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Accepted for the record

EMNRD - Oil Conservation Division Mike Bratcher 506 W. Texas Ave Artesia, NM 88210

RE: West Pearl Queen Stage 1 Abatement Plan Site Investigation NMOCD reference: NOY181664460946

Mr. Bratcher:

Atkins Engineering Associates, Inc. (AEA), on behalf of Armstrong Energy Corporation, is pleased to provide this report for the West Pearl Queen Site (WPQ).

Previous consultants have worked on this site, and this Plan is submitted to prepare to enter the site into the abatement program described in NMAC 19.15.30 in conjunction with soil investigation and remediation plan submitted July 5, 2023 and to be performed by under NMAC 19.15.29.

Because of the legacy monitoring well installation, steps need to be taken to allow the full remediation efforts under NMAC 19.15.29 before proceeding into full Stage 1 Abatement investigation design.

This report will serve as a summary of site conditions, data collected to date, immediate actions proposed, and follow-up actions to prepare a full investigation.

Site Description

The WPQ is in the NE/4NW/4NE/4 Section 32, Township 19S, Range 35 East, NMPM at approximately 32.62295554°-103.4757431°, with a general land surface of 3,736 feet above mean sea level, from the USGS Topographic Map, all in Lea County New Mexico.

The site was formally a waterflood station and most of the appurtenances have been removed. Two excavations have been open on the site since approximately 2018.

Site Geology and Hydrogeology

The site falls in the Pearl Oil Field southwest of the Mescalero Escarpment or Ridge in what Nicholson Jr and Clebsch Jr (1961) call the Laguna Valley. This area is "covered entirely by dune sand which is stable or semi-stable over most of the area, but which locally drifts...The sand is generally underlain by Recent alluvium but in several places the sand forms topographic highs where it is underlain by a caliche surface." Underlying these quaternary age deposits, are tertiary Ogallala units and below that are Triassic red beds–Chinle followed by Santa Rosa/Sandstone. These red beds are eroded surfaces forming troughs with increasing thicknesses of alluvial fill.

Water has been observed in these troughs but is not necessarily regional. Water has been observed in the Triassic red beds in the Chinle or the Santa Rosa sections at greater depths.

Nicholson Jr and Clebsch Jr (1961) mapped the groundwater of Southern Lea County, but the Site and surrounding section are outside of the mapped alluvial aquifer.



Figure 1: WPQ and Surrouding Section vs. Nicolson and Clebsch 1961

Inventory of Wells

The WPQ is in the NE/4NW/4NE/4 of Section 32, Township 19S, Range 35 East N.M.P.M. To gather an inventory of wells in at least a 1-mile radius, AEA reviewed the Office of the State Engineer (OSE) <u>New Mexico Water Rights Reporting System (NMWRRS</u>) in the following PLSS descriptions.

Section 30, T19S, R35E	Section 29, T19S, R35E	Section 28, T19S, R35E
Section 31, T19S, R35E	WPQ Home Section Section 32, T19S, R35	Section 33, T19S, R35E
Section 6, T20S, R35E	Section 5 T20S, R35E	Section 4 T20S, R35E

Copies of the database searches are found in Appendix A: NMWRRS Query_, and the results are discussed below.

NMWRRS 19S 35E Section 28

One point of diversion **reported** being L-14553 POD12. This well is a permitted commercial point of diversion associated with an appropriation of groundwater to be drilled in the NE/4NE/4SE/4 of said Section 28. It has not been drilled but would be drilled to depths of approximately 1,400 feet below land surface. Based on permitted coordinate, this well would be approximately 1.30 miles north/northeast from the WPQ and based on the observed gradient of the water discovered below the WPQ, this location would be upgradient (see discussion below).

Point of diversion L-14553 POD14 is listed as being in Section 29, however a review of the application and permitted conditions of approval show the well should be located in the NE/4NE/4 NE/4 of **Section 28**. The well has not been drilled but would be drilled to a depth of approximately 1,400 feet below land surface. Based on the permitted coordinate, this well would be approximately 1.55 miles north/northeast from the WPQ.

NMWRRS 19S 35E Section 29

One point of diversion reported being L-14553 POD14. This well is mislocated in NMWRS, see discussion above. So, there are no actual points of diversion in this Section according to OSE.

NMWRRS 19S 35E Section 30

One point of diversion entry reported being RA-12222. This is a mis-entry in the NMWRRS as permit RA-12222 were five (5) exploratory wells permitted by AEA for a soil investigation in the Roswell Artesian Basin. The borings were in Section 30 of Township 19S, Range 25E not Range 35E. There are no actual points of diversion in this Section according to OSE.

NMWRRS 19S 35E Section 31

No points of diversion are reported in this Section.

NMWRRS 19S 35E Section 32

This is the home section of the WPQ and there are 18 points of diversion reported in this section all associated with the investigatory drilling activities performed to date by previous consultants (See discussion below) No other points of diversion were reported in the Section.

NMWRRS 20S 35E Section 04

There are six reported points of diversion in this Section: L-4627, L-14552 POD8, POD10, POD11, POD12, and POD13

Point of diversion, L-4627 is a stock well located in the NE/4NE/4 of Section 4, Township 20S, Range 35E NMPM and listed as being owned by Thelma A. Linam. This well was permitted in 1961, though the permit indicates the well was drilled prior to that date. No well record or log was entered in NMWRRS.

The remaining five points of diversion L-14552 POD8, POD10, POD11, POD12, POD13 are associated with a commercial appropriation of groundwater and are, or to be, located respectively in the SE/4NW/4SW/4, SE/4SE/4SW/4, SE/4NE/4SW/4, NE/4SW/4NE/4 and SW/4SE/4SE/4. Well L-14552 POD 12 was drilled under an exploratory application and is 1390 feet deep, screened from 916 through 1379 feet, cemented from 0-920feet and has an observed water level of 553 feet below land surface. Well L-14552 POD12 is approximately 1.55 miles from the WPQ.

NMWRRS 20S 35E Section 05

There are three (3) reported points of diversion in this Section: L-4158, L-14552 3, L-14552 POD3.

Point of diversion, L-4158, was located. Well L-4158 is a stock well permitted and drilled in 1959 at a point in the NE/4 SE/4 of Section 5, Township 20S, Range 35E NMPM. The owner is listed as Virgil Linam. A well record was available on NMWRRS and indicates the well was drilled to a total depth of 70 feet with a water level on completion at 64 feet. The log indicates the red bed was encountered at 68 feet.

Point of diversion L-14552 3 was an exploratory permit that was never drilled. Point of diversion L-14552 POD3 is the permitted commercial appropriation well, at the same location as L-14552 3, and it has not been drilled. If/when drilled this well would be located approximately 1.22 miles southwest of WPQ.

NMWRRS 20S 35E Section 06

There are two (2) reported points of diversion in this section: L-4157 and L-14097 POD1.

L-4157 is a stock well permitted and drilled in 1959 at a point in the SW/4 SW/4 of Section 6, Township 20S, Range 35E NMPM. The owner is listed as Virgil Linam. A well record was available on NMWRRS and indicates the well was drilled to a total depth of 70 feet with a water level on completion at 64 feet. This well is shown on the USGS topographic map and is near the same location as L-14097 POD1 below. This well is approximately 2.44 miles southwest of the WPQ.

Point of diversion L-14097 POD 1 is a stock well located in the NW/4SW/4SW/4 Section 6 and is approximately 61 feet in depth. The well is approximately 2.44 miles southwest of the WPQ.

Surface Water Hydrology

There are no surface water features near the site. Please refer to the approved PIMA WorkPlan dated July 5, 2023, showing the nearest identified Playa.

Previous Events/Work

The following is a summary of some of the previous events and work that have occurred on site. During excavation of the site (2018) trenches were dug to 20 feet and were dry in sand initially, but the excavation struck an active freshwater line crossing the site. This freshwater line is fed from well(s) approximately 9 miles to the east/northeast of WPQ near the intersection of Arkansas Junction and Highway 62 in Lea County. Water is delivered via gravity to Marathon Road water station to the west of WPQ approximately 2 miles. The freshwater quality is high and samples from the active well show chlorides of <30 mg/L, TDS of <350 mg/L and no BTEX above laboratory detection limits.

The excavation filled with this fresh water and was dewatered by pump as much as possible and recovered water was properly disposed. A reroute of the line and temporary repair also failed resulting in a second filling of the excavation. Precipitation events since then have resulted in additional loading of freshwater in the local area. This is especially pronounced in February of 2020. Lastly another failure on the freshwater surface line reroute resulted in a filling of the excavation in September of 2021.

In 2020, previous consultants installed borings (SB-1 through SB-17) and converted some into shallow monitoring wells SB-2, SB-4, SB-5, SB-7, SB-13, SB-14 in/near the footprint of the site and excavation as shown below in Figure 2(See Appendix B: Well Records).

When water was encountered, AEA was contacted and reviewed the situation. AEA surveyors determined the location of the wells and tied the top of casing measuring points together using the techniques described in the Surveying below (See Appendix C: Survey Reports).

Water level measurements and sampling events were performed (by the consultant during/after installation, and then by AEA over time), and the following observations were made.

- Not all of the soil borings appear to have been advanced to the red bed.
- Several of the perimeter soil borings do not show water, or more specifically were not conclusive as to the presence of water at elevations consistent with the nearby observed water levels.
- A localized interpretation of the red bed using the soil boring information shows an apparent trough running from the northeast to the southwest, with the red bed encountered at shallow elevations to the northwest and southeast than in the "heart" of the excavation. This mapping is limited somewhat by direct observation of cuttings, variability of descriptions, placement of wells, etc.
- Boring/Well SB-5 well record shows no initial water encountered and was advanced to 55 feet into the red bed. The lower 30 feet was plugged with bentonite and then that boring was completed shallowly and showed water at 15.38 feet.



Figure 2: Contour Map redbed

The following are a series of groundwater maps developed by AEA from reported water levels from installation through April 2023 (See Table 1: Groundwater Elevations).



Figure 3: April 2020 Water Table Map



Figure 4: June 2020 Water Table Map



Figure 5: October 2020 Water Level Map



Figure 6: May 2022 Water Level Map-Shallow only



Figure 7: April 2023 Water Level Map-Shallow Only

The April 2020 water level measurements showed a mound of water in the center of the excavation and a general gradient to the south and west. In June 2020, any mounding appears to have dissipated, and the overall gradient is flattening out to the southwest. The water level decline in the center of the excavation is pronounced, but less at the edges.

In October 2020, the declining water levels continued the groundwater direction remains the same, and the gradient continued to flatten. Overall, the direction of flow appears consistent, the gradient is decreasing and water levels in/near the center of the excavation declined sharply over the 2020 observation time frame.

The May 2022 gauging shows a slight increase in water levels from 2020. The excavation has remained open to precipitation events and that coupled with a documented freshwater release in 2021 could be contributing factors.

In April 2023, the overall elevations continued to decline, and the gradient is very slight across the site. The overall decline in the entire observation period is significant, especially when considering that there is no apparent groundwater pumping in the vicinity of the site (there are no known production water wells in the WPQ home Section). Chart 1 is a hydrograph of the groundwater elevations over time.



Chart 1: Shallow Well WLE vs. Time

Table 1 shows the water level measurements to date.

Taking in all the site information, location, history, and observations made, AEA believed that the water encountered may be artificial (from freshwater leak initial and subsequently, and precipitation/drainage into the excavation).

There is also the potential that it could be groundwater found above the red bed with limited thickness and then artificially "increased" by the events noted above.

To further assess the situation, AEA recommended additional wells be drilled away from the excavation, in each ordinal direction, to the top of the red bed and then screened to see if water was present in that interval.

Deeper Well Installation

In August 2021, the previous consultant proceeded to install four "deeper" monitor wells (SB-20, SB-21, SB-22, SB-23 under OSE permit L-15106 PODS 1-4); however, these wells **were not** advanced just to just the top of the red bed. (See Appendix B: Well Records).

These deeper wells were advanced through the alluvial formation and into the Triassic red bed to depths of approximately 55 feet below land surface. Each boring was completed as a monitoring well with a five-foot screen interval at the bottom of each monitoring well. The water level in each well appears to have risen in these wells. When analyzing the well records the following is noted:

DEPTH (feet bgl) COLOR AND TYPE OF MATERIAL ENCOUNTERED -WATER THICKNESS BEARING? INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (feet) FROM TO (YES / NO) (attach supplemental sheets to fully describe all units) 0 20 20 Reddish Orange Silty sand w/some clay and gravel, occasional caliche soft Y ✓ N 20 ~28 ~8 White Silty sand w/some clay and gravel, interbedded caliche soft ✓ Y N 57 29 Y ✓ N 28 Reddish Orange to purple poorly graded fine sand and caliche, dry hard

SB-20 drilled to the north of the site with the following reported lithology:

The well is screened at 51-56 feet with bentonite seal from 2-48 feet. Water was first encountered: moist at 21 feet with a static water level at 21 feet. The well record is confusing because it states that interval 20-28 is water bearing, however, this interval was sealed with bentonite. It could be that there was water above the red bed and from the deeper screened interval.

SB-21 drilled to the west of the site with the following reported lithology:

DEPTH (feet bgl)		COLOR AND TYPE OF MATERIAL ENCOUNTERED -	WA	ATER .RING? S / NO)	
FROM	DM TO (feet) INC		INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)		
0	30	30	Reddish Orange Silty sand w/some clay and gravel, occasional caliche soft	Y	√ N	
30	56	26	Reddish Orange to purple poorly graded fine sand and caliche, dry hard	Y	✓ N	
			becomes wet at approximately 50.5	✓ Y	N	

The well is screened from 50-55 feet with bentonite from 2 to 47 feet. Water was first encountered at 50.5 feet, with a static water level at 46.5 feet

SB-22 drilled to the south of the site with the following reported lithology:

DEPTH (feet bgl)			COLOR AND TYPE OF MATERIAL ENCOUNTERED -	WA	TED	
FROM	FROM TO (feet)		INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)		BEARING? (YES / NO)	
0	30	30	Reddish Orange Silty sand w/some clay and gravel, occasional caliche soft	Y	✓ N	
30	56	26	Reddish Orange to purple poorly graded fine sand and caliche, dry hard	Y	✓ N	

The well is screened from 51-55 feet with bentonite from 48-56 feet. Water first encountered listed as moist at 28 feet and static water level of 21 feet.

AEA could not locate an OSE well record for SB-23 but a field log shows:

PVC 2 inch			Length: Latitude: 53				32.6	52201	Drive Total Depth: 58'	Well Total Depth: 58°		
Screen Type PVC	E.	Slot: 0.010 in	ich	Diameter: 2 inch		Length: 5'	Longitude:	-103.4	7587000	Boring Total Depth: 58'	Depth to Water: 54.3'	
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	PID (ppm)	USCS	Sample ID	Litholo	gy/Remarks	Well Completion	
5 10		Low	Dry	No	No	-			Tan, orange. Sa	nd with silts. Some	+	
15 20		Med	Dry	No	No	-			caliche	e graveis.	+	
25 30		Low	Dry	No	No	1				a ninke. Calicha miy	-	
35 40	NA	Low	Dry	No	No	5		NA	Poorly graded	l with fine sands.		
45 50		Low	Dry	No	No				Purple/red clays. 5 Fin	Some caliche gravels. e sand		
55 60		Low	SL	No	No	-			Purple/red clays Some gravles. P depth - 58	. Fine sands. Hard. oorly graded. Total '. GW at 54.3'	-	

This boring appears dry until around 50 feet with an installed screen from 53 -55 feet, bentonite from 0-53 feet and a water level at 54.3 feet.

These wells were all drilled via air rotary and with grab sampling. Air rotary has advantages, specifically speed, and the ability to penetrate harder sections like caliche and the red bed; however, it makes precise logging difficult. Usually when water is encountered it does become apparent with moisture at the drill string entry point or diverter.

Purple in the lithological descriptions is consistent with the Chinle red bed, as is dry/hard, and these logs when interpreted against the regional shothole records appear to show a short section of "alluvial" and then the red bed at relatively shallow depths.

SB-20 is interesting because it shows moisture at 21' which would above the apparent red bed. SB-21 doesn't show any moisture until deeper and then a slight rise in static, SB-22 shows some moisture above the red bed but is screened lower, and SB-23 shows dry until total depth and then a deep static water level.

In May 2022, AEA was contracted to survey the new monitoring wells into the existing site network (See Appendix C: Survey Reports), and gauge/ sample these wells together with the existing wells. The gauging showed differing water levels than those documented at install.

Well ID	August 2021 Well Record/Field	May 2022 Static water level
	log static water level (unknown measuring point)	(from TOC)
SB-20	21 feet	25.90 feet
SB-21	46.5 feet	30.20 feet
SB-22	21 feet	29.43 feet
SB-23	54.3 feet	25.40 feet

Wells SB-21 and SB-23 showed a significant rise of water in the casing from installation. Wells SB-20 and 22 showed a decline of approximately 5 and 8 feet respectively. The following maps show the potentiometric surface map of the deeper wells.



Figure 8: May 2022 Potentiometric Surface Map-Deep Wells



Figure 9: April 2023 Potentiometric Surface Map-Deep Wells

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Mapping of the water level elevations in the deeper wells show a steep gradient to the east/southeast. As the gradient is projected across the site, the elevations observed would be below the shallow well water level elevation-by approximately 3-4 feet when compared to the May 2022 data, and approximately 1 foot when compared to the April 2023 data.

Furthermore, the observed change in water levels from 2022-2023 are not consistent when comparing shallow versus deeper wells, with a more pronounced decline in the shallow wells in that period. Chart 2 is a hydrograph of the shallow and deeper wells over time.



Figure 10: Shallow and Deeper well water level elevation vs. Time.

The contrast between the deeper well and shallower wells in gradient direction, slope, change in water level, and quality (below) suggests different sources.

Groundwater Sampling to Date

The previous consultant collected groundwater samples in April 2020. AEA collected groundwater samples in May 2022 and April 2023. Table 2 shows the results of the groundwater sampling to date and the analytical reports and COC documentation is included in Appendix D: Groundwater Lab Reports. Wells SB-07(all sampling events) and SB-13(first sampling event)

showed Benzene above the New Mexico Water Quality Control Commission standard of 5 µg/L. Downgradient well SB-2 has always reported benzene and other volatile compounds below laboratory reporting limits.

Chloride concentrations in the shallow site wells are highly variable but appear to be declining from 2020-2023 except in well SB-13. The chloride concentrations in the perimeter deeper wells are considerable higher than any concentrations observed in the shallower wells. The observed elevated chloride concentrations in the shallow wells cannot be readily compared to any background because there is not an optimal upgradient shallow well and not any nearby historical well within 0.5 miles of the site.

The nearest wells with some historic water quality data and believed to be completed above the red bed are L-4158 located in the SE/4NW/4SW/4 Section 5, Township 20 South, Range 35 East and L-4157 located in the NW/4SW/4SW/4 Section 6, Township 20 South, Range 35 East.

According to OSE Field schedules L-4158 has historic reported chlorides of 350 mg/L and 230 mg/L and well L-4157 has reported chlorides of 876 mg/L (see below).

Chlorides around well SB-5 were higher than any of the other nearby shallow wells. There is some concern about the installation of that well given that it was installed deeper originally and plugged back with bentonite.

Also, methylene chloride was found above the NMWQCC standard of 5 μ g/L in all the deeper wells (SB-20 **187** μ g/L, SB-21 **56.6** μ g/L , SB-22 **254** μ g/L , SB-23 **54.0** μ g/L), and was below laboratory reporting limits in the all the shallow wells except well SB-5 at 3.21 μ g/L.

The water sampled in the deeper wells reports chlorides levels that do not appear consistent with groundwater in southeastern New Mexico found in alluvial or Triassic formations. The water observed is above 10,000 mg/L TDS based on the chloride concentrations.

The initial sampling showed the apparent upgradient wells SB-20 (to the north) and SB-22 (to the west) as having the highest chloride concentrations 185,000 mg/L and 170,000 mg/L respectively. The April 2023 sampling event showed a large drop in SB-20 while SB-22 results declined but not as dramatically, SB-21 chloride concentration has remained consistent across both events, and SB-23 has reported the lowest concentrations in each sampling event relative to the other wells.

The deeper well water quality is concerning when considering the level of chlorides, the annular seal material used and the apparent rise in water level from depth– suggesting a confined condition. The potential for degradation of the annualar seal and upward leaking to/above the red bed, needs to be addressed.

Proposed Initial steps

The activities to date have generated data-but variable conclusions can be drawn.

Critically, the location of some of the monitoring wells impedes the resolution of the soil excavation activities approved under 19.15.29. To excavate the apparent soil contamination and prevent any additional leaching into the observed water, the wells need to be properly plugged and abandoned.

AEA recommends sampling all current site wells and plugging those wells within the excavation area to allow for the soil excavation work.

The deeper wells construction is concerning because they appear to suggest a deeper encountered water, that appears to be under pressure, and is poor quality that is not consistent with the shallow observed water. The high chloride concentrations are not compatible with the use of bentonite as an annular sealing material.

AEA recommends the deeper wells be plugged by over-gauged drilling to total depth and then plugged with a neat cement mixture designed by Baroid to deal with the high observed chlorides. Because of the initial installation of SB-5, AEA recommends it be plugged similarly to the deeper wells.

Before plugging, however, a round of sampling can collect current site conditions and guide the reinstallation of wells at the site for a full Stage 1 Abatement investigation proposal.

Groundwater Sampling of all site wells

Fluid levels in each well (SB-2, SB-4, SB-5, SB-7, SB-13, SB-20, SB-21, SB-22, SB-23) will be measured with the use of an oil-water Solinist Interface probe, or equivalent.

Following water level determination, wells will be purged using new dedicated, disposable, polyethylene bailers. A minimum of three (3) casing volumes will be removed from each well prior to sampling to ensure that a representative sample of groundwater is obtained. If a well is

purged dry, it will be sampled once the well has recharged. During purging, groundwater field parameters, including dissolved oxygen [DO], oxidation/reduction potential [ORP], electrical conductivity [EC], pH, and temperature, will be measured using a calibrated YSI Professional Plus or equivalent multi-parameter device and recorded on field datasheets. Purge and decontamination water will be containerized and properly disposed of at an appropriately registered facility.

Once purged, the wells will be sampled. To minimize volatilization and ensure sample integrity, polyethylene bottom-emptying devices will be used to transfer groundwater samples from the bailers to the appropriate laboratory-prepared sample containers. Care will be exercised to fill the container completely, without overflowing.

The samples will be labeled and preserved on ice in an insulated cooler for shipment or delivery to Enviro Tech of Farmington New Mexico. Groundwater samples will be analyzed for Chlorides using EPA Method 300.1 and volatiles using EPA Method 8260B.

Hydraulic Conductivity Test

Prior to abandonment activities, an estimate of hydraulic conductivity in a shallow well (SB-14) and a deeper well (SB-22) will be conducted consistent with USGS GWPPD 17 found in below

Plug and Abandonment of Shallow wells.

Plug and abandon SB-4, SB-7 and SB-13 with Type I/II neat cement mixed to no more than 6.0 gallons/94 lb sack and tremied from the bottom to land surface in lifts. Before plugging, AEA will file and receive approval of the plugging plan of operations with the D2 Office of the State Engineer. The abandonment approach will seal the casing at depth in the water bearing zone though the casings above will likely be destroyed during excavation activities.

Plug and Abandonment of Deeper wells

Plug and abandon SB-5, SB-20, SB-21, SB-22 and SB-23. Augers will be advanced to the total reported original depth using 4.25" (8.5" O.D.) augers and plugged with Type I/II neat cement and additives recommended by Baroid, and tremied from the bottom to land surface in lifts. Before plugging, AEA will file and receive approval of the plugging plan of operations with OSE.

Monitoring Well Installation/ Well surface completion

Excavation and backfilling of the site will be completed before the monitor well install will occur. Prior to drilling the owner/consultant will notify and seek the necessary permission from the landowner to obtain monitoring well permits from the OSE. Well drilling will be completed by a driller licensed in the State of New Mexico.

Prior to the field event, the boring locations will be white lined consistent with NM 811 standards and a "One Call" will be placed at least three days before the start of drilling. The landowner and NMOCD will be contacted at least one week before the field activities.

Three borings (SB-5R, SB-7R and SB-24) will be installed using a hollow stem auger (HSA) rig. The boreholes shall be a minimum of 4" greater than the 2.375" outside diameter of the well materials. The borings will be drilled to the top of the Chinle red bed to a total depth of approximately twenty-eight to thirty-two (28-32) feet below ground surface (ft bgs) at the locations shown on Figure 10, below. The total depth of each boring will be determined in the field by the on-site geologist/scientist. A static water level of eighteen to twenty-two (18-22) ft bgs is anticipated at the site.



Figure 11: Proposed Plugged (orange), retained and proposed Monitoring well Locations (Blue Triangle)

Each boring will be converted to a monitoring well using 2-inch diameter well materials consisting of 15 feet of 0.010-inch-slot, Schedule 40 (SCH 40) polyvinyl chloride (PVC), machine-cut, flush-threaded well screen with blank SCH 40 PVC casing to approximately 3 feet above ground surface. Target placement of the screen will be 10-feet below the static water table and 5-feet above the static water table.

In each of the wells, a filter pack consisting of 10/20 or 12/20 silica sand will be installed in the well annulus from the bottom of the soil boring to about 2 feet above the top of the screen. Meshprepack screen can be substituted if needed. A minimum 3-foot-thick activated bentonite pellet seal will then be installed on top of the filter pack. The remaining annulus will be filled with a cement grout.

The above ground surface completion will consist of a 4-inch by 4-inch by 5-foot steel vault with lid, set in a 4-foot by 4-foot by 6-inch, 5000-psi Quickrete pad. The pad will slope away from the vault, and the vault will be filled with clean silica to stabilize the Sch 40 riser. A weep hole will be drilled into the base of the vault above the concrete pad, and the riser will be capped with a

Sch 40 J-plug. The monitor well ID will be etched in the concrete pad as it dries. Four bollards will be placed around the monitor well to protect it from vehicles.

Wells SB-2 and SB-14 will have their temporary completions converted to stand up completions as described above.

Well Development

After completion, and an approximate 12-hour stabilization period, the wells will be developed by mechanically surging the screen interval, followed by bailing and pumping until temperature, pH, and conductivity have stabilized and turbidity has been reduced to the extent practicable. Stabilization will be determined to be achieved after the removal of ten (10) well volumes or when turbidity readings are less than 10 NTU or discharged water is visually clear, if practicable.

Decontamination and Waste Management

A temporary decontamination "pit" will be constructed. Prior to and between borings all drill tooling will be decontaminated using a steam pressure washer.

Soil and Groundwater derived from the monitor well installation and development, and sampling purging will be containerized in either new DOT rated steel drums or a lined roll-off. All investigative derived waste will be properly disposed of at an appropriately registered facility.

Surveying

After well completion, AEA's New Mexico Land surveyor will survey the top of casing elevations referenced to US Geological Survey (USGS) datum, and state plane coordinates of the monitoring wells. Vertical measurement will be to the 0.01 foot and horizontal measurements to the 0.1 foot. Coordinates will be reported in Latitude and Longitude NAD 83 Decimal Degrees and New Mexico State Plane East Grid.

The surveyor will establish a project benchmark (if necessary, there is an existing one, but it may need to be reestablished) tied to the nearest available National Geodetic Survey Benchmark. The top of casing of each monitoring well will be tied to the project benchmark using an engineer's level loop. Horizontal position can be provided via RTK surveying equipment.

The surveyor will provide a stamped table of data showing the positional data together with an ESRI .shp and a Google Earth .kml.

Groundwater Measuring and Sampling

Prior to groundwater sampling, a minimum of one week will be allowed for the new wells to stabilize after development. Wells (SB-2, SB-5R, SB-7R, SB-14, SB-24) will be sampled using the same procedures as noted above in the groundwater sampling section.

Sample Quality Assurance and Quality Control Protocols

The following groundwater sample quality assurance and quality control (QA/QC) protocols will be used during sampling.

- Groundwater gauging will be performed from least apparent contaminated well to most as follows favoring historic VOC detections, SB-23, SB-22, SB-21, SB-2, SB-4, SB-14,
- This order will be modified based on results from initial to second and any subsequent sampling event.
- At least three well volumes will be purged from each well with groundwater parameters recorded as described above.
- 4) New wrapped disposable bailers will be used to purge and sample each well.
- 5) Technicians will change gloves between wells and before sampling (after purging)
- Samples will be collected into laboratory provided bottles with the appropriate preservative.
- Samples from each well will be collected, labelled and placed into separate Ziploc bags before being placed into the cooler.
- 8) A blind duplicate will be collected from one well, marked as field duplicate 1 with no other identifying characteristics listed on the Chain of Custody.
- 9) A laboratory provided trip bland for VOCS will be analyzed.

Reporting

Data collected from the installation, abandonment, and sampling events will be presented in a report. The report will discuss the activities performed and summarize the observed site conditions. The following will be included in the report:

Figures

- Site Map
- Potentiometric Surface Map illustrating the groundwater contour intervals and flow direction.
- Chloride Concentration Map(s) showing the distribution of chlorides in the groundwater.

Tables and Graphs

- Groundwater Elevation and Field Parameters including dates of measurement, top of casing elevations, depths to water, water level elevations, field parameters, and well completion data including total depth and screen interval
- Groundwater Analytical Results of Contaminants of Concern
- Hydraulic Conductivity Results in Shallow and Deeper Well.

Appendices

- Permitting Documentation
- Field Notes/Datasheets
- Well Logs
- Survey Data Table
- Laboratory Datasheets
- Waste Disposal Manifest

Summary

The above-proposed work will allow thorough recovery of contaminated soil under NMAC 19.25.19, address well construction concerns, and restore and improve the monitoring well network to allow for the design of a full Stage 1 Abatement investigation.

Once approved the initial work should be completed within 90 days of approval. Then the excavation can be completed, and the site restored to prevent additional loading of precipitation that may be distorting the baseline conditions.

Based on this work and collected observations, a comprehensive Stage 1 Abatement investigation plan can be submitted near the end of 2024 or first quarter 2025 with full investigation activities to occur once approved.

If you have any questions, please contact me at <u>chris@atkinseng.com</u> or 575.914.0174.

Sincerely

Chino Costo

Christopher Cortez Operations Manager

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Table 1: Groundwater Elevations

Well	Date	Top Casing	Total Depth	DTW	WLE	▲ WLE	Overall ▲ WLE
SB-02	04/08/20	3736.29		17.82	3718.47		
SB-02	04/16/20	3736.29		18.13	3718.16	-0.31	
SB-02	06/26/20	3736.29		19.25	3717.04	-1.12	
SB-02	10/22/20	3736.29		20.65	3715.64	-1.40	
SB-02	05/26/22	3736.29	25.37	19.98	3716.31	0.67	
SB-02	04/05/23	3736.29	25.52	22.30	3713.99	-2.32	-4.48
SB-04	04/08/20	3734.71		16.85	3717.86		
SB-04	06/26/20	3734.71		16.30	3718.41	0.55	
SB-04	10/22/20	3734.71		18.09	3716.62	-1.79	
SB-04	05/26/22	3734.71	21.90	17.40	3717.31	0.69	
SB-04	04/05/23	3734.71	22.40	19.91	3714.80	-2.51	-3.06
SB-05	04/08/20	3736.17		15.38	3720.79		
SB-05	04/16/20	3736.17		13.96	3722.21	1.42	
SB-05	06/26/20	3736.17		17.67	3718.50	-3.71	
SB-05	10/22/20	3736.17		19.56	3716.61	-1.89	
SB-05	05/26/22	3736.17	11.20	Dry			
SB-05	04/05/23	3736.17	26.64	21.43	3714.74		-6.05
SB-07	04/16/20	3732.36		9.63	3722.73		
SB-07	06/26/20	3732.36		13.86	3718.50	-4.23	
SB-07	10/22/20	3732.36		15.69	3716.67	-1.83	
SB-07	05/26/22	3732.36	19.10	15.00	3717.36	0.69	
SB-07	04/05/23	3732.36	19.20	17.62	3714.74	-2.62	-7.99

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Well	Date	Top Casing	Total Depth	DTW	WLE	▲ WLE	Overall A WLE
SB-13	04/16/20	3737.91		15.57	3722.34		
SB-13	06/26/20	3737.91		20.15	3717.76	-4.58	
SB-13	10/22/20	3737.91		21.82	3716.09	-1.67	
SB-13	05/26/22	3737.91	27.10	21.05	3716.86	0.77	
SB-13	04/05/23	3737.91	27.20	23.62	3714.29	-2.57	-8.05
SB-14	04/16/20	3738.27		16.23	3722.04		
SB-14	06/26/22	3738.27		19.76	3718.51	-3.53	
SB-14	10/22/22	3738.27		21.51	3716.76	-1.75	
SB-14	05/26/22	3738.27	27.07	20.85	3717.42	0.66	
SB-14	04/05/23	3738.27	27.00	23.20	3715.07	-2.35	-6.97
SB-20	05/26/22	3741.11	60.20	24.70	3716.41		
SB-20	04/05/23	3741.11	60.25	25.90	3715.21	-1.20	-1.20
SB-21	05/26/22	3737.92	60.20	30.02	3707.90		
SB-21	04/05/23	3737.92	60.20	30.20	3707.72	-0.18	-0.18
SB-22	05/26/22	3740.48	60.18	29.08	3711.40		
SB-22	04/05/23	3740.48	60.30	29.43	3711.05	-0.35	-0.35
SB-23	05/26/22	3736.30	61.25	23.96	3712.34		
SB-23	04/05/23	3736.30	61.20	25.40	3710.90	-1.44	-1.44

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Table 2: Groundwater Analytical

Well	Date	Benzene (µg/L)	Toulene (μg/L)	Ethylbenzene (µg/L)	Total Xylenes (μg/L)	GRO (mg/L)	DRO (mg/L)	ORO (mg/L)	Chloride (mg/L)	Nitrates (mg/L)	Sampler
SB-02	04/16/20	<2.0	<2.0	<2.0	<2.0	<2.50	<2.50	<2.50	1,810		HRL
SB-02	05/26/22	<1.00	<1.00	<1.00	<1.00	<0.100	<1.00	<2.00	112		AEA
SB-02	04/05/23	<1.00	<1.00	<1.00	<1.00				81.3	<5.00	AEA
SB-04	05/26/22	<1.00	<1.00	<1.00	<1.00	<0.100	<1.00	<2.00	28.7		AEA
SB-04	04/05/23	<1.00	<1.00	<1.00	<1.00				86.2	<0.250	AEA
SB-05	04/16/20	<2.0	<2.0	<2.0	<2.0	<2.50	<2.50	<2.50	12,000		HRL
SB-05	04/05/23	2.61	<1.00	<1.00	<1.00				11,300	6.44	AEA
SB-07	04/16/20	20.2	<2.0	14.3	9.16	<2.50	<2.50	<2.50	3,470		HRL
SB-07	05/26/22	5.09	<1.00	8.44	<1.00	0.136	<1.00	<2.00	30.6		AEA
SB-07	04/05/23	9.28	<1.0	5.34	<1.0				27	<0.500	AEA
SB-13	04/16/20	25.4	<2.0	<2.0	<2.0	<2.50	<2.50	<2.50	928		HRL
SB-13	05/26/22	<1.00	<1.00	<1.00	<1.00	<0.100	<1.00	<2.00	188		AEA
SB-13	04/05/23	<1.00	<1.00	<1.00	<1.00				424	<2.50	AEA

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Well	Date	Benzene (µg/L)	Toulene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (μg/L)	GRO (mg/L)	DRO (mg/L)	ORO (mg/L)	Chloride (mg/L)	Nitrates (mg/L)	Sampler
SB-14	04/16/20	<2.0	<2.0	<2.0	<2.0	<2.50	<2.50	<2.50	6,840		HRL
SB-14	05/26/22	<1.00	<1.00	<1.00	<1.00	<0.100	<1.00	<2.00	711		AEA
SB-14	04/05/23	<1.00	<1.00	<1.00	<1.00				388	<5.00	AEA
SB-17	04/16/20	2.9	<2.0	5.65	13.5	<2.50	<2.50	<2.50	17,300		HRL
SB-20	05/26/22	1.56	13.0	<1.00	<1.00	<0.100	<1.00	<2.00	185,000		AEA
SB-20	04/05/23	<5.00	<5.00	<5.00	<5.00				61,700	<250	AEA
SB-21	05/26/22	<1.00	5.77	<1.00	<1.00	<0.100	<1.00	<2.00	96,800		AEA
SB-21	04/05/23	<5.00	<5.00	<5.00	<5.00				94,400	<250	AEA
SB-22	05/26/22	<1.00	17.5	<1.00	<1.00	<0.100	<1.00	<2.00	170,000		AEA
SB-22	04/05/23	<5.00	<5.00	<5.00	<5.00				124,000	<250	AEA
SB-23	05/26/22	<1.00	3.09	<1.00	<1.00	<0.100	<1.00	<2.00	76,100		AEA
SB-23	04/05/23	<5.00	<5.00	<5.00	<5.00				25,700	<250	AEA

Appendix A: NMWRRS Query



New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

			(R=POD has been rep	blaced		
			and no longer serves t	this file, (quarters are 1=NW 2=NE 3=SW 4=SI	E)	
(acre f	t per annum)		C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)			
Sub			Well	qqq		
basin Use Div	ersion Owner	County POD Number	Tag Code Grant	Source 6416 4 Sec Tws Rng	х	Y
L COM	740 L & K RANCH	LE L 14553 POD12	20F9C	2 2 4 28 19S 35E		
	(acre f Sub basin Use Div L COM	(acre ft per annum) Sub Owner basin Use Diversion Owner L COM 740 L & K RANCH	(acre ft per annum) Sub County POD Number L COM 740 L & K RANCH LE L 14553 POD12	(acre ft per annum) C=the file is closed) Sub Vell basin Use Diversion Owner County POD Number Tag Code Grant L COM 740 L & K RANCH LE L14553 POD12 20F9C	Sub Vell Q q q q basin Use Diversion Owner County POD Number Tag Code Grant Source 6416 4 Sec Tws Rng L COM 740 L & K RANCH LE L 14553 POD12 20F9C 2 2 4 28 195 35E	Sub Vell Quarters are smallest to largest) (NAD83 UTM in molecular structure) Sub Vell Q q q q basin Use Diversion Owner County POD Number Tag Code Grant Source 6416 4 Sec Tws Rng X L COM 740 L & K RANCH LE L14553 POD12 20F9C 22 4 28 19S 35E

Record Count: 1

PLSS Search:

Section(s): 28

Township: 19S Range: 35E

Sorted by: File Number

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

				(R=POD has been repla and no longer serves th	aced is file, (quarters are 1=NW 2=NE 3=SW 4=\$	SE)
	(acre f	t per annum)		C=the file is closed)	(quarters are smallest to largest) (NA	AD83 UTM in meters)
	Sub			Well	q q q	
WR File Nbr	basin Use Div	ersion Owner	County POD Number	Tag Code Grant	Source 6416 4 Sec Tws Rng	X Y
<u>L 14553</u>	L COM	740 L & K RANCH	LE <u>L 14553 POD14</u>	20F9E	2 2 2 29 19S 35E	643329 3612155 🧲

Record Count: 1

PLSS Search:

Section(s): 29

Township: 19S Range: 35E

Sorted by: File Number

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.


(with Ownership Information)

					(R=POD has been replaced and a construction of the second se							
		(acre ft per a	nnum)		C=the file is closed)	(quarter	s are sma	llest to largest) (N	NAD83 UTM	in meters)		
	Sub				Well		qqq					
WR File Nbr	basin	Use Diversion	Owner	County POD Number	Tag Code Grant	Source	6416 4	Sec Tws Rng	Х	Y		
RA 12222	RA	EXP () RONALD DEAN HOUGHTALING	ED RA 12222 POD5			242	30 19S 35E	545279	3610853 🌍		

Record Count: 1

PLSS Search:

Section(s): 30

Township: 19S Range: 35E

Sorted by: File Number

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

3/25/24 3:04 PM



(with Ownership Information)

No PODs found.

PLSS Search:

Section(s): 31

Township: 19S Range: 35E



(with Ownership Information)

					and no longer serves this file,	(quarters	are 1=N	W 2=	NE 3=SW 4=8	SE)	
	(acre ft pe	er annum)			C=the file is closed)	(quarters	s are sma	allest	to largest) (NA	D83 UTM i	n meters)
	Sub	····	0		Well	•	P P P	•	T D	v	v
	basin Use Divers	ion Owner	County P	OD Number	Tag Code Grant	Source	6416 4	Sec	IWS RNg	X	Y
<u>L 14876</u>	L MON	0 ARMSTRONG ENERGY	LE <u>L</u>	. <u>14876 POD1</u>	NA		212	32	19S 35E	643011	3610472 🌍
			LE <u>L</u>	. 14876 POD10		Shallow	212	32	19S 35E	642998	3610500 🍯
			LE <u>L</u>	. 14876 POD11		Shallow	212	32	19S 35E	642989	3610522 🌍
			LE <u>L</u>	14876 POD12		Shallow	212	32	19S 35E	642973	3610515 🌍
			LE <u>L</u>	14876 POD13		Shallow	212	32	19S 35E	642986	3610500 🌍
			LE <u>L</u>	14876 POD14		Shallow	212	32	19S 35E	643023	3610529 🌍
			LE L	14876 POD2			212	32	19S 35E	642991	3610483 🌍
			LE L	14876 POD3			212	32	19S 35E	643014	3610535 🌍
			LE L	14876 POD4			212	32	19S 35E	643015	3610516 🌍
			LE L	14876 POD5		Shallow	212	32	19S 35E	642992	3610517 🌍
			LE L	14876 POD6			212	32	19S 35E	643007	3610516 🌍
			LE L	14876 POD7		Shallow	212	32	19S 35E	643025	3610515 🌍
			LE L	14876 POD8		Shallow	212	32	19S 35E	642982	3610507 🌍
			LE L	14876 POD9		Shallow	212	32	19S 35E	643000	3610508 🌍
L 15106	L MON	0 ARMSTRONG ENERGY	LE L	15106 POD1	IA	Shallow	212	32	19S 35E	643002	3610606 🌍
			LE L	15106 POD2		Shallow	122	32	19S 35E	643119	3610506 🌍
			LE L	15106 POD3		Shallow	212	32	19S 35E	642875	3610512 🌍
			LE L	15106 POD4			412	32	19S 35E	643003	3610389 🌍

v			(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)					
	(acre ft per annum)		C=the file is closed)	(quarters are smallest to largest) (NAD	083 UTM in met	ers)		
	Sub		Well	9 9 9				
WR File Nbr	basin Use Diversion Owner	County POD Number	Tag Code Grant	Source 6416 4 Sec Tws Rng	Х	Υ		

Record Count: 18

PLSS Search:

Section(s): 32

Township: 19S Range: 35E

Sorted by: File Number



(with Ownership Information)

No PODs found.

PLSS Search:

Section(s): 33

Township: 19S Range: 35E



(P-DOD has been replaced

(with Ownership Information)

				and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)						
	(acre	ft per annum)		C=the file is closed)	(quarters are smallest to largest) (NA	D83 UTM in meters)				
	Sub			Well	q q q					
WR File Nbr	basin Use Div	version Owner	County POD Number	Tag Code Grant	Source 6416 4 Sec Tws Rng	ХҮ				
L 04627	L STK	3 THELMA A. LINAM	LE <u>L 04627</u>		2 2 04 20S 35E	644889 3608839* 🌍				
L 14552	L COM	315 NUWATER RESOURCES LLC	LE <u>L 14552 POD10</u>	20F19	4 4 3 04 20S 35E	644200 3607516* 🌍				
		NUWATER RESOURCES LLC	LE <u>L 14552 POD11</u>	20F1A	4 2 3 04 20S 35E	644252 3607980 🌍				
		NUWATER RESOURCES LLC	LE <u>L 14552 POD12</u>	20F1B	Artesian 2 3 2 04 20S 35E	644534 3608505 🌍				
		NUWATER RESOURCES LLC	LE <u>L 14552 POD13</u>	20F1C	3 4 4 04 20S 35E	644804 3607531* 🌍				
		NUWATER RESOURCES LLC	LE <u>L 14552 POD8</u>	20F18	4 1 3 04 20S 35E	643792 3607911* 🌍				

Record Count: 6

PLSS Search:

Section(s): 4

Township: 20S Range: 35E

Sorted by: File Number

*UTM location was derived from PLSS - see Help



(with Ownership Information)

	(acre	ft per annum)		and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE) C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters							
WR File Nbr	Sub basin Use Di	version Owner	County POD Number	Well Tag Code Grant	qqq Source 64164 Sec Tws Rng	x y					
L 04158	L DOL	3 VIRGIL LINAM	LE <u>L 04158</u>		Shallow 2 4 05 20S 35E	643290 3608008* 🌍					
L 14552	L COM	315 NUWATER RESOURCES LLC	LE <u>L 14552 3</u>	NA	1 1 1 05 20S 35E	641880 3608883 🌍					
		NUWATER RESOURCES LLC	LE <u>L 14552 POD3</u>	20F17	1 1 1 05 20S 35E	641880 3608883 🌍					

Record Count: 3

PLSS Search:

Section(s): 5 Township: 20S Range: 35E

Sorted by: File Number

*UTM location was derived from PLSS - see Help



(with Ownership Information)

	(acre f	t per annum)		and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE) C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in met								
	Sub			Well	999							
WR File Nbr	basin Use Div	version Owner	County POD Number	Tag Code Grant	Source 6416 4 Sec Tws Rng	ХҮ						
L 04157	L DOL	3 VIRGIL LINAM	LE <u>L 04157</u>		Shallow 3 3 06 20S 35E	640483 3607561* 🌍						
<u>L 14097</u>	L STK	3 L&K RANCH LLC	LE <u>L 14097 POD1</u>		Shallow 1 3 3 06 20S 35E	638740 3718500 🌍						

Record Count: 2

PLSS Search:

Section(s): 6

Township: 20S Range: 35E

Sorted by: File Number

*UTM location was derived from PLSS - see Help

Appendix B: Well Records



OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

										<u>, 2020</u>	RH3.20	
NC	OSE POD NO. POD1	(WELL NO).)	w S	ELL TAG ID NO. B-1			OSE FILE NO(S L 14876	s)."	*****		
DCATIC	WELL OWNE	R NAME(S Energy)	I		<u> </u>		PHONE (OPTIC	DNAL)			
VELL LO	WELL OWNE P.O. Box 19	r mailing 973	G ADDRESS					CITY Roswell		state NM	88202	ZIP
<u>é</u>	····		DE	GREES	MINUTES	SECONDS						
IL AN	WELL LOCATIO		TITUDE	32	37	21.273	5 N	* ACCURACY	CY REQUIRED: ONE TENTH OF A SECOND			
NERA	(FROM GPS	S) LO	NGITUDE	103	28	32.249	4 W	* DATUM REC	QUIRED: WGS 84			
GE	DESCRIPTIC	N RELATI	NG WELL LOCATION TO	STREET ADDRES	S AND COMMON	I LANDMAR	KS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVA	LABLE	
-	West Pearl	Queen										
	LICENSE NO		NAME OF LICENSED	DRILLER					NAME OF WELL DR	LLING CO	MPANY	
	178	9		N	fark Mumby				HRL C	omplianc	e Solutions	
	DRILLING ST 4/8/20	farted 020	DRILLING ENDED 4/8/2020	DEPTH OF COMP	PLETED WELL (F1 Applicable	T) B	ORE HO	LE DEPTH (FT) 25	DEPTH WATER FIR	st encou ot Encou	NTERED (FT)	
							STATIC WATER LEVEL IN CON			MPLETED WE	LL (FT)	
NC	COMPLETED	O WELL IS:	ARTESIAN	DRY HOLE	SHALLO	W (UNCONF	INED)		No	ot Encou	ntered	
ATIC	DRILLING FI	LUID:	I AIR	AIR MUD ADDITIVES – SPECIFY:								
DRM	DRILLING M	ETHOD:	ROTARY	HAMMER	CABLE T	OOL	ОТНЕ	R - SPECIFY:	Hollo	w Stem	Auger	
IC INF	DEPTH	(feet bgl)	BORE HOLE	CASING M	ATERIAL AND	D/OR	CA	ASING	CASING	CASI	NG WALL	SLOT
SING	FROM	ROM TO DIAM (inches)		(include eac	ch casing string,	and	CON	NECTION TYPE	INSIDE DIAM. (inches)	THIC	CKNESS nches)	SIZE (inches)
CA	0	25	6.25	note sec	Not Installed Not Installed			Ing diameter) Installed	Not Installed	Not	Installed	N/A
S S				· · · ·				- 10-1	·			
TIN								- 11				
DRII												
2.]												
		-										
		/ 6 . 1 . 1	· · · · · · · · · · · · · · · · · · ·	<u> </u>						<u> </u>		
T	FROM	(Ieet bgl)	BORE HOLE DIAM. (inches)	LIST GRAVI	"ANNULAR SI EL PACK SIZE	EAL MATE -RANGE B	RIAL / Y INTH	and ERVAL	AMOUNT (cubic feet)		METHO PLACEM	D OF IENT
ERIZ	TROM		6.25		Not I	Installed						
IATI												
RM	<u> </u>											
ULA					· · · •							
NN												
3. A												
FOF	OSE INTER	NAL USI	3					WR-2	0 WELL RECORD	& LOG	Version 04/3	0/19)
FIL	ENO. I	ILQ	710		POD NC	D. I		TRN	NO. $1 \wedge \Omega \cap$	117	ł	

2.1.2

WELL TAG ID NO.

AL

PAGE 1 OF 2

LOCATION 195-35E-32

DSE DII JUN 16 2020 AM9:20

									-	
	DEPTH (f	eet bgl)		COLOBAN	D TYPE OF MATERIAL FI					ESTIMATED
	FROM	то	THICKNESS (feet)	INCLUDE WATE (attach sur	ER-BEARING CAVITIES OF polemental sheets to fully de	R FRACTURE	ZONES	BEARING? (YES / NO)		YIELD FOR WATER- BEARING
									-	ZONES (gpm)
	0	13	13	Pink tan fin	e sand with minor silt and mi	nor medium sai	nd .	Y VN	-	
	13	25	12	Dark red clay	y with angular coarse gravel,	minor salt stain	ing	Y ¥ N		
							Image: Static state of the			
								Y N		
								Y N		
ELL								Y N		
F WI								Y N		
G OI								Y N		
ILO.								Y N		
0I0								Y N		
OLC						<u> </u>		Y N		
OGE								Y N	[
DR								Y N		
E.H.		····=····						Y N		
								Y N		
			· · · ·					Y N		
					· · · ·			Y N		
								Y N		
		· · · -·						Y N		
								Y N		
								Y N		
ŕ	METHOD U	ISED TO ES	STIMATE YIELD	OF WATER-BEARIN	G STRATA:		TOT.	AL ESTIMATEI). D	0.00
	PUM		IR LIFT	BAILER 70	THER – SPECIFY: Not App	licable		(gpm	.).	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF DA ME, AND A TABLE S	TA COLLECTED DURING HOWING DISCHARGE AN	WELL TESTIN D DRAWDOW	IG, INCLUDI /N OVER TH	NG DISCHARG E TESTING PEI	E M RIOI	ETHOD,).
NISI	MISCELLA	NEOUS INI	FORMATION: TI	D Core barrel drive 2	7 feet hal: TD auger 25 fe	et høl				
PER					ricer ogi, 1D auger 25 ie	01051				
G SU										
; RI										
LEST	PRINT NAM	AE(S) OF D	RILL RIG SUPER	RVISOR(S) THAT PRO	VIDED ONSITE SUPERVI	SION OF WEL	L CONSTRU	CTION OTHER	THA	AN LICENSEE:
5.]	Kalvin Padi	lla								
JRE	BY SIGNIN RECORD O WELL REC	G BELOW F THE ABC	, I CERTIFY TH OVE DESCRIBED ALSO BE FILED	IAT TO THE BEST C WELL I ALSO CERT	OF MY KNOWLEDGE AND TIFY THAT THE WELL TA HOLDER WITHIN 30 DAYS	D BELIEF, TH G, IF REQUIRI AFTER THE (E FOREGOI ED, HAS BEE COMPLETIO	NG IS A TRUE EN INSTALLED N OF WELL DR	E AN ANI JLLI	D CORRECT D THAT THIS NG.
GNATI	Mil E. H	Mut - X	Digitally signed by Mark Mumby DN: cn=Mark Mumby, o=HRL C ou=Security Division,	iomp,	Mark Mumby			6/5/2020		
6. SI			email=mmumby@hrlcomp.com, Date: 2020.06.05 10:13:11 -06'00	c=US	· · · · · · · · · · · · · · · · · · ·					
		SIGNAT	URE OF DRILLE	ER / PRINT SIGNEE	NAME			DAT	E	
FO	R OSE INTER	NAL USE				WR-2	20 WELL RE	CORD & LOG (Vers	ion 04/30/2019)
FIL	eno. L	-148	76	· · · · ·	POD NO.	TRN	NO. 670	רודכ		
LO	CATION	1.1.2		195-351	5-32	WELL TAG	DNO. N	A		PAGE 2 OF 2

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z	OSE POD NO POD2	. (WELL N	0.)		WELL TAG ID NO.			OSE FILE NO(S	5).		
LIO]	WELL OWAIT	D MAND	<u>c)</u>					DUONE (ODT)			
OCA'	Armstrong	Energy	5)					PHONE (OP III	JNAL)		
LL I	WELL OWNE	ER MAILIN	IG ADDRESS			-18		СІТҮ		STATE	ZIP
WE	P.O. Box 1	973						Roswell		NM 88202	
QN	WELL		D	EGREES	MINUTES	SECOND	s				
AL /	LOCATIO	N L	ATITUDE	32	37	21.63	³ N	* ACCURACY	REQUIRED: ONE TENT	TH OF A SECOND	
VER	(FROM GP	S)	ONGITUDE	103	28	32.98	8 W	* DATUM REC	QUIRED: WGS 84		
GEI	DESCRIPTIC	ON RELAT	ING WELL LOCATION TO	O STREET ADDRE	SS AND COMMON	LANDMAR	KS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAILABLE	
, -	West Pearl	Queen									
	LICENSE NO),	NAME OF LICENSEI	DRILLER					NAME OF WELL DRI	LLING COMPANY	
	178	39		1	Mark Mumby				HRL C	ompliance Solutions	
	DRILLING S	TARTED	DRILLING ENDED	DEPTH OF COM	PLETED WELL (FT	") E	ORE HO	LE DEPTH (FT)	DEPTH WATER FIRS	ST ENCOUNTERED (FT)	
	4/8/2	020	4/8/2020	Not				× 3 28			
Z	COMPLETEI	O WELL IS	: 🔲 ARTESIAN	DRY HOLE	SHALLOV	W (UNCONF	FINED) 17.82			EL IN COMPLETED WE 17.82	LL (FT)
VTIO	DRILLING FLUID: AIR MUD ADDITIVES - SPECIFY:										
DRM/	DRILLING M	ETHOD:	ROTARY	HAMMER	CABLE TO	DOL [✓ ОТНЕ	R – SPECIFY:	Hollo	w Stem Auger	
SING INFO	DEPTH	(feet bgl)	BORE HOLE	CASING M	ATERIAL AND	/OR	CA	ASING	CASING	CASING WALL	SLOT
	FROM	то	DIAM	(include ea	GRADE ich casing string,	and	CON	NECTION	INSIDE DIAM.	THICKNESS	SIZE
CASI			(inches)	note sections of screen) (add coupling diameter)			(inches)	(inches)	(inches)		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0	15	6.25		Blank PVC		Flus	h Thread	2.0	0.154	N/A
Ň	15	25	0.25	3					2.0	0.154	0.010
SILI											
C.DI											
	· · · · ·	· · · ··									
	DEPTH	(feet bgl)	BORE HOLE	LIS	T ANNULAR SE	AL MATI	ERIAL A	AND	AMOUNT	METHO	D OF
IAL	FROM	ТО	DIAM. (inches)	GRAV	EL PACK SIZE-	RANGE E	Y INTE	RVAL	(cubic feet)	PLACEN	IENT
TER	0	2	6.25		Native	clean fill			0.2	Shov	el
MA'	2	13	6.25		Ben	tonite			1.1	Pou	r
AR	13	25	6.25		10/20 Clear	n Silica Sa	nd		1.2	Pou	r 
NUL	25	35	6.25		Ben	tonite			1	Pou	r
AN											······································
ę.				-							
	I						<u> </u>		<u> </u>		
FOR	FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 04/30/19)										

· ·	
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LOCATION QS - 35E-3

PAGE 1 OF 2

WELL TAG ID NO. NA

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	DEPTH (1	feet bgl)			WATED.	ESTIMATED
	FROM	то	THICKNESS (feet)	INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	YIELD FOR WATER- BEARING ZONES (gpm)
	0	13	13	Dark orange, dry silt and clay with fine sand	Y V N	
	13	23	10	Buff-tan color silty fine sand with minor gravel; moist, minor salt crust	✓Y N	
	23	28	5	Pale pink/red silty fine sand with some gravel; damp soil	Y VN	
	28	37	9	Dark red/purple clay with light grey clay and black angular inclusions	Y ✔ N	
					Y N	
T					Y N	
WEI					Y N	
OF					Y N	
00					Y N	
					Y N	
roc					Y N	
GEO					Y N	
RO					Y N	
НУГ					Y N	
4					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
	METHOD U	SED TO ES	TIMATE YIELD	OF WATER-BEARING STRATA:	TOTAL ESTIMATED	
	<b>PUM</b>	P 🔲 A	IR LIFT	BAILER OTHER – SPECIFY: Not Applicable	WELL YIELD (gpm):	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCL ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER	UDING DISCHARGE	METHOD, )D.
ISIA	MISCELLA	NEOUS INF	FORMATION: CO	are harred drive to 37 feet had Auger to 35 feet had hing hack to 25 f	eet hal with bentonite	and set well
PER						and set wen
G SU						
; RI						
resi	PRINT NAM	IE(S) OF D	RILL RIG SUPER	VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONS	TRUCTION OTHER TH	IAN LICENSEE:
5.3	Kalvin Padi	lla				
	BY SIGNIN	G BELOW	, I CERTIFY TH	AT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FORE	GOING IS A TRUE A	ND CORRECT
URE	RECORD O	F THE ABC ORD WILL	VE DESCRIBED ALSO BE FILED	WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLE	BEEN INSTALLED AI	ND THAT THIS LING.
NAT	mite	m	Digitally signed by Mark Mumby			
SIG	10100 6, 10	HT W	mail=mmumby@hrlcomp.com, c	Hus Mark Mumby	6/9/2020	
é.		SIGNAT	URE OF DRILLE	R / PRINT SIGNEE NAME	DATE	
			n <del>d</del> ma <u>si</u>			
FOI	R OSE INTER	NALUSE	0		L RECORD & LOG (Ve	rsion 04/30/2019)
	CATION $\mathcal{A}$	.1. 7	r 105-	35E-37		PAGE 2 OF 2

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NOI	OSE POD NO POD3	. (WELL NO	0.)		WELL TAG ID NO. SB-3			OSE FILE NO(S L 14876	S).			
OCAT	WELL OWNE Armstrong	ER NAME(S Energy	3)					PHONE (OPTIC	ONAL)			:
MELL L	WELL OWNE P.O. Box 1	er mailin 973	G ADDRESS					CITY Roswell		state NM	88202	ZIP
ê		· 1	DE	GREES	MINUTES	SECON	IDS					
<b>A</b>	WELL	.,		32	37	23.30	004 _N	* ACCURACY	REOUIRED: ONE TEN	TH OF A SEC	COND	i
ERAL	(FROM GP	S)	NTITUDE	103	28	32.10	096 W	* DATUM REC	QUIRED: WGS 84			
EN	DESCRIPTIO	ON RELATI	NG WELL LOCATION TO	STREET ADD	RESS AND COMMON	LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAIL	ABLE	
1.0	West Pearl	Queen						•				
	LICENSE NO	h.	NAME OF LICENSED	DRILLER	0 0		· .		NAME OF WELL DR	ILLING COM	IPANY	
	178	39			Mark Mumby				HRL C	ompliance	Solutions	
	DRILLING ST 4/8/2	tarted 020	DRILLING ENDED 4/8/2020	DEPTH OF CON	OMPLETED WELL (FT ot Applicable	5)	BORE HOI	LE DEPTH (FT) 40	DEPTH WATER FIRS	ot Encount	TERED (FT) tered	
z	COMPLETEI	O WELL IS:	ARTESIAN	🖌 DRY HO	LE 🗍 SHALLO	W (UNCO	NFINED)		STATIC WATER LEV No	VEL IN COMP	PLETED WE	LL (FT)
OIL	DRILLING FI	LUID:	🖌 AIR	MUD	ADDITIV	ES – SPEC	CIFY:		1			
NFORM	DRILLING M	ETHOD:	ROTARY	НАММЕ	R CABLE T	OOL	ОТНЕ	R – SPECIFY:	Hollo	w Stem A	uger	
NFC	DEPTH	(feet bgl)	BORE HOLE	CASING	MATERIAL AND	/OR	C	SING	CASING	CASING	G WALL	SLOT
SING II	FROM	то	DIAM		GRADE		CONN	VECTION	INSIDE DIAM.	THICK	KNESS	SIZE
	(inches)			(include note	each casing string, sections of screen)	and	T Iduco bbe)	YPE	(inches)	(inc	hes)	(inches)
CA					Not Installed		(aud coup)	ing dianeter)				
G &												
TIN												
RIL												
2. D												
					· ·							
					1 ann an 1 a 1							
	DEPTH	(feet bgl)	BORE HOLE	L	IST ANNULAR SE	EAL MA	TERIAL A	AND	AMOUNT		METHO	D OF
IAL	FROM	то	DIAM. (inches)	GRA	VEL PACK SIZE-	RANGE	BY INTE	RVAL	(cubic feet)		PLACEM	IENT
ER			6.25	1	Not I	nstalled				1		
IAT												
NR 1								-				
UL₄												
NN												
<b>3.</b> A												
FOR	OSE INTER							WR-2	0 WELL RECORD	& LOG (Ve	ersion 04/3	)/19)

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Ver	sion 04/30/19)
FILE NO. L-14870	POD NO. 3	TRN NO. $(  O' ) $	
LOCATION 195-35E-32	2.1.2	WELL TAG ID NO. VA	PAGE 1 OF 2



	DEPTH (1	feet bgl)		COLOR AN	D TYPE OF MATERIAL EN	ICOUNTE	RED -	WA	TER	ESTIMATED
	FROM	то	THICKNESS (feet)	INCLUDE WATE (attach sup	R-BEARING CAVITIES OF plemental sheets to fully de	R FRACTU scribe all u	RE ZONES (nits)	BEAF (YES	NO)	WATER- BEARING
	0	18	18	Buff to ta	an and pale orange color fine	sand with s	ilt	Y	✓ N	ZONES (gpiii)
	18	24	6	Red-orange fine	sand with minor silt and me	dium to coa	arse sand	Y	✓ N	
	24	40	16	Dark red/dark purple	clay with light grey clay and	l angular bl	ack inclusions	Y	√ N	
:								Y	N	
					·			Y	N	
Ţ								Y	N	
WEL								Y	N	
OF								Y	N	
0G					· · · · · · · · · · · · · · · · · · ·			Y	N	
I DI					<u>.</u>			Y	N	
LOC								Y	N	
GEO								Y	N	
<b>DRO</b>								Y	N	
НУІ								Y	N	
4.								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
,	METHOD U	SED TO ES	TIMATE YIELD	OF WATER-BEARING	G STRATA:		TO	TAL ESTI	MATED	0.00
	PUMI	P 🗖 A	IR LIFT	BAILER OT	HER – SPECIFY: Not App	licable	WI		) (gpm):	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TII	ACH A COPY OF DAT ME, AND A TABLE SH	A COLLECTED DURING VIOWING DISCHARGE AN	WELL TES D DRAWD	TING, INCLUD OWN OVER TI	ING DISC	HARGE N NG PERIO	1ETHOD, D.
[SIV]	MISCELLA	NEOUS INF	ORMATION: TI	D Core Barrel 42 feet	bgl					
JPEF			TI	O Auger 40 feet bgl	- 0-					
IG SI										
T; R										
TES	PRINT NAN	AE(S) OF D	RILL RIG SUPER	VISOR(S) THAT PRO	VIDED ONSITE SUPERVIS	SION OF W	ELL CONSTRU	JCTION C	THER TH	AN LICENSEE:
S.	Kalvin Padi	lla								
E	BY SIGNIN RECORD O	G BELOW	, I CERTIFY TH	AT TO THE BEST O WELL. I ALSO CERT	F MY KNOWLEDGE AND IFY THAT THE WELL TAC	) BELIEF, G, IF REQU	THE FOREGO	ING IS A	TRUE A	ND CORRECT
ATU	WELL REC	ORD WILL	ALSO BE FILED	WITH THE PERMIT H	IOLDER WITHIN 30 DAYS	AFTER TH	HE COMPLETIC	ON OF WE	LL DRILL	,ING.
IGN	Math	Mart N	Digitally signed by Mark Mumby DN: cn=Mark Mumby, o=HRL C ou=Security Division,	omp,	fark Mumby			6/9	/2020	
6. S	·	PICNAT	Date: 2020.06.09 09:43:10 -06'00			-			DATE	
		SIGNAT		R / FRINT SIGNEE	NAIVIE				DATE	· · · · · · · · · · · · · · · · · · ·
FOI	R OSE INTER	NAL USE	577		~	W	R-20 WELL R	ECORD &	LOG (Ver	sion 04/30/2019)
FIL	ENO. L	-142	576		POD NO. 5	T	RN NO. 🗲	101)1	')	
	CATION 🖂	.1.7	195	-326-32		WELL TA	GIDNO. H	8		PAGE 2 OF 2

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	OSE BOD NO	(WELL M		11/27 1				OSE EILE M	0(\$)			
Z	POD4	. WELLING	<i>,,</i>	SB-4	TAG ID NU.			L 14876	0(5).			
TIO	WELL OWNE	R NAME(S	)	l				PHONE (OP	TIONAL)			
OCA	Armstrong	Energy							-			
TT	WELL OWNE	R MAILIN	G ADDRESS					CITY		STATE		ZIP
WEL	P.O. Box 1	973						Roswell		NM	88202	
a	WELL		DE	GREES MI	NUTES	SECOND	S					
NL A	LOCATIO		TITUDE	32	37	22.69	5 _N	* ACCURA	CY REQUIRED: ONE TEN	TH OF A S	ECOND	
IER/	(FROM GP	S) LC	NGITUDE	103	28	32.044	12 W	* DATUM F	EQUIRED: WGS 84			
GEN	DESCRIPTIC	ON RELATI	NG WELL LOCATION TO	STREET ADDRESS AN	D COMMON L	LANDMAR	RKS – PLS	S (SECTION,	TOWNSHJIP, RANGE) WH	IERE AVA	ILABLE	
1.	West Pearl	Queen										
	LICENSE NO		NAME OF LICENSED	DRILLER					NAME OF WELL DR	ILLING CO	OMPANY	
	178	39		Mark	Mumby				HRLO	Compliand	ce Solutions	
	DRILLING ST	TARTED	DRILLING ENDED	DEPTH OF COMPLET	ED WELL (FT)	H	BORE HO	LE DEPTH (FT	) DEPTH WATER FIR	ST ENCOL	JNTERED (FT)	
	4/9/2	020	4/9/2020	Not App	licable			25		22		
	COMPLETEI	O WELL IS:	ARTESIAN	DRY HOLE	SHALLOW	(UNCON	FINED)		STATIC WATER LE	vel in co 16.8	mpleted we 5	LL (FT)
NOI					ADDITU		EV.					
<b>AAT</b>	DRILLING FI			HAMMER CABLE TOOL COT				D ADEOLEV	Uall		A 11000	
OR	DRILLING M	ETHOD:					J OTHER - SPECIFY:					
INF	DEPTH (feet bgl)     BORE HOLE       FROM     TO     DIAM			CASING MATERIAL AND/OR GRADE			CA	ASING	CASING C		NG WALL	SLOT
DNIS	FROM TO		DIAM (inches)	(include each casing string, and note sections of screen)			CONI	NECTION TYPE	INSIDE DIAM.	(i	CKNESS nches)	SIZE (inches)
CAS	0	10	6.25	note section Blank	s of screen) PVC		(add coup Flus	ling diameter) h Thread	2.0		0.154	None
S S	10	20	6.25	Factory Slotted PVC			Flus	h Thread	2.0	-	0.154	0.010
CLIN												
DRII												
7												
			· · · · · · · · · · · · · · · · · · ·									
		(feet hal)		LIST AN	NIII AP SEA	ΔΙ.ΜΔΤ	FRIAT				МЕТИО	
AL	FROM	TO	DIAM. (inches)	GRAVEL P	ACK SIZE-R	RANGE	BY INTE	ERVAL	(cubic feet)		PLACEN	IENT
ERL	0	2	6.25		Clean na	ative fill			0.2		Shov	el
ИАТ	2		Bente	onite			0.6		Pou	r		
AR N	<b>8</b> 20 6.25					Silica Sa	and		1.2		Pou	r
20 25 6.25 Benton						onite			1.1		Pou	[
AN A									. –			
з.							<u> </u>					
	I			l						<u>_</u>		
FOR	OSE INTER				PODNO	L			NNO ( MELL RECORD	<u>&amp; LOG (</u>	Version 04/3	(19)
1		- i i C			1.00 10.	1				e (* 1. 1.		

LOCATION 195.355-32

PAGE 1 OF 2

WELL TAG ID NO. NA

DSE DII JUN 16 2020 **9:21

	DEPTH (I	eet bgl)		COLOR AN	D TYPE OF MATERIAL E	NCOUNTE	RED -	WAT	ER	ESTIMATED
	FROM	TO	THICKNESS (feet)	INCLUDE WATE	R-BEARING CAVITIES O	R FRACTU	JRE ZONES	BEAR	ING?	WATER-
	FROM	10	(leet)	(attach sup	plemental sheets to fully de	escribe all	units)	(YES /	NO)	BEARING ZONES (gpm)
	0	13	13	Orange/pink/buff-cold	ored silty fine sand with min	or medium	sand and gravel	Y	√ N	
	13	22	9	Terra cot	ta orange color well-graded	sand with c	lay	✓ Y	N	
	22	25	3	Dark red/deep purple c	lay with minor light gray cla	y and black	angular inclusio	n Y	<b>√</b> N	
								Y	N	
								Y	N	
-i								Y	N	
WEI								Y	N	
OF								Y	N	
ő								Y	N	
ICI								Y	N	
00								Y	N	
EOI								Y	N	
ROG						,		Y	N	
<b>Q</b>								Y	N	
4.1								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
	METHOD U	SED TO ES	TIMATE YIELD	OF WATER-BEARING	G STRATA:		ТО	TAL ESTIN	IATED	
		-> <b>□</b> ▲			HER - SPECIFY Not App	licable	wi	ELL YIELD	(gpm):	0.00
							1			
N	WELL TES	T TEST	RESULTS - ATT T TIME, END TI	`ACH A COPY OF DAT ME, AND A TABLE SH	A COLLECTED DURING	WELL TES D DRAWI	STING, INCLUI DOWN OVER T	DING DISCI HE TESTIN	HARGE N G PERIO	IETHOD, D.
JISIC	MISCELLA		FORMATION		· · · · · · · · · · · · · · · · · · ·					
ERV	MIDCLELI		T	D Core Barrel Drive to D Auger 25 feet bol	o 27 feet bgl					
SUP										
RIG										
ST;										
5. TE	PRINT NAM	IE(S) OF D	RILL RIG SUPE	RVISOR(S) THAT PRO	VIDED ONSITE SUPERVI	SION OF V	VELL CONSTR	UCTION O	THER TH	AN LICENSEE:
	Kalvin Padi	lla								
	BY SIGNIN	G BELOW	, I CERTIFY TH	IAT TO THE BEST O	F MY KNOWLEDGE ANI	D BELIEF,	, THE FOREGO	DING IS A	TRUE A	ND CORRECT
URE	RECORD O	F THE ABC ORD WILL	VE DESCRIBED ALSO BE FILED	) WELL. I ALSO CERT ) WITH THE PERMIT H	IFY THAT THE WELL TA HOLDER WITHIN 30 DAYS	G, IF REQ S AFTER T	UIRED, HAS BI HE COMPLETI	EEN INSTA ON OF WEI	LLED AN LL DRILL	ID THAT THIS
IATI	null-	1	Digitally signed by Mark Mumby	v						
SIG	////s/ 2. /i	Hunt > No	DN: cn=Mark Mumby, o=HRL C pu=Security Division, mäil=mmumby@hrlcomp.com,	c=US	Aark Mumby			6/9/	2020	
و.		SIGNAT	Une: 2020.06.09 09:45:13 -06'00	ER / PRINT SIGNEF	NAME	_			DATE	
		<i></i>								
FOI	R OSE INTER	NAL USE	,			V	WR-20 WELL R	ECORD &	LOG (Ver	sion 04/30/2019)
FIL	ENO. L-	487	$\varphi$		POD NO. 4	r	TRN NO. 6	<u>' )()    </u>	<u>' )</u>	
LO	CATION	<u>2.12</u>	195-3	55E-32		WELL TA	AG ID NO.	NA		PAGE 2 OF 2

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#### WELL RECORD & LOG **OFFICE OF THE STATE ENGINEER**

OSE DII JUN 16 2020 MS:21

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NO	OSE POD NO POD5	). (WELL N	0.)		WELL TAG ID NO. SB-5			OSE FILE NO( L 14876	S).			
OCATI	WELL OWN	ER NAME( Energy	S)		L			PHONE (OPTI	ONAL)			
MELL L	WELL OWN P.O. Box 1	er mailin 973	IG ADDRESS					city Roswell		state NM	88202	ZIP
AL AND	WELL LOCATIO	N L	D	EGREES 32	MINUTES 37	SECO1 23.1	NDS 996 N	* ACCURACY	REQUIRED: ONE TEN	TH OF A S	ECOND	
NER	(FROM GP	'S) L	ONGITUDE	103	28	33.3	876 W	* DATUM REG	QUIRED: WGS 84			
1. GE	DESCRIPTIO West Pearl	ON RELAT Queen	ING WELL LOCATION TO	O STREET ADDI	RESS AND COMMON	I LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVA	ILABLE	
	LICENSE NO 178	). 39	NAME OF LICENSED	DRILLER	Mark Mumby				NAME OF WELL DR HRL C	ILLING CO	OMPANY ce Solutions	
	DRILLING S 4/9/2	tarted 020	DRILLING ENDED 4/9/2020	DEPTH OF CON	OMPLETED WELL (F ot Applicable	Г)	BORE HO	LE DEPTH (FT) 55	DEPTH WATER FIR	ST ENCOU	NTERED (FT)	)
Z	COMPLETEI	O WELL IS	ARTESIAN	DRY HOI	LE 🗹 SHALLO	W (UNCC	ONFINED)		STATIC WATER LEV	/EL IN CO 15.3	MPLETED WE	ELL (FT)
OIT	DRILLING F	LUID:	🖌 AIR	MUD	ADDITIV	ES – SPE	CIFY:		1			
RMA	DRILLING M	IETHOD:	<b>ROTARY</b>		R 🗌 CABLE T	OOL	ОТНЕ	R - SPECIFY:	Hollo	w Stem	Auger	
NFO	DEPTH (feet bgl) DEPTH (feet bgl) BORE HOL			CASING MATERIAL AND/OR CA			- CP1C	CASING	CAST			
ASING I	DEPTH (feet bgl)         BORE HOLE           FROM         TO         DIAM (inches)           0         15         625			GRADE (include each casing string, and note sections of screen) (add coup			VECTION YPE	INSIDE DIAM. (inches)	THI (i	CKNESS nches)	SIZE (inches)	
¢ C'	0	15	6.25	Blank PVC			Flus	h Thread	2.0		0.154	None
Ŋ	15	25	6.25	Factory Slotted PVC Flush			h Thread	2.0		0.154	0.010	
ILLL				ļ								
DR												
6												-
												1
												<u> </u>
					· ··· •·							
	DEPTH	(feet bgl)	BORE HOLE	LI	ST ANNULAR SE	EAL MA	TERIAL A		AMOUNT		METHO	D OF
RIA	FROM	TO	DIAM. (Inches)	GRA	VEL PACK SIZE-	-KANGE		RVAL	(cubic feet)			
<b>TE</b>	0	12	6.25		Clean	native fil	11		0.2		Show	-
¥ M/		25	6.25		Clean 10/2	0 Silica	Sand		1.1		Pou	1  r
LAF	25	55	6.25		Ber	tonite	Sand		6.4		Pou	г
NN										· -   ·		•
3. A			· · · · · · · · · · · · · · · · · · ·	1					· · · · · · · · · · · · · · · · · · ·			
FOR	OSE INTER	NAL US	E					WR-2	0 WELL RECORD	& LOG (	Version 04/3	0/19)
FILE	ENO.	-10	ING.		POD NO	5		TRN 1	VO. 670	۲ <u>)</u>		
LOC	ATION 2	2-1.	2 10	15-39	SE-3-	$\overline{\boldsymbol{\zeta}}$		WELL TAG II	DNO. NA	5	PAGE	1 OF 2

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		- 1								
	DEPTH (f	eet bgl)								ESTIMATED
			THICKNESS	COLOR AN	D TYPE OF MATERIAL E	NCOUNTERED -	70	WA' BEAR	TER ING2	YIELD FOR
	FROM	то	(feet)	INCLUDE WATE	R-BEAKING CAVITIES U	K FRACIURE ZONI	25	(YES	/ NO)	WATER- BEARING
				(attach sug	optemental sneets to fully de	escribe an units)		(120	, 1(0)	ZONES (gpm)
	0	3	3	Well	-graded sand with gravel and	minor silt		Y	√ N	
÷ .	3	23	20	Buff to orange	color silty fine sand with mee	lium and coarse sand		<b>√</b> Y	N	]
	23	55	32	Purple hard cla	y with light gray clay and bla	ck angular inclusions		Y	√ N	
				· · · · · ·	· · · · · · · · · · · · · · · · · · ·			Y	N	
					· · · · · · · · · · · · · · · · · · ·			Y	N	
. 1								Y	N	
TEL I								v	N	
F W								v	N	
0 0								v	N	
Ċ LO								1 		
OGIC								r 	N	
OLO								Y	N	
OGE								Y	N	
DRO								Y	N	
ΥH					-			Y	N	
4								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
								Y	N	
	METHOD U	SED TO ES	STIMATE YIELD	OF WATER-BEARIN	G STRATA:		ΤΟΤΑ	L ESTIN	/ATED	
					THER _ SPECIEV NOT ADD	licable	WEL	L YIELE	) (gpm):	0.00
	WELL TES	T TEST	RESULTS - ATT	ACH A COPY OF DA	A COLLECTED DURING	WELL TESTING, IN	CLUDIN	G DISC	HARGE	AETHOD,
NOI		STAR	T TIME, END TI	ME, AND A TABLE S	HOWING DISCHARGE AN	D DRAWDOWN OV				שי.
SUIS	MISCELLA	NEOUS INI	FORMATION: A	uger to 55 feet bgl, pl	ug back to 25 feet bgl wit	h bentonite then set	well, T	D well 2	25 feet by	<u>r</u> l
IPEI				0 0,1	0 0		-			
C SI										
; RI										
EST	PRINT NAN	(E(S) OF D	RILL RIG SUPE	RVISOR(S) THAT PRO	VIDED ONSITE SUPERVI	SION OF WELL CO	NSTRUC	TION O	THER TH	AN LICENSEE:
5. T	Kalvin Padi	(- <i>)</i>								
•	Karvin I au									
	BY SIGNIN	G BELOW	, I CERTIFY TH	IAT TO THE BEST C	F MY KNOWLEDGE ANI	D BELIEF, THE FO	REGOIN	IG IS A	TRUE A	ND CORRECT
URE	WELL REC	F THE ABC	ALSO BE FILED	) WELL. I ALSO CERT ) WITH THE PERMIT I	HOLDER WITHIN 30 DAYS	G, IF REQUIRED, H. S AFTER THE COMP	AS BEEI PLETION	N INSTA	LLED AN LL DRILI	JING.
IAT	nv11-		Digitally signed by Mark Mumby	,						
SIG	11/18 2. 1	Hurt > N	DN: cn=Mark Mumby, o=HRL C ou=Security Division, emäil=mmumby@hrlcomp.com,	c=US	Mark Mumby			6/9/	2020	
<del>و</del> ،		SICNAT	Date: 2020.06.09 09:46:01 -06'00						DATE	
		SIGNAI		SK / FRINT SIONEE					DATE	
_FOI	R OSE INTER	NAL USE				<u>WR-20</u> WI	ELL REC	CORD &	LOG (Ve	rsion 04/30/2019)
FIL	e no.	-148	<u>ረነኪ –</u>		POD NO. 5	TRN NO.	61	)07	07	
LO	CATION	2.1.2	2	195-35F-	32	WELL TAG ID NO	N	A	. •	PAGE 2 OF 2



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	OSE POD NO	WELL N	0.)		WELL TAG ID NO.			OSE FILE NO(	5).		С	
LION					י-םכ			L 140/0	22147.)			
OCA1	Armstrong	ER NAME( Energy	S)					PHONE (OPTIC	ONAL)		<i>I</i>	
TTT	WELL OWNE	ER MAILIN	NG ADDRESS					CITY		STATE	00202	ZIP
WE	<b>F.O. BOX</b> 1	<u> </u>						Koswell				
AND	WELL		DI	EGREES 32	MINUTES 37	SECON	DS 77	* ACCURACY	PEOLIPED ONE TENT		SECOND	
RAL	LOCATIO (FROM GP	N L	ATITUDE	102		22.0	N N	* DATUM REG	UIRED: WGS 84	n or A	SECOND	
ENE	DECONTRACT			105		52.0.						
<b>1.</b> G	West Pearl	Queen	ING WELL LOCATION TO	SIREEI ADDR	LESS AND COMMON	LANDMA	4KK5 – PL5	S (SECTION, TO	WNSHJIP, KANGE) WH	EKE AV	ALABLE	
	LICENSE NO	).	NAME OF LICENSED	DRILLER					NAME OF WELL DRI	LLING C	COMPANY	
	178	39			Mark Mumby				HRL C	ompliar	ice Solutions	
	DRILLING S' 4/9/2	tarted 020	DRILLING ENDED 4/9/2020	depth of co No	MPLETED WELL (FT ot Applicable	Γ)	BORE HOI	LE DEPTH (FT) 30	DEPTH WATER FIRS	5T ENCO 18.7	UNTERED (FT) 75	
7	COMPLETEI	O WELL IS		DRY HOL	E 🗹 SHALLO	W (UNCO	NFINED)		STATIC WATER LEV	EL IN CO 9.6	OMPLETED WE	LL (FT)
TIO	DRILLING F	LUID:	✓ AIR	MUD	ADDITIV	ES – SPEC	IFY:	<u> </u>				
RMA	DRILLING M	ETHOD:	ROTARY		R CABLE TO	OOL	• ОТНЕ	R – SPECIFY:	Hollo	w Sten	n Auger	
NFO	DEPTH	(feet bgl)	POPE HOLE	CASING MATERIAL AND/OR					CASDIC WA			
U Dy	DEPTH (feet bgl)         BORE HO           FROM         TO         DIAM           (inches)         (inches)			GRADE CO				ASING VECTION	INSIDE DIAM.	CASING WALL THICKNESS		SLOT
ASI			(inches)	note	sections of screen)	allu	T (add coup)	YPE ling diameter)	(inches)	(	(inches)	(inches)
S C	0	5	6.25	Blank PVC Flush Thre			h Thread	2.0		0.154	None	
- Su	5	20	6.25	Fac	tory Slotted PVC		Flus	h Thread	2.0		0.154	0.010
RLL				+								
DI DI												
												:
						İ						
	DEPTH	(feet bgl)	BORE HOLE	LI	ST ANNULAR SE	EAL MA	TERIAL A	AND	AMOUNT		METHO	D OF
IAL	FROM	то	DIAM. (inches)	GRA	VEL PACK SIZE-	-RANGE	BY INTE	ERVAL	(cubic feet)		PLACEN	1ENT
TER	0	2	6.25		Clean 1	native fil	1		0.2		Shov	el
MA	2	3	6.25		Ber	ntonite			0.1		Pou	r
AR 1	3	20	6.25		Clean 10/2	0 Silica	Sand		1.7		Pou	r
IUL	20	30	6.25		Ben	ntonite			0.99		Pou	r
ANN												
3.7					<u>.</u>							
FOR	<u>OSE INTER</u>	NAL US	E			البرزين		WR-2	0 WELL RECORD	& LOG	(Version 04/3	0/19)
FILI	e no. L-	148	16		POD NO	).	₽	TRN	NO. 610	$\frac{1}{1}$	)	
LOC	CATION 🗲	1.1.	<u>み</u> し	453	5E-32	-		WELL TAG I	DNO. NA		PAGE	1 OF 2

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	DEPTH (f	eet bgl)		COLOR AN	D TYPE OF MATER	RIAL EN	COÚNT	ERED -		W۵	LEB	ESTIMATED
			THICKNESS	INCLUDE WATE	R-BEARING CAVI	TIES OR	FRACT	URE ZONE	s	BEAR	ING?	WATER-
	FROM	то	(feet)	(attach sup	plemental sheets to	fully des	cribe al	l units)		(YES	/ NO)	BEARING
		6	<u> </u>	<b>C</b> :1	ter fine cond with min	or modin	m cand			v		ZONES (gpill)
		14	0	311							V N N	
		14	0	T inhe he	en-gradeu sanu with s	adad aa				v		
	14	15	1		with clay with well-gr	aded sar				I V		
	15	10	1	Orange	brown well-graded sa		siit, nard			I V		
	16	18	2	Pink-orange	well-graded sand wil	th calcite	chunks	> 1 inch		Y	✓ N	
ILL	18	20	2	Dark	red-orange well-grad	led sand	with cla	y		Y	✓ N	
W	20	25	5	Orange and buff-colore	ed well-graded sand w	vith grav	el and ar	ngular calcite	cobble	Y	✓ N	
0.0	25	32	7	Dry purple clay with m	ninor light gray to whi	ite clay in	nclusion	s and black g	ravel it	Y	✓ N	
ΓO										Y	N	
GIC										Y	N	
OLO										Y	N	
GEC										Y	N	
DRO										Y	N	
НУІ										Y	N	
4.										Y	N	
										Y	N	
										Y	N	
										Y	N	
										Y	N	
										Y	N	
										Y	N	
	METHOD U	ISED TO ES	TIMATE YIELD	OF WATER-BEARIN	G STRATA:				тот	AL ESTIN	IATED	
	Прим				THER - SPECIEV N	ot Appl	icable		WEI	LL YIELI	) (gpm):	0.00
7	WELL TES	T TEST	RESULTS - ATT	ACH A COPY OF DAT	A COLLECTED DU	JRING V	VELL T	ESTING, IN	CLUDI	NG DISC	HARGE M	IETHOD,
SIO					HOWING DISCHAR		DIA					
RVI	MISCELLA	NEOUS INF	FORMATION: D	rive to 32 feet; Auger	to 30 feet; plug bo	ring bac	k to 20	feet then so	et well			
UPE												
CSI												
C; R												
LES	PRINT NAM	AE(S) OF D	RILL RIG SUPE	RVISOR(S) THAT PRO	VIDED ONSITE SU	PERVIS	ION OF	WELL CON	ISTRU	CTION O	THER TH	AN LICENSEE:
5.1	Kalvin Padi	lla										
. B	BY SIGNIN	IG BELOW	, I CERTIFY TH	AT TO THE BEST O	F MY KNOWLEDO	GE AND		F, THE FOI	REGOI	NG IS A EN INSTA	TRUE A	ND CORRECT
RI I	WELL REC	ORD WILL	ALSO BE FILED	WITH THE PERMIT H	HOLDER WITHIN 30	DAYS	AFTER	THE COMP	LETIO	N OF WE	LL DRILL	ING.
LAN	m15	man	Digitally signed by Mark Mumby	y Comp.								
SIG	1000 7		pu=Security Division, mail=mmumby@hrlcomp.com, Date: 2020.06.09.09.47:0106:00	e-US	Mark Mumby					6/9/	2020	
• •		SIGNAT	URE OF DRILLI	ER / PRINT SIGNEE	NAME		-				DATE	
	L											······································
FO	R OSE INTER	NAL USE						WR-20 WE		CORD &	LOG (Ver	sion 04/30/2019)
FIL		$\frac{1}{2}$		$s = 2c\tau$				IKN NO.	<del>~</del> ,		.1	BACE 1 OF 1
	LATION	$\sim 1 - i$	<u> </u>	Nº JJE	<u>)d</u>		WELL	TAG ID NO.	1	くて		FAGE 2 OF 2



## WELL RECORD & LOG

OSE DII JUN 16 2020 PM9:21

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	OSE POD NO. (	WELL NO	.)		WELL TAG ID NO.			OSE FILE NO(	S).		· · · · · · · · · · · · · · · · · · ·	
NOI.	POD8				SB-8			L 14876				
OCAT	WELL OWNER	R NAME(S) Energy						PHONE (OPTI	ONAL)			
WELL I	WELL OWNER P.O. Box 19	r mailing 73	ADDRESS				·	city Roswell		state NM	88202	ZIP
L AND	WELL	TAT	DE	GREES 32	minutes 37	SECO 22.4	NDS 826 N	* ACCURACY	REQUIRED: ONE TEN'	TH OF A SE	COND	
NERA	(FROM GPS)		IGITUDE	103	28	32.4	469 W	* DATUM REC	QUIRED: WGS 84			
1. GE	DESCRIPTION West Pearl (	N RELATIN Queen	IG WELL LOCATION TO	STREET ADDR	ESS AND COMMON	LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAII	ABLE	
	LICENSE NO. 1789	)	NAME OF LICENSED	DRILLER	Mark Mumby				NAME OF WELL DRI HRL C	LLING COL ompliance	MPANY Solutions	
	DRILLING STA 4/10/20	arted )20	DRILLING ENDED 4/10/2020	DEPTH OF CO	MPLETED WELL (FT)	)	BORE HOI	LE DEPTH (FT) 25	DEPTH WATER FIRS No	ST ENCOUN	NTERED (FT)	
z	COMPLETED	WELL IS:	ARTESIAN	DRY HOL	E 🗌 SHALLOV	V (UNCO	)NFINED)		STATIC WATER LEV No	EL IN COM	IPLETED WE	LL (FT)
<b>VTIO</b>	DRILLING FLU	JID:	✓ AIR	MUD	ADDITIVE	S – SPE	CIFY:					
DRM	DRILLING ME	THOD:	<b>ROTARY</b>	HAMMER CABLE TOOL 70			OTHE	ER – SPECIFY: Hollow Stem Auge			Auger	
INFO	DEPTH (feet bgl) BO		BORE HOLE	CASING MATERIAL AND/OR GRADE		CA	SING	CASING C		G WALL	SLOT	
CASING I	FROM	10	DIAM (inches)	(include e note s	each casing string, a sections of screen)	and	CONN T (add coupl	VECTION YPE ing diameter)	INSIDE DIAM. (inches)	(in	KNESS ches)	SIZE (inches)
G&C				1	None Installed							
ILLIN												
2. DRI												
•••												
				· · ·								
Ц	DEPTH (f	feet bgl)	BORE HOLE		ST ANNULAR SE.	AL MA	TERIAL A		AMOUNT		METHO PLACEM	D OF IENT
ERIA	FROM	то			None I	nstalled						
MAT		· · ·										
JLAR												
ANNI												
З.												
FOR	OSE INTERN	AL USE		I				WR-2	0 WELL RECORD &	& LOG (V	ersion 04/3	0/19)
FILI	E NO.	با س	-13.16	20	POD NO.	X	r	TRN	$\frac{10}{10}$	N	<u>'  </u>	
	$\alpha$ in the second seco	11.	d r	$\overline{\mathcal{O}}$	E JA			WELL TAG II	d NO. NA		PAGE	1 OF 2

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					1	
	DEPTH (1	feet bgl)	THICKNERG	COLOR AND TYPE OF MATERIAL ENCOUNTERED -	WATER	ESTIMATED YIELD FOR
	FROM	то	(feet)	INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	BEARING? (YES / NO)	WATER- BEARING ZONES (gpm)
	0	8	8	Red orange and light gray silt with fine sand and some coarse angular san	nd Y 🖌 N	
	8	18	10	Pale orange to terra-cotta color orange fine sand with silt and gravel	Y 🖌 N	
	18	23	5	Dark orange and white sand with large calcite gravel pieces	✓Y N	
	23	27	4	Dark purple clay and fine sand with white and light gray clay inclusion	s Y √N	
					Y N	
ΓΓ					Y N	
WEI					Y N	
; OF					Y N	
TOG					Y N	
CIC					Y N	
OLO					Y N	
GEC					Y N	
DRO					Y N	
ΗΛ					Y N	
4					Y N	
					Y N	
1					Y N	
					Y N	
					Y N	
					Y N	
				· · · · · · · · · · · · · · · · · · ·	Y N	
	METHOD U	ISED TO ES	STIMATE YIELD	OF WATER-BEARING STRATA:	TOTAL ESTIMATED	
	PUMI	P 🔲 A	IR LIFT	BAILER OTHER – SPECIFY: Not Applicable	WELL YIELD (gpm):	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCL ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVE	LUDING DISCHARGE I R THE TESTING PERIC	METHOD, DD.
ISIV	MISCELLA	NEOUS INF	ORMATION:			
IPER						
C SL						
l; RI						
TES	PRINT NAM	AE(S) OF DI	RILL RIG SUPEF	VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONS	TRUCTION OTHER TH	IAN LICENSEE:
	Kalvin Padi	lla				
63	BY SIGNIN	G BELOW	, I CERTIFY TH	AT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FORI	EGOING IS A TRUE A	ND CORRECT
TUR	WELL REC	ORD WILL	ALSO BE FILED	WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPL	ETION OF WELL DRILL	LING.
LAN:	mis	March -> 1	Digitally signed by Mark Mumby DN: cn=Mark Mumby, o=HRL C	ump,		
SIG			nu-Security Division, mäil=mmumby@hrlcomp.com, o Date: 2020.06.09 10:05:00 -06'00'	Jus Mark Mumby	6/9/2020	
•		SIGNAT	URE OF DRILLE	R / PRINT SIGNEE NAME	DATE	
						nian 04/20/2010
FU	E NO.	-1	18710	$\begin{array}{c c} & & & & \\ \hline \\ \hline$	$\gamma \gamma $	rsion 04/30/2019)
LO	CATION		$\frac{1}{1}$	: 195-35E-32 WELL TAGID NO	NA /	PAGE 2 OF 2
					-+ <b>\</b> /^:-\	L

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									· · · ·			
NO	OSE POD NO. POD9	(WELL N	0.)		WELL TAG ID NO. SB-9			OSE FILE NO(3 L 14876	S).			
OCATI	WELL OWNER Armstrong	r name(: Energy	3)					PHONE (OPTIC	ONAL)			
WELL L	WELL OWNER P.O. Box 19	r mailin 973	G ADDRESS					CITY Roswell		state NM	88202	ZIP
Q	WELL		D	EGREES	MINUTES	SECON	DS				i	<u> </u>
ΥŢ	LOCATION		TITUDE	32	37	22.24	92 _N	* ACCURACY	REQUIRED: ONE TENT	TH OF A S	SECOND	
NERA	(FROM GPS	5) LO	ONGITUDE	103	28	32.31	84 W	* DATUM REC	QUIRED: WGS 84			
1. GE	DESCRIPTION West Pearl	N RELAT Queen	NG WELL LOCATION TO	O STREET ADDRI	ESS AND COMMON	I LANDMA	IRKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVA	ILABLE	
	LICENSE NO.		NAME OF LICENSEE	DRILLER					NAME OF WELL DRI	LLING C	OMPANY	
	1789	9			Mark Mumby				HRL C	omplian	ce Solutions	
	DRILLING ST. 4/10/20	arted 020	DRILLING ENDED 4/10/2020	DEPTH OF CON No	APLETED WELL (FT t Applicable	Г)	BORE HOI	LE DEPTH (FT) 30	DEPTH WATER FIRS	ST ENCO	UNTERED (FT) untered	·
Z	COMPLETED	WELL IS:	ARTESIAN	🗹 DRY HOLI	E 🗍 SHALLOV	W (UNCON	VFINED)		STATIC WATER LEV No	TEL IN CO	MPLETED WE	LL (FT)
UTI0	DRILLING FL	UID:	🖌 AIR	MUD	UD ADDITIVES – SPECIFY:							
DRMA	DRILLING METHOD:		ROTARY	HAMMER	CABLE TO	OOL	ОТНЕ	R - SPECIFY:	Hollow Ste		Auger	
INFC	DEPTH (feet bgl)		BORE HOLE	CASING MATERIAL AND/OR GRADE		CA	ASING	CASING C		NG WALL	SLOT	
ASING IN	FROM TO DIAM (inches)		(include each casing string, and note sections of screen) (add c			CONN T	NECTION TYPE	INSIDE DIAM. (inches)	THI (	CKNESS inches)	SIZE (inches)	
č,				N	one Installed		(uuu toup)	ing dianeter)				
NG S											• • •	
ทา												
DRI												
5.]												
									·			
	 	feet hol)	BODE HOLE				FRIAT A				МЕТЦО	
AL	FROM	TO	DIAM. (inches)	GRAV	/EL PACK SIZE-	-RANGE	BY INTE	RVAL	(cubic feet)		PLACEM	IENT
ERI			6.25		None	Installed						
ИАТ												
AR N												
IUL												
ANN												
3.	ļļ											
FOR	OSE INTERN	NAL US	interner of a		BOD NO	$\overline{\alpha}$		WR-2	0 WELL RECORD		Version 04/3	0/19)
LILI	SINQ.	1 -			I POD NO	, –				1	1 1	1

LOCATION

95-35E

32

WELL TAG ID NO.

PAGE 1 OF 2

### DSE DII JUN 16 2020 #9:22

	DEPTH (f	eet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	0	13	13	Light brown to orange fine sand with minor silt and coarse sand and gravel	Y VN	
	13	18	5	Orange/light brown well-graded sand with minor silt and gravel	Y √N	
	18	25	7	Orange/red fine sand with minor medium and coarse sand and silt and white calc	Y 🖌 N	
	25	32	7	Brick red to purple clay with minor fine, medium, and coarse sand and light gray	Y √N	
					Y N	
Ţ		• • • • •			Y N	
WEI		r			Y N	
OF					Y N	
E 0 0					Y N	
3IC ]					Y N	
)LO(					Y N	
GEC					Y N	
DRO					Y N	
HW					Y N	
4					Y N	
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					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
	METHOD U	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	IR LIFT	OF WATER-BEARING STRATA:       TOTA         BAILER       OTHER - SPECIFY: Not Applicable       WEL	AL ESTIMATED L YIELD (gpm):	0.00
Z	WELL TES	TEST	RESULTS - ATT T TIME, END TI	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDI ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THI	NG DISCHARGE N E TESTING PERIO	IETHOD, D.
ISIO	MISCELLA		CORMATION.			
ERV	MISCELLA	NEOUS INI	TI	D Auger 30 feet bgl; TD core barrel drive 32 feet bgl		
SUP						
RIG						
EST;	DDINIT NAM			NISOD (S) THAT DO WIDED ONSITE SIDED VISION OF WELL CONSTRUIN	TION OTHER TH	ANLICENSEE
5. TJ	rahin Dadi		KILL KIG SUPER	(VISOR(3) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCT	TION OTHER TH	AN LICENSEE:
	Kalvili Faul					
~~)	BY SIGNIN	G BELOW	, I CERTIFY TH	AT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGON	NG IS A TRUE A	ND CORRECT
URI	WELL RECO	ORD WILL	ALSO BE FILED	WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION	N OF WELL DRILL	JING.
LAN	matri	14	Digitally signed by Mark Mumby DN: cn=Mark Mumby, o=HRL C	omp,		
SIC			nu-Security Division, mail=mmumby@hrlcomp.com, Date: 2020.06.09 10:05:31 -06'00	Hark Mumby	6/9/2020	
\$		SIGNAT	URE OF DRILLE	ER / PRINT SIGNEE NAME	DATE	
ECT						-i 04/20/2010)
FIL	E NO.		1871,	$\begin{array}{c c} & & & \\ \hline \\ \hline$		sion 04/30/2019)
LO		<u>) -   -</u>	<u>-</u> 2 .4	195-35E-32 WELL TAGID NO A	A	PAGE 2 OF 2
L	$\sim$				4 7	



OFFICE OF THE STATE ENGINEER

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NO	ose pod no. POD10	WELL NO	).)		well tag id no. SB-10			OSE FILE NO(S L 14876	<u>s).</u>	ÿ		
OCATI	WELL OWNE	ER NAME(S Energy	()	· · · · · · ·				PHONE (OPTIC	DNAL)			
WELL LO	WELL OWNE P.O. Box 1	er mailin 973	G ADDRESS					CITY Roswell		state NM	88202	ZIP
é		1	DE	EGREES	MINUTES	SECONDS						
AL AN	WELL LOCATIO		TITUDE	32	37	22.1772	N	* ACCURACY	REQUIRED: ONE TEN	TH OF A S	ECOND	
ER	(FROM GP	S) LC	NGITUDE	103	28	32.7318	W	* DATUM REQ	UIRED: WGS 84			
EN	DESCRIPTIC	N RELATI	NG WELL LOCATION TO	STREET ADDRE	SS AND COMMON	LANDMARKS	- PLS	S (SECTION, TO)	WNSHJIP, RANGE) WH	ERE AVA	ILABLE	
1. 0	West Pearl	Queen							. ,			
	LICENSE NO.		NAME OF LICENSED	DRILLER					NAME OF WELL DRI	LLING CO	OMPANY	
ļ	178	9	_	]	Mark Mumby				HRL C	omplian	ce Solutions	
	DRILLING ST 4/10/2	rarted 2020	DRILLING ENDED 4/10/2020	DEPTH OF COM Not	IPLETED WELL (FT Applicable	) BOR	e hoi	LE DEPTH (FT) 20	DEPTH WATER FIRS	ST ENCOU It Encou	INTERED (FT) Intered	
z	COMPLETED	O WELL IS:	ARTESIAN	🗹 DRY HOLE	E 🔲 SHALLOV	W (UNCONFINE	ED)		STATIC WATER LEV No	EL IN CO ot Encou	MPLETED WE	LL (FT)
LIO	DRILLING FL	LUID:	AIR	MUD	ADDITIVI	ES - SPECIFY:						
MAT	DBULBION						OTUR	D ODECIEV.	Ualla	w Stam	Auger	
ORI	DRILLING M	ETHOD:				JOL 1	OTHE	R SPECIFY:	Holic	w Stell	Augei	
NF	DEPTH	(feet bgl)	BORE HOLE	CASING N	ATERIAL AND	/OR	C	SING	CASING	CASI	NG WALL	SLOT
5	FROM	то	DIAM	( 1 1	GRADE	, ,	CON	VECTION	INSIDE DIAM.	THI	CKNESS	SIZE
SIN			(inches)	(include ea	ections of screen)	and (add	T muou	YPE ling diameter)	(inches)	(i	inches)	(inches)
CA				N	one Installed	(444		ing dianeter)				
8 U												
<b>LIN</b>				,	,							
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						<u>l</u>				<u> </u>		
	DEPTH	(feet bgl)	BORE HOLE	LIS	T ANNULAR SE	AL MATERI	IAL A	AND	AMOUNT		METHO	D OF
AL	FROM	то	DIAM. (inches)	GRAV	EL PACK SIZE-	RANGE BY	INTE	ERVAL	(cubic feet)		PLACEM	IENT
ERI				1	None	Installed						·····
AT						<u> </u>						
R N												
ÎN Î								<u> </u>				
A.			· · · · · · · · · · · · · · · · · · ·					<u></u>				
(m)												
	<u> </u>								l			
FOR	OSE INTER	NAL US						WR-2	0 WELL RECORD	LOG	Vorsion 04/3	0/19)
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LOCATION

195-2

PAGE 1 OF 2

WELL TAG ID NO.

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1				······································			· · · · · · · · · · · · · · · · · · ·				EOTD (	
	DEPTH (f	reet bgl) TO	THICKNESS (feet)	COLOR A INCLUDE WA' (attach s	AND TYPE OF M TER-BEARING upplemental she	ATERIAL EN CAVITIES OF ets to fully de	NCOUNTERED - & FRACTURE ZONE scribe all units)	S	WATE BEARIN (YES / I	R VG? VO)	ESTIMA YIELD WATI BEAR ZONES	ATED FOR ER- ING (gpm)
	0	18	18	Tan and or	range colored wel	l-graded sand	with minor gravel	-	Y	✓ N	LONED	(69111)
	18	22	4	Dark orange/	red fine and medi	um silty sand	with white inclusions		Y	✓ N		
	10								Y	N		
									Y	N		
									Y	N		
T									Y	N		
WEL				· · · ·					Y	N		
OF					······				Y	N		
00							· · ·		Y	N		
ICI									Y	N		
001	-								Y	N		
GEO									Y	N		
ORO									Y	N		
НУІ							18 - 21 - 19		Y	N		
4.									Y	N		-
									Y	N		
									Y	N		
									Y	N		<del></del>
									Y	N		
									Y	N		
								<u> </u>	Y	N		
	METHOD U	ISED TO ES	STIMATE YIELD	OF WATER-BEAR	ING STRATA:			TOTAL	ESTIMA	ATED	0.0	0
	<b>PUM</b>	P 🗌 A	IR LIFT	BAILER	OTHER – SPECI	FY: Not App	licable			(gpin).	0.0	0
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF D. ME, AND A TABLE	ATA COLLECT	ED DURING ' CHARGE AN	WELL TESTING, IN D DRAWDOWN OV	CLUDING ER THE T	DISCH. ESTINC	ARGE I S PERIC	METHOD, DD.	
<b>VIS</b>	MISCELLA	NEOUS IN	FORMATION: TI	D Auger 20 feet bg	l; TD core barre	l drive 22 fe	et bgl					
JPEF				0 0	,		C					
IG SI												
r; RI												
TES	PRINT NAM	AE(S) OF D	RILL RIG SUPER	RVISOR(S) THAT PI	ROVIDED ONSI	TE SUPERVIS	SION OF WELL CON	ISTRUCTI	ON OT	HER TI	IAN LICE	NSEE:
Ċ.	Kalvin Padi	lla										
	BY SIGNIN	IG BELOW	I CERTIFY TH	IAT TO THE BEST	OF MY KNOW	LEDGE ANI	D BELIEF. THE FO	REGOING	IS A T	RUE A	ND CORI	RECT
RE	RECORD O	F THE ABO	OVE DESCRIBED	WELL, I ALSO CE	RTIFY THAT TH	IE WELL TA	G, IF REQUIRED, HA	AS BEEN I	NSTAL		ND THAT	THIS
ATU	WELL REC	ORD WILL	Digitally signed by Mark Mumby		I HOLDER WIT		A ILK HL COM	LEMON		DIGL	Lind.	
NDI	[M][] E. J.	Mfmty > }.	DN: cn-Mark Mumby, o=HRL C ou-Security Division, email=mmumby@hrlcomp.com,	Comp. c=US	Mark Mumby				6/9/2	020		
6.5	·	SIGNAT	Date: 2020.06.09 10:06:13 -06'00	P / PPINT SIGNE	E NAME				 T	DATE		<u> </u>
		JIONAI										
FO	R OSE INTER	NAL USE	<u> </u>				WR-20 WE	LL RECO	RD & L	<u>OG (Ve</u>	rsion 04/30	)/2019)
FIL		-14(	S IY	-265	POD NO.		TRN NO.	fil	Ú.			
LO	CATION	21:9	, 192	s our	22		WELL TAG ID NO	NF	~		PAGE	2 OF 2

**Released to Imaging: 10/29/2024 7:37:14 AM** 

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### WELL RECORD & LOG

#### OFFICE OF THE STATE ENGINEER

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	OFF BOD NO (	VELL NO	)	Τ.				OSE EU E NOV	2)			
7	POD11	VELL NO.	.)		WELL TAG ID NO.			1.14876	5).			
IOI.	10011					1						
TAT	WELL OWNER	NAME(S)						PHONE (OPTIC	ONAL)			
ğ	Armstrong E	nergy										
T	WELL OWNER	MAILING	ADDRESS					CITY		STATE		ZIP
VEJ	P.O. Box 197	3						Roswell		NM	88202	
é		<u>,</u>	DE	GREES	MINUTES	SECONI	DS					
AN	WELL		22	32	37	22.918	82	* ACCURACY	REQUIRED: ONE TENT	TH OF A SE	ECOND	
M	LOCATION (FROM CPS)	LAT	TITUDE	102			N	* DATUM REC	UIRED: WGS 84			
NEI	(rkom ors)	LON	IGITUDE	103	28	33.05	22 W	2				
GE	DESCRIPTION	RELATIN	IG WELL LOCATION TO	STREET ADDRE	SS AND COMMON	LANDMA	RKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAI	LABLE	
1.	West Pearl Q	ueen										
			· · · · · · · · · · · · · · · · · · ·									
	LICENSE NO.		NAME OF LICENSED	DRILLER	Jorl Mumby				NAME OF WELL DRI	LLING CO	MPANY • Solutions	
	1/09			ľ	viaik wiulliby					omphane	e Solutions	
	DRILLING STA	RTED	DRILLING ENDED	DEPTH OF COM	PLETED WELL (FT	)	BORE HOI	LE DEPTH (FT)	DEPTH WATER FIRS	ST ENCOU	NTERED (FT)	
	4/14/202	20	4/14/2020	Not	Applicable			25		n Encou	mered	
	COMPLETED N	JELL 10.							STATIC WATER LEV	EL IN CON	MPLETED WE	LL (FT)
Z	COMPLETED	VELL 15:	ARTESIAN	DRY HOLE	SHALLON	W (UNCON	FINED)		NC	of Encou	ntered	
Ţ	DRILLING FLU	ID:	🖌 AIR	MUD	ADDITIVI	ES – SPECI	FY:		•			
MA	DRILLING MET	'HOD'				DOL.	7 OTHE	R – SPECIFY:	Hollo	w Stem	Auger	
OR												
INF	DEPTH (feet bgl)		BORE HOLE	CASING M	IATERIAL AND	/OR	CA	SING	CASING		IG WALL	SLOT
D Z	FROM TO		DIAM	(include ea	GRADE	and	CON	VECTION	INSIDE DIAM.	THIC	CKNESS	SIZE
ASU			(inches)	note se	ctions of screen)		(add coup)	YPE ling diameter)	(inches)	(ir	nches)	(inches)
C a				No	one Installed							
ğ					· · · · · · · · · · · · · · ·							
TIN												
RIL												
C. D												<u> </u>
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	ļ			L					L	<u> </u>		
	DEPTH (fe	et bgl)	BORE HOLE	LIST	I ANNULAR SE	AL MAT	ERIAL A	AND	AMOUNT		METHO	D OF
AL	FROM	то	DIAM. (inches)	GRAV	EL PACK SIZE-	RANGE	BY INTE	RVAL	(cubic feet)		PLACEN	IENT
ERI					None	Installed						
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AN					<u></u>							
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FOR	OSE INTERN	AL USE	-					WR-2	0 WELL RECORD	LOG (	Version 04/3	0/19)
FILI	ENO.   _	US'	710		POD NO	. 11		TRN 1	NO. $( \land ) O $	1 1		1

WELL TAG ID NO. NA

195

555-32

LOCATION 2.1.2

PAGE 1 OF 2

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•••										-	
	DEPTH (1	eet bgl)	THICKNESS	COLOR AN	ND TYPE OF MATERIAL ER-BEARING CAVITIES	ENCOUN' OR FRAC	TERED - TURE ZONES		WA1 BEAR	FER ING?	ESTIMATED YIELD FOR WATER-
	FROM	то	(feet)	(attach su	pplemental sheets to fully	describe a	ll units)		(YES)	/ NO)	BEARING ZONES (gpm)
	0	18	18		Orange well-graded sand	with silt			Y	√ N	
	18	24	6	Orange a	nd buff-colored well-grade	d sand with	gravel		Y	√ N	
	24	27	4	Very hard dark purple	clay with fine and medium	sand and l	ight grey calcite	e incl	Y	<b>√</b> N	
									Y	N	
									Y	N	
T									Y	N	
WEI									Y	N	
OF									Y	N	
DOJ									Y	N	
3IC ]									Y	N	
)LO(									Y	N	
GEO									Y	N	
DRO									Y	N	
НУ									Y	N	
4.									Y	N	
									Y	N	
							-		Y	N	
									Y	N	
									Y	N	
		,							Y	N	
			ļ						Y	N	
	METHOD U	SED TO ES	STIMATE YIELI	D OF WATER-BEARIN	IG STRATA:			TOTA	L ESTIN	ATED	
	<b>PUM</b>	P A	IR LIFT	BAILER 70	THER - SPECIFY: Not A	pplicable		WELI		(gpm):	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	FACH A COPY OF DA IME, AND A TABLE S	TA COLLECTED DURIN HOWING DISCHARGE	G WELL T	ESTING, INCI WDOWN OVE	LUDIN R THE	IG DISC TESTIN	HARGE I IG PERIC	METHOD, )D.
ISIV	MISCELLA	NEOUS INF	FORMATION: T	D Auger 25 feet bgl:	TD core barrel drive 27	feet bgl					
JPEF				5 5,		U					
; RIG SI											
EST	PRINT NAM	1E(S) OF D	RILL RIG SUPE	RVISOR(S) THAT PRO	OVIDED ONSITE SUPER	VISION OF	FWELL CONS	STRUC	TION O	THER TH	IAN LICENSEE:
5. T	Kalvin Padi	lla		.,							
JRE	BY SIGNIN RECORD O WELL REC	G BELOW F THE ABC	, 1 CERTIFY TH OVE DESCRIBED	HAT TO THE BEST ( D WELL I ALSO CER WITH THE PERMIT	OF MY KNOWLEDGE A TIFY THAT THE WELL 1 HOLDER WITHIN 30 DA	ND BELIE TAG, IF RE YS AFTER	EF, THE FORE QUIRED, HAS	EGOIN 5 BEEN ETION	IG IS A N INSTA	TRUE A	ND CORRECT ND THAT THIS LING.
IGNATI	MULE H	Mart >	Digitally signed by Mark Mumb DN: cn-Mark Mumby, o-HRL pu-Security Division, traisi-mumby@hrlcomp.com,	yy Comp, , c=US	Mark Mumby				6/9/	2020	
6. 5	·	SIGNAT	Date: 2020.06.09 10:06:50 -060	© ER / PRINT SIGNEE	NAME					DATE	
FOI	R OSE INTER	NAL USE	110		POD NO 1		WR-20 WEL	L REC	CORD &	LOG (Ve	rsion 04/30/2019)
LO	CATION 7	149	Ma	5-245-3-		WEIT	TAG ID NO				PAGE 2 OF 2
	O	$\cdot \cdot \cdots$	· · · · ·	- $        -$		باباند ۲۷	THO ID NO.	Nr.	<b>`</b>		1

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# WELL RECORD & LOG

### OFFICE OF THE STATE ENGINEER

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	OSE POD NO	. (WELL N	0.)		WELL TAG ID NO.			OSE FILE NO(	S).			
ION	POD12				SB-12			L 14876				
OCAT	WELL OWNE	ER NAME(S Energy	8)					PHONE (OPTI)	ONAL)			
MELL L	WELL OWNE P.O. Box 1	er mailin 973	G ADDRESS					CITY Roswell		STATE NM	88202	ZIP
AL AND	WELL LOCATIO	N L	D	EGREES 32	minutes 37	seco 22.6	NDS 5878 N	* ACCURACY	REQUIRED: ONE TEN	TH OF A SI	ECOND	
NER/	(FROM GP	S)	DNGITUDE	103	28	33.6	5606 W	* DATUM REG	QUIRED: WGS 84			
1. GE	DESCRIPTION West Pearl	ON RELAT	ING WELL LOCATION T	O STREET ADD	RESS AND COMMON	LANDM	IARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAI	LABLE	
	LICENSE NO 178		NAME OF LICENSE	D DRILLER	Mark Mumby				NAME OF WELL DR HRL C	ILLING CO	MPANY e Solutions	
	DRILLING S 4/15/2	tarted 2020	DRILLING ENDED 4/15/2020	DEPTH OF CO N	OMPLETED WELL (FI ot Applicable	Г)	BORE HO	LE DEPTH (FT) 24	DEPTH WATER FIRS	ST ENCOU ot Encou	NTERED (FT) ntered	
N	COMPLETEI	O WELL IS	ARTESIAN	🗹 DRY HO	le 🔲 shallo	W (UNC	ONFINED)		STATIC WATER LEV	TEL IN CON TEL IN CON	MPLETED WE ntered	LL (FT)
ATIC	DRILLING F	LUID:	AIR	MUD	ADDITIV	ES – SPE	CIFY:					
ORM	DRILLING M	IETHOD:	ROTARY	НАММЕ	R CABLE T	OOL	ОТНЕ	R - SPECIFY:	Hollo	w Stem	Auger	
SING INF	DEPTH (feet bgl)     BORE HOLE       FROM     TO     DIAM       (inches)			CASING (include	MATERIAL AND GRADE each casing string, sections of screen)	D/OR and	CA CONN T	ASING VECTION YPE	CASING INSIDE DIAM. (inches)	CASIN THIC (ir	NG WALL CKNESS nches)	SLOT SIZE (inches)
& CA					None Installed		(aud coup)	ing diameter)				
JNG	-											
RILI							<u> </u>					
2. D												
-	DEPTH	(feet bgl)	BORE HOLE	L	IST ANNULAR SH	EAL MA	ATERIAL A	AND	AMOUNT		METHO	D OF
RIAL	FROM	TO	DIAM. (inches)	GRA	AVEL PACK SIZE	-RANG	E BY INTE	ERVAL	(cubic feet)		PLACEN	IENT
ATEI		<b>.</b> .			None	Installe	d					
R M												
IULA												
ANN				-								
FOR	OSE INTER	NALOR		1			<u> </u>	WR-2	0 WELL RECORD	ـــــــــــــــــــــــــــــــــــــ	Version 04/3	0/19)
FILE	E NO. U-	11	874	~	POD NC	).	5	TRN	NO. 670	71	]	
LOC	ATION	<u> </u>	1.2 1	45-2	35E-3	<u>i</u> 2		WELL TAG I	DNO. NA	-	PAGE	1 OF 2

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													·····
	DEPTH (1	eet bgl)		COL	OR AN	D TYPE OF M	ATERIAL EI	NCOUN	TERED -		WA	TER	ESTIMATED
			THICKNESS	INCLUDE	WATE	ER-BEARING (	CAVITIES O	R FRAC	TURE ZONE	s	BEAF	RING?	WATER-
	FROM	ТО	(feet)	(atta	ach sup	oplemental shee	ets to fully de	escribe a	all units)		(YES	/ NO)	BEARING ZONES (gpm)
	0	8	8			Fine sand with	minor coarse	sand			Y	√ N	
	8	10	2	Light br	rown w	ell-graded sand	with gravel a	nd white	clay chunks		Y	√ N	
	10	19	9		Buff-	colored well-gra	ded sand wit	h minor	silt		Y	√ N	
	19	24	5	Dark ora	inge me	dium sand and f	fine sand with	n minor s	silt and gravel		<b>√</b> Y	N	
											Y	N	
ц											Y	N	
VEL											Y	N	
OF											Y	N	
00											Y	N	
ICL	=					•					Y	N	
COG											Y	N	
EOI											Y	N	
ROC											Y	N	
avi											Y	N	
4.1											Y	N	
											Y	N	
											Y	N	
											Y	N	
											Y	N	
											Y	N	
											Y	N	
	METHOD U	ISED TO ES	TIMATE YIELD	OF WATER-B	EARIN	G STRATA:				тот	AL ESTI	MATED	L
				BAILER		THER – SPECII	_{FY:} Not App	licable		WEL	L YIELI	D (gpm):	0.00
		·											
z	WELL TES	T TEST	RESULTS - ATT T TIME, END TI	ACH A COPY ( ME. AND A TA	OF DAT	FA COLLECTE	D DURING	WELL 1 ID DRA	FESTING, ING WDOWN OV	CLUDI ER TH	NG DISC E TESTI	CHARGE	METHOD, DD.
OISI				···								-	
ERV	MISCELLA	NEOUS INI	T	D Auger 20 fee	et bgl; '	TD core barre	l drive 24 fe	et bgl					
SUPI													
RIG													
ST; I		-											
. TE	PRINT NAM	AE(S) OF D	RILL RIG SUPEI	RVISOR(S) THA	AT PRC	VIDED ONSIT	E SUPERVI	SION O	F WELL CON	ISTRU	CTION C	OTHER TI	HAN LICENSEE:
4,	Kalvin Padi	lla											
	BY SIGNIN	IG BELOW	, I CERTIFY TH	IAT TO THE B	BEST C	F MY KNOW	LEDGE ANI	D BELI	EF, THE FOI	REGON	NG IS A	TRUE A	AND CORRECT
JRE	RECORD O	F THE ABO	VE DESCRIBED	) WELL. I ALSO WITH THE PE	) CERI	TIFY THAT TH	E WELL TA	G, IF RI S AFTEI	EQUIRED, HA	AS BEE	N INSTA	ALLED A	ND THAT THIS LING.
IATU	man I	a	Digitally signed by Mark Mumby	,									
SIGN	111 IS E. J.	14 Junet > N	DN: cn=Mark Mumby, o=HRL C ou=Security Division, email=mmumby@hrlcomp.com,	Comp, c=US	I	Mark Mumby					6/9	/2020	
6.5		SICNAT	Date: 2020.06.09 10:07:23 -06'00			NAME						DATE	
		JIJINAI	ORE OF DRILLI	JR / FRINT SI	UNCE							DATE	······
FO	R OSE INTER	NAL USE	1.1000						WR-20 WE	LL RE	CORD &	LOG (Ve	rsion 04/30/2019)
FIL	E NO.	<u>~ L-</u>	148,1	y		POD NO.	$\Delta$	r	TRN NO.	Ľ	<u>10'</u>	11'	l
LO	CATION C	<u>-1-k</u>	d	15-5	55t	-32		WELL	, TAG ID NO.	$\mathbb{N}$	$\underline{\mathcal{H}}$		PAGE 2 OF 2



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	OSE POD NO	. (WELL NO	.)	[	WELL TAG ID NO.		· · · · .	OSE FILE NO(	S).		<u> </u>	
ION	POD13				SB-13			L 14876				
CAT	WELL OWNE	ER NAME(S)						PHONE (OPTIC	DNAL)			
ΓO	Amisuong		ADDRESS					OTTY		OTATE		710
ELL	P.O. Box 1	973	ADDRESS					Roswell		NM	88202	ZIP
M QI			DE	GREES	MINUTES	SECON	IDS					
LAN	WELL LOCATIO	N TA		32	37	22.17	772 _N	* ACCURACY	REQUIRED: ONE TENT	TH OF A S	ECOND	
ERA	(FROM GP	(S)	NGITUDE	103	28	33.1	716 W	* DATUM REC	QUIRED: WGS 84			
GEN	DESCRIPTIO	ON RELATIN	NG WELL LOCATION TO	STREET ADDR	ESS AND COMMON	LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVA	ILABLE	
1.	West Pearl	Queen										
	LICENSE NO	).	NAME OF LICENSED	DRILLER					NAME OF WELL DR	ILLING CO	MPANY	
	178				Mark Mumby				HRL C	omplianc	e Solutions	
	DRILLING ST 4/15/2	tarted 2020	DRILLING ENDED 4/15/2020	DEPTH OF CO NC	MPLETED WELL (F1 ot Applicable	F)	BORE HOI	LE DEPTH (FT) 25	DEPTH WATER FIRS	ST ENCOU 18.35	NTERED (FT) 5	
		D WELL IS				Wables			STATIC WATER LEV	EL IN CO	MPLETED WE	LL (FT)
NO	COMPLETE	D WELL IS:	AKIESIAN		E I SHALLO	w (UNCO	infineD)			17.09	<b>;</b>	
IATI	DRILLING FI	LUID:	AIR	MUD	ADDITIV	ES – SPEC	CIFY:	<u> </u>				
ORM	DRILLING M	IETHOD:			CABLE T	OOL	✓ OTHE	R – SPECIFY:	Hollo	w Stem	Auger	
INF	DEPTH	(feet bgl)	BORE HOLE	CASING	MATERIAL AND	O/OR	CA	ASING	CASING		NG WALL	SLOT
SNI	FROM	ТО	DIAM	(include each casing string, and note sections of screen) (add coupling diam			VECTION YPE	INSIDE DIAM.	THIC	CKNESS nches)	SIZE (inches)	
CAS	0	10	6 25	note s	Blank PVC		(add coup Flus	ling diameter) h Thread	2		) 154	NA
G &	10	25	6.25	Fact	tory Slotted PVC		Flus	h Thread	2		0.154	0.010
				1			. ·					
DRI												
<b>ה</b>											<u> </u>	
								-	-			
	DEPTH	(feet bgl)	BORE HOLE	LI	ST ANNULAR SE	EAL MA	TERIAL A	AND	AMOUNT		METHO	DOF
IAL	FROM	ТО	DIAM. (inches)	GRA	VEL PACK SIZE	RANGE	E BY INTE	RVAL	(cubic feet)		PLACEN	1ENT
TEF	0	2	6.25		Clean nat	tive back	fill		0.2		Shov	el
X MA	2	25	6.25		Clean 1	1000000000000000000000000000000000000	nd		1.7		Pou	r
ILAF		25	0.25								104	
NN												
3. A											-	
FOR	OSE INTER	NAL USE					2	WR-2	0 WELL RECORD	LOG (	Version 04/3	0/19)
FILE	ATION	$-i\mathbf{U}$	S'IL Ia	czc		<u>).                                    </u>		TRN I			PAGE	1 OF 2
FILI	ENO.	-lu	sily ta	5-35	POD NO	). V_ L	<u>ろ</u>	TRN I WELL TAG I	$\frac{NO.}{D NO.} $	)^ <u>)</u> ~	PAGE	1 OF 2

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	DEPTH (f	reet bgl) TO	THICKNESS (feet)	COLOR INCLUDE WA (attach	AND TYPE OF I ATER-BEARING supplemental sh	MATERIAL E CAVITIES O eets to fully de	NCOUN R FRAC escribe a	TERED - TURE ZONES Ill units)	S	WA' BEAR (YES	FER ING? / NO)	ES YI V B	TIMATED ELD FOR VATER- EARING
												ZO	NES (gpm)
	0	14	14	Light brow	wn and orange w	ell-graded sand	with mi	nor gravel		Y	✓ N N		
	14	24	10	Oran	lge fine sand with	silt and minor	medium	sand			N		
		27	5	Orange and buri-co	lored wen-graded	i sand with larg	e calcite	and write clay	y meru	v	V N		
						<u>.</u>	-			v	N		
										v	N		*
ELL							<u> </u>			v	N		
F W										v	N		
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OGI										v	N		
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	METHOD U	SED TO ES	I STIMATE YIELD	OF WATER-BEAR	ING STRATA:					LESTIN	IATED		
			тратст Г			IEV. Not Ann	licable		WEL	L YIELD	) (gpm):		0.00
				BAILER	OTHER - SPEC	IF 1							
ION	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF D ME, AND A TABLE	DATA COLLECT	ED DURING	WELL T D DRAV	ESTING, INC WDOWN OVI	CLUDIN ER THE	NG DISC E TESTIN	HARGE I IG PERIC	METH DD.	OD,
ISIV	MISCELLA	NEOUS INF	FORMATION: TI	D Auger 25 feet by	l: TD core barr	el drive 27 fe	et høl	X					
IPER					,,, 12 0010 0411	••••••••							
G SI													
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TES	PRINT NAM	IE(S) OF D	RILL RIG SUPE	VISOR(S) THAT P	ROVIDED ONS	TE SUPERVI	SION OI	F WELL CON	STRUC	TION O	THER TH	IAN L	ICENSEE:
5.	Kalvin Padi	lla											
	BY SIGNIN	G BELOW	, I CERTIFY TH	AT TO THE BEST	OF MY KNOW	VLEDGE ANI	) BELII	EF, THE FOR	EGOIN	IG IS A	TRUE A	ND C	ORRECT
URE	WELL RECO	F THE ABO ORD WILL	ALSO BE FILED	WELL. I ALSO CE WITH THE PERMI	THAT THAT T THOLDER WI	HE WELL TAG HIN 30 DAYS	J, IF RE AFTER	QUIRED, HA	.s beel .etion	N INSTA I OF WE	LLED AI	ND TH LING.	IAT THIS
NAT	mite	m $L$	Digitally signed by Mark Mumby										
SIG	1"10 C. 11	A Contraction	mail=mmumby@hrlcomp.com, of the comp.com, of the comp.com	=US	Mark Mumby	1				6/9/	2020		
6.		SIGNAT	URE OF DRILLE	R / PRINT SIGN	EE NAME		_				DATE		
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FOI	R OSE INTERI	NAL USE	8710			2		WR-20 WEI		CORD &		rsion (	4/30/2019)
		<u>_' 194</u> ) 1		as-25		<u>Э</u>	11.000	TRIN NU.	-Ve	A	<u> </u>	DA	GE 2 OF 2
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#### Page 70 of 198

# WELL RECORD & LOG

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NO	OSE POD NO POD14	. (WELI	L NO.)	1	S	well tag id no. SB-14			ose file no( L 14876	S).				
OCATI	WELL OWNI Armstrong	ER NAM Energ	ie(s) Sy						PHONE (OPTI	ONAL)				
MELL L	WELL OWNI P.O. Box 1	er mai 973	LING	ADDRESS					CITY Roswell		ST NI	ATE M	88202	ZIP
<b>N</b>	WELL			DE	EGREES	MINUTES	SECO	NDS						
ML/	LOCATIO	N (N	LAT	ITUDE	32	3/	23.1	168 N	* ACCURACY	REQUIRED: ON	IE TENTH C	OF A SE	COND	
CNER	(FROM GP	(5)	LON	GITUDE	103	28	31.7	562 W			••••••••••••••••••••••••••••••••••••••			
1. GI	DESCRIPTIO West Pearl	ON REL	ATINO n	G WELL LOCATION TO	) STREET ADDRE	SS AND COMMON	I LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANO	GE) WHERE	AVAII	LABLE	
	LICENSE NO	).		NAME OF LICENSED	DRILLER					NAME OF WE	ELL DRILLI	NG CO	MPANY	
	178	<u> </u>			ז 	Mark Mumby					HRL Com	pliance	e Solutions	
	DRILLING S 4/15/2	tartei 2020	D	4/15/2020	DEPTH OF COM Not	PLETED WELL (F Applicable	Г)	BORE HOI	LE DEPTH (FT) 25	DEPTH WAT	ER FIRST E Not E	ncour	ntered (FT) ntered	
Z	COMPLETEI	D WELL	. IS:.	ARTESIAN	DRY HOLE	SHALLO	W (UNCC	NFINED)		STATIC WAT	ER LEVEL	IN COM	IPLETED WE	LL (FT)
ATIO	DRILLING FI	LUID:		🖌 AIR	MUD	ADDITIV	ES – SPE	CIFY:						
DRM	DRILLING M	IETHOD	<b>D</b> :	ROTARY	HAMMER	CABLE T	OOL	OTHE	R - SPECIFY:		Hollow S	Stem A	Auger	
INFC	DEPTH	(feet b	gl)	BORE HOLE	CASING M	IATERIAL AND	D/OR	CA	SING	CASING	G (	CASIN	G WALL	SLOT
SING	FROM	Т	'O	DIAM (inches)	(include ea	ch casing string,	and	CONN	VECTION YPE	INSIDE DI (inches)	AM. )	THIC (in	KNESS (ches)	SIZE (inches)
¢ CA					Note se	ot Installed		(and coup	ling diameter)					
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DRI														
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	DEPTH	(feet b	gl)	BORE HOLE	LIST	Γ ANNULAR SI	EAL MA	TERIAL A	AND	AMO	UNT		METHO	D OF
IAL	FROM	Т	O	DIAM. (inches)	GRAV	EL PACK SIZE	RANGI	E BY INTE	RVAL	(cubic	feet)		PLACEN	IENT
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PAGE 1 OF 2

WELL TAG ID NO.

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FROM         TO         THICKNESS (feet)         TULIDE WATER-BEARING CALIFE OUR RACIUME ZONES (attach supplemental sheets to fully describe all units)         WATER WATER BEARING (VES / NO)         WATER WATER BEARING (VES / NO)           0         13         13         Tan to enage well-graded and with minor silt         Y         / N           13         19         6         Pink to pale-built colored sity fine sand         Y         / N           13         19         6         Pink to pale-built colored sity fine sand         Y         / N           24         27         3         Brick red color clay with medium and es well-graded sand with minor silt         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         1         -         -         Y         N           24         27         N         -         Y         N           24         27         N         -         Y         N           24         27         N         -         Y         N		DEPTH (f	eet bgl)				ESTIMATED
FROM         TO         (feer)         istatch supplemental sheets to fully describe all unito)         (YES / NO)         BEFARING ZONES (gen)           0         13         13         Tan to orange well-graded sand with minor sit         Y         V         N           13         19         6         Pink to pale-buff colored sitly fine sand         Y         V         N           19         24         5         Orange to slightly task well-graded sand with minor sit         Y         N				THICKNESS	INCLUDE WATER-BEARING CAVITIES OF FRACTURE ZONES	WATER BEARING?	YIELD FOR WATER-
0         13         13         Tan to orange well-graded sand with minor silt         Y         V         N           13         19         6         Pink to pale-buff colored sitty fine sand         Y         V         N           19         24         5         Orange to slightly task well-graded sand with minor sitt         ✓ Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and es well-graded sand and calcite chunks         Y         N           24         27         N         Y         N         Y         N           24         27         N         Y         N         Y         N           24         27         N         Y         N		FROM	то	(feet)	(attach supplemental sheets to fully describe all units)	(YES / NO)	BEARING ZONES (gpm)
I3         19         6         Pink to pale-buff colored silty fine sand         Y         N           19         24         5         Orange to slightly tank well-graded sand with minor silt         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N           24         27         3         Brick red color clay with medium and cs well-graded sand and calcite chunks         Y         N <tr< td=""><td></td><td>0</td><td>13</td><td>13</td><td>Tan to orange well-graded sand with minor silt</td><td>Y V N</td><td></td></tr<>		0	13	13	Tan to orange well-graded sand with minor silt	Y V N	
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No         Y         N           I         I         I         Y         N           I         I         I         I         Y         N           I         I         I         I         I         Y         N           I         I         I         I         I         I         I         I           I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I		24	27	3	Brick red color clay with medium and cs well-graded sand and calcite chunk	is Y 🗸 N	
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VI       N         VI <td< td=""><td>OF</td><td></td><td></td><td></td><td></td><td>Y N</td><td></td></td<>	OF					Y N	
VI       VI       N         VIII       VIIII       VIIII       VIIIII         VIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	[00]					Y N	
Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Method Used to estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata:       Y       N         Miscellane:       Total estimate Yield of Water-Bearing Strata       Y       N         Miscellane:       Total estimate Yield of Water-Bearin						Y N	
WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.       V       N         WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.       0.00         MISCELLANEUUS INFORMATION:       TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl       V       N	I.OC					Y N	
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Image: Start Time, End Time, And A TABLE Showing Discharge And Drawdown over the testing period.       Y       N         Image: Start Time, End Time, End Time, And A TABLE Showing Discharge And Drawdown over the testing period.       VIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII						Y N	
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METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:       TOTAL ESTIMATED         PUMP       AIR LIFT       BAILER       OTHER - SPECIFY: Not Applicable       WELL YIELD (gpm):       0.00         WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.       MISCELLANEOUS INFORMATION:         TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl       TO Auger 25 feet bgl; TD core barrel drive 27 feet bgl       To Auger 25 feet bgl; TD core barrel drive 27 feet bgl						Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:       TOTAL ESTIMATED         PUMP       AIR LIFT       BAILER       OTHER - SPECIFY: Not Applicable       WELL YIELD (gpm): 0.00         WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.       MISCELLANEOUS INFORMATION: TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl						Y N	
WELL YIELD (gpm):       0.00         WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.         MISCELLANEOUS INFORMATION:       TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl		METHOD U	SED TO ES	TIMATE YIELD	OF WATER-BEARING STRATA:	OTAL ESTIMATED	
WELL TEST       TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.         MISCELLANEOUS INFORMATION:       TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl		<b>PUMI</b>	P 🗌 A	IR LIFT	BAILER OTHER – SPECIFY: Not Applicable	VELL YIELD (gpm):	0.00
MISCELLANEOUS INFORMATION: TD Auger 25 feet bgl; TD core barrel drive 27 feet bgl	NO	WELL TES	T TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLU ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER	JDING DISCHARGE N THE TESTING PERIC	METHOD, DD.
	[SIV]	MISCELLA	NEOUS INF	FORMATION: TI	D Auger 25 feet bgl: TD core barrel drive 27 feet bgl		
	JPER			-			
	IC SI						
	T; RI		· · · · ·				
PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE	TES	PRINT NAM	IE(S) OF D	RILL RIG SUPER	RVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONST	RUCTION OTHER TH	IAN LICENSEE:
Vi Kalvin Padilla	S.	Kalvin Padi	lla				
BY SIGNING BELOW, I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT		BY SIGNIN	G BELOW	I CERTIFY TH	AT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FORE	OING IS A TRUE A	ND CORRECT
B RECORD OF THE ABOVE DESCRIBED WELL. TALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS BEEN INSTALLED AND THAT THIS WELL RECORD WILL ALSO BE FILED WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION OF WELL DRILLING.	URE	WELL RECO	ORD WILL	ALSO BE FILED	WELL TALSO CERTIFT THAT THE WELL TAG, IF REQUIRED, HAS I WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLET	NON OF WELL DRIL	LING.
Digitally signed by Mark Mumby Discon-Mark Mumby, co-HRL Comp.	NAT	m.15 p	m 4-	Digitally signed by Mark Mumby DN: cn=Mark Mumby, o=HRL C	omp.		
Mark Mumby 6/9/2020	SIG	11-101 C. 11	ne ne	u=Security Division, mail=mmumby@hrlcomp.com, o Date: 2020.06.09 10:09:09 -06'00	Mark Mumby	6/9/2020	
SIGNATURE OF DRILLER / PRINT SIGNEE NAME DATE	Ŷ		SIGNAT	URE OF DRILLE	ER / PRINT SIGNEE NAME	DATE	_
FILE NO. $(-148)$ POD NO. 14 TRN NO. $(2'10)$ TRN NO. $(2'10)$	FILI	E NO.	-149	$\gamma$	POD NO. IU TRN NO. (		(SION 04/30/2019)
LOCATION 2.1.2 195-35E-32 WELL TAG ID NO. NA PAGE 2 OF 2	LOC	CATION	1.1.	2 419	S-3SE-32 WELL TAGID NO	NA	PAGE 2 OF 2



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-	OSE POD NO	. (WELL NO	D.)		WELL TAG ID NO	6		OSE FILE NO(	S).			
IOI	PODI				SB20			L-15106				2
AT	WELL OWNE	ER NAME(S	5)					PHONE (OPTIC	ONAL)			
00	Armstrong	Energy										
T	WELL OWNE	ER MAILIN	G ADDRESS					CITY		STATE	Ξ	ZIP
VEI	P.O. Box 1	973						Roswell		NM	88202	
í a		1	DE	GREES	MINUTES	SECON	IDS					
A	WELL			103	28	32.5	51	* ACCURACY	REQUIRED: ONE TEN	TH OF A	SECOND	
RAL	(FROM GP	N LA	TITUDE	20	27	25	N	* DATUM REC	NURED: WGS 84	morA	SECOND	
NEI	(incom or		NGITUDE	32	37	25.0	52 W	Diffemilie	concept web of			
GE	DESCRIPTIO	ON RELATI	NG WELL LOCATION TO	STREET ADD	RESS AND COMMO	N LANDM	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AV	AILABLE	
1.	West Pearl	Queen										
	LICENSE NO	39	NAME OF LICENSED	DRILLER	Mark Mumby				NAME OF WELL DR	ILLING (	COMPANY Solutions In	C
					Wark Wainby					inpitation	c solutions, m	
	DRILLING ST	TARTED	DRILLING ENDED	DEPTH OF CO	MPLETED WELL (F	T)	BORE HOI	LE DEPTH (FT)	DEPTH WATER FIR	ST ENCO	OUNTERED (FT)	)
	0/23/2	.021	8/23/2021		50			57	IVI	oist at	~21 leet	
	COMPLETEI	WELL IS:	ARTESIAN	DRY HO		W UNCO	NEINED)		STATIC WATER LEV	EL IN C	OMPLETED WE	ELL (FT)
NO						on (enco	(UII(LD)			2		
III	DRILLING FI	LUID:	✓ AIR	MUD	ADDITIV	/ES – SPEC	CIFY:					
RM	DRILLING M	ETHOD:	✓ ROTARY	HAMME	R CABLE 1	TOOL	OTHE	R - SPECIFY:				
FO	DEPTH	(feet hal)		CASING	MATERIAL ANI					Ι		1
A D	FROM	TO	BORE HOLE	CASING	GRADE	D/OK	CA	SING	CASING	CAS	ING WALL	SLOT
ING	TROM	10	(inches)	(include	each casing string,	, and	CONN	YPE	INSIDE DIAM.		(inches)	SIZE (inches)
CAS	0	51	(inclico)	note	sections of screen)	)	(add coupl	ing diameter)	) (inches) (inches) (inches) (inches)			
S	0	51	6	P	Blank PVC		Flush	n Thread	2		0.154	N/A
ONI	51	50	0	Pre-	Pack Slotted PVC		Flush	n Thread	2		0.154	0.010
ILL												
DR												
5												
- 18												
5												
ang Bang												
	DEPTH	(feet hgl)	BOREHOLE	11	ST ANNUI AD SI	FAL MA	TERIAL A	ND	AMOUNT	Ι	METHO	DOE
IL	FROM	ΤΟ	DIAM. (inches)	GRA	VEL PACK SIZE	-RANGE	BY INTE	RVAL	(cubic feet)		PLACEN	MENT
SRI	0	2	6		Co	ncrete			0.2		Pou	r
ATH	2	48	6		Ber	ntonite			4.05		Trem	nie
M	48	57	6	1	0-20 Prepack and b	pagged cl	ean silica s	and	0.81		Trem	nie
LA								0.01				
AN									the part of the last manual			é
Э.									Land Land Land Land Land Land	282	UZI PMZ:20	
FOR	OSE INTER	NAL USE						WR-20	) WELL RECORD	& LOG	(Version 04/3	0/19)

TOR ODE MILEIAME ODE		THE DO HEDEL	needre a roo (	croion o noorioj								
FILE NO. 6-13106	POD NO.	TRN NO.	688109									
LOCATION 195-35E-32 212	_	WELL TAG ID NO.	NA	PAGE 1 OF 2								
	DEPTH (	feet bgl)								1.00		ESTIMATED
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	FROM	то	THICKNESS (feet)	COLOR AN INCLUDE WATH (attach sup	ID TYPE OF MAT ER-BEARING CA oplemental sheets	ERIAL E	NCOUN R FRAC escribe :	TERED - CTURE ZONE all units)	s	WA BEAR (YES	TER RING? / NO)	YIELD FOR WATER- BEARING ZONES (gpm)
	0	20	20	Reddish Orange Silt	ty sand w/some cla	y and grav	el, occa	sional caliche	soft	Y	🖌 N	
	20	~28	~8	White Silty sand	d w/some clay and	gravel, int	terbedde	d caliche soft		✓ Y	Ν	
	28	57	29	Reddish Orange to	purple poorly grad	led fine sa	and and o	caliche, dry ha	d	Y	✓ N	
										Y	Ν	
										Y	Ν	
T										Y	Ν	
WEI										Y	Ν	
OF										Y	Ν	
DOJ										Y	Ν	
ICI										Y	N	
TOC										Y	Ν	
GEO							1. A. L.			Y	Ν	
ORO										Y	N	
HYI										Y	Ν	
4										Y	Ν	
										Y	Ν	
										Y	Ν	
										Y	Ν	
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										Y	Ν	
										Y	Ν	
	METHOD U	SED TO E: P $\square$ A	STIMATE YIELD	OF WATER-BEARIN	G STRATA: THER – SPECIFY:	N/A			TOTAI WELL	L ESTIN	MATED (gpm):	0.00
Z	WELL TES	T TEST STAR	RESULTS - ATT.	ACH A COPY OF DAT	TA COLLECTED	DURING ARGE AN	WELL 1 D DRA	TESTING, INC	CLUDIN ER THE	G DISC	HARGE	METHOD, DD.
RIG SUPERVISIO	MISCELLA	I NEOUS IN	FORMATION:					D	SE 0)1	SEP :	28 202	L. DW2;24
EST	PRINT NAM	IE(S) OF D	RILL RIG SUPER	VISOR(S) THAT PRO	VIDED ONSITE :	SUPERVI	SION O	F WELL CON	STRUC	TION O	THER TH	IAN LICENSEE:
5. T	Jesse Cote											
6. SIGNATURE	BY SIGNIN RECORD O WELL REC Mil E M	G BELOW F THE ABO ORD WILL	V, I CERTIFY TH DVE DESCRIBED ALSO BE FILED Digitally signed by Mark Mumby DN: cm-Mark Mumby, o-HRL Co cu-Security Division, email=mmumby@hlrcomp.com, c Date: 2021.09.23 10.3925.04000	AT TO THE BEST O WELL. I ALSO CERT WITH THE PERMIT F """, M """, M	F MY KNOWLE TFY THAT THE V HOLDER WITHIN ark E. Mumby	DGE ANI VELL TA 30 DAYS	D BELI G, IF RI S AFTER	EF, THE FOR QUIRED, HA THE COMPI	EGOIN S BEEN LETION	G IS A INSTA OF WE 9/23	TRUE A LLED A LL DRIL	ND CORRECT ND THAT THIS LING.
		SIGNAT	URE OF DRILLE	R / PRINT SIGNEE	NAME						DATE	
FO	R OSE INTER	NAL USE						WR-20 WE	LL RECO	ORD &	LOG (Ve	ersion 04/30/2019)
FIL	E NO	5101	6		POD NO.			TRN NO.	388	10	9	
LO	CATION	5-2	55E-3	2 212			WELL	TAG ID NO.	N	J/A		PAGE 2 OF 2



# WELL RECORD & LOG

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	OGE BOR MO. T		>				10.00 A MORE HIS	0.000 000 0000				
NOI	OSE POD NO. (V POD2	ELL NO	.)		WELL TAG ID NO SB21	)		OSE FILE NO(3 L-15106	S).			
OCATI	WELL OWNER	NAME(S) nergy						PHONE (OPTI	ONAL)			
WELL L	WELL OWNER P.O. Box 197	MAILING 3	G ADDRESS					CITY Roswell		STATE NM 88	202	ZIP
QN	WELL		DE	GREES	MINUTES	SECON	DS					
NLA	LOCATION	LAT	TITUDE	103	28	28.0	08 N	* ACCURACY	REQUIRED: ONE TEN	TH OF A SECONI	D	
NER	(FROM GPS)	LO	NGITUDE	32	37	22.3	33 W	* DATUM REC	QUIRED: WGS 84			
GEI	DESCRIPTION	RELATIN	G WELL LOCATION TO	STREET ADD	RESS AND COMMO	N LANDMA	ARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAILABL	E	
-1	West Pearl Q	ueen										_
	LICENSE NO.		NAME OF LICENSED	DRILLER					NAME OF WELL DR	ILLING COMPAN	IY	
	1789				Mark Mumby			HRL Con	npliance Solution	ons, Inc		
	DRILLING STAI	RTED	DRILLING ENDED	DEPTH OF CO	OMPLETED WELL (F	FT)	BORE HO	LE DEPTH (FT)	DEPTH WATER FIRS	ST ENCOUNTER	ED (FT)	
	8/20/202	21	8/21/2021		55			56		50.5		
N	COMPLETED W	ELL IS:	ARTESIAN	DRY HO	LE 🔽 SHALLO	OW (UNCO)	NFINED)		STATIC WATER LEV	TEL IN COMPLET 46.5	TED WEI	LL (FT)
TIO	DRILLING FLUI	D:	✓ AIR	MUD	ADDITIV	VES – SPEC	IFY:					
RMA	DRILLING MET	HOD:	✓ ROTARY	HAMME	R CABLE	TOOL	OTHE	R – SPECIFY:				
INFO	DEPTH (fe	et bgl)	BORE HOLE	CASING	MATERIAL AN	D/OR	CA	SING	CASING	CASING W	ALL	SLOT
NG	FROM	ТО	DIAM	(include	GRADE each casing string	, and	CONN	NECTION	INSIDE DIAM.	THICKNE	SS	SIZE
CASI			(inches)	note	sections of screen	)	add coup	YPE ling diameter)	(inches)	(inches)	)	(inches)
8	0	50	6		Blank PVC		Flus	h Thread	2	0.154		N/A
INC	50	33	0	Pre-	Pack Slotted PVC		Flus	n I hread	2	0.154		0.010
RILI												
2. DI											×	
1												
									The star and star star star star	<u></u>	and the	
									and and and and a sufficient	harden har Shardan 1999	an a start	
	DEPTH (fe	et bgl)	BORE HOLE	LI	ST ANNULAR S	EAL MAT	FERIAL A	ND	AMOUNT	М	ETHOI	O OF
IAL	FROM	ТО	DIAM. (inches)	GRA	VEL PACK SIZE	E-RANGE	BY INTE	RVAL	(cubic feet)	PL	ACEM	ENT
TER	0	2	6		Co	oncrete		N.	0.2		Pour	
MA	2	47	6		Be	ntonite		1	4.04		Trem	e
LAR	4/	50	0		0-20 Frepack and	bagged cle	an sinca s	and	0.81		Trem	e
NN												
3. AI												
FOR	OSE INTERNA	L USE	•					WR-2	0 WELL RECORD	& LOG (Versic	on 04/30	)/19)

FILE NO. 1-15106	POD NO.	TRN NO. 68	8109	
LOCATION 195-35E-32-122	W	VELL TAG ID NO.	A	PAGE 1 OF 2

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	DEPTH (1	feet bgl) TO	THICKNESS (feet)	COI INCLUDI (at	LOR AND TYPE O E WATER-BEARIY t <b>tach supplemental</b>	F MATERIAL I NG CAVITIES ( sheets to fully (	ENCOUNTERED - OR FRACTURE ZONF describe all units)	es	WA BEAR (YES	TER RING? / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	0	30	30	Reddish Ora	ange Silty sand w/sc	me clay and gra	avel, occasional caliche	soft	Y	√ N	
	30	56	26	Reddish O	Drange to purple poo	rly graded fine	sand and caliche, dry ha	rd	Y	√ N	
					becomes we	t at approximat	ely 50.5		✓ Y	N	
		P							Y	N	
									Y	N	
Ţ									Y	N	
WEI									Y	N	
OF									Y	N	
50									Y	N	
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FO									Y	N	
GEO									Y	N	
RO									Y	N	
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									Y	Ν	
1.0									Y	Ν	
									Y	Ν	
									Y	Ν	
	METHOD U	SED TO E	STIMATE YIELD	OF WATER-B BAILER	BEARING STRATA	:: ECIFY: N/A		TOTA WELI	L ESTIN L YIELI	MATED O (gpm):	0.00
NO	WELL TES	T TEST STAR	RESULTS - ATT TTIME, END TI	ACH A COPY ME, AND A TA	OF DATA COLLE	CTED DURING	G WELL TESTING, IN ND DRAWDOWN OV	L CLUDIN ER THE	G DISC	HARGE	METHOD, DD.
I; RIG SUPERVISI	MISCELLA	NEOUS IN	FORMATION:				D.		SEP 2	28 2021	L∞2:24
TES	PRINT NAM	IE(S) OF D	RILL RIG SUPER	RVISOR(S) TH	AT PROVIDED ON	SITE SUPERV	ISION OF WELL CON	NSTRUC	TION O	THER TH	HAN LICENSEE
5.1	Jesse Cote										
ATURE	BY SIGNIN RECORD O WELL REC	G BELOW F THE ABO ORD WILL	Y, I CERTIFY TH OVE DESCRIBED ALSO BE FILED	AT TO THE I WELL. I ALS WITH THE PE	BEST OF MY KN O CERTIFY THAT ERMIT HOLDER W	OWLEDGE AN THE WELL T. VITHIN 30 DAY	ND BELIEF, THE FO AG, IF REQUIRED, H /S AFTER THE COMP	REGOIN AS BEEN LETION	G IS A N INSTA OF WE	TRUE A	ND CORRECT ND THAT THIS LING.
6. SIGN	Mil E. H.	Mut )	Drg.taity signed of Mark Mullby DN: cn=Mark Mullby, o=HRL C ou=Security Division, email=mmullby@hlcomp.com, c Date: 2021.09.23 10:39:25 -06'00'	omp, =US	Mark E. Mu	mby			9/23	3/2021	
		SIGNAT	URE OF DRILLE	R / PRINT S	SIGNEE NAME					DATE	
FOI	R OSE INTER	NAL USE	5				WR-20 WF	ELL REC	ORD &	LOG (Ve	ersion 04/30/2019
FIL	E NO.	1511	26		POD NO	. 2	TRN NO.	6	88	109	
			- 00			n - 199			PIA		



# WELL RECORD & LOG

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	OGE BOD ME		>					000 00 0000	2)			
7	POD2	(WELL NO	.)		WELL TAG ID NO.			USE FILE NO(	S).			
IOI	1003				5022			L-13100				
OCAT	WELL OWNE	r name(s) Energy						PHONE (OPTIC	ONAL)			
LU	WELL OWNE	R MAILING	ADDRESS					CITY		STATE		ZIP
WEL	P.O. Box 19	973						Roswell		NM	88202	
R	WELL		DE	GREES	MINUTES	SECON	DS					
LA	LOCATION		TITUDE	103	28	37.4	4 N	* ACCURACY	REQUIRED: ONE TENT	TH OF A SI	ECOND	
ERA	(FROM GPS	5) LOI	NGITUDE	32	37	22.6	3 W	* DATUM REC	QUIRED: WGS 84			
GEN	DESCRIPTIO	N RELATIN	G WELL LOCATION TO	STREET ADD	RESS AND COMMON	LANDMA	RKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AVAI	LABLE	
	West Pearl	Queen										
	LICENSE NO.		NAME OF LICENSED	DRILLER					NAME OF WELL DRI	LLING CO	MPANY	
	178	9			Mark Mumby				HRL Con	pliance S	Solutions, Inc	c.
	DRILLING ST 8/21/2	ARTED	DRILLING ENDED 8/23/2021	DEPTH OF CO	MPLETED WELL (FT 55	r)	BORE HO	LE DEPTH (FT) 56	DEPTH WATER FIRS	ST ENCOU	NTERED (FT) 28 feet	
									STATIC WATER I EV		ADI ETED WE	LL (ET)
Z	COMPLETED	WELL IS:	ARTESIAN	DRY HO	LE 🖌 SHALLO	W (UNCON	IFINED)		STATIC WATER LEV	21	WILLIED WE	LL (PI)
VTIO	DRILLING FL	UID:	✓ AIR	MUD	IFY:							
DRM	DRILLING MI	ETHOD:	✓ ROTARY	HAMME	R CABLE T	OOL	OTHE	R – SPECIFY:				
INF	DEPTH (	feet bgl)	BORE HOLE	CASING	MATERIAL AND	O/OR	CA	SING	CASING	CASIN	NG WALL	SLOT
NG	FROM	ТО	DIAM	(include	GRADE	and	CONN	NECTION	INSIDE DIAM.	THIC	CKNESS	SIZE
ASI			(inches)	note	sections of screen)	und	(add coupl	YPE ling diameter)	(inches)	(ir	(inches)	
& C	0	51	6		Blank PVC		Flus	h Thread	2	0	0.154	N/A
ING	51	55	6	Pre-	Pack Slotted PVC		Flus	h Thread	2	0	0.154	0.010
ILL												
DR												
2												
									OSE DIT SEP	28 200	21 рм2:20	
											c.	
	DEPTH (	feet bgl)	BORE HOLE	L	IST ANNULAR SE	EAL MAT	ERIAL A	ND	AMOUNT		метно	D OF
IAL	FROM	ТО	DIAM. (inches)	GRA	VEL PACK SIZE-	RANGE	BY INTE	RVAL	(cubic feet)		PLACEN	IENT
ERI	. 0	2	6		Cor	ncrete			0.2		Pou	r
IAT	2	48	6		Ben	ntonite			4.05		Trem	ie
AR N	48	56	6	1	0-20 Prepack and b	agged cle	an silica s	and	0.81		Trem	ie .
IUL												
NN												
3. A												
FOR	OSE INTER							WP-2	WELL RECORD	& LOG ()	Version 04/3	0/19)

	DOD NO 2	TRUNO	CI	SIACI	
FILE NO. C-DDD	POD NO.	TRN NO.	00	009	
LOCATION 195-35E-32 212	,	WELL TAG ID NO.	N	A	PAGE 1 OF 2

	DEPTH (	feet bgl)					ESTIMATED
	FROM	ТО	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERE INCLUDE WATER-BEARING CAVITIES OR FRACTURI (attach supplemental sheets to fully describe all uni	ED - E ZONES its)	WATER BEARING? (YES / NO)	YIELD FOR WATER- BEARING ZONES (gpm)
( de la	0	30	30	Reddish Orange Silty sand w/some clay and gravel, occasional	caliche soft	Y VN	
	30	56	26	Reddish Orange to purple poorly graded fine sand and caliche	e, dry hard	Y VN	
84						Y N	
						Y N	
1.1						Y N	
T						Y N	
WEI						Y N	
OF						Y N	
DOJ						Y N	
CIC						Y N	
TO						Y N	
GEC						Y N	
DRO						Y N	
HY						Y N	
4						Y N	
1.12						Y N	
						Y N	
1						Y N	
						Y N	
		1				Y N	
						Y N	
	METHOD U	$P \qquad \square A$	STIMATE YIELD	OF WATER-BEARING STRATA: BAILER <b>(</b> )OTHER – SPECIFY: N/A	TO WI	TAL ESTIMATED ELL YIELD (gpm):	0.00
7	WELL TES	T TEST	RESULTS - ATT	ACH A COPY OF DATA COLLECTED DURING WELL TESTI	ING, INCLUI	DING DISCHARGE	METHOD,
OISI							
ERVI	MISCELLA	NEOUS IN	FORMATION:				
SUPI	-						
RIG							
ST; ]	1				DSE C	NI SEP 28 2021	PW2:25
TE.	PRINT NAM	ME(S) OF D	RILL RIG SUPER	VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WE	LL CONSTR	UCTION OTHER TH	IAN LICENSEE:
4.	Jesse Cote						
	BY SIGNIN	IG BELOW	, I CERTIFY TH	AT TO THE BEST OF MY KNOWLEDGE AND BELIEF, T	HE FOREGO	DING IS A TRUE A	ND CORRECT
URE	RECORD O WELL REC	F THE ABO	OVE DESCRIBED ALSO BE FILED	WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUI WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE	RED, HAS BE COMPLETI	EEN INSTALLED AN ON OF WELL DRILL	ND THAT THIS LING.
IATI	11/-		Digitally signed by Mark Mumby				
SIGN	111/d E. f.	Hunty )	DN: cn=Mark Mumby, o=HRL Co ou=Security Division, email=mmumby@hrlcomp.com, c	us Mark E. Mumby		9/23/2021	
.9		SIGNAT	Date: 2021.09.23 10:39:25 -06'00'	R / PRINT SIGNEE NAME		DATE	
		2.01/11	Jan St Ditted			2	
FOI	R OSE INTER	NAL USE	~ (	WR	-20 WELL R	ECORD & LOG (Ve	rsion 04/30/2019)
FIL	ENO.	-101	55 20		N NU.	DAIOM	PAGE 2 OF 2
	CATION	10-0	05-07	WELL TAG	ID NO.	JITE	FAGE 2 OF 2

# **Appendix C: Survey Reports**



2904 W 2nd St. Roswell, NM 88201 volce: 575.624.2420 fax: 575.624.2421 www.atkinseng.com

11/05/2020

Julie Linn, PG, RG Project Manager HRL Compliance Solutions, Inc. 2385 F ¹/₂ Road Grand Junction, CO 81505

RE: West Pearl Queen Injection Site Survey

Atkins Engineering Associates, Inc. (AEA) has completed the survey at the West Pearl Queen Injection Site, 1RP-5090, Lea County, New Mexico. The Site is located approximately at latitude 32.62257 and longitude -103.475628 in Lea County, New Mexico.

The table on the following page summarizes the coordinate and elevation data for the soil borings at ground surface and groundwater wells, top-of-casing (TOC) north side.

Horizontal coordinates are in US Survey Feet NAD 83 (2011) (EPOCH:2010.0000) New Mexico State Plane East Grid Coordinates, scaled to ground with a combined scale factor 1.0001865347887380997.

Orthometric Heights for groundwater sampling wells (GW-Well) established by running a level loop from a newly installed Temporary Benchmark (TBM). Orthometric Heights for soil borings established using RTK GPS observations tied to TBM. TBM is the top of a corner of a 2" pipe fence and now has an established Orthometric Height of 3737.61 feet NAVD88 and was determined using GPS observations tied to NGS Benchmark "R 97" with a published Orthometric Height of 3894.17 feet NAVD88.

Ryan C. Cortez, PS 22761

Date (Signed)



•

Description	Northing (USft)	Easting (USft)	Latitude (DD)	Longitude (DD)	Elevation (USft)	Adjacent Ground (USft)
SB-1	591285.82	805407.04	32.62256571	-103.47563073	3727.40	
SB-2-GW-Well	591323.27	805345.79	32.62267000	-103.47582864	3736.29	3736.49
SB-3	591492.39	805418.13	32.62313320	-103.47558926	3734.79	
SB-4-GW-Well	591429.62	805424.04	32.62296054	-103.47557173	3734.71	3732.56
SB-5-GW-Well	591477.42	805307.41	32.62309452	-103.47594927	3736.17	3734.91
SB-6	591489.37	805374.81	32.62312587	-103.47573007	3734.55	
SB-7-GW-Well	591427.37	805371.30	32.62295554	-103.47574308	3732.36	3730.65
SB-8*	591412.08	805394.02	32.62291301	-103.47566968	3731.22	
SB-9	591385.45	805401.60	32.62283966	-103.47564577	3733.19	
SB-10*	591377.28	805365.42	32.62281800	-103.47576349	3735.42	
SB-11	591454.91	805338.88	32.62303196	-103.47584764	3731.07	
SB-12*	591434.45	805287.26	32.62297686	-103.47601584	3735.68	
SB-13-GW-Well	591376.97	805327.67	32.62281799	-103.47588611	3737.91	3736.41
SB-14-GW-Well	591472.52	805447.61	32.62307793	-103.47549405	3738.27	3736.74
SB-15*	591389.86	805299.08	32.62285405	-103.47597862	3735.50	
SB-16*	591429.73	805274.48	32.62296417	-103.47605746	3736.01	
SB-17	591431.91	805296.78	32.62296966	-103.47598496	3735.48	
SB-18	591465.97	805269.05	32.62306391	-103.47607414	3735.44	
TBM	591155.83	805430.29	32.62220792	-103.47555861	3737.61	
NGS-BM-R97	618385.15	811739.10	32.69690317	-103.45433745	3894.17	

* Soil Borings did not have a flag remaining in ground and were observed at adjusted coordinates of record.

•



2904 W 2nd St. Roswelt, NM 88201 volce: 575.624.2420 tax: 575.624.2421 www.atkinseng.com

05/06/2022

Ronald D. Hillman Vice President & General Counsel Armstrong Energy Corporation PO Box 1973 Roswell, NM 88202

RE: West Pearl Queen Injection Site Survey

Atkins Engineering Associates, Inc. (AEA) has completed the survey at the West Pearl Queen Injection Site, 1RP-5090, Lea County, New Mexico. The Site is located approximately at latitude 32.62257 and longitude -103.475628 in Lea County, New Mexico.

The following table summarizes the coordinate and elevation data for the new groundwater sampling wells (SB-20, SB-21, SB-22, SB-23), top-of-casing (TOC) north side.

					Elevation	Adjacent
					TOC	Ground
Name	Northing (USft)	Easting (USft)	Latitude (DD)	Longitude (DD)	(USft)	(USft)
SB-20	591726.32	805399.52	32.62377656	-103.47564359	3741.11	3738.23
SB-21	591378.96	805769.41	32.62281365	-103.47445140	3737.92	3736.04
SB-22	591415.04	804954.50	32.62293089	-103.47709705	3740.48	3736.38
SB-23	591082.68	805339.15	32.62200890	-103.47585652	3736.30	3733.87
TBM	591155.83	805430.29	32.62220793	-103.47555861	3737.61	

Horizontal coordinates are in US Survey Feet NAD 83 (2011) (EPOCH:2010.0000) New Mexico State Plane East Grid Coordinates, scaled to ground with a combined scale factor 1.0001865347887380997.

Elevations (Orthometric Heights) for groundwater sampling wells established using RTK GPS observations tied to TBM. TBM is the top of a corner of a 2" pipe fence that has an established Orthometric Height of 3737.61 feet NAVD88 and was determined using GPS observations tied to NGS Benchmark "R 97" with a published Orthometric Height of 3894.17 feet NAVD88.

