Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	NAB1923530526
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points (GPS available upon request)
☒ Estimated volume of material to be remediated REMEDIATION FOR CHLORIDE IS NOT REQUIRED
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)
REMEDIATION OF HYDRCARBONS MAY NOT BE REQUIRED

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Randall Hicks_____ Title: ___Agent for Ray Westall Operating_____

Signature:____ Randall Hicks _____ _ Date: ___5/2/2022_____

email: ___r@rthicksconsult.com COPY TO _hope_rene@yahoo.com__ Telephone: __505-238-9515 AND 575 677 2370_____

OCD Only

Received by: Robert Hamlet Date: 11/15/2022

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Robert Hamlet Date: 11/15/2022

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Ray Westall Operating, Inc	OGRID: 119305
Contact Name: Donnie Matthews	Contact Telephone: 575-677-2370
Contact email: hope_rene@yahoo.com	Incident # *(assigned by OCD)*
Contact mailing address PO Box 4. Loco Hills, NM 88255-0004	

Location of Release Source

Latitude 32.720802 Longitude -104.056206
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Empire A Federal #2	Site Type: Salt Water Injection and Tank Battery
Date Release Discovered: August 12, 2019 @ 11am by NMOCD	API# 30-015-29618

Unit Letter	Section	Township	Range	County
H	27	18S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) Unknown (50x10 yrds)	Volume Recovered (bbls) 0
☒ Produced Water	Volume Released (bbls) Unknown (50 x 10 yrds)	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:
Cause of release unknown. Possible trespass and dumping on location. Incident discovered by Robert Hamlet District 2 NMOCD.
Volume Justification: Volume will be determined during characterization.

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Release considered greater than 25 barrels until release is characterized and delineated.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Please consider this C-141 submission immediate notice within 24 hours of release.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

During discovery all free liquids soaked into the ground.

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _Andrew Parker_____ Title: __Sr. Environmental Specialist_____

Signature: _____ Date: __August 13, 2019

email: _andrew@rthicksconsult.com_____ Telephone: ___970-570-9535_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
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Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	150 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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Printed Name: _____Randall Hicks_____ Title: ___Agent for Ray Westall Operating_____

Signature:____ _____ _ Date: ___5/2/2022_____

email: ___r@rthicksconsult.com COPY TO _hope_rene@yahoo.com__ Telephone: __505-238-9515 AND 575 677 2370_____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points (GPS available upon request)
☒ Estimated volume of material to be remediated REMEDIATION FOR CHLORIDE IS NOT REQUIRED
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)
REMEDIATION OF HYDRCARBONS MAY NOT BE REQUIRED

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Randall Hicks_____ Title: ___Agent for Ray Westall Operating_____

Signature:____  _____ _ Date: ___5/2/2022_____

email: ___r@rthicksconsult.com COPY TO _hope_rene@yahoo.com__ Telephone: __505-238-9515 AND 575 677 2370_____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Remediation/Reclamation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique

Data presented in the Characterization show that the August 2020 and August 2021 sampling data demonstrate that chloride concentrations in the upper 4 feet of impacted soil is below the 600 mg/Kg requirement stated in Rule 29 for site reclamation. Chloride concentrