

March 15, 2024

Ms. Audrey Kennoch, Managing Partner
 Western Land & Ranches, LLC
 7000 W. Smoke Ranch Road, Suite 150
 Las Vegas, NV 89128

RE: Summary Well Testing Results, Hydrogeology and Water Demand, Rancho Santa Ynez, Yavapai County, Arizona

Dear Ms. Kennoch:

Matrix New World Engineering (Matrix) has completed a 24-hour constant rate aquifer test of well 55-604527 (Big Well) located at Rancho Santa Ynez (RSY) in Yavapai County, Arizona. Drill Tech, Inc. of Chino Valley, Arizona was subcontracted to replace the existing 50-horsepower electric motor, to install a 1-inch PVC sounder tube to approximately 150 feet below land surface (bls), and to reconfigure the wellhead with a temporary flowmeter and gate valve discharge assembly per Matrix specifications. Data collected during step rate testing showed that the optimum peak flow rate of the pump equipment to be approximately 400 gallons per minute (gpm). A 24-hour constant rate aquifer test was performed on February 24-25, 2024. Water level data collected during testing is presented in **Attachment I**. Relevant well construction information and testing results from RSY Big Well are summarized in the following chart.

Chart 1 Summary Well Construction and Testing Results, RSY Big Well

ADWR Reg. No.	55-604527
Location	B(12-04) 22BDC
Casing Diameter	12.75 inches
Reported Drill Depth	183 feet
Year Installed	1963
Pump Equipment	50-HP electric motor with line-shaft turbine pump
Pump Intake Depth (est.)	170 feet
Static Water Level (2/24/24)	86.2 feet
Average Discharge Rate (24-hrs)	395 gpm
Pumping Water Level (24-hrs)	141.3 feet
Drawdown	55.1 feet
Specific Capacity	7.1 gpm/ft
Estimated Aquifer Transmissivity	15,500 gpd/ft
Water Quality	Arsenic – 0.0067 mg/L Nitrate – 0.9 mg/L TDS – 290 mg/L Fluoride – <0.4 mg/L

Summary Hydrogeologic Conditions

- The north-south trending Skull Valley groundwater sub-basin extends from Granite Mountain in the north to Yarnell in the south, and from Wilhoit in the east to Bismarck Mesa in the west. The deepest part of the basin is centered on Copper Basin Wash where the sequence of saturated conglomerate and volcanic rocks is estimated to be up to 4,800 feet thick.
- Depth to water at RSY ranges from approximately 27 to 86 feet bls; groundwater flow direction beneath the site is generally towards the northwest.
- RSY Big Well penetrates 97 feet of the regional volcanic rock aquifer which is approximately 1/3 of its total estimated thickness. Based on the saturated hydraulic conductivity of 21 feet/day calculated from aquifer test data, a theoretical well drilled at RSY that penetrates the full thickness of the aquifer (i.e., 400 feet bls) could potentially have a production capacity up to 1,350 gpm.
- Preliminary results of water quality testing conducted at several existing wells at RSY found concentration of arsenic, fluoride, and nitrate (as Nitrogen) below the respective Maximum Contaminant Level (MCL) as established for drinking water by Arizona Department of Environmental Quality (ADEQ). The Analytical Report for samples collected at the RSY Big Well near the conclusion of the 24-hour aquifer test are presented in **Attachment II**.


Water Usage Comparisons

- The estimated average annual water use rate for a single-family home in Yavapai County is 157 gallons per day. The total water demand for RSY (34.66 acre-feet per year) is equivalent to continuous pumping one theoretical well at 22 gpm. Based on results of aquifer testing the Big Well at 395 gpm, the impact to the aquifer from continuously pumping of 22 gpm for 100-years to supply the proposed 196 residential homes is a maximum drawdown of 4 feet.
- At full build-out, the average annual water usage of RSY is equivalent to approximately 0.09 acre-feet per acre (AFA). For comparative purposes, the amount of irrigation required to grow grapes is 1.6 AFA, and for pasture (alfalfa) is 4.9 AFA. As such, planting only 7-acres with alfalfa would use the same annual quantity of groundwater as the proposed subdivision.

Please contact the undersigned at (928) 771-0610 if you have any questions or require additional information.