Ryan Cortez, PS 22761

2022

Date (Signed)



# Appendix D: Groundwater Lab Reports

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Julie Linn



#### Project Id:

Contact:

**Project Location:** 

### Certificate of Analysis Summary 659152

HRL Compliance Solutions, Artesia, NM

#### Project Name: West Pearl Queen

**Date Received in Lab:** Thu 04.16.2020 17:45

**Report Date:** 04.23.2020 10:30

Project Manager: Erica Morales

	Lab Id:	659152-0	01	659152-0	002	659152-0	003	659152-	004	659152-0	005	659152-0	006
Analysis Paguastad	Field Id:	SB 14		SB 13	3	SB 2		SB 17		SB 5		SB 7	
Analysis Requested	Depth:												
	Matrix:	GROUND W	ATER	GROUND W	VATER	GROUND W	VATER	GROUND W	VATER	GROUND W	ATER	GROUND W	VATER
	Sampled:	04.16.2020	08:40	04.16.2020	13:25	04.16.2020	14:50	04.16.2020	15:10	04.16.2020	16:03	04.16.2020	16:15
BTEX by EPA 8021B	Extracted:	04.20.2020	16:00	04.20.2020	16:00	04.20.2020	16:00	04.20.2020	16:00	04.20.2020	16:00	04.20.2020	16:00
SUB: T104704400-19-19	Analyzed:	04.21.2020	05:47	04.21.2020	07:26	04.21.2020	07:46	04.21.2020	08:06	04.21.2020	08:27	04.21.2020	08:47
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		< 0.00200	0.00200	0.0254	0.00200	< 0.00200	0.00200	0.00290	0.00200	<0.00200	0.00200	0.0202	0.00200
Toluene		<0.00200	0.00200	< 0.00200	0.00200	< 0.00200	0.00200	< 0.00200	0.00200	<0.00200	0.00200	< 0.00200	0.00200
Ethylbenzene		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00200	0.00200	0.00565	0.00200	< 0.00200	0.00200	0.0143	0.00200
m,p-Xylenes		< 0.00400	0.00400	< 0.00400	0.00400	< 0.00400	0.00400	0.00913	0.00400	< 0.00400	0.00400	0.00653	0.00400
o-Xylene		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00200	0.00200	0.00441	0.00200	< 0.00200	0.00200	0.00263	0.00200
Total Xylenes		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00200	0.00200	0.0135	0.00200	< 0.00200	0.00200	0.00916	0.00200
Total BTEX		< 0.00200	0.00200	0.0254	0.00200	< 0.00200	0.00200	0.0221	0.00200	< 0.00200	0.00200	0.0437	0.00200
Chloride by EPA 300	Extracted:	04.17.2020	15:38	04.17.2020	15:38	04.17.2020	15:38	04.17.2020	15:38	04.17.2020	15:38	04.17.2020	15:38
	Analyzed:	04.18.2020	11:23	04.18.2020	11:40	04.18.2020 11:45		04.18.2020 11:51		04.18.2020 11:56		04.18.2020 12:13	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		6840 X	250	928	10.0	1810	250	17300	250	12000	250	3470	250
Specific Conductance @25C by	Extracted:												
SM2510B	Analyzed:	04.20.2020	11:15	04.20.2020	11:15	04.20.2020	11:15	04.20.2020	11:15	04.20.2020	11:15	04.20.2020	11:15
SUB: T104704400-19-19	Units/RL:	umhos/cm	RL	umhos/cm	RL	umhos/cm	RL	umhos/cm	RL	umhos/cm	RL	umhos/cm	RL
Conductivity		34200	10.0	4900	10.0	13000	10.0	27300	10.0	32300	10.0	22500	10.0
TPH By SW8015 Mod	Extracted:	04.17.2020	16:30	04.17.2020	16:30	04.17.2020	16:30	04.17.2020	16:30	04.17.2020	16:30	04.17.2020	16:30
	Analyzed:	04.21.2020	00:21	04.21.2020	00:41	04.21.2020	11:48	04.21.2020	01:21	04.21.2020	01:41	04.21.2020	02:02
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Gasoline Range Hydrocarbons (GRO)		<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50
Diesel Range Organics (DRO)		<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50
Motor Oil Range Hydrocarbons (MRO)		<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50	<2.50	2.50

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Erica Morales Project Manager

Page 1 of 27

Julie Linn



### Certificate of Analysis Summary 659152

HRL Compliance Solutions, Artesia, NM

Project Name: West Pearl Queen

Page 84 of 198

Project Id:

Contact:

**Project Location:** 

**Date Received in Lab:** Thu 04.16.2020 17:45

**Report Date:** 04.23.2020 10:30

Project Manager: Erica Morales

	Lab Id:	659152-0	01	659152-0	02	659152-0	03	659152-0	004	659152-0	05	659152-0	006	
Analysis Roanostod	Field Id:	SB 14		SB 13	;	SB 2		SB 17		SB 5		SB 7		
Anulysis Requesieu	Depth:													
	Matrix:	GROUND W	ATER	GROUND W	ATER	GROUND W	ATER	GROUND W	VATER	GROUND W	ATER	GROUND W	WATER	
	Sampled:	04.16.2020	08:40	04.16.2020	13:25	04.16.2020	14:50	04.16.2020	15:10	04.16.2020	16:03	04.16.2020	16:15	
pH by SM4500-H	Extracted:													
SUB: T104704400-19-19	Analyzed:	04.20.2020	.20.2020 11:55 04.20		04.20.2020 11:55		04.20.2020 11:55		04.20.2020 11:55		04.20.2020 11:55		04.20.2020 11:55	
	Units/RL:	Deg C	RL	Deg C	RL	Deg C	RL	Deg C	RL	Deg C	RL	Deg C	RL	
Temperature		22.4 K		22.5 K		22.3 K		22.4 K		22.6 K		22.1 K		
рН by SM4500-Н	Extracted:													
SUB: T104704400-19-19	Analyzed:	04.20.2020	11:55	04.20.2020	11:55	04.20.2020	11:55	04.20.2020	11:55	04.20.2020	11:55	04.20.2020	) 11:55	
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL	
pH		7.13 K		7.84 K		7.10 K		6.94 K		6.91 K		7.29 K		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Erica Morales Project Manager

Page 2 of 27



# **Analytical Report 659152**

for

# **HRL** Compliance Solutions

**Project Manager: Julie Linn** 

West Pearl Queen

#### 04.23.2020

Collected By: Client

1089 N Canal Street Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16) Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21) Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19) Xenco-Carlsbad (LELAP): Louisiana (05092) Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Tampa: Florida (E87429), North Carolina (483)



04.23.2020

Project Manager: Julie Linn HRL Compliance Solutions 112 6th St. Artesia, NM 88210

Reference: XENCO Report No(s): 659152 West Pearl Queen Project Address:

#### Julie Linn:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 659152. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 659152 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Erica Morales Project Manager

A Small Business and Minority Company

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Page 4 of 27



# Sample Cross Reference 659152

#### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB 14	W	04.16.2020 08:40		659152-001
SB 13	W	04.16.2020 13:25		659152-002
SB 2	W	04.16.2020 14:50		659152-003
SB 17	W	04.16.2020 15:10		659152-004
SB 5	W	04.16.2020 16:03		659152-005
SB 7	W	04.16.2020 16:15		659152-006



### **CASE NARRATIVE**

Client Name: HRL Compliance Solutions Project Name: West Pearl Queen

Project ID: Work Order Number(s): 659152 Report Date: 04.23.2020 Date Received: 04.16.2020

#### Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3123450 Chloride by EPA 300

Lab Sample ID 659152-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 659152-001, -002, -003, -004, -005, -006.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3123568 BTEX by EPA 8021B

Benzene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 659152-001, -002, -003, -004, -005, -006

Lab Sample ID 659152-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 659152-001, -002, -003, -004, -005, -006. The Laboratory Control Sample for Benzene is within laboratory Control Limits, therefore the data was accepted.



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Conductivity		COND	34200	10.0	umhos/cn	04.20.2020 11:15		1
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123463					SUB: T104704400-	19-19	
Analyst:	CHE							
Tech:	CHE					% Moisture:		
Analytical M	ethod: Specific Cor	nductance @25C by SM	M2510B					
Temperature		TEMP	22.4		Deg C	04.20.2020 11:55	К	1
pH		12408-02-5	7.13		SU	04.20.2020 11:55	K	1
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123462					SUB: T104704400-	19-19	
Analyst:	CHE							
Analytical Mo	ethod: pH by SM45	500-Н				% Moisture		
Chloride		16887-00-6	6840	250	mg/L	04.18.2020 11:23	X	500
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123450							
Analyst:	MAB		Date Pre	p: 04.17.2020 15:38				
Tech:	MAB	EPA 300				% Moisture:	0P	
		EDA 200					0D	
Lab Sample I	d: 659152-001		Date Col	llected: 04.16.2020 08:40				
Sample Id:	SB 14		Matrix:	Ground Water		Date Received:04.1	6.2020 17	7:45

CO



#### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 14		Matrix:	Ground Water		Date Received:04.16	.2020 17:4	45
Lab Sample I	d: 659152-001		Date Collecte	d: 04.16.2020 08:40				
Analytical Me	ethod: TPH By SW8015	Mod				Prep Method: SW80	015P	
Tech:	DTH					% Moisture:		
Analyst:	DTH		Date Prep:	04.17.2020 16:30				
Seq Number:	3123611							
Parameter		Cas Number	Result BI		Unite	Analysis Data	Flag	ъя

1 arameter	Cas Mulliot	Kesun	KL		Units	Analysis Date	riag	Dii	
Gasoline Range Hydrocarbons (GRO)	PHC610	<2.50	2.50		mg/L	04.21.2020 00:21	U	1	_
Diesel Range Organics (DRO)	C10C28DRO	<2.50	2.50		mg/L	04.21.2020 00:21	U	1	
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.50	2.50		mg/L	04.21.2020 00:21	U	1	
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag		
1-Chlorooctane		111-85-3	104	%	70-135	04.21.2020 00:21			
o-Terphenyl		84-15-1	108	%	70-135	04.21.2020 00:21			

Analytical Me	thod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	r Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/L	04.21.2020 05:47	UXF	1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 05:47	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/L	04.21.2020 05:47	U	1
m,p-Xylenes	179601-23-1	< 0.00400	0.00400		mg/L	04.21.2020 05:47	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/L	04.21.2020 05:47	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/L	04.21.2020 05:47	U	1
Total BTEX		< 0.00200	0.00200		mg/L	04.21.2020 05:47	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	99	%	70-130	04.21.2020 05:47		
4-Bromofluorobenzene		460-00-4	113	%	70-130	04.21.2020 05:47		



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 13		Matrix:	Ground Water		Date Received:04.1	6.2020 17	7:45
Lab Sample Io	d: 659152-002		Date Col	llected: 04.16.2020 13:25				
Analytical Me	ethod: Chloride by E	PA 300				Prep Method: E30	0P	
Tech:	MAB					% Moisture:		
Analyst:	MAB		Date Pre	p: 04.17.2020 15:38				
Seq Number:	3123450							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	928	10.0	mg/L	04.18.2020 11:40		20
Analytical Me	ethod: pH by SM450	0-H						
Tech:	CHE					% Moisture:		
Analyst:	CHE							
Seq Number:	3123462					SUB: T104704400-	19-19	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH		12408-02-5	7.84		SU	04.20.2020 11:55	К	1
Temperature		TEMP	22.5		Deg C	04.20.2020 11:55	K	1
Analytical Me	ethod: Specific Cond	luctance @25C by SI	M2510B					
Tech:	CHE					% Moisture:		
Analyst:	CHE							
Seq Number:	3123463					SUB: T104704400-	19-19	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity		COND	4900	10.0	umhos/cn	n 04.20.2020 11:15		1



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 13		Matrix:	Ground Water		Date Received:04.16	5.2020 17:4	5
Lab Sample Id	: 659152-002		Date Collect	ed: 04.16.2020 13:25				
Analytical Me	thod: TPH By SW8015 M	Aod				Prep Method: SW8	015P	
Tech:	DTH					% Moisture:		
Analyst:	DTH		Date Prep:	04.17.2020 16:30				
Seq Number:	3123611							
Parameter		Cas Number	Result F	L	Units	Analysis Date	Flag	Dil

Gasoline Range Hydrocarbons (GRO)	PHC610	<2.50	) 2.50		mg/L	04.21.2020 00:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<2.50	2.50		mg/L	04.21.2020 00:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.50	2.50		mg/L	04.21.2020 00:41	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	109	%	70-135	04.21.2020 00:41		
o-Terphenyl		84-15-1	118	%	70-135	04.21.2020 00:41		

Analytical Me	thod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	r Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0254	0.00200		mg/L	04.21.2020 07:26		1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 07:26	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/L	04.21.2020 07:26	U	1
m,p-Xylenes	179601-23-1	< 0.00400	0.00400		mg/L	04.21.2020 07:26	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/L	04.21.2020 07:26	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/L	04.21.2020 07:26	U	1
Total BTEX		0.0254	0.00200		mg/L	04.21.2020 07:26		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	105	%	70-130	04.21.2020 07:26		
4-Bromofluorobenzene		460-00-4	123	%	70-130	04.21.2020 07:26		



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Conductivity		COND	13000	10.0	umhos/cn	n 04.20.2020 11:15		1	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Seq Number:	3123463					SUB: T104704400-	19-19		
Analyst:	CHE								
Tech:	CHE					% Moisture:			
Analytical Me	ethod: Specific Cor	nductance @25C by SM	M2510B						
Temperature		TEMP	22.3		Deg C	04.20.2020 11:55	K	1	
pH		12408-02-5	7.10		SU	04.20.2020 11:55	K	1	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Seq Number:	3123462					SUB: T104704400-	19-19		
Analyst:	CHE					,0 1.1015ta101			
Analytical Me	ethod: pH by SM45	500-Н				% Moisture			
Chloride		16887-00-6	1810	250	mg/L	04.18.2020 11:45		500	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Seq Number:	3123450								
Analyst:	MAB		Date Pre	p: 04.17.2020 15:38					
Tech:	MAB					% Moisture:			
Analytical Me	ethod: Chloride by	EPA 300				Prep Method: E30	0P		
Lab Sample I	d: 659152-003		Date Col	llected: 04.16.2020 14:50					
Sample Id:	SB 2		Matrix:	Ground Water	er Date Received:04.16.2020 17:45				

# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id: Lab Sample Id	<b>SB 2</b> d: 659152-003		Matrix: Ground Water Date Collected: 04.16.2020 14:50			Date Received:04.16.2020 17:45				
Analytical Me Tech: Analyst:	ethod: TPH By SW8015 D DTH DTH 2122611	Mod	Date Prep:	04.17.2020 16:30		Prep Method: S % Moisture:	W8015P			
Seq Number:	3123011	Cas Number	Result R		Unite	Analysis Data	Flog	Dil		

1 al ameter	Cas Mullipe	Kesun	KL		Units	Analysis Date	riag	DII
Gasoline Range Hydrocarbons (GRO)	PHC610	<2.50	0 2.50		mg/L	04.21.2020 11:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<2.50	0 2.50		mg/L	04.21.2020 11:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.50	0 2.50		mg/L	04.21.2020 11:48	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	82	%	70-135	04.21.2020 11:48		
o-Terphenyl		84-15-1	87	%	70-135	04.21.2020 11:48		

Analytical Me	thod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	r Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
m,p-Xylenes	179601-23-1	< 0.00400	0.00400		mg/L	04.21.2020 07:46	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
Total BTEX		< 0.00200	0.00200		mg/L	04.21.2020 07:46	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	99	%	70-130	04.21.2020 07:46		
4-Bromofluorobenzene		460-00-4	94	%	70-130	04.21.2020 07:46		



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Temperature		TEMP	22.4		Deg C	04.20.2020 11:55	K	1
pH		12408-02-5	6.94		SU	04.20.2020 11:55	K	1
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123462					SUB: T104704400-	19-19	
Analyst:	CHE							
Tech:	CHE					% Moisture:		
Analytical Me	ethod: pH by SM45	600-Н						
Chioride		10887-00-0	17300	250	mg/L	04.18.2020 11:51		500
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123450							
Analyst:	MAB		Date Pre	ep: 04.17.2020 15:38				
Tech:	MAB					% Moisture:		
Analytical Me	ethod: Chloride by	EPA 300				Prep Method: E30	0P	
Lab Sample Id	d: 659152-004		Date Co	llected: 04.16.2020 15:10				

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# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 17		Matrix:	Ground Water		Date Received:04.1	6.2020 17:	45
Lab Sample Io	l: 659152-004		Date Collected	1:04.16.2020 15:10				
Analytical Me	ethod: TPH By SW8015 I	Mod				Prep Method: SW8	8015P	
Tech:	DTH					% Moisture:		
Analyst:	DTH		Date Prep:	04.17.2020 16:30				
Seq Number:	3123611							
Parameter		Cas Number	Result RL		Units	Analysis Date	Flag	Dil

						<b>,</b>		
Gasoline Range Hydrocarbons (GRO)	PHC610	<2.50	0 2.50		mg/L	04.21.2020 01:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<2.5	0 2.50		mg/L	04.21.2020 01:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.5	0 2.50		mg/L	04.21.2020 01:21	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	97	%	70-135	04.21.2020 01:21		
o-Terphenyl		84-15-1	103	%	70-135	04.21.2020 01:21		

Analytical Me	ethod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	er Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00290	0.00200		mg/L	04.21.2020 08:06		1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 08:06	U	1
Ethylbenzene	100-41-4	0.00565	0.00200		mg/L	04.21.2020 08:06		1
m,p-Xylenes	179601-23-1	0.00913	0.00400		mg/L	04.21.2020 08:06		1
o-Xylene	95-47-6	0.00441	0.00200		mg/L	04.21.2020 08:06		1
Total Xylenes	1330-20-7	0.0135	0.00200		mg/L	04.21.2020 08:06		1
Total BTEX		0.0221	0.00200		mg/L	04.21.2020 08:06		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	102	%	70-130	04.21.2020 08:06		
4-Bromofluorobenzene		460-00-4	101	%	70-130	04.21.2020 08:06		



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Conductivity		COND	32300	10.0	umhos/cn	n 04.20.2020 11:15		1
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123463					SUB: T104704400-	-19-19	
Analyst:	CHE							
Tech:	CHE					% Moisture:		
Analytical Me	ethod: Specific Condu	ictance @25C by SN	M2510B					
Temperature		TEMP	22.6		Deg C	04.20.2020 11:55	К	1
pH		12408-02-5	6.91		SU	04.20.2020 11:55	К	1
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123462					SUB: T104704400-	-19-19	
Analyst:	CHE					/ Wolstale.		
Analytical Me	ethod: pH by SM4500	)-Н				% Moisture		
Chloride		16887-00-6	12000	250	mg/L	04.18.2020 11:56		500
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Seq Number:	3123450							
Analyst:	MAB		Date Pre	p: 04.17.2020 15:38				
Tech:	MAB					% Moisture:		
Analytical Me	ethod: Chloride by EF	PA 300				Prep Method: E30	0P	
Lab Sample I	d: 659152-005		Date Col	llected: 04.16.2020 16:03				
Sample Id:	SB 5		Matrix:	Ground Water		Date Received:04.1	6.2020 17	/:45

# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 5		Matrix:	Ground Water		Date Received:04	.16.2020 17	:45
Lab Sample Io	l: 659152-005		Date Collecte	d: 04.16.2020 16:03				
Analytical Me	ethod: TPH By SW8015 M	Mod				Prep Method: SV	W8015P	
Tech:	DTH					% Moisture:		
Analyst:	DTH		Date Prep:	04.17.2020 16:30				
Seq Number:	3123611							
Parameter		Cas Number	Result RI		Units	Analysis Date	Flag	Dil

1 arameter	Cas Mullioci	i ittsuit	KL		Units	Analysis Date	riag	Dii	
Gasoline Range Hydrocarbons (GRO)	PHC610	<2.50	) 2.50		mg/L	04.21.2020 01:41	U	1	
Diesel Range Organics (DRO)	C10C28DRO	<2.50	) 2.50		mg/L	04.21.2020 01:41	U	1	
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.50	) 2.50		mg/L	04.21.2020 01:41	U	1	
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag		
1-Chlorooctane		111-85-3	90	%	70-135	04.21.2020 01:41			
o-Terphenyl		84-15-1	96	%	70-135	04.21.2020 01:41			

Analytical Me	ethod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	r Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
m,p-Xylenes	179601-23-1	< 0.00400	0.00400		mg/L	04.21.2020 08:27	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
Total BTEX		< 0.00200	0.00200		mg/L	04.21.2020 08:27	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	101	%	70-130	04.21.2020 08:27		
4-Bromofluorobenzene		460-00-4	102	%	70-130	04.21.2020 08:27		



# **Certificate of Analytical Results 659152**

### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
D		<i>a</i>						
Seq Number:	3123462					SUB: T104704400-	19-19	
Analyst:	CHE							
Tech:	CHE					% Moisture:		
Analytical Me	ethod: pH by SM45	00-H						
Chloride		16887-00-6	3470	250	mg/L	04.18.2020 12:13		500
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sea Number:	3123450		Date I le	p. 04.17.2020 13.30				
Analyst:	MAB		Date Pre	op: 04 17 2020 15:38		,		
Tech:	MAB					% Moisture:		
Analytical Me	ethod: Chloride by	EPA 300				Prep Method: E30	0P	
Luo Sumpie I	d: 659152-006		Date Co	neeted. 04.10.2020 10.15				
Lab Sample I			Data Co	llected: 0/ 16 2020 16:15				



# **Certificate of Analytical Results 659152**

#### HRL Compliance Solutions, Artesia, NM

West Pearl Queen

Sample Id:	SB 7		Matrix:	Ground Water		Date Received:04.16.2020 17:45				
Lab Sample Id	: 659152-006									
Analytical Me	thod: TPH By SW8015 M	/lod				Prep Method: SW8	015P			
Tech:	DTH					% Moisture:				
Analyst:	DTH		Date Prep:	04.17.2020 16:30						
Seq Number:	3123611									
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil		

Gasoline Range Hydrocarbons (GRO)	PHC610	<2.5	0 2.50		mg/L	04.21.2020 02:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<2.5	0 2.50		mg/L	04.21.2020 02:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<2.5	0 2.50		mg/L	04.21.2020 02:02	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	104	%	70-135	04.21.2020 02:02		
o-Terphenyl		84-15-1	112	%	70-135	04.21.2020 02:02		

Analytical Me	ethod: BTEX by EPA 8021B			Prep Method: SW5030B
Tech:	KTL			% Moisture:
Analyst:	KTL	Date Prep:	04.20.2020 16:00	
Seq Number:	3123568			SUB: T104704400-19-19

Parameter	Cas Numbe	er Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0202	0.00200		mg/L	04.21.2020 08:47		1
Toluene	108-88-3	< 0.00200	0.00200		mg/L	04.21.2020 08:47	U	1
Ethylbenzene	100-41-4	0.0143	0.00200		mg/L	04.21.2020 08:47		1
m,p-Xylenes	179601-23-1	0.00653	0.00400		mg/L	04.21.2020 08:47		1
o-Xylene	95-47-6	0.00263	0.00200		mg/L	04.21.2020 08:47		1
Total Xylenes	1330-20-7	0.00916	0.00200		mg/L	04.21.2020 08:47		1
Total BTEX		0.0437	0.00200		mg/L	04.21.2020 08:47		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	100	%	70-130	04.21.2020 08:47		
4-Bromofluorobenzene		460-00-4	127	%	70-130	04.21.2020 08:47		

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- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- **F** RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL	Below Reporting Limit.	ND Not Detected.			
RL	Reporting Limit				
MDL	Method Detection Limit	SDL Sample Det	ection Limit	LOD Limit of Detection	
PQL	Practical Quantitation Limit	MQL Method Qua	antitation Limit	LOQ Limit of Quantitation	n
DL	Method Detection Limit				
NC	Non-Calculable				
SMP	Client Sample		BLK	Method Blank	
BKS/	LCS Blank Spike/Laboratory	Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	catory Control Sample Duplicate
MD/S	<b>D</b> Method Duplicate/Samp	le Duplicate	MS	Matrix Spike	MSD: Matrix Spike Duplicate
+ NE	ELAC certification not offered	for this compound.			

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



#### QC Summary 659152

### **HRL Compliance Solutions**

West Pearl Queen

Analytical Method:	Chloride by EPA	300		Prep M					Method: E300P			
Seq Number:	3123450			Matrix:	Water				Date P	rep: 04.1	7.2020	
MB Sample Id:	7701518-1-BLK		LCS Sat	nple Id:	7701518-	1-BKS		LCS	D Samp	le Id: 770	1518-1-BSD	
Parameter	MI Resul	8 Spike t Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.50	0 25.0	26.5	106	26.5	106	90-110	0	20	mg/L	04.18.2020 11:12	
Analytical Method:	Chloride by EPA	300						Pi	rep Metl	nod: E30	0P	
Seq Number:	3123450			Matrix:	Ground W	Vater			Date P	rep: 04.1	7.2020	
Parent Sample Id:	659152-001		MS Sa	nple Id:	659152-0	01 S		MS	D Samp	le Id: 659	152-001 SD	
Parameter	Paren Resul	t Spike t Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	684	0 20.0	5820	0	5640	0	90-110	3	20	mg/L	04.18.2020 11:29	Х
Analytical Method: Seq Number:	<b>pH by SM4500-H</b> 3123462	Ι		Matrix:	Ground W	Vater						
Parent Sample Id:	659152-001		MD Sa	nple Id:	659152-0	01 D						
Parameter	Paren Resul	t t	MD Result					%RPD	RPD Limit	Units	Analysis Date	Flag
pH	7.1	3	7.16					0	20	SU	04.20.2020 11:55	
Temperature	22.	4	22.4					0	20	Deg C	04.20.2020 11:55	
Analytical Method: Seq Number:	Specific Conduct 3123463	ance @25C I	by SM251(	) <b>B</b> Matrix:	Water 3123463-	1-BKS		LCS	D Samn	le Id: 312	3463-1-BSD	
MB Sample Id:	5125405-1-DLK		LCS Sa	npic iu.	5125405-	I-DK5	<b>.</b>			U	0-1-D5D	
Parameter	MI Resul	s Spike	Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	Limit	Units	Date	Flag
Conductivity	<10.	0 1410	1410	100	1420	101	80-120	1	20	umhos/cm	1 04.20.2020 11:15	
Analytical Method: Seq Number:	<b>Specific Conduct</b> 3123463	ance @25C l	oy SM251(	) <b>B</b> Matrix:	Ground W	Vater						
Parent Sample Id:	659152-001		MD Sa	nple Id:	659152-0	01 D						
Parameter	Paren Resul	t t	MD Result					%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3420	0	34200					0	20	umhos/cm	04.20.2020 11:15	

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference  $LCS = Laboratory \ Control \ Sample \\ A = Parent \ Result \\ C = MS/LCS \ Result \\ E = MSD/LCSD \ Result$ 

MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec

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#### QC Summary 659152

#### **HRL Compliance Solutions**

West Pearl Queen

Analytical Method: Seq Number: MB Sample Id:	Al Method: TPH By SW8015 Mod   ber: 3123611   ble Id: 7701672-1-BLK				Matrix: Water LCS Sample Id: 7701672-1-BKS					Prep Method: SW8015P Date Prep: 04.17.2020 LCSD Sample Id: 7701672-1-BSD				
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag	
Gasoline Range Hydrocarbo	ons (GRO)	<2.50	100	88.1	88	75.6	76	70-135	15	35	mg/L	04.20.2020 22:19		
Diesel Range Organics (	DRO)	<2.50	100	96.8	97	80.6	81	70-135	18	35	mg/L	04.20.2020 22:19		
Surrogate		MB %Rec	MB Flag	L( %)	CS Rec	LCS Flag	LCSD %Rec	) LCSI 2 Flag	D Li ;	mits	Units	Analysis Date		
1-Chlorooctane		73		1	18		118		70	-135	%	04.20.2020 22:19		
o-Terphenyl		71		1	11		101		70	-135	%	04.20.2020 22:19		

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW	8015P	
Seq Number:	3123611	Matrix:	Water	Date Prep:	04.1	7.2020	
		MB Sample Id:	7701672-1-BLK				
Parameter		MB		τ	J <b>nits</b>	Analysis	Flag
1 al allicici		Result				Date	
Motor Oil Range Hydrocarb	oons (MRO)	<2.50		r	ng/L	04.20.2020 21:59	

<b>Analytical Method:</b>	lod						Pi	rep Meth	od: SW	8015P			
Seq Number:	3123611				Matrix:	Water				Date Pr	ep: 04.	17.2020	
Parent Sample Id:	659194-001			MS Sample Id: 659194-001 S			MSD Sample Id: 659194-001 SD						
Parameter		Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<2.31	92.4	75.8	82	61.2	65	70-135	21	35	mg/L	04.20.2020 23:20	Х
Diesel Range Organics	(DRO)	<2.31	92.4	78.4	85	61.1	65	70-135	25	35	mg/L	04.20.2020 23:20	Х
Surrogate				N %	1S Rec	MS Flag	MSD %Re	) MSI c Flag	) Li g	imits	Units	Analysis Date	
1-Chlorooctane				1	04		78		70	-135	%	04.20.2020 23:20	

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Analytical Method: Seq Number: MB Sample Id:	<b>BTEX by EPA 8021</b> 3123568 7701649-1-BLK	В	Matrix: Water LCS Sample Id: 7701649-1-BKS				Prep Method: SW5030B Date Prep: 04.20.2020 LCSD Sample Id: 7701649-1-BSD					
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00200	0.100	0.0822	82	0.0969	97	70-130	16	25	mg/L	04.21.2020 03:28	
Toluene	< 0.00200	0.100	0.0836	84	0.0948	95	70-130	13	25	mg/L	04.21.2020 03:28	
Ethylbenzene	< 0.00200	0.100	0.0862	86	0.0946	95	70-130	9	25	mg/L	04.21.2020 03:28	
m,p-Xylenes	< 0.00400	0.200	0.169	85	0.186	93	70-130	10	25	mg/L	04.21.2020 03:28	
o-Xylene	< 0.00200	0.100	0.0911	91	0.0943	94	70-130	3	25	mg/L	04.21.2020 03:28	
Surrogate	MB %Rec	MB Flag	L %	CS Rec	LCS Flag	LCSD %Rec	LCSI Flag	D Li ç	imits	Units	Analysis Date	
1,4-Difluorobenzene	94		1	01		102		70	-130	%	04.21.2020 03:28	
4-Bromofluorobenzene	85		1	06		97		70	-130	%	04.21.2020 03:28	

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference

o-Terphenyl

 $\label{eq:c-A} \begin{array}{l} [D] = 100*(C-A) \ / \ B \\ RPD = 200* \ | \ (C-E) \ / \ (C+E) \ | \\ [D] = 100*(C) \ / \ [B] \\ Log \ Diff. = Log(Sample \ Duplicate) \ - \ Log(Original \ Sample) \end{array}$ 

LCS = Laboratory Control Sample A = Parent Result C = MS/LCS Result E = MSD/LCSD Result MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec

.

04.20.2020 23:20

70-135

%



#### QC Summary 659152

Prep Method: SW5030B

#### **HRL Compliance Solutions**

West Pearl Queen

Seq Number:	Matrix: Ground Water				Date Prep: 04.20.2020							
Parent Sample Id:	659152-001		MS Sam	ple Id:	659152-00	01 S		MS	D Sampl	e Id: 659	152-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00200	0.100	0.0867	87	0.0652	65	70-130	28	25	mg/L	04.21.2020 04:08	XF
Toluene	< 0.00200	0.100	0.0855	86	0.0793	79	70-130	8	25	mg/L	04.21.2020 04:08	
Ethylbenzene	< 0.00200	0.100	0.0871	87	0.0871	87	70-130	0	25	mg/L	04.21.2020 04:08	
m,p-Xylenes	< 0.00400	0.200	0.168	84	0.174	87	70-130	4	25	mg/L	04.21.2020 04:08	
o-Xylene	< 0.00200	0.100	0.0881	88	0.0917	92	70-130	4	25	mg/L	04.21.2020 04:08	
Surrogate			M %I	[S Rec	MS Flag	MSD %Rec	MSE Flag	) Li ç	imits	Units	Analysis Date	
1,4-Difluorobenzene			9	9		96		70	-130	%	04.21.2020 04:08	
4-Bromofluorobenzene	e		9	6		102		70	-130	%	04.21.2020 04:08	

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference  $LCS = Laboratory \ Control \ Sample \\ A = Parent \ Result \\ C = MS/LCS \ Result \\ E = MSD/LCSD \ Result$ 

MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec



# Chain of Custody

	Midland, TX (480 Phoenix, AZ (480	Houston,TX (281) 240-4 132) 704-5440 EL Paso, ) 355-0900 Atlanta,GA (	Cha 200 Dallas,1 TX (915) 585 770) 449-880	x (214) 9 -3443 Lui 0 Tampa	f Cu 02-0300 bbock,TX	San Ar (806) 7 (620-20	<b>bdy</b> ntonio,TX ( 794-1296 ( 000 West	(210) 509-33 Crasibad, Ni Palm Beach	334 M (432) 704 h <u>. FL (</u> 561 <u>) (</u>	1-5440 689-6701		Work (	Order No:	US9152	
Project Manager: Julie Li	ng	Bill to: (if d	Bill to: (if different) ARL						Work Order Comments						
company Name: H.R.L. Compliance Solutions			Company Name:						Program: UST/PST PRP Brownfields RRC Superfund						
Address: 112 So 6th St.			dress:	-		-				State of Project:					
City, State ZIP: Qrtesia, NM			e ZIP:			1				Reporting:Level II _Level III _ PST/UST _TRRP _ Level IV _					
Phone: (970) 0	103-8747 E	mail: JIIAN	Ohrl	com	p .	COV	n			Deliverables: EDD ADaPT Other:					
Project Name: 11/2St Pro	a Queen	Turn wound	ANALYSIS PE					S REOL	OUEST Preservative Code						
Project Number:	queat	Routine IN	Pres.	1				TETON			11				
Project Location		Rush:	3				E						Mee	DH: Me	
Sampler's Name: J. LINA		Due Date:	1				F						Nor		
PO #:	Quote #:		6	3			A						H2S	604: H2	
SAMPLE RECEIPT Temp	Blank: (Yes No We	Lice: Ces No	2	7			9							- 10	
Temperature (°C):	LIO Thermor	neter ID	ers	5									HCL	.: HL	
Received Intact: (Yes)	No T-	VM COT	itain	7			3						Zn /	Acetate+ NaOH: Zn	
Cooler Custody Seals: Yes (B)	N/A Correction Fa	ctor: -0.2	Con				20						TAT	detate hadri. Zi	
Sample Custody Seals: Yes N	N/A Total Contain	ners: 42	er of	Di Di			5						IA	received by 4:00pm	a lao, ir
Lab ID Sample Identification	Matrix Date Time Sampled Samp	e Depth	Numbe	9	G	HO	Ele							Sample Comments	
SB14 C	W 4-16-20 0840	) - (	JX	X	N	x	X								
SB13(	SW 4-16-20 1325	-	JL	X	X	X	X								
SB2 G	W 4-16-20 14.51	) - •	7 X	X	X	X	X								
SBIT	W 4-16-20 151	0 - 0	7 X	x	x	x	L								
SB5 C	SW 4-16-20 160	3 -	7 X	x	×	X	X	12.1	1						
SB7 C	3W 4-16-20 1619	5 -	7 x	X	X	X	×								
							_								
4 X															
Total 200.7 / 6010 200.8 / 6020	: 8RCF	RA 13PPM Texas	11 AI St	As Ba	a Be B	Cd (	Ca Cr (	Co Cu Fe	e Pb Ma	Mn Mo	Ni K S	e Ag Sid	D2 Na Sr TI	Sn U V Zn	-
Circle Method(s) and Metal(s) to b	be analyzed TCLP /	SPLP 6010: 8RCR.	A Sb As	Ba Be	Cd Cr	Co	Cu Pb I	Mn Mo N	Vi Se Ag	TIU			1631 /	245.1 / 7470 / 7471 : 1	łg
Notice: Signature of this document and relinquishme	nt of samples constitutes a valid pu	chase order from client co	ompany to Xer	ico, its affi	liates and	subcon	tractors. It	t assigns sta	indard terms	s and condit	ions				
of Xenco. A minimum charge of \$75.00 will be applie	to each project and a charge of \$5	ponsibility for any losses for each sample submittee	or expenses i d to Xenco, bu	t not analy	the client zed. Thes	t if such te terms	losses are will be enf	e due to circu forced unless	mstances be s previously	eyond the co negotiated.	ntrol				
Relinguished by: (Signature)	Received by: (Sig	nature)	Date	/Time		Reli	nquishe	ad by: (Si	ignaturo		Pocoin	ad but /S	lignatura	Date/Time	-
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					0			-				_		Revised Date 022619 Rev	1.2019.1
<b>1</b>															

Final 1.000



#### **Inter-Office Shipment**

Page 1 of 1

#### IOS Number 62277

Date/Time: 04/17/20 11:29

Lab# From: Carlsbad

Lab# To: Midland

Air Bill No.:

**Delivery Priority:** 

Created by: Elizabeth Mcclellan

Please send report to: Erica Morales

Address: 1089 N Canal Street

E-Mail: erica.morales@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	РМ	Analytes	Sign
659152-001	W	SB 14	04/16/20 08:40	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-001	W	SB 14	04/16/20 08:40	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-001	W	SB 14	04/16/20 08:40	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 08:55	EIM		
659152-002	W	SB 13	04/16/20 13:25	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-002	W	SB 13	04/16/20 13:25	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 13:40	EIM		
659152-002	W	SB 13	04/16/20 13:25	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-003	W	SB 2	04/16/20 14:50	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-003	W	SB 2	04/16/20 14:50	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 15:05	EIM		
659152-003	W	SB 2	04/16/20 14:50	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-004	W	SB 17	04/16/20 15:10	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 15:25	EIM		
659152-004	W	SB 17	04/16/20 15:10	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-004	W	SB 17	04/16/20 15:10	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-005	W	SB 5	04/16/20 16:03	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-005	W	SB 5	04/16/20 16:03	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 16:18	EIM		
659152-005	W	SB 5	04/16/20 16:03	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-006	W	SB 7	04/16/20 16:15	SM2510B	Specific Conductance @25C by SM2510	04/22/20	05/14/20	EIM		
659152-006	W	SB 7	04/16/20 16:15	SW8021B	BTEX by EPA 8021B	04/22/20	04/30/20	EIM	BR4FBZ BZ BZME EBZ X	
659152-006	W	SB 7	04/16/20 16:15	SM4500-Н	pH by SM4500-H	04/22/20	04/16/20 16:30	EIM		

Inter Office Shipment or Sample Comments:

Relinquished By:

Elizabeth McClellan

Date Relinquished: 04/17/2020

Received By:

Brianna Teel

Date Received: 04/20/2020 10:20

Cooler Temperature: 0.6

Released to Imaging: 10/29/2024 7:37:14 AM

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Final 1.000



### **XENCO** Laboratories

# ABORATORIES Inter Office Report- Sample Receipt Checklist

Sent To: Midland IOS #: 62277

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Temperature Measuring device used :

Sent By:	Elizabeth McClellan	Date Sent:	04/17/2020 11:29 AM
Received By:	Brianna Teel	Date Received:	04/20/2020 10:20 AM

#### Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

NonConformance:

**Corrective Action Taken:** 

Contact:

Nonconformance Documentation

Contacted by :

Date:

Checklist reviewed by:

Brille

Brianna Teel

Date: 04/20/2020

### **XENCO** Laboratories

### Prelogin/Nonconformance Report- Sample Log-In

Client: HRL Compliance Solutions	Acceptable Temperature Range: 0 - 6 degC						
Date/ Time Received: 04.16.2020 05.45.00 PM	Air and Metal samples Acceptable Range: Ambient						
Work Order #: 659152	Temperature Measuring device used : T-NM-007						
Sample Rec	ceipt Checklist		Comments				
#1 *Temperature of cooler(s)?		1					
#2 *Shipping container in good condition?	١	/es					
#3 *Samples received on ice?	١	/es					
#4 *Custody Seals intact on shipping container/ cooler?	١	/es					
#5 Custody Seals intact on sample bottles?	١	/es					
#6*Custody Seals Signed and dated?	١	/es					
#7 *Chain of Custody present?	١	/es					
#8 Any missing/extra samples?	I	No					
#9 Chain of Custody signed when relinquished/ received?	١	/es					
#10 Chain of Custody agrees with sample labels/matrix?	١	/es					
#11 Container label(s) legible and intact?	١	/es					
#12 Samples in proper container/ bottle?	١	/es					
#13 Samples properly preserved?	١	/es					
#14 Sample container(s) intact?		No	Samples split in lab for Chloride Method. 4-17-20 EM				
#15 Sufficient sample amount for indicated test(s)?	١	(es					
#16 All samples received within hold time?	١	(es					
#17 Subcontract of sample(s)?	١	(es	SM4500H, SM2510 and BTEX subbed to Midland.				
#18 Water VOC samples have zero headspace?	١	(es					

#### * Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#: 10Fox1971
## **XENCO** Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client: HRL Compliance Solutions** 

Date/ Time Received: 04.16.2020 05.45.00 PM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 659152

Sample Receipt Checklist

A032690e

Checklist completed by: Elizabeth McClellan

Date: 04.17.2020

Checklist reviewed by:

Date: 04.17.2020



5796 U.S. Hwy 64 Farmington, NM 87401

Phone: (505) 632-1881 Envirotech-inc.com





# envirotech

**Practical Solutions for a Better Tomorrow** 

# **Analytical Report**

## Armstrong

Project Name: West Peariqueen 10

.

Work Order: E205154

Job Number: 20071-0001

Received: 5/27/2022

Revision: 1

Report Reviewed By:

Walter Hinchman Laboratory Director 6/3/22

Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise. Statement of Data Authenticity: Envirotech Inc, attests the data reported has not been altered in any way. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc. Envirotech Inc, holds the Utah TNI certification NM00979 for data reported. Envirotech Inc, holds the Texas TNI certification T104704557 for data reported. Envirotech Inc, holds the NM SDWA certification for data reported. (Lab #NM00979) Date Reported: 6/3/22

Chris Cortez 2904 W 2nd St. Roswell, NM 88201

Project Name: West Peariqueen 10 Workorder: E205154 Date Received: 5/27/2022 12:37:00PM

Chris Cortez,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 5/27/2022 12:37:00PM, under the Project Name: West Peariqueen 10.

The analytical test results summarized in this report with the Project Name: West Peariqueen 10 apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman Laboratory Director Office: 505-632-1881 Cell: 775-287-1762 whinchman@envirotech-inc.com

Field Offices:

Southern New Mexico Area Lynn Jarboe Technical Representative/Client Services

Office: 505-421-LABS(5227) Cell: 505-320-4759 ljarboe@envirotech-inc.com Raina Schwanz Laboratory Administrator Office: 505-632-1881 rainaschwanz@envirotech-inc.com Alexa Michaels Sample Custody Officer Office: 505-632-1881 labadmin@envirotech-inc.com

West Texas Midland/Odessa Area Rayny Hagan Technical Representative Office: 505-421-LABS(5227)

Envirotech Web Address: www.envirotech-inc.com



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#### **Sample Summary**

Armstrong 2904 W 2nd St. Roswell NM, 88201		Project Name: Project Number: Project Manager:	West Peariqueen 10 20071-0001 Chris Cortez		<b>Reported:</b> 06/03/22 16:29
Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
SB 2	E205154-01A	Aqueous	05/26/22	05/27/22	Poly 125mL
	E205154-01B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-01C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-01D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-01E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-01F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-01G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
B 4	E205154-02A	Aqueous	05/26/22	05/27/22	Poly 125mL
	E205154-02B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-02C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-02D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-02E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-02F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-02G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
В 7	E205154-03A	Aqueous	05/26/22	05/27/22	Poly 125mL
	E205154-03B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-03C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-03D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-03E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-03F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-03G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
R 13	F205154-04A	Aqueous	05/26/22	05/27/22	Poly 125mL
5 15	E205154-04R	Aqueous	05/26/22	05/27/22	VOA Vial. 40mL: HCl
	E205154-04C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-04D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-04E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-04F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-04G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
R 1/	E205154 05A	Aqueous	05/26/22	05/27/22	Poly 125mI
D 14	E205154-05R	Aqueous	05/26/22	05/27/22	VOA Vial 40mI · HCl
	E205154-05B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-05C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-05E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-05E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-05F		05/26/22	05/27/22	VOA Vial 40mI · HCl
2 20	E205154-050	Δαμοομα	05/26/22	05/27/22	Poly 125mI
5 20	E203134-00A E205154 04D	Aqueous	05/26/22	05/27/22	VOA Vial 40mI · HCl
	E203134-00B	Aqueous	05/20/22	05/27/22	VOA Vial AlmI · HCl
	E203134-00C	Aqueous	05/20/22	05/27/22	VOA Vial AlmI · HCl
	E203134-00D	Aqueous	05/20/22	05/27/22	VOA Vial 40mL HCl
	E203154-06E	Aqueous	05/20/22	05/27/22	VOA Vial, 40mL; HUI
	E203134-06F	Aqueous	05/20/22	05/27/22	VOA Vial, 40mL; HUI
	E205154-06G	Aqueous	05/20/22	05/27/22	VUA VIAI, 40ML; HUI
B 21	E205154-07A	Aqueous	05/26/22	05/27/22	Poly 125mL



#### Sample Summarv

		Sumple Sum	inter y		
ArmstrongProject 12904 W 2nd St.Project 1Roswell NM, 88201Project 1		Project Name: Project Number:	West Peariqueen 10 20071-0001		Reported:
		Project Manager:	Chris Cortez	06/03/22 16:29	
Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
SB 21	E205154-07B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-07C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-07D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-07E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-07F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-07G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
SB 22	E205154-08A	Aqueous	05/26/22	05/27/22	Poly 125mL
	E205154-08B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-08C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-08D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-08E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-08F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-08G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
SB 23	E205154-09A	Aqueous	05/26/22	05/27/22	Poly 125mL
	E205154-09B	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-09C	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-09D	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-09E	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-09F	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
	E205154-09G	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
rip Blank	E205154-10A	Aqueous	05/26/22	05/27/22	VOA Vial, 40mL; HCl
		1			



		I —				
Armstrong	Project Name:	Wes	West Peariqueen 10			
2904 W 2nd St.	Project Numbe	er: 200	20071-0001			Reported:
Roswell NM, 88201	Project Manag	er: Chr	is Cortez			6/3/2022 4:29:06PM
		SB 2				
		E205154-01				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		102 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		90.3 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/02/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/02/22	
Surrogate: n-Nonane		91.3 %	50-200	06/02/22	06/02/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	112	4.00	2	06/02/22	06/02/22	

## Sample Data



## Sample Data

Armstrong	Project Name	Wes	st Peariqueen 10			
2904 W 2nd St.	Project Numb	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Mana	ger: Chr	is Cortez		6/3/2022 4:29:06PM	
		<b>SB 4</b>				
		E205154-02				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		97.3 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		90.2 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/02/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/02/22	
Surrogate: n-Nonane		97.4 %	50-200	06/02/22	06/02/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	28.7	2.00	1	06/02/22	06/02/22	



## Sample Data

		L				
Armstrong	Project Name:	Wes	st Peariqueen 10			
2904 W 2nd St.	Project Numbe	er: 200	20071-0001			Reported:
Roswell NM, 88201	Project Manag	Manager: Chris Cortez				6/3/2022 4:29:06PM
		<b>SB 7</b>				
		E205154-03				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	5.09	1.00	1	06/02/22	06/02/22	
Ethylbenzene	8.44	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		103 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	0.136	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		92.5 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: ЛL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/02/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/02/22	
Surrogate: n-Nonane		93.5 %	50-200	06/02/22	06/02/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	30.6	2.00	1	06/02/22	06/02/22	

## Sample Data

		·· <b>I</b> · ·				
Armstrong	Project Name	: Wes	West Peariqueen 10			
2904 W 2nd St.	Project Numb	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Manager: Chris Cortez					6/3/2022 4:29:06PM
		SB 13				
		E205154-04				
		Reporting	;			
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		104 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		88.9 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/02/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/02/22	
Surrogate: n-Nonane		96.5 %	50-200	06/02/22	06/02/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	188	4.00	2	06/02/22	06/02/22	

## Sample Data

Armstrong	Project Name	: Wes	West Peariqueen 10			
2904 W 2nd St.	Project Numb	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Mana	ect Manager: Chris Cortez				6/3/2022 4:29:06PM
		SB 14				
		E205154-05				
		Reporting	,			
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		105 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.5 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/02/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/02/22	
Surrogate: n-Nonane		97.6 %	50-200	06/02/22	06/02/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	711	40.0	20	06/02/22	06/03/22	



## Sample Data

		L				
Armstrong	Project Name	e: Wes	t Peariqueen 10			
2904 W 2nd St.	Project Numb	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Mana	nger: Chr	is Cortez			6/3/2022 4:29:06PM
		SB 20				
		E205154-06				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	1.56	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	13.0	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		101 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.6 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/03/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/03/22	
Surrogate: n-Nonane		101 %	50-200	06/02/22	06/03/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	185000	2000	1000	06/02/22	06/02/22	



## Sample Data

		I				
Armstrong	Project Name	: Wes	st Peariqueen 10			
2904 W 2nd St.	Project Numb	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Mana	anager: Chris Cortez				6/3/2022 4:29:06PM
		SB 21				
		E205154-07				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analyst	: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	5.77	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		106 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analyst	: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		90.9 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analyst	: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/03/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/03/22	
Surrogate: n-Nonane		102 %	50-200	06/02/22	06/03/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analyst	: KL		Batch: 2223038
Chloride	96800	2000	1000	06/02/22	06/02/22	



## Sample Data

		I				
Armstrong	Project Nam	ie: Wes	st Peariqueen 10			
2904 W 2nd St.	Project Num	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Man	ager: Chr	is Cortez			6/3/2022 4:29:06PM
		SB 22				
		E205154-08				
		Reporting	,			
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	st: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	17.5	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		95.9 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	st: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		92.2 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	st: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/03/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/03/22	
Surrogate: n-Nonane		101 %	50-200	06/02/22	06/03/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: KL		Batch: 2223038
Chloride	170000	2000	1000	06/02/22	06/02/22	



## Sample Data

		L				
Armstrong	Project Nam	e: Wes	st Peariqueen 10			
2904 W 2nd St.	Project Num	ber: 200	20071-0001			Reported:
Roswell NM, 88201	Project Mana	ager: Chr	Chris Cortez			6/3/2022 4:29:06PM
		SB 23				
		E205154-09				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analys	t: IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	3.09	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID		101 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - GRO	mg/L	mg/L	Analys	t: IY		Batch: 2223037
Gasoline Range Organics (C6-C10)	ND	0.100	1	06/02/22	06/02/22	
Surrogate: 1-Chloro-4-fluorobenzene-FID		91.7 %	70-130	06/02/22	06/02/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/L	mg/L	Analys	t: JL		Batch: 2223017
Diesel Range Organics (C10-C28)	ND	1.00	1	06/02/22	06/03/22	
Oil Range Organics (C28-C36)	ND	2.00	1	06/02/22	06/03/22	
Surrogate: n-Nonane		99.6 %	50-200	06/02/22	06/03/22	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	t: KL		Batch: 2223038
Chloride	76100	2000	1000	06/02/22	06/02/22	



## Sample Data

		•				
Armstrong	Project Name:	West	Peariqueen 10			
2904 W 2nd St.	Project Number	: 2007	1-0001			Reported:
Roswell NM, 88201	Project Manage	r: Chris	Cortez			6/3/2022 4:29:06PM
	Т	rip Blank				
	E	205154-10				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	ug/L	ug/L	Analyst	IY		Batch: 2223037
Benzene	ND	1.00	1	06/02/22	06/02/22	
Ethylbenzene	ND	1.00	1	06/02/22	06/02/22	
Toluene	ND	1.00	1	06/02/22	06/02/22	
o-Xylene	ND	1.00	1	06/02/22	06/02/22	
p,m-Xylene	ND	2.00	1	06/02/22	06/02/22	
Total Xylenes	ND	1.00	1	06/02/22	06/02/22	
Surrogate: 4-Bromochlorobenzene-PID	8	88.6 %	70-130	06/02/22	06/02/22	

envirotech Inc.

## **OC Summary Data**

		•		J					
Armstrong 2904 W 2nd St		Project Name: Project Number:	W 20	/est Peariquee )071-0001	n 10				Reported:
Roswell NM, 88201		Project Manager:	Cl	hris Cortez					6/3/2022 4:29:06PM
		Volatile O	rganics <b>k</b>	oy EPA 802	21B				Analyst: IY
Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	
	ug/L	ug/L	ug/L	ug/L	%	%	%	%	Notes
Blank (2223037-BLK1)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Benzene	ND	1.00							
Ethylbenzene	ND	1.00							
Toluene	ND	1.00							
o-Xylene	ND	1.00							
p,m-Xylene	ND	2.00							
Total Xylenes	ND	1.00							
Surrogate: 4-Bromochlorobenzene-PID	166		160		104	70-130			
LCS (2223037-BS1)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Benzene	94.8	1.00	100		94.8	70-130			
Ethylbenzene	91.0	1.00	100		91.0	70-130			
Toluene	94.4	1.00	100		94.4	70-130			
o-Xylene	95.0	1.00	100		95.0	70-130			
p,m-Xylene	188	2.00	200		94.0	70-130			
Total Xylenes	283	1.00	300		94.3	70-130			
Surrogate: 4-Bromochlorobenzene-PID	165		160		103	70-130			
LCS Dup (2223037-BSD1)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Benzene	102	1.00	100		102	70-130	7.00	20	
Ethylbenzene	97.0	1.00	100		97.0	70-130	6.44	20	
Toluene	101	1.00	100		101	70-130	6.94	20	
o-Xylene	101	1.00	100		101	70-130	5.90	20	
p,m-Xylene	200	2.00	200		100	70-130	6.18	20	
Total Xylenes	301	1.00	300		100	70-130	6.08	20	
Surrogate: 4-Bromochlorobenzene-PID	163		160		102	70-130			



## **QC Summary Data**

		<u> </u>		v					
Armstrong		Project Name:	W	/est Peariqueer	n 10				Reported:
2904 W 2nd St.		Project Number	: 2	0071-0001					
Roswell NM, 88201		Project Manager	r: C	hris Cortez					6/3/2022 4:29:06PM
	No	onhalogenated	Organics	by EPA 80	15D - G	RO			Analyst: IY
Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	Notes
Blank (2223037-BLK1)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Gasoline Range Organics (C6-C10)	ND	0.100							
Surrogate: 1-Chloro-4-fluorobenzene-FID	0.145		0.160		90.3	70-130			
LCS (2223037-BS2)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Gasoline Range Organics (C6-C10)	0.953	0.100	1.00		95.3	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	0.147		0.160		92.0	70-130			
LCS Dup (2223037-BSD2)							Prepared: 0	6/02/22 A	analyzed: 06/02/22
Gasoline Range Organics (C6-C10)	1.02	0.100	1.00		102	70-130	6.78	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	0.147		0.160		91.9	70-130			



## **QC Summary Data**

	-		v					
Armstrong 2904 W 2nd St.	Project Name: Project Number:	W 20	est Peariqueer 0071-0001	n 10				Reported:
Roswell NM, 88201	Project Manager	: Cl	hris Cortez					6/3/2022 4:29:06PM
No	onhalogenated Org	ganics by	EPA 8015I	) - DRO	/ORO			Analyst: JL
Analyte Resu	Reporting lt Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	
mg/I	. mg/L	mg/L	mg/L	%	%	%	%	Notes
Blank (2223017-BLK1)						Prepared: 0	6/02/22 A	nalyzed: 06/02/22
Diesel Range Organics (C10-C28) ND	1.00							
Oil Range Organics (C28-C36) ND	2.00							
Surrogate: n-Nonane 2.26	í	2.50		90.4	50-200			
LCS (2223017-BS1)						Prepared: 0	6/02/22 A	nalyzed: 06/02/22
Diesel Range Organics (C10-C28) 7.87	1.00	12.5		63.0	36-132			
Surrogate: n-Nonane 2.41		2.50		96.4	50-200			
LCS Dup (2223017-BSD1)						Prepared: 0	6/02/22 A	nalyzed: 06/02/22
Diesel Range Organics (C10-C28) 6.19	1.00	12.5		49.5	36-132	23.9	20	R3
Surrogate: n-Nonane 2.22		2.50		88.7	50-200			



## **QC Summary Data**

Armstrong 2904 W 2nd St. Roswell NM, 88201		Project Name: Project Number: Project Manager:	V 2 C	/est Peariqueer 0071-0001 hris Cortez	n 10				<b>Reported:</b> 6/3/2022 4:29:06PM
		Anions	by EPA	300.0/9056A	۱.				Analyst: KL
Analyte	Result mg/L	Reporting Limit mg/L	Spike Level mg/L	Source Result mg/L	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
Blank (2223038-BLK1)							Prepared: 0	5/02/22 A	nalyzed: 06/02/22
Chloride	ND	2.00							
LCS (2223038-BS1)							Prepared: 0	5/02/22 A	nalyzed: 06/02/22
Chloride	25.6	2.00	25.0		102	90-110			
LCS Dup (2223038-BSD1)							Prepared: 0	5/02/22 A	nalyzed: 06/02/22
Chloride	26.3	2.00	25.0		105	90-110	2.79	20	

QC Summary Report Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



Armstrong	Project Name:	West Peariqueen 10	
2904 W 2nd St.	Project Number:	20071-0001	Reported:
Roswell NM, 88201	Project Manager:	Chris Cortez	06/03/22 16:29

R3 The RPD exceeded the acceptance limit. LCS spike recovery met acceptance criteria.

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

DNI Did Not Ignite

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



	1. S.
e	Project Information
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Page _	1	_of_	Rece
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Project: WEST Per Queun	11	Bill	То	100		Nor I	La	b Us	e Only	1	-			TAT	e	EPA Pr	ogran
	10	Attention: Atkins	sengin	eering	Lab	WO#	-	1	Job N	umb	er	1D	2D	3D	Standard	CWA	SDW
Project Manager Chr. 5 Co	ALL I	Address: 2904 W 2	nd St	70001	Eá	105	10	1	900	11-	000				X		19.3
Address: 2904 IN Lino	St. al	City, State, Zip KOSW	Rell MM	66201	~				Analys	is and	d Meth	od		1	1.		RCR
Phone: C 75 MODIL 21	000001	Phone: D /Silver	March 1	Daala		10	_		-	_		_					
Email:	0	Email: Xany Intig	WUTKIN	strigion	8015	8015	$\cap$		1	2	U				NINAL CO.	State	TV
Report due by:					yd (	P	3021	260	10	300.0	00					UT AZ	
Time Date Sampled Matrix No.	of Sample ID			Lab	O/ORC	OLDRC	EX by 8	C by 8.	etals 60	oride	66					Remarks	
Sampled Contain	T CO O			Number	NG	\ <u>\</u>	BT	0 N	ž	5/			+			Remarks	
120312012 AV	1 302	<u>i i i i i i i i i i i i i i i i i i i </u>			X	X	X		X			_	_				
500 1 1 =	7 SB4			2	1	C				-							
	1 SB 5			3	V												
1444 -	7 SB7		3	14													
1120 -	TORI	2		FX				_							-		
VII -	1 301		<u> </u>	P			+					-	-		-		
	1201	4	5	A							6		_			£	
409	7 SB2	20	6	X													1
1320 -	7 SB ?	21	7	8													
345	7 SB -	22	8	9		1									1		200 - 200 M (200
BE	7 SB	23,	9	IØ								1					
Additional Instructions: OLPCS	e eur BGD	DE PACIAGE	SIN ALO	SAM ALE	21	(	270	Y	( )		Anto	~			A comes )		
(field campler) attest to the validity and authent					-	Le i	pic		L GF	One	JACO .	,00	~ / :	- MU	aves		
late or time of collection is considered fraud and i	may be grounds for legal actio	n. <u>Sampled by:</u>	liy mislabelling the	sample locati	on,			F	bampies r	ice at a	n avg tem	preserva Ip above	0 but less	t be received s than 6 °C	on subsequent day	y are sampled o s.	r receive
Relinquished by: (Signature)	Date Time	Received by: Signature	2)	Date	1 ·	Time	1.	-		( ) (		l	ab Us	se Only			Particia.
nen to	5/2014 18.1	3 Amb	the	5/26	22	18	315		Receiv	ved o	on ice:	6	DIN				
Relinquished by: (Signature)	Date Time	Received by: (Signature	2)	Date	22	Time	40					t					
Poling(i/had but(gapture)	5-40-CC /84	to the st	5	2-66-4	2	18.	:70	-	<u>T1</u>		1	<u>T2</u>			<u>T3</u>		
	5-27-22 17:3	7 auto	hta	5/27/2	2	12:	37		AVG T	emp	°c 4	f					
Sample Matrix: S - Soil, Sd Solid, Sg - Sludge, A -	Aqueous, <b>O</b> - Other			Container	Type:	g - g	lass, p	- pol	ly/plas	tic, a	g - aml	oer gla	iss, v -	VOA			
Note: Samples are discarded 30 days after r	esults are reported unless	other arrangements are made.	Hazardous san	nples will be	returr	ned to	client	or dis	sposed	of at	the clie	nt expe	ense.	The repo	rt for the analy	sis of the ab	ove
	received by the laboratory	with this COC. The liability of t	he laboratory is	limited to th	ne amo	ount p	aid for	on th	ne repo	rt.	_						
samples is applicable only to those samples								-									
samples is applicable only to those samples							1		6	122	200 (C-0)			0			
samples is applicable only to those samples								2	3	F		יר	Vi	ir	ot	0	-
samples is applicable only to those samples			Dago 01	of 22			(	2	3	E	<b>P</b> I	יר	Vİ	ir	ot	ec	

## **Envirotech Analytical Laboratory**

## Sample Receipt Checklist (SRC)

Client:	Armstrong	Date Received:	05/27/22 12	2:37		Work Order ID:	E205154
Phone:	(575) 624-2420	Date Logged In:	05/27/22 14	4:33		Logged In By:	Caitlin Christian
Email:		Due Date:	06/03/22 1	7:00 (4 day TAT)			
<u>Chain of (</u>	Custody (COC)						
1. Does th	e sample ID match the COC?	1 4 600	Yes				
2. Does th	e number of samples per sampling site location mate	h the COC	Yes				
3. Were sa	imples dropped off by client or carrier?		Yes	Carrier: <u>Co</u>	ourrier		
4. Was the	COC complete, i.e., signatures, dates/times, request	ed analyses?	Yes				
5. Were al	I samples received within holding time? Note: Analysis, such as pH which should be conducted in t i.e, 15 minute hold time, are not included in this disucssior	the field, 1.	Yes			Commen	ts/Resolution
Sample T	urn Around Time (TAT)			Г			
6. Did the	COC indicate standard TAT, or Expedited TAT?		Yes				
Sample C	ooler						
7. Was a s	ample cooler received?		Yes				
8. If yes, v	vas cooler received in good condition?		Yes				
9. Was the	sample(s) received intact, i.e., not broken?		Yes				
10. Were c	custody/security seals present?		No				
11. If yes,	were custody/security seals intact?		NA				
12. Was the	e sample received on ice? If yes, the recorded temp is 4°C, i. Note: Thermal preservation is not required, if samples are a minutes of sampling	.e., 6°±2°C received w/i 15	Yes				
13. If no v	risible ice, record the temperature. Actual sample t	emperature: <u>4°</u>	<u>C</u>				
Sample C	ontainer						
14. Are aq	ueous VOC samples present?		Yes				
15. Are V	OC samples collected in VOA Vials?		Yes				
16. Is the l	head space less than 6-8 mm (pea sized or less)?		Yes				
17. Was a	trip blank (TB) included for VOC analyses?		Yes				
18. Are no	on-VOC samples collected in the correct containers?		Yes				
19. Is the a	ppropriate volume/weight or number of sample containe	ers collected?	Yes				
<u>Field Lab</u>	<u>el</u>						
20. Were f	field sample labels filled out with the minimum infor	mation:					
Sa	imple ID?		Yes				
Da	ate/Time Collected?		Yes	_			
Samula P	reservation		Yes				
21 Does t	he COC or field labels indicate the samples were pre	served?	Ves				
21. Does t 22. Are sa	mple(s) correctly preserved?		Ves				
24. Is lab	filteration required and/or requested for dissolved me	etals?	No				
Multinha	se Samnle Matrix						
26 Does t	he sample have more than one phase i.e. multiphase	<u>-</u> ?	No				
20. Does t 27. If yes.	does the COC specify which phase(s) is to be analyz	ved?	NA				
C			117				
Subcontra		.9	λτ.				
$2\delta$ . Are sa	subcontract laboratory specified by the client and if	/: so.who?	INO NA	Subcontract I at.	<b>n</b> 0		
27. was a	subcontract laboratory specificu by the chefit and his	50 WIIU:	11/1	Subcontract Lab:	ца		
Client In	struction						

Signature of client authorizing changes to the COC or sample disposition.



envirotech Inc.

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5796 U.S. Hwy 64 Farmington, NM 87401

Phone: (505) 632-1881 Envirotech-inc.com





# envirotech

**Practical Solutions for a Better Tomorrow** 

# **Analytical Report**

## West Pearl Queen

Project Name: Aecwpea_SPJ_21

• - -

Work Order: E304026

Job Number: 20071-0001

Received: 4/7/2023

Revision: 2

Report Reviewed By:

Walter Hinchman Laboratory Director 4/14/23

Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise. Statement of Data Authenticity: Envirotech Inc, attests the data reported has not been altered in any way. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc. Envirotech Inc, holds the Utah TNI certification NM00979 for data reported. Envirotech Inc, holds the Texas TNI certification T104704557 for data reported. Date Reported: 4/14/23

Chris Cortez 2904 W 2nd St Roswell, NM 88201

Project Name: Aecwpea_SPJ_21 Workorder: E304026 Date Received: 4/7/2023 8:15:00AM

Chris Cortez,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 4/7/2023 8:15:00AM, under the Project Name: Aecwpea_SPJ_21.

The analytical test results summarized in this report with the Project Name: Aecwpea_SPJ_21 apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman Laboratory Director Office: 505-632-1881 Cell: 775-287-1762 whinchman@envirotech-inc.com

Field Offices:

Southern New Mexico Area Lynn Jarboe

Technical Representative/Client Services Office: 505-421-LABS(5227) Cell: 505-320-4759 ljarboe@envirotech-inc.com

Raina Schwanz Laboratory Administrator Office: 505-632-1881 rainaschwanz@envirotech-inc.com Alexa Michaels Sample Custody Officer Office: 505-632-1881 labadmin@envirotech-inc.com

West Texas Midland/Odessa Area Rayny Hagan Technical Representative Office: 505-421-LABS(5227)

Envirotech Web Address: www.envirotech-inc.com



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#### **Sample Summary**

		Sample Sum	mary					
West Pearl Queen 2904 W 2nd St		Project Name: Project Number:	Aecwpea_SPJ_21 20071-0001		Reported:			
Roswell NM, 88201		Project Manager:	Chris Cortez		04/14/23 11:08			
Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container			
SB-2	E304026-01A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-01B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-01C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-01D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-4	E304026-02A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-02B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-02C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-02D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-7	E304026-03A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-03B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-03C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-03D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-13	E304026-04A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-04B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-04C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-04D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-14	E304026-05A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-05B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-05C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-05D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-20	E304026-06A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-06B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-06C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
	E304026-06D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-21	E304026-07A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-07B	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
	E304026-07C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
	E304026-07D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL; HCl			
B-22	E304026-08A	Aqueous	04/05/23	04/07/23	Poly 125mL			
	E304026-08R	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
	E304026-08C	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
	E304026-08D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
B-23	F304026-09A	Aqueous	04/05/23	04/07/23	Poly 125mL			
<i>,</i>	F304026-07A	Aqueous	04/05/23	04/07/23	VOA Vial. 40mL HCl			
	E304026-09D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
	E304026-09D	Aqueous	04/05/23	04/07/23	VOA Vial, 40mL: HCl			
R-5	E20/026 10 A	Aqueous	04/05/23	04/07/23	Poly 125mI			
<b>U-U</b>	E304020-10A E20/026 10D	Aqueous	04/05/23	04/07/23	VOA Vial 40mL · HCl			
	E304020-10B	Aqueous	04/05/23	04/07/23	VOA Vial 40mL HCl			
	E304026-10C	Aqueous	04/05/22	04/07/22	VOA Vial 40mL HOI			
	E304026-10D	Aqueous	04/05/23	04/07/23	VOA Viai, 40mL; HCl			



West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
		SB-2				
	E30	4026-01				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	40.0	1	04/13/23	04/13/23	G1c
Benzene	ND	1.00	1	04/13/23	04/13/23	
Bromobenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodichloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromoform	ND	1.00	1	04/13/23	04/13/23	
Bromomethane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon Tetrachloride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
Chloromethane	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1.2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1.3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1.4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1.1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1.1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1.2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1.2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1.3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2.2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1 1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1 3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans 1.3 Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Discorronyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETRE)	ND	1.00	1	04/13/23	04/13/23	
Heyachlorobutadiene	ND	5.00	-	04/13/23	04/13/23	
2-Hevanone	ND	20.0	1	04/13/23	04/13/23	
2-HCAMUNE	ND	1.00	1	04/13/23	04/13/23	
A Isopropylucitzene	ND	1.00	1	04/13/23	04/13/23	
2 Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
2-Buanone (MEK) Mathylana Chlorida	ND	2 0.0	1	04/13/23	04/13/23	
wiemyrene Chionae		2.00	1	0	0.10.20	

## Sample Data



## Sample Data

	Da.	mpic D	ala						
West Pearl Queen	Project Name:	Aeo	cwpea_SPJ_21						
2904 W 2nd St	Project Number	200	20071-0001			Reported:			
Roswell NM, 88201	Project Manager	r: Chi	Chris Cortez			4/14/2023 11:08:40AM			
		SB-2							
	E	304026-01							
Reporting									
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes			
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analys	st: IY		Batch: 2315002			
1-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23				
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23				
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23				
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23				
Naphthalene	ND	5.00	1	04/13/23	04/13/23				
n-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23				
Styrene	ND	1.00	1	04/13/23	04/13/23				
tert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23				
1,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23				
1,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23				
Tetrachloroethene	ND	1.00	1	04/13/23	04/13/23				
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23				
1,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23				
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23				
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23				
Trichloroethene	ND	1.00	1	04/13/23	04/13/23				
Trichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23				
1,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23				
1,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23				
1,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23				
Toluene	ND	1.00	1	04/13/23	04/13/23				
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23				
o-Xylene	ND	1.00	1	04/13/23	04/13/23				
p.m-Xylene	ND	2.00	1	04/13/23	04/13/23				
Total Xylenes	ND	1.00	1	04/13/23	04/13/23				
Surrogate: Bromofluorobenzene	9	2.7 %	70-130	04/13/23	04/13/23	-			
Surrogate: 1,2-Dichloroethane-d4	9	9.3 %	70-130	04/13/23	04/13/23				
Surrogate: Toluene-d8	i	102 %	70-130	04/13/23	04/13/23				



## Sample Data

		L				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	umber: 20071-0001				Reported:
Roswell NM, 88201	Project Manager:	Chris (	Cortez			4/14/2023 11:08:40AM
		SB-2				
	E3	04026-01				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	Batch: 2314052					
Chloride	81.3	40.0	20	04/07/23	04/07/23	
Nitrate-N	ND	5.00	20	04/07/23 08:14	04/07/23 10:57	



## Sample Data

	Dam	pic Da	i cu			
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	B-4				
	E304	4026-02				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Valatila Organia Compounds by EPA 8260P	11g/L	uø/L	Analyst	: IY		Batch: 2315002
Volatile Organic Compounds by EFA 8200B	ND	40.0	1	04/13/23	04/13/23	Glb
Benzene	ND	1.00	1	04/13/23	04/13/23	
Bromohenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodichloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromoform	ND	1.00	1	04/13/23	04/13/23	
Bromomethane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon Tetrachloride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
Chloromethane	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1,2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1,1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Diisopropyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETBE)	ND	1.00	1	04/13/23	04/13/23	
Hexachlorobutadiene	ND	5.00	1	04/13/23	04/13/23	
2-Hexanone	ND	20.0	1	04/13/23	04/13/23	
Isopropylbenzene	ND	1.00	1	04/13/23	04/13/23	
4-Isopropyltoluene	ND	1.00	1	04/13/23	04/13/23	
2-Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
Methylene Chloride	ND	2.00	1	04/13/23	04/13/23	
1-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	



## Sample Data

	Jui		uta			
West Pearl Queen	Project Name:	Aec	wpea_SPJ_21			
2904 W 2nd St	Project Number:	2007	20071-0001			Reported:
Roswell NM, 88201	Project Manager:	r: Chris Cortez				4/14/2023 11:08:40AM
		SB-4				
	E3	04026-02				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23	
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23	
Naphthalene	ND	5.00	1	04/13/23	04/13/23	
n-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23	
Styrene	ND	1.00	1	04/13/23	04/13/23	
tert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23	
1,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
Tetrachloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
Trichloroethene	ND	1.00	1	04/13/23	04/13/23	
Trichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23	
1,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23	
1,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23	
1,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Toluene	ND	1.00	1	04/13/23	04/13/23	
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23	
o-Xylene	ND	1.00	1	04/13/23	04/13/23	
p,m-Xylene	ND	2.00	1	04/13/23	04/13/23	
Total Xylenes	ND	1.00	1	04/13/23	04/13/23	
Surrogate: Bromofluorobenzene	92	.6%	70-130	04/13/23	04/13/23	
Surrogate: 1,2-Dichloroethane-d4	10	)3 %	70-130	04/13/23	04/13/23	
Surrogate: Toluene-d8	10	01 %	70-130	04/13/23	04/13/23	



## Sample Data

		I						
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21					
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:		
Roswell NM, 88201	Project Manager:	Chris (	Cortez		4/14/2023 11:08:40AM			
		SB-4						
	E3(	04026-02						
		Reporting						
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes		
Anions by EPA 300.0/9056A	mg/L	mg/L	Analy	st: BA		Batch: 2314052		
Chloride	86.2	2.00	1	04/07/23	04/07/23			
Nitrate-N	ND	0.250	1	04/07/23 08:14	04/07/23 10:47			



## Sample Data

	Sam		<i>ца</i>			
West Pearl Queen	Project Name:	bea_SPJ_21				
2904 W 2nd St	Project Number:	20071-	-0001			Reported:
Roswell NM, 88201	Project Manager:	Chris (	Cortez	4/14/2023 11:08:40AM		
	S	<b>B-7</b>				
	E304	026-03				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	40.0	1	04/13/23	04/13/23	Gle
Benzene	9.28	1.00	1	04/13/23	04/13/23	
Bromobenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodichloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromoform	ND	1.00	1	04/13/23	04/13/23	
Bromomethane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon Tetrachloride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
Chloromethane	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1.2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1.3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1.4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1.1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1.1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1.2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1.2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1.2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1.3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2.2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1.1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans-1.3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Diisopropyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	5.34	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETBE)	ND	1.00	1	04/13/23	04/13/23	
Hexachlorobutadiene	ND	5.00	1	04/13/23	04/13/23	
2-Hexanone	ND	20.0	1	04/13/23	04/13/23	
Isopropylbenzene	2.26	1.00	1	04/13/23	04/13/23	
4-Isopropyltoluene	ND	1.00	1	04/13/23	04/13/23	
2-Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
Methylene Chloride	ND	2.00	1	04/13/23	04/13/23	
1-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
=						



## Sample Data

	Sai	mpic D	uta			
West Pearl Queen	Project Name:	Aec	wpea_SPJ_21			
2904 W 2nd St	Project Number:	2007	20071-0001			Reported:
Roswell NM, 88201	Project Manager	Chri	s Cortez			4/14/2023 11:08:40AM
		SB-7				
	E	304026-03				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23	
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23	
Naphthalene	ND	5.00	1	04/13/23	04/13/23	
n-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23	
Styrene	ND	1.00	1	04/13/23	04/13/23	
tert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23	
1,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
Tetrachloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
Trichloroethene	ND	1.00	1	04/13/23	04/13/23	
Trichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23	
1,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23	
1,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23	
1,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Toluene	ND	1.00	1	04/13/23	04/13/23	
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23	
o-Xylene	ND	1.00	1	04/13/23	04/13/23	
p,m-Xylene	ND	2.00	1	04/13/23	04/13/23	
Total Xylenes	ND	1.00	1	04/13/23	04/13/23	
Surrogate: Bromofluorobenzene	95	5.5 %	70-130	04/13/23	04/13/23	
Surrogate: 1,2-Dichloroethane-d4	99	0.3 %	70-130	04/13/23	04/13/23	
Surrogate: Toluene-d8	1	02 %	70-130	04/13/23	04/13/23	



## Sample Data

	Sum	pre Da				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	5 <b>B-7</b>				
	E30	4026-03				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: BA		Batch: 2314052
Chloride	27.0	4.00	2	04/07/23	04/07/23	
Nitrate-N	ND	0.500	2	04/07/23 08:14	04/07/23 10:18	H2


### Sample Data

	Sam	pic Dat	a			
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	B-13				
	E304	4026-04				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Valatile Organic Compounds by FPA 8260R	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	40.0	1	04/13/23	04/13/23	G1d
Benzene	ND	1.00	1	04/13/23	04/13/23	
Bromobenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodichloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromoform	ND	1.00	1	04/13/23	04/13/23	
Bromomethane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon Tetrachloride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
Chloromethane	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1,2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1.3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1,1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1.1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Diisopropyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETBE)	ND	1.00	1	04/13/23	04/13/23	
Hexachlorobutadiene	ND	5.00	1	04/13/23	04/13/23	
2-Hexanone	ND	20.0	1	04/13/23	04/13/23	
Isopropylbenzene	ND	1.00	1	04/13/23	04/13/23	
4-Isopropyltoluene	ND	1.00	1	04/13/23	04/13/23	
2-Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
Methylene Chloride	ND	2.00	1	04/13/23	04/13/23	
1-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	

## Sample Data

	Sal	npic D	ala			
West Pearl Queen 2904 W 2nd St Roswell NM, 88201	Project Name: Project Number: Project Manager:	Aec 200' Chri	wpea_SPJ_21 71-0001 is Cortez			<b>Reported:</b> 4/14/2023 11:08:40AM
	E	SB-13				
	E.	04020-04				
Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	:: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23	
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23	
Naphthalene	ND	5.00	1	04/13/23	04/13/23	
n-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23	
Styrene	ND	1.00	1	04/13/23	04/13/23	
tert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23	
1,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
Tetrachloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
Trichloroethene	ND	1.00	1	04/13/23	04/13/23	
Trichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23	
1,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23	
1,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23	
1,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Toluene	ND	1.00	1	04/13/23	04/13/23	
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23	
o-Xylene	ND	1.00	1	04/13/23	04/13/23	
p,m-Xylene	ND	2.00	1	04/13/23	04/13/23	
Total Xylenes	ND	1.00	1	04/13/23	04/13/23	
Surrogate: Bromofluorobenzene	93	8.4 %	70-130	04/13/23	04/13/23	
Surrogate: 1,2-Dichloroethane-d4	1	02 %	70-130	04/13/23	04/13/23	
Surrogate: Toluene-d8	1	00 %	70-130	04/13/23	04/13/23	



### Sample Data

		T				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:
Roswell NM, 88201			4/14/2023 11:08:40AM			
	S	SB-13				
	E3(	4026-04				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: BA		Batch: 2314052
Chloride	424	20.0	10	04/07/23	04/07/23	
Nitrate-N	ND	2.50	10	04/07/23 08:14	04/07/23 11:07	



### Sample Data

	Sum	pie Dat				
West Pearl Queen	Project Name:	Aecwpe	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-0	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	ortez			4/14/2023 11:08:40AM
	S	B-14				
	E304	4026-05				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
	л	/1	A	. IV		D. 1. 2215002
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Anaiyst	04/12/22	04/12/22	Batch: 2315002
Acetone	ND	40.0	1	04/13/23	04/13/23	Gle
Benzene	ND	1.00	1	04/13/23	04/13/23	
Bromobenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodicniorometnane	ND	1.00	1	04/13/23	04/13/23	
Bromonorm	ND	2.00	1	04/13/23	04/13/23	
Bromometnane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon letrachioride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	2.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1,2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
I,4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1,1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Diisopropyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETBE)	ND	1.00	1	04/13/23	04/13/23	
Hexachlorobutadiene	ND	5.00	1	04/13/23	04/13/23	
2-Hexanone	ND	20.0	1	04/13/23	04/13/23	
Isopropylbenzene	ND	1.00	1	04/13/23	04/13/23	
4-Isopropyltoluene	ND	1.00	1	04/13/23	04/13/23	
2-Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
Methylene Chloride	ND	2.00	1	04/13/23	04/13/23	
l-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	



## Sample Data

	Sal	npic D	ala			
West Pearl Queen 2904 W 2nd St	Project Name: Project Number:	Aec. 2007	wpea_SPJ_21 71-0001			Reported:
Roswell NM, 88201	Project Manager:	ger: Chris Cortez				4/14/2023 11:08:40AM
		SB-14				
	E3	04026-05				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23	
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23	
Naphthalene	ND	5.00	1	04/13/23	04/13/23	
1-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23	
Styrene	ND	1.00	1	04/13/23	04/13/23	
ert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23	
,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23	
Fetrachloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23	
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23	
Frichloroethene	ND	1.00	1	04/13/23	04/13/23	
Frichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23	
,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23	
,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23	
,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Foluene	ND	1.00	1	04/13/23	04/13/23	
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23	
p-Xylene	ND	1.00	1	04/13/23	04/13/23	
, m-Xylene	ND	2.00	1	04/13/23	04/13/23	
Total Xylenes	ND	1.00	1	04/13/23	04/13/23	
Surrogate: Bromofluorobenzene	92	.2 %	70-130	04/13/23	04/13/23	
Surrogate: 1,2-Dichloroethane-d4	10	03 %	70-130	04/13/23	04/13/23	
Surrogate: Toluene-d8	10	02 %	70-130	04/13/23	04/13/23	



### Sample Data

		L				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:
Roswell NM, 88201	Project Manager:	Chris (		4/14/2023 11:08:40AM		
	S	B-14				
	E30	4026-05				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analy	st: BA		Batch: 2314052
Chloride	388	40.0	20	04/07/23	04/07/23	
Nitrate-N	ND	5.00	20	04/07/23 08:14	04/07/23 11:27	



### Sample Data

		r				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number: 20071-0001					Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	B-20	-		-	
	E304	4026-06				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Valatile Organic Compounds by EPA 8260B	uø/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	200	5	04/10/23	04/10/23	Date: 2010002
Benzene	ND	5.00	5	04/10/23	04/10/23	
Bromobenzene	ND	5.00	5	04/10/23	04/10/23	
Bromochloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromodichloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromoform	ND	5.00	5	04/10/23	04/10/23	
Bromomothana	ND	10.0	5	04/10/23	04/10/23	
n Rutyl Banzana	ND	5.00	5	04/10/23	04/10/23	
		5.00	5	04/10/23	04/10/23	
sec-bulyIDenzene		5.00	5	04/10/23	04/10/23	
tert-Butylbenzene		5.00	5	04/10/22	04/10/23	
Carbon letrachloride	ND	5.00	5	04/10/22	04/10/23	
Chlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Chloroethane	ND	10.0	5	04/10/23	04/10/23	
Chloroform	ND	25.0	5	04/10/23	04/10/23	
Chloromethane	ND	10.0	5	04/10/23	04/10/23	
2-Chlorotoluene	ND	5.00	5	04/10/23	04/10/23	
4-Chlorotoluene	ND	5.00	5	04/10/23	04/10/23	
Dibromochloromethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	25.0	5	04/10/23	04/10/23	
1,2-Dibromoethane (EDB)	ND	10.0	5	04/10/23	04/10/23	
Dibromomethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
1,3-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
1,4-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Dichlorodifluoromethane (Freon-12)	ND	10.0	5	04/10/23	04/10/23	
1,1-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
cis-1,2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
trans-1.2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
1.2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1.3-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
2 2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1 1-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
cis_1_3_Dichloronronene	ND	5.00	5	04/10/23	04/10/23	
trans 1.3 Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
Discontrol Ether (DIPE)		5.00	5	04/10/23	04/10/23	
Ethylhongono		5.00	5	04/10/23	04/10/23	
Eurytoenzene		5.00	5	04/10/23	04/10/23	
Emyr tert-Butyr Einer (ETBE)		25.00	5	04/10/23	04/10/23	
nexachiorobutadiene		23.0 100	5	04/10/22	04/10/22	
2-Hexanone	ND	100	5	04/10/23	04/10/23	
Isopropylbenzene	ND	5.00	5	04/10/23	04/10/23	
4-Isopropyltoluene	ND	5.00	5	04/10/23	04/10/23	
2-Butanone (MEK)	ND	100	5	04/10/23	04/10/23	
Methylene Chloride	187	10.0	5	04/10/23	04/10/23	
1-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	
2-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	



