota	CA11320
Kentucky	90107	Tennessee	TN02839
Louisiana *	LA008	Texas *	T104704230-20-18
Maine	CA00006	Utah (Primary AB) *	CA00006
Maryland	224	Vermont	VT0114
Marianas Islands	MP0004	Virginia *	460260
Massachusetts	M-CA006	Washington	C838
Michigan	9906	EPA Region 5	CA00006
Mississippi	CA00006	Los Angeles County Sanitation Districts	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO/IEC 17025:2917 Accredited Method List
The test listed below are accredited and met the requirements of ISO/IEC 17025 as verify by A2LA.
Refer to our certificates and scope of accreditations (no. 5890-1 and 5890-2) found at:
https://www.eurofinsus.com/Eaton

Test(s)	Method(s)	Potable Water *	Waste Water
Enterococci	Enterolert	x	x
Escherichia coli (Enumeration)	SM 9221 B.1 SM 9221 F	x	
Fecal Coliform (P/A and Enumeration)	SM 9221 C (MTF/EC), SM 9221 E (MTF/EC)	x	x
Fecal Streptococci and Enterococci	SM 9230 B	x	x
Heterotrophic Bacteria	SM 9215 B	x	
Legionella	Legiolert®	x	
Pseudomonas aeruginosa	Idexx Pseudalert	x	
Total Coliform (P/A and Enumeration)	SM 9221A, SM 9221B, SM 9221 C	x	x
Total Coliform, Total Coliform with Chlorine Present	SM 9221 B	x	x
Total Coliform/E. coli (P/A and Enumeration, Idexx Colilert, Idexx Colilert 18, Colisure)	SM 9223	x	
Total Microcystins and Nodularins	EPA 546	X	
Yeast and Mold	SM 9610	x	
1,2,3-Trichloropropane (TCP) at 5 PPT	CA SRL 524M-TCP	x	
1,4-Dioxane	EPA 522	x	
2,3,7,8-TCDD	Modified EPA 1613 B	x	
Acrylamide	+LCMS 2440)	x	
Algal Toxins/Microcystin	+ LCMS 3570	x	
Alkalinity	SM 2320B	x	x
Ammonia	EPA 350.1, SM 4500-NH3 H		x
Asbestos	EPA 100.2	x	x
Bicarbonate Alkalinity as HCO3	SM 2330 B	x	x
BOD/CBOD	SM 5210 B		x
Bromate	+LCMS- 2447	x	
Carbonate as CO3	SM 2330 B	x	x
Carbonyls	EPA 556	x	x
Chemical Oxygen Demand	EPA 410.4, SM 5220D		x
Chlorinated Acids	EPA 515.4	x	
Chlorine Dioxide	Palin Test Chlordio X Plus, SM 4500-CLO2 D	x	
Chlorine, Free, Combined, Total Residual, Chloramines	SM 4500-Cl G	x	
Color	SM2120B	x	
Conductivity	EPA 120.1, SM 2510B	x	x
Corrosivity (Langelier Index), Carbonate as CO3, Hydroxide as OH Calculated	SM 2330 B	x	
Cyanide (Amenable)	SM 4500-CN G	x	x
Cyanide (Free)	SM 4500CN F	x	x
Cyanide (Total)	EPA 335.4	x	x
Cyanogen Chloride (Screen)	+335 Mod (WC-24467)	x	
Diquat and Paraquat	EPA 549.2	x	
DBP and HAA	SM 6251 B	x	
Dissolved Organic Carbon	SM 5310 C	x	
Dissolved Oxygen	SM 4500-O G		x
EDB/DCBP/TCP	EPA 504.1	x	
EDB/DBCP and Disinfection Byproducts	EPA 551.1	x	
EDTA and NTA	+ WC-2454	x	
Endothall	EPA 548.1, +(LCMS-2445)	x	
Fluoride	SM 4500F C	x	x
Glyphosate	EPA 547	x	
Glyphosate and AMPA	+LCMS-3618	x	
Gross Alpha and Gross Beta	EPA 900.0	x	x

Test(s)	Method(s)	Potable Water *	Waste Water
Gross Alpha coprecipitation	SM 7110 C	x	x
Hardness	SM 2340 B	x	x
Hexavalent Chromium	EPA 218.6,	x	x
Hexavalent Chromium	EPA 218.7,	x	
Hexavalent Chromium	SM 3500-Cr B		x
Inorganic Anions and DBPs	EPA 300.0	x	x
Norganic Anions and DBPs	EPA 300.1	x	
Kjeldahl Nitrogen	EPA 351.2		x
Metals	EPA 200.7, EPA200.8	x	x
Nitrosamines	EEA-Agilent 521.1 (GCMS-24250)	x	
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x
Odor	SM2150B	x	
Organohalide Pesticides and PCB	EPA 505	x	
Ortho Phosphate	SM 4500P E	x	
Oxyhalides Disinfection Byproducts	EPA 317.0	x	
Perchlorate	EPA 331.0	x	
Perchlorate (Low and High Levels)	EPA 314.0	x	
Perfluorinated Alkyl Acids	EPA 533, EPA 537, EPA 537.1	x	
PPCP and EDC	+LCMS-2443	x	
pH	EPA 150.1 SM 4500-H+ B	x	x
Phenolics – Low Level	+WC 2493 (EPA 420.2 and EPA 420.4 MOD)	x	x
Phenylurea Pesticides/Herbicides	+LCMS-2448	x	
Radium-226, Radium-228	GA Tech (Rad-2374)	x	
Radon-222	SM 7500RN	x	
Residue (Filterable)	SM 2540C	x	x
Residue (Non-Filterable)	SM 2540D		x
Residue (Total)	SM 2540B		x
Residue (Volatile)	EPA 160.4		x
Semi-Volatile Compounds	EPA 525.2	x	
Silica	SM 4500-SiO2 C	x	x
Sulfide	SM 4500-S D		x
Sulfite	SM 4500-SO3 B	x	x
Surfactants	SM 5540C	x	x
Taste and Odor	SM 6040 E	x	
Total Organic Carbon	SM 5310 C	x	x
Total Phenols	EPA 420.1		x
Total Phenols	EPA 420.4	x	x
Triazine Pesticides and their Degradates	+LCMS-3617	x	
Turbidity	EPA 180.1	x	x
Uranium by ICP/MS	EPA 200.8	x	
UV 254 Organic Constituents	SM 5910B	x	
VOCs	EPA 524.2	x	
VOCs	+(GCMS 2412) by EPA 524.2 modified	x	

(*) includes: Bottled Water, Drinking Water and Water as Component of Food & Beverage.
(+) In-House Method

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Acknowledgement of Samples Received

Addr: **Mojave Water Agency**
13846 Conference Center Drive
Apple Valley, CA 92307

Attn: Melody Bailey
Phone: 760-946-7030

Client ID: MOJAVE-CA
Folder #: 990476
Project: WATER-QUALITY
Sample Group: JOB#310 DATA COLLECTION

Project Manager: Alice Lee
Phone: (626) 386-1117

The following samples were received from you on **March 02, 2022** at **1826**. 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
202203020945	ORMW-1	03/02/2022 1610

@ICP	@ICPMS DISSOLVED	Alkalinity in CaCO3 units
Anion Sum - Calculated	Apparent Color	Bicarb.Alkalinity as HCO3,calc
Bicarbonate	Boron Dissolved ICAP	Calcium Dissolved ICAP
Carbonate (as CaCO3)	Carbonate as CO3, Calculated	Cation Sum - Calculated
Cation/Anion Difference	Chloride	Field pH
Fluoride	Hexavalent Chromium by 218.6	Hydroxide (as CaCO3)
Iron Dissolved ICAP	Iron Total ICAP	Iron_Ferric_Calscience
Iron_Ferrous_Calscience	Langelier Index - 25 degree	Langlier Index at 60 degrees C
Magnesium Dissolved ICAP	Mercury ICPMS	Nitrate as Nitrogen by IC
Nitrate as NO3 (calc)	Nitrite as NO2 (calc)	Nitrite Nitrogen by IC
Orthophosphate as P (OPO4)	Orthophosphate as PO4	Oxidation Reduction Potential
PH (H3=past HT not compliant)	Potassium Dissolved ICAP	Silica Dissolved
Sodium Dissolved ICAP	Source Temperature Degrees C	Specific Conductance
Sulfate	Total Dissolved Solid (TDS)	Total Hardness as CaCO3 by ICP
Total Nitrate Nitrite-N CALC	Total phosphorus as P	Total phosphorus as PO4- Calc.
Turbidity	Uranium Dissolved by ICPMS as pCi/L	Uranium dissolved ICAP/MS

Test Description

@ICP -- ICP Metals

@ICPMS DISSOLVED -- ICPMS Metals

Mojave Water Agency

CHAIN OF CUSTODY RECORD

4/6/2022

Laboratory Name: Eurofins Eaton

Laboratory Project Manager: Alice Lee

P.O./Project Name: JOB #310 DATA COLLECTION

Address: 750 Royal Oaks Drive, Suite 100

MWA Project Manager: Melody Bailey

City: Monrovia State: CA Zip: 91016-3629

MWA Point of Contact Name & Phone # Melody Bailey 760-403-3659

Tel: 626-386-1100 Fax: 626-386-1101

Sampler(s) Name & Signature:

REQUESTED ANALYSES

Sample I.D.	Matrix	Sample Date	Sample Time	Number of Containers	General Minerals	General Physical	Inorganic Chemicals	Dissolved Metals	See Attached List	Special Instructions:
ORMW-1	S (L) G	3/2/22	1610	5	—	—	—	—	X	Field pH: 25.7°C
	S L G									Field Temp: 6.79
	S L G									
	S L G									
	S L G									
	S L G									
	S L G									
	S L G									
	S L G									
	S L G									

Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature]	3/2/22 1825	[signature]	3/2/22 1826
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turnaround Time: (check one)
Normal X 7 day ___
72 Hours ___ 48 hours ___
24 Hours ___ Same Day ___

Sample Integrity: Temp: 132
Intact: ___ On Ice: ___

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INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number: 49047L

SAMPLE TEMP RECEIVED:

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

SAMPLES REC'D DAY OF COLLECTION? (Yes) / No

IR Gun ID = 618A (Observation= 17.1 °C) (Corr.Factor -0.1 °C) (Final = 17 °C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____ CONDITION OF ICE: Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / (Walk-In) / FedEx / UPS / DHL / Area Fast / Top Line / Other: ____

Compliance Acceptance Criteria:

1) **Chemistry:** >0, ≤ 6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4 **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

5) **pH Check.** Manufacturer: ____ Lot Number: ____ pH strip type: 0 - 14 or ____ Expiration Date ____ Results: ____

6) **Chlorine check.** Manufacturer: Sansafe. Lot No.: ____ Expiration Date: ____ Results ____

7) VOA and Radon Headspace: No Samples with Headspace: ☐ Samples with Headspace (see below): ☐

Headspace Documentation (use additional VOC and Radon Internal COFC for additional bottles)

Exempt from headspace concerns: Methods 515.4, HAA(6251,552), 505, SPME, @CH, 532LCMS, 556, 536, Anatoxin, LCMS methods using 40 ml vials, International clients:

Samp ID	Bottle #	None/<6 mm	>6mm	Test

Samp ID	Bottle #	None/<6 mm	>6mm	Test

Samp ID	Bottle #	None/<6 mm	>6mm	Test

Samp ID	Bottle #	None/<6 mm	>6mm	Test

Note Sample IDs which have dissimilar headspace (i.e. potential sampling errors): ____

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:	[signature]	Gustavo Sanchez	Eurofins Eaton Analytical	3/2/22	1826
SAMPLES CHECKED AGAINST COC BY:			Eurofins Eaton Analytical		

Mojave Analyses List

Alkalinity- Bicarbonate (as CaCO3) CA DW
Alkalinity- Carbonate (as CaCO3) CA DW
Alkalinity- Hydroxide (as CaCO3) CA DW
Aluminum- 200.8, Diss CA DW
Antimony- 200.8, Diss CA DW
Arsenic- 200.8, Diss CA DW
Barium- 200.8, Diss CA DW
Beryllium- 200.8, Diss CA DW
Boron- 200.7, Diss CA DW
Cadmium- 200.8, Diss CA DW
Calcium- 200.7 CA DW
Calcium- 200.7, Diss CA DW
Cation/Anion Balance
Chloride- 300.0 CA DW
Chromium- 200.8, Diss CA DW
Chromium VI- 218.6 CA DW
Color- SM2120D CA DW
Conductivity- SM2510B CA DW
Copper- 200.8, Diss CA DW
Fluoride- SM4500-F CA DW
Hardness- SM2340B CA DW
Iron- 200.7 CA DW
Iron- 200.7, Diss CA DW
Iron- Ferric (use group code)
Iron-Fe +2 (SM3500-Fe D)
Langlier Index CA DW
Lead- 200.8, Diss CA DW
Magnesium- 200.7 CA DW
Magnesium- 200.7, Diss CA DW
Manganese- 200.8, Diss CA DW
Mercury- 245.1, Diss CA DW
Nickel- 200.8, Diss CA DW
Nitrate-N, 300.0 CA DW
Nitrate-NO3, 300.0 CA DW
Nitrite-N, 300.0 CA DW
Nitrite-NO2, 300.0
NO3+NO2 as N, 300.0
pH- 150.1 CA DW
Phos-PO4, ortho- 365.3, Diss
Potassium- 200.7, Diss CA DW
Potassium- 200.7 CA DW
Redox Potential (Eh)
Selenium- 200.8, Diss CA DW
Silica- EPA 200.7 Diss CA DW
Sodium- 200.7, Diss CA DW
Sodium- 200.7 CA DW
Sulfate- 300.0 CA DW
TDS- SM2540C CA DW
Temperature- Field Result (C)
Thallium- 200.8, Diss CA DW
Turbidity- 180.1 CA DW
Uranium- 200.8, Diss CA DW
(pCi/L)
Vanadium- 200.8, Diss CA DW
Zinc- 200.8, Diss CA DW

Containers for this group:

2 x lL poly unpreserved
1 x 500ml poly unpreserved
1 x 250ml poly with nitric (Total metals **not** filtered)
1 x 250ml poly with nitric **(Field filtered for dissolved metals)**

= 5 Total Sampling Bottles

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Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Folder Comments

Analytical results for Oxidatoin Reduction Potential, Ferric Iron and Ferrous Iron are submitted by Eurofins Calscience, Irvine, CA. CA cert 2706 exp 6-30-22

Flags Legend:

J - Analyte is positively identified, but tentatively quantified as an estimate concentration. The analyte was either detected between MDL and MRL or did not meet any one of the required QC criteria.
HF - Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Samples Received on:
03/02/2022 1826

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	202203020945	**ORMW-1**				
03/12/2022 21:17	Alkalinity in CaCO3 units		170		mg/L	2.0
03/14/2022 10:51	Anion Sum - Calculated		6.1		meq/L	0.0010
03/22/2022 13:04	Barium dissolved ICAP/MS		32		ug/L	2.0
03/14/2022 10:51	Bicarb.Alkalinity as HCO3calc		200		mg/L	2.0
03/14/2022 10:51	Bicarbonate as CaCO3		170		mg/L	
03/17/2022 12:59	Calcium Dissolved ICAP		61		mg/L	1.0
03/08/2022 18:02	Calcium Total ICAP		62		mg/L	1.0
03/07/2022 18:36	Cation Sum - Calculated		6.2		meq/L	0.0010
03/03/2022 08:55	Chloride		2.3	250	mg/L	1.0
03/22/2022 13:04	Chromium dissolved ICAP/MS		22		ug/L	1.0
03/22/2022 13:04	Copper dissolved ICAP/MS		3.1		ug/L	2.0
03/17/2022 12:59	Dissolved Silica		21		mg/L	0.50
03/02/2022 16:10	Field pH		6.79		Units	
03/14/2022 17:30	Fluoride		0.18	4	mg/L	0.050
03/14/2022 12:54	Hexavalent Chromium by 218.6		21		ug/L	0.040
03/14/2022 11:06	Hydroxide (as CaCO3)		0.0031		mg/L	
03/07/2022 18:36	Langelier Index - 25 degree		-0.55		None	-14
03/17/2022 12:59	Magnesium Dissolved ICAP		24		mg/L	0.10
03/08/2022 18:02	Magnesium Total ICAP		24		mg/L	0.10
03/22/2022 13:04	Manganese dissolved ICAP/MS		5.5		ug/L	2.0
03/03/2022 08:55	Nitrate as Nitrogen by IC		0.30	10	mg/L	0.10
03/03/2022 08:55	Nitrate as NO3 (calc)		1.3	45	mg/L	0.44
03/03/2022 09:00	Orthophosphate as P		0.033		mg/L	0.010
03/07/2022 22:25	Orthophosphate as PO4		0.10		mg/L	0.031
03/23/2022 14:34	Oxidation Reduction Potential		397		mV	
03/12/2022 21:17	PH (H3=past HT not compliant)		8.1		Units	0.10
03/17/2022 12:59	Potassium Dissolved ICAP		6.3		mg/L	1.0
03/08/2022 18:02	Potassium Total ICAP		6.1		mg/L	1.0
03/17/2022 12:59	Sodium Dissolved ICAP		24		mg/L	1.0
03/08/2022 18:02	Sodium Total ICAP		24		mg/L	1.0
03/02/2022 16:10	Source Temperature Degrees C		25.7		Degrees C	
03/12/2022 21:17	Specific Conductance, 25 C		570		umho/cm	10
03/03/2022 08:55	Sulfate		130	250	mg/L	1.0
03/09/2022 00:25	Total Dissolved Solids (TDS)		360	500	mg/L	10
03/07/2022 18:36	Total Hardness as CaCO3 by ICP (calc)		250		mg/L	3.0
03/03/2022 08:55	Total Nitrate, Nitrite-N, CALC		0.30		mg/L	0.050

SUMMARY OF POSITIVE DATA ONLY

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Laboratory Hits

Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Samples Received on:
03/02/2022 1826

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
03/30/2022 18:52	Total phosphorus as P		0.035		mg/L	0.020
04/04/2022 18:23	Total phosphorus as PO4- Calc.		0.11		mg/L	0.030
03/03/2022 09:15	Turbidity		1.9	5	NTU	0.10
03/22/2022 13:58	Uranium Diss by ICPMS as pCi/L		2.1		pCi/L	
03/22/2022 13:04	Uranium dissolved ICAP/MS		3.1		ug/L	1.0
03/22/2022 13:04	Vanadium Dissolved ICAP/MS		5.5		ug/L	3.0
03/22/2022 13:04	Zinc dissolved ICAP/MS		820		ug/L	20

SUMMARY OF POSITIVE DATA ONLY

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Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Samples Received on:
03/02/2022 1826

ORMW-1 (202203020945) — **Sampled on 03/02/2022 1610**

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
			FIELD/SM2550B - Source Temperature Degrees C						
	03/02/22 16:10		1391482	(FIELD/SM2550B)	Source Temperature Degrees C	25.7	Degrees C		1
			EPA 150.1 - Field pH						
	03/02/22 16:10		1391480	(EPA 150.1)	Field pH	6.79	Units		1
			ASTM D1498 - Oxidation Reduction Potential						
	03/23/22 14:34			(ASTM D1498)	Oxidation Reduction Potential	397 (HF)	mV		1
			EPA 200.8 - ICPMS Metals						
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Aluminum dissolved ICAP/MS	ND	ug/L	20	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Antimony dissolved ICAP/MS	ND	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Arsenic dissolved ICAP/MS	ND	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Barium dissolved ICAP/MS	32	ug/L	2.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Beryllium dissolved ICAP/MS	ND	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Cadmium dissolved ICAP/MS	ND	ug/L	0.50	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Chromium dissolved ICAP/MS	22	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Copper dissolved ICAP/MS	3.1	ug/L	2.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Lead dissolved ICAP/MS	ND	ug/L	0.50	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Manganese dissolved ICAP/MS	5.5	ug/L	2.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Nickel dissolved ICAP/MS	ND	ug/L	5.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Selenium dissolved ICAP/MS	ND	ug/L	5.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Thallium dissolved ICAP/MS	ND	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Uranium dissolved ICAP/MS	3.1	ug/L	1.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Vanadium Dissolved ICAP/MS	5.5	ug/L	3.0	1
03/03/22	03/22/22 13:04	1391002	1394922	(EPA 200.8)	Zinc dissolved ICAP/MS	820	ug/L	20	1
			EPA 200.7 - ICP Metals						
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Boron Dissolved ICAP	ND	mg/L	0.050	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Calcium Dissolved ICAP	61	mg/L	1.0	1
03/03/22	03/08/22 18:02	1391002	1391800	(EPA 200.7)	Calcium Total ICAP	62	mg/L	1.0	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Dissolved Silica	21	mg/L	0.50	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Iron Dissolved ICAP	ND	mg/L	0.010	1
03/03/22	03/08/22 18:02	1391002	1391800	(EPA 200.7)	Iron Total ICAP	ND	mg/L	0.010	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Magnesium Dissolved ICAP	24	mg/L	0.10	1
03/03/22	03/08/22 18:02	1391002	1391800	(EPA 200.7)	Magnesium Total ICAP	24	mg/L	0.10	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Potassium Dissolved ICAP	6.3	mg/L	1.0	1
03/03/22	03/08/22 18:02	1391002	1391800	(EPA 200.7)	Potassium Total ICAP	6.1	mg/L	1.0	1
03/03/22	03/17/22 12:59	1391002	1394312	(EPA 200.7)	Sodium Dissolved ICAP	24	mg/L	1.0	1
03/03/22	03/08/22 18:02	1391002	1391800	(EPA 200.7)	Sodium Total ICAP	24	mg/L	1.0	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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Laboratory Data

Report: 990476
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Group: JOB#310 DATA COLLECTION

Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Samples Received on:
03/02/2022 1826

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
		EPA 200.8 - Mercury ICPMS							
03/03/22	03/22/22 13:04	1391002	1394923	(EPA 200.8)	Mercury dissolved ICAP/MS	ND	ug/L	0.20	1
		SM4500-PE/EPA 365.1 - Total phosphorus as PO4- Calc.							
	04/04/22 18:23			(SM4500-PE/EPA 365.1)	Total phosphorus as PO4- Calc.	0.11 (c)	mg/L	0.030	1
		SM 2330B - Langelier Index - 25 degree							
	03/07/22 18:36			(SM 2330B)	Langelier Index - 25 degree	-0.55 (c)	None	-14	1
		SM2330B - Carbonate as CO3, Calculated							
	03/31/22 11:50			(SM2330B)	Carbonate as CO3, Calculated	ND (c)	mg/L	2.0	1
		SM 2340B - Total Hardness as CaCO3 by ICP							
	03/07/22 18:36			(SM 2340B)	Total Hardness as CaCO3 by ICP (calc)	250 (c)	mg/L	3.0	1
		SM 1030E - Anion Sum - Calculated							
	03/14/22 10:51			(SM 1030E)	Anion Sum - Calculated	6.1 (c)	meq/L	0.0010	1
		SM 1030E - Cation Sum - Calculated							
	03/07/22 18:36			(SM 1030E)	Cation Sum - Calculated	6.2 (c)	meq/L	0.0010	1
		SM 4500P-E - Orthophosphate as PO4 (CALC)							
	03/07/22 22:25			(SM 4500P-E)	Orthophosphate as PO4	0.10 (c)	mg/L	0.031	1
		SM2330B - Bicarb.Alkalinity as HCO3,calc							
	03/14/22 10:51			(SM2330B)	Bicarb.Alkalinity as HCO3calc	200 (c)	mg/L	2.0	1
		SM 2330B - Langlier Index at 60 degrees C							
	:			(SM 2330B)	Langelier Index at 60 degrees C	NA (c)	None	-14	1
		SM 1030E - Cation/Anion Difference							
	03/15/22 23:07			(SM 1030E)	Cation/Anion Difference	1.3 (c)	%		1
		SM 2320B - Bicarbonate as CaCO3, calc							
	03/14/22 10:51			(SM 2320B)	Bicarbonate as CaCO3	170 (c)	mg/L		1
		EPA 200.8 - Uranium Dissolved by ICPMS as pCi/L							
	03/22/22 13:58			(EPA 200.8)	Uranium Diss by ICPMS as pCi/L	2.1 (c)	pCi/L		1
		Default - Nitrite as NO2 (calc)							
	03/14/22 13:06			(Default)	Nitrite as NO2 (calc)	ND (c)	mg/L	0.16	1
		SM2330B - Carbonate (as CaCO3)							
	03/31/22 11:50			(SM2330B)	Carbonate (as CaCO3)	ND (c)	mg/L	2.0	1
		SM 2320 B - Hydroxide (as CaCO3)							
	03/14/22 11:06			(SM 2320 B)	Hydroxide (as CaCO3)	0.0031 (c)	mg/L		1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	03/03/22 08:55		1390854	(EPA 300.0)	Nitrate as Nitrogen by IC	0.30	mg/L	0.10	2
	03/03/22 08:55		1390854	(EPA 300.0)	Nitrate as NO3 (calc)	1.3	mg/L	0.44	2
	03/03/22 08:55		1390854	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.10	2
	03/03/22 08:55		1390854	(EPA 300.0)	Total Nitrate, Nitrite-N, CALC	0.30	mg/L	0.050	1

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Laboratory Data

Report: 990476
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Mojave Water Agency
Melody Bailey
13846 Conference Center Drive
Apple Valley, CA 92307

Samples Received on:
03/02/2022 1826

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
			EPA 300.0 - Chloride, Sulfate by EPA 300.0						
	03/03/22 08:55		1390875	(EPA 300.0)	Chloride	2.3	mg/L	1.0	2
	03/03/22 08:55		1390875	(EPA 300.0)	Sulfate	130	mg/L	1.0	2
			EPA 218.6 - Hexavalent Chromium by 218.6						
	03/14/22 12:54		1393416	(EPA 218.6)	Hexavalent Chromium by 218.6	21	ug/L	0.040	2
			SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)						
	03/30/22 18:52		1398116	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.035	mg/L	0.020	1
			SM 3500 - Iron, Ferric						
	04/05/22 00:39			(SM 3500)	Iron_Ferric	ND (J)	mg/L	0.5	1
			SM 3500 Fe B - Iron, Ferrous						
	03/07/22 23:00			(SM 3500 Fe B)	Iron_Ferrous	ND	mg/L	0.1	1
			SM 4500F-C - Fluoride						
	03/14/22 17:30		1393287	(SM 4500F-C)	Fluoride	0.18	mg/L	0.050	1
			SM 2320B - Alkalinity in CaCO3 units						
	03/12/22 21:17		1393441	(SM 2320B)	Alkalinity in CaCO3 units	170	mg/L	2.0	1
			E160.1/SM2540C - Total Dissolved Solids (TDS)						
03/08/22	03/09/22 00:25	1392170	1392172	(E160.1/SM2540C)	Total Dissolved Solids (TDS)	360	mg/L	10	1
			SM4500-HB - PH (H3=past HT not compliant)						
	03/12/22 21:17		1393447	(SM4500-HB)	PH (H3=past HT not compliant)	8.1	Units	0.10	1
			EPA 180.1 - Turbidity						
	03/03/22 09:15		1390877	(EPA 180.1)	Turbidity	1.9	NTU	0.10	1
			SM2510B - Specific Conductance						
	03/12/22 21:17		1393453	(SM2510B)	Specific Conductance, 25 C	570	umho/cm	10	1
			SM 2120B - Apparent Color						
	03/03/22 11:35		1391352	(SM 2120B)	Apparent Color	ND	ACU	3.0	1
			SM 4500P-E - Orthophosphate as P (OPO4)						
	03/03/22 09:00		1391737	(SM 4500P-E)	Orthophosphate as P	0.033	mg/L	0.010	1

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Nitrate, Nitrite by EPA 300.0
Analytical Batch: 1390854 **Analysis Date: 03/03/2022**
202203020945 ORMW-1 Analyzed by: P6LW

Chloride, Sulfate by EPA 300.0
Analytical Batch: 1390875 **Analysis Date: 03/03/2022**
202203020945 ORMW-1 Analyzed by: P6LW

Turbidity
Analytical Batch: 1390877 **Analysis Date: 03/03/2022**
202203020945 ORMW-1 Analyzed by: GP4S

Apparent Color
Analytical Batch: 1391352 **Analysis Date: 03/03/2022**
202203020945 ORMW-1 Analyzed by: ZYV7

Orthophosphate as P (OPO4)
Analytical Batch: 1391737 **Analysis Date: 03/03/2022**
202203020945 ORMW-1 Analyzed by: ZYV7

ICP Metals
Prep Batch: 1391002 **Analytical Batch: 1391800** **Analysis Date: 03/08/2022**
202203020945 ORMW-1 Analyzed by: LK6J

Total Dissolved Solids (TDS)
Prep Batch: 1392170 **Analytical Batch: 1392172** **Analysis Date: 03/09/2022**
202203020945 ORMW-1 Analyzed by: TJ52

Fluoride
Analytical Batch: 1393287 **Analysis Date: 03/14/2022**
202203020945 ORMW-1 Analyzed by: D5MQ

Hexavalent Chromium by 218.6
Analytical Batch: 1393416 **Analysis Date: 03/14/2022**
202203020945 ORMW-1 Analyzed by: LMR

Alkalinity in CaCO3 units
Analytical Batch: 1393441 **Analysis Date: 03/12/2022**
202203020945 ORMW-1 Analyzed by: D5MQ

PH (H3=past HT not compliant)
Analytical Batch: 1393447 **Analysis Date: 03/12/2022**
202203020945 ORMW-1 Analyzed by: D5MQ

Specific Conductance
Analytical Batch: 1393453 **Analysis Date: 03/12/2022**
202203020945 ORMW-1 Analyzed by: D5MQ

ICP Metals
Prep Batch: 1391002 **Analytical Batch: 1394312** **Analysis Date: 03/17/2022**
202203020945 ORMW-1 Analyzed by: NINA

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ICPMS Metals

Prep Batch: 1391002 **Analytical Batch: 1394922** **Analysis Date: 03/22/2022**

202203020945	ORMW-1	Analyzed by: LUPE

Mercury ICPMS

Prep Batch: 1391002 **Analytical Batch: 1394923** **Analysis Date: 03/22/2022**

202203020945	ORMW-1	Analyzed by: LUPE

Total phosphorus as P (T-P)

Analytical Batch: 1398116 **Analysis Date: 03/30/2022**

202203020945	ORMW-1	Analyzed by: LQ3M

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Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
Nitrate, Nitrite by EPA 300.0 by EPA 300.0									
Analytical Batch: 1390854						**Analysis Date: 03/03/2022**			
LCS1	Nitrate as Nitrogen by IC		2.5	2.57	mg/L	103	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.59	mg/L	104	(90-110)	20	0.78
MBLK	Nitrate as Nitrogen by IC			<0.0042	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0533	mg/L	107	(50-150)		
MS_202203020948	Nitrate as Nitrogen by IC	ND	1.3	1.43	mg/L	113	(80-120)		
MS_202203021118	Nitrate as Nitrogen by IC	5.3	1.3	8.00	mg/L	107	(80-120)		
MSD_202203020948	Nitrate as Nitrogen by IC	ND	1.3	1.43	mg/L	113	(80-120)	20	0.12
MSD_202203021118	Nitrate as Nitrogen by IC	5.3	1.3	8.18	mg/L	113	(80-120)	20	2.1
LCS1	Nitrite Nitrogen by IC		1	1.07	mg/L	107	(90-110)		
LCS2	Nitrite Nitrogen by IC		1	1.08	mg/L	108	(90-110)	20	0.93
MBLK	Nitrite Nitrogen by IC			<0.0050	mg/L				
MRL_CHK	Nitrite Nitrogen by IC		0.05	0.0479	mg/L	96	(50-150)		
MS_202203020948	Nitrite Nitrogen by IC	ND	0.5	0.579	mg/L	115	(80-120)		
MS_202203021118	Nitrite Nitrogen by IC	ND	0.5	1.08	mg/L	108	(80-120)		
MSD_202203020948	Nitrite Nitrogen by IC	ND	0.5	0.581	mg/L	115	(80-120)	20	0.31
MSD_202203021118	Nitrite Nitrogen by IC	ND	0.5	1.13	mg/L	113	(80-120)	20	4.9
Chloride, Sulfate by EPA 300.0 by EPA 300.0									
Analytical Batch: 1390875						**Analysis Date: 03/03/2022**			
LCS1	Chloride		25	26.2	mg/L	105	(90-110)		
LCS2	Chloride		25	26.3	mg/L	105	(90-110)	20	0.38
MBLK	Chloride			<0.1397	mg/L				
MRL_CHK	Chloride		0.5	0.508	mg/L	102	(50-150)		
MS_202203020948	Chloride	2.1	13	16.3	mg/L	113	(80-120)		
MS_202203140113	Chloride	52	13	79.1	mg/L	109	(80-120)		
MSD_202203020948	Chloride	2.1	13	16.4	mg/L	114	(80-120)	20	0.64
MSD_202203140113	Chloride	52	13	80.6	mg/L	115	(80-120)	20	1.9
LCS1	Sulfate		50	51.4	mg/L	103	(90-110)		
LCS2	Sulfate		50	51.8	mg/L	104	(90-110)	20	0.58
MBLK	Sulfate			<0.0614	mg/L				
MRL_CHK	Sulfate		1	0.999	mg/L	100	(50-150)		
MRLLW	Sulfate		0.25	0.189	mg/L	76	(50-150)		
MS_202203020948	Sulfate	ND	25	27.8	mg/L	111	(80-120)		
MS_202203140113	Sulfate	130	25	181	mg/L	105	(80-120)		
MSD_202203020948	Sulfate	ND	25	28.0	mg/L	111	(80-120)	20	0.56
MSD_202203140113	Sulfate	130	25	184	mg/L	111	(80-120)	20	1.6

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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Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
Turbidity by EPA 180.1									
Analytical Batch: 1390877						**Analysis Date: 03/03/2022**			
DUP1_202203021029	Turbidity	0.25		1.03	NTU		(0-20)		
DUP2_202203021029	Turbidity	0.25		ND	NTU		(0-20)		
LCS1	Turbidity		20	18.7	NTU	94	(90-110)		
LCS2	Turbidity		20	18.5	NTU	93	(90-110)	20	1.1
MBLK	Turbidity			<0.10	NTU				
MRLHI	Turbidity		0.1	0.0870	NTU	87	(50-150)		
Apparent Color by SM 2120B									
Analytical Batch: 1391352						**Analysis Date: 03/03/2022**			
DUP1_202203020306	Apparent Color	ND		ND	ACU		(0-20)		
DUP2_202203020315	Apparent Color	ND		ND	ACU		(0-20)		
MBLK	Apparent Color			<0.5	ACU				
Orthophosphate as P (OPO4) by SM 4500P-E									
Analytical Batch: 1391737						**Analysis Date: 03/03/2022**			
LCS1	Orthophosphate as P		0.25	0.227	mg/L	91	(90-110)		
LCS2	Orthophosphate as P		0.25	0.230	mg/L	92	(90-110)	20	1.3
MBLK	Orthophosphate as P			<0.005	mg/L				
MRL_CHK	Orthophosphate as P		0.01	0.00700	mg/L	70	(50-150)		
MS_202203021026	Orthophosphate as P	0.19	0.5	0.653	mg/L	92	(90-110)		
MS2_202203021043	Orthophosphate as P	0.011	0.5	0.449	mg/L	**88**	(90-110)		
MSD_202203021026	Orthophosphate as P	0.19	0.5	0.645	mg/L	90	(90-110)	20	1.2
MSD2_202203021043	Orthophosphate as P	0.011	0.5	0.446	mg/L	**87**	(90-110)	20	0.67
ICP Metals by EPA 200.7									
Analytical Batch: 1391800						**Analysis Date: 03/08/2022**			
LCS1	Calcium Total ICAP		50	50.5	mg/L	101	(85-115)		
LCS2	Calcium Total ICAP		50	51.8	mg/L	104	(85-115)	20	2.5
MBLK	Calcium Total ICAP			<0.043087	mg/L				
MRL_CHK	Calcium Total ICAP		1	1.04	mg/L	104	(50-150)		
MS_202203021018	Calcium Total ICAP	7.9	50	58.7	mg/L	101	(70-130)		
MS2_202203040295	Calcium Total ICAP	62	50	111	mg/L	98	(70-130)		
MSD_202203021018	Calcium Total ICAP	7.9	50	59.1	mg/L	102	(70-130)	20	0.72
MSD2_202203040295	Calcium Total ICAP	62	50	111	mg/L	98	(70-130)	20	0.030
LCS1	Iron Total ICAP		5	5.06	mg/L	101	(85-115)		
LCS2	Iron Total ICAP		5	5.16	mg/L	103	(85-115)	20	2.1

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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.
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Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Iron Total ICAP			<0.004850	mg/L				
MRL_CHK	Iron Total ICAP		0.01	0.0111	mg/L	111	(50-150)		
MS_202203021018	Iron Total ICAP	ND	5	5.15	mg/L	103	(70-130)		
MS2_202203040295	Iron Total ICAP	0.011	5	5.21	mg/L	104	(70-130)		
MSD_202203021018	Iron Total ICAP	ND	5	5.19	mg/L	104	(70-130)	20	0.69
MSD2_202203040295	Iron Total ICAP	0.011	5	5.26	mg/L	105	(70-130)	20	0.88
LCS1	Magnesium Total ICAP		20	19.9	mg/L	100	(85-115)		
LCS2	Magnesium Total ICAP		20	20.3	mg/L	102	(85-115)	20	2.0
MBLK	Magnesium Total ICAP			<0.009606	mg/L				
MRL_CHK	Magnesium Total ICAP		0.1	0.0991	mg/L	99	(50-150)		
MS_202203021018	Magnesium Total ICAP	1.4	20	21.8	mg/L	102	(70-130)		
MS2_202203040295	Magnesium Total ICAP	29	20	49.4	mg/L	100	(70-130)		
MSD_202203021018	Magnesium Total ICAP	1.4	20	22.0	mg/L	103	(70-130)	20	0.91
MSD2_202203040295	Magnesium Total ICAP	29	20	49.5	mg/L	100	(70-130)	20	0.26
LCS1	Potassium Total ICAP		20	20.2	mg/L	101	(85-115)		
LCS2	Potassium Total ICAP		20	20.6	mg/L	103	(85-115)	20	2.0
MBLK	Potassium Total ICAP			<0.233312	mg/L				
MRL_CHK	Potassium Total ICAP		1	0.732	mg/L	73	(50-150)		
MS_202203021018	Potassium Total ICAP	ND	20	21.4	mg/L	106	(70-130)		
MS2_202203040295	Potassium Total ICAP	6.4	20	28.6	mg/L	111	(70-130)		
MSD_202203021018	Potassium Total ICAP	ND	20	21.7	mg/L	107	(70-130)	20	1.3
MSD2_202203040295	Potassium Total ICAP	6.4	20	28.7	mg/L	112	(70-130)	20	0.35
LCS1	Sodium Total ICAP		50	49.8	mg/L	100	(85-115)		
LCS2	Sodium Total ICAP		50	50.9	mg/L	102	(85-115)	20	2.2
MBLK	Sodium Total ICAP			<0.4255	mg/L				
MRL_CHK	Sodium Total ICAP		1	1.07	mg/L	107	(50-150)		
MS_202203021018	Sodium Total ICAP	ND	50	51.1	mg/L	101	(70-130)		
MS2_202203040295	Sodium Total ICAP	59	50	107	mg/L	95	(70-130)		
MSD_202203021018	Sodium Total ICAP	ND	50	51.8	mg/L	102	(70-130)	20	1.3
MSD2_202203040295	Sodium Total ICAP	59	50	107	mg/L	95	(70-130)	20	0.18

Total Dissolved Solids (TDS) by E160.1/SM2540C

Analytical Batch: 1392172 **Analysis Date: 03/09/2022**

DUP_202203020945	Total Dissolved Solid (TDS)	360		360	mg/L		(0-10)	10	0.55
DUP_202203030538	Total Dissolved Solid (TDS)	370		370	mg/L		(0-10)	10	0.54
LCS1	Total Dissolved Solid (TDS)		175	174	mg/L	99	(80-114)		
LCS2	Total Dissolved Solid (TDS)		700	688	mg/L	98	(80-114)		
MBLK	Total Dissolved Solid (TDS)			<5	mg/L				

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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).
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Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Total Dissolved Solid (TDS)		10	9.00	mg/L	90	(50-150)		
Fluoride by SM 4500F-C									
Analytical Batch: 1393287						**Analysis Date: 03/14/2022**			
LCS1	Fluoride		1	1.01	mg/L	101	(90-110)		
LCS2	Fluoride		1	1.02	mg/L	102	(90-110)	20	0.99
MBLK	Fluoride			<0.025	mg/L				
MRL_CHK	Fluoride		0.05	0.0484	mg/L	97	(50-150)		
MS_202203010664	Fluoride	0.43	1	1.42	mg/L	99	(80-120)		
MS_202203010780	Fluoride	ND	1	0.978	mg/L	97	(80-120)		
MSD_202203010664	Fluoride	0.43	1	1.42	mg/L	100	(80-120)	20	0.30
MSD_202203010780	Fluoride	ND	1	0.984	mg/L	98	(80-120)	20	0.62
Hexavalent Chromium by 218.6 by EPA 218.6									
Analytical Batch: 1393416						**Analysis Date: 03/14/2022**			
LCS1	Hexavalent Chromium by 218.6		2	1.87	ug/L	94	(90-110)		
LCS2	Hexavalent Chromium by 218.6		2	1.92	ug/L	96	(90-110)	10	2.6
MBLK	Hexavalent Chromium by 218.6			<0.01	ug/L				
MRL_CHK	Hexavalent Chromium by 218.6		0.02	0.0135	ug/L	68	(50-150)		
MS_202203100542	Hexavalent Chromium by 218.6	5.0	2	6.93	ug/L	98	(90-110)		
MS_202203161264	Hexavalent Chromium by 218.6	0.041	2	2.05	ug/L	100	(90-110)		
MSD_202203100542	Hexavalent Chromium by 218.6	5.0	2	6.96	ug/L	100	(90-110)	15	0.44
MSD_202203161264	Hexavalent Chromium by 218.6	0.041	2	2.05	ug/L	100	(90-110)	15	0.18
Alkalinity in CaCO3 units by SM 2320B									
Analytical Batch: 1393441						**Analysis Date: 03/12/2022**			
LCS1	Alkalinity in CaCO3 units		100	98.4	mg/L	98	(90-110)		
LCS2	Alkalinity in CaCO3 units		100	98.1	mg/L	98	(90-110)	20	0.31
MBLK	Alkalinity in CaCO3 units			<1	mg/L				
MRL_CHK	Alkalinity in CaCO3 units		2	2.09	mg/L	105	(50-150)		
MS_202203020941	Alkalinity in CaCO3 units	170	100	199	mg/L	**33**	(80-120)		
MS_202203020948	Alkalinity in CaCO3 units	25	100	126	mg/L	100	(80-120)		
MSD_202203020941	Alkalinity in CaCO3 units	170	100	199	mg/L	**33**	(80-120)	20	0.075
MSD_202203020948	Alkalinity in CaCO3 units	25	100	125	mg/L	99	(80-120)	20	0.46
PH (H3=past HT not compliant) by SM4500-HB									
Analytical Batch: 1393447						**Analysis Date: 03/12/2022**			
DUP_202203020941	PH (H3=past HT not compliant)	8.2		8.19	Units		(0-20)	20	0.37
DUP_202203020948	PH (H3=past HT not compliant)	6.9		6.87	Units		(0-20)	20	0.29

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RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	PH (H3=past HT not compliant)		6	6.00	Units	100	(98-102)		
LCS2	PH (H3=past HT not compliant)		6	6.00	Units	100	(98-102)	20	0.0
Specific Conductance by SM2510B									
Analytical Batch: 1393453						**Analysis Date: 03/12/2022**			
DUP1_202203020941	Specific Conductance	360		356	umho/cm		(0-20)	20	1.8
DUP1_202203020948	Specific Conductance	59		59.0	umho/cm		(0-20)	20	0.0
LCS1	Specific Conductance		1000	964	umho/cm	97	(90-110)		
LCS2	Specific Conductance		1000	958	umho/cm	96	(90-110)	20	0.73
MBLK	Specific Conductance			<1	umho/cm				
MRLHI	Specific Conductance		10	10.0	umho/cm	100	(50-150)		
ICP Metals by EPA 200.7									
Analytical Batch: 1394312						**Analysis Date: 03/17/2022**			
LCS1	Boron Dissolved ICAP		0.5	0.508	mg/L	102	(85-115)		
LCS2	Boron Dissolved ICAP		0.5	0.504	mg/L	101	(85-115)	20	0.79
MBLK	Boron Dissolved ICAP			<0.007140	mg/L				
MRL_CHK	Boron Dissolved ICAP		0.05	0.0515	mg/L	103	(50-150)		
MS_202203161203	Boron Dissolved ICAP	0.51	0.5	1.01	mg/L	99	(70-130)		
MS2_202203150481	Boron Dissolved ICAP	0.39	0.5	0.907	mg/L	104	(70-130)		
MSD_202203161203	Boron Dissolved ICAP	0.51	0.5	1.03	mg/L	104	(70-130)	20	2.2
MSD2_202203150481	Boron Dissolved ICAP	0.39	0.5	0.909	mg/L	104	(70-130)	20	0.20
LCS1	Calcium Dissolved ICAP		50	51.0	mg/L	102	(85-115)		
LCS2	Calcium Dissolved ICAP		50	50.8	mg/L	102	(85-115)	20	0.59
MBLK	Calcium Dissolved ICAP			<0.043087	mg/L				
MRL_CHK	Calcium Dissolved ICAP		1	1.05	mg/L	105	(50-150)		
MS_202203161203	Calcium Dissolved ICAP	59	50	106	mg/L	93	(70-130)		
MS2_202203150481	Calcium Dissolved ICAP	2.4	50	53.7	mg/L	103	(70-130)		
MSD_202203161203	Calcium Dissolved ICAP	59	50	108	mg/L	97	(70-130)	20	2.0
MSD2_202203150481	Calcium Dissolved ICAP	2.4	50	53.4	mg/L	102	(70-130)	20	0.49
LCS1	Calcium Total ICAP		50	51.0	mg/L	102	(85-115)		
LCS2	Calcium Total ICAP		50	50.8	mg/L	102	(85-115)	20	0.59
MBLK	Calcium Total ICAP			<0.043087	mg/L				
MRL_CHK	Calcium Total ICAP		1	1.05	mg/L	105	(50-150)		
MS_202203161203	Calcium Total ICAP	59	50	106	mg/L	93	(70-130)		
MS2_202203150481	Calcium Total ICAP	2.4	50	53.7	mg/L	103	(70-130)		
MSD_202203161203	Calcium Total ICAP	59	50	108	mg/L	97	(70-130)	20	2.0
MSD2_202203150481	Calcium Total ICAP	2.4	50	53.4	mg/L	102	(70-130)	20	0.49
LCS1	Dissolved Silica		21	20.6	mg/L	96	(85-115)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Dissolved Silica		21	20.5	mg/L	96	(85-115)	20	0.49
MBLK	Dissolved Silica			<0.035638	mg/L				
MRL_CHK	Dissolved Silica		0.42	0.450	mg/L	107	(50-150)		
MS_202203161203	Dissolved Silica	18	21	38.6	mg/L	94	(70-130)		
MS2_202203150481	Dissolved Silica	2.2	21	23.3	mg/L	99	(70-130)		
MSD_202203161203	Dissolved Silica	18	21	39.5	mg/L	98	(70-130)	20	2.3
MSD2_202203150481	Dissolved Silica	2.2	21	23.3	mg/L	98	(70-130)	20	0.13
LCS1	Iron Dissolved ICAP		5	5.14	mg/L	103	(85-115)		
LCS2	Iron Dissolved ICAP		5	5.10	mg/L	102	(85-115)	20	0.78
MBLK	Iron Dissolved ICAP			<0.004850	mg/L				
MRL_CHK	Iron Dissolved ICAP		0.01	0.0108	mg/L	108	(50-150)		
MS_202203161203	Iron Dissolved ICAP	ND	5	5.06	mg/L	101	(70-130)		
MS2_202203150481	Iron Dissolved ICAP	ND	5	5.19	mg/L	104	(70-130)		
MSD_202203161203	Iron Dissolved ICAP	ND	5	5.22	mg/L	104	(70-130)	20	3.1
MSD2_202203150481	Iron Dissolved ICAP	ND	5	5.15	mg/L	103	(70-130)	20	0.77
LCS1	Iron Total ICAP		5	5.14	mg/L	103	(85-115)		
LCS2	Iron Total ICAP		5	5.10	mg/L	102	(85-115)	20	0.78
MBLK	Iron Total ICAP			<0.004850	mg/L				
MRL_CHK	Iron Total ICAP		0.01	0.0108	mg/L	108	(50-150)		
MS_202203161203	Iron Total ICAP	ND	5	5.06	mg/L	101	(70-130)		
MS2_202203150481	Iron Total ICAP	ND	5	5.19	mg/L	104	(70-130)		
MSD_202203161203	Iron Total ICAP	ND	5	5.22	mg/L	104	(70-130)	20	3.1
MSD2_202203150481	Iron Total ICAP	ND	5	5.15	mg/L	103	(70-130)	20	0.77
LCS1	Magnesium Dissolved ICAP		20	20.3	mg/L	102	(85-115)		
LCS2	Magnesium Dissolved ICAP		20	20.1	mg/L	101	(85-115)	20	0.99
MBLK	Magnesium Dissolved ICAP			<0.009606	mg/L				
MRL_CHK	Magnesium Dissolved ICAP		0.1	0.102	mg/L	102	(50-150)		
MS_202203161203	Magnesium Dissolved ICAP	16	20	36.0	mg/L	98	(70-130)		
MS2_202203150481	Magnesium Dissolved ICAP	0.57	20	21.4	mg/L	104	(70-130)		
MSD_202203161203	Magnesium Dissolved ICAP	16	20	36.9	mg/L	102	(70-130)	20	2.4
MSD2_202203150481	Magnesium Dissolved ICAP	0.57	20	21.2	mg/L	103	(70-130)	20	0.78
LCS1	Magnesium Total ICAP		20	20.3	mg/L	102	(85-115)		
LCS2	Magnesium Total ICAP		20	20.1	mg/L	101	(85-115)	20	0.99
MBLK	Magnesium Total ICAP			<0.009606	mg/L				
MRL_CHK	Magnesium Total ICAP		0.1	0.102	mg/L	102	(50-150)		
MS_202203161203	Magnesium Total ICAP	16	20	36.0	mg/L	98	(70-130)		
MS2_202203150481	Magnesium Total ICAP	0.57	20	21.4	mg/L	104	(70-130)		
MSD_202203161203	Magnesium Total ICAP	16	20	36.9	mg/L	102	(70-130)	20	2.4

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MSD2_202203150481	Magnesium Total ICAP	0.57	20	21.2	mg/L	103	(70-130)	20	0.78
LCS1	Potassium Dissolved ICAP		20	21.0	mg/L	105	(85-115)		
LCS2	Potassium Dissolved ICAP		20	20.8	mg/L	104	(85-115)	20	0.96
MBLK	Potassium Dissolved ICAP			<0.233312	mg/L				
MRL_CHK	Potassium Dissolved ICAP		1	0.808	mg/L	81	(50-150)		
MS_202203161203	Potassium Dissolved ICAP	14	20	35.8	mg/L	109	(70-130)		
MS2_202203150481	Potassium Dissolved ICAP	ND	20	22.6	mg/L	111	(70-130)		
MSD_202203161203	Potassium Dissolved ICAP	14	20	36.7	mg/L	114	(70-130)	20	2.6
MSD2_202203150481	Potassium Dissolved ICAP	ND	20	22.4	mg/L	110	(70-130)	20	0.82
LCS1	Potassium Total ICAP		20	21.0	mg/L	105	(85-115)		
LCS2	Potassium Total ICAP		20	20.8	mg/L	104	(85-115)	20	0.96
MBLK	Potassium Total ICAP			<0.233312	mg/L				
MRL_CHK	Potassium Total ICAP		1	0.808	mg/L	81	(50-150)		
MS_202203161203	Potassium Total ICAP	14	20	35.8	mg/L	109	(70-130)		
MS2_202203150481	Potassium Total ICAP	ND	20	22.6	mg/L	111	(70-130)		
MSD_202203161203	Potassium Total ICAP	14	20	36.7	mg/L	114	(70-130)	20	2.6
MSD2_202203150481	Potassium Total ICAP	ND	20	22.4	mg/L	110	(70-130)	20	0.82
LCS1	Sodium Dissolved ICAP		50	51.5	mg/L	103	(85-115)		
LCS2	Sodium Dissolved ICAP		50	50.4	mg/L	101	(85-115)	20	2.0
MBLK	Sodium Dissolved ICAP			<0.4255	mg/L				
MRL_CHK	Sodium Dissolved ICAP		1	0.871	mg/L	87	(50-150)		
MS_202203161203	Sodium Dissolved ICAP	130	50	175	mg/L	81	(70-130)		
MS2_202203150481	Sodium Dissolved ICAP	19	50	69.4	mg/L	100	(70-130)		
MSD_202203161203	Sodium Dissolved ICAP	130	50	178	mg/L	87	(70-130)	20	2.1
MSD2_202203150481	Sodium Dissolved ICAP	19	50	69.0	mg/L	100	(70-130)	20	0.47
LCS1	Sodium Total ICAP		50	51.5	mg/L	103	(85-115)		
LCS2	Sodium Total ICAP		50	50.4	mg/L	101	(85-115)	20	2.0
MBLK	Sodium Total ICAP			<0.4255	mg/L				
MRL_CHK	Sodium Total ICAP		1	0.871	mg/L	87	(50-150)		
MS_202203161203	Sodium Total ICAP	130	50	175	mg/L	81	(70-130)		
MS2_202203150481	Sodium Total ICAP	19	50	69.4	mg/L	100	(70-130)		
MSD_202203161203	Sodium Total ICAP	130	50	178	mg/L	87	(70-130)	20	2.1
MSD2_202203150481	Sodium Total ICAP	19	50	69.0	mg/L	100	(70-130)	20	0.47

ICPMS Metals by EPA 200.8

Analytical Batch: 1394922 **Analysis Date: 03/22/2022**

LCS1	Aluminum dissolved ICAP/MS		100	102	ug/L	103	(85-115)		
LCS2	Aluminum dissolved ICAP/MS		100	102	ug/L	102	(85-115)	20	0.98

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
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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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Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Aluminum dissolved ICAP/MS			<10.93	ug/L				
MBLK	Aluminum dissolved ICAP/MS			<10.93	ug/L				
MRL_CHK	Aluminum dissolved ICAP/MS		20	20.7	ug/L	103	(50-150)		
MS_202203080079	Aluminum dissolved ICAP/MS	ND	100	103	ug/L	102	(70-130)		
MS2_202203141074	Aluminum dissolved ICAP/MS	ND	100	142	ug/L	**141**	(70-130)		
MSD_202203080079	Aluminum dissolved ICAP/MS	ND	100	106	ug/L	104	(70-130)	20	2.8
MSD2_202203141074	Aluminum dissolved ICAP/MS	ND	100	104	ug/L	102	(70-130)	20	**31**
LCS1	Antimony dissolved ICAP/MS		50	53.6	ug/L	107	(85-115)		
LCS2	Antimony dissolved ICAP/MS		50	54.0	ug/L	108	(85-115)	20	0.74
MBLK	Antimony dissolved ICAP/MS			<0.2437	ug/L				
MBLK	Antimony dissolved ICAP/MS			<0.2437	ug/L				
MRL_CHK	Antimony dissolved ICAP/MS		1	1.08	ug/L	108	(50-150)		
MS_202203080079	Antimony dissolved ICAP/MS	ND	50	54.0	ug/L	108	(70-130)		
MS2_202203141074	Antimony dissolved ICAP/MS	ND	50	74.4	ug/L	**148**	(70-130)		
MSD_202203080079	Antimony dissolved ICAP/MS	ND	50	54.2	ug/L	108	(70-130)	20	0.28
MSD2_202203141074	Antimony dissolved ICAP/MS	ND	50	53.3	ug/L	106	(70-130)	20	**33**
LCS1	Arsenic dissolved ICAP/MS		50	52.2	ug/L	104	(85-115)		
LCS2	Arsenic dissolved ICAP/MS		50	51.9	ug/L	104	(85-115)	20	0.58
MBLK	Arsenic dissolved ICAP/MS			<0.4134	ug/L				
MBLK	Arsenic dissolved ICAP/MS			<0.4134	ug/L				
MRL_CHK	Arsenic dissolved ICAP/MS		1	1.20	ug/L	120	(50-150)		
MS_202203080079	Arsenic dissolved ICAP/MS	ND	50	52.0	ug/L	104	(70-130)		
MS2_202203141074	Arsenic dissolved ICAP/MS	ND	50	72.3	ug/L	**145**	(70-130)		
MSD_202203080079	Arsenic dissolved ICAP/MS	ND	50	52.5	ug/L	105	(70-130)	20	1.0
MSD2_202203141074	Arsenic dissolved ICAP/MS	ND	50	52.8	ug/L	106	(70-130)	20	**31**
LCS1	Barium dissolved ICAP/MS		50	51.6	ug/L	103	(85-115)		
LCS2	Barium dissolved ICAP/MS		50	51.8	ug/L	104	(85-115)	20	0.39
MBLK	Barium dissolved ICAP/MS			<0.1886	ug/L				
MBLK	Barium dissolved ICAP/MS			<0.1886	ug/L				
MRL_CHK	Barium dissolved ICAP/MS		2	2.02	ug/L	101	(50-150)		
MS_202203080079	Barium dissolved ICAP/MS	ND	50	51.4	ug/L	102	(70-130)		
MS2_202203141074	Barium dissolved ICAP/MS	ND	50	71.5	ug/L	**142**	(70-130)		
MSD_202203080079	Barium dissolved ICAP/MS	ND	50	51.7	ug/L	103	(70-130)	20	0.47
MSD2_202203141074	Barium dissolved ICAP/MS	ND	50	52.0	ug/L	103	(70-130)	20	**32**
LCS1	Beryllium dissolved ICAP/MS		25	26.2	ug/L	105	(85-115)		
LCS2	Beryllium dissolved ICAP/MS		25	25.4	ug/L	101	(85-115)	20	3.1
MBLK	Beryllium dissolved ICAP/MS			<0.1106	ug/L				
MBLK	Beryllium dissolved ICAP/MS			<0.1106	ug/L				

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).
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Laboratory QC

Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Beryllium dissolved ICAP/MS		1	1.02	ug/L	102	(50-150)		
MS_202203080079	Beryllium dissolved ICAP/MS	ND	25	25.3	ug/L	101	(70-130)		
MS2_202203141074	Beryllium dissolved ICAP/MS	ND	25	35.3	ug/L	**141**	(70-130)		
MSD_202203080079	Beryllium dissolved ICAP/MS	ND	25	26.2	ug/L	105	(70-130)	20	3.6
MSD2_202203141074	Beryllium dissolved ICAP/MS	ND	25	25.9	ug/L	103	(70-130)	20	**31**
LCS1	Cadmium dissolved ICAP/MS		25	26.2	ug/L	105	(85-115)		
LCS2	Cadmium dissolved ICAP/MS		25	25.9	ug/L	104	(85-115)	20	1.1
MBLK	Cadmium dissolved ICAP/MS			<0.0546	ug/L				
MBLK	Cadmium dissolved ICAP/MS			<0.0546	ug/L				
MRL_CHK	Cadmium dissolved ICAP/MS		0.5	0.521	ug/L	104	(50-150)		
MS_202203080079	Cadmium dissolved ICAP/MS	ND	25	25.8	ug/L	103	(70-130)		
MS2_202203141074	Cadmium dissolved ICAP/MS	ND	25	35.4	ug/L	**141**	(70-130)		
MSD_202203080079	Cadmium dissolved ICAP/MS	ND	25	25.9	ug/L	103	(70-130)	20	0.32
MSD2_202203141074	Cadmium dissolved ICAP/MS	ND	25	26.3	ug/L	105	(70-130)	20	**29**
LCS1	Chromium dissolved ICAP/MS		50	53.3	ug/L	107	(85-115)		
LCS2	Chromium dissolved ICAP/MS		50	53.1	ug/L	106	(85-115)	20	0.38
MBLK	Chromium dissolved ICAP/MS			<0.580	ug/L				
MBLK	Chromium dissolved ICAP/MS			<0.580	ug/L				
MRL_CHK	Chromium dissolved ICAP/MS		1	1.35	ug/L	135	(50-150)		
MS_202203080079	Chromium dissolved ICAP/MS	ND	50	53.2	ug/L	106	(70-130)		
MS2_202203141074	Chromium dissolved ICAP/MS	ND	50	73.4	ug/L	**146**	(70-130)		
MSD_202203080079	Chromium dissolved ICAP/MS	ND	50	53.8	ug/L	107	(70-130)	20	1.1
MSD2_202203141074	Chromium dissolved ICAP/MS	ND	50	53.8	ug/L	107	(70-130)	20	**31**
LCS1	Copper dissolved ICAP/MS		50	51.9	ug/L	104	(85-115)		
LCS2	Copper dissolved ICAP/MS		50	51.8	ug/L	104	(85-115)	20	0.19
MBLK	Copper dissolved ICAP/MS			<1.343	ug/L				
MBLK	Copper dissolved ICAP/MS			<1.343	ug/L				
MRL_CHK	Copper dissolved ICAP/MS		2	1.99	ug/L	100	(50-150)		
MS_202203080079	Copper dissolved ICAP/MS	ND	50	50.9	ug/L	102	(70-130)		
MS2_202203141074	Copper dissolved ICAP/MS	ND	50	70.8	ug/L	**142**	(70-130)		
MSD_202203080079	Copper dissolved ICAP/MS	ND	50	51.7	ug/L	103	(70-130)	20	1.5
MSD2_202203141074	Copper dissolved ICAP/MS	ND	50	51.7	ug/L	103	(70-130)	20	**31**
LCS1	Lead dissolved ICAP/MS		50	52.2	ug/L	104	(85-115)		
LCS2	Lead dissolved ICAP/MS		50	51.7	ug/L	103	(85-115)	20	0.96
MBLK	Lead dissolved ICAP/MS			<0.0608	ug/L				
MBLK	Lead dissolved ICAP/MS			<0.0608	ug/L				
MRL_CHK	Lead dissolved ICAP/MS		0.5	0.499	ug/L	100	(50-150)		
MS_202203080079	Lead dissolved ICAP/MS	ND	50	51.1	ug/L	102	(70-130)		

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.
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Report: 990476
Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202203141074	Lead dissolved ICAP/MS	ND	50	71.2	ug/L	**142**	(70-130)		
MSD_202203080079	Lead dissolved ICAP/MS	ND	50	52.2	ug/L	104	(70-130)	20	2.1
MSD2_202203141074	Lead dissolved ICAP/MS	ND	50	52.7	ug/L	105	(70-130)	20	**30**
LCS1	Manganese dissolved ICAP/MS		100	104	ug/L	105	(85-115)		
LCS2	Manganese dissolved ICAP/MS		100	104	ug/L	104	(85-115)	20	0.96
MBLK	Manganese dissolved ICAP/MS			<0.4606	ug/L				
MBLK	Manganese dissolved ICAP/MS			<0.4606	ug/L				
MRL_CHK	Manganese dissolved ICAP/MS		2	2.06	ug/L	103	(50-150)		
MS_202203080079	Manganese dissolved ICAP/MS	ND	100	102	ug/L	102	(70-130)		
MS2_202203141074	Manganese dissolved ICAP/MS	ND	100	144	ug/L	**145**	(70-130)		
MSD_202203080079	Manganese dissolved ICAP/MS	ND	100	103	ug/L	103	(70-130)	20	0.51
MSD2_202203141074	Manganese dissolved ICAP/MS	ND	100	104	ug/L	104	(70-130)	20	**33**
LCS1	Nickel dissolved ICAP/MS		50	50.8	ug/L	102	(85-115)		
LCS2	Nickel dissolved ICAP/MS		50	50.6	ug/L	101	(85-115)	20	0.39
MBLK	Nickel dissolved ICAP/MS			<0.4959	ug/L				
MBLK	Nickel dissolved ICAP/MS			<0.4959	ug/L				
MRL_CHK	Nickel dissolved ICAP/MS		5	4.98	ug/L	100	(50-150)		
MS_202203080079	Nickel dissolved ICAP/MS	ND	50	50.6	ug/L	101	(70-130)		
MS2_202203141074	Nickel dissolved ICAP/MS	ND	50	69.4	ug/L	**139**	(70-130)		
MSD_202203080079	Nickel dissolved ICAP/MS	ND	50	50.7	ug/L	101	(70-130)	20	0.28
MSD2_202203141074	Nickel dissolved ICAP/MS	ND	50	50.6	ug/L	101	(70-130)	20	**31**
LCS1	Selenium dissolved ICAP/MS		50	52.9	ug/L	106	(85-115)		
LCS2	Selenium dissolved ICAP/MS		50	53.0	ug/L	106	(85-115)	20	0.19
MBLK	Selenium dissolved ICAP/MS			<0.6224	ug/L				
MBLK	Selenium dissolved ICAP/MS			<0.6224	ug/L				
MRL_CHK	Selenium dissolved ICAP/MS		5	5.25	ug/L	105	(50-150)		
MS_202203080079	Selenium dissolved ICAP/MS	ND	50	52.8	ug/L	106	(70-130)		
MS2_202203141074	Selenium dissolved ICAP/MS	ND	50	72.8	ug/L	**146**	(70-130)		
MSD_202203080079	Selenium dissolved ICAP/MS	ND	50	52.8	ug/L	106	(70-130)	20	0.047
MSD2_202203141074	Selenium dissolved ICAP/MS	ND	50	53.4	ug/L	107	(70-130)	20	**31**
LCS1	Thallium dissolved ICAP/MS		50	50.9	ug/L	102	(85-115)		
LCS2	Thallium dissolved ICAP/MS		50	50.6	ug/L	101	(85-115)	20	0.59
MBLK	Thallium dissolved ICAP/MS			<0.1449	ug/L				
MBLK	Thallium dissolved ICAP/MS			<0.1449	ug/L				
MRL_CHK	Thallium dissolved ICAP/MS		1	1.01	ug/L	101	(50-150)		
MS_202203080079	Thallium dissolved ICAP/MS	ND	50	50.2	ug/L	100	(70-130)		
MS2_202203141074	Thallium dissolved ICAP/MS	ND	50	70.2	ug/L	**140**	(70-130)		
MSD_202203080079	Thallium dissolved ICAP/MS	ND	50	51.0	ug/L	102	(70-130)	20	1.5

Spike recovery is already corrected for native results.
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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).
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Project: WATER-QUALITY
Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MSD2_202203141074	Thallium dissolved ICAP/MS	ND	50	52.2	ug/L	104	(70-130)	20	**29**
LCS1	Uranium dissolved ICAP/MS		50	51.3	ug/L	103	(85-115)		
LCS2	Uranium dissolved ICAP/MS		50	51.5	ug/L	103	(85-115)	20	0.39
MBLK	Uranium dissolved ICAP/MS			<0.0872	ug/L				
MBLK	Uranium dissolved ICAP/MS			<0.0872	ug/L				
MRL_CHK	Uranium dissolved ICAP/MS		1	1.01	ug/L	101	(50-150)		
MS_202203080079	Uranium dissolved ICAP/MS	ND	50	52.6	ug/L	105	(70-130)		
MS2_202203141074	Uranium dissolved ICAP/MS	ND	50	71.0	ug/L	**142**	(70-130)		
MSD_202203080079	Uranium dissolved ICAP/MS	ND	50	52.4	ug/L	105	(70-130)	20	0.16
MSD2_202203141074	Uranium dissolved ICAP/MS	ND	50	51.8	ug/L	104	(70-130)	20	**31**
LCS1	Vanadium Dissolved ICAP/MS		50	52.2	ug/L	104	(85-115)		
LCS2	Vanadium Dissolved ICAP/MS		50	52.5	ug/L	105	(85-115)	20	0.57
MBLK	Vanadium Dissolved ICAP/MS			<1.017	ug/L				
MBLK	Vanadium Dissolved ICAP/MS			<1.017	ug/L				
MRL_CHK	Vanadium Dissolved ICAP/MS		3	3.38	ug/L	113	(50-150)		
MS_202203080079	Vanadium Dissolved ICAP/MS	ND	50	53.2	ug/L	106	(70-130)		
MS2_202203141074	Vanadium Dissolved ICAP/MS	ND	50	72.4	ug/L	**145**	(70-130)		
MSD_202203080079	Vanadium Dissolved ICAP/MS	ND	50	53.5	ug/L	107	(70-130)	20	0.60
MSD2_202203141074	Vanadium Dissolved ICAP/MS	ND	50	53.1	ug/L	106	(70-130)	20	**31**
LCS1	Zinc dissolved ICAP/MS		50	51.7	ug/L	103	(85-115)		
LCS2	Zinc dissolved ICAP/MS		50	51.8	ug/L	104	(85-115)	20	0.19
MBLK	Zinc dissolved ICAP/MS			<10.62	ug/L				
MBLK	Zinc dissolved ICAP/MS			<10.62	ug/L				
MRL_CHK	Zinc dissolved ICAP/MS		20	20.5	ug/L	103	(50-150)		
MS_202203080079	Zinc dissolved ICAP/MS	ND	50	52.0	ug/L	104	(70-130)		
MS2_202203141074	Zinc dissolved ICAP/MS	ND	50	71.8	ug/L	**143**	(70-130)		
MSD_202203080079	Zinc dissolved ICAP/MS	ND	50	53.1	ug/L	106	(70-130)	20	2.0
MSD2_202203141074	Zinc dissolved ICAP/MS	ND	50	52.3	ug/L	104	(70-130)	20	**31**

Mercury ICPMS by EPA 200.8

Analytical Batch: 1394923 **Analysis Date: 03/22/2022**

LCS1	Mercury dissolved ICAP/MS		0.75	0.779	ug/L	104	(85-115)		
LCS2	Mercury dissolved ICAP/MS		0.75	0.753	ug/L	100	(85-115)	20	3.4
MBLK	Mercury dissolved ICAP/MS			<0.1	ug/L				
MBLK	Mercury dissolved ICAP/MS			<0.1	ug/L				
MRL_CHK	Mercury dissolved ICAP/MS		0.2	0.213	ug/L	107	(50-150)		
MS_202203080079	Mercury dissolved ICAP/MS	ND	0.75	0.767	ug/L	102	(70-130)		
MS2_202203141074	Mercury dissolved ICAP/MS	ND	0.75	0.995	ug/L	**131**	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
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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.
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Report: 990476
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Group: JOB#310 DATA COLLECTION

Mojave Water Agency

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MSD_202203080079	Mercury dissolved ICAP/MS	ND	0.75	0.766	ug/L	102	(70-130)	20	0.13
MSD2_202203141074	Mercury dissolved ICAP/MS	ND	0.75	0.762	ug/L	100	(70-130)	20	**27**
Total phosphorus as P (T-P) by SM4500-PE/EPA 365.1									
Analytical Batch: 1398116						**Analysis Date: 03/30/2022**			
LCS1	Total phosphorus as P		0.4	0.414	mg/L	104	(90-110)		
LCS2	Total phosphorus as P		0.4	0.396	mg/L	99	(90-110)	20	4.4
MBLK	Total phosphorus as P			<0.0108	mg/L				
MRL_CHK	Total phosphorus as P		0.02	0.0225	mg/L	113	(50-150)		
MS_202203020446	Total phosphorus as P	0.041	0.4	0.440	mg/L	100	(90-110)		
MS_202203091141	Total phosphorus as P	0.086	0.4	0.493	mg/L	102	(90-110)		
MSD_202203020446	Total phosphorus as P	0.041	0.4	0.458	mg/L	104	(90-110)	20	4.0
MSD_202203091141	Total phosphorus as P	0.086	0.4	0.493	mg/L	102	(90-110)	20	0.041

Spike recovery is already corrected for native results.
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RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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ANALYTICAL REPORT

Eurofins Calscience
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Tel: (714)895-5494

Laboratory Job ID: 570-86715-1
Client Project/Site: 990476

For:
Eurofins Eaton Analytical
750 Royal Oaks Drive
Monrovia, California 91016

Attn: Jaclyn Contreras

Authorized for release by:
4/5/2022 1:00:27 AM

Xuan Dang, Project Manager I
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Table of Contents

Definitions/Glossary

Client: Eurofins Eaton Analytical
Job ID: 570-86715-1
Project/Site: 990476

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Job ID: 570-86715-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-86715-1

Comments
No additional comments.

Receipt
The sample was received on 3/3/2022 1:48 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 3500 Fe B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: 202203020945 (570-86715-1), (570-86257-M-3), (570-86257-M-3 MS) and (570-86257-M-3 MSD).

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: 990476

Job ID: 570-86715-1

Client Sample ID: 202203020945 — Lab Sample ID: 570-86715-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	195		100	50.0	ug/L	1		6010B	Total Recoverable
Oxidation Reduction Potential	397	HF			millivolts	1		SM 2580B	Total/NA
Ferric Iron	0.195	J	0.500	0.140	mg/L	1		SM 3500	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: 202203020945
Date Collected: 03/02/22 16:10
Date Received: 03/03/22 13:48

Lab Sample ID: 570-86715-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	195		100	50.0	ug/L		03/21/22 06:38	03/21/22 18:00	1

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

General Chemistry

Client Sample ID: 202203020945
Date Collected: 03/02/22 16:10
Date Received: 03/03/22 13:48

Lab Sample ID: 570-86715-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxidation Reduction Potential	**397**	**HF**			millivolts			03/23/22 14:34	1
Ferric Iron	**0.195**	**J**	0.500	0.140	mg/L			04/05/22 00:39	1
Ferrous Iron	ND	HF	0.100	0.0185	mg/L			03/07/22 23:00	1

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-669402/1-A
Matrix: Water
Analysis Batch: 669482

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 669402

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		100	50.0	ug/L		03/21/22 06:38	03/21/22 16:16	1

Lab Sample ID: LCS 440-669402/2-A
Matrix: Water
Analysis Batch: 669482

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 669402

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	1000	970.3		ug/L		97	80 - 120

Method: SM 2580B - Reduction-Oxidation (REDOX) Potential

Lab Sample ID: 570-86715-1 DU
Matrix: Water
Analysis Batch: 669640

Client Sample ID: 202203020945
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Oxidation Reduction Potential	397	HF	398.0		millivolts		0.3	5

Method: SM 3500 Fe B - Iron, Ferrous

Lab Sample ID: MB 570-217833/4
Matrix: Water
Analysis Batch: 217833

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND		0.100	0.0185	mg/L			03/07/22 22:46	1

Lab Sample ID: LCS 570-217833/5
Matrix: Water
Analysis Batch: 217833

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ferrous Iron	0.999	0.9829		mg/L		98	79 - 114

Lab Sample ID: LCSD 570-217833/6
Matrix: Water
Analysis Batch: 217833

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ferrous Iron	0.999	0.9958		mg/L		100	79 - 114	1	11

QC Association Summary

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Metals

Prep Batch: 669402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-86715-1	202203020945	Total Recoverable	Water	3005A	
MB 440-669402/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 440-669402/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 669482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-86715-1	202203020945	Total Recoverable	Water	6010B	669402
MB 440-669402/1-A	Method Blank	Total Recoverable	Water	6010B	669402
LCS 440-669402/2-A	Lab Control Sample	Total Recoverable	Water	6010B	669402

General Chemistry

Analysis Batch: 217833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-86715-1	202203020945	Total/NA	Water	SM 3500 Fe B	
MB 570-217833/4	Method Blank	Total/NA	Water	SM 3500 Fe B	
LCS 570-217833/5	Lab Control Sample	Total/NA	Water	SM 3500 Fe B	
LCSD 570-217833/6	Lab Control Sample Dup	Total/NA	Water	SM 3500 Fe B	

Analysis Batch: 224355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-86715-1	202203020945	Total/NA	Water	SM 3500	

Analysis Batch: 669640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-86715-1	202203020945	Total/NA	Water	SM 2580B	
570-86715-1 DU	202203020945	Total/NA	Water	SM 2580B	

Lab Chronicle

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Client Sample ID: 202203020945
Date Collected: 03/02/22 16:10
Date Received: 03/03/22 13:48

Lab Sample ID: 570-86715-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	669402	03/21/22 06:38		IRV 2
Total Recoverable	Analysis	6010B		1			669482	03/21/22 18:00	P1R	IRV 2
	Instrument ID: ICP8									
Total/NA	Analysis	SM 2580B		1			669640	03/23/22 14:34	VY3D	IRV 2
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 3500		1			224355	04/05/22 00:39	W1BQ	ECL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 3500 Fe B		1	5 mL	10 mL	217833	03/07/22 23:00	WN6Y	ECL 4
	Instrument ID: UV8									

Laboratory References:

ECL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

IRV 2 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-22
Oregon	NELAP	CA300001	01-31-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 3500		Water	Ferric Iron

Laboratory: Eurofins Calscience

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	10256	06-30-22
California	State	2706	06-30-22
Kansas	NELAP	E-10420	07-31-22
Nevada	State	CA015312022-1	07-31-22
Washington	State	C900	09-03-22

Method Summary

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	IRV 2
SM 2580B	Reduction-Oxidation (REDOX) Potential	SM	IRV 2
SM 3500	Iron, Ferric	SM	ECL 4
SM 3500 Fe B	Iron, Ferrous	SM	ECL 4
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	IRV 2

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

IRV 2 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Eurofins Eaton Analytical
Project/Site: 990476

Job ID: 570-86715-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-86715-1	202203020945	Water	03/02/22 16:10	03/03/22 13:48

eurofins | Eaton Analytical

Submittal Form

Date: 3/3/2022

Ship To:
`Eurofins Calscience
2841 Dow Avenue

Tustin, CA 92780

Phone 714-895-5494 Fax 714-894-7501

*REPORTING REQUIRMENTS: *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # **990476** 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.

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**

Folder #: 990476
Report Due: 03/23/2022

570-86715 Chain of Custody

Sample ID	Client Sample ID for reference onl	Sample Date & Time	Matrix	Clip Code	PWSID
202203020945	ORMW-1	03/02/22 1610	DW		JLS

Sample type: | Sample Event: | Facility ID: | Sample Point ID: | Static ID:

Method	Prep Method	Analysis Requested
SM 3500		Iron, Ferric
SM 3500 Fe B		Iron, Ferrous
ASTM D1498		Oxidation Reduction Potential

Relinquished by: Sample Control Date 3/3/22 Time 1348
Received by: Date 3/3/22 Time 1348
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

1.9/1.9 SC10

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www EurofinsUS com/Eaton

Login Sample Receipt Checklist

Client: Eurofins Eaton Analytical

Job Number: 570-86715-1

Login Number: 86715

List Source: Eurofins Calscience

List Number: 1

Creator: Luu, Sheila

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	Refer to Job Narrative for details.
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.	False	Improper containers received.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
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 H

MWA WELL CANVASSING SHEET

Mojave Water Agency

SWN: 05N07W30Q01 ORMW1
Common Name: OESTE RECHARGE WELL ORW 1A
Date: 3/23/2022
Completed By: M. JOHNSON
Lat/Long (DMS) & Datum: 34° 29' 16.139" N, 117° 39' 0.311" W
☐ Log Completed

MWA WELL CANVASSING SHEET

Site Address: APN: 309908101

Cross Street: OASIS RD

General Location: LOCATED TOWARD NORTHEAST SIDE OF PROPERTY

Name of GPS Point: OESTE RECHARGE WELL 1A

Satellites: (R2) 15 / 24 (OLD) **Accuracy:** (R2) 0.6IN / 1.0IN (OLD) **Points:** 126 (OLD)

GPS Measurement Point Description: LSD IS X ON CONCRETE PAD, NORTH SIDE OF CASING

Well Type: ☐ Domestic ☐ Agricultural ☐ Production ☒ Monitoring

Status: ☐ Active ☒ Inactive Pump in Well: ☐ Yes ☒ No

Site Status: STATIC

Site Status: A=atmos.press.B=tide stage D=dry E=recently flowing F=flowing G=nearby recently flowing I=injector site M=plugged N=meas-discontinued O=obstructed P=pumpling R=recently pumped S=nearby pumping T=nearby recently pumping V=foreign substance W=well destroyed X=affected by surface water Z=other

Casing Diameter (inches): 4" **Casing Material:** PVC

Height of Measuring Point (FT ALSD): 2.89'
**ALSD - above land surface datum*

Photograph of Measuring Point: ☑

Measurement Method: MWA.ET.800.1
MWA & USGS ID#

Measuring Point Description: T.O.C. NORTH SIDE

LSD Description: X ON CONCRETE PAD, NORTH SIDE OF CASING

Depth to Water (feet): 541.35' BMP 538.46' BLSD **Time:** 09:04

Depth to Water (feet): 541.35' BMP 538.46' BLSD Datum: (PST)/PDT

DTW Calculation: 541.35' − 2.89' = 538.46'

Total Depth of Well (feet): 633.2' BMP 630.31' BLSD
**BMP - below measuring point, BLSD - below land surface datum*

Total Depth Calculation: 633.2' − 2.89' = 630.31'

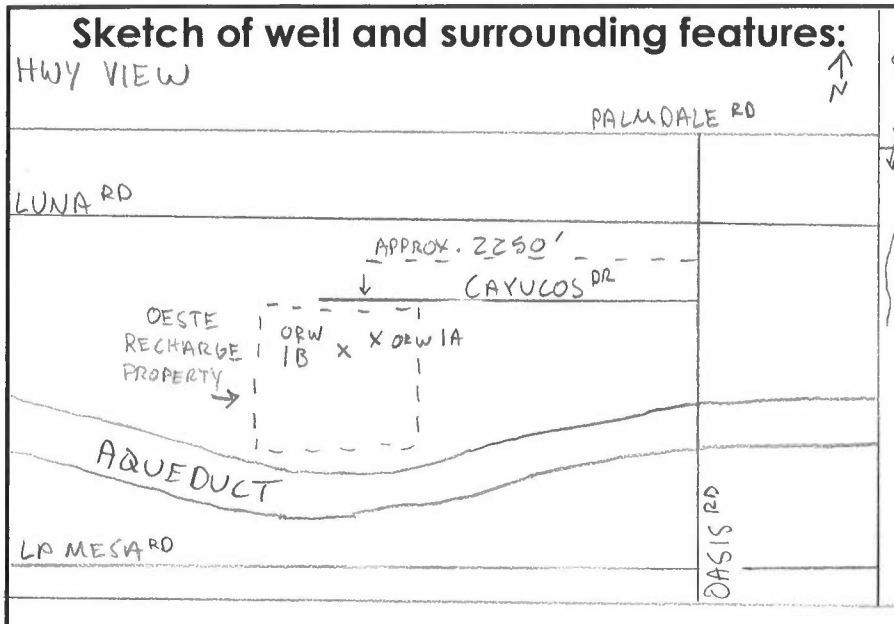
# of Photographs Taken: MANY
**Measuring Point, North, East, South, West*

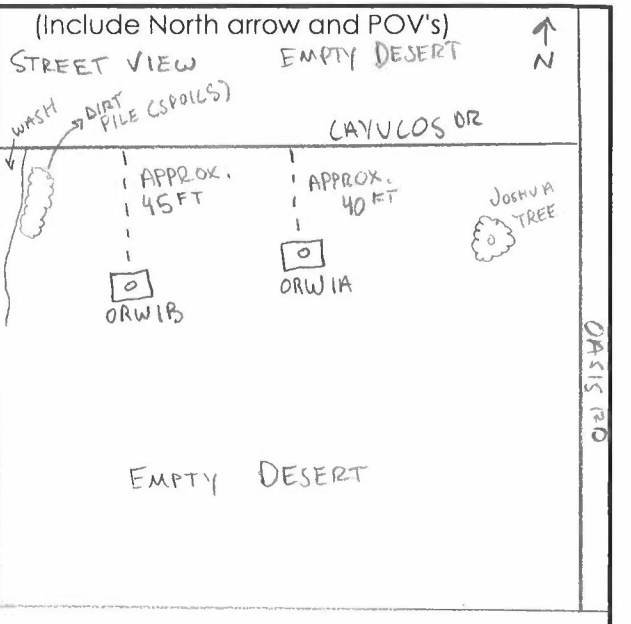
Video Recorded: YES **Transducer Installed:** NO

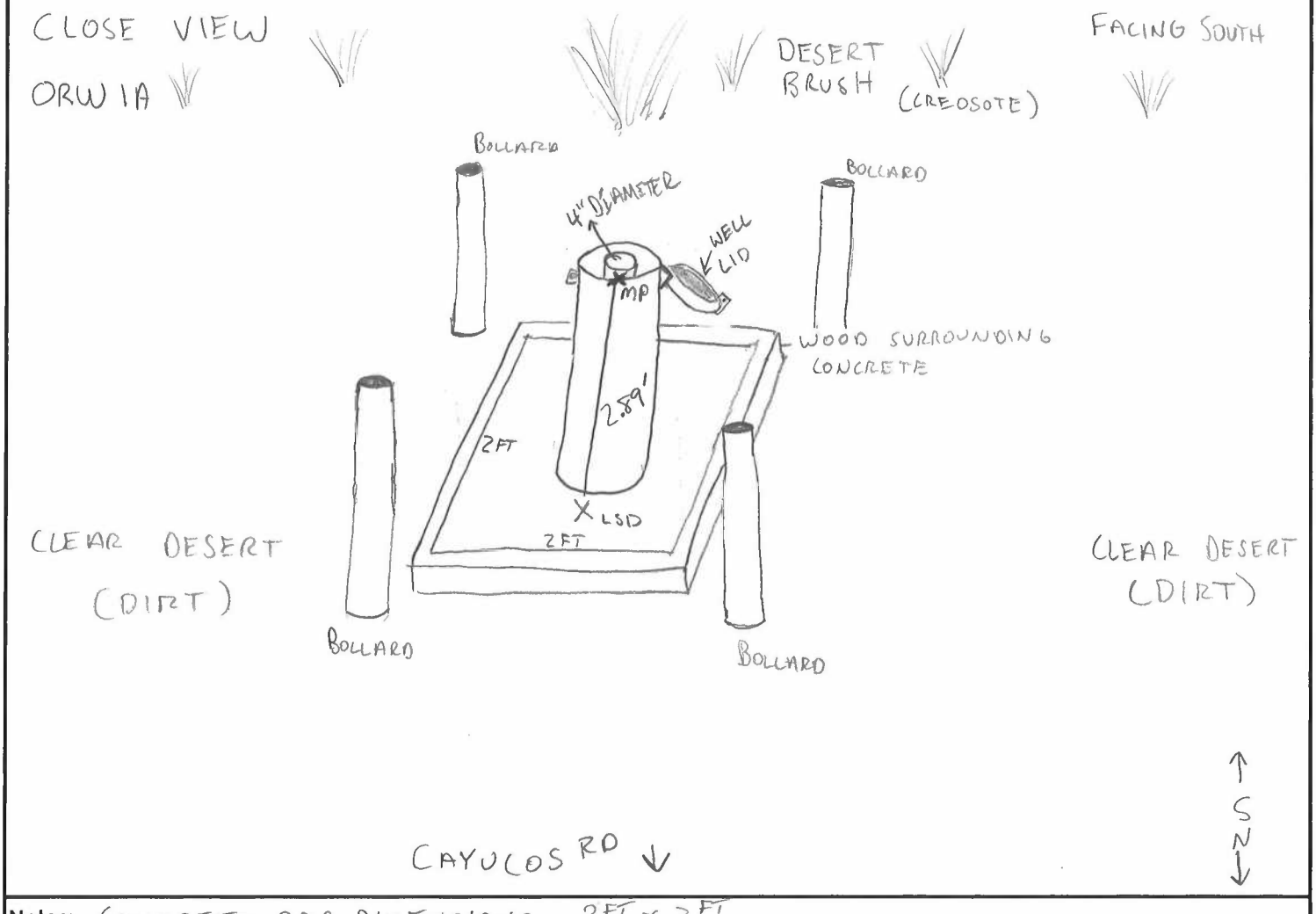
(Continued on other side)

Sketch of well and surrounding features:

(Include North arrow and POV's)







Notes: CONCRETE PAD DIMENSIONS 2FT x 2FT

USED HERON TO CAMERA WELL

DIDN'T INSTALL TRANSDUCER

APPENDIX I

WELL COMPLETION REPORTS SUBMITTED TO CALIFORNIA DEPARTMENT OF WATER RESOURCES

State of California

Well Completion Report

Form DWR 188 Submitted 4/4/2022

WCR2022-003846

Owner's Well Number: OESTE-R | Date Work Began: 01/31/2022 | Date Work Ended: 02/14/2022

Local Permit Agency: San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section

Secondary Permit Agency: | Permit Number: WP0037565 | Permit Date: 11/30/2021

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: MOJAVE WATER AGENCY,

Mailing Address: 13846 Conference Center Dr

City: Apple Valley | State: CA | Zip: 92307

Planned Use and Activity

Activity: New Well

Planned Use: Monitoring

Well Location

Address: 535 Cayucos RD

City: Pinon Hills | Zip: 92371 | County: San Bernardino

Latitude: 34 Deg. 29 Min. 16.1699 Sec. N | Longitude: -117 Deg. 39 Min. 0.2016 Sec. W

Dec. Lat.: 34.487825 | Dec. Long.: -117.650056

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: Unknown | Location Determination Method: GPS

APN: 309908101

Township: 05 N

Range: 07 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Downhole Rotary Hammer | Drilling Fluid: None

Total Depth of Boring: 660 Feet

Total Depth of Completed Well: 640 Feet

Water Level and Yield of Completed Well

Depth to first water: 580 (Feet below surface)

Depth to Static Water Level: 540 (Feet) | Date Measured: 03/01/2022

Estimated Yield*: (GPM) | Test Type:

Test Length: (Hours) | Total Drawdown: (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	660	See attached Lithologic Logs

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	560	Blank	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5			
1	560	640	Screen	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5	Milled Slots	0.02	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	3	Other Fill	See description.		Concrete Ready Mix
3	22	Cement	Portland Cement/Neat Cement		
22	549	Other Fill	See description.		Sand/Bentonite mix
549	652	Filter Pack	8 x 20		
652	660	Other Fill	See description.		Slough

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	240	11.75
240	660	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: A B C LIOVIN DRILLING INC (Person, Firm or Corporation)

1180 E BURNETT STREET (Address) | SIGNAL HILL (City) | CA (State) | 90755 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 04/05/2022 (Date Signed) | 422904 (C-57 License Number)

Attachments

MWA_MW-OESTE-R Lith Log.pdf - Geologic Log

OSTE-R Well Diagram 01.pdf - Well Construction Diagram

OESTE-R Site Map.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 4/4/2022

WCR2022-003845

Owner's Well Number: OESTE-P | Date Work Began: 12/20/2021 | Date Work Ended: 01/05/2022

Local Permit Agency: San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section

Secondary Permit Agency: | Permit Number: WP0037564 | Permit Date: 11/30/2021

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: MOJAVE WATER AGENCY,

Mailing Address: 13846 Conference Center Dr

City: Apple Valley | State: CA | Zip: 92307

Planned Use and Activity

Activity: New Well

Planned Use: Monitoring

Well Location

Address: 535 Cayucos RD

City: Pinon Hills | Zip: 92371 | County: San Bernardino

Latitude: 34 Deg. 29 Min. 16.0692 Sec. N | Longitude: -117 Deg. 39 Min. 0.7596 Sec. W

Dec. Lat.: 34.487797 | Dec. Long.: -117.650211

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: Unknown | Location Determination Method: GPS

APN: 309908101

Township: 05 N

Range: 07 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Sonic | Drilling Fluid: None

Total Depth of Boring: 400 Feet

Total Depth of Completed Well: 290.6 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.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	400	See attached Lithologic Logs

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	270.6	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
1	270.6	290.6	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	2	Other Fill	See description.		Concrete Ready Mix
2	21	Cement	Portland Cement/Neat Cement		
21	269	Other Fill	See description.		Sand/Bentonite mix
269	291	Filter Pack	8 x 20		
291	400	Other Fill	See description.		Sand/Bentonite mix

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	100	10.5
100	320	8
320	375	6
375	400	4

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: A B C LIOVIN DRILLING INC (Person, Firm or Corporation)

1180 E BURNETT STREET (Address) | SIGNAL HILL (City) | CA (State) | 90755 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 04/05/2022 (Date Signed) | 422904 (C-57 License Number)

Attachments

OESTE-P Well Diagram 01.pdf - Well Construction Diagram

MWA_MW-OESTE-P Lith Log.pdf - Geologic Log

OESTE-P Site Map.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:

Phelan Piñon Hills CSD
Established 2008

A. 4176 Warbler Road
P.O. Box 294049
Phelan, CA 92329
P. (760) 868-1212
F. (760) 868-2323
W. www.pphcsd.org

Water Operations Manager's Report
September 2023

Introduction

The Phelan Piñon Hills Community Services District (District) maintains a large water distribution system that includes over three hundred & forty miles of water lines. The following are District statistics and information related to the operations of this distribution system and the quality of the water supplied to District customers.

Summary

The District's water distribution system is in compliance with the State Water Resources Control Board- Division of Drinking Water, The Environmental Protection Agency, the Safe Drinking Water Act, Cal OSHA, and all other governing agencies.

Current chlorine demand has remained low and steady due to routine maintenance and flushing. Chlorine demand is found by subtracting the chlorine residual from the total chlorine added to the water system. A low chlorine demand indicates water-free or nearly free of pathogenic microorganisms.

Water Quality Samples

The following is a summary of all water quality samples collected this month and any pertinent information related to said samples.

TEST TYPE	NO. OF COLLECTIONS THIS MONTH	TESTING SCHEDULE	NOTES
Raw water and Bac-t samples	53 samples	Monthly	All in compliance, Sampled Weekly
General physical samples	6 samples	Monthly	All in compliance, Sampled Weekly
TTHM/HAA5	4 samples sets	Quarterly	All in compliance.
Title 22	0 sample sets	TBD	All in Compliance.
Inorganics	0 samples	Yearly	All in compliance.
Radiological (Gross Alpha)	0 samples	Every 3 Years	All in compliance.
Trichloropropane 1,2,3-TCP	0 samples	Quarterly	All in compliance.
Regulated VOC	2 samples	As needed	All in compliance.
Nitrate as N	8 samples	As needed	All in Compliance.
Chromium 6	14 samples	Quarterly	All in Compliance.
Secondary GP'S	1 samples	As needed	All in Compliance.
Uranium	0 samples	As needed	All in Compliance

Production and Service Order Report

The following is a summary of the District's water production and service orders for the current month.

Total Monthly Production	234.83 A. F. 12 % less than 2022
2022 Monthly Production	267.39 A. F.
USA's Marked	502
Service Orders Completed	543 service orders completed
Main/Service Line Leaks	55 service line leaks repaired. 6 Main line leak/ breaks repaired
Hydrant Repairs/Replacements	2 hydrant repaired/0 replaced
Residential Meters Sold	6
Commercial Meters Sold	0
YTD Total Meters Sold (Calendar)	37 (86 in 2022) (95 in 2021)
Construction Meters Out	2
Service Lines Replaced	0

Job Code Summary

Job Code	Total Completed
C-Lock - Lock	89
C-Read & Unlock-Open - Read & Unlock - Opening	5
C-Read & Unlock-OC-DM - Read & Unlock - Opening-OC-DM	46
D-Closing Read & Lck - Closing Read & Lock DO NOT USE	3
D-Closing Read-OC-DM - Closing Read & Lock-OC-DM DO NOT USE	3
M- Investigate Lock - Verify Meter Still Locked	11
M- Verify Acct Class - Verify Account Class	0
M- Water Audit - Audit Water Usage	6
M-Backflow - Backflow Information	0
M-Cost Estimate Req - Cost Estimate Request	1
M-Data - Data Log	3
M-Bees- Bees	0
M-Investigate Leak - Investigate Leak	0
M-Investigate No Wtr - Investigate No Water	2
M-Lock No N/O Info - Meter Locked No New Owner Info	0
M-Low/No Consumption - Investigate Low/No Consumption	6
M-Meter Leaking - Meter Leaking	0
M-Meter UTL - Buried - Meter UTL - Buried	2
M-Pressure Ck Hi-Low - Pressure Check Hi-Low	1
M-R/R Angle Stop - Repair/ Replace Angle Stop	2
M-R/R Gate Valve - Repair/ Replace Gate Valve	2
M-Read - Read (do not update Read)	1
M-Repair Svc Line - Repair Service Line	55
M-Repair/Install Box - Meter Box	4
M-Replace Serv Line - Replace Service Line	0

M-Stake Meter Loc - Stake Meter Location	2
M-Status - Status	13
M-Turn off-Cust Req - Turn off - Customer Request	6
M-UNLOCK – UNLOCK	24
M-Verify Leak Repair - Verify Leak Repaired	1
M-Water Loss Leak - Door Hanger Water Loss Leak	3
M-Water Quality Taste - Water Quality - Taste	0
S- Replace Register - Register Not Sending Signal	192
S- Meter Downsize - Meter Downsizing	0
Service Change - Service Status Change	13
S-Replace Mtr & Reg - Replace Entire Meter Max Life Usage	0
S-Replace Reg Hotrod - Replace Register Hotrod Died	0
S-Replace Register - Replace Register Mueller	0
S-Replace Mtr- Replace Entire Meter Bottom Seal Leaking	0
Grand Totals	543

Summary of Current Projects

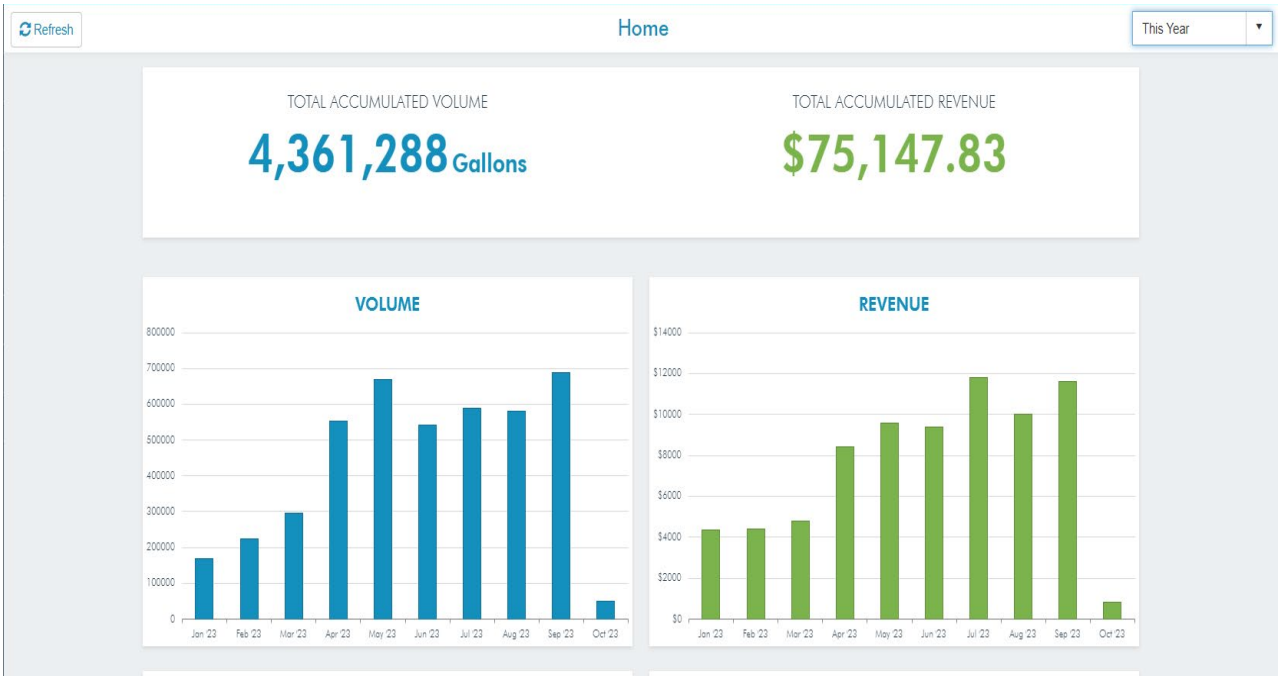
The following is a brief summary of all current and completed projects for the reported period

- Well Soundings at all wells are being done monthly
- Well 14 Production for September 0.30 AF, YTD 7.19 AF @ $1055 per AF replacement C/Y 2023
- Valves and Hydrants Maintenance: 2 hydrants flushed and painted YTD Total-70
- Service line replacement program. 24 Replaced Calendar Year to Date, 11 Replaced Fiscal Year to Date
- Air-Vac maintenance & flushing program-0 Flushed & Maintenance YTD-0 of 336 Total Project 0% Complete
- Cla-Val automatic controls valves being systematically rebuilt as a water conservation measure- 24 Complete YTD Water savings from this project is 17 GPM and counting in conjunction with operational efficiency @ 7MG
- Water Meter Replacement Project- 5835 of 7204 Replaced – 81 % Complete
- Tank 1C-2 Interior coating sand, blast, re-coat- 100% Complete
- Outfitting & Equipping of Mountain well (Well 17)- 98% Complete
- Well 15 Outfitting, and Equipping - 75% Complete

Projects Completed

- Booster 3A-B Suction can hole repair- 100% Complete
- Well Meter and inter-tie Meter annual accuracy program FY 22/23- 100 % Complete
- Electrical Efficiency test performed @ every booster and well within the District- 100% Complete with summaries of notable replacements attached
- Oil Changes and greasing at all district wells 100% Complete Boosters 100 % Complete
- 0 Valves Turned this month as part of the district Valve Exercising Program, 41 Year to Date Turned of 4291
- 168 Dead ends flushed of 317 = every year no matter what < No goal, this is mandatory
- 1936 hydrants = 50 flushed this Year to Date 162 Painted Goal is 968 annually, this is done Bi-Annual
- Tank washouts of 10&11, 3B,2A-1,4B,3A,2A,4A,5A,1A-2,8A Complete

- The Fill Station Stats For Year to Date 2023



- Well 15 Progression


Kubota

Well 15 & Pipeline Progress

October 2023 – Well conduits and well photos

MWA Monitoring Wells

State of California

Well Completion Report

Form DWR 188 Submitted 4/4/2022

WCR2022-003846

Owner's Well Number: ORMW1 | Date Work Began: 01/31/2022 | Date Work Ended: 02/14/2022

Local Permit Agency: San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section

Secondary Permit Agency: WP0037565 | Permit Number: 2021120819 | Permit Date: 11/30/2021

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: MOJAVE WATER AGENCY,

Mailing Address: 13846 Conference Center Dr

City: Apple Valley | State: CA | Zip: 92307

Planned Use and Activity

Activity: New Well

Planned Use: Monitoring

Well Location

Address: 535 Cayucos RD

City: Pinon Hills | Zip: 92371 | County: San Bernardino

Latitude: 34 Deg. 29 Min. 16.1699 Sec. N | Longitude: -117 Deg. 39 Min. 0.2016 Sec. W

Dec. Lat.: 34.487825 | Dec. Long.: -117.650056

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: Unknown | Location Determination Method: GPS

APN: 309908101

Township: 05 N

Range: 07 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Downhole Rotary Hammer | Drilling Fluid: None

Total Depth of Boring: 660 Feet

Total Depth of Completed Well: 640 Feet

Water Level and Yield of Completed Well

Depth to first water: 580 (Feet below surface)

Depth to Static Water Level: 540 (Feet) | Date Measured: 03/01/2022

Estimated Yield*: (GPM) | Test Type:

Test Length: (Hours) | Total Drawdown: (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	660	See attached Lithologic Logs

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	560	Blank	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5			
1	560	640	Screen	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5	Milled Slots	0.02	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	3	Other Fill	See description.		Concrete Ready Mix
3	22	Cement	Portland Cement/Neat Cement		
22	549	Other Fill	See description.		Sand/Bentonite mix
549	652	Filter Pack	8 x 20		
652	660	Other Fill	See description.		Slough

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	240	11.75
240	660	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: A B C LIOVIN DRILLING INC (Person, Firm or Corporation)

1180 E BURNETT STREET (Address) | SIGNAL HILL (City) | CA (State) | 90755 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 04/05/2022 (Date Signed) | 422904 (C-57 License Number)

Attachments

MWA_MW-OESTE-R Lith Log.pdf - Geologic Log

OESTE-R Site Map_Redacted.pdf - Location Map - Redacted

OSTE-R Well Diagram 01_Redacted.pdf - Well Construction Diagram – Redacted

OSTE-R Well Diagram 01.pdf - Well Construction Diagram

OESTE-R Site Map.pdf - Location Map

MWA_MW-OESTE-R Lith Log_Redacted.pdf - Geophysical Log – Redacted

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number
	05N07W30Q001S		

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS: 05N07W30Q001S

APN: 309908101

MONITOR WELL OESTE-R

DRAFT

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

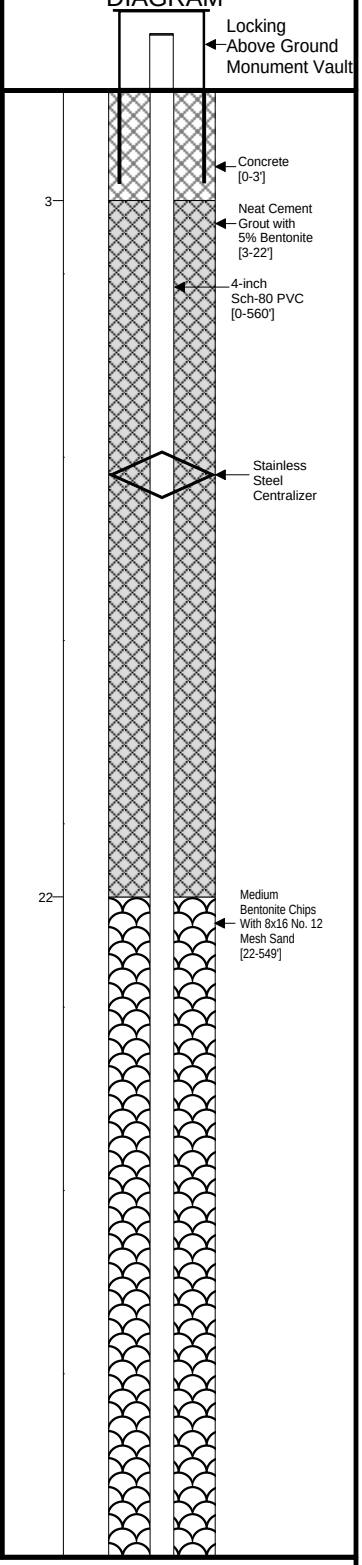
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
0					Utility clearance backfill
15			SW-SM		SAND WITH SILT AND GRAVEL (20/70/10) Brown (10YR 4/3), dry to slightly moist, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; some coarse sand may be crushed gravel; gravel size indeterminate.
20			SM		SILTY SAND (5/75/20) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded; trace gravel; micaceous.
25			SP-SM		SAND WITH SILT (0/90/10) Dark grayish brown (10YR 4/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.
30			SM		SILTY SAND (0/80/20) Brown (10YR 4/3), dry, fine- to very fine-grained, well sorted / poorly graded, angular; micaceous.
35			SM		SILTY SAND (0/60/40) Dark yellowish brown (10YR 3/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; grains predominantly granitic.
40			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 4/3), dry,

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
40					fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
45			SP		SAND (5/90/5) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace gravel.	
50			SP-SM		SAND WITH SILT (5/85/10) Dark grayish brown (10YR 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
55			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
60			SP-SM		SAND WITH SILT AND GRAVEL (20/70/10) Brown (10YR 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; some coarse sand may be crushed gravel; few possible schist clasts; few carbonate-cemented nodules,	
65			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
70			SP-SM		SAND WITH SILT (0/90/10) Same as above.	
75			SP		SAND (0/95/5) Brown (10YR 4/3), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt.	
80			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR	

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PROJECT: MWA-Oeste
PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
No Reaction | Moderate
Weak | Strong
Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
80					5/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular.	
85			SP		SAND (0/95/5) Brown (10YR 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt.	
90			SM		SILTY SAND (0/85/15) Brown (10YR 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
95			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt.	
100			SW-SM		SAND WITH SILT AND GRAVEL (30/60/10) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; some coarse sand may be crushed gravel.	
105			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), dry, nonplastic; sand fine- to medium-grained, predominantly fine.	
110			ML		SANDY SILT (0/30/70) Sand fine-grained, trace medium to coarse, otherwise same as above.	
115			SM		SILTY SAND (0/70/30) Dark grayish brown (2.5Y 4/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
120			SP		SAND (0/95/5) Grayish brown (2.5Y 5/2), dry,	

MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 | DATE COMPLETED: *2/14/2022*

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LOGGED BY: *G. Cranham PG# 5897* | BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* | LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* | TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
120					fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace silt.	
125			SW		SAND (0/95/5) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt.	
130			SP-SM		SAND WITH SILT (10/80/10) Brown (10YR 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
135			SM		SILTY SAND (5/75/20) Yellowish brown (10YR 5/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
140			SM		SILTY SAND (10/60/30) Dark grayish brown (2.5Y 4/2), otherwise same as above.	
145			SM		SILTY SAND (5/65/30) Otherwise same as above.	
150			SP-SM		SAND WITH SILT (0/90/10) Dark grayish brown (2.5Y 4/2), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; micaceous.	
155			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
160			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y	

MONITOR WELL OESTE-R

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SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
160					5/3), otherwise same as above.	
165			SP-SM		SAND WITH SILT (0/90/10) Fine- to very fine-grained, trace medium, well sorted / poorly graded, otherwise same as above.	
170			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
175			SP-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
180			SM		SILTY SAND (5/75/20) Brown (10YR 4/3), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
185			SP		SAND (0/95/5) Olive brown (2.5Y 4/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; possible trace gravel, some coarse sand may be crushed gravel.	
190			SM		SILTY SAND WITH GRAVEL (30/40/30) Brown (10YR 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; some coarse sand may be crushed gravel.	
195			SP-SM		SAND WITH SILT (5/85/10) Yellowish brown (10YR 5/4), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
200			SP		SAND (0/95/5) Yellowish brown (10YR 5/4), dry,	

MONITOR WELL OESTE-R

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PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
- No Reaction
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- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
200					fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt.	
205			SP		SAND (0/95/5) Fine- to coarse-grained, predominantly fine, moderately sorted/graded, otherwise same as above.	
210			SP		SAND (0/95/5) Olive brown (2.5Y 4/4), dry, fine- to medium-grained, predominantly fine, moderately sorted/graded, angular; trace silt.	
215			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
220			SW		SAND (0/95/5) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt.	
225			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; approximately 10%-20% gravel noted at top of core barrel (223-223.5 feet), consistent with cuttings from grab sample.	
230			SP		SAND (5/90/5) Light yellowish brown (10YR 6/4), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel, some coarse sand may be crushed gravel.	
235			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel, some coarse sand may be crushed gravel.	
240			SW-SM		SAND WITH SILT (10/80/10) Otherwise same as	

MONITOR WELL OESTE-R

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Legend:

- No Reaction
- Moderate
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- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
240					above; gravel appears to be broken fragments of larger clasts.	
245			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
250			SP		SAND (T/95/5) Dark yellowish brown (10YR 4/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
255			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry, fine-grained, well sorted / poorly graded, subangular.	
260			SW		SAND (10/90/T) Dark grayish brown (2.5Y 4/2), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/4), dry, medium dense, fine- to very fine-grained, well sorted / poorly graded, subangular.	
265			SM		SILTY SAND (0/80/20) Brown (10YR 5/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
270			ML		SANDY SILT (0/30/70) Light olive brown (2.5Y 5/3), dry, nonplastic; sand fine- to very fine-grained, trace medium to coarse.	
275			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/3), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular.	
280			SM		SILTY SAND (0/60/40) Dark grayish brown (2.5Y	

MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 | DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* | DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* | BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* | LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* | TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
280					4/2), dry, fine- to very fine-grained, with coarse, gap graded, angular to subangular; possibly interbedded.	
285			ML		SANDY SILT (0/25/75) Light olive brown (2.5Y 5/3), dry, nonplastic; sand fine- to very fine-grained, trace medium.	
290			ML		SANDY SILT (0/30/70) Grayish brown (2.5Y 5/2), otherwise same as above.	
295			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
300			ML		SANDY SILT (0/40/60) Dark grayish brown (2.5Y 4/2), dry, low plasticity; sand very fine- to medium-grained.	
305			ML		SANDY SILT (0/40/60) Dark grayish brown (2.5Y 4/2), dry, nonplastic; sand very fine- to coarse-grained, predominantly fine.	
310			SM		SILTY SAND (0/80/20) Dark grayish brown (2.5Y 4/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
315			SP-SM		SAND WITH SILT (0/90/10) Grayish brown (2.5Y 5/2), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular.	
320			SP-SM		SAND WITH SILT (0/90/10) Same as above.	

MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
320						
325			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine-grained, trace medium, otherwise same as above.	
330			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
335			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, well sorted / poorly graded, angular; micaceous.	
340			SP-SM		SAND WITH SILT (5/85/10) Yellowish brown (10YR 5/4), dry, medium dense, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace gravel to 1” length; thin silty interbed at 339.3 feet.	
345			ML		SILT WITH SAND (0/20/80) Dark yellowish brown (10YR 4/4), dry, low to medium plasticity; sand fine-grained; trace clay.	
350			ML		SANDY SILT (0/40/60) Low plasticity; sand fine- to medium-grained, trace coarse, otherwise same as above.	
355			SM		SILTY SAND (5/75/20) Yellowish brown (10YR 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
360			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), dry,	

MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
360					fine-grained, trace medium, well sorted / poorly graded, angular to subangular.	
365			SM		SILTY SAND (0/75/25) Grayish brown (10YR 5/2), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
370			SP-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3), trace gravel, otherwise same as above.	
375			SM		SILTY SAND (0/85/15) Light olive brown (2.5Y 5/4), dry, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular.	
380			SW		SAND (10/85/5) Light olive brown (2.5Y 5/4), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace gravel, some coarse sand may be crushed gravel.	
385			SM		SILTY SAND (0/60/40) Brown (7.5YR 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
390			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/4), dry, fine- to very fine-grained, trace medium, well sorted / poorly graded, angular.	
395			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular; possible trace gravel, some coarse sand may be crushed gravel.	
400			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y	

MONITOR WELL OESTE-R

DATES DRILLED :1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
400					5/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; micaceous.	
405			SM		SILTY SAND (10/70/20) Grayish brown (2.5Y 5/2), dry, fine-grained, trace medium, with coarse, gap graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel; possibly interbedded.	
410			ML		SANDY SILT (0/30/70) Olive brown (2.5Y 4/3), dry, nonplastic; sand fine- to medium-grained, predominantly fine.	
415			SM		SILTY SAND (5/75/20) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
420			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; possible trace gravel, some coarse sand may be crushed gravel.	
425			SM		SILTY SAND (0/85/15) Light olive brown (2.5Y 5/4), dry, fine-grained, trace medium, well sorted / poorly graded , angular to subangular; with small carbonate nodules.	
430			SM		SILTY SAND (0/70/30) Dark grayish brown (2.5Y 4/2), dry, fine- to very fine-grained, well sorted / poorly graded, angular to subangular.	
435			SP-SM		SAND WITH SILT (0/90/10) Very dark grayish brown (2.5Y 3/2), dry, fine-grained, trace medium, well sorted / poorly graded, angular to subangular.	
440			SM		SILTY SAND (0/70/30) Very dark grayish brown	

MONITOR WELL OESTE-R

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DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste
PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
No Reaction | Moderate | Weak | Strong | Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
440					(2.5Y 3/2), dry, fine- to very fine-grained, well sorted / poorly graded, subangular.	
445			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/3), dry, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular.	
450			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), dry, nonplastic; sand very fine- to coarse-grained, predominantly fine; coarser grains are carbonate-cemented fragments.	
455			ML		SANDY SILT (0/30/70) Olive brown (2.5Y 4/4), otherwise same as above.	
460			ML		SANDY SILT (0/30/70) Same as above.	
465			SW-SM		SAND WITH SILT (5/85/10) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel.	
470			SM		SILTY SAND (5/75/20) Light olive brown (2.5Y 5/3), dry, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, gravel fraction composed of carbonate-cemented nodules, some coarse sand may be crushed gr	
475			SM		SILTY SAND (0/80/20) Olive (5Y 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
480			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), dry,	

MONITOR WELL OESTE-R

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REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste
PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:
No Reaction | Moderate | Weak | Strong | Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
480					fine-grained, trace medium, well sorted / poorly graded, angular; trace silt.	
485			SP-SM		SAND WITH SILT (0/90/10) Otherwise same as above.	
490			SM		SILTY SAND (0/80/20) Olive brown (2.5Y 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular; with probable thin silt interbed(s) based on small fragments of fines.	
495			SM		SILTY SAND (0/75/25) Yellowish brown (10YR 5/4), dry, fine- to very fine-grained, well sorted / poorly graded, angular.	
500			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/3), dry, low plasticity; sand fine- to medium-grained, predominantly fine.	
			ML		SANDY SILT (0/30/70) Sand fine- to coarse-grained, predominantly fine, otherwise same as above; stiff; with few small carbonate nodules.	
505			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/3), dry, low plasticity; sand fine- to medium-grained, predominantly fine.	
510			SM		SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), dry, fine-grained, trace medium, well sorted / poorly graded, angular.	
515			ML		SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/4), dry to slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules.	
520			ML		SILT WITH SAND (0/15/85) Low plasticity, otherwise	

MONITOR WELL OESTE-R

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REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
520					same as above.
525			ML		SILT WITH SAND (0/15/85) Olive brown (2.5Y 4/3), otherwise same as above.
530			ML		SILT (0/10/90) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; trace fine to coarse sand; most coarser grains are carbonate-cemented fragments or nodules.
535			ML		SILT WITH SAND (0/20/80) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules; trace clay.
540			ML		SILT WITH SAND (T/20/80) Light olive brown (2.5Y 5/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules; trace gravel, gravel fraction are carbonate-cemented fragments.
545			ML		SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/4), slightly moist, low to medium plasticity; sand fine- to coarse-grained, most coarser grains are carbonate-cemented fragments or nodules.
550			ML		SANDY SILT (0/30/70) Dark yellowish brown (10YR 4/4), slightly moist, low plasticity; sand fine-grained, trace medium.
555			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), moist, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular.
560			SP		SAND (0/95/5) Trace silt, otherwise same as above.

WELL CONSTRUCTION DIAGRAM

549

#3 Sand [549-652']

MONITOR WELL OESTE-R

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LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 11.75"-10.0" at 240'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

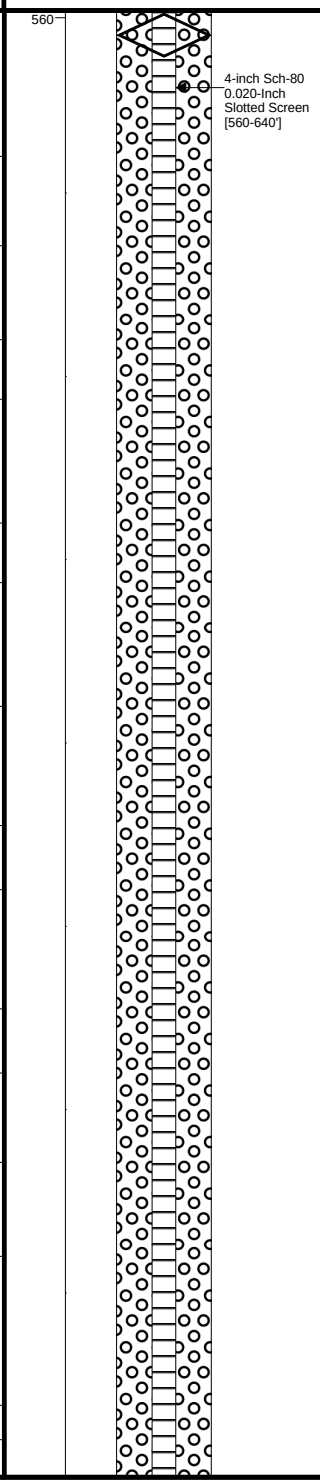
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
560					
565			SW		SAND (5/95/T) Fine- to coarse-grained, poorly sorted / well graded, trace fine gravel, otherwise same as above.
570			SW		SAND (0/100/T) Lacks gravel, otherwise same as above
575			SW		SAND (5/95/T) Trace fine gravel, otherwise same as above.
580			SM		SILTY SAND (0/80/20) Dark yellowish brown (10YR 4/4), wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
585			SW-SM		SAND WITH SILT (10/80/10) Yellowish brown (10YR 5/6), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
590			GP		GRAVEL WITH SAND (75/20/5) Yellowish brown (10YR 5/4), wet, fine, larger clasts may be broken by drilling; sand fine- to coarse-grained; trace silt.
595			SW		SAND WITH GRAVEL (20/75/5) Yellowish brown (10YR 5/4), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; gravel fine, but larger clasts may be broken by drilling; some coarse sand may be crushed gravel.
600			GP-GM		GRAVEL WITH SILT AND SAND (60/30/10)

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

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SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

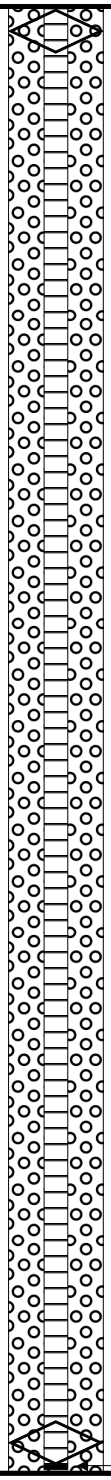
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
600					Yellowish brown (10YR 5/4), wet, fine, larger clasts may be broken by drilling; sand fine- to coarse-grained; 4-inch cobble recovered.
605			SM		SILTY SAND (5/70/25) Brown (10YR 5/3), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
610			SW		SAND WITH GRAVEL (40/55/5) Pale brown (10YR 6/3), wet, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; gravel fine, but larger clasts may be broken by drilling; some coarse sand may be crushed gravel; locally carb
615			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/4 to 5/6), wet, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; fine sand fraction may be higher based on poor cuttings recovery.
620			SM		SILTY SAND (0/60/40) Same as above.
625			SM?		(No recovery; probably dominated by fine sand, same as above).
630			SM?		(Minimal recovery; slight increase in medium to coarse sand fraction, otherwise probably same as above).
635			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4), wet, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular.
640			SM		SILTY SAND (0/85/15) Yellowish brown (10YR 5/4),

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-R

DATES DRILLED: 1/31/2022-2/08/2022 DATE COMPLETED: *2/14/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Air Rotary Casing Hammer*

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SAMPLING METHOD: *Grab; Mod Cal* TOTAL DEPTH OF BORING: *660 feet bls*

PROJECT: MWA-Oeste

PROJECT NUMBER: 1311.01

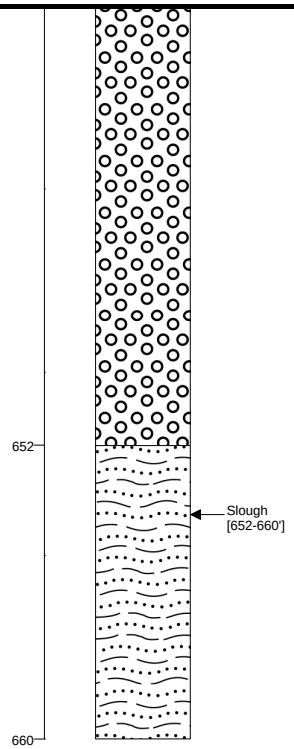
LOCATION: *Oeste Area-Cayucos St.*

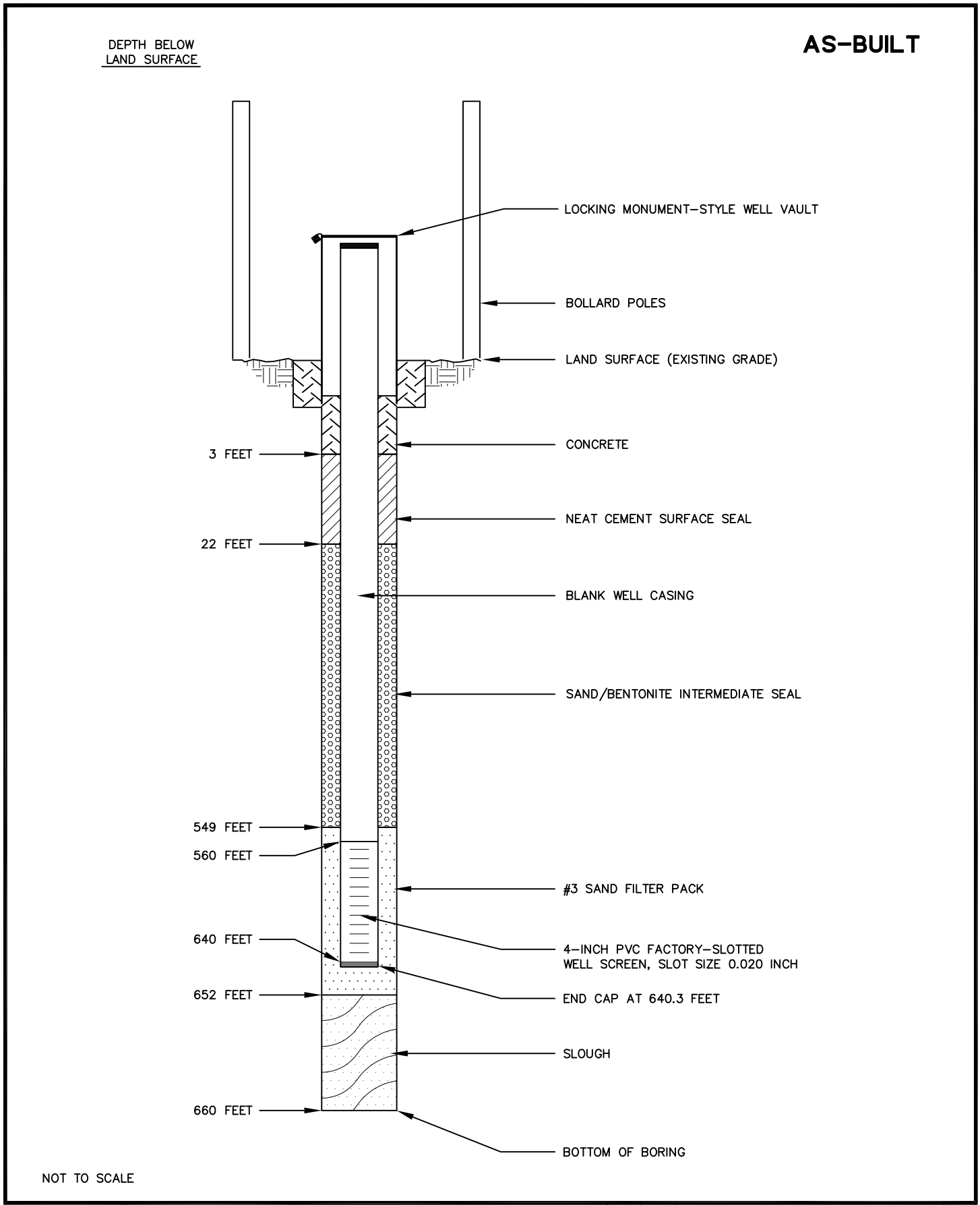
Legend:

- No Reaction
- Moderate
- Weak
- Strong
- Mod Cal Core Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
640					wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.
645			SM?		(No recovery; probably dominated by fine sand, same as above).
650			SM?		(Minimal recovery; slight increase in medium to coarse sand fraction, otherwise probably same as above).
655			SM		SILTY SAND (5/80/15) Brown (10YR 5/3), wet, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel, some coarse sand may be crushed gravel.
660			SW-SM		SAND WITH SILT (10/80/10) Brown (10YR 4/3), wet, fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel, some coarse sand may be crushed gravel; most coarser grains and clasts are carbonate-cemented fra
			ML		SILT (0/10/90) Yellowish brown (10YR 5/4), wet, very stiff, low to medium plasticity; trace fine to coarse sand, most coarser grains are carbonate-cemented fines; trace clay.
665					
670					

WELL CONSTRUCTION DIAGRAM





Mar 15, 2022 - 10:13am ESS - T:\2022\1200-1299\1296 Mojave Water Agency\Well Diagram\710-0962.dwg

HARGIS+ASSOCIATES, INC.
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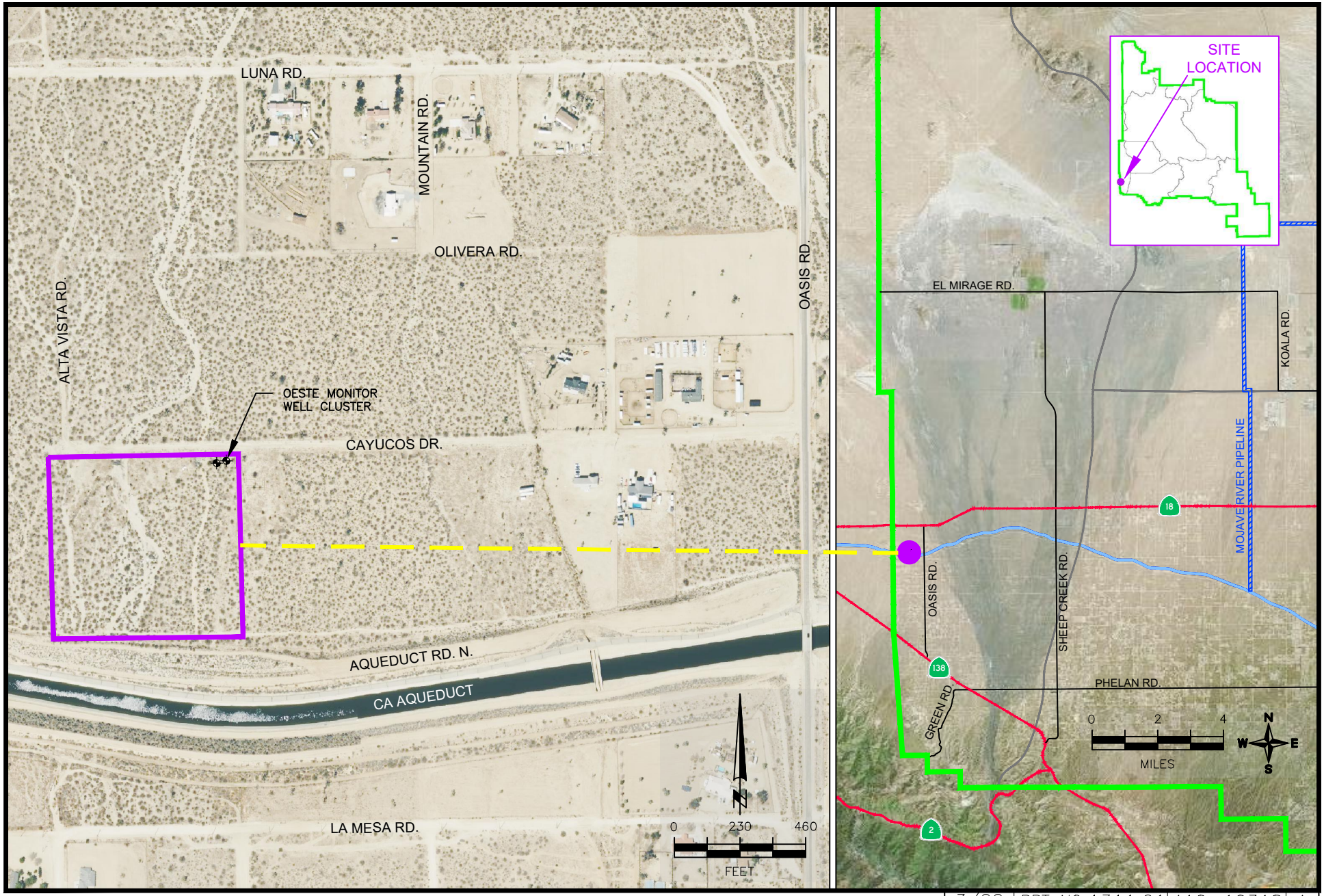
3/22	RPT NO.1311.01	710-0962	A

FIGURE 4.
SCHEMATIC CONSTRUCTION DIAGRAM,
MONITOR WELL OESTE-R



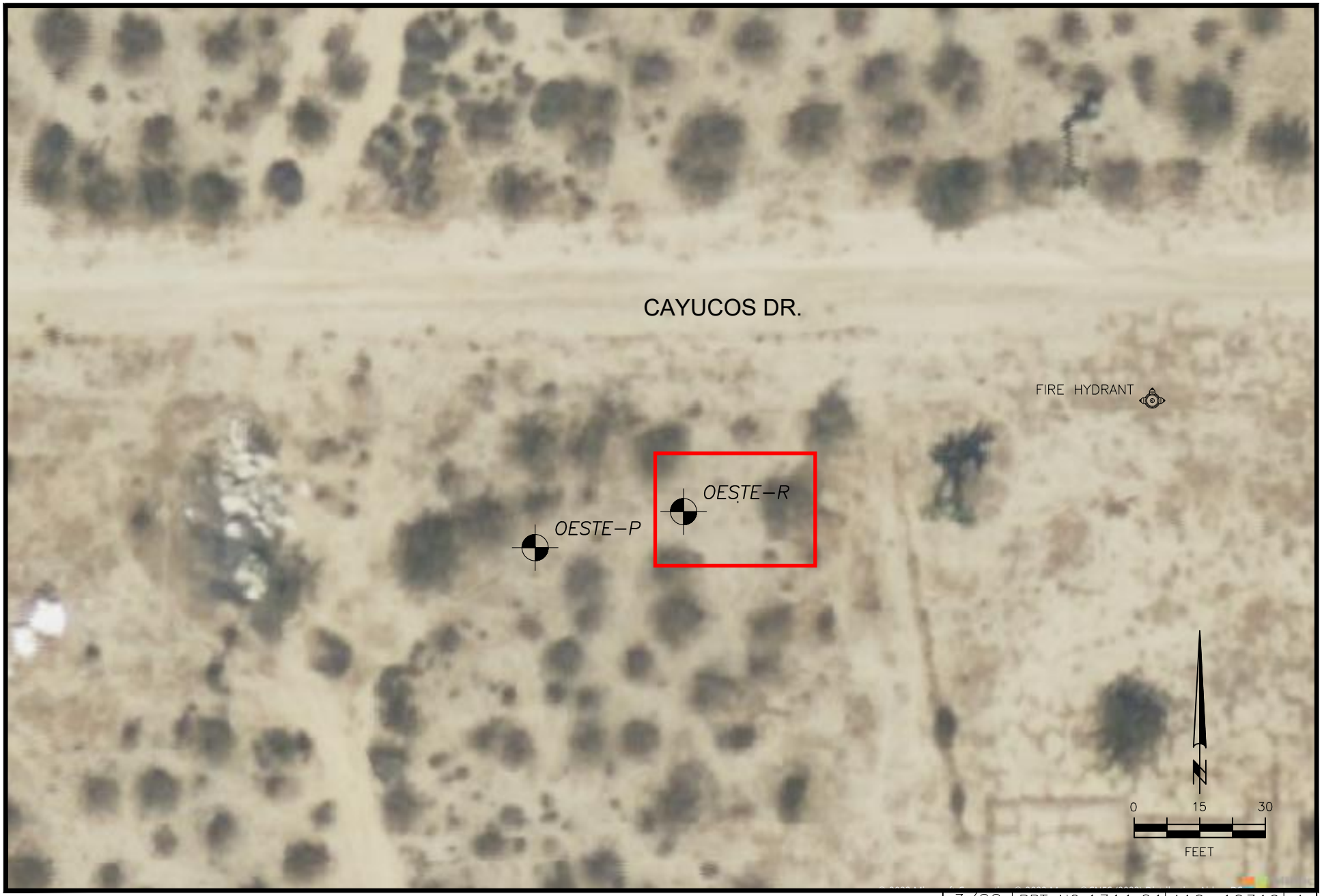
Mar 15, 2022 – 1:55pm ESS – T:\2022\1200-1299\1296 Mojave Water Agency\H+A Basemaps\410-10318.dwg

3/22	RPT NO.1311.01	410-10318	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 1.
WELL SITE LOCATION MAP

DRAFT



Mar 15, 2022 – 1:54pm ESS – T:\2022\1200-1299\1296 Mojave Water Agency\H+A Basemaps\410-10319.dwg

3/22	RPT NO.1311.01	410–10319	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 2.
MONITOR WELL LOCATION DETAIL

DRAFT

Mojave Water Agency

SWN: 05N07W30Q01
Common Name: OESTE RECHARGE WELL ORW 1A
Date: 3/23/2022
Completed By: M. JOHNSON
Lat/Long (DMS) & Datum: 34° 29' 16.139" N, 117° 39' 0.311" W
☐ Log Completed

MWA WELL CANVASSING SHEET

Site Address: APN: 309908101

Cross Street: OASIS RD

General Location: LOCATED TOWARD NORTHEAST SIDE OF PROPERTY

Name of GPS Point: OESTE RECHARGE WELL 1A

Satellites: (R2) 15 / 24 (OLD) Accuracy: (R2) 0.6IN / 1.0IN (OLD) Points: 126 (OLD)

GPS Measurement Point Description: LSD IS X ON CONCRETE PAD, NORTH SIDE OF CASING

Well Type: ☐ Domestic ☐ Agricultural ☐ Production ☒ Monitoring

Status: ☐ Active ☒ Inactive Pump in Well: ☐ Yes ☒ No

Site Status: STATIC

Site Status: A=atmos.press.B=tide stage D=dry E=recently flowing F=flowing G=nearby recently flowing I=injector site M=plugged N=measdiscontinued O=obstructed P=pumpling R=recently pumped S=nearby pumping T=nearby recently pumping V=foreign substance W=well destroyed X=affected by surface water Z=other

Casing Diameter (inches): 4" **Casing Material:** PVC

Height of Measuring Point (FT ALSD): 2.89'
**ALSD - above land surface datum*

Photograph of Measuring Point: ☑

Measurement Method: MWA. ET. 800.1
MWA & USGS ID#

Measuring Point Description: T.O.C. NORTH SIDE

LSD Description: X ON CONCRETE PAD, NORTH SIDE OF CASING

Depth to Water (feet): 541.35' BMP 538.46' BLSD **Time:** 09:04

Depth to Water (feet): 541.35' BMP 538.46' BLSD Datum: (PST)/PDT

DTW Calculation: 541.35' − 2.89' = 538.46'

Total Depth of Well (feet): 633.2' BMP 630.31' BLSD
**BMP - below measuring point, BLSD - below land surface datum*

Total Depth Calculation: 633.2' − 2.89' = 630.31'

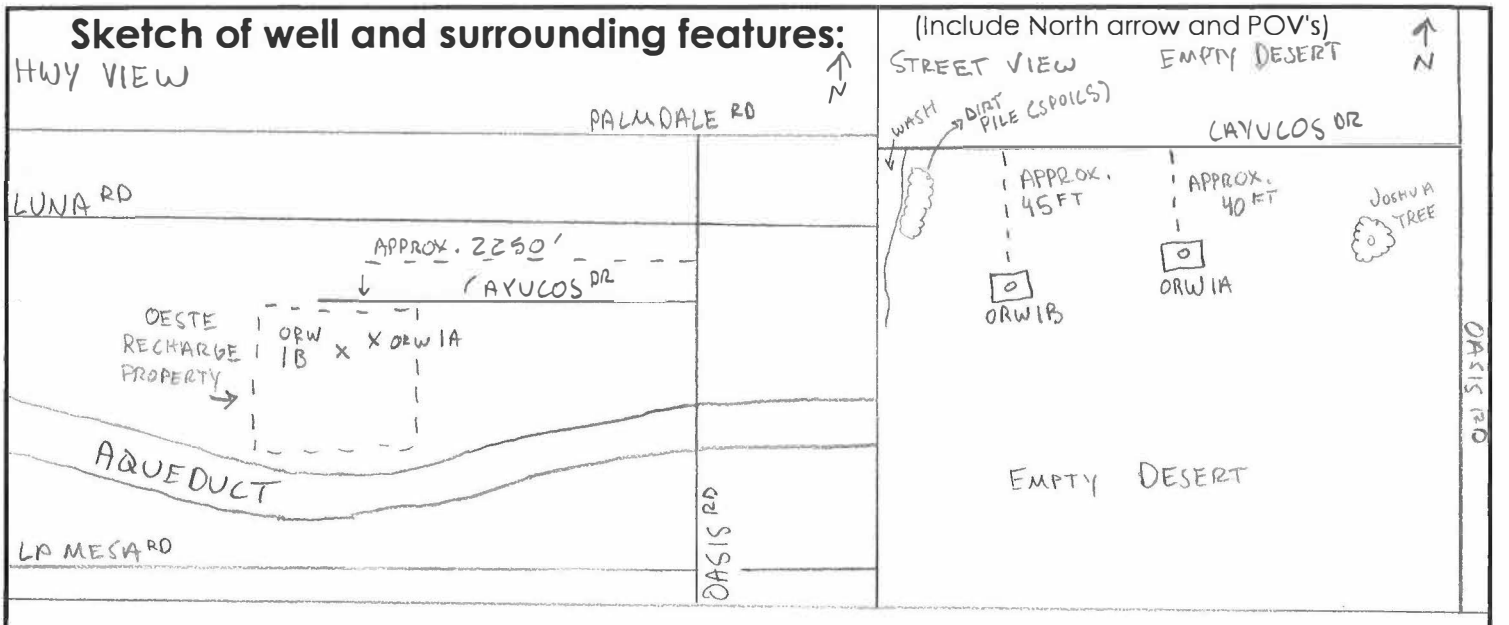
# of Photographs Taken: MANY
**Measuring Point, North, East, South, West*

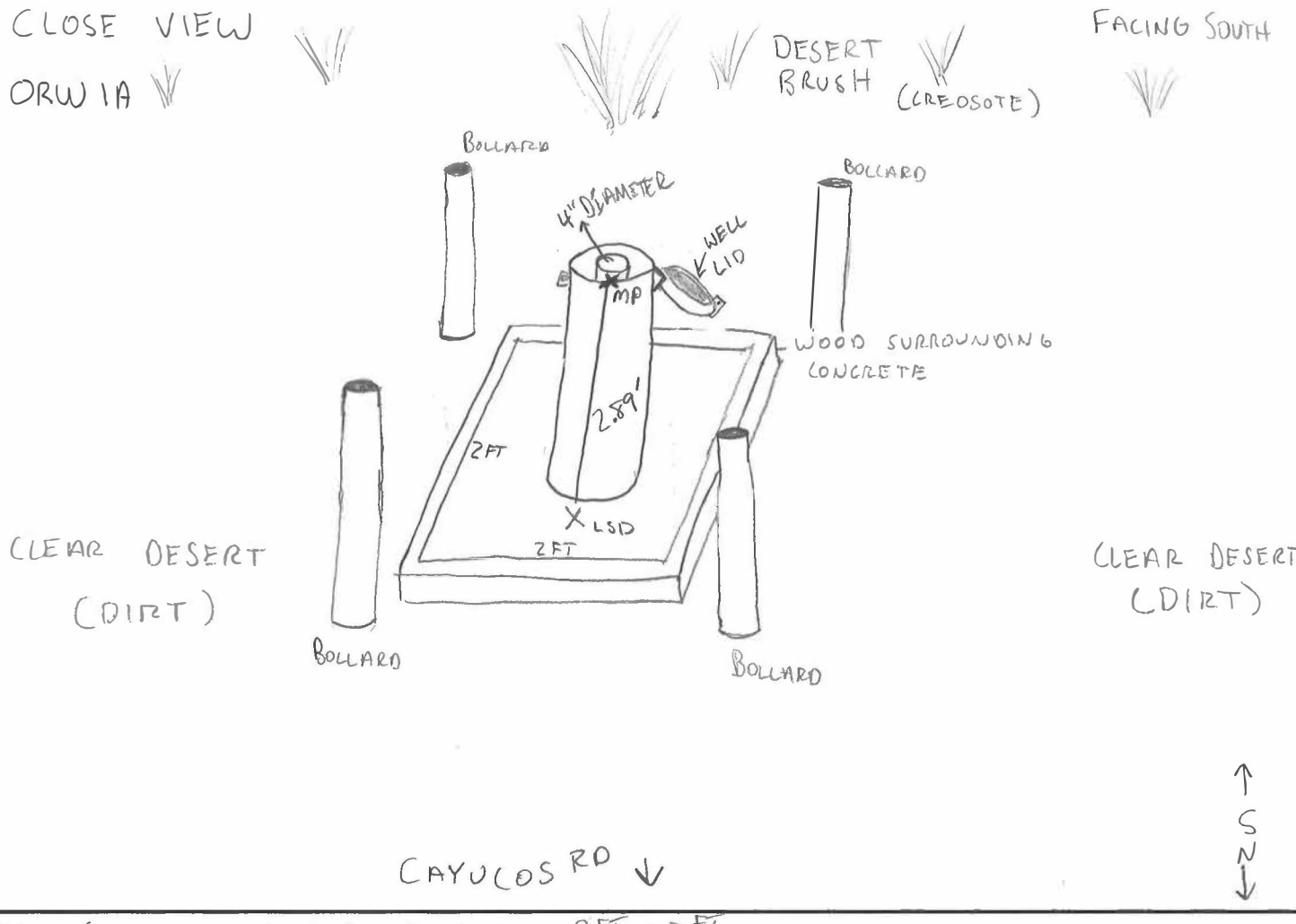
Video Recorded: YES **Transducer Installed:** NO

(Continued on other side)

Sketch of well and surrounding features:

(Include North arrow and POV's)





Notes: CONCRETE PAD DIMENSIONS 2FT x 2FT

USED HERON TO CAMERA WELL

DIDN'T INSTALL TRANSDUCER


SWN: 05N07W30Q01
ORMW 1
SWN:05N07W30Q02
ORMWP


SWN:05N07W30Q0 1
ORMW 1
DATE: 3/24/2022
POV: PIC OF MP AT TOP OF CASING.
LOOKING SOUTH


MP

SWN: 05N07W30Q0 1
ORMW 1
DATE: 3/23/2022
POV: LOOKING NORTH AT WELL

SWN: 05N07W30Q0 1
ORMW 1
DATE: 3/23/2022
POV: LOOKING SOUTH AT WELL

SWN: 05N07W30Q0 1
ORMW 1
DATE: 3/23/2022
POV: LOOKING EAST AT WELL

SWN: 05 N07W30Q0 1
ORMW 1
DATE: 3/23/2022
POV: LOOKING WEST AT
ORMWP (-Q02)

SWN: 05N07W30Q02
ORMWP

SWN 05N07W30Q01
ORMW1

385 N Arrowhead Ave, 2nd floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323
Email: EHS.CustomerService@dph.sbcounty.gov
www.SBCounty.gov
www.sbcounty.gov/dph/dehs
Phone: (800) 442-2283

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

MW-2

APPLICATION FOR WELL PERMIT

THIS SECTION TO BE COMPLETED BY APPLICANT • HEALTH PERMITS ARE NOT TRANSFERABLE

1 – PROPERTY INFORMATION

Property Owner: Mojave Water Agency			Phone Number: (760) 946-7061
Site Address: 535 Cayucos Rd		City: Pinon Hills	State: CA / Zip: 92372
Assessor's Parcel Number: 309908101		Email:	
Township:	N/S Tier: 5N	E/W Range: 7W	Section: 30
Well Head	Latitude (decimal): 34.487845	Longitude (decimal): -117.650374	
Property Owner's Mailing Address: 13846 Conference Center Dr.		City: Apple Valley	State: CA / Zip: 92307

2 – CONSULTANT INFORMATION

Name of Consultant: Hargis and Associates, Inc.		Email: SPRAZEN@HARGIS.COM	Phone Number: 858-410-7404
Address: 9171 Towne Centre Drive, Suite 375		City: San Diego	State: CA / Zip: 92122

3 – REGISTERED WELL DRILLER INFORMATION

Name of Driller: ABC Liovin Drilling, Inc.			Phone Number: 562-981-8575
Email:		jack@abcdrilling.com	C-57 License Number: 422904

Return well permit to: ■ Well Driller ☐ Consultant ☐ Property Owner — Return by: ☐ Mail ■ Email

4 – TYPE OF WORK

■ New ☐ Reconstruction ☐ Destruction

Date of Work	Start Date	Completion Date	Estimated groundwater depth
1/10/2022	1/10/2022	1/31/2022	550-600 ft

5 – WELL TYPE

☐ Agriculture	☐ Geothermal	☐ Industrial
☐ Cathodic	☐ Horizontal	■ Monitoring/Observation
☐ Community/PWS/City – **Specify Use Below**	☐ Residential – cannot be used as a community well	☐ Test
Use:		☐ Other

6 – ANNULAR SEAL

Seal Depth (ft.): 21

☐ Driven Conductor Diameter (in.) ■ Wall (gauge) (in.): SCH 80 ■ Drilling method: Air Rotary

■ Sealing Material: Cement Bentonite Grout ■ Thickness (in.): 3

Sealing material shall be placed in one continuous pour. Annular seal thickness must be at least 2 inches for public water supply wells.

ITEMS 7 THROUGH 10 TO BE ESTIMATED FOR NEW WELLS, EXACT FOR ALL OTHER WELLS

7 – DIMENSIONS

Proposed Depth of Well (ft.)	Existing Depth of Well (ft.)	Diameter of Bore (in.)
650		10

8 – CASING INSTALLED

■ Casing Material ☐ ATSM/AWWA/APPI

From (ft.)	To (ft.)	Diameter (in.)	Wall (Gauge)
560	0	4	SCH 80

Gravel Pack ■ Yes ☐ No		From (ft.): 650	To (ft.): 555
Specify Other Backfill Material: Bentonite Seal		From (ft.): 555	To (ft.): 21

9 – PERFORATIONS (list all if applicable)			
From (ft.) 560	To (ft.) 640	Well Screen Size 0.020	Pumping Rate (gpm) unkown

10 – SEALED ZONES (list all if applicable)	
From (ft.) 555	To (ft.) 0

11 – PLOT PLAN

a) In perspective to the well site, sketch and label the following items **on a separate paper**: well lot property lines, other wells (include abandoned wells), sewage disposal systems (sewers, septic tanks, leaching fields, seepage pits, cesspools), lakes and ponds, watercourses and animals or fowl kept.

b) Indicate the distance, in **feet**, of any of the above which are within 500 ft. of the well site. The plot plan needs to be drawn to scale (½ inch = 100 feet). Show the approximate drainage pattern of the property and show access roads to the well site within 500 feet.

c) ☒ None of the above is within 500 feet.

d) Solid or Liquid Disposal Site within Two Miles ☐ Yes ☑ No Location

12 – METHOD OF CONSTRUCTION OR DESTRUCTION

Provide the method of construction/destruction in the space below or as an attachment if more space is needed. The method shall be in accordance with the standards recommended in the California Department of Water Resources Bulletin No. 74-81 and 74-90. Title 22 standards shall also be followed for public water supply wells.