Respectfully,

Matrix New World Engineering



Dylan J. Easthouse, RG
Senior Project Hydrogeologist



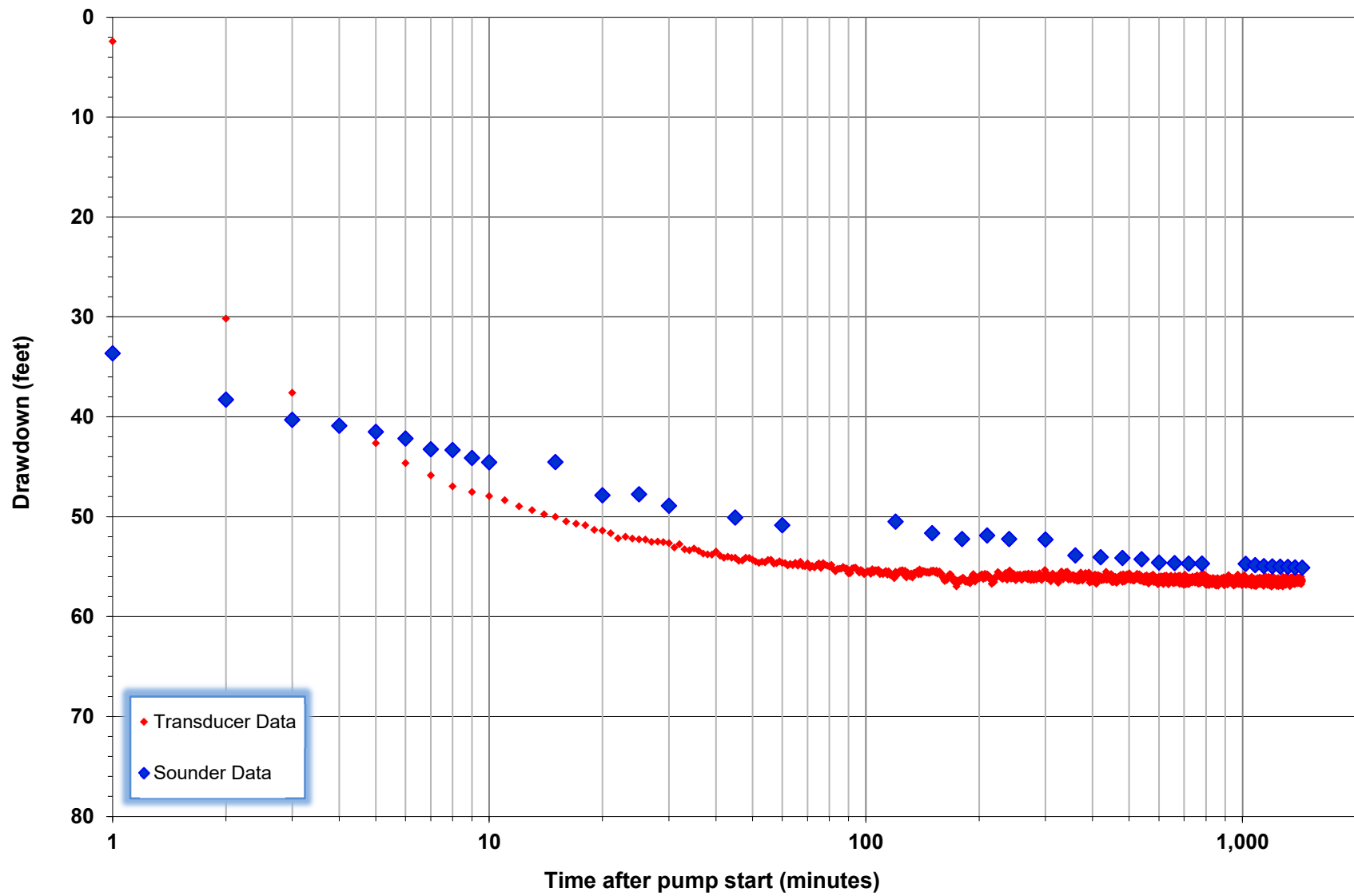
Attachments: Attachment I – Aquifer Test Data, RSY Big Well
Attachment II – Laboratory Analytical Report, RSY Big Well
Attachment III – Photographs, RSY Big Well

Ms. Audrey Kennoch, Western Land & Ranches, LLC
Tech Memo – Summary Big Well Testing Results
Rancho Santa Ynez, Yavapai County, Arizona
March 15, 2024

ATTACHMENT I

Aquifer Test Data, RSY Big Well

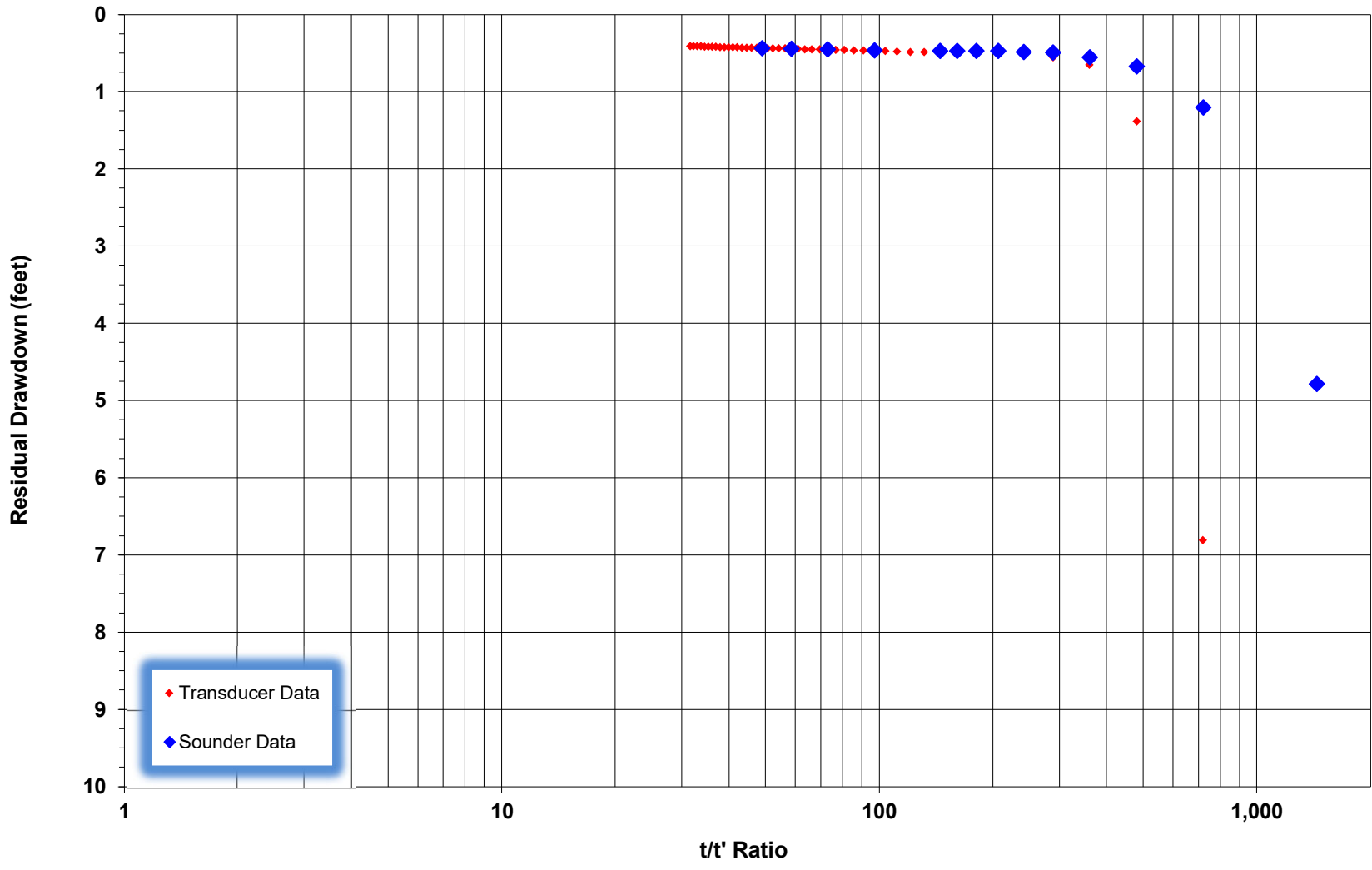
Job Number: 23-0839-05		Job Title: Rancho Santa Ynez - Big Well						
Well No.: 55- 604527		Reported By: G. Lawrence						
Pump Agency: Drill Tech				Static Water Level: 86.20 feet bls				
Foreman: Mike				Measure Point: Top of sounding tube				
Pump make, size, intake depth: 50HP Lineshaft @ ~170'				Stick-up: 0.5 feet				
Average Q (gpm): 395				Line Correction: feet				
Clock Time	Time Since Pump Start (t)	Sounder Reading	Pumping Water Level	Draw Down (s)	Discharge Rate (Q)	Specific Capacity	Specific Draw Down	Remarks
	minutes	feet	feet bls	feet	gpm	gpm/ft	ft/gpm	
9:00	0	86.70	86.20	-	-	-	-	Pump on
9:01	1	120.34	119.84	33.64	420	12.485	0.0801	
9:02	2	124.98	124.48	38.28	420	10.972	0.0911	
9:03	3	127.01	126.51	40.31	417	10.345	0.0967	
9:04	4	127.59	127.09	40.89	415	10.149	0.0985	
9:05	5	128.22	127.72	41.52	410	9.875	0.1013	
9:06	6	128.89	128.39	42.19	402	9.528	0.1050	
9:07	7	129.95	129.45	43.25	402	9.295	0.1076	
9:08	8	130.03	129.53	43.33	400	9.231	0.1083	
9:09	9	130.82	130.32	44.12	400	9.066	0.1103	
9:10	10	131.25	130.75	44.55	395	8.866	0.1128	
9:15	15	131.24	130.74	44.54	393	8.824	0.1133	
9:20	20	134.55	134.05	47.85	392	8.192	0.1221	
9:25	25	134.46	133.96	47.76	392	8.208	0.1218	
9:30	30	135.61	135.11	48.91	394	8.056	0.1241	
9:45	45	136.80	136.30	50.10	393	7.844	0.1275	
10:00	60	137.57	137.07	50.87	292	5.740	0.1742	
11:00	120	137.19	136.69	50.49	394	7.804	0.1281	
11:30	150	138.35	137.85	51.65	393	7.609	0.1314	
12:00	180	138.95	138.45	52.25	400	7.656	0.1306	
12:30	210	138.59	138.09	51.89	394	7.593	0.1317	
13:00	240	138.95	138.45	52.25	393	7.522	0.1330	
14:00	300	138.99	138.49	52.29	395	7.554	0.1324	
15:00	360	140.57	140.07	53.87	396	7.351	0.1360	
16:00	420	140.75	140.25	54.05	397	7.345	0.1361	
17:00	480	140.84	140.34	54.14	394	7.277	0.1374	
18:00	540	140.95	140.45	54.25	394	7.263	0.1377	
19:00	600	141.29	140.79	54.59	393	7.199	0.1389	
20:00	660	141.35	140.85	54.65	396	7.246	0.1380	
21:00	720	141.39	140.89	54.69	394	7.204	0.1388	
22:00	780	141.41	140.91	54.71	395	7.220	0.1385	



Date: 2/25/2024

Page: 1 of 1

Job Number: 23-0839-05		Job Title: Rancho Santa Ynez					
Well No.: 55- 604527		Reported By: J. Lawrence					
Pump Agency: Drill Tech				Static Water Level: 86.20 feet bls			
Foreman: Mike				Measure Point: Top of casing			
Pump make, size, intake depth:		50-HP electric motor with line-shaft turbine pump @ 170'		Stick-up: 0.5 feet			
Average Q (gpm): 395				Line Correction: 0 feet			
Clock Time	Time Since Pump Start (t)	Time Since Pump Stop (t')	Ratio t/t'	Sounder Reading	Recovery Water Level	Residual Draw Down (s')	Remarks
	minutes	minutes		feet	feet bls	feet	
9:00	1440	0	-	141.80	141.30	55.10	
9:01	1441	1	1441.0	91.49	90.99	4.79	
9:02	1442	2	721.0	87.91	87.41	1.21	
9:03	1443	3	481.0	87.38	86.88	0.68	
9:04	1444	4	361.0	87.26	86.76	0.56	
9:05	1445	5	289.0	87.20	86.70	0.50	
9:06	1446	6	241.0	87.19	86.69	0.49	
9:07	1447	7	206.7	87.18	86.68	0.48	
9:08	1448	8	181.0	87.18	86.68	0.48	
9:09	1449	9	161.0	87.18	86.68	0.48	
9:10	1450	10	145.0	87.18	86.68	0.48	
9:15	1455	15	97.0	87.17	86.67	0.47	
9:20	1460	20	73.0	87.16	86.66	0.46	
9:25	1465	25	58.6	87.15	86.65	0.45	
9:30	1470	30	49.0	87.14	86.64	0.44	



Ms. Audrey Kennoch, Western Land & Ranches, LLC
Tech Memo – Summary Big Well Testing Results
Rancho Santa Ynez, Yavapai County, Arizona
March 15, 2024

ATTACHMENT II

Laboratory Analytical Report, RSY Big Well

ANALYTICAL REPORT

PREPARED FOR

Attn: Dylan Easthouse
Matrix New World Engineering
123 E Goodwin St, Ste 200
Prescott, Arizona 86303

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JOB DESCRIPTION

Rancho Santa Ynez

JOB NUMBER

550-214780-1

Eurofins Phoenix

Job Notes

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Authorized for release by
Linda Eshelman, Project Manager II
linda.eshelman@et.eurofinsus.com
(602)659-7681

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Definitions/Glossary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
E2	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to sample matrix.
H1	Sample analysis performed past holding time.
H3	Sample was received and/ or analysis requested past holding time.
M1	Matrix spike recovery was high, the associated blank spike recovery was acceptable.
M2	Matrix spike recovery was low, the associated blank spike 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 was acceptable.
R4	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Metals

Qualifier	Qualifier Description
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above MDL.
E8	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
M1	Matrix spike recovery was high, the associated blank spike recovery was acceptable.

General Chemistry

Qualifier	Qualifier Description
D2	Sample required dilution due to high concentration of analyte.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike was acceptable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

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Definitions/Glossary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Case Narrative

Client: Matrix New World Engineering
Project: Rancho Santa Ynez

Job ID: 550-214780-1

Job ID: 550-214780-1

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Job Narrative 550-214780-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 2/27/2024 9:10 AM. 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 time was 2.1°C.

Receipt Exceptions

Nitrate/Nitrite/Orthophosphate were received past hold.

HPLC/IC

Method 300_ORGFMS: Due to the high concentration of Nitrate as N, Nitrite as N, Fluoride, Sulfate and Orthophosphate as P, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 550-316545 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 300_ORGFMS: The following sample was received outside of holding time: RSYBigWell-02252024 (550-214780-1).

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

Metals

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

General Chemistry

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

Eurofins Phoenix

Sample Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-214780-1	RSYBigWell-02252024	Water	02/25/24 08:45	02/27/24 09:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Client Sample ID: RSYBigWell-02252024

Lab Sample ID: 550-214780-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.90	H1 H3	0.050	mg/L	1		300.0	Total/NA
Sulfate	12		2.0	mg/L	1		300.0	Total/NA
SiO2, Silica	57		0.21	0.083 mg/L	1		200.7 Rev 4.4	Total/NA
Vanadium	0.013		0.010	0.00066 mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	0.0067	E4	0.10	0.0039 mg/L	1		200.7 Rev 4.4	Total/NA
Total Dissolved Solids	290		20	mg/L	1		SM 2540C	Total/NA
Total Phosphorus	0.67		0.020	mg/L	1		SM 4500 P E	Total/NA

This Detection Summary does not include radiochemical test results.

Euofins Phoenix

Client Sample Results

Client: Matrix New World Engineering
 Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Client Sample ID: RSYBigWell-02252024