## Sample Data

	Jan	npic Da	ata			
West Pearl Queen	Project Name:	Aec	wpea_SPJ_21			
2904 W 2nd St	Project Number:	2007	20071-0001			Reported:
Roswell NM, 88201	Project Manager:	ger: Chris Cortez				4/14/2023 11:08:40AM
		SB-20				
	E3	04026-06				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	100	5	04/10/23	04/10/23	
Methyl tert-Butyl Ether (MTBE)	ND	5.00	5	04/10/23	04/10/23	
Naphthalene	ND	25.0	5	04/10/23	04/10/23	
n-Propyl Benzene	ND	5.00	5	04/10/23	04/10/23	
Styrene	ND	5.00	5	04/10/23	04/10/23	
tert-Amyl Methyl ether (TAME)	ND	5.00	5	04/10/23	04/10/23	
1,1,1,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
Tetrachloroethene	ND	5.00	5	04/10/23	04/10/23	
1,2,3-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,2,4-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,1,1-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
Trichloroethene	ND	5.00	5	04/10/23	04/10/23	
Trichlorofluoromethane (Freon-11)	ND	10.0	5	04/10/23	04/10/23	
1,2,3-Trichloropropane	ND	10.0	5	04/10/23	04/10/23	
1,2,4-Trimethylbenzene	ND	25.0	5	04/10/23	04/10/23	
1,3,5-Trimethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Toluene	ND	5.00	5	04/10/23	04/10/23	
Vinyl chloride	ND	10.0	5	04/10/23	04/10/23	
o-Xylene	ND	5.00	5	04/10/23	04/10/23	
p,m-Xylene	ND	10.0	5	04/10/23	04/10/23	
Total Xylenes	ND	5.00	5	04/10/23	04/10/23	
Surrogate: Bromofluorobenzene	91	.0 %	70-130	04/10/23	04/10/23	
Surrogate: 1,2-Dichloroethane-d4	10	)6 %	70-130	04/10/23	04/10/23	
Surrogate: Toluene-d8	10	00 %	70-130	04/10/23	04/10/23	



### Sample Data

		-p					
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21				
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:	
Roswell NM, 88201	Project Manager:	Project Manager: Chris Cortez					
	S	SB-20					
	E30	4026-06					
		Reporting					
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: BA		Batch: 2314052	
Chloride	61700	2000	1000	04/07/23	04/07/23		
Nitrate-N	ND	250	1000	04/07/23 08:14	04/07/23 09:59		