I will submit water well drillers report to Environmental Health Services within 30 days of completion, and will construct or destroy well/borings in accordance with the permit application and Water Well Standards Bulletin 74-81 & 74-90.

Monitoring wells will be constructed with 2" or 4" flush thread PVC, filter pack will be clean washed sand and placed with tremie to at least 2' above the slotted well screen, a 2-5' bentonite plug will be placed and hydrated with clean water. The annular seal material will consist of neat cement with 5% bentonite and pumped in an upward motion with tremie pipe from the top of the bentonite to within 2' of the surface, a protective well cover will finish the installation.

13 – AGREEMENT AND SIGNATURE

I have read this application and agree to comply with all laws regulating the type of work being performed.

Property Owner's Signature: X R. Hampson	Date: 11/29/2021
Print Property Owner's Name: Robert Hampson	
C-57 Contractor's Signature: X	Date: 12/13/2021
Print Contractor's Name: Ivan Liovin	

For Office Use Only DISPOSITION OF PERMIT For Office Use Only DISPOSITION OF PERMIT

☒ Sent to Water Agency

☐ Water Agency conditions or recommendations attached

☐ Denied

☒ Approved subject to the following:

Permit Number:	2021120819
Expiration Date:	6-14-2022
WP Number:	WP0037565

A. ☐ Notify the Division's Safe Drinking Water Program at (800) 442-2283 at least seventy two (72) hours in advance to make an inspection of the following operations: (Inspections are conducted Monday – Friday between 8:00 AM to 5:00 PM). Failure to cancel or reschedule appointments may result in an additional hourly fee.

- ☐ Prior to sealing of the annular space or filling of the conductor casing.
- ☐ After installation of the surface protective slab and pumping equipment.
- ☐ After installation of the surface features.
- ☐ During destruction of wells, prior to pouring the sealing material.

B. ☒ Submit to the Division, within thirty (30) days after completion of work, a copy of:

☒ Water Well Driller's Report ☐ Bacterial Analysis ☐ Inorganic Chemical Analysis ☐ General Physical

☐ Radiological Analysis ☐ Nitrate as Nitrogen ☐ Organic Chemical Analysis ☐ General Mineral

Comments

For Office Use Only For Office Use Only For Office Use Only For Office Use Only For Office Use Only

Fee: 320.00	FA Number:	Record ID:	PE Number: 4555
Late Fee: ☐ Y ☒ N	Designated Employee: jheri y	Received By: joshua s	Date: 11-30-21
Check One: ☒ New ☐ Transfer ☐ Reactivate		Changes (please specify): sr0105989	

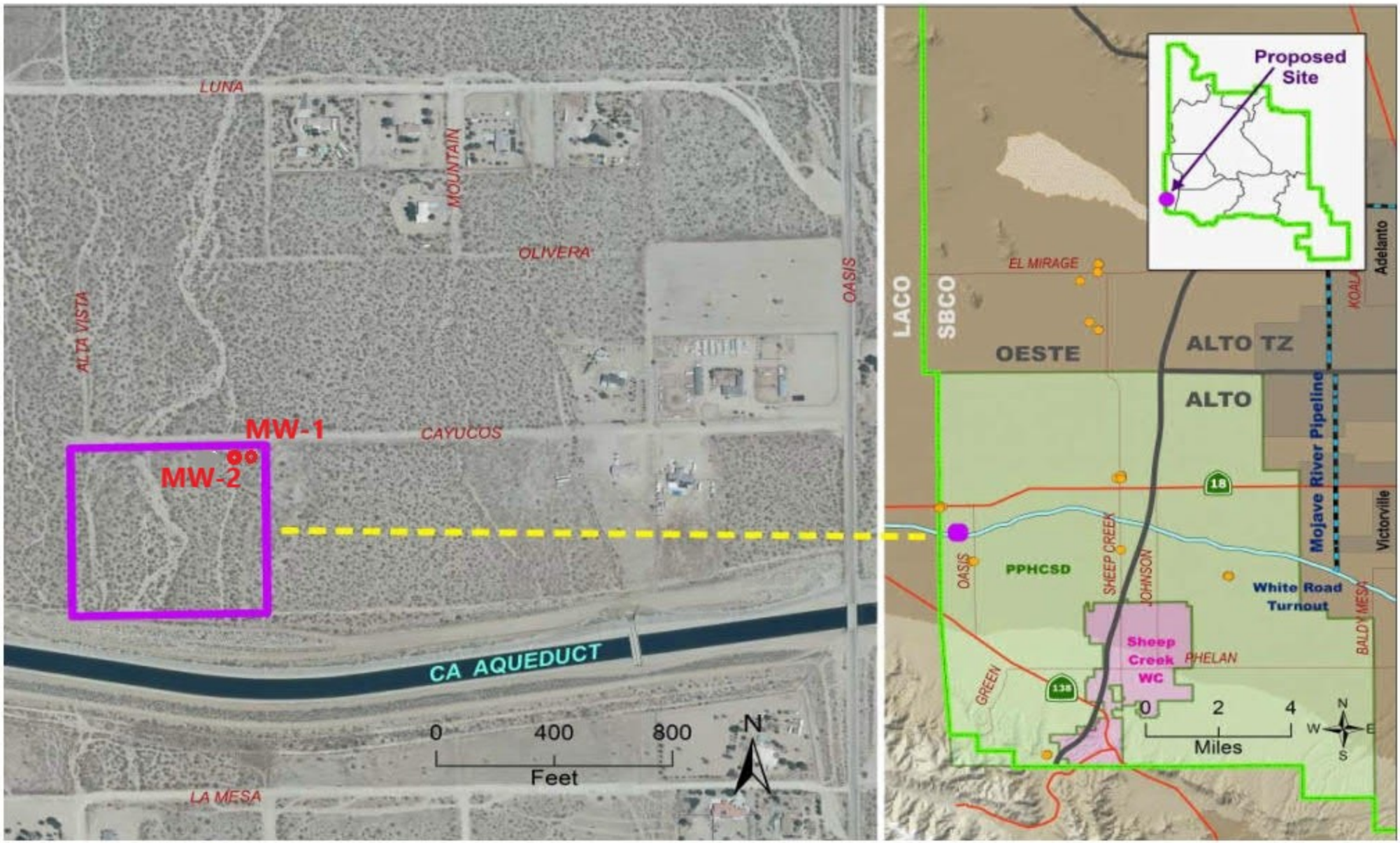


FIGURE 1. SITE LOCATION

State of California

Well Completion Report

Form DWR 188 Submitted 4/4/2022

WCR2022-003845

Owner's Well Number: ORMWP | Date Work Began: 12/20/2021 | Date Work Ended: 01/05/2022

Local Permit Agency: San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section

Secondary Permit Agency: WP0037564 | Permit Number: 2021120818 | Permit Date: 11/30/2021

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: MOJAVE WATER AGENCY,

Mailing Address: 13846 Conference Center Dr

City: Apple Valley | State: CA | Zip: 92307

Planned Use and Activity

Activity: New Well

Planned Use: Monitoring

Well Location

Address: 535 Cayucos RD

City: Pinon Hills | Zip: 92371 | County: San Bernardino

Latitude: 34 Deg. 29 Min. 16.0692 Sec. N | Longitude: -117 Deg. 39 Min. 0.7596 Sec. W

Dec. Lat.: 34.487797 | Dec. Long.: -117.650211

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: Unknown | Location Determination Method: GPS

APN: 309908101

Township: 05 N

Range: 07 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Sonic | Drilling Fluid: None

Total Depth of Boring: 400 Feet

Total Depth of Completed Well: 290.6 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.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	400	See attached Lithologic Logs

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	270.6	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
1	270.6	290.6	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	2	Other Fill	See description.		Concrete Ready Mix
2	21	Cement	Portland Cement/Neat Cement		
21	269	Other Fill	See description.		Sand/Bentonite mix
269	291	Filter Pack	8 x 20		
291	400	Other Fill	See description.		Sand/Bentonite mix

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	100	10.5
100	320	8
320	375	6
375	400	4

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: A B C LIOVIN DRILLING INC (Person, Firm or Corporation)

1180 E BURNETT STREET (Address) | SIGNAL HILL (City) | CA (State) | 90755 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 04/05/2022 (Date Signed) | 422904 (C-57 License Number)

Attachments

MWA_MW-OESTE-P Lith Log (1)_Redacted.pdf - Location Map - Redacted

OESTE-P Well Diagram 01.pdf - Well Construction Diagram

MWA_MW-OESTE-P Lith Log.pdf - Geologic Log

OESTE-P Well Diagram 01_Redacted.pdf - Well Construction Diagram – Redacted

OESTE-P Site Map.pdf - Location Map

OESTE-P Site Map_Redacted.pdf - Geophysical Log – Redacted

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number
	05N07W30Q002S		

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS: 05N07W30Q002S

APN: 309908101

MONITOR WELL OESTE-P

DRAFT

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

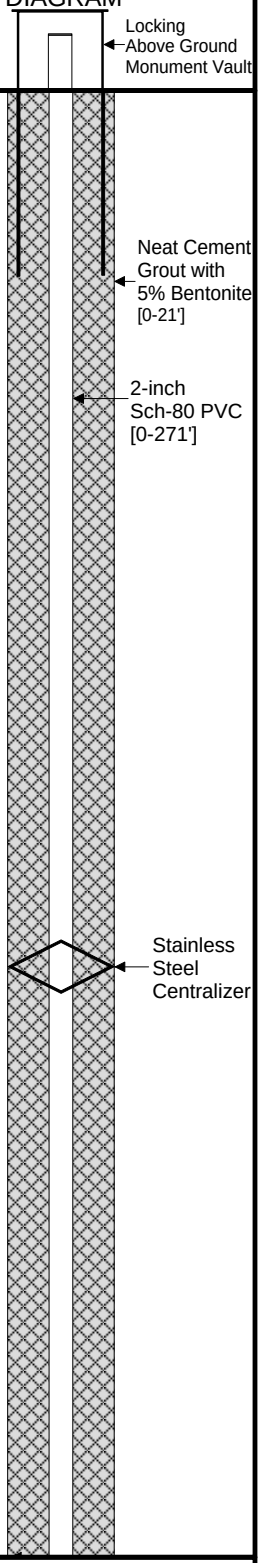
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
0					Utility clearance backfill
5					SAND WITH SILT (10/80/10) Light olive brown (2.5Y 5/4), dry to slightly moist, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel; grains predominantly granitic.
10			SW-SM		
15					SAND WITH SILT AND GRAVEL (20/70/10) Otherwise as above; gravel fraction increases with depth; few cobbles to 5" length.
			SM		SILTY SAND (0/80/20) Brown (10YR 4/3), dry to slightly moist, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.
			SW-SM		SAND WITH SILT AND GRAVEL Same as 13-15 ft.
20			SM		SILTY SAND Same as 15-16 ft; weak HCl reaction at ~19 ft.

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

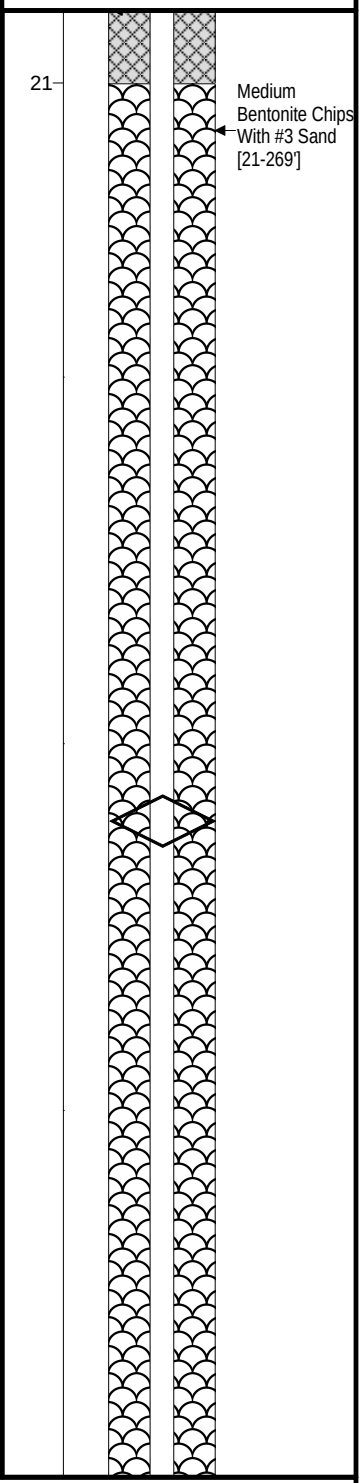
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
20			SM		SILTY SAND Same as 15-16 ft; weak HCl reaction at ~19 ft.
25			SW-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace fine gravel.
			ML		SANDY SILT (5/40/55) Dark yellowish brown (10YR 4/4), slightly moist, nonplastic; sand fine-grained, trace medium; trace gravel to 3" length.
30			SP-SM		SAND WITH SILT (0/90/10) Olive brown (2.5Y 4/4), dry, fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; locally trace fine gravel (<5%).
			SP-SM		SAND WITH SILT (10/80/10) Trace fine gravel, otherwise same as above.
35			SM		SILTY SAND WITH GRAVEL (15/65/20) Olive brown (2.5Y 4/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; gravel to 1" length, angular to subangular, granitic; increased silt fraction at 37-38 ft; increased gravel fraction at 39-40 ft; weak HCl reaction at 34-35 ft and 37-38 ft.
40					

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
40			SM		SILTY SAND WITH GRAVEL (15/65/20) Olive brown (2.5Y 4/3)	
			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 4/3), dry, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; increased medium sand fraction at 43-44 ft.	
			SM		SILTY SAND (10/60/30) Olive brown (2.5Y 4/3), trace fine gravel, otherwise same as above; weak HCl reaction.	
45			SP-SM		SAND WITH SILT (15/75/10) Trace gravel to 3½" length, otherwise same as 41.5-44 ft.	
			SP-SM		SAND WITH SILT (15/75/10) Trace gravel to 3½" length, otherwise same as 41.5-44 ft.	
			SM		SILTY SAND (5/65/30) No HCl reaction, otherwise same as 44-45 ft.	
50			SP-SM		SAND WITH SILT (10/80/10) Same as 41.5-44 ft; trace gravel to 2" length; minor color variation, but texture generally consistent.	
55			SM		SILTY SAND (5/70/25) Olive brown (2.5Y 4/3) to dark yellowish brown (10YR 4/4), dry to slightly moist, fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; locally trace gravel to 1" length.	
60						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
60			SM		SILTY SAND (5/70/25) Olive brown (2.5Y 4/3) to dark yellowish brown (10YR 4/4)	
			SM/ SP-SM		SILTY SAND Same as above; to SAND WITH SILT, fine-grained, trace medium to coarse, otherwise same as 41.5-44 ft; probably highly disturbed due to difficulty recovering core interval.	
65			SM		SILTY SAND (0/85/15) Brown (10YR 4/3), dry to slightly moist, fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular.	
70			SP		SAND (0/95/5) Olive brown (2.5Y 4/3), dry, fine-grained, trace medium, well sorted / poorly graded, angular to subangular; trace silt.	
			SP-SM		SAND WITH SILT (0/90/10) Dark yellowish brown (10YR 4/4), dry to slightly moist, trace coarse sand, otherwise same as above.	
75					No recovery.	
			SP-SM		SAND WITH SILT Same as 71.5-76 ft; lower contact gradational.	
80						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

No Reaction	Moderate
Very Weak	Strong
Weak	Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
80			SP-SM		SAND WITH SILT Same as 71.5-76 ft; lower contact gradational.	
			SP		SAND (0/95/5) Brown (10YR 4/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace silt.	
85			SP-SM		SAND WITH SILT (5/85/10) Olive brown (2.5Y 4/4), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel to 1” length.	
			SM		SILTY SAND (0/75/25) Very dark grayish brown (2.5Y 3/2), otherwise same as above.	
90			SP-SM		SAND WITH SILT (5/85/10) Brown (10YR 4/3) to olive brown (2.5Y 4/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace gravel to 2” length, subangular to subrounded, >8” cobble at 89 ft; HCl reaction at 92.5 ft.	
95			SM		SILTY SAND (5/70/25) Light olive brown (2.5Y 5/3), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel, increased gravel fraction to ~10% at 96-97 ft; weak HCl reaction at 99 ft.	
100						

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
100			ML		SANDY SILT (0/30/70) Yellowish brown (10YR 5/4), slightly moist, low to medium plasticity; sand fine- to medium-grained, trace coarse; lower contact gradational.	
			SM		SILTY SAND (5/70/25) Same as 94.5-100 ft; weak HCl reaction at 101 ft; lower contact gradational.	
			SP		SAND (10/85/5) Dark grayish brown (2.5Y 4/2), dry, fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace gravel to 1" length; weak HCl reaction at 105 ft and 106 ft.	
105			SP-SM		SAND WITH SILT (5/85/10) Otherwise same as above; weak HCl reaction.	
			SP		SAND (10/85/5) Same as 103-106 ft.	
			SP-SM		SAND WITH SILT (5/85/10) Same as 106-107.5 ft.	
110			SP		SAND (10/85/5) Same as 103-106 ft; weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.	111
			SP-SM		SAND WITH SILT (5/85/10) Fine- to coarse-grained, predominantly medium, otherwise same as 106-107.5 ft; with thin silty interbed(s) at 114 ft; probably highly disturbed due to difficulty recovering core interval.	
115			SM		SILTY SAND (5/80/15) Dark grayish brown (2.5Y 4/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel, locally to 1½" length; HCl reaction at 115-116 ft; weak HCl reaction at 116-120 ft.	
120						

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
120		★	ML		SILT WITH SAND (0/15/85) Brown (10YR 5/3), slightly moist, low plasticity; sand fine- to medium-grained.	
			SM		SILTY SAND (0/70/30) Brown (10YR 5/3), dry, fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular.	
			SP-SM		SAND WITH SILT (0/90/10) Fine- to coarse-grained, predominantly fine, otherwise same as above.	
125			ML		SANDY SILT (0/40/60) Brown (10YR 4/3), low plasticity; sand fine-grained, trace medium.	
			SM		SILTY SAND (5/65/30) Brown (10YR 4/3) to dark grayish brown (2.5Y 4/2), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel to 1½" length; weak HCl reaction at 126-127.5 ft.	
			ML		SANDY SILT (0/40/60) Same as 124-126 ft.	
130			SM		SILTY SAND (0/80/20 to 0/60/40) Fine- to medium-grained, trace coarse, moderately sorted/graded, otherwise same as 126-128 ft; weak HCl reaction at 130.5-131 ft.	
			SP		SAND (0/95/5) Dark grayish brown (2.5Y 4/2), fine- to medium-grained, predominantly fine, well sorted / poorly graded, angular to subangular; trace silt.	
			SP-SM		SAND WITH SILT (5/85/10) Olive brown (2.5Y 4/3), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; weak HCl reaction at 132.5 ft and 133.5 ft.	
135			SP		SAND (0/95/5) Same as 131-132 ft; generally coarsens downward.	
			SP-SM		SAND WITH SILT (5/85/10) Same as 132-134 ft; weak HCl reaction at 136-137 ft.	
			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), fine- to very fine-grained, locally trace medium, well sorted / poorly graded, angular; micaceous.	
140						

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
140			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), nonplastic; sand fine- to very fine-grained, trace medium; weak HCl reaction at 140.5-141 ft.	
			SP-SM/ SP		SAND (5/90/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; weak HCl reaction at 141-141.5 ft; carbonate fragment at 143 ft.	
145			SW		SAND WITH GRAVEL (25/70/5) Grayish brown (2.5Y 5/2), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; gravel to 2½" length; trace silt.	
			SW/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, locally predominantly fine, poorly to moderately sorted / well to moderately graded, angular to subangular; trace fine gravel, locally to 1½" length, increased gravel fraction at 148.5-149 ft; increased silt fraction at 151.5-152.5 ft; weak HCl reaction at 150-150.5 ft and 151.5-152.5 ft.	
150			SW/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, locally predominantly fine, poorly to moderately sorted / well to moderately graded, angular to subangular; trace fine gravel, locally to 1½" length, increased gravel fraction at 148.5-149 ft; increased silt fraction at 151.5-152.5 ft; weak HCl reaction at 150-150.5 ft and 151.5-152.5 ft.	
155			SM		SILTY SAND (0/60/40) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; fine- to medium-grained, trace coarse, moderately sorted/graded below 156 ft; weak HCl reaction at 156-157 ft.	
			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, otherwise same as above; increased silt fraction at 161.5-163 ft and 164.5-165 ft; increased gravel fraction at 157.5-158 ft and 161 ft, gravel to 1½" length; possible schist clasts at 158.5	
160						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
160			SP/ SP-SM		and 164.5 ft; weak HCl reaction at 161.5-163 ft and 164.5-165 ft; strong HCl reaction associated with thin (1”-2” thick) caliche layer at 166.5 ft.	
165			ML		SANDY SILT (0/45/55) Grayish brown (2.5Y 5/2), nonplastic; sand fine- to very fine-grained, micaceous.	
			SM		SILTY SAND (0/80/20) Yellowish brown (10YR 5/4), fine- to very fine-grained, well sorted / poorly graded, angular; lower contact gradational.	
170			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Brown (10YR 5/3) to grayish brown (2.5Y 5/2), otherwise same as 157-166.5 ft; locally fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel to 2” length, increased gravel fraction at 170-173 ft, 178-180 ft, 183.5-185 ft and 186-187 ft, gravel predominantly granitic and gneiss; interbed of silty sand (0/80/20), ~3” thick, between 180.5 and 181 ft, fine-grained; weak HCl reaction at 183-183.5 ft and 185.5 ft.	
175			SP/ SP-SM			
180						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
180					SAND (10/85/5) to SAND WITH SILT (5/85/10) Brown (10YR 5/3) to grayish brown (2.5Y 5/2), otherwise same as 157-166.5 ft; locally fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace gravel to 2" length, increased gravel fraction at 170-173 ft, 178-180 ft, 183.5-185 ft and 186-187 ft, gravel predominantly granitic and gneiss; interbed of silty sand (0/80/20), ~3" thick, between 180.5 and 181 ft, fine-grained; weak HCl reaction at 183-183.5 ft and 185.5 ft.	
185						
			SM		SILTY SAND (0/80/20) Brown (10YR 5/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular.	
190			SP/ SP-SM		SAND (10/85/5) to SAND WITH SILT (5/85/10) Same as 169-188 ft.	
			SM		SILTY SAND (0/70/30) Olive brown (2.5Y 4/3), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; weak HCl reaction; lower contact gradational; probably highly disturbed due to difficulty recovering core interval.	
195			SW-SM		SAND WITH SILT (5/85/10) Dark grayish brown (2.5Y 4/2), otherwise same as above; trace fine gravel; very weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.	
			SW		SAND (5/90/5) Brown (10YR 5/3), dry, fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel to 1" length.	
			SM		SILTY SAND (0/85/15) Yellowish brown (10YR 5/4), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; weak HCl reaction at 198.5-199.5 ft.	
200					SAND (5/90/5) to SAND WITH SILT (5/85/10) Fine- to	

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
200			SP/ SP-SM		medium-grained, predominantly fine, moderately sorted/graded, locally fine- to coarse-grained, poorly sorted / well graded, otherwise same as 169-192 ft; trace fine gravel, locally to 3” length.	
205			SW		SAND WITH SILT AND GRAVEL (40/50/10) Fine- to coarse-grained, poorly sorted / well graded, otherwise same as above; gravel to 2” length.	
			SW/ SP-SM		SAND (10/85/5) Fine- to coarse-grained, poorly sorted / well graded, to SAND WITH SILT (5/85/10), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, otherwise same as 169-188 ft; increased silt fraction at 210-212.5 ft; weak HCl reaction at 210 ft, 211-212.5 ft and 214.5-215 ft.	
210						
215			SP		SAND (0/100/T) Fine-grained, well sorted / poorly graded, angular.	
			SM		SILTY SAND (0/80/20) Fine- to coarse-grained, poorly sorted / well graded, angular to subangular.	
			SW		SAND WITH SILT (5/85/10) Fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel; increased coarse sand and gravel fraction at	
220						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
220			SW-SM		219-220 ft. SAND WITH SILT AND GRAVEL (20/70/10) Otherwise same as above; gravel to 2½" length; weak HCl reaction at 221 ft.	
			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel, locally to 1½" length.	
225					No recovery.	
230			SW-SM		SAND WITH SILT (10/80/10) Olive brown (2.5Y 4/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace gravel to 2" length; weak HCl reaction at 230-234 ft; probably highly disturbed due to difficulty recovering core interval.	
			SM		SILTY SAND (10/70/20) Otherwise same as above; gravel fine; thin (~1" thick) interbed of dark gray sandy silt at 235 ft; probably highly disturbed due to difficulty recovering core interval.	
235			SP		SAND (5/90/5) Olive brown (2.5Y 4/4), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel; lower contact gradational over interval 237-237.5 ft; probably highly disturbed due to difficulty recovering core interval.	
			SP/SP-SM		SAND (0/95/5) to SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/4 to 5/6), fine- to very fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; locally trace silt;	
240						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
240			SP/ SP-SM		micaceous; with interbed(s) of silty sand (0/70/30), otherwise same, at 238.5-239.5 ft.	
			GP		GRAVEL WITH SAND (60/35/5) Gravel to 2" length, with cobbles to 3½" - 4", subangular, granitic; sand fine- to very fine-grained, trace medium to coarse; trace silt.	
245			SW		SAND (0/95/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel to 1" length below 246 ft; probably highly disturbed due to difficulty recovering core interval.	
250			SM		SILTY SAND (0/80/20) Yellowish brown (10YR 5/4), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; lower contact gradational.	
			SW		SAND (0/95/5 to 5/90/5) Otherwise same as 244-249.5 ft; locally trace gravel, increased gravel fraction to 10% and color change to dark grayish brown (2.5Y 4/2) below 256 ft; possible schist clast at 256.5 ft.	
255			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel below 262 ft; weak HCl reaction at 258-259 ft.	
260						

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

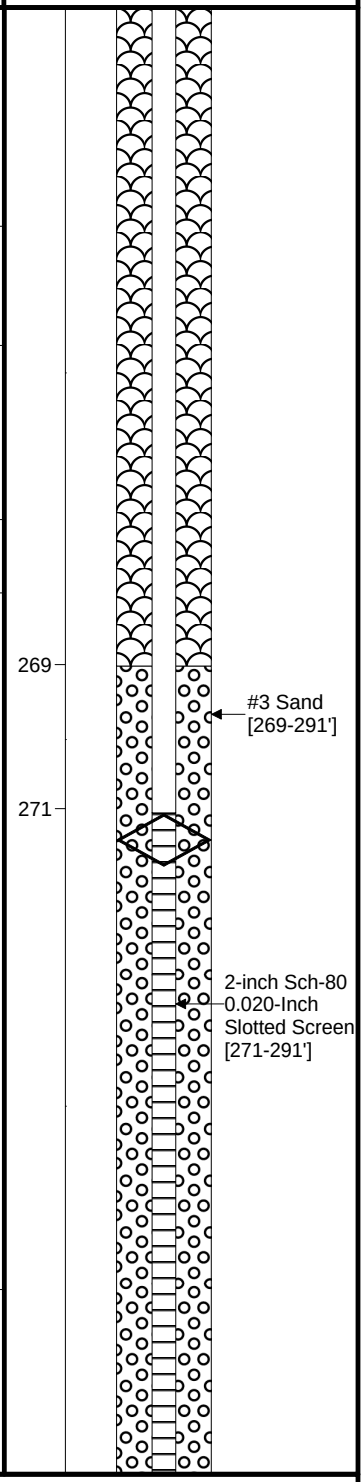
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
260			SP-SM		SAND WITH SILT (0/90/10) Yellowish brown (10YR 5/6), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel below 262 ft; weak HCl reaction at 258-259 ft.
			SM		SILTY SAND (5/75/20) Light olive brown (2.5Y 5/3), fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; trace fine gravel.
265					SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3 to 5/4), very fine- to medium-grained, predominantly fine, trace coarse, moderately sorted/graded, angular to subangular; micaceous; weak HCl reaction at 266-266.5 ft.
					No recovery.
					SAND WITH SILT (0/90/10) Same as 264.5-267 ft; strong HCl reaction at 268-268.5 ft, weaker HCl reaction at 268.5-269 ft, weak HCl reaction at 270.5-275.5 ft.
270			SP-SM		
275					
					SAND (T/95/5) Light olive brown (2.5Y 5/3), fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt; trace fine gravel; weak HCl reaction at 280.5 ft.
280			SP		

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

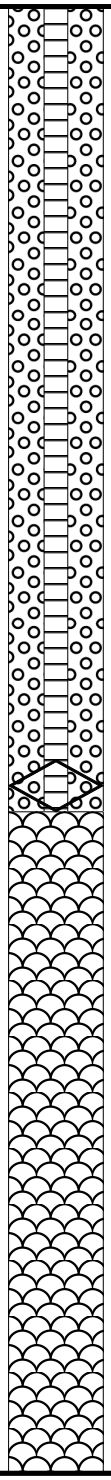
LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
280			SP		SAND (T/95/5) Light olive brown (2.5Y 5/3), fine-grained, trace medium to coarse, well sorted / poorly graded, angular to subangular; trace silt; trace fine gravel; weak HCl reaction at 280.5 ft.
			SP-SM		SAND WITH SILT (0/90/10) Same as 264.5-267 ft; weak HCl reaction at 285 ft; lower contact gradational.
285			SP		SAND (T/95/5 to 5/90/5) Same as 277.5-281.5 ft; trace fine gravel to ¾" length; lower contact gradational.
290			ML		SANDY SILT (0/40/60) Olive brown (2.5Y 4/3), low plasticity; sand very fine- to medium-grained, predominantly fine, trace coarse; weak HCl reaction at 290-291 ft and 291.5-295 ft; lower contact gradational.
295			SP/ ML		SAND (5/90/5) Same as 285-290 ft, interbedded with SANDY SILT (0/40/60), same as above; weak HCl reaction at 295-296.5 ft.
			ML		SANDY SILT (0/30/70) Nonplastic, otherwise same as 290-295 ft; weak HCl reaction at 298-301 ft and 302.5-305 ft.
300					

WELL CONSTRUCTION DIAGRAM



MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
300			ML		SANDY SILT (0/30/70) Nonplastic, otherwise same as 290-295 ft; weak HCl reaction at 298-301 ft and 302.5-305 ft.	
305			SP		SAND (5/90/5) Same as 285-290 ft, gravel to 1" length; thin (~1") carbonate-cemented layer at 308 ft; weak HCl reaction at 308-309 ft.	
310			SP-SM/ SM		SAND WITH SILT (0/90/10) to SILTY SAND (0/60/40) Olive brown (2.5Y 4/3), fine- to very fine-grained, trace medium, locally trace coarse, well sorted / poorly graded, angular to subangular; silt fraction varies; weak HCl reaction at 309.5-314.5 ft; very weak HCl reaction at 315.5-316 ft.	
315			SP		SAND (0/95/5) Fine-grained to fine- to medium-grained, predominantly fine, trace coarse, well sorted / poorly graded to moderately sorted/graded, angular to subangular; trace silt; weak HCl reaction at 317 ft.	
320			SP-SM		SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; micaceous; carbonate-cemented layer, several inches thick, at	

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

- No Reaction
- Very Weak
- Weak
- Moderate
- Strong
- Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
320			SP-SM		327 ft; weak HCl reaction at 318.5-320 ft, HCl reaction at 322.5-324 ft, weak HCl reaction at 324.5-328 ft; lower contact gradational over interval 328.5-329 ft.	
325						
330			SP		SAND (0/95/5) Light olive brown (2.5Y 5/3), fine-grained, well sorted / poorly graded, angular; trace silt; micaceous.	
			ML		SANDY SILT (0/30/70) Light yellowish brown (2.5Y 6/3), low plasticity; sand fine- to very fine-grained; weak HCl reaction at 331-333 ft; lower contact gradational over interval 332.5-333 ft.	
			SP		SAND (0/95/5) Same as 329-330 ft; coarsens downward.	
			SW		SAND (5/90/5) Yellowish brown (10YR 5/4), fine- to coarse-grained, poorly sorted / well graded, angular to subangular; trace silt; trace fine gravel.	
335			ML		SANDY SILT (0/30/70) Same as 330-332.5 ft; with few very fine carbonate streaks in intact fragments; weak HCl reaction.	
			SP-SM		SAND WITH SILT (0/90/10) Pale brown (10YR 6/3), otherwise same as 317.5-328.5 ft; lower contact gradational.	
			SM		SILTY SAND (0/70/30) Otherwise same as above; HCl reaction at 338-338.5 ft.	
			ML		SANDY SILT (0/40/60) Yellowish brown (10YR 5/4), stiff, low to medium plasticity; sand fine- to medium-grained; trace clay; with few carbonate	
340						

MONITOR WELL OESTE-P

DATES DRILLED :12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320' 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend:

No Reaction	Moderate
Very Weak	Strong
Weak	Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
340			ML		streaks in intact fragments; decreased silt fraction below 341 ft; HCl reaction at 338.5-341 ft, weak HCl reaction at 342.5-343 ft.	
			SP-SM		SAND WITH SILT (5/85/10) Same as 317.5-328.5 ft; trace fine gravel to 1” length; weak HCl reaction.	
345					No recovery.	
			ML		Probable SANDY SILT (0/30/70) Same as 338.5-343 ft; weak HCl reaction at 351-353 ft; highly disturbed due to difficulty recovering core interval.	
350						
			SM		SILTY SAND (0/80/20) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular; weak HCl reaction; highly disturbed due to difficulty recovering core interval.	
355						
			SP		SAND (0/95/5) Olive brown (2.5Y 4/3), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace silt; highly disturbed due to difficulty recovering core interval.	
360						

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend: No Reaction, Very Weak, Weak, Moderate, Strong, Lab Grab Sample

DEPTH (feet)	USCS	LITHOLOGIC DESCRIPTION OF MATERIAL
360	ML	SILT WITH SAND (0/20/80) Olive brown (2.5Y 4/3), low plasticity; sand fine-grained, with coarser sand grains actually carbonate-cemented fragments; HCl reaction; lower contact gradational; highly disturbed due to difficulty recovering core interval.
	SP-SM	SAND WITH SILT (0/90/10) Light olive brown (2.5Y 5/3), fine- to very fine-grained, trace medium, well sorted / poorly graded, angular to subangular; micaceous; reduced very fine sand fraction at 363-364 ft; HCl reaction at 361-361.5 ft, weak HCl reaction at 362-363 ft and 364-364.5 ft, strong HCl reaction at 364.5 ft.
365	SM	SILTY SAND (0/60/40) Yellowish brown (10YR 5/4), fine- to medium-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace clay; lower contact gradational over interval 365.5-366 ft.
	SP-SM	SAND WITH SILT (0/90/10) Same as 361-363 ft; weak HCl reaction at 367.5-368.5 ft.
	ML	SILT (0/10/90) Light yellowish brown (2.5Y 6/3), nonplastic; trace fine sand; weak HCl reaction at 368.5-369 ft, HCl reaction at 369-369.5 ft.
370	SP-SM	SAND WITH SILT (5/85/10) Grayish brown (2.5Y 5/2), fine- to coarse-grained, predominantly fine, moderately sorted/graded, angular to subangular; trace fine gravel; HCl reaction at 369.5-373.5 ft, with carbonate streaks and possible thin caliche layer(s).
	ML	SILT WITH SAND (0/20/80) Otherwise same as 368.5-369.5 ft; HCl reaction, with carbonate streaks and possible thin caliche layer(s).
375	SP-SM	SAND WITH SILT (10/80/10) Otherwise same as 369.5-373.5 ft; interbed of clay to sandy clay, ~2" thick, hard, at 375.5 ft; weak HCl reaction at 375.5-376 ft.
	SM	Probable SILTY SAND Otherwise same as above; weak HCl reaction; probably highly disturbed due to difficulty recovering core interval.
	SP-SM	SILTY SAND (0/75/25) Yellowish brown (10YR 5/4), fine-grained, trace medium, well sorted / poorly graded, angular to subangular; locally very dense based on intact fragments; lower contact gradational;
380		

WELL CONSTRUCTION DIAGRAM

MONITOR WELL OESTE-P

DATES DRILLED: 12/20/2021-1/03/2022 DATE COMPLETED: *1/5/2022*

DRILLING COMPANY: *ABC Liovin* DRILLING METHOD: *Sonic*

LOGGED BY: *G. Cranham PG# 5897* BOREHOLE DIA.: 10.0"-8.0" at 100', 8.0"-6.0" at 320', 6.0"-4.0" at 375'