Lab Sample ID: 550-214780-1

Date Collected: 02/25/24 08:45

Matrix: Water

Date Received: 02/27/24 09:10

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.90	H1 H3	0.050	mg/L			02/27/24 16:38	1
Nitrite as N	ND	H1 H3	0.050	mg/L			02/27/24 16:38	1
Fluoride	ND		0.40	mg/L			02/27/24 16:38	1
Sulfate	12		2.0	mg/L			02/27/24 16:38	1
Orthophosphate as P	ND	H1 H3	0.10	mg/L			02/27/24 16:38	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND	E8	0.10	0.010 mg/L		02/28/24 10:00	03/04/24 22:54	1
SiO2, Silica	57		0.21	0.083 mg/L		02/28/24 10:00	03/04/24 22:54	1
Vanadium	0.013		0.010	0.00066 mg/L		02/28/24 10:00	03/04/24 22:54	1
Arsenic	0.0067	E4	0.10	0.0039 mg/L		02/28/24 10:00	03/04/24 22:54	1
Chromium	ND	E8	0.010	0.00085 mg/L		02/28/24 10:00	03/04/24 22:54	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	290		20	mg/L			02/29/24 15:18	1
Total Phosphorus (SM 4500 P E)	0.67		0.020	mg/L		03/05/24 12:00	03/05/24 16:59	1

QC Sample Results

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 550-316545/2
Matrix: Water
Analysis Batch: 316545

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.050	mg/L			02/27/24 13:18	1
Nitrite as N	ND		0.050	mg/L			02/27/24 13:18	1
Fluoride	ND		0.40	mg/L			02/27/24 13:18	1
Sulfate	ND		2.0	mg/L			02/27/24 13:18	1
Orthophosphate as P	ND		0.10	mg/L			02/27/24 13:18	1

Lab Sample ID: LCS 550-316545/5
Matrix: Water
Analysis Batch: 316545

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	4.00	4.29		mg/L		107	90 - 110
Nitrite as N	4.00	4.00		mg/L		100	90 - 110
Fluoride	4.00	4.28		mg/L		107	90 - 110
Sulfate	20.0	21.1		mg/L		105	90 - 110
Orthophosphate as P	2.00	2.09		mg/L		105	90 - 110

Lab Sample ID: LCSD 550-316545/6
Matrix: Water
Analysis Batch: 316545

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
Nitrate as N	4.00	4.29		mg/L		107	90 - 110	0	20
Nitrite as N	4.00	4.01		mg/L		100	90 - 110	0	20
Fluoride	4.00	4.28		mg/L		107	90 - 110	0	20
Sulfate	20.0	21.0		mg/L		105	90 - 110	0	20
Orthophosphate as P	2.00	2.10		mg/L		105	90 - 110	0	20

Lab Sample ID: 550-214773-E-1 MS
Matrix: Water
Analysis Batch: 316545

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.45	R4 M1	4.00	10.9	M1	mg/L		262	80 - 120
Nitrite as N	ND	R4 M2	4.00	1.49	M2	mg/L		37	80 - 120
Fluoride	2.5	R4 M1	4.00	13.2	M1	mg/L		266	80 - 120
Sulfate	340	M3 E2	20.0	369	E2 M3	mg/L		124	80 - 120
Orthophosphate as P	0.44	R4 M1	2.00	6.45	M1	mg/L		301	80 - 120

Lab Sample ID: 550-214773-E-1 MSD
Matrix: Water
Analysis Batch: 316545

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	0.45	R4 M1	4.00	7.87	M1 R4	mg/L		185	80 - 120	33	20
Nitrite as N	ND	R4 M2	4.00	3.15	M2 R4	mg/L		79	80 - 120	71	20
Fluoride	2.5	R4 M1	4.00	10.2	M1 R4	mg/L		190	80 - 120	26	20
Sulfate	340	M3 E2	20.0	359	E2 M3	mg/L		75	80 - 120	3	20
Orthophosphate as P	0.44	R4 M1	2.00	4.74	M1 R4	mg/L		215	80 - 120	31	20

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QC Sample Results

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 550-316541/1-A
Matrix: Water
Analysis Batch: 316866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316541

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Iron	ND	E8	0.10	0.010 mg/L		02/28/24 10:00	03/04/24 22:28	1
SiO2, Silica	ND	E8	0.21	0.083 mg/L		02/28/24 10:00	03/04/24 22:28	1
Vanadium	ND	E8	0.010	0.00066 mg/L		02/28/24 10:00	03/04/24 22:28	1
Arsenic	ND	E8	0.10	0.0039 mg/L		02/28/24 10:00	03/04/24 22:28	1
Chromium	ND	E8	0.010	0.00085 mg/L		02/28/24 10:00	03/04/24 22:28	1

Lab Sample ID: LCS 550-316541/2-A
Matrix: Water
Analysis Batch: 316866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316541

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
SiO2, Silica	10.7	10.5		mg/L		99	85 - 115
Vanadium	1.00	0.986		mg/L		99	85 - 115
Arsenic	1.00	1.00		mg/L		100	85 - 115
Chromium	1.00	0.989		mg/L		99	85 - 115

Lab Sample ID: LCSD 550-316541/3-A
Matrix: Water
Analysis Batch: 316866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316541

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
SiO2, Silica	10.7	10.4		mg/L		98	85 - 115	1	20
Vanadium	1.00	0.949		mg/L		95	85 - 115	4	20
Arsenic	1.00	0.973		mg/L		97	85 - 115	3	20
Chromium	1.00	0.956		mg/L		96	85 - 115	3	20

Lab Sample ID: 550-214796-F-2-A MS
Matrix: Water
Analysis Batch: 316866

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 316541

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
SiO2, Silica	12	M1	10.7	25.8	M1	mg/L		133	70 - 130
Vanadium	0.0014	E4	1.00	0.995		mg/L		99	70 - 130
Arsenic	0.015	E4	1.00	1.05		mg/L		103	70 - 130
Chromium	ND	E8	1.00	0.988		mg/L		99	70 - 130

Lab Sample ID: 550-214796-F-2-B MSD
Matrix: Water
Analysis Batch: 316866

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 316541

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
SiO2, Silica	12	M1	10.7	24.9		mg/L		125	70 - 130	3	20
Vanadium	0.0014	E4	1.00	0.973		mg/L		97	70 - 130	2	20
Arsenic	0.015	E4	1.00	1.02		mg/L		101	70 - 130	3	20
Chromium	ND	E8	1.00	0.963		mg/L		96	70 - 130	3	20

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QC Sample Results

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 550-316649/1
Matrix: Water
Analysis Batch: 316649

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20	mg/L			02/29/24 15:18	1

Lab Sample ID: LCS 550-316649/2
Matrix: Water
Analysis Batch: 316649

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	974		mg/L		97	90 - 110

Lab Sample ID: LCSD 550-316649/3
Matrix: Water
Analysis Batch: 316649

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
Total Dissolved Solids	1000	998		mg/L		100	90 - 110	2	10

Lab Sample ID: 550-214841-A-3 DU
Matrix: Water
Analysis Batch: 316649

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1500		1500		mg/L		0.4	10

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 550-316874/3-A
Matrix: Water
Analysis Batch: 316910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316874

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus	ND		0.020	mg/L		03/05/24 12:00	03/05/24 16:59	1

Lab Sample ID: LCS 550-316874/4-A
Matrix: Water
Analysis Batch: 316910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus	0.300	0.310		mg/L		103	90 - 110

Lab Sample ID: LCSD 550-316874/5-A
Matrix: Water
Analysis Batch: 316910

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316874

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Phosphorus	0.300	0.295		mg/L		98	90 - 110	5	20

QC Sample Results

Client: Matrix New World Engineering
 Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Method: SM 4500 P E - Phosphorus (Continued)

Lab Sample ID: 550-214753-D-1-B MS
Matrix: Water
Analysis Batch: 316910

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 316874

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Total Phosphorus	2.6	M3 D2	0.300	2.58	D2 M3	mg/L		-20		80 - 120

Lab Sample ID: 550-214753-D-1-C MSD
Matrix: Water
Analysis Batch: 316910

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 316874

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Total Phosphorus	2.6	M3 D2	0.300	2.80	D2 M3	mg/L		52		80 - 120	8	20

QC Association Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

HPLC/IC

Analysis Batch: 316545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	300.0	
MB 550-316545/2	Method Blank	Total/NA	Water	300.0	
LCS 550-316545/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 550-316545/6	Lab Control Sample Dup	Total/NA	Water	300.0	
550-214773-E-1 MS	Matrix Spike	Total/NA	Water	300.0	
550-214773-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Metals

Prep Batch: 316541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	200.7	
MB 550-316541/1-A	Method Blank	Total/NA	Water	200.7	
LCS 550-316541/2-A	Lab Control Sample	Total/NA	Water	200.7	
LCSD 550-316541/3-A	Lab Control Sample Dup	Total/NA	Water	200.7	
550-214796-F-2-A MS	Matrix Spike	Total/NA	Water	200.7	
550-214796-F-2-B MSD	Matrix Spike Duplicate	Total/NA	Water	200.7	

Analysis Batch: 316866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	200.7 Rev 4.4	316541
MB 550-316541/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	316541
LCS 550-316541/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	316541
LCSD 550-316541/3-A	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	316541
550-214796-F-2-A MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	316541
550-214796-F-2-B MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	316541

General Chemistry

Analysis Batch: 316649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	SM 2540C	
MB 550-316649/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 550-316649/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 550-316649/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
550-214841-A-3 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 316874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	SM 4500 P B	
MB 550-316874/3-A	Method Blank	Total/NA	Water	SM 4500 P B	
LCS 550-316874/4-A	Lab Control Sample	Total/NA	Water	SM 4500 P B	
LCSD 550-316874/5-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 P B	
550-214753-D-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 P B	
550-214753-D-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 P B	

Analysis Batch: 316910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214780-1	RSYBigWell-02252024	Total/NA	Water	SM 4500 P E	316874
MB 550-316874/3-A	Method Blank	Total/NA	Water	SM 4500 P E	316874
LCS 550-316874/4-A	Lab Control Sample	Total/NA	Water	SM 4500 P E	316874
LCSD 550-316874/5-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 P E	316874

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QC Association Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

General Chemistry (Continued)

Analysis Batch: 316910 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-214753-D-1-B MS	Matrix Spike	Total/NA	Water	SM 4500 P E	316874
550-214753-D-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 P E	316874

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Client Sample ID: RSYBigWell-02252024

Lab Sample ID: 550-214780-1

Date Collected: 02/25/24 08:45

Matrix: Water

Date Received: 02/27/24 09:10

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	300.0		1	316545	AG1	EET PHX	02/27/24 16:38
Total/NA	Prep	200.7			316541	SGO	EET PHX	02/28/24 10:00
Total/NA	Analysis	200.7 Rev 4.4		1	316866	GLW	EET PHX	03/04/24 22:54
Total/NA	Analysis	SM 2540C		1	316649	GRW	EET PHX	02/29/24 15:18 - 03/04/24 13:20 ¹
Total/NA	Prep	SM 4500 P B			316874	ZH	EET PHX	03/05/24 12:00
Total/NA	Analysis	SM 4500 P E		1	316910	ZH	EET PHX	03/05/24 16:59

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET PHX = Eurofins Phoenix, 4625 East Cotton Center Boulevard, Suite #189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Laboratory: Eurofins Phoenix

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

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0728	06-10-24

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Matrix New World Engineering
Project/Site: Rancho Santa Ynez

Job ID: 550-214780-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET PHX
200.7 Rev 4.4	Metals (ICP)	EPA	EET PHX
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PHX
SM 4500 P E	Phosphorus	SM	EET PHX
200.7	Preparation, Total Metals	EPA	EET PHX
SM 4500 P B	Phosphorous, Total and Ortho	SM	EET PHX

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET PHX = Eurofins Phoenix, 4625 East Cotton Center Boulevard, Suite #189, Phoenix, AZ 85040, TEL (602)437-3340



Login Sample Receipt Checklist

Client: Matrix New World Engineering

Job Number: 550-214780-1

Login Number: 214780

List Source: Eurofins Phoenix

List Number: 1

Creator: Gravlin, Andrea

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
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	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

Ms. Audrey Kennoch, Western Land & Ranches, LLC
Tech Memo – Summary Big Well Testing Results
Rancho Santa Ynez, Yavapai County, Arizona
March 15, 2024

ATTACHMENT III

Photographs, RSY Big Well

Photo Log

Rancho Santa Ynez Big Well (55-604527), Yavapai County, AZ
Aquifer Testing, February 19 – March 1, 2024

PHOTO 1 (2/19/24): Original motor found with significant damages to its wiring caused by a pack rat (facing east).



PHOTO 2 (2/23/25): New 50-hp motor and elevated pump column to aim discharge assembly north during testing (facing west).



PHOTO 3 (2/23/24): Aquifer testing at 395 gallons per minute (facing north).



PHOTO 4 (3/1/24): Well head placed back into its original configuration (facing south).