### Sample Data

	~~~	r-• - •				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris (Cortez			4/14/2023 11:08:40AM
	SI	B-21				
	E304	1026-07				
		Reporting				
Analyte	Result	Limit	Dilution	Prenared	Analyzed	Notes
	result	Lant	Diración			1.0.00
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	IY		Batch: 2315002
Acetone	ND	200	5	04/10/23	04/10/23	Gla
Benzene	ND	5.00	5	04/10/23	04/10/23	
Bromobenzene	ND	5.00	5	04/10/23	04/10/23	
Bromochloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromodichloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromoform	ND	5.00	5	04/10/23	04/10/23	
Bromomethane	ND	10.0	5	04/10/23	04/10/23	
n-Butyl Benzene	ND	5.00	5	04/10/23	04/10/23	
sec-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
tert-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
Carbon Tetrachloride	ND	5.00	5	04/10/23	04/10/23	
Chlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Chloroethane	ND	10.0	5	04/10/23	04/10/23	
Chlorotorm	ND	25.0	5	04/10/23	04/10/23	
Chloromethane	ND	10.0	5	04/10/23	04/10/23	
2-Uniorotoluene	ND	5.00	5 5	04/10/23	04/10/23	
4-Uniorotoluene	ND	5.00	5	04/10/23	04/10/23	
Dipromocniorometnane		25.00	5	04/10/23	04/10/23	
1,2-Dibromo-3-chloropropane (DBCP)		23.0	5	04/10/23	04/10/23	
1,2-Dioromoeinane (EDB)		5.00	5	04/10/23	04/10/23	
1 2 Dioklarahanzana		5.00	5	04/10/23	04/10/23	
1,2-Dichlorobenzene		5.00	5	04/10/23	04/10/23	
1.3-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Diablerodifluoromethano (From 12)	ND	10.0	5	04/10/23	04/10/23	
1 1-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1.2-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1.2 Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
cis-1 2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
trans-1.2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
1.2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1.3-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
2.2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1.1-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
cis-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
trans-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
Diisopropyl Ether (DIPE)	ND	5.00	5	04/10/23	04/10/23	
Ethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Ethyl tert-Butyl Ether (ETBE)	ND	5.00	5	04/10/23	04/10/23	
Hexachlorobutadiene	ND	25.0	5	04/10/23	04/10/23	
2-Hexanone	ND	100	5	04/10/23	04/10/23	
Isopropylbenzene	ND	5.00	5	04/10/23	04/10/23	
4-Isopropyltoluene	ND	5.00	5	04/10/23	04/10/23	
2-Butanone (MEK)	ND	100	5	04/10/23	04/10/23	
Methylene Chloride	56.6	10.0	5	04/10/23	04/10/23	
1-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	
2-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	



Sample Data

	Da.	mpic D	ata			
West Pearl Queen	Project Name:	Aec	wpea_SPJ_21			
2904 W 2nd St	Project Number	: 200	20071-0001			Reported:
Roswell NM, 88201	Project Manager	ger: Chris Cortez				4/14/2023 11:08:40AM
		SB-21				
	E	304026-07				
		Reporting	Ţ.			
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	100	5	04/10/23	04/10/23	
Methyl tert-Butyl Ether (MTBE)	ND	5.00	5	04/10/23	04/10/23	
Naphthalene	ND	25.0	5	04/10/23	04/10/23	
n-Propyl Benzene	ND	5.00	5	04/10/23	04/10/23	
Styrene	ND	5.00	5	04/10/23	04/10/23	
tert-Amyl Methyl ether (TAME)	ND	5.00	5	04/10/23	04/10/23	
1,1,1,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
Tetrachloroethene	ND	5.00	5	04/10/23	04/10/23	
1,2,3-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,2,4-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,1,1-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
Trichloroethene	ND	5.00	5	04/10/23	04/10/23	
Trichlorofluoromethane (Freon-11)	ND	10.0	5	04/10/23	04/10/23	
1,2,3-Trichloropropane	ND	10.0	5	04/10/23	04/10/23	
1,2,4-Trimethylbenzene	ND	25.0	5	04/10/23	04/10/23	
1,3,5-Trimethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Toluene	ND	5.00	5	04/10/23	04/10/23	
Vinyl chloride	ND	10.0	5	04/10/23	04/10/23	
o-Xylene	ND	5.00	5	04/10/23	04/10/23	
p,m-Xylene	ND	10.0	5	04/10/23	04/10/23	
Total Xylenes	ND	5.00	5	04/10/23	04/10/23	
Surrogate: Bromofluorobenzene	8	9.7 %	70-130	04/10/23	04/10/23	
Surrogate: 1,2-Dichloroethane-d4	Ĺ	103 %	70-130	04/10/23	04/10/23	
Surrogate: Toluene-d8	i	100 %	70-130	04/10/23	04/10/23	



Sample Data

		T					
West Pearl Queen	Project Name:	Aecwp	bea_SPJ_21				
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:	
Roswell NM, 88201	Project Manager:	Project Manager: Chris Cortez					
	S	B-21					
	E30	4026-07					
		Reporting					
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes	
Anions by EPA 300.0/9056A	mg/L	mg/L	Analy		Batch: 2314052		
Chloride	94400	2000	1000	04/07/23	04/07/23		
Nitrate-N	ND	250	1000	04/07/23 08:14	04/07/23 12:07		



Sample Data

	Sam	pie Da	la			
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	B-22				
	E304	4026-08				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	200	5	04/10/23	04/10/23	G1a
Benzene	ND	5.00	5	04/10/23	04/10/23	
Bromobenzene	ND	5.00	5	04/10/23	04/10/23	
Bromochloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromodichloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromoform	ND	5.00	5	04/10/23	04/10/23	
Bromomethane	ND	10.0	5	04/10/23	04/10/23	
n-Butvl Benzene	ND	5.00	5	04/10/23	04/10/23	
sec-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
tert-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
Carbon Tetrachloride	ND	5.00	5	04/10/23	04/10/23	
Chlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Chloroethane	ND	10.0	5	04/10/23	04/10/23	
Chloroform	ND	25.0	5	04/10/23	04/10/23	
Chloromethane	ND	10.0	5	04/10/23	04/10/23	
2-Chlorotoluene	ND	5.00	5	04/10/23	04/10/23	
4-Chlorotaluene	ND	5.00	5	04/10/23	04/10/23	
Dibromochloromethane	ND	5.00	5	04/10/23	04/10/23	
1 2-Dibromo-3-chloropropage (DBCP)	ND	25.0	5	04/10/23	04/10/23	
1.2-Dibromoethane (EDB)	ND	10.0	5	04/10/23	04/10/23	
Dibromomethane	ND	5.00	5	04/10/23	04/10/23	
1.2 Dichlorohenzene	ND	5.00	5	04/10/23	04/10/23	
1.3 Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
1.4 Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Dichlorodifluoromethane (Freen 12)	ND	10.0	5	04/10/23	04/10/23	
1.1 Dishlaraathara	ND	5.00	5	04/10/23	04/10/23	
1.2 Dichloroothane	ND	5.00	5	04/10/23	04/10/23	
1.1 Dishlaraathara	ND	5.00	5	04/10/23	04/10/23	
rig 1.2 Disklargethere	ND	5.00	5	04/10/23	04/10/23	
trans 1.2 Disklars there	ND	5.00	5	04/10/23	04/10/23	
1.2 Dichlargeronge	ND	5.00	5	04/10/23	04/10/23	
1.2 Dichlemenenene	ND	5.00	5	04/10/23	04/10/23	
2.2 Dishlarananana	ND	5.00	5	04/10/23	04/10/23	
2,2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
I,I-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
cis-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
trans-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
Disopropyl Ether (DIPE)	ND	5.00	5	04/10/23	04/10/23	
Ethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Einyi ieri-Butyi Etner (EIBE)		25.00	5	04/10/22	0//10/23	
nexachiorobutadiene	ND	∠3.0 100	5	04/10/22	04/10/22	
2-Hexanone	ND	100	5	04/10/22	04/10/23	
Isopropylbenzene	ND	5.00	5	04/10/22	04/10/23	
4-isopropyltoluene	ND	5.00	5	04/10/22	04/10/23	
2-Butanone (MEK)	ND	100	5	04/10/23	04/10/23	
Methylene Chloride	254	10.0	5	04/10/23	04/10/23	
I-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	
2-Methylnaphthalene	ND	50.0	5	04/10/23	04/10/23	



Sample Data

	Sa	mpic D	ala										
West Pearl Queen 2904 W 2nd St Roswell NM, 88201	Accwpea_SPJ_214 W 2nd StProject Number:20071-0001well NM, 88201Project Manager:Chris Cortez					Reported: 4/14/2023 11:08:40AM							
SB-22 E304026-08													
		Reporting											
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes							
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analys	t: IY		Batch: 2315002							
4-Methyl-2-pentanone (MIBK)	ND	100	5	04/10/23	04/10/23								
Methyl tert-Butyl Ether (MTBE)	ND	5.00	5	04/10/23	04/10/23								
Naphthalene	ND	25.0	5	04/10/23	04/10/23								
n-Propyl Benzene	ND	5.00	5	04/10/23	04/10/23								
Styrene	ND	5.00	5	04/10/23	04/10/23								
tert-Amyl Methyl ether (TAME)	ND	5.00	5	04/10/23	04/10/23								
1,1,1,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23								
1,1,2,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23								
Tetrachloroethene	ND	5.00	5	04/10/23	04/10/23								
1,2,3-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23								
1,2,4-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23								
1,1,1-Trichloroethane	ND	5.00	5	04/10/23	04/10/23								
1,1,2-Trichloroethane	ND	5.00	5	04/10/23	04/10/23								
Trichloroethene	ND	5.00	5	04/10/23	04/10/23								
Trichlorofluoromethane (Freon-11)	ND	10.0	5	04/10/23	04/10/23								
1,2,3-Trichloropropane	ND	10.0	5	04/10/23	04/10/23								
1,2,4-Trimethylbenzene	ND	25.0	5	04/10/23	04/10/23								
1,3,5-Trimethylbenzene	ND	5.00	5	04/10/23	04/10/23								
Toluene	ND	5.00	5	04/10/23	04/10/23								
Vinyl chloride	ND	10.0	5	04/10/23	04/10/23								
o-Xylene	ND	5.00	5	04/10/23	04/10/23								
p,m-Xylene	ND	10.0	5	04/10/23	04/10/23								
Total Xylenes	ND	5.00	5	04/10/23	04/10/23								
Surrogate: Bromofluorobenzene	9	1.5 %	70-130	04/10/23	04/10/23								
Surrogate: 1,2-Dichloroethane-d4	i	105 %	70-130	04/10/23	04/10/23								
Surrogate: Toluene-d8	i	101 %	70-130	04/10/23	04/10/23								



Sample Data

		- I				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	20071-0001			Reported:
Roswell NM, 88201	Project Manager:	Chris (Cortez			4/14/2023 11:08:40AM
	5	SB-22				
	E3(04026-08				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: BA		Batch: 2314052
Chloride	124000	2000	1000	04/07/23	04/07/23	
Nitrate-N	ND	250	1000	04/07/23 08:14	04/07/23 10:37	



Sample Data

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West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			n / 1
2904 W 2nd St	Project Number:	0001			Reported:	
Koswell NM, 88201	Project Manager:	Chris C	ortez			4/14/2023 11:08:40AM
	SI	3-23				
	E304	026-09				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	200	5	04/10/23	04/10/23	Gle
Benzene	ND	5.00	5	04/10/23	04/10/23	
Bromobenzene	ND	5.00	5	04/10/23	04/10/23	
Bromochloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromodichloromethane	ND	5.00	5	04/10/23	04/10/23	
Bromoform	ND	5.00	5	04/10/23	04/10/23	
Bromomethane	ND	10.0	5	04/10/23	04/10/23	
n-Butyl Benzene	ND	5.00	5	04/10/23	04/10/23	
sec-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
tert-Butylbenzene	ND	5.00	5	04/10/23	04/10/23	
Carbon Tetrachloride	ND	5.00	5	04/10/23	04/10/23	
Caloon retractionae	ND	5.00	5	04/10/23	04/10/23	
Chloroethane	ND	10.0	5	04/10/23	04/10/23	
	ND	25.0	5	04/10/23	04/10/23	
	ND	25.0	5	04/10/23	04/10/23	
	ND	5.00	5	04/10/23	04/10/23	
2-Chlorotoluene	ND	5.00	5	04/10/23	04/10/23	
4-Chlorotoluene	ND	5.00	5	04/10/23	04/10/23	
Dibromochloromethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	25.0	5	04/10/23	04/10/23	
1,2-Dibromoethane (EDB)	ND	10.0	5	04/10/23	04/10/23	
Dibromomethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
1,3-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
1,4-Dichlorobenzene	ND	5.00	5	04/10/23	04/10/23	
Dichlorodifluoromethane (Freon-12)	ND	10.0	5	04/10/23	04/10/23	
1,1-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,2-Dichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
cis-1,2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
trans-1,2-Dichloroethene	ND	5.00	5	04/10/23	04/10/23	
1,2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1,3-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
2,2-Dichloropropane	ND	5.00	5	04/10/23	04/10/23	
1,1-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
cis-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
rans-1,3-Dichloropropene	ND	5.00	5	04/10/23	04/10/23	
Diisopropyl Ether (DIPE)	ND	5.00	5	04/10/23	04/10/23	
Ethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Ethyl tert-Butyl Ether (ETBE)	ND	5.00	5	04/10/23	04/10/23	
Hexachlorobutadiene	ND	25.0	5	04/10/23	04/10/23	
2-Hexanone	ND	100	5	04/10/23	04/10/23	
sopropylbenzene	ND	5.00	5	04/10/23	04/10/23	
4-Isopropyltoluene	ND	5.00	5	04/10/23	04/10/23	
2-Butanone (MEK)	ND	100	5	04/10/23	04/10/23	
Methylene Chloride		100	-			
menty tene entonice	54.0	10.0	5	04/10/23	04/10/23	
1-Methylnanhthalene	54.0 ND	10.0 50.0	5 5	04/10/23	04/10/23	



Sample Data

	Ja	mpic D	ata			
West Pearl Queen	Project Name:	Aec	wpea_SPJ_21			D
2904 W 2nd St	Project Number:	200	71-0001			Reported:
Roswell NM, 88201	Project Manager	: Chr	1s Cortez			4/14/2023 11:08:40AM
		SB-23				
	E	304026-09				
		Reporting	ç			
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
4-Methyl-2-pentanone (MIBK)	ND	100	5	04/10/23	04/10/23	
Methyl tert-Butyl Ether (MTBE)	ND	5.00	5	04/10/23	04/10/23	
Naphthalene	ND	25.0	5	04/10/23	04/10/23	
n-Propyl Benzene	ND	5.00	5	04/10/23	04/10/23	
Styrene	ND	5.00	5	04/10/23	04/10/23	
tert-Amyl Methyl ether (TAME)	ND	5.00	5	04/10/23	04/10/23	
1,1,1,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2,2-Tetrachloroethane	ND	5.00	5	04/10/23	04/10/23	
Tetrachloroethene	ND	5.00	5	04/10/23	04/10/23	
1,2,3-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,2,4-Trichlorobenzene	ND	25.0	5	04/10/23	04/10/23	
1,1,1-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
1,1,2-Trichloroethane	ND	5.00	5	04/10/23	04/10/23	
Trichloroethene	ND	5.00	5	04/10/23	04/10/23	
Trichlorofluoromethane (Freon-11)	ND	10.0	5	04/10/23	04/10/23	
1,2,3-Trichloropropane	ND	10.0	5	04/10/23	04/10/23	
1,2,4-Trimethylbenzene	ND	25.0	5	04/10/23	04/10/23	
1,3,5-Trimethylbenzene	ND	5.00	5	04/10/23	04/10/23	
Toluene	ND	5.00	5	04/10/23	04/10/23	
Vinyl chloride	ND	10.0	5	04/10/23	04/10/23	
p-Xylene	ND	5.00	5	04/10/23	04/10/23	
o,m-Xylene	ND	10.0	5	04/10/23	04/10/23	
Total Xylenes	ND	5.00	5	04/10/23	04/10/23	
Surrogate: Bromofluorobenzene	90	0.7 %	70-130	04/10/23	04/10/23	
Surrogate: 1,2-Dichloroethane-d4	1	03 %	70-130	04/10/23	04/10/23	
Surrogate: Toluene-d8	1	02 %	70-130	04/10/23	04/10/23	



Sample Data

		-p				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez		4/14/2023 11:08:40AM	
	S	SB-23				
	E30	4026-09				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analys	st: BA		Batch: 2314052
Chloride	25700	2000	1000	04/07/23	04/07/23	
Nitrate-N	ND	250	1000	04/07/23 08:14	04/07/23 11:47	



Sample Data

	Sam					
West Pearl Queen 2904 W 2nd St	Project Name: Project Number:	Aecwp 20071-	ea_SPJ_21 0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez			4/14/2023 11:08:40AM
	S	B-5				
		026-10				
		020 10				
		Reporting		D 1		NT /
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	: IY		Batch: 2315002
Acetone	ND	40.0	1	04/13/23	04/13/23	G1
Benzene	2.61	1.00	1	04/13/23	04/13/23	
Bromobenzene	ND	1.00	1	04/13/23	04/13/23	
Bromochloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromodichloromethane	ND	1.00	1	04/13/23	04/13/23	
Bromoform	ND	1.00	1	04/13/23	04/13/23	
Bromomethane	ND	2.00	1	04/13/23	04/13/23	
n-Butyl Benzene	ND	1.00	1	04/13/23	04/13/23	
sec-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
tert-Butylbenzene	ND	1.00	1	04/13/23	04/13/23	
Carbon Tetrachloride	ND	1.00	1	04/13/23	04/13/23	
Chlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Chloroethane	ND	2.00	1	04/13/23	04/13/23	
Chloroform	ND	5.00	1	04/13/23	04/13/23	
Chloromethane	ND	2.00	1	04/13/23	04/13/23	
2-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
4-Chlorotoluene	ND	1.00	1	04/13/23	04/13/23	
Dibromochloromethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.00	1	04/13/23	04/13/23	
1,2-Dibromoethane (EDB)	ND	2.00	1	04/13/23	04/13/23	
Dibromomethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
1,4-Dichlorobenzene	ND	1.00	1	04/13/23	04/13/23	
Dichlorodifluoromethane (Freon-12)	ND	2.00	1	04/13/23	04/13/23	
1,1-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloroethane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
cis-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
trans-1,2-Dichloroethene	ND	1.00	1	04/13/23	04/13/23	
1,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,3-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
2,2-Dichloropropane	ND	1.00	1	04/13/23	04/13/23	
1,1-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
cis-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
trans-1,3-Dichloropropene	ND	1.00	1	04/13/23	04/13/23	
Diisopropyl Ether (DIPE)	ND	1.00	1	04/13/23	04/13/23	
Ethylbenzene	ND	1.00	1	04/13/23	04/13/23	
Ethyl tert-Butyl Ether (ETBE)	ND	1.00	1	04/13/23	04/13/23	
Hexachlorobutadiene	ND	5.00	1	04/13/23	04/13/23	
2-Hexanone	ND	20.0	1	04/13/23	04/13/23	
Isopropylbenzene	ND	1.00	1	04/13/23	04/13/23	
4-Isopropyltoluene	ND	1.00	1	04/13/23	04/13/23	
2-Butanone (MEK)	ND	20.0	1	04/13/23	04/13/23	
Methylene Chloride	3.21	2.00	1	04/13/23	04/13/23	
1-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	
2-Methylnaphthalene	ND	10.0	1	04/13/23	04/13/23	



Sample Data

West Pearl Queen	Project Name:	Aec	wpea_SPJ_21								
2904 W 2nd St	Project Number:	200	71-0001			Reported:					
Roswell NM, 88201	Project Manager:	Chr	is Cortez			4/14/2023 11:08:40AM					
		SB-5									
	E	304026-10									
		Reporting									
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes					
Volatile Organic Compounds by EPA 8260B	ug/L	ug/L	Analyst	:: IY		Batch: 2315002					
4-Methyl-2-pentanone (MIBK)	ND	20.0	1	04/13/23	04/13/23						
Methyl tert-Butyl Ether (MTBE)	ND	1.00	1	04/13/23	04/13/23						
Naphthalene	ND	5.00	1	04/13/23	04/13/23						
n-Propyl Benzene	ND	1.00	1	04/13/23	04/13/23						
Styrene	ND	1.00	1	04/13/23	04/13/23						
tert-Amyl Methyl ether (TAME)	ND	1.00	1	04/13/23	04/13/23						
1,1,1,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23						
1,1,2,2-Tetrachloroethane	ND	1.00	1	04/13/23	04/13/23						
Tetrachloroethene	ND	1.00	1	04/13/23	04/13/23						
1,2,3-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23						
1,2,4-Trichlorobenzene	ND	5.00	1	04/13/23	04/13/23						
1,1,1-Trichloroethane	ND	1.00	1	04/13/23	04/13/23						
1,1,2-Trichloroethane	ND	1.00	1	04/13/23	04/13/23						
Trichloroethene	ND	1.00	1	04/13/23	04/13/23						
Trichlorofluoromethane (Freon-11)	ND	2.00	1	04/13/23	04/13/23						
1,2,3-Trichloropropane	ND	2.00	1	04/13/23	04/13/23						
1,2,4-Trimethylbenzene	ND	5.00	1	04/13/23	04/13/23						
1,3,5-Trimethylbenzene	ND	1.00	1	04/13/23	04/13/23						
Toluene	ND	1.00	1	04/13/23	04/13/23						
Vinyl chloride	ND	2.00	1	04/13/23	04/13/23						
o-Xylene	ND	1.00	1	04/13/23	04/13/23						
p,m-Xylene	ND	2.00	1	04/13/23	04/13/23						
Total Xylenes	ND	1.00	1	04/13/23	04/13/23						
Surrogate: Bromofluorobenzene	92	2.9 %	70-130	04/13/23	04/13/23						
Surrogate: 1,2-Dichloroethane-d4	1	03 %	70-130	04/13/23	04/13/23						
Surrogate: Toluene-d8	1	02 %	70-130	04/13/23	04/13/23						



Sample Data

		-p				
West Pearl Queen	Project Name:	Aecwp	ea_SPJ_21			
2904 W 2nd St	Project Number:	20071-	0001			Reported:
Roswell NM, 88201	Project Manager:	Chris C	Cortez	4/14/2023 11:08:40AM		
	S	SB-5				
	E30	4026-10				
		Reporting				
Analyte	Result	Limit	Dilution	Prepared	Analyzed	Notes
Anions by EPA 300.0/9056A	mg/L	mg/L	Analy	st: BA		Batch: 2314052
Chloride	11300	200	100	04/07/23	04/07/23	
Nitrate-N	6.44	5.00	20	04/07/23 08:14	04/07/23 09:51	H2



QC Summary Data

West Pearl Queen		Project Name:	Ad	ecwpea_SPJ_2	21				Reported:
2904 W 2nd St		Project Number:	20	0071-0001					14/2022 11:00:40 + 14
Roswell NM, 88201		Project Manager:	Ch	hris Cortez				4/	14/2023 11:08:40AM
	,	Volatile Organic	Compo	unds by EP	PA 82601	B			Analyst: IY
Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	
	ug/L	ug/L	ug/L	ug/L	%	%	%	%	Notes
Blank (2315002-BLK1)						I	Prepared: 04	4/10/23 Ana	alyzed: 04/10/23
Acetone	ND	40.0					1		
Benzene	ND	1.00							
Bromobenzene Bromochloromethane	ND	1.00							
Bromodichloromethane	ND	1.00							
Bromoform	ND	1.00							
Bromomethane	ND	2.00							
n-Butyl Benzene	ND	1.00							
sec-Butylbenzene	ND	1.00							
tert-Butylbenzene	ND	1.00							
Chlorobenzene	ND	1.00							
Chloroethane	ND	2.00							
Chloroform	ND	5.00							
Chloromethane	ND	2.00							
2-Chlorotoluene	ND	1.00							
4-Chlorotoluene	ND	1.00							
1 2-Dibromo-3-chloropropane (DBCP)	ND	5.00							
1,2-Dibromoethane (EDB)	ND	2.00							
Dibromomethane	ND	1.00							
1,2-Dichlorobenzene	ND	1.00							
1,3-Dichlorobenzene	ND	1.00							
1,4-Dichlorobenzene	ND	1.00							
1 1-Dichloroethane	ND	2.00							
1,2-Dichloroethane	ND	1.00							
1,1-Dichloroethene	ND	1.00							
cis-1,2-Dichloroethene	ND	1.00							
trans-1,2-Dichloroethene	ND	1.00							
1,2-Dichloropropane	ND	1.00							
2 2-Dichloropropane	ND	1.00							
1,1-Dichloropropene	ND	1.00							
cis-1,3-Dichloropropene	ND	1.00							
trans-1,3-Dichloropropene	ND	1.00							
Diisopropyl Ether (DIPE)	ND	1.00							
Ethylbenzene	ND	1.00							
Ethyl tert-Butyl Ether (E1BE) Heyachlorobutadiene	ND	1.00							
2-Hexanone	ND	20.0							
Isopropylbenzene	ND	1.00							
4-Isopropyltoluene	ND	1.00							
2-Butanone (MEK)	ND	20.0							
Methylene Chloride	ND	2.00							
2-Methylnaphthalene	ND	10.0							
4-Methyl-2-pentanone (MIBK)	ND	20.0							
Methyl tert-Butyl Ether (MTBE)	ND	1.00							
Naphthalene	ND	5.00							
n-Propyl Benzene	ND	1.00							
Styrene tart Amyl Mathyl athan (TAME)	ND	1.00							
1 1 2 Tetrachloroethane	ND	1.00							
1,1,2,2-Tetrachloroethane	ND	1.00							
Tetrachloroethene	ND	1.00							
1,2,3-Trichlorobenzene	ND	5.00							
1,2,4-Trichlorobenzene	ND	5.00							
1,1,1-Trichloroethane	ND	1.00							
1,1,2-1richloroethane	ND	1.00							
Trichlorofluoromethane (Freon-11)	ND	2.00							
1,2,3-Trichloropropane	ND	2.00							
1,2,4-Trimethylbenzene	ND	5.00							



QC Summary Data

W. D. C.		.		• 					
West Pearl Queen		Project Name:	A	ecwpea_SPJ_21					Reported:
2904 W 2nd St		Project Number:	2	00/1-0001				4/1	14/2022 11 00 40 434
Roswell NM, 88201		Project Manager:	0	Chris Cortez				4/.	14/2023 11:08:40AM
		Volatile Organio	e Compo	ounds by EPA	8260E	3			Analyst: IY
Analyte		Reporting	Spike	Source	P	Rec	DDD	RPD	
	Result ug/L	ug/L	ug/L	ug/L	Kec %	2 %	%	2000 Elinin	Notes
	8		-8-	-8-	70	70	70	70	rotes
Blank (2315002-BLK1)							Prepared: 04	4/10/23 Ana	lyzed: 04/10/23
1,3,5-Trimethylbenzene	ND	1.00							
Toluene	ND	1.00							
Vinyl chloride	ND	2.00							
o-Aylene	ND	2.00							
Total Xylenes	ND	1.00							
Surrogate: Bromofluorobenzene	9.21		10.0		92.1	70-130			
Surrogate: 1 2-Dichloroethane-d4	9.89		10.0		98.9	70-130			
Surrogate: Toluene-d8	10.3		10.0		103	70-130			
Surrogue. Tomene uo	10.5								
LCS (2315002-BS1)							Prepared: 04	4/10/23 Ana	lyzed: 04/10/23
Acetone	55.8	40.0	100		55.8	20-185			
Benzene	45.0	1.00	50.0		90.0	70-130			
Bromoform	38.5	1.00	50.0		77.1 00.0	70-131			
Bromomethane	50.0 45.5	2.00	50.0		99.9	22-187 70-130			
Carbon Tetrachloride	45.3	1.00	50.0		90.5	70-130			
Chlorobenzene	49.4	1.00	50.0		98.8	70-130			
2-Chlorotoluene	47.1	1.00	50.0		94.2	70-130			
Dibromochloromethane	41.8	1.00	50.0		83.6	70-130			
1,2-Dichlorobenzene	45.4	1.00	50.0		90.8	70-130			
Dichlorodifluoromethane (Freon-12)	67.2	2.00	50.0		134	50-180			
1,1-Dichloroethane	45.2	1.00	50.0		90.5 89.0	70-130 80-120			
2 2-Dichloropropane	53.4	1.00	50.0		107	50-120			
cis-1,3-Dichloropropene	46.3	1.00	50.0		92.5	70-130			
Ethylbenzene	46.2	1.00	50.0		92.4	80-120			
Isopropylbenzene	42.5	1.00	50.0		84.9	70-130			
Methyl tert-Butyl Ether (MTBE)	78.9	1.00	100		78.9	70-130			
Naphthalene	37.9	5.00	50.0		75.8	70-140			
Trichloroethene	46.6	1.00	50.0		93.2	70-130			
Toluene	45.7	1.00	50.0		91.4	80-120			
o-Xylene	46.1	1.00	50.0		92.2	70-130			
p,m-Xylene	92.7	2.00	100		92.7	70-130			
Total Xylenes	139	1.00	150		92.5	70-130			
Surrogate: Bromofluorobenzene	10.1		10.0		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	9.69		10.0		96.9	70-130			
Surrogate: Toluene-d8	10.3		10.0		103	70-130			
Matrix Spike (2315002-MS1)				Source: E	304002-0)1	Prepared: 04	4/10/23 Ana	lyzed: 04/10/23
Acetone	3330	2000	5000	ND	66.6	10-190			
Benzene	2310	50.0	2500	ND	92.3	59-133			
Bromoform	2140	50.0	2500	ND	85.5	66-140			
Bromomethane	2680	100	2500 2500	ND ND	107 904	1/-190			
Carbon Tetrachloride	2280	50.0	2500	ND	91.4	61-139			
Chlorobenzene	2520	50.0	2500	ND	101	70-130			
2-Chlorotoluene	2400	50.0	2500	ND	96.0	67-134			
Dibromochloromethane	2230	50.0	2500	ND	89.4	70-132			
1,2-Dichlorobenzene	2340	50.0	2500	ND	93.4	70-130			
Dichlorodifluoromethane (Freon-12)	2870	100	2500	ND	115	50-180			
1,1-Dichloroethane	2310	50.0	2500 2500		92.2 89.4	04-134 49_144			
2.2-Dichloropropane	2560	50.0	2500	ND	102	45-165			
cis-1,3-Dichloropropene	2380	50.0	2500	ND	95.1	70-130			
Ethylbenzene	2350	50.0	2500	ND	94.2	62-136			
Isopropylbenzene	2160	50.0	2500	ND	86.4	67-136			
Methyl tert-Butyl Ether (MTBE)	4420	50.0	5000	ND	88.5	61-136			
Naphthalene	2180	250	2500 2500	ND	87.0 82.0	65 125			
ten-Amyi metnyi ether (IAME)	2070	50.0	2300	ND	02.9	00-100			

QC Summary Data

West Pearl Queen 2904 W 2nd St Roswell NM, 88201		Project Name: Project Number: Project Manager:		Aecwpea_SPJ_21 20071-0001 Chris Cortez					Reported: 4/14/2023 11:08:40AM	
		Volatile Organic	Comp	ounds by EPA	A 82601	B		Analyst: IY		
Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit		
	ug/L	ug/L	ug/L	ug/L	%	%	%	%	Notes	
Matrix Spike (2315002-MS1)				Source: E	304002-	01	Prepared: 04	4/10/23 Ai	nalyzed: 04/10/23	
Trichloroethene	2330	50.0	2500	ND	93.2	49-148				
Toluene	2370	50.0	2500	ND	94.9	67-130				
o-Xylene	2380	50.0	2500	ND	95.0	70-130				
p,m-Xylene	4740	100	5000	ND	94.8	65-135				
Total Xylenes	7110	50.0	7500	ND	94.9	65-135				
Surrogate: Bromofluorobenzene	498		500		99.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	487		500		97.3	70-130				
Surrogate: Toluene-d8	510		500		102	70-130				
Matrix Spike Dup (2315002-MSD1)				Source: E	304002-	01	Prepared: 04	4/10/23 Ai	nalyzed: 04/10/23	
Acetone	3390	2000	5000	ND	67.8	10-190	1.79	30		
Benzene	2280	50.0	2500	ND	91.3	59-133	1.09	20		
Bromoform	2130	50.0	2500	ND	85.3	66-140	0.234	20		
Bromomethane	2560	100	2500	ND	102	17-190	4.68	20		
sec-Butylbenzene	2240	50.0	2500	ND	89.6	66-139	0.934	20		
Carbon Tetrachloride	2320	50.0	2500	ND	92.6	61-139	1.33	20		
Chlorobenzene	2480	50.0	2500	ND	99.3	70-130	1.44	20		
2-Chlorotoluene	2360	50.0	2500	ND	94.4	67-134	1.64	20		
Dibromochloromethane	2240	50.0	2500	ND	89.4	70-132	0.0224	20		
1,2-Dichlorobenzene	2350	50.0	2500	ND	94.1	70-130	0.746	20		
Dichlorodifluoromethane (Freon-12)	2760	100	2500	ND	111	50-180	3.69	20		
1,1-Dichloroethane	2290	50.0	2500	ND	91.8	64-134	0.522	20		
1,1-Dichloroethene	2240	50.0	2500	ND	89.7	49-144	0.290	20		
2,2-Dichloropropane	2350	50.0	2500	ND	04.4	70 120	0.781	20		
cis-1,3-Dichloropropene	2300	50.0	2500	ND	02.3	62-136	1 99	20		
Isopropulbenzene	2110	50.0	2500	ND	84.5	67-136	2 20	20		
Methyl tert-Butyl Ether (MTBE)	4460	50.0	5000	ND	89.2	61-136	0.878	20		
Naphthalene	2230	250	2500	ND	89.0	60-160	2.25	20		
tert-Amyl Methyl ether (TAME)	2100	50.0	2500	ND	83.9	65-135	1.17	20		
Trichloroethene	2300	50.0	2500	ND	91.9	49-148	1.38	20		
Toluene	2290	50.0	2500	ND	91.6	67-130	3.62	20		
o-Xylene	2320	50.0	2500	ND	92.7	70-130	2.49	20		
p,m-Xylene	4600	100	5000	ND	92.1	65-135	2.88	20		
Total Xylenes	6920	50.0	7500	ND	92.3	65-135	2.75	20		
Surrogate: Bromofluorobenzene	495		500		98.9	70-130				
Surrogate: 1,2-Dichloroethane-d4	494		500		98.7	70-130				
Surrogate: Toluene-d8	506		500		101	70-130				



QC Summary Data

				v					
West Pearl Queen 2904 W 2nd St		Project Name: Project Number:	A 20	ecwpea_SPJ_2 0071-0001	1				Reported:
Roswell NM, 88201		Project Manager:	С	hris Cortez				4	/14/2023 11:08:40AM
		Anions	by EPA 3	300.0/9056A					Analyst: BA
Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	Notes
Blank (2314052-BLK1)							Prepared: 0	4/07/23 An	alyzed: 04/07/23
Chloride	ND	2.00							
Nitrate-N	ND	0.250							
LCS (2314052-BS1)							Prepared: 0	4/07/23 An	alyzed: 04/07/23
Chloride	25.3	2.00	25.0		101	90-110			
Nitrate-N	2.62	0.250	2.50		105	90-110			
Matrix Spike (2314052-MS1)				Source: F	2304026-	02	Prepared: 0	4/07/23 An	alyzed: 04/07/23
Chloride	112	2.00	25.0	86.2	103	80-120			
Nitrate-N	3.45	0.250	2.50	ND	138	80-120			M2
Matrix Spike Dup (2314052-MSD1)				Source: F	304026-	02	Prepared: 0	4/07/23 An	alyzed: 04/07/23
Chloride	111	2.00	25.0	86.2	101	80-120	0.277	20	
Nitrate-N	3.41	0.250	2.50	ND	137	80-120	1.04	20	M2

QC Summary Report Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



West Pearl Queen	Project Name:	Aecwpea_SPJ_21	
2904 W 2nd St	Project Number:	20071-0001	Reported:
Roswell NM, 88201	Project Manager:	Chris Cortez	04/14/23 11:08

- G1 pH > 2. Sample had a pH of 5.5.
- G1a pH >2. Sample had a pH of 3.0.
- G1b pH >2. Sample had a pH of 4.5.
- G1c pH >2. Sample had a pH of 5.0.
- G1d pH >2. Sample had a pH of 5.5
- G1e pH >2. Sample had a pH of 5.5.
- H2 Sample was received with an insufficient amount of time to prepare and analyze the sample within the method prescribed holding time. The analysis was performed as quickly as possible per client request.
- M2 Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite
- Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



Project Information

Chain of Custody

Page _____ of _____

Received by OCD: 7/22/2024 8:42:53 AM

Client: West Pear 1 00000000	AtKinsensiver 10, 109				La	b Us	e On	ly -			r		Τ/	AT		EPA Pr	ogram
Project: ACCWDCa_SPJ_21	Attention: Court Court CZ	<u> </u>	Lab	WO#	1~		Jobi	Num	ber		1D	2D	3D	Star	dard	CWA	SDWA
Address: 2904 W 200 St	City, State, Zip Por LIL. DM	83201	╞╧┊	504	14				<u>- DX</u> nd M	<u>S</u> ethod				└ <u>}</u>	<u> </u>		RCRA
City, State, Zip 205Woll, Nm 88201	Phone: 575) 420-024-2	428						315 0									RCKA
$\frac{Phone: (5^{-} - 5)(6^{-} - 2^{-} -$	Email: Kariza (a)a+Kins	engra	3015	01S					$ \Psi $							State	
Report due by:		,	8 Aq C	8 Aq	8021	260	91	300.0	E					N	M CO	UT AZ	TX
Time Sampled Date Sampled Matrix No. of Containers Sample ID		Lab	RO/OR	RO/DR	TEX by	DC by 8	etals 6	Iloride	EF 1					-		Remarks	
12504/5/73 Ag, 4 5B-	<u>ר</u>	Number	ā	0	-	× V	Σ	ð									
								÷	$\overrightarrow{\gamma}$								
1040 30-	· H	Z						1									
1012 SB-	-7	3															
1133 SB-	-13	4							\square								
1233 SB-	- 14	5				\top											
1005 SR-	-20	10										-					
	21	17				+		+									
	- 21	1				4		-+			-+	_					
1050 J JB-		8															
1248 SB-	- 23	9															
926 SB-	- 5	ÍΔ															
Additional Instructions: (┦	-t	L]			·····		
I, (field sampler), attest to the validity and authenticity of this sample. I am	aware that tampering with or intentionally mislabelling t	he sample loo	ation,		1	-	Samples	requi	ring ther	rmal pre	servatio	on musi	t be reco	eived on ic	e the day th	ey are sampled	or received
Relinquished by: (Signature) Date 1 Time	Beceived by:	Date		lime	<u> </u>	=	packed i	in ice a	t an avg	; temp a	bove 0	but less	than 6	°C on sub	equent days	i.	
Kenne 4/0/23/16	00 00-10-	4.6.2	3	16	00		Recei	ived	on ic	:e: /		D USE / N	e∙Uni	Y i			
Retinquished by (Signatore) Date Time	Received by: (Signatore)	Date	3	lime	1	-					Ċ.						
Reinogumed by: (Signature) Date Time	Received by: (Signature)	Date /	=	(/ Fime	<u> </u>	2-[T1				<u>T2</u>			<u> </u>	ing states and		
Marengafer 46-23 23	30 author hite	4/7/2	3	8:1	15	Į,	AVG [·]	Tem	p°C_	4	ŧ			4			
Sample Matrix: S - Soft, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other Note: Samples are discarded 30 days after results are constant units		Container	Туре:	g - gl	ass, p	- po	ly/pla	stic,	ag - a	mber	glass	i, v - \	VOA				
samples is applicable only to those samples received by the laborat	ss other arrangements are made. Hazardous sam bry with this COC. The liability of the laboratory is l	ples will be imited to the	return e amo	ed to (unt pa	client aid for	or dis on th	posed	l of ai ort.	t the c	lient e	expens	se. Tl	he rep	ort for t	he analys	is of the ab	ove
													-				لــــــــــــــــــــــــــــــــــــ
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Envirotech Analytical Laboratory

Sample Receipt Checklist (SRC)

Chent: West Four Queen Date Received	l: 04/07/23	08:15	Work Order ID:	E304026
Phone: (575) 624-2420 Date Logged	n: 04/06/23	16:19	Logged In By:	Caitlin Christian
Email: Due Date:	04/13/23	17:00 (4 day TAT)		
<u>Chain of Custody (COC)</u>				
1. Does the sample ID match the COC?	Yes			
2. Does the number of samples per sampling site location match the COC	Yes			
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier		
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes			
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes		Comment	ts/Resolution
<u>Sample Turn Around Time (TAT)</u>				
6. Did the COC indicate standard TAT, or Expedited TAT?	Yes			
Sample Cooler_				
7. Was a sample cooler received?	Yes			
8. If yes, was cooler received in good condition?	Yes			
9. Was the sample(s) received intact, i.e., not broken?	Yes			
10. Were custody/security seals present?	No			
11. If yes, were custody/security seals intact?	NA			
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 1 minutes of sampling	Yes 5			
13. If no visible ice, record the temperature. Actual sample temperature:	<u>4°C</u>			
Sample Container				
14. Are aqueous VOC samples present?	Var			
	ies			
15. Are VOC samples collected in VOA Vials?	Yes			
15. Are VOC samples collected in VOA Vials?16. Is the head space less than 6-8 mm (pea sized or less)?	Yes Yes			
15. Are VOC samples collected in VOA Vials?16. Is the head space less than 6-8 mm (pea sized or less)?17. Was a trip blank (TB) included for VOC analyses?	Yes Yes No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 	Yes Yes No Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? 	Yes Yes No Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 	Yes Yes No Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: 	Yes Yes No Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? 	Yes Yes No Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? 	Yes Yes No Yes Yes Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? 	Yes Yes Yes Yes Yes Yes No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Date stee COC or field labels indicate the correct same reservation 	Yes Yes No Yes Yes Yes No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 	Yes Yes No Yes Yes No Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 22. Are sample(s) correctly preserved? 24. Is lab filteration required and/or requested for discoluted metals? 	Yes Yes No Yes Yes Yes No Yes Yes			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 22. Are sample(s) correctly preserved? 24. Is lab filteration required and/or requested for dissolved metals? 	Yes Yes Yes Yes Yes No Yes Yes No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 22. Are sample(s) correctly preserved? 24. Is lab filteration required and/or requested for dissolved metals? Multiphase Sample Matrix 	Yes Yes No Yes Yes No Yes Yes No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 22. Are sample(s) correctly preserved? 24. Is lab filteration required and/or requested for dissolved metals? Multiphase Sample Matrix 26. Does the sample have more than one phase, i.e., multiphase? 	Yes Yes Yes Yes Yes No Yes Yes No No			
 15. Are VOC samples collected in VOA Vials? 16. Is the head space less than 6-8 mm (pea sized or less)? 17. Was a trip blank (TB) included for VOC analyses? 18. Are non-VOC samples collected in the correct containers? 19. Is the appropriate volume/weight or number of sample containers collected? Field Label 20. Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation 21. Does the COC or field labels indicate the samples were preserved? 22. Are sample(s) correctly preserved? 24. Is lab filteration required and/or requested for dissolved metals? Multiphase Sample Matrix 26. Does the sample have more than one phase, i.e., multiphase? 27. If yes, does the COC specify which phase(s) is to be analyzed? 	Yes Yes Yes Yes Yes No Yes Yes No No No			
 Are VOC samples collected in VOA Vials? Is the head space less than 6-8 mm (pea sized or less)? Was a trip blank (TB) included for VOC analyses? Are non-VOC samples collected in the correct containers? Is the appropriate volume/weight or number of sample containers collected? Field Label Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation Does the COC or field labels indicate the samples were preserved? Are sample(s) correctly preserved? Is lab filteration required and/or requested for dissolved metals? Multiphase Sample Matrix Does the Sample have more than one phase, i.e., multiphase? If yes, does the COC specify which phase(s) is to be analyzed? 	Yes Yes No Yes Yes No Yes Yes No No No			
 Are VOC samples collected in VOA Vials? Is the head space less than 6-8 mm (pea sized or less)? Was a trip blank (TB) included for VOC analyses? Are non-VOC samples collected in the correct containers? Is the appropriate volume/weight or number of sample containers collected? Field Label Were field sample labels filled out with the minimum information: Sample ID? Date/Time Collected? Collectors name? Sample Preservation Does the COC or field labels indicate the samples were preserved? Are sample(s) correctly preserved? Is lab filteration required and/or requested for dissolved metals? Multiphase Sample Matrix Does the COC specify which phase(s) is to be analyzed? Subcontract Laboratory Are samples required to get sent to a subcontract laboratory? 	Yes Yes Yes Yes Yes No Yes Yes No No No			

Signature of client authorizing changes to the COC or sample disposition.



envirotech Inc.

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Received by OCD: 7/22/2024 8:42:53 AM Page 173 of 198 FE-1 State of New Mexico State Engineer WELL SCHEDULE Source of data: Obser Owner D Other. 19/1 Record by Date_ tea LOCATION: County_ Man_ 11 OWNER MUS V -DRILLER Completed. USHST TOPO SITUATION _ Rept Meas Use_ DEPTH_____ft CASING 6 in to _____ ft Log_ PUMP: Type ______ _____ Make _____ _____ Size of dischg____ in. Ser.no./model_ PRIME MOVER: Make _____ alemotor HP____ ul angle un tower Power/Fuel Wind Ser no PUMP DRIVE: Gear Head Belt Head Pump Jack VHS Make_ _ Ser.no. WATER LEVEL: 62.76 ft rept 3/8 2 6" X 3" wooden clamp 8 19 6/ above Top which is 1.2 ft above below PERMANENT RP is ______ which is 0.25 ft above described MP and 0.95 ft above below a 15 dia REMARKS Well discharger into 3235451032 AQUIFER(S): Tog ____ DPN_23 Well No. ____ on Photo _____ F Reteased to Imaging: 10/29/2024 4:37:14 AM 20.35. 5. 3 1- 4158

Remarks cont. X 12 take the toz 62/02 Sutedu o paspara Dwell. Two 10 diameter x 1.5 tall stul tank are located 12 NE & 15 diameter tank. a 12' diameter X 8' tall steel tank is located 10 last I well. need 4- wheel drive to get to well. 10-23-79 RLT lollected water Sample. SKETCH: 11-27-79 I.H RESAMPLE

N # July 3, 91, KD.SD - RP is also Top of 55 gel, berrel filled with concrete 0.03 ft below Top of ces ing and 0.75 ft abu, 61/2×61/2 concret slab.

9/14/95- BAING 4×4 52

The 15' x 12' Storage for NIC Won Discharges into has hardly no water Bottom is not completely covered w/water, two small Stik tanks to Eof this storage tanks s contain # 6" of water each.

INITIAL WATER-	DEPTH TO WATER							
LEVEL MEASUBEMENT			Below					
	lst	2nd	3rd	LS				
Date May 8, 1961	65.00	66.00		62.76				
Hour PM Obs <u>H1-BP</u>	2.22	3.24		1.20				
Not POA () POA ()	62.781	62.761		61.56				

W L meas after pump shut off ____ min. Pumping W L () Remarks Will pumped sciently.

MA E2:24:8 4202/22/7 :7.2024 8:42:53 MM

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STATE ENGINEER Technical Division

Owner Federal	DE	PTH TO W	ATER	WATER
Use: Ctack	Belo	w MIP	Below	LEVEL
JIOCK	lst	2nd	LSD	ELEV
Date March 8,196	65.00	66.00	62.770	3685
HourPM Obs HL-BP	2.22	3.24	1.20	. 62
Not POA () POA ()	62.78	62.76	61.56	3623
W L meas after pump shut	off	min.	Pumping	WL()
Remarks Well Runned 1	cantly.			
	1			
Date April 6,1966	57.00	58.00	55 07	3685
HourPM ObsGB-PM	1,93	2.93	1.20	54
Not POA () POA ()	55.07	55.07	53.87	3631
W L meas after pump shut	off	min.	Pumping	WL()
Remarks	25			
Date Jaman 2/ 197/			0000	-1
1145 AM a twp	60.00	58.00	55.18	3685
Hour PM Obs REO	4.22	2.22	1,20	35
Not POA () POA (\times)	55.78	55.78	54.58	36301
W L meas after pump shut	off <u>35</u>	min.	Pumping	WL()
Remarks Shut off at 11:28	AM .	Some M	P	1992 - 19
A TRACTOR	1 100	- Lano		
Date JAN 19,1976		30		
Hour 3.40 AM Obs 84			-	
Not POA () POA ()				
W L meas after pump shut	off	min.	Pumping	; W L ()
Remarks Need 4 W.D	. to	get t	o Well	
		and a second		
T. didada	Longi	tudo 0	PN 15	10404
_Released to Imaging 10/29/2022	Long1	M 20	25 5 5	2111211
File No Ling Starte	ocation	NO LU.	00.0.	1764.

Feb. 19, 1976 PSH Suissmi of bespeled Not POA - 10:45 A.M. 5.4.76 1.20 59.00 4.97 54.03 WV ES:24:8 4707/27/2 000 861 fo 9/1 280 d.

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STATE ENGINEER Technical Division

Owner / i i/[DEI	WATER		
Vi Di Riein	Belo	w MIP	Below	LEVEL
use stock	lst	2nd	LSD	ELEV
Date Feb 19,1976 Hour 1 45 AM Ob RM Hatt	60.00	61.00	54.76	3685
PM ODS	5.24	6.24	1.20	34
Not POA (\times) POA $()$	54.76	54.76-	53,56	363/
W L meas after pump shut Remarks	off	min.	Pumping	; W L ()
	Manufacture Contemport			
Date Feb 17,198	58.00	59.00	54,60	3685-
Hour 4:26 AM Obs AM	3.40	4,39	1.20.	53
Not POA () POA ()	54,60	54.61	53.40	3632
W L meas after pump shut	off	min.	Pumping	; W L ()
Remarks NEED	4WE) - 01	RA	LOT
of ERFO	RTd			~
Date April 2,1986	59.00	55.00	5403	3685
Hour 1 43 AM Obs ABM	41.97	12.97	1.20	53
Not POA (×) POA ()	54.03	54.03	52.83	3632
W L meas after pump shut Remarks	off	min.	Pumping	;WL()
Date July 3,1991	5700	58.00	TE 18	21.85
Hour 10,54 AM Obs KD-SD	182	287	195	54
Not POA () $POA(X)$	5518	55 18	54 73	3/31/
W I mood often nump shut	0ff 55	min	Dumping	WI()
Remarks / NTV. betwon 1	15 \$ 2	no ma	AS. 5 M	TINS
Shut off at 9:59		×1.5		
Latitude	Longi	tude DP	N 25-	10404
Fierferd 8d to Imating Sala 10/20/2019	204 \$ 1.92 J	20,3	5.5.3	1424
1000000 10 11105 10/27/202		474		4

WA 41:76:7 4202/92/01 :2mgpm1 of bozbalo2 생활한 관습 ាក់រុះ ព្រះបទ 35 65.00 10.54 ()55 149 gastra si k 68.00 13.50 NAR BRIT 54.46 4.50 يىتىمى يەخە يېچىد ¥614.55 2 F FRAZ RELAT LARDA RALA $\{g(x)\}$ MOR LOF N 1.75 بالجراد که به اور Brain 1923 and and the second 영국의 그를 수 1 ्र पुरुषका १४ weind auge 요즘 이 지금 말. President de la composition de Y. 60 88 S. C. ALL RIT HE ni de la companya de la

861 fo 8/1 280

WV ES:74:8 +707/77/2 :050 &q pairas H

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Received by OCD: 7/22/2024 8:42:53 AM STATE ENGINEER **Technical** Division

Owner	DE	DEPTH TO WATER			
Use CLIV	Belo	w MIP	Below	LEVEL	
USC STR	lst	<u>2nd</u>	LSD	ELEV	
XDate <u>JAN</u> <u>25</u> ,19 <u>76</u>	65.00	65.00	54.43	3685	
Hour 11/5 PM Obs P/-	10.56	10.57	0.95	5.3	
Not POA () POA (X)	54.44	54,43	53.48	3632'	
W L meas after pump shut	off <u>30</u>	min.	Pumping	gWL()	
Remarks <u>MP=TC</u> See	note	· wm	NAS NO	<i>4</i>	
pumping any water	UN AI	rival 1	and len	thors?	
Date,19					
HourPM Obs					
Not POA () POA ()					
W L meas after pump shut	off	min.	Pumping	gWL()	
Remarks					
Date,19	[
Hour AM Obs					
Not POA () POA ()					
W L meas after pump shut	off	min.	Pumping	g W L ()	
Remarks		·			
· · · ·					
Date .19					
Hour AM Obs					
Not POA () POA ()					
W I more often numn shut			Dumping		
Remarks		uiii.	ւտորույ	5 " - ()	
Latitude	Longi	tude 25	- 1040	4	
		No 20,	35.6.	31424	
Released to Imaging: 10/29/202	4 7:37:14 A	M			

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QUALITY CONTROL SHEET - STATE ENGINEER

Date	Collector	POC	Remarks and Use	CI.	SC	X
6/18/90	KF	EDP	SHK POA 66°	350	3839	
9/14/95	72	DP	POA femp. =4	230	3220	
						-
			S 2		- 1	
				3.74		
		1				
	1					
	2	5			1	
		1		and the		
		2				
	1					
						-
				8		1
						-
		1	11			
				34 M.S.		1

X- More Complete Analysis Available on Sample

100 Aquifer(s) _ D.P.N Released to Imaging: 10/29/2024 7:37:14 AM File No. Location No.
Received by OCD	: 7/22/2024 8:42:53 AM	Page 181 of 198
FE-1	State of New Mexico State Engineer	
WELL SCHEDULE		
Source of data	a: Obser 🗵 Owner 🔲 🤇	Other
Date 7-1	1991 Record by 17.01	art S. Dirman
LOCATION: Cour	nty <u>Lea</u> Map <u>I</u>	07. 4.4
OWNER Mrs.	Virgil Linem Kl.	ein
DRILLER	Completed	<u></u> 19
TOPO SITUATIO	N	Elev <u>3679</u>
DEPTH	ft Rept Meas W	use Aban, Stock
CASING	. in to ft Log	
PUMP: Type	<u>019</u> Make	
Ser.no./model	Size of di	ischg in.
PRIME MOVER:	Make	HP
Ser.no.	Power	r/Fuel
PUMP DRIVE:	Gear Head 🔲 Belt He	ead D Pump Jack
Make	Ser no	
WATER LEVEL: 2	ft rept <u>74/y</u> 3_1	19 <u>9</u> above below
·····	which is	ft above LS
PERMANENT RP	is	
which is	ft above described MP and	d ft above LS
REMARKS & W	From Stall by 20'd	iaun 67 west of
AQUIFER(S):		
Well No	on Photo DPN _	
FReleased to Imag	ing: 10/29/2024 135;14AM20.3	5.6.3,3133

_ _ _

(measured) Remarks cont. <u>windmill</u> <u>Shown on 7600</u> <u>Linam well. Sampled by Ranone</u> <u>10-28-79 Shown on 107.4.4 at 331313</u>

SKETCH:

N

INITIAL WATER-	DEPTH TO WATER				
LEVEL MEASUREMENT		Below			
	lst	2nd	3rd	LS	
Date $-\frac{7\mu/4}{3}$, 19 $\frac{97}{10}$		DRy			
Hour $\underline{\qquad}_{PM}$ Obs $\underline{RO} \underline{SD}$		V			
Not POA ()					
W L meas after pump shut Remarks	off	min.	Pumpin	gWL()	

861 fo 781 a8n

Received by OCD: 7/22/2024 8:42:53 AM



QUALITY CONTROL SHEET - STATE ENGINEER

_Date	Collector	POC	Remarks	and Use	<u>CI.</u>	SC	X
10/23/19	RLT	lesk	Stock -	WM. POR	B76	5154	
							Γ
							1
							+
				••••••••••••••••••••••••••••••••••••••		 	
				·····			

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				*****			 -

				<u></u>			

X More Complete Analysis Available on Sample

Received by OCD: 7/22/2024 8:42:53 AM

FE-1 State of New Mexico State Engineer WELL SCHEDULE Source of data: Obser Owner Other_ Date ______ 19 61 Record by For LOCATION: County_Lea ____ Map 107.4.0 OWNER Mrs. Verail Tinam Klein _ Completed _____ 12/13 DRILLER W.J. Van hou - 1959 USBST Elev 3678 TOPO SITUATION_ DEPTH 70 ft Rept Meas Use not CASING 5 in to 70 ft Log Dulles PUMP: Type hone Make Ser.no./model______ Size of dischg______ in. PRIME MOVER: Make _____ _____ HP _____ _____ Power/Fuel _____ Ser.no. _ PUMP DRIVE: Gear Head Belt Head Pump Jack ____ Ser.no____ VHS Make_ WATER LEVEL: 60.25 ft rept 3/8 196/ above Gelow which is 1.55 ft above below PERMANENT RP is _ which is _____ft above described MP and _____ft above below LS REMARKS Well is located 65 last of windmill AQUIFER(S): Tog 323536 103301101 Well No. ____ on Photo _____ DPN _25-10403 Filetedised to Imaging: 10/29/2024 Tc37: 14 AM20. 35.6. 33/332

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Remarks cont. Show MY FILLE # 1202/6401 : Suispul of pospolog 6 SKETCH: N DEPTH TO WATER INITIAL WATER-Below MP Below LEVEL MEASUREMENT 2nd 1st 3rd LS Date Mar .196 70.00 71.00 60,25 AM Obs HEL Hour . 1.53 10.75 Not POA (χ) POA (60.26 8.70 60.2 5 W L meas after pump shut off_ min. Pumping W L () Remarks. 18.3

Keceived by OCD: 7/22/2024 8:42:53 AM

Received by OCD: 7/22/2024 8:42:53 AM

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STATE ENGINEER Technical Division

Owner Viraillinam	DEPTH TO WATER			WATER
Use not in lice	Belo	w MP	Below	LEVEL
not in use	IST	2nd	LSD	ELEV
AM ,19 G	70.00	71.00	60.25	3678
HourPM Obs HL-BP	9.74	10.75	1.55	59
Not POA (χ) POA ()	60.26	60.25	58,70	3619-
W L meas after pump shut	off	min.	Pumping	gWL()
Remarks				
		1		
Date March 2, 1966				
Hour AM Obs GWB				
Not POA () POA ()				
W L meas after pump shut	off	min.	Pumping	gWL()
Remarks U.T.M. 3	-10-66	GWB	UTM	
Need 4 wheel d	ine to	get to 1	well.	and the
Date January 21, 1971	6500	66.20	5913	3678 -
Hour 100 AM Obs KEO	5.87	6.87	1.55	58-
Not POA () POA ()	59.13	59.13	57.58	3620
W.M. Shutott /2" W L meas after pump shut	off	min.	Pumping	gWL()
Remarks M.P. top CSG. E. s	ide,	This is	0.63'26	rove present
L.S. Is lac. 60'-65'	Eofeg	mipped,	operation.	gmill
Date Feb 19,1976	1.3 10	1400	62.79	36781
Hour 1:45 AM Obs My harf	0.21	1.21	1.55	61
Not POA () POA ()	62.79	62.79	61.24	36171
W L meas after pump shut	off	min.	Pumping	gWL()
Remarks Some MI	Ø			
Latitude	Longi	tude D	DN 25-	10405

Received by OCD: 7/22/2024 8:42:53 AM STATE ENGINEER

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Technical Division

Owner	DEPTH TO WATER WATE			
	Belo	w MIP	Below	LEVEL
Use	lst	2nd	LSD	ELEV
Date <u>APril</u> <u>1984</u>	6500	60.00	58.46	3478
Hour $\frac{1:38}{PM}$ Obs $\frac{R17}{ABM}$	10.54	1-53	155	57
Not POA (X) POA ()	58.46	53 47	56.91	3521
W L meas after pump shut Remarks	off	min.	Pumping	; W L ()
	-			
Date <u>741 3,199/</u>	60.00	61,00	58,50	3878
Hour 11:20 AM Obs KO.SD	1.50	2,50	1,55	57
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AER motor - mill. Disc	L. 47'	west in	to 20'	120018
Date March 5, 1996	79.00	74.00	57,94	3678
Hour 11:50 AM Obs PF	21.06	16.06	1.55	56
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W L meas after pump shut	off <u>25</u>	min.	Pumping	5 W L ()
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Date,19				
Hour AM Obs				
Not POA () POA ()				
W L meas after pump shut Remarks	off	min.	Pumping	5 W L ()
Latitude	_ Longi	tude <u>2</u>	5-104	103
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Appendix E: USGS Protocol

GWPD 17—Conducting an Instantaneous Change in Head (Slug) Test with a Mechanical Slug and Submersible Pressure Transducer

VERSION: 2010.1

PURPOSE: To obtain data from which an estimate of hydraulic conductivity of an aquifer can be calculated.

During a slug test the water level in a well is changed rapidly, and the rate of water-level response to that change is measured. From these data, an estimate of hydraulic conductivity can be calculated using appropriate analytical methods (for example, Ferris and Knowles, 1963).

A slug test requires a rapid ("instantaneous") water-level change and measurement of the water-level response at high frequency. A rapid change in water level can be induced in many ways, including injecting or withdrawing water, increasing or decreasing air pressure in the well casing, or adding a mechanical device like a plastic rod to displace water. The water-level changes can be measured with many methods, including steel tape, electric tape, air line, wireline/float, and submersible pressure transducers.

One of the most common methods in use is displacement of water with a mechanical slug, measurement of water levels with a submersible pressure transducer, and recording water levels with a data logger. This method combines ease of use, accuracy, and rapidity of water-level measurement. This document describes the mechanical slug/pressure transducer method. This technical procedure can be used with slight modifications if other approaches are used to instantaneously change the water level or measure water-level change.

Materials and Instruments

- 1. Tools or key to open the well.
- 2. Field notebook; Pencil or pen, blue or black ink. Strikethrough, date, and initial errors; no erasures.
- 3. Well-construction diagram.
- 4. Data logger and submersible pressure transducer. A 10-pound-per-square-inch (psi) pressure transducer commonly is used for slug tests because it combines adequate accuracy with an acceptable range of measurement.

5. Slug of polyvinyl chloride (PVC) or other relatively inert material (fig. 1). A slug of solid PVC (fig. 1*C*) is ideal because PVC caps (fig. 1*A*) can catch the well casing during insertion, and PVC plugs (fig. 1*B*) can come loose during the rapid removal of the slug.

Select the largest diameter and length of slug that will fit in the well without disturbing the transducer. The slug should have a displacement that will provide an adequate change in water level. The slug should displace enough water to provide a measurable change in water level, but not so large as to significantly increase the saturated thickness of the aquifer, disturb the transducer, or affect the speed at which one can raise or lower the slug. A water-level rise between 0.5 and 3 feet (ft) often is adequate. In low permeability formations, a smaller displacement will take less time for full recovery. In high permeability formations (1 to 100 ft per day), a larger displacement is desirable and practical. This usually can be generated with a slug diameter about 1 inch less than the well diameter and a length of 3 ft or more (lengths greater than 5 ft are awkward to handle in the field). Tables 1 and 2, respectively, provide theoretical displacement volumes for various slugs and volumes necessary for specific water-level changes.

- 6. Nylon cord or other strong line of sufficient length to reach below the water level in order to secure the slug.
- 7. Wooden rod, or 2 by 4 to secure the slug line.
- 8. Tripod or other device to support the slug line (optional).
- 9. Bungee cord or other device to secure the transducer cable and support line.
- 10. Water level measuring device (steel or electric tape).
- 11. Appropriate decontamination equipment, if necessary.
- 12. Field computer (optional).
- 13. Stopwatch (optional).

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Figure 1. Polyvinyl chloride (PVC) plastic slug. *A*, Solid 2-inch PVC pipe with external cap. *B*, Solid 2-inch PVC pipe with internal plug. *C*, Solid 2-inch PVC rod.

Table 1.	Slug displacement volume, in cubic feet, for a specific slug diameter
and lengt	h.

Slug length	Slug diameter (inches)						
(feet)	1	1.5	2	2.5	3	3.5	4
2	0.011	0.025	0.044	0.068	0.098	0.134	0.175
3	0.016	0.037	0.065	0.102	0.147	0.200	0.262
4	0.022	0.049	0.087	0.136	0.196	0.267	0.349
5	0.027	0.061	0.109	0.170	0.245	0.334	0.436
6	0.033	0.074	0.131	0.205	0.295	0.401	0.524

Table 2. Volume of water, in cubic feet, required to raise the water level a prescribed distance within a specific well diameter.

Well diameter (inches)	0.3-foot rise	0.5-foot rise	1-foot rise	1.5-foot rise	2-foot rise	3-foot rise
2	0.007	0.011	0.022	0.033	0.044	0.065
3	0.015	0.025	0.049	0.074	0.098	0.147
4	0.026	0.044	0.087	0.131	0.175	0.262
6	0.059	0.098	0.196	0.295	0.393	0.589
8	0.105	0.175	0.349	0.524	0.698	1.047
10	0.164	0.273	0.545	0.818	1.091	1.636

Data Accuracy and Limitations

- 1. The accuracy of a slug test is a function of many factors, including well construction, field procedures, and analysis method. Rapidly changing the water level in a well can be done by submerging an object (slug) in the water, causing the water level to rise instantaneously. Displaced water will move from the well to the geologic formation until the hydraulic head falls to the original static or equilibrium level. This is called a falling head test or "slug in test." After the water level reaches equilibrium, quickly removing the slug causes the water level to fall instantaneously. Water will move from the formation into the well until the hydraulic head returns to the equilibrium level. This is called a rising head test, "slug-out test," or bailer test. Because the early-time data for these tests are most important for the subsequent analysis, the data logger should begin collecting data just before the slug is submerged or removed from the well. The initial time can be adjusted during analysis, but the logger must be collecting data at a frequency of at least several samples per second when the water level begins to change. After the first minute or two of data collection, the sampling interval can be increased. Data loggers designed for aquifer tests and slug tests frequently have internal programs that allow for rapid data collection at early time and gradual increase of the sampling interval over time (a logarithmic time scale).
- 2. Some transducers have more rapid recording rates than others. If the slug test is being done in a formation of high hydraulic conductivity, select a transducer that can transmit at very small time increments (tenths of a second).
- 3. Due to the accuracy limitations of slug tests, results should be reported to one significant figure.

Advantages

- 1. Potentially contaminated water requiring special disposal is not removed from the well.
- 2. The slug test can be conducted quickly and is therefore relatively inexpensive.
- 3. Only one well is needed for the test (no need for other observation wells), and a pump is not required.
- 4. Because the slug-test data to be analyzed for an estimate of hydraulic conductivity are collected within a few minutes of the test initiation, this technique can be used near pumped wells or where well interference is expected, as long as the expected water-level changes occur slowly in comparison to the time for which the slug-test data will be analyzed.

Disadvantages

- 1. The collected data represent only a small volume of aquifer material near the tested well.
- 2. The test may be influenced by the well filter pack, skin effects, or poor well development.

Assumptions

- 1. Operator is familiar with the operation of data loggers and submersible pressure transducers. The data logger/ transducer can measure and record at a high frequency (less than or equal to one second in highly transmissive formations).
- 2. The well is free of obstructions which might hinder water-level measurement or introduction or removal of the mechanical slug.
- 3. The water level is easily accessible from the surface (within approximately 100 ft) and is within the length of the transducer cable.
- 4. Column of water in the well is long enough to cover the transducer and the slug.
- 5. The well is properly constructed and developed.
- 6. Well construction details such as well depth, screen length, borehole radius, filter pack, and well radius are known.
- 7. The hydraulic conductivity of the aquifer is not extremely low. A slug test is an acceptable method in low-permeability formations, but a transducer may not be necessary in this situation. The water level in the well should recover within minutes or hours for this procedure.

Instructions

- 1. Confirm well identification with well-construction diagram.
- 2. Measure the total depth of the well (see GWPD 11).
- 3. Measure the water level in the well (see GWPD 1 or GWPD 4). This should be repeated at the end of the test for long duration slug tests. The column of water in the well should be long enough to cover the transducer and the slug.
- 4. Document the static water level, well diameter, well depth, and screened interval in field notebook. The diameter of the hole, nature of filter pack, and type of screen also are documented, if known.

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- 5. Place the transducer in the well below the level at which the slug will be submerged, but not so low that the range of transducer might be exceeded at the highest anticipated water level. Secure the transducer in place. The transducer should not move during the test.
- 6. Measure (estimate) the maximum length of slug line that will be used. This length should allow the slug to completely submerge, about 1 ft below water surface.
- 7. Allow the transducer to adjust to the new pressure and temperature following manufacturer's guidance. This also provides time for the water level to recover prior to the test.
- 8. If needed, set up a tripod or some other device from which the slug can be lowered and raised in the well. Lower the clean, decontaminated slug to a point just above the water level and secure it in place. Take care not to move or kink the transducer line (fig. 2*A*). A simple approach of securing the slug is to tie a loop of cord that would hold the slug about 1 ft above the water surface and then tie off a second loop at the length of cord required for the entire slug to submerge. Put both of these loops over a rod or a wooden 2 by 4 that can rest across the top of the well casing.
- 9. Prepare the data logger. The data logger should be set to record data as frequently as possible during the first minutes of the test, and it can be set to record less frequently during later time. Recording in seconds on a logarithmic time scale meets this objective.
- 10. Establish a starting water level for the transducer and data logger. Data analysis is based on the change in water level rather than a comparison to a standard datum. The transducer starting water level can be set to zero, a value equal to the head of water above the transducer, or any other value.

Slug In Test

- 11. Begin the test by starting the data logger and nearly simultaneously submerging the slug quickly but gently into the water to minimize disturbance at the water surface or movement of the transducer cable (fig. 2*B*). Secure the slug cord to the wooden rod to maintain its position below the water level.
- 12. After 1 minute and periodically thereafter, check the status of the water-level reading with the data logger/ transducer or with a water-level measuring tape.
- 13. When the water level is equal to the initial water level, or when readings change less than 0.01 ft per 10 minutes, stop the test. This is the end of the falling head, or slug in test. You are now ready to begin the rising head, or slug out test.

Slug Out Test

- 14. Establish a starting water level for the transducer and data logger. Data analysis is based on the change in water level rather than a comparison to a standard datum. The transducer starting water level can be set to zero, a value equal to the head of water above the transducer, or any other value.
- 15. Prepare the data logger. The data logger should be set to record data as frequently as possible during the first minutes of the test, and it can be set to record less frequently during later time. Recording in seconds on a logarithmic time scale meets this objective.
- 16. Begin the test by starting the data logger and nearly simultaneously withdrawing the slug quickly but gently from the water to minimize disturbance at the water surface or movement of the transducer cable. The slug need not be withdrawn completely out of the well, but should



Figure 2. Well diagram with polyvinyl chloride (PVC) plastic slug (*A*) poised just above the water level for falling head or slug in test, (*B*) submerged below the water level for falling head or slug in test, (*C*) removed just above the water level for rising head or slug out test, and (*D*) removed from the well for rising head or slug out test.

GWPD 17—Conducting instantaneous change in head (slug) test with mechanical slug and submersible pressure transducer 149

be out of the water (fig. 2C or 2D). Secure the slug cord to the wooden rod to maintain its position above the water level.

- 17. After 1 minute and periodically thereafter, check the status of the water-level reading with the data logger/ transducer or with a measuring tape.
- 18. When the water level is equal to the initial water level, or when readings change less than 0.01 ft per 10 minutes, stop the test. This is the end of the rising head, or slug out test.
- 19. Review the data for completeness and accuracy. This can be done on the data logger or on a field computer (pre-ferred). Optionally, the test can be analyzed in the field on a field computer using aquifer test software.
- 20. Repeat the entire procedure at least once as time permits, so two complete sets of falling and rising head test data are collected (four tests).

Data Recording

- 1. All calibration and maintenance data associated with the data logger, steel or electric tape, and submersible pressure transducer are recorded in calibration and maintenance equipment logbooks.
- 2. Complete a field report with date, time, well identifier, type of test (rising or falling head), composition and dimensions (or volume) of the slug, and the name of data files. (Use site ID or well name, date, and year in the file name: for example, 424531077564201.19960101, or Well8.19960101).
- 3. Data are downloaded to an office computer for processing. Results are interpreted and submitted for Bureau approval. Original data are stored in the office aquifer test archive, and result is recorded on the Ground-Water Site Inventory form (fig. 3, Form 9-1904-D1).

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FORM NO. 9-1904-D1 Revised January 2010, NWIS 4.9	
Coded by	File Code
Checked by	Date
Entered by	Regional approval date
U.S DEPT GEOLC	. OF THE INTERIOR DGICAL SURVEY
GROUNDWA Hyd	ATER SITE INVENTORY draulics Data
AGENCY CODE (C4) SITE ID (C1)	
RECORD TYPE (C744) $H Y D R$ RECORD SEQUENCE N	O. (C790)
HYDRAULIC UNIT IDENTIFIER (C100)	F
HYDRAULICS UNIT TYPE (C103) aquifer confining unit	
REMARKS - Method of determining hydraulics data (C104)	
HYDRAULICS SOURCE AGENCY (C305)	B-READY AG (C874) Y C P L ready to condi- display, tional, propri- tional, propri- etary, local use only
RECORD TYPE (C746)	RENT RECORD (C99)
TRANSMISSIVITY(C107)	
HORIZONTAL CONDUCTIVITY (C108)	VERTICAL CONDUCTIVITY (C109)
STORAGE COEFFICIENT (C110)	LEAKANCE
DIFFUSIVITY (C112)	SPECIFIC STORAGE (C113)
BAROMETRIC EFFICIENCY (Percent) (C271)	POROSITY (C306) •
WEB-READY FLAG (C875) Y C P L ready to condi- propri- display, to condi- etary, local use only	



GWPD 17—Conducting instantaneous change in head (slug) test with mechanical slug and submersible pressure transducer 151

Procedures References

- Cunningham, W.L., and Schalk, C.W., comps., 2011a, Groundwater technical procedures of the U.S. Geological Survey, GWPD 1—Measuring water levels by use of a graduated steel tape: U.S. Geological Survey Techniques and Methods 1–A1, 4 p.
- Cunningham, W.L., and Schalk, C.W., comps., 2011b, Groundwater technical procedures of the U.S. Geological Survey, GWPD 3—Establishing a permanent measuring point and other reference marks: U.S. Geological Survey Techniques and Methods 1–A1, 13 p.
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- Cunningham, W.L., and Schalk, C.W., comps., 2011d, Groundwater technical procedures of the U.S. Geological Survey, GWPD 11—Measuring well depth by use of a graduated steel tape: U.S. Geological Survey Techniques and Methods 1–A1, 10 p.

Method References

- American Society for Testing of Materials, 1991, ASTM Method D4044-91: Philadelphia, Pennsylvania, American Society for Testing of Materials.
- Ferris, J.G., and Knowles, D.B., 1963, The slug-injection test for estimating the coefficient of transmissibility of an aquifer, *in* Bentall, Ray, comp., Methods of determining permeability, transmissibility, and drawdown: U.S. Geological Survey Water-Supply Paper 1536–I, p. 299–304.
- Hoopes, B.C., ed., 2004, User's manual for the National Water Information System of the U.S. Geological Survey, Ground-Water Site-Inventory System (version 4.4): U.S. Geological Survey Open-File Report 2005–1251, 274 p.

Analysis References

- Bouwer, Herman, 1989, The Bouwer and Rice slug test—An update: Ground Water, v. 27, no. 3, p. 304–309.
- Bouwer, Herman, and Rice, R.C., 1976, A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells: Water Resources Research, v. 12, no. 3, p. 423–428.
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Dawson, K.J., and Istok, J.D., 1991, Aquifer testing—Design and analysis of pumping and slug tests: Chelsea, Michigan, Lewis Publishers, 344 p.

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- Hvorslev, M.J., 1951, Time lag and soil permeability in ground-water observations: Vicksburg, Mississippi, U.S. Army Corps of Engineers, Waterways Experiment Station, Bulletin No. 36, p. 1–50.
- HydroSOLVE, Inc., 1998, AQTESOLV for Windows User's Guide: Reston, Virginia, HydroSOLVE, 128 p.
- Krusman, G.P., and deRidder, N.A., 1990, Analysis and evaluation of pumping test data (2d ed.): Wageningen, The Netherlands, International Institute for Land Reclamation and Improvement, 377 p.

Fw: [EXTERNAL] RE: West Pearl Queen; incident #: NOY1816446096

rhillman <rhillman@aecnm.com> Fri 7/19/2024 7:10 AM To:sdutton <sdutton@aecnm.com> Cc:kaa <kaa@aecnm.com>

1 attachments (13 MB)
 2024-07-02_WPQ_Workplan_Submittal(1).pdf;

Shelby:

Would you be so kind as to submit the attached plan to the OCD through the portal? At your earliest convenience. Please include the email below from Nelson Valdez.

Thanks! Ron

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

Sent: Thursday, July 18, 2024 2:41 PM

To: Christopher Cortez <chris@atkinseng.com>; Austin Weyant <austin@atkinseng.com> Cc: rhillman <rhillman@aecnm.com>; kaa <kaa@aecnm.com>; Romero, Rosa, EMNRD <RosaM.Romero@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Buchanan, Michael, EMNRD <Michael.Buchanan@emnrd.nm.gov> Subject: Re: [EXTERNAL] RE: West Pearl Queen; incident #: NOY1816446096

[CAUTION: This email originated from outside Armstrong Energy Corp. Do not click links or open attachments unless you recognize the sender and know the content is safe]

Good afternoon Chris,

Thank you for inquiry. Your time extension request is hereby approved. Remediation Due date has been updated to October 29, 2024.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

OCD requires that Armstrong Energy provide us with an update of the soil remediation upon completion. In addition, any water data generated must be provided as well. Please submit within Permitting under the groundwater abatement portal.

A time extension may be requested in order to complete the Stage 1 abatement plan required.

If you have any further questions or concerns, please reach out to any OCD personnel attached in this thread.

Have a safe and productive day!

Regards,

Nelson Velez • Environmental Specialist - Adv Environmental Bureau | EMNRD - Oil Conservation Division 1000 Rio Brazos Road | Aztec, NM 87410 (505) 469-6146 | nelson.velez@emnrd.nm.gov http://www.emnrd.nm.gov/ocd_



From: Christopher Cortez <chris@atkinseng.com>

Sent: Friday, June 28, 2024 3:25 PM

To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Austin Weyant <austin@atkinseng.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>

Cc: rhillman@aecnm.com <rhillman@aecnm.com>; kaa <kaa@aecnm.com>; Romero, Rosa, EMNRD <RosaM.Romero@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov> Subject: [EXTERNAL] RE: West Pearl Queen; incident #: NOY1816446096

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Nelson,

Armstrong Energy Corporation is requesting an extension for the current deadline of July 1, 2024 for Remedial Closure. Armstrong Energy is requesting an additional 120 days (October 29, 2024)

It is Armstrong Energy Corporation's desire to comply with Divisions request for a comprehensive Stage 1 Abatement Plan proposal to be submitted to the director for her review.

After extensive review of the available data and site conditions, we believe our proposed initial actions and the stabilization of the site through remedial soil closure is a necessary step, to provide that comprehensive plan. A workplan for these initial actions will be submitted no later than July 2, 2024 (we are coordinating with AEC staff who are traveling today), and additional time will be needed for NMOCD review and scheduling of work so proper excavation for remedial closure can be completed.

AEA has blocked time for its drill crew in September 2024 (earliest available based on contracted obligations) to properly abandon the portions of the existing temporary monitoring well network –once receiving OCD approval. Prior to that sampling and other data collection work will be performed in late August. We believe that this will give enough time to complete the remedial closure process under NMAC 19.25.29 by late October, as requested.

Once the initial work and data is collected, we believe a full Stage 1 Abatement Plan can be completed in Late 2024 or 1st quarter 2025, with the full investigation to occur in 2025.

Thanks for your consideration,

Chris Cortez 575.914.0174

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Wednesday, May 1, 2024 9:07 AM
To: Austin Weyant <austin@atkinseng.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Cc: Christopher Cortez <chris@atkinseng.com>; rhillman@aecnm.com; kaa <kaa@aecnm.com>; Romero, Rosa, EMNRD
<RosaM.Romero@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>;
Subject: Re: [EXTERNAL] RE: West Pearl Queen; incident #: NOY1816446096

Good morning Austin,

Your 60-day time extension request is approved. Remediation Due date has been updated to July 1, 2024.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

Regards,

Nelson Velez • Environmental Specialist - Adv Environmental Bureau | EMNRD - Oil Conservation Division 1000 Rio Brazos Road | Aztec, NM 87410 (505) 469-6146 | <u>nelson.velez@emnrd.nm.gov</u> <u>http://www.emnrd.state.nm.us/OCD/</u>



District I 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Action 365911

CONDITIONS Operator: OGRID: ARMSTRONG ENERGY CORP 1092 P.O. Box 1973 Action Number: Roswell, NM 88202 365911 Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created	Condition	Condition Date
Ву		
nvelez	Accepted for the record.	10/28/2024