REVIEWED BY: *S. Prazen PG# 9816* LAND SURFACE ELEV: *TBD*

SAMPLING METHOD: *Continous* TOTAL DEPTH OF BORING: *400 feet bls*

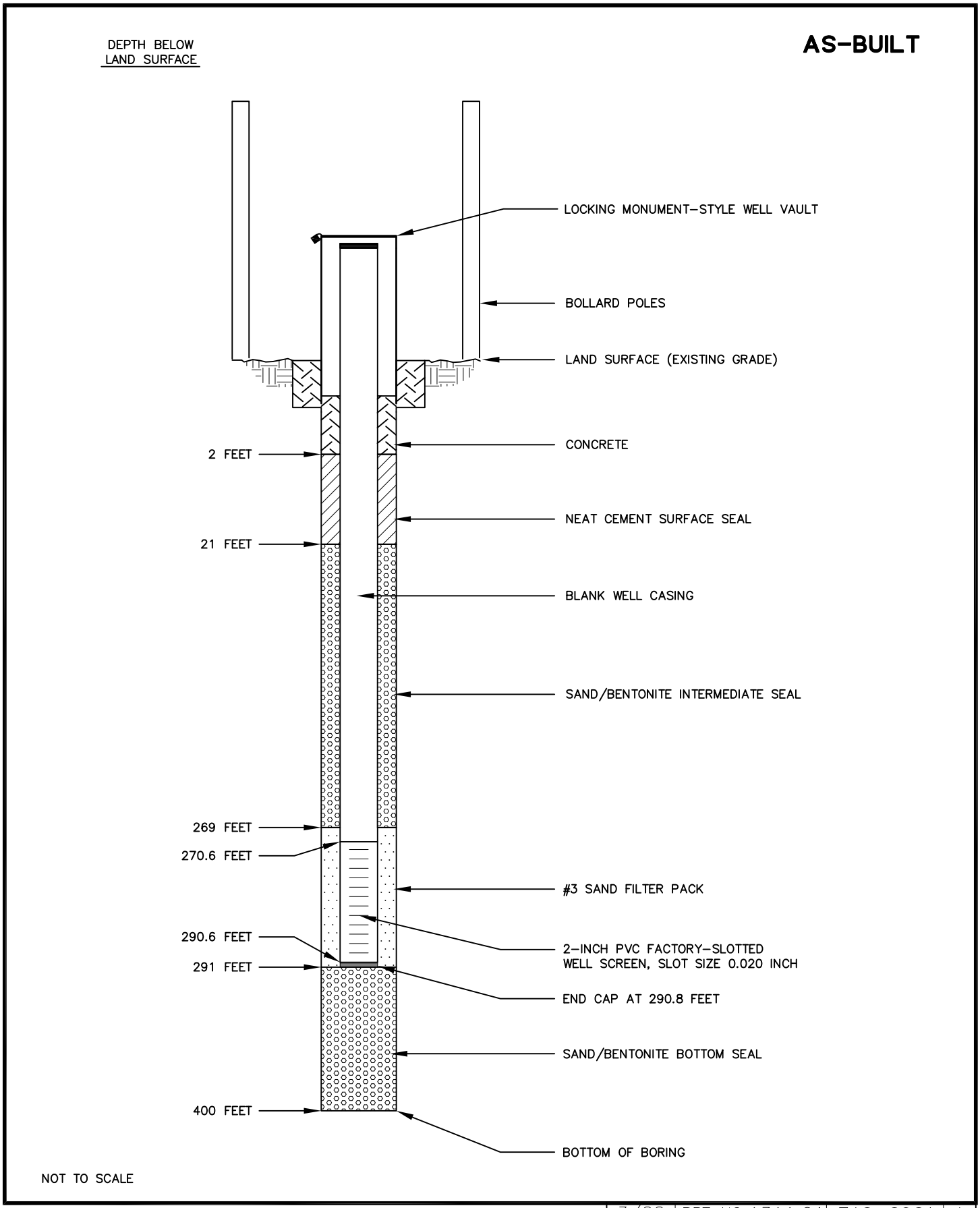
PROJECT: MWA-OESTE

PROJECT NUMBER: 1311.01

LOCATION: *Oeste Area-Cayucos St.*

Legend: No Reaction, Very Weak, Weak, Moderate, Strong, Lab Grab Sample

DEPTH (feet)	HCl Reaction	RECOVERY/ LAB SAMPLE	USCS	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
380					probably highly disturbed due to difficulty recovering core interval.	
			SP-SM		SAND WITH SILT (0/90/10) Brown (10YR 5/3), otherwise same as above; locally higher silt content to silty sand (0/80/20); locally fine- to very fine-grained; with thin local interbeds of silt with sand (0/20/80); strong HCl reaction at 381-386 ft; 379-381 ft interval probably highly disturbed due to difficulty recovering core interval.	
385						
			ML		SILT (0/5/95) Light olive brown (2.5Y 5/3), nonplastic to low plasticity; trace fine to coarse sand, some are carbonate-cemented fragments; strong HCl reaction.	
			SP-SM		SAND WITH SILT (0/90/10) Fine- to very fine-grained, otherwise same as 379-386 ft; weak HCl reaction.	
390			ML		SILT WITH SAND (0/20/80) Otherwise same as 386-388 ft; grades downward to SANDY SILT (0/40/60) below 390.5 ft; coarsens downward to very fine sand; weak HCl reaction at 389.5-390 ft, strong HCl reaction at 390-390.5 ft, weak HCl reaction at 390.5-392.5 ft; lower contact gradational.	
			SM/ SP-SM		SILTY SAND (0/60/40) to SAND WITH SILT (0/90/10) Otherwise same as 388-389.5 ft; continues coarsening downward; weak HCl reaction at 392.5-393 ft.	
395			SP		SAND (5/90/5) Grayish brown (2.5Y 5/2), fine- to medium-grained, trace coarse, moderately sorted/graded, angular to subangular; trace silt; trace fine gravel; thin caliche layer at base.	
			ML		SILT (0/10/90) Otherwise same as 386-388 ft; laminated; HCl reaction.	
			SP-SM		SAND WITH SILT (5/85/10) Trace fine gravel, otherwise same as 388-389.5 ft; gravel locally coarser to 3" length at 397.5 ft and 399 ft, with marble clast at 399 ft; locally carbonate-cemented with caliche layer(s) at 397.5 ft and 399 ft; strong HCl reaction at 399 ft, weak HCl reaction at 399-400 ft.	
400						

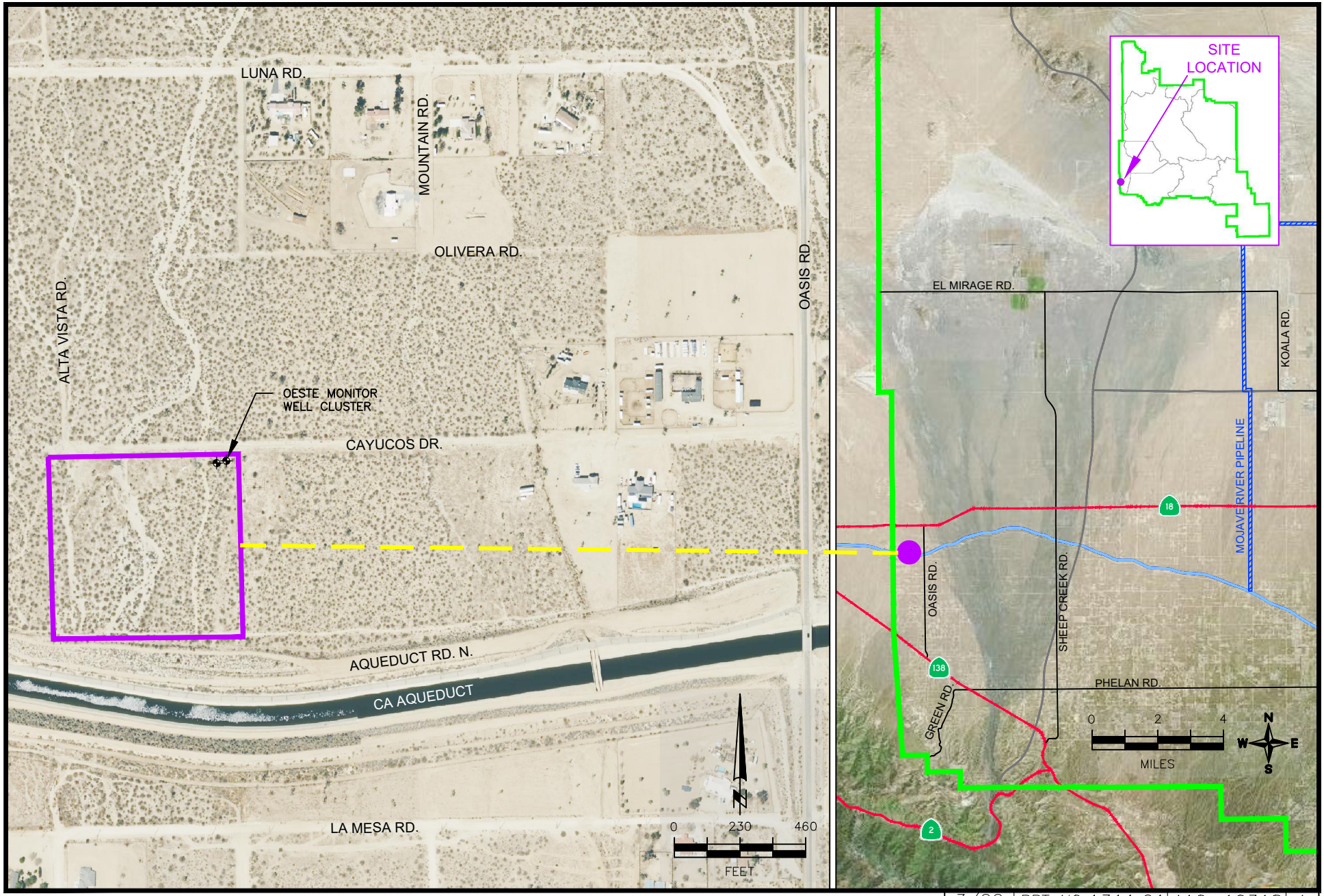


Mar 15, 2022 - 2:13pm ESS - T:\2022\1200-1299\1296 Mojave Water Agency\Well Diagram\710-0961.dwg

3/22	RPT NO.1311.01	710-0961	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 3.
SCHEMATIC CONSTRUCTION DIAGRAM,
MONITOR WELL OESTE-P



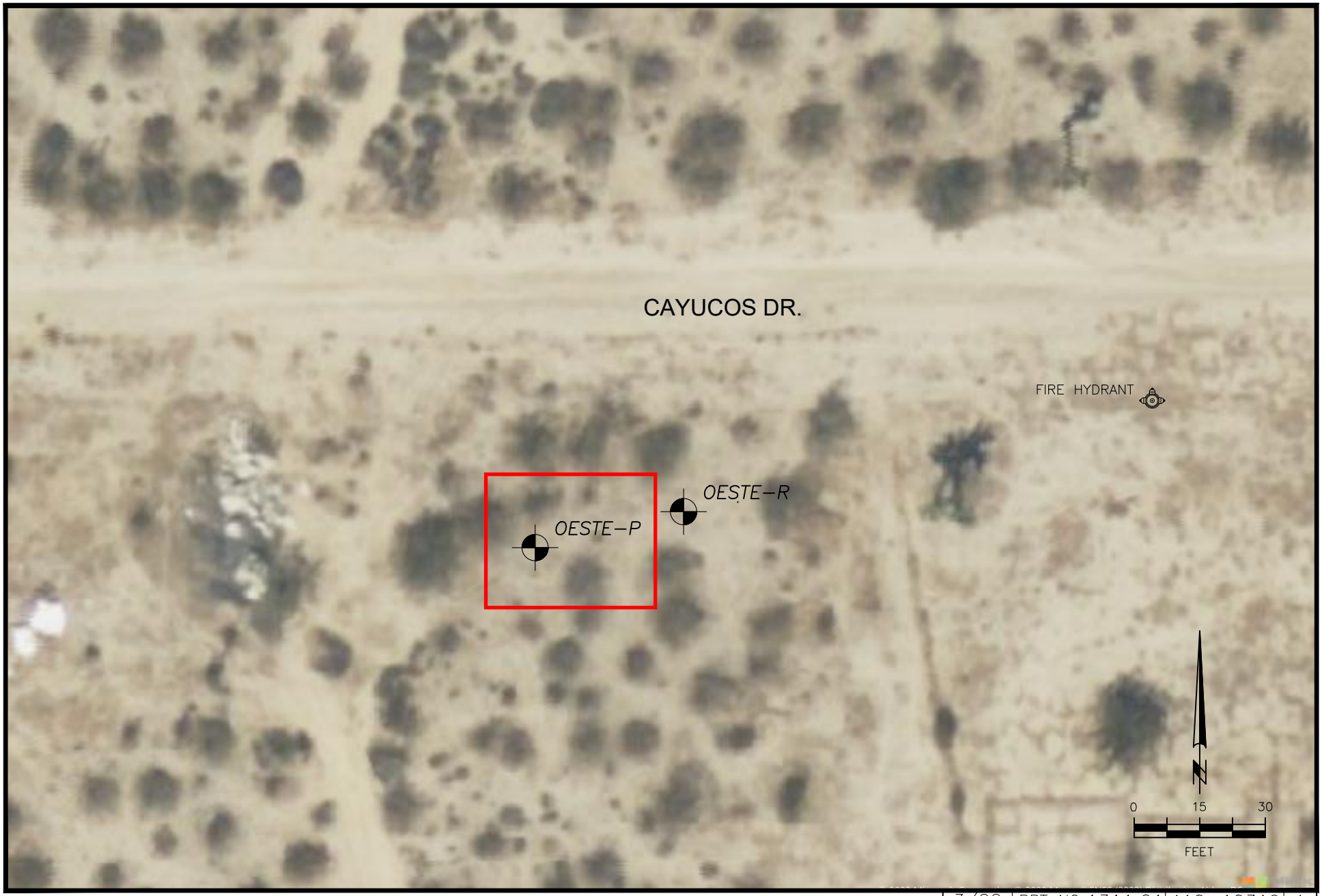
Mar 15, 2022 – 1:55pm ESS – T:\2022\1200-1299\1296 Mojave Water Agency\H+A Basemaps\410-10318.dwg

3/22	RPT NO.1311.01	410-10318	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 1.
WELL SITE LOCATION MAP

DRAFT



Mar 15, 2022 – 1:54pm ESS – T:\2022\1200-1299\1296 Mojave Water Agency\H+A Basemaps\410-10319.dwg

3/22	RPT NO.1311.01	410–10319	A

HARGIS+ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

FIGURE 2.
MONITOR WELL LOCATION DETAIL

DRAFT

Mojave Water Agency

SWN:
Common Name: OESTE RECHARGE WELL ORW 1B
Date: 3/23/2022
Completed By: M. JOHNSON
Lat/Long (DMS) & Datum: 34° 29' 16.08"N, 117° 39' 0.77"W
☐ Log Completed

MWA WELL CANVASSING SHEET

Site Address: APN: 309908101
Cross Street: OASIS RD
General Location: LOCATED TOWARD NORTHEAST SIDE OF PROPERTY
Name of GPS Point: OESTE RECHARGE WELL 1B
Satellites: R2 14/23 OLD **Accuracy:** R2 0.7in/1.0 OLD **Points:** 153 OLD
GPS Measurement Point Description: LSD IS X ON CONCRETE PAD NORTH SIDE OF CASING

Well Type: ☐ Domestic ☐ Agricultural ☐ Production ☒ Monitoring
Status: ☐ Active ☒ Inactive Pump in Well: ☐ Yes ☒ No

Site Status: DRY
Site Status: A=atmos.press.B=tide stage D=dry E=recently flowing F=flowing G=nearby recently flowing I=injector site M=plugged N=meas-discontinued O=obstructed P=pumping R=recently pumped S=nearby pumping T=nearby recently pumping V=foreign substance W=well destroyed X=affected by surface water Z=other

Casing Diameter (inches): 2" **Casing Material:** PVC
Height of Measuring Point (FT ALSD): 2.87'
**ALSD - above land surface datum*
Photograph of Measuring Point: ☑
Measurement Method:
MWA & USGS ID#
Measuring Point Description: T.O.C. NORTH SIDE
LSD Description: X ON CONCRETE PAD, NORTH SIDE OF CASING

Depth to Water (feet): * NOTE: DRY WELL, VADOSE WELL. BMP BLSD **Time:** 11:20
Depth to Water (feet): BMP BLSD Datum (PST)/PDT

DTW Calculation:

Total Depth of Well (feet): 293.8' BMP 290.93' BLSD
**BMP - below measuring point, BLSD - below land surface datum*

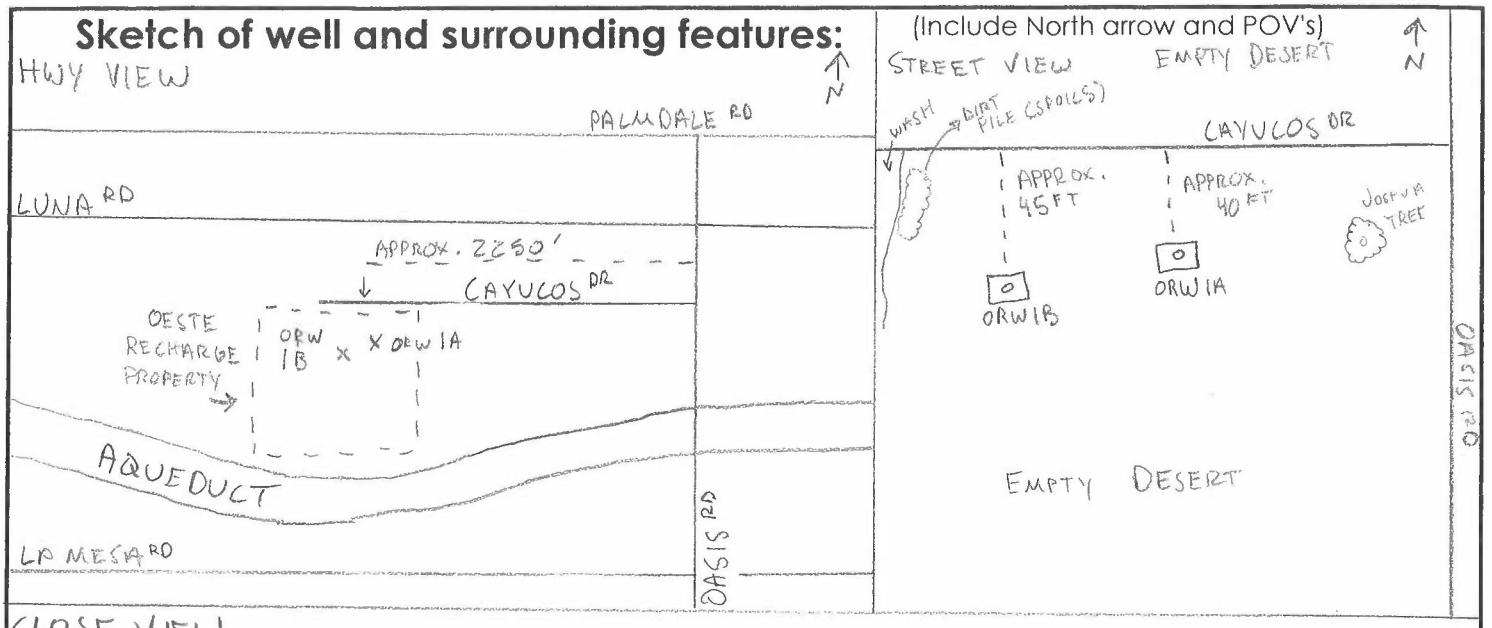
Total Depth Calculation: 293.8' - 2.87' = 290.93'

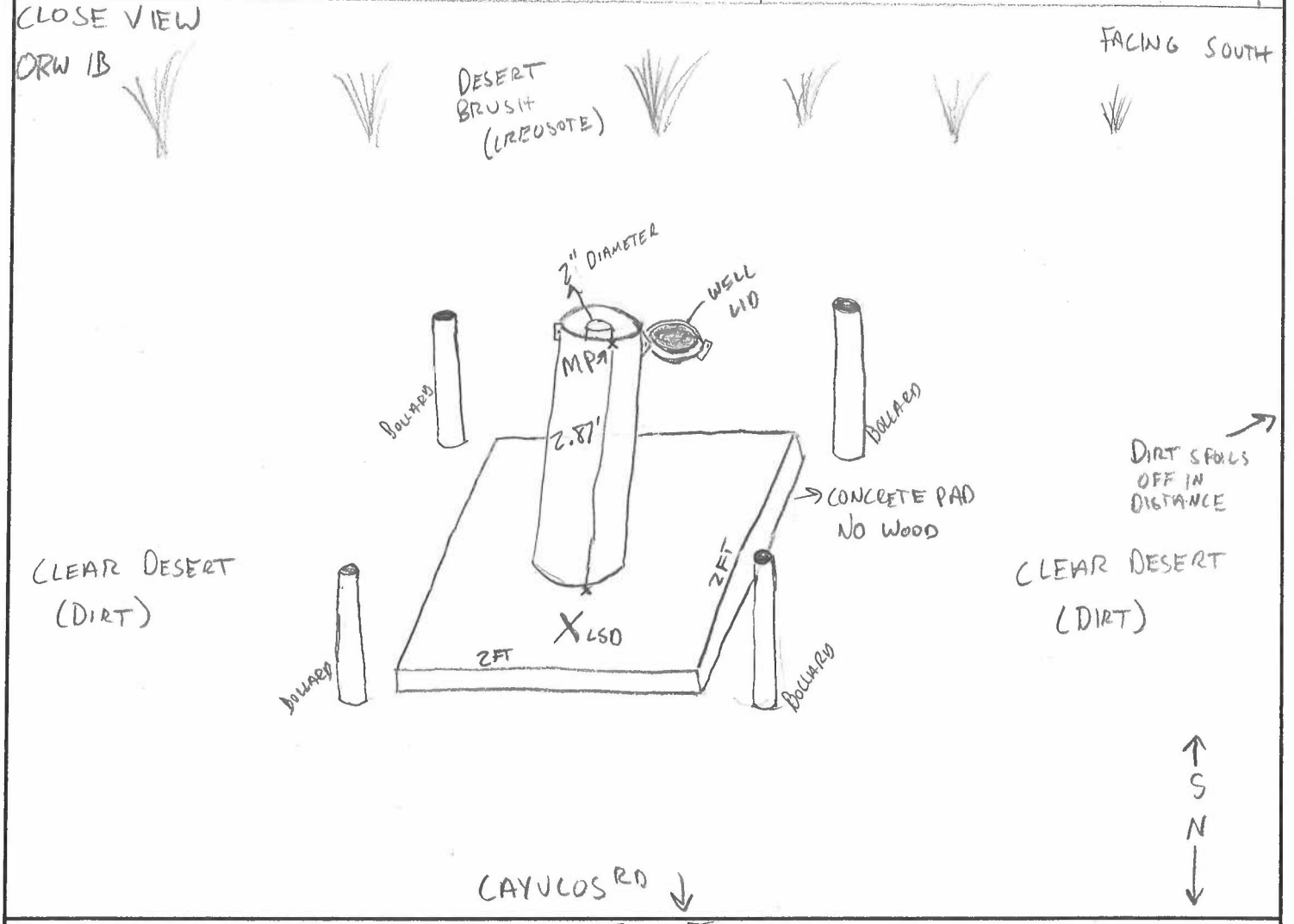
# of Photographs Taken: MANY
**Measuring Point, North, East, South, West*
Video Recorded: YES **Transducer Installed:** NO

(Continued on other side)

Sketch of well and surrounding features:

(Include North arrow and POV's)





Notes: CONCRETE PAD DIMENSIONS 2FT x 2FT

USED HERON TO CAMERA WELL

DIDN'T INSTALL TRANSDUCER

VADOSE WELL


SWN: TBD
ORW 1B
DATE: 3/23/2022
POV: GPS ON LSD LOOKING SOUTHWEST

SWN: TBD

ORW 1B

DATE: 3/24/2022

POV: ORW 1B MP


SWN: TBD
ORW 1B
DATE: 3/28/2022
POV: LOOKING EAST AT WELL


SWN: TBD
ORW 1B
DATE: 3/28/2022
POV: LOOKING NORTH AT WELL


SWN: TBD
ORW 1B
DATE: 3/28/2022
POV: LOOKING SOUTH AT WELL


SWN: TBD
ORW 1B
DATE: 3/28/2022
POV: LOOKING WEST AT WELL

385 N Arrowhead Ave, 2nd floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323
Email: EHS.CustomerService@dph.sbcounty.gov
www.SBCounty.gov
www.sbcounty.gov/dph/dehs
Phone: (800) 442-2283

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

APPLICATION FOR WELL PERMIT

MW-1

THIS SECTION TO BE COMPLETED BY APPLICANT • HEALTH PERMITS ARE NOT TRANSFERABLE

1 – PROPERTY INFORMATION

Property Owner: Mojave Water Agency			Phone Number: (760) 946-7061
Site Address: 535 Cayucos Rd	City: Pinon Hills	State: CA	Zip: 92371
Assessor's Parcel Number: 309908101	Email:		
Township: N/S Tier: 5N	E/W Range: 7W	Section: 30	
Well Head: Latitude (decimal): 34.487858	Longitude (decimal): -117.650081		
Property Owner's Mailing Address: 13846 Conference Center Dr.	City: Apple Valley	State: CA	Zip: 92307

2 – CONSULTANT INFORMATION

Name of Consultant: Hargis and Associates, Inc.	Email: SPRAZEN@HARGIS.COM		Phone Number: 858-410-7404
Address: 9171 Towne Centre Drive, Suite 375	City: San Diego	State: CA	Zip: 92122

3 – REGISTERED WELL DRILLER INFORMATION

Name of Driller: ABC Liovin Drilling, Inc.		Phone Number: 562-981-8575
Email:	jack@abcdrilling.com	C-57 License Number: 422904

Return well permit to: ☒ Well Driller ☐ Consultant ☐ Property Owner

Return by: ☐ Mail ☒ Email

4 – TYPE OF WORK

☒ New ☐ Reconstruction ☐ Destruction

Date of Work: 12/13/2021	Start Date: 12/13/2021	Completion Date: 12/31/2021	Estimated groundwater depth: 550-600 ft

5 – WELL TYPE

☐ Agriculture	☐ Geothermal	☐ Industrial
☐ Cathodic	☐ Horizontal	☒ Monitoring/Observation
☐ Community/PWS/City – **Specify Use Below**	☐ Residential – cannot be used as a community well	☐ Test
Use:		☐ Other

6 – ANNULAR SEAL

Seal Depth (ft.): 21

☐ Driven Conductor Diameter (in.) ☒ Wall (gauge) (in.): SCH 80 ☒ Drilling method: Sonic

☒ Sealing Material: Cement Bentonite Grout ☒ Thickness (in.): 2

Sealing material shall be placed in one continuous pour. Annular seal thickness must be at least 2 inches for public water supply wells.

ITEMS 7 THROUGH 10 TO BE ESTIMATED FOR NEW WELLS, EXACT FOR ALL OTHER WELLS

7 – DIMENSIONS

Proposed Depth of Well (ft.)	Existing Depth of Well (ft.)	Diameter of Bore (in.)
400		8

8 – CASING INSTALLED

☒ Casing Material ☐ ATSM/AWWA/APPI

From (ft.)	To (ft.)	Diameter (in.)	Wall (Gauge)
300	0	2	SCH 80

Gravel Pack: ☒ Yes ☐ No		From (ft.): 325	To (ft.): 295
Specify Other Backfill Material: Bentonite Seal		From (ft.): 295	To (ft.): 21
		400	325

9 – PERFORATIONS (list all if applicable)			
From (ft.) 320	To (ft.) 300	Well Screen Size 0.020	Pumping Rate (gpm) unknown
10 – SEALED ZONES (list all if applicable)			
From (ft.) 295	To (ft.) 0	400-325	

11 – PLOT PLAN

a) In perspective to the well site, sketch and label the following items **on a separate paper**: well lot property lines, other wells (include abandoned wells), sewage disposal systems (sewers, septic tanks, leaching fields, seepage pits, cesspools), lakes and ponds, watercourses and animals or fowl kept.

b) Indicate the distance, in **feet**, of any of the above which are within 500 ft. of the well site. The plot plan needs to be drawn to scale (½ inch = 100 feet). Show the approximate drainage pattern of the property and show access roads to the well site within 500 feet.

c) ☒ None of the above is within 500 feet.

d) Solid or Liquid Disposal Site within Two Miles ☐ Yes ☑ No Location

12 – METHOD OF CONSTRUCTION OR DESTRUCTION

Provide the method of construction/destruction in the space below or as an attachment if more space is needed. The method shall be in accordance with the standards recommended in the California Department of Water Resources Bulletin No. 74-81 and 74-90. Title 22 standards shall also be followed for public water supply wells.

I will submit water well drillers report to Environmental Health Services within 30 days of completion, and will construct or destroy well/borings in accordance with the permit application and Water Well Standards Bulletin 74-81 & 74-90.

Monitoring wells will be constructed with 2" or 4" flush thread PVC, filter pack will be clean washed sand and placed with tremie to at least 2' above the slotted well screen, a 2-5' bentonite plug will be placed and hydrated with clean water. The annular seal material will consist of neat cement with 5% bentonite and pumped in an upward motion with tremie pipe from the top of the bentonite to within 2' of the surface, a protective well cover will finish the installation.

13 – AGREEMENT AND SIGNATURE

I have read this application and agree to comply with all laws regulating the type of work being performed.

Property Owner's Signature: X R. Hampson	Date: 11/29/2021
Print Property Owner's Name: Robert Hampson	
C-57 Contractor's Signature: X	Date: 12/13/2021
Print Contractor's Name: Ivan Liovin	

For Office Use Only DISPOSITION OF PERMIT

☒ Sent to Water Agency

☐ Water Agency conditions or recommendations attached

☐ Denied

☒ Approved subject to the following:

For Office Use Only DISPOSITION OF PERMIT	
Permit Number:	2021120818
Expiration Date:	6-13-2022
WP Number:	WP0037564

A. ☐ Notify the Division's Safe Drinking Water Program at (800) 442-2283 at least seventy two (72) hours in advance to make an inspection of the following operations: (Inspections are conducted Monday – Friday between 8:00 AM to 5:00 PM). Failure to cancel or reschedule appointments may result in an additional hourly fee.

- ☐ Prior to sealing of the annular space or filling of the conductor casing.
- ☐ After installation of the surface protective slab and pumping equipment.
- ☐ After installation of the surface features.
- ☐ During destruction of wells, prior to pouring the sealing material.

B. ☒ Submit to the Division, within thirty (30) days after completion of work, a copy of:

☒ Water Well Driller's Report ☐ Bacterial Analysis ☐ Inorganic Chemical Analysis ☐ General Physical

☐ Radiological Analysis ☐ Nitrate as Nitrogen ☐ Organic Chemical Analysis ☐ General Mineral

Comments

For Office Use Only

Fee: 320.00	FA Number:	Record ID:	PE Number: 4555
Late Fee: ☐ Y ☒ N	Designated Employee: jheri y	Received By: joshua s	Date: 11-30-21
Check One: ☒ New ☐ Transfer ☐ Reactivate		Changes (please specify): 105990	

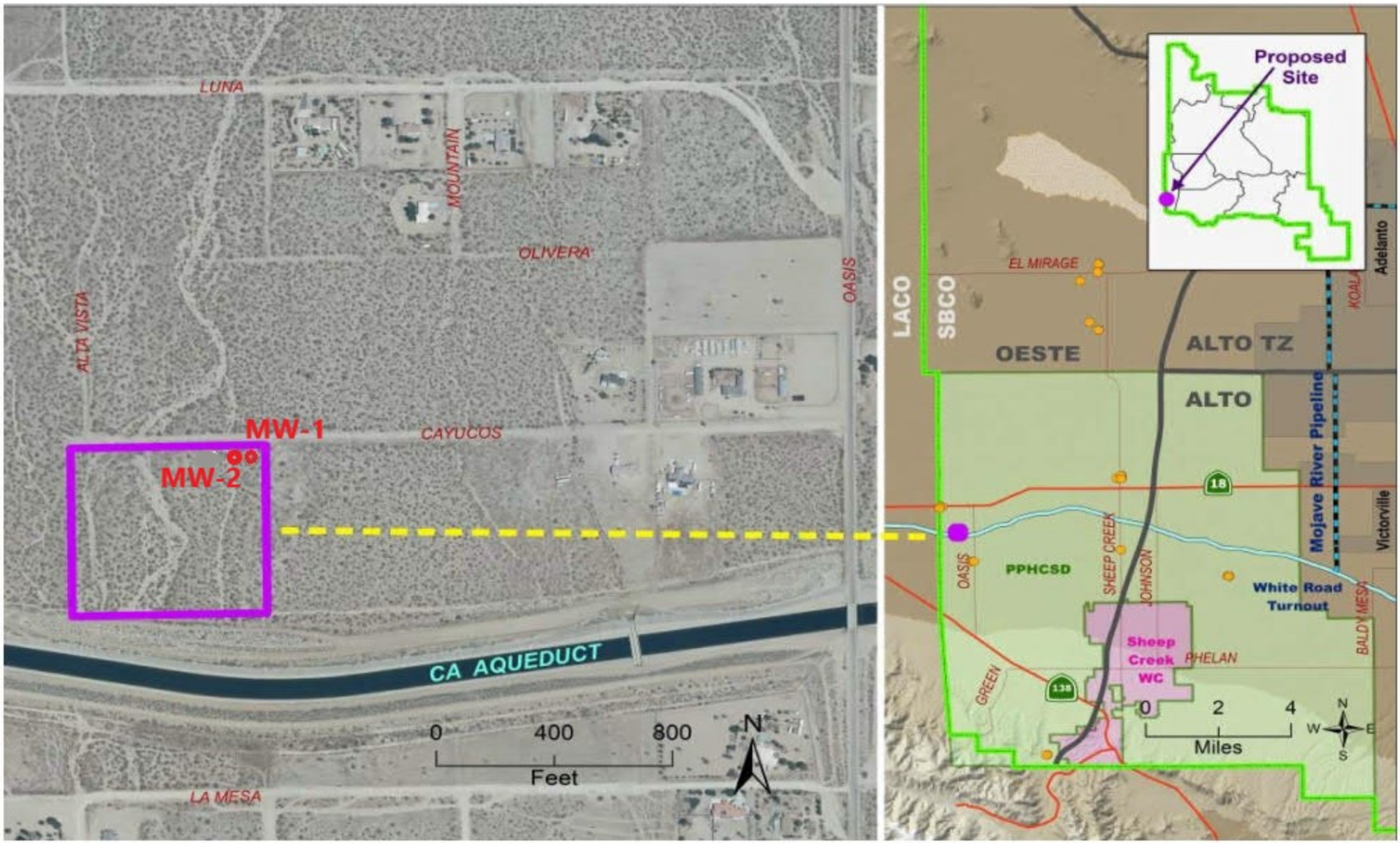


FIGURE 1. SITE LOCATION

State of California

Well Completion Report

Form DWR 188 Complete 8/25/2023

WCR2019-016567

Owner's Well Number: EM-36A/B/C | Date Work Began: 06/04/2019 | Date Work Ended: 06/06/2019

Local Permit Agency: San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section

Secondary Permit Agency: | Permit Number: 2019050241 | Permit Date: 05/20/2019

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: PHELAN PINION HILLS COMMUNITY SERVICES DISTRICT,

Mailing Address: 3896 El Mirage Rd

City: Adelanto | State: CA | Zip: 92301

Planned Use and Activity

Activity: New Well

Planned Use: Monitoring

Well Location

Address: 3896 El Mirage RD

City: Adelanto | Zip: 92301 | County: San Bernardino

Latitude: 34 Deg. 36 Min. 11.1599 Sec. N | Longitude: -117 Deg. 34 Min. 57.36 Sec. W

Dec. Lat.: 34.6031 | Dec. Long.: -117.5826

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: >50 Ft | Location Determination Method: Other

APN: 0457-102-06-0000

Township: 06 N

Range: 07 W

Section: 14

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Sonic | Drilling Fluid: None

Total Depth of Boring: 130 Feet

Total Depth of Completed Well: 99 Feet

Water Level and Yield of Completed Well

Depth to first water: 50.5 (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.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	130	See attached.

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	61	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			SCH 40
1	61	65.5	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.01	SCH 40
1	65.5	66	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			End Cap
2	0	83	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			SCH 40
2	83	87.5	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	SCH 40
2	87.5	88	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			End Cap
3	0	94	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			SCH 40
3	94	98.5	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	SCH 40
3	98.5	99	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			End Cap

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	3	Other Fill	See description.		Concrete
3	56	Cement	Portland Cement/Neat Cement		
56	59	Bentonite	Other Bentonite		
59	68	Filter Pack	Other Gravel Pack	#1C	Silica Sand
68	81	Bentonite	Other Bentonite		
81	90	Filter Pack	Other Gravel Pack	#2/16	Silica Sand
90	93	Bentonite	Other Bentonite		
93	100	Filter Pack	Other Gravel Pack	#2/16	Silica Sand
100	130	Bentonite	Other Bentonite		

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	130	11

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: CASCADE DRILLING L P (Person, Firm or Corporation)

P O BOX 1184 (Address) | WOODINVILLE (City) | WA (State) | 98072 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 11/19/2019 (Date Signed) | 938110 (C-57 License Number)

Attachments

map.pdf - Location Map

EM36A,B,C Construction.pdf - Well Construction Diagram

/WellReport_20191120_142449.pdf - WCR Final - Outdated

/WellReport_20191120_142450.pdf - WCR Final - Redacted - Outdated

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number
1	06N07W14R009S		A
2	06N07W14R008S		B
3	06N07W14R007S		C

N — **Latitude Deg/Min/Sec**

W — **Longitude Deg/Min/Sec**

TRS: 06N07W14R007S

APN: 0457-102-06-0000

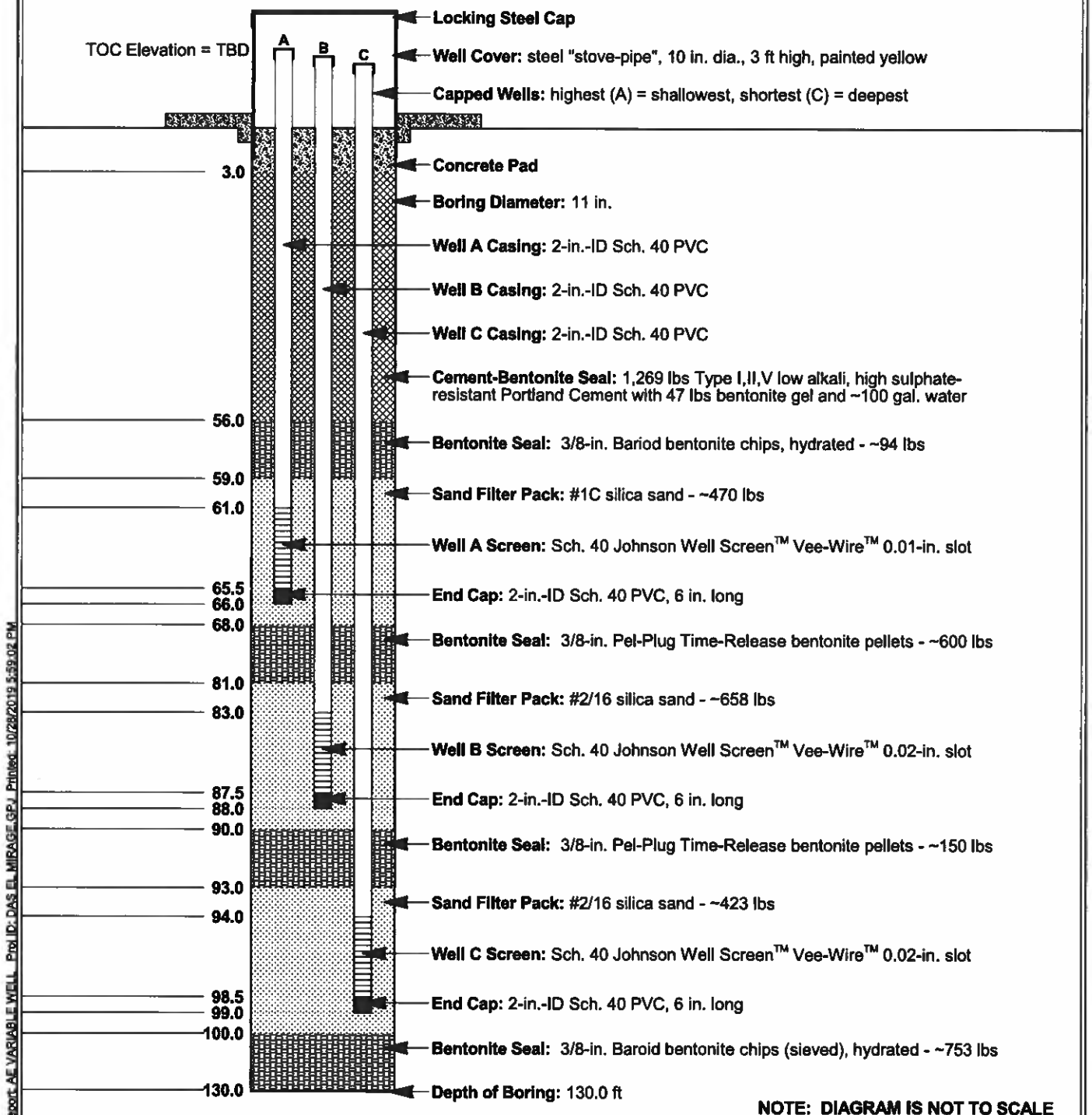
accord environmental

PROJECT: DAS El Mirage - 0117-PIII-9-3

LOCATION: 4001 El Mirage Road, CA 92301

WELL CONSTRUCTION RECORD FOR EM-36A/B/C

Date(s) Installed:	6/4 - 6/5/19	Installed By:	Cascade Drilling LP	Observed By:	I. Jones, CHG 863
Response Zone(s):	59-68, 81-90, 93-100 ft	Screened Interval(s):	61-65.5, 83-88.5, 94-98.5 ft	Total Depth of Boring: 130.0 ft	Total Depth of Well: 66, 88, 99 ft
Depths of Centralizers:	10, 40, 55, 80, 92.5 ft	Notes:			



Report: AE VARIABLE WELL Proj ID: DAS EL MIRAGE.GPJ Printed: 10/28/2019 5:59:02 PM

E.4,200, N.8,000

E.6,400, N.8,000

CPT-N22

CPT-N21

Former Agricultural Wells 14K & 14K1 (Inactive)

14K (14K02) [298 - ?]

14K1 [350 - 550] [350 - 550]

Well Completion Postponed

EM-41 (2B/2C/Qa3)

CPT-N20

CPT-N19

CPT-N18

CPT-N17

Well Completion Postponed

CPT-N16

CPT-N15

EM-40 (2A/2B/2C)

Well Completion Postponed

Completed Well

CPT-N14

EM-36 (2A/2B/2C)

CPT-N13

CPT-N12

CPT-N11

CPT-N10

CPT-N9

EM-37 (2A/2B/2C)

EM-38 (2A/2B/2C)

EM-39 (2A/2B/2C)

OLD PHELAN ROAD

EM-33

EM-34

EM-35

Irrigation Well Installed 2010 (Inactive)

Han-Well

Former Supply Well 14Q1

14Q1

Completed Well

EM-27 (2A/2B/2C)

EM-28 (2A/2B/2C)

EM-29 (2A/2B/2C)

EM-30

Completed Well

EM-31 (2A/2B/2C)

EM-32

EL MIRAGE ROAD

EL MIRAGE ROAD

RCRA CLOSED UNIT

Completed Well

EW-3

Completed Well

EW-2

EW-1

CPT-S14

CPT-S15

I-4

CPT-S16

CPT-S17

CPT-VW1

I-5

CPT-VW2

CPT-S18

CPT-S13

WASTEWATER TREATMENT UNIT

MAIN PLANT BUILDING

CPT-S20

I-3

CPT-S19

I-6

I-2

CPT-S12

I-1

WORKSHOP

Site Supply Well

Completed Well

EM-26 (2A/2B/2C)

CPT-S22

CPT-S24

CPT-S21

SHEEP CREEK ROAD

200 Foot Grid

CPT-S23

Up-gradient Qa1 Well M-2

DAS PROPERTY BOUNDARY

E.4,200, N.4,600

E.6,400, N.4,600

LEGEND

- GROUNDWATER MONITORING WELL – Qa1
- GROUNDWATER MONITORING WELL – Qa2
- GROUNDWATER MONITORING WELL – Qa3
- ABANDONED WELLS SHOWN IIN GRAY
- GROUNDWATER REMEDIATION WELL
- GROUNDWATER SUPPLY WELL
- SOIL VAPOR WELL
- SOIL VAPOR SAMPLE LOCATION
- CONE PENETRATION TEST (CPT) LOCATION
- 200 FOOT GRID/SITE COORDINATES
- FENCE
- GROUNDWATER REMEDIATION COMPOUND
- [50 - 60] WELL SCREEN (FEET BELOW GROUND) IN PARENTHESIS

Proposed & Completed Groundwater Wells - 2019

- Qa1 2"(off-Site) 3"(on-Site) Well; 8" Boring ~ 65 ft
- Triple-Nested Qa2A / 2B / 2C, 2" Wells; 11" Boring ~ 130 ft
- Qa1 / Qa2A 5" Remediation Well; 10" Boring ~ 75 ft
- Qa2 5" Remediation Well; 10" Boring ~ 90 - 105 ft

Final Well Completions Dependent on Geologic Logging & Sampling

X Potential Well Destruction (Late 2019)

I-6 Soil Vapor Extraction System Air-Inlet Well / Qa1 Well

I-3 Soil Vapor Extraction System Air-Inlet Well

CPT-S24 2018 CPT Location

accord environmental

www.accordenvironmental.net

TEL:+1(714) 642-6197

DWG BY: IJ | APPROVED BY: IJ | DATE: 03-06-19

Proposed & Completed 2019 Interim Measures Wells

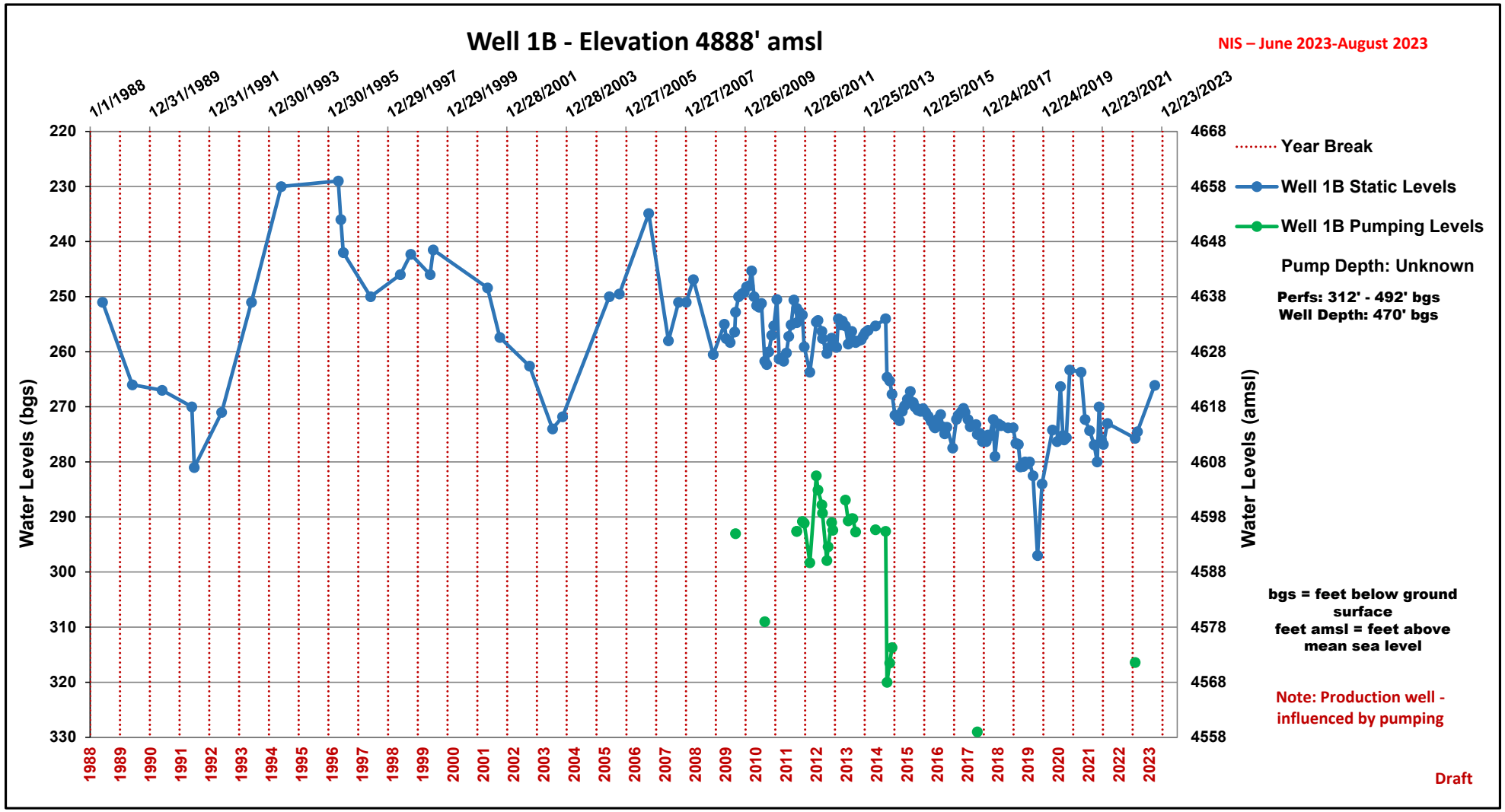
PROJECT NO. 0117-19

Ducommun AeroStructures, Inc.
4001 El Mirage Road, Adelanto, CA 92301

FIGURE 1

Hydrographs

Data Through September 2023



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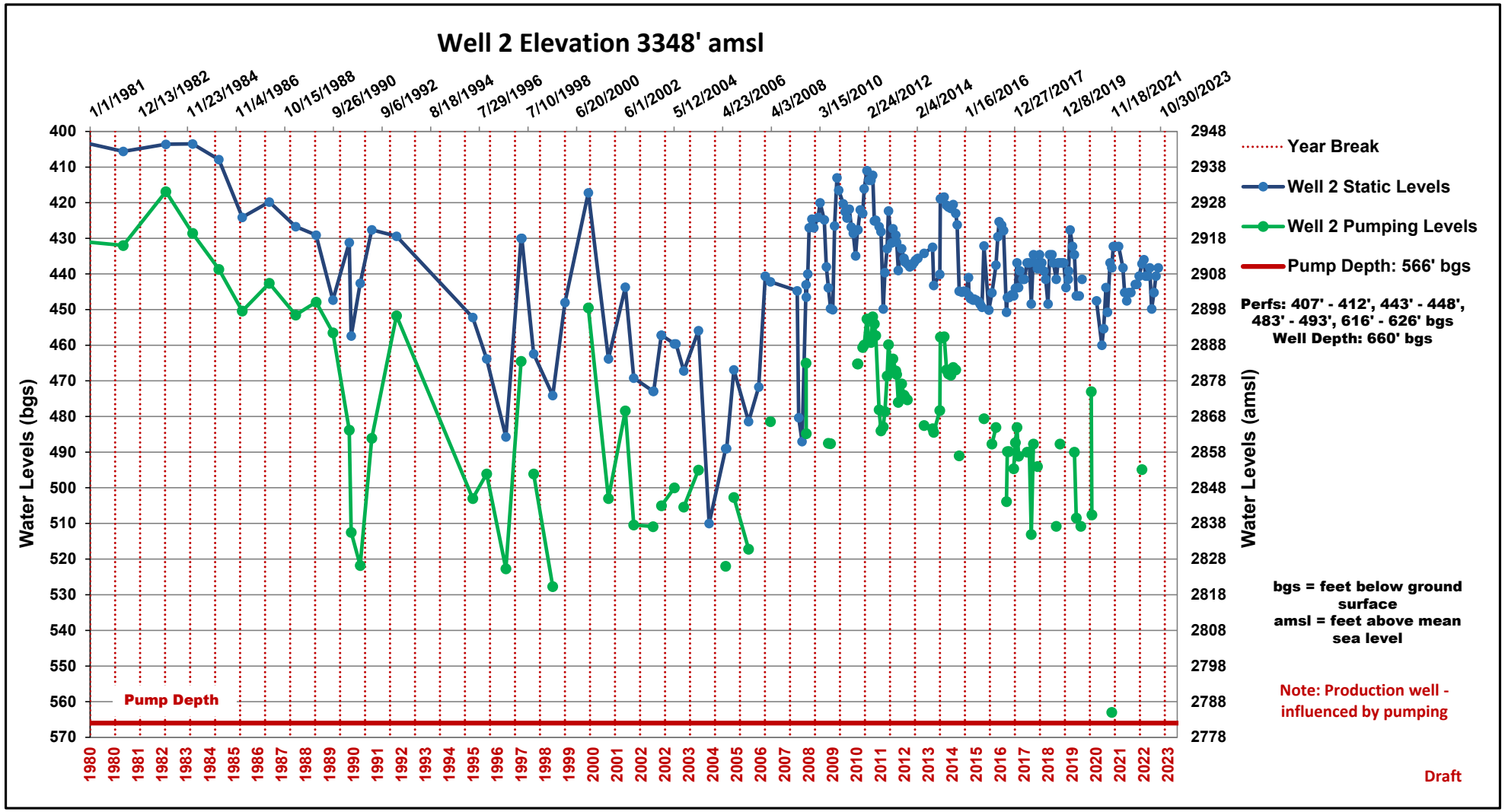

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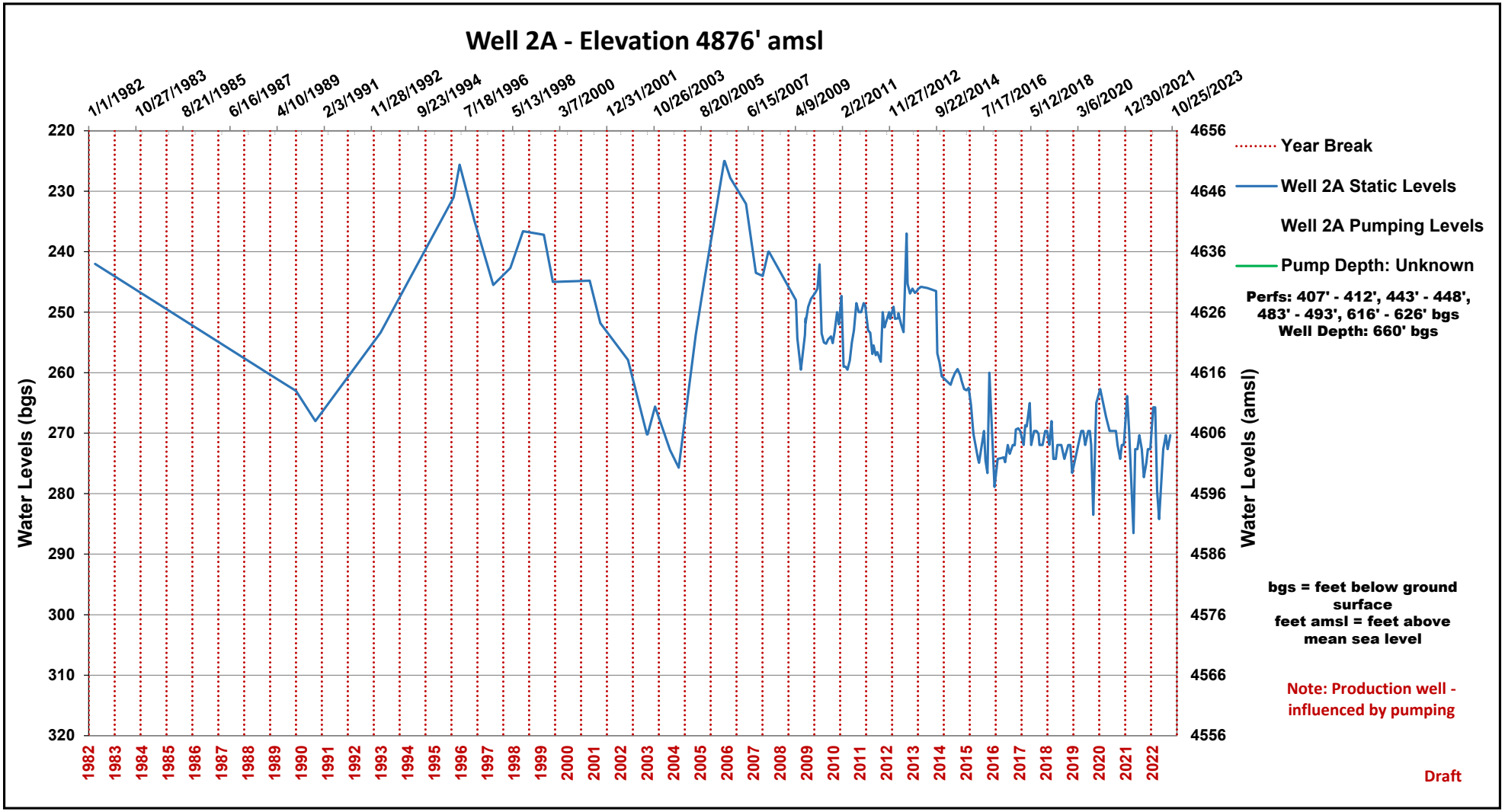

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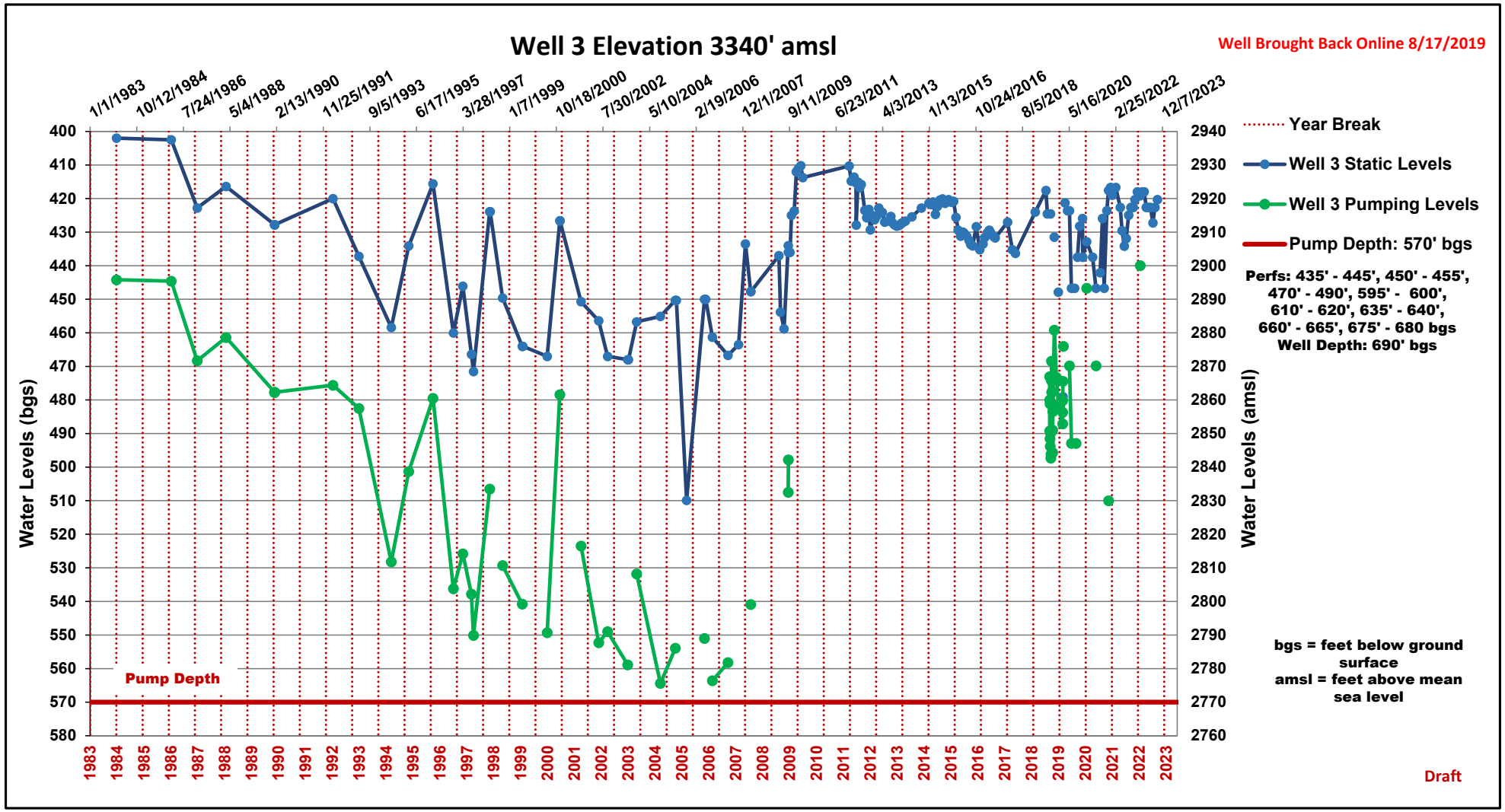

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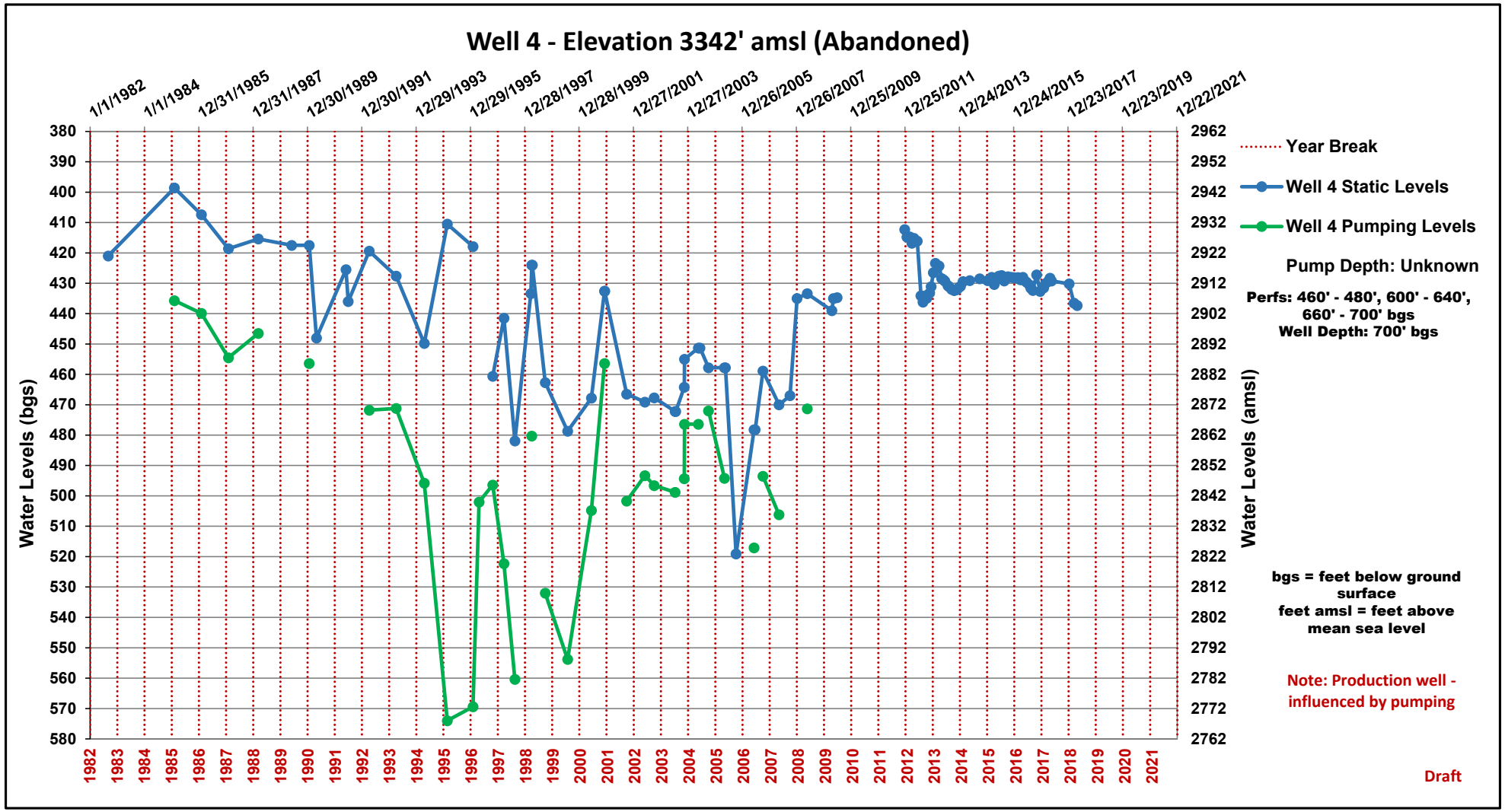

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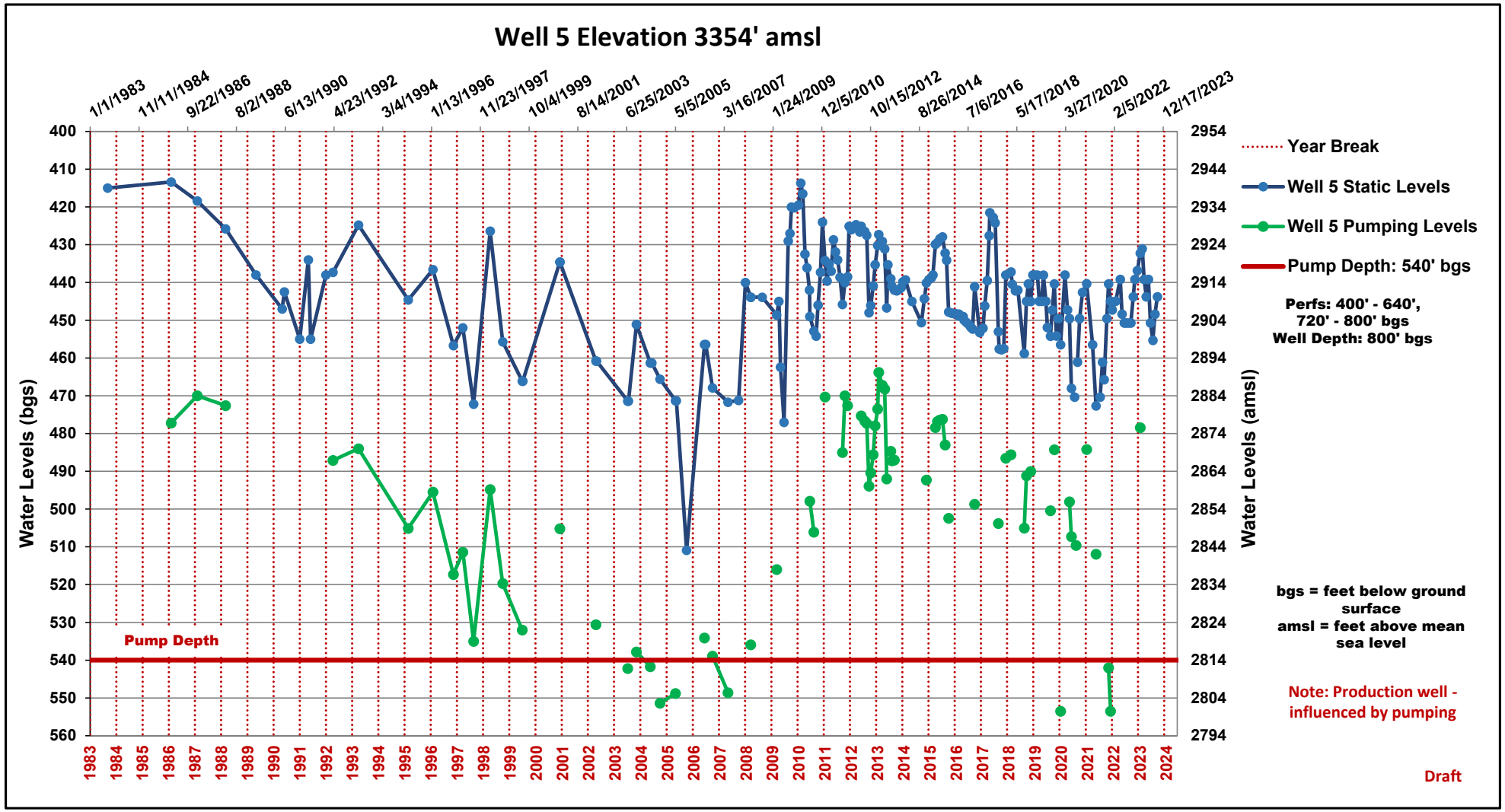

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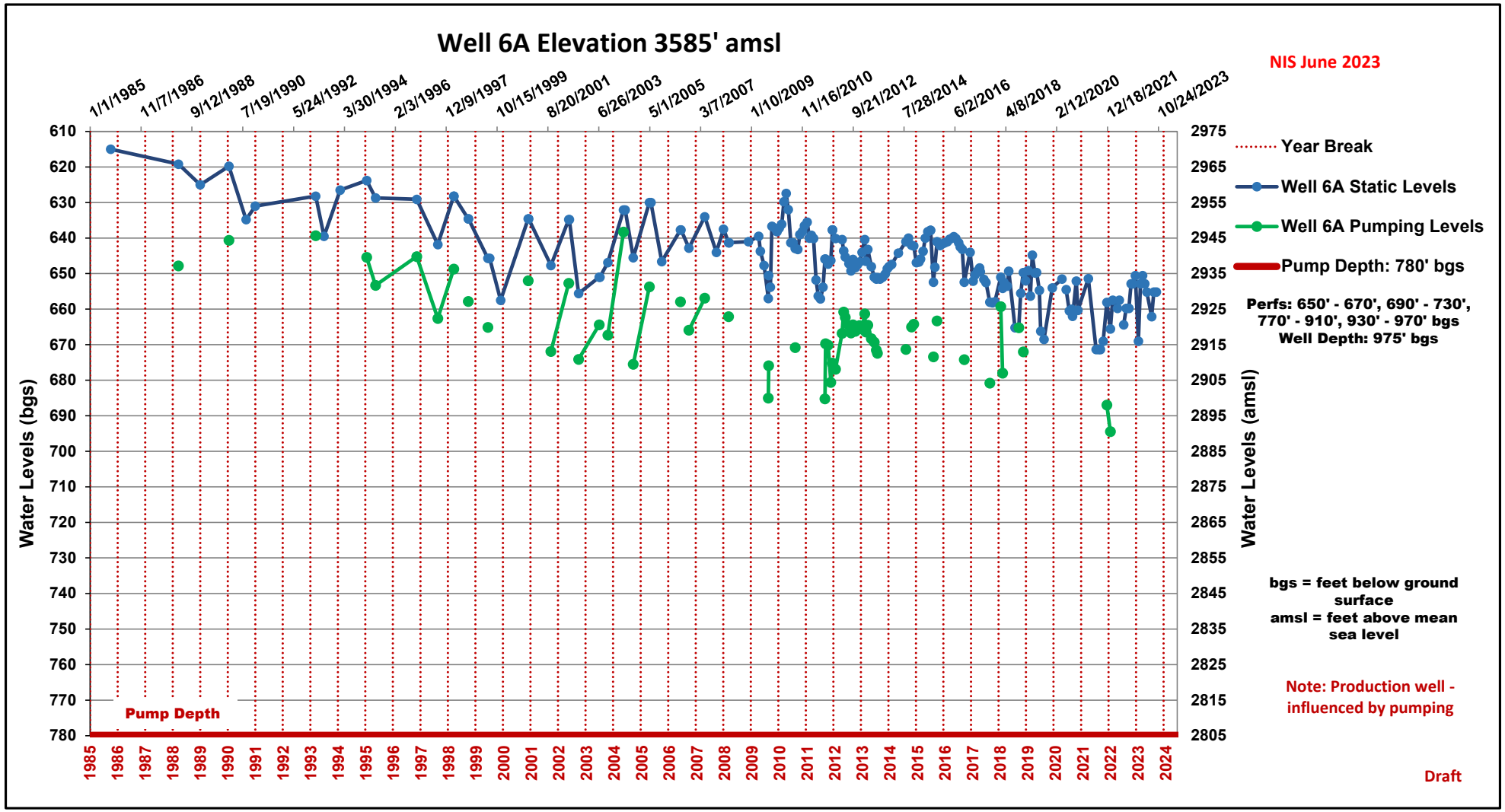

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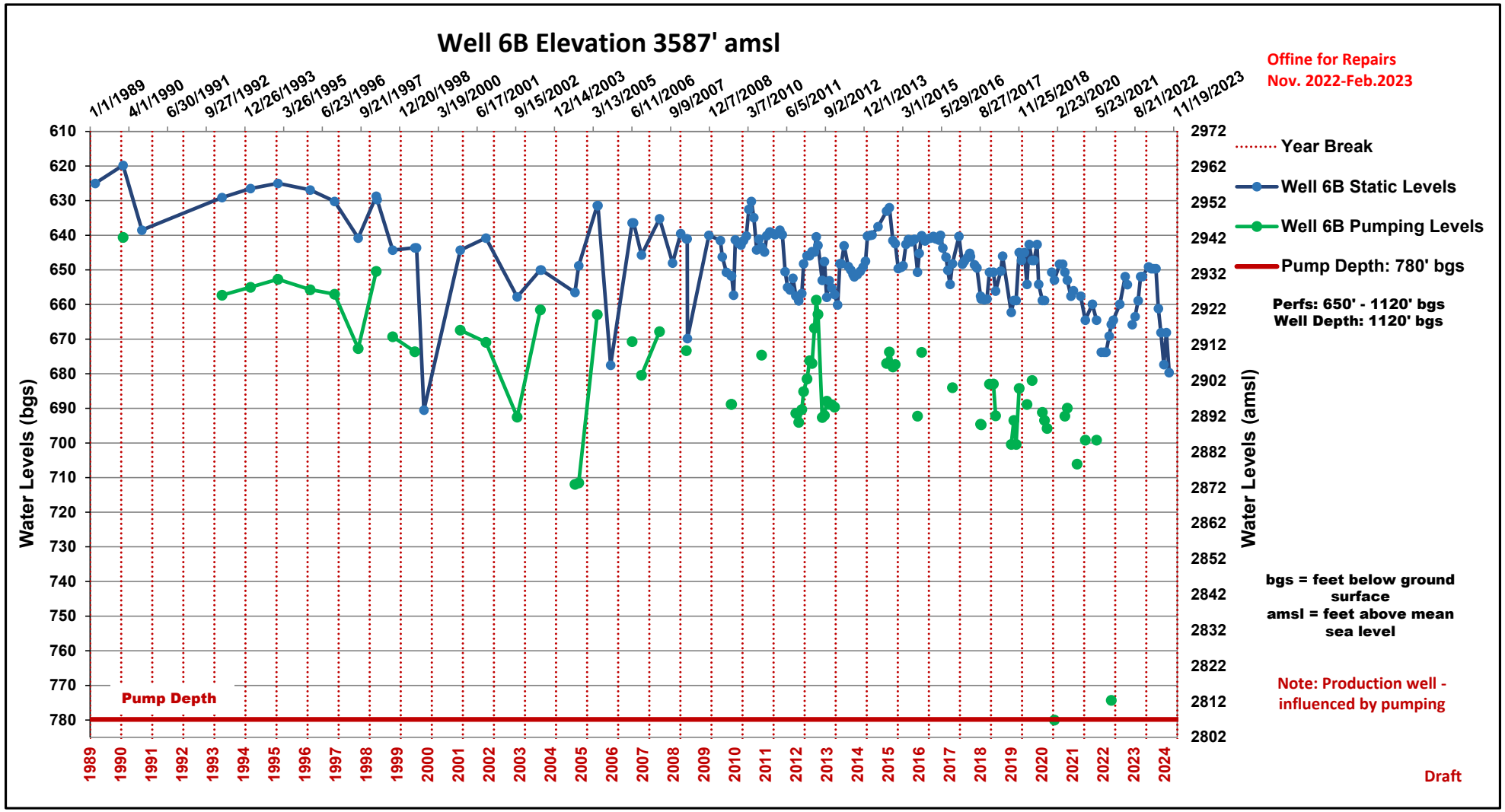

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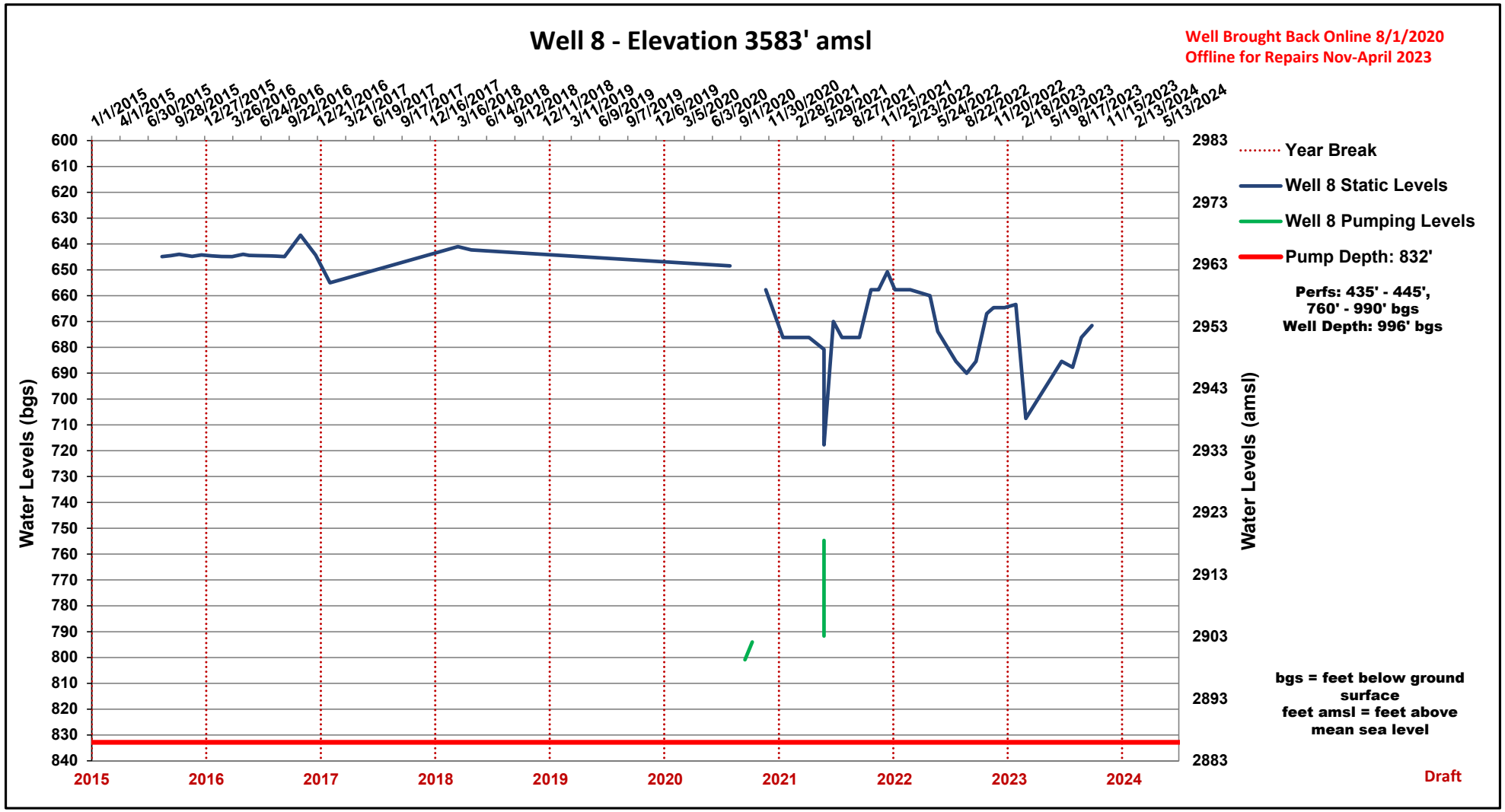

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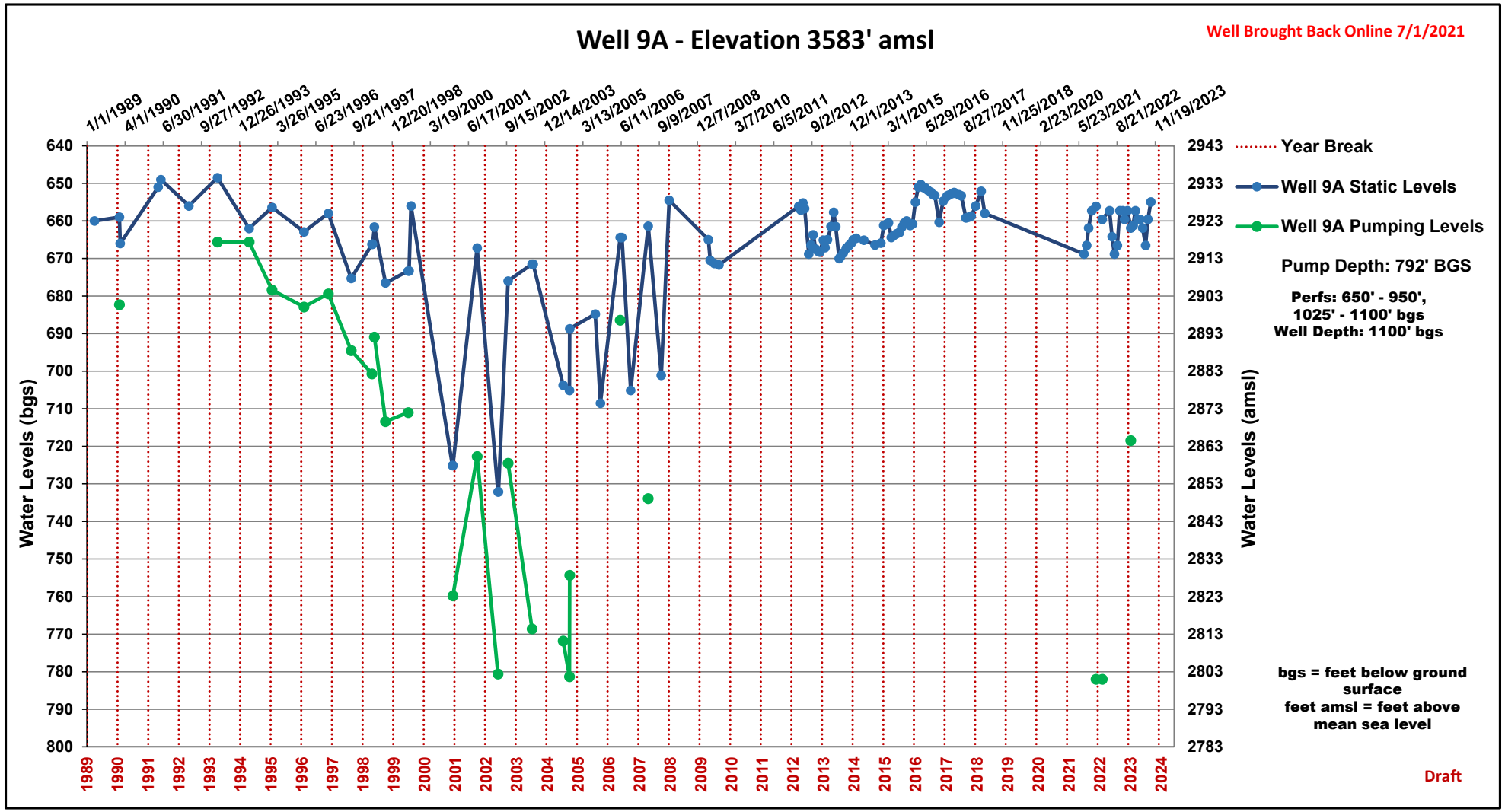

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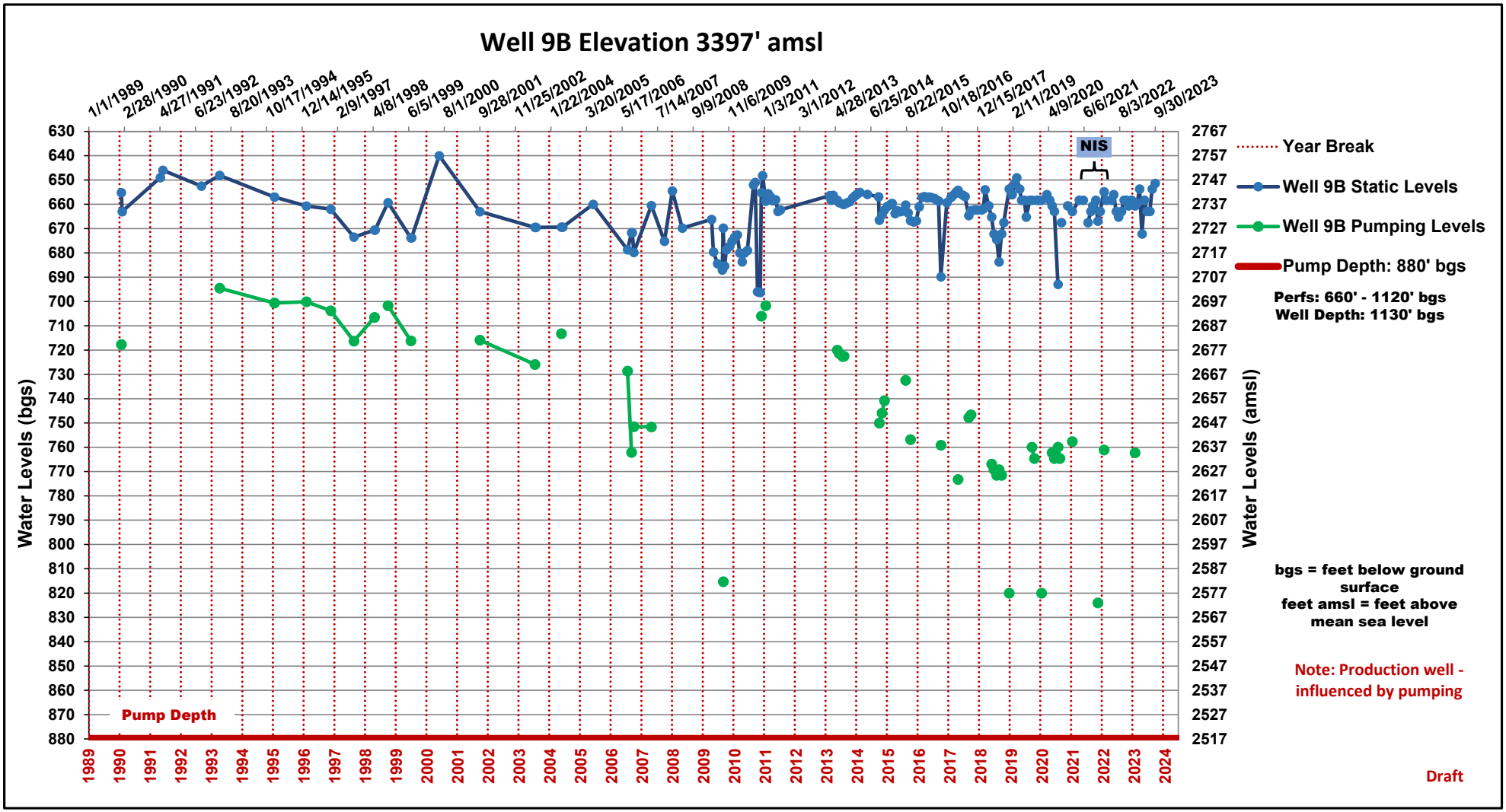

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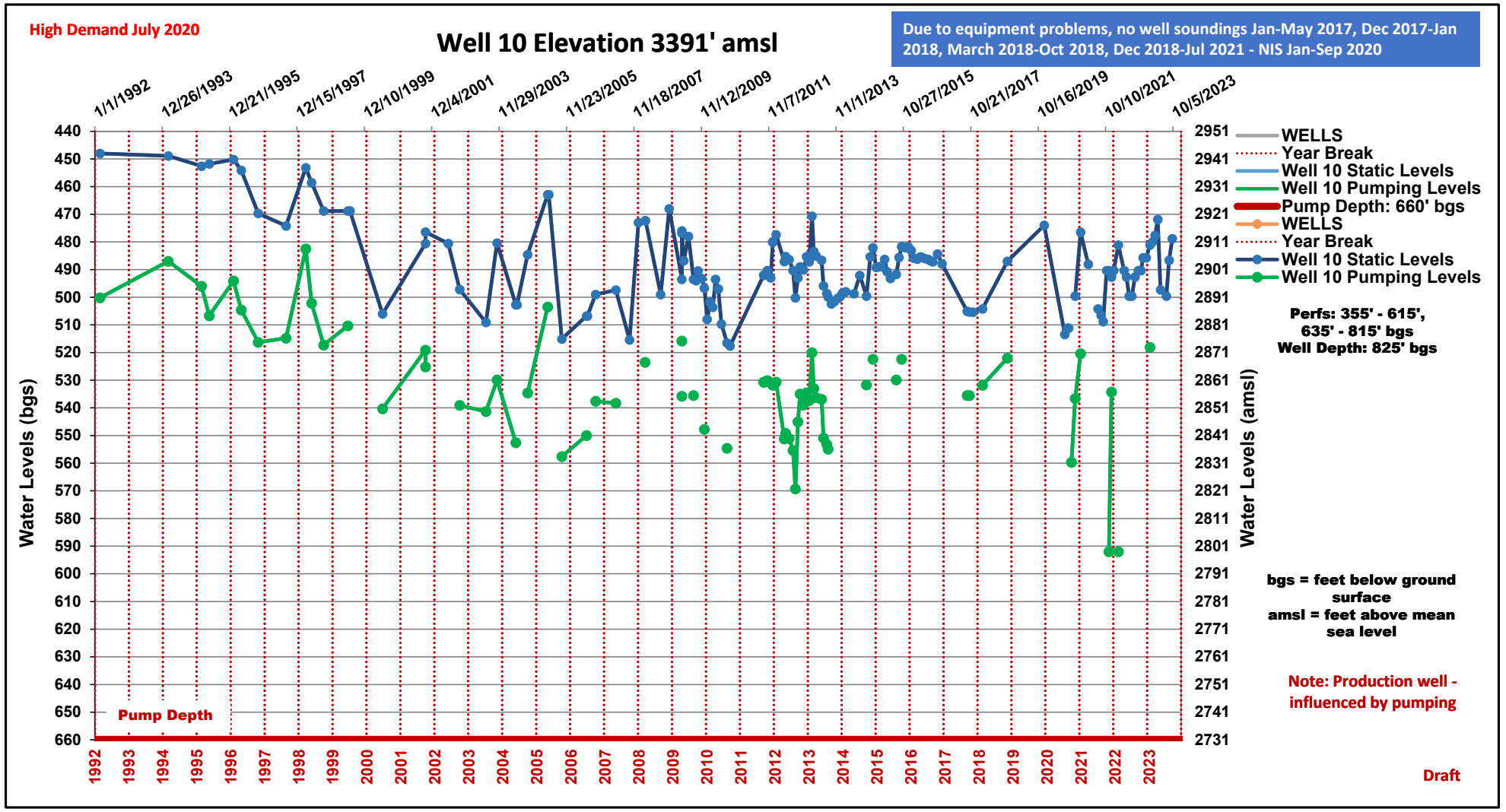

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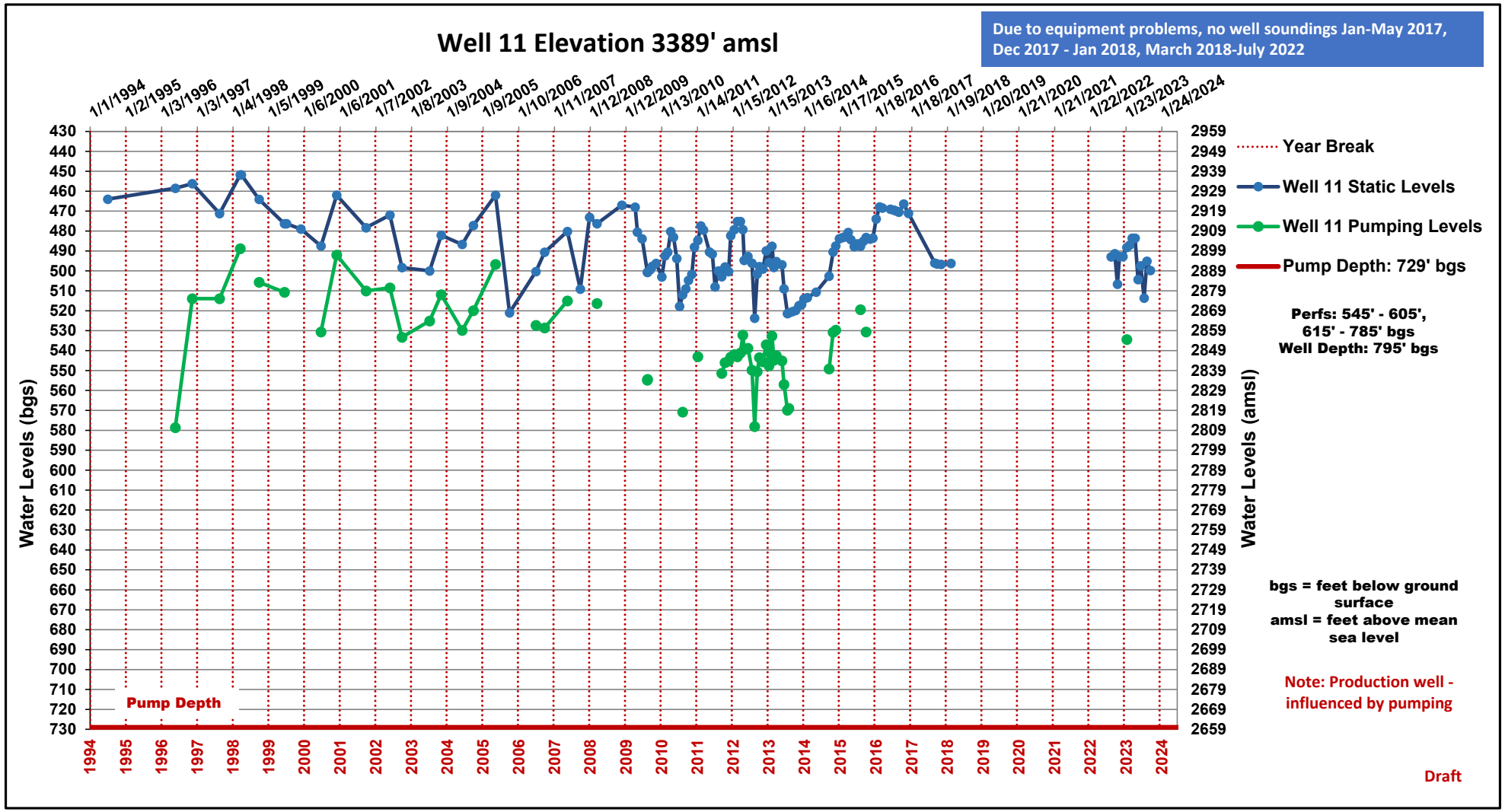

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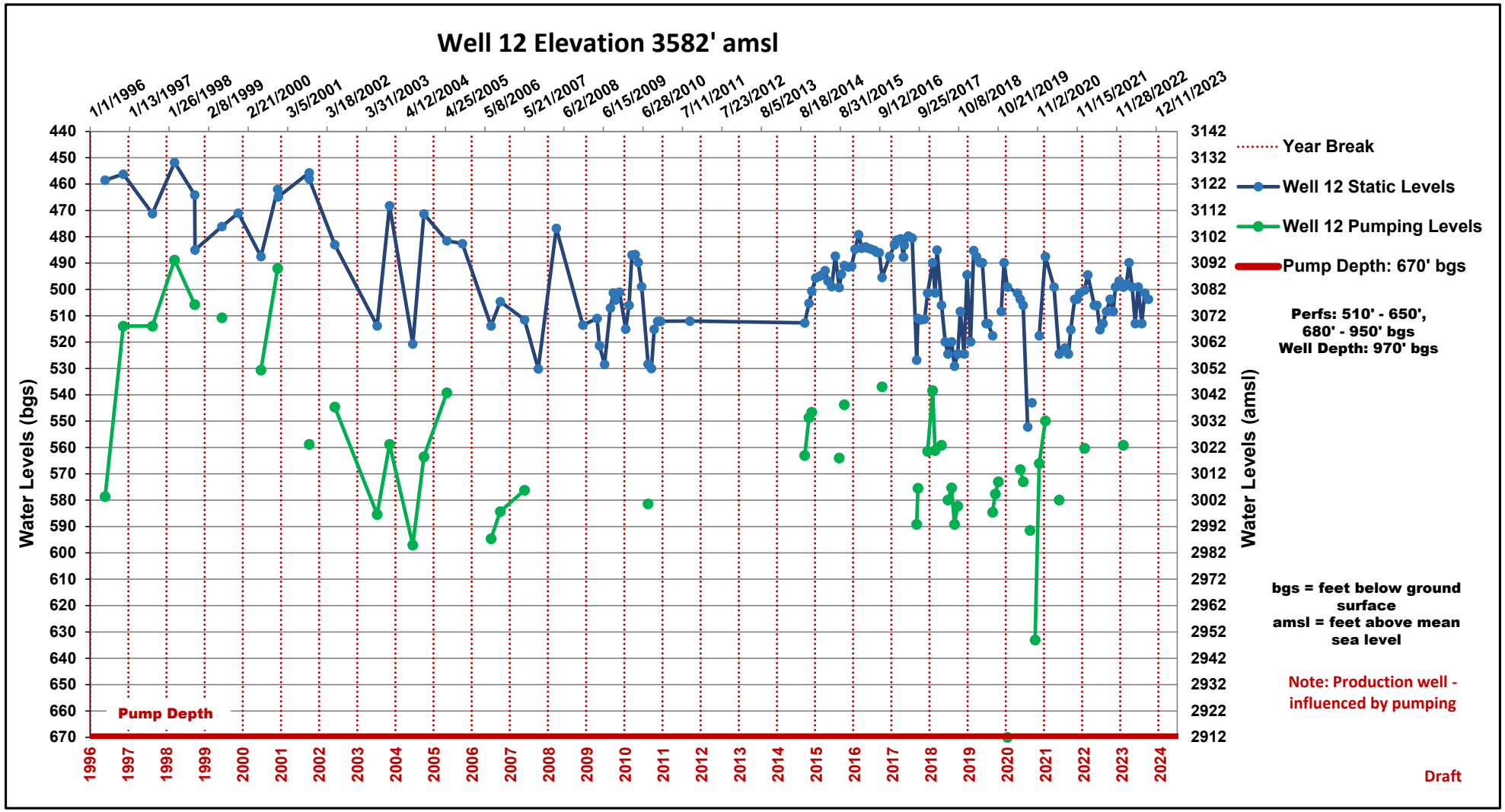

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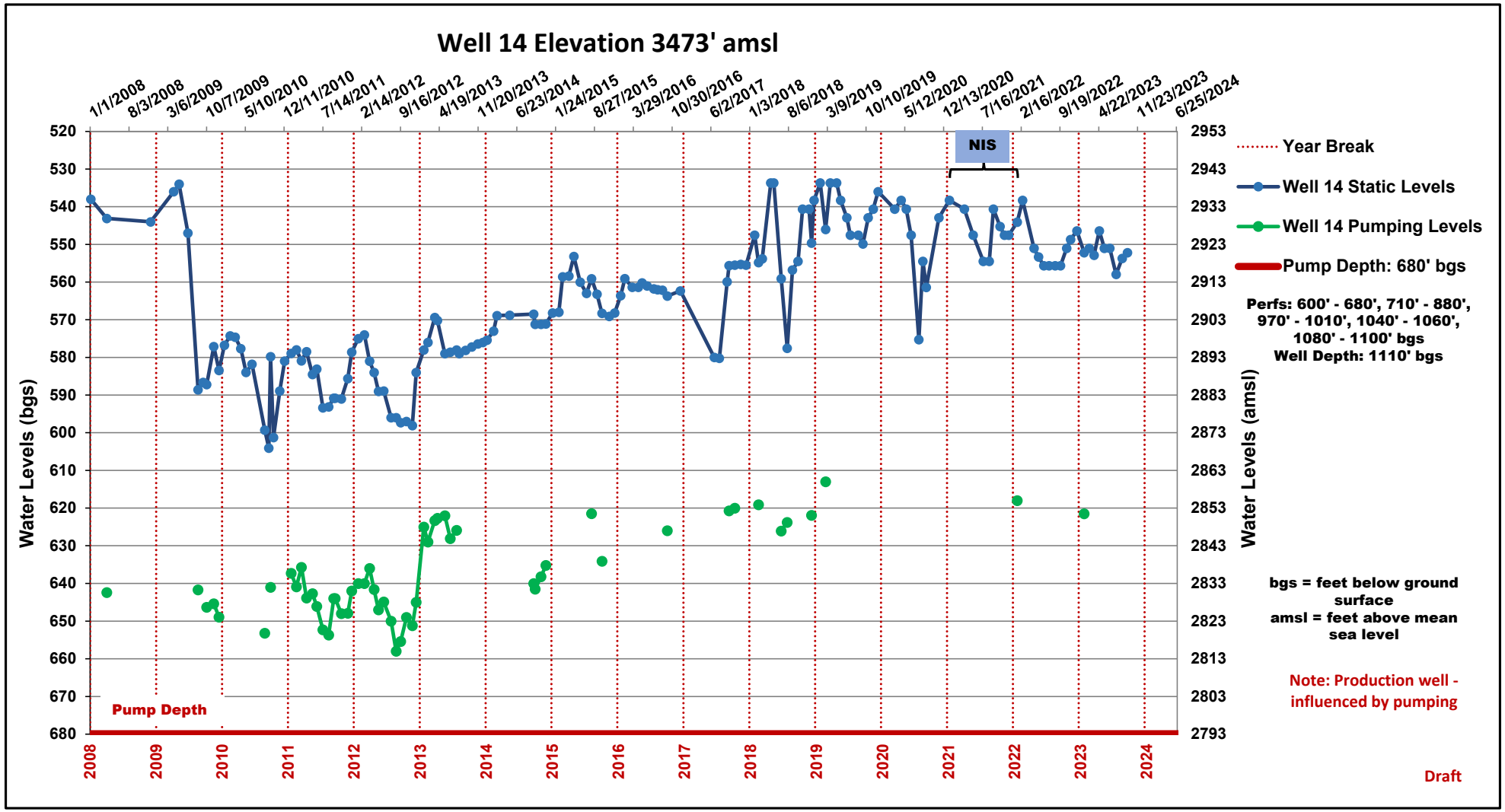

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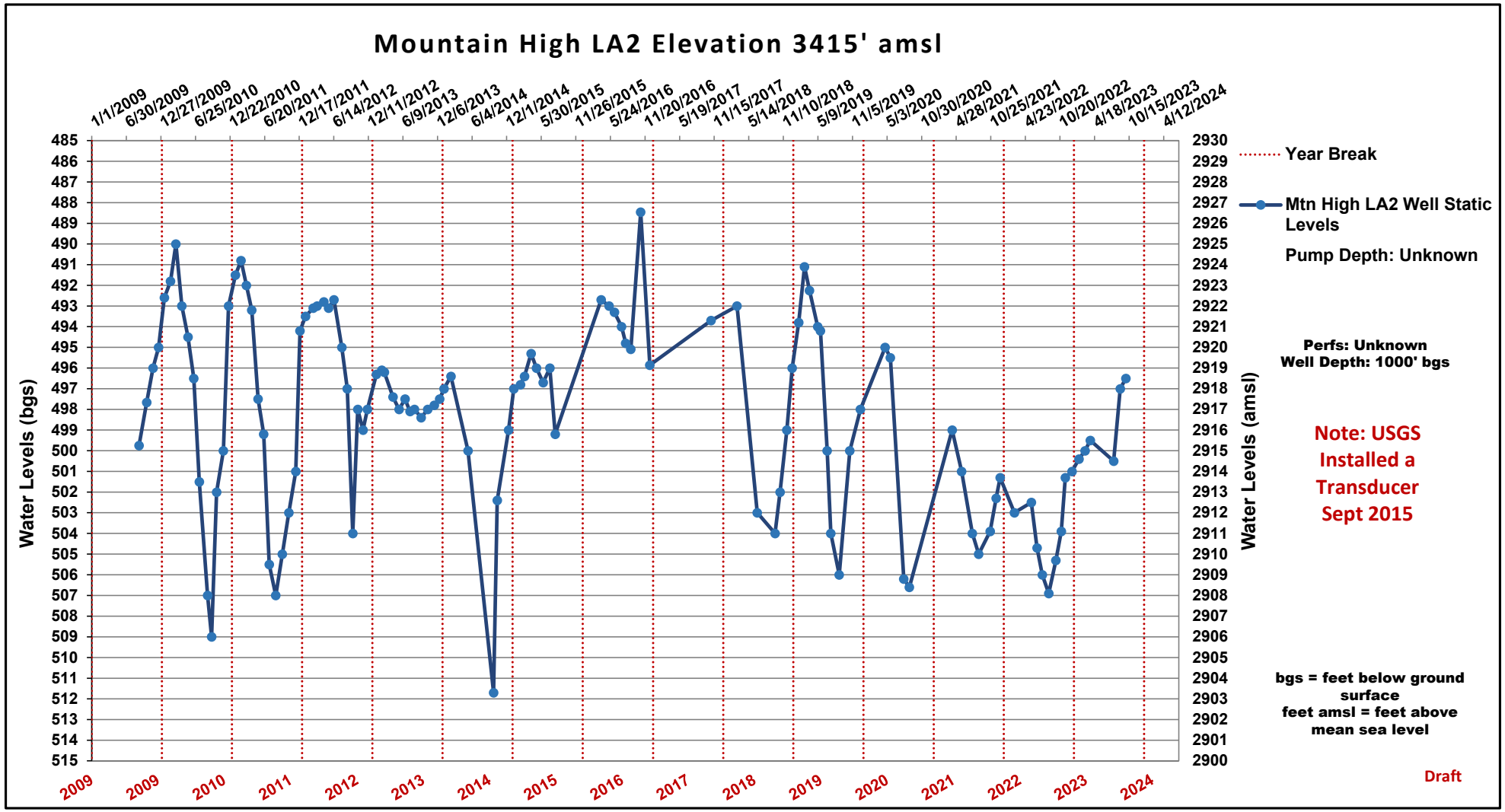

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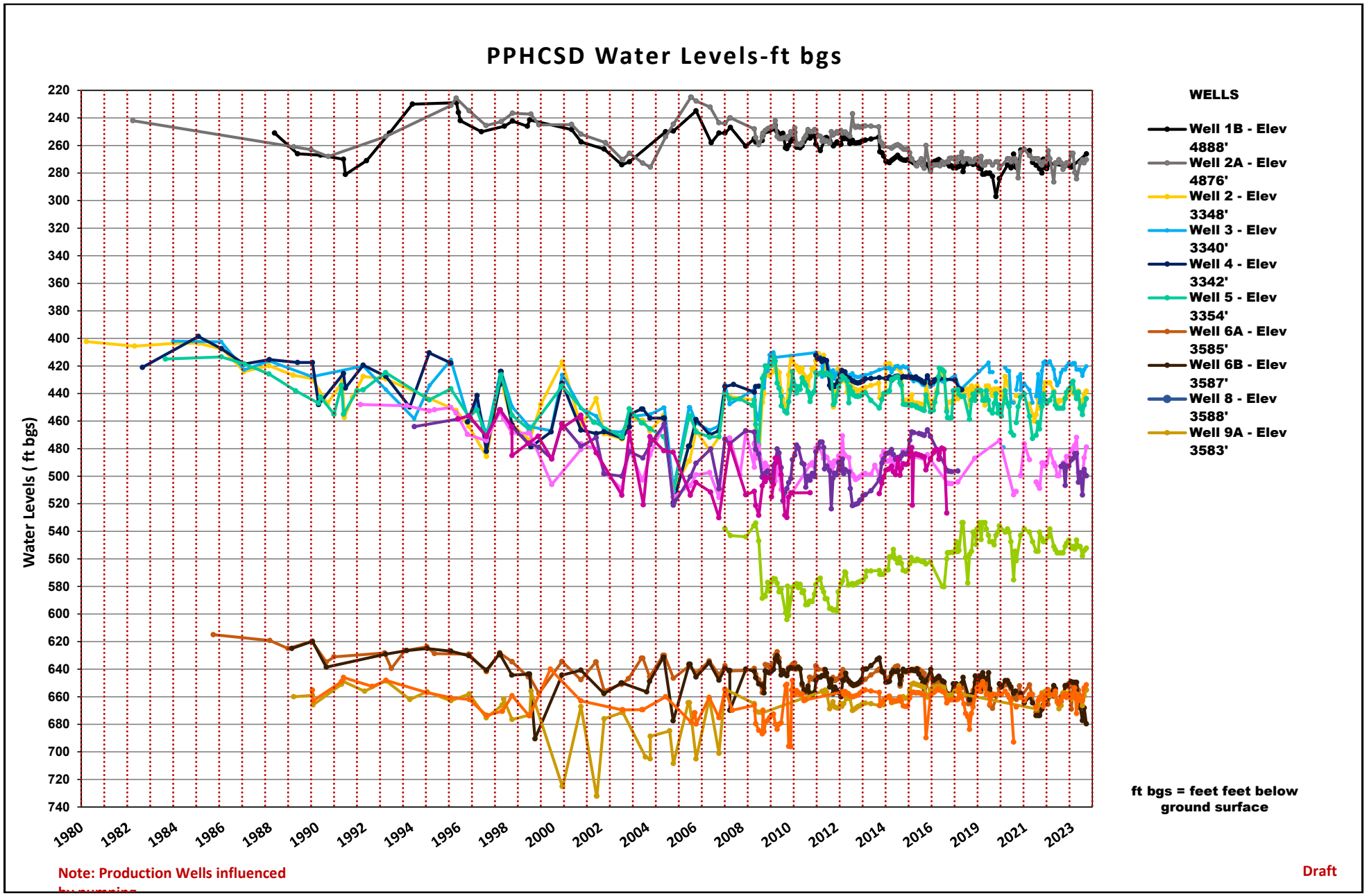
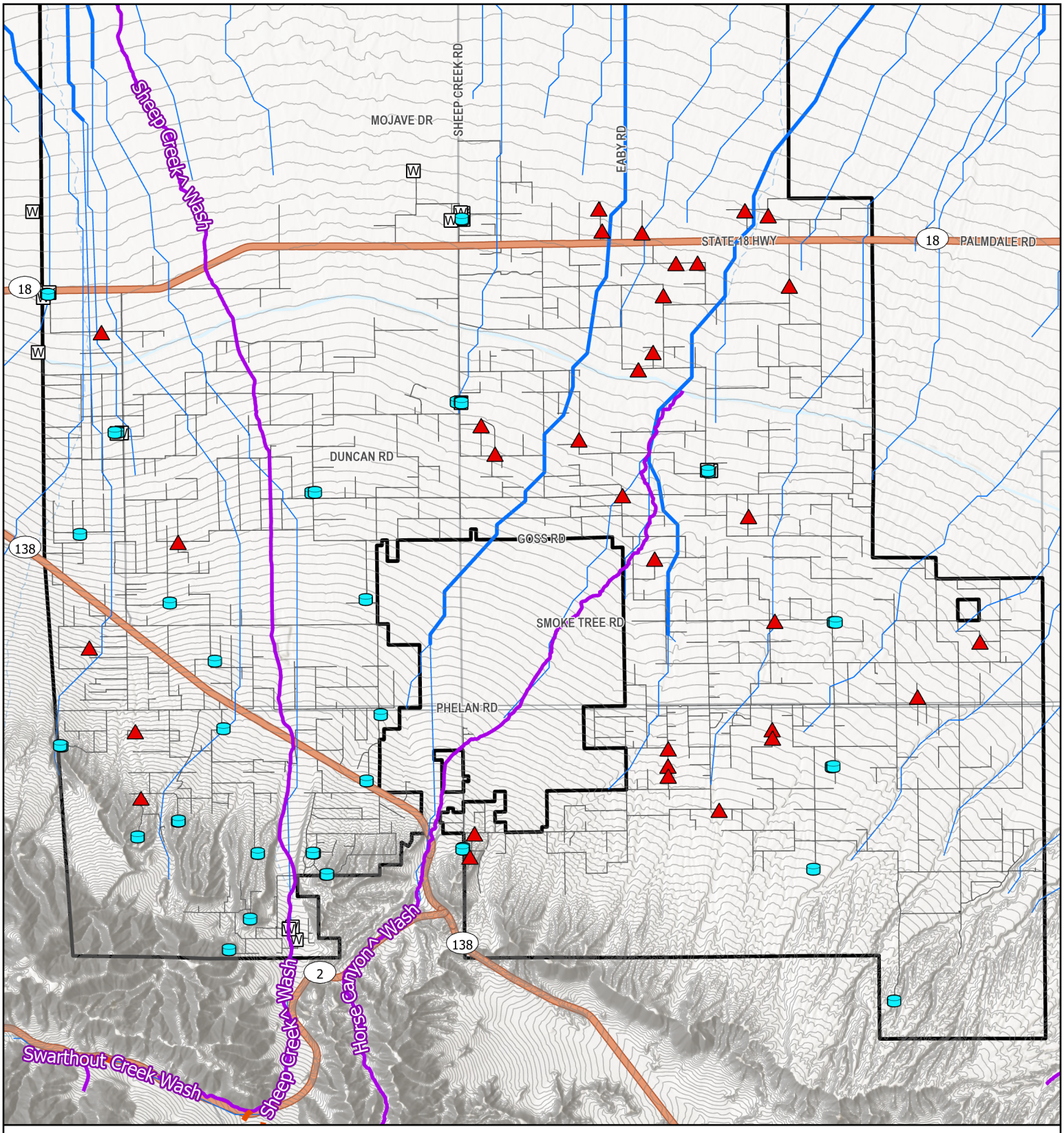


Hot Spots Map



Hot Spot Report
Tank
Wells
Water Mains
Contours 20ft
District Boundary

Stream Order Analysis
1
2
3
4

0 0.5 1 2 Miles

N

Phelan Piñon Hills Community Services District

Hot Spot Map

Phelan Piñon Hills CSD
Established 2008

Date Exported: 10/4/2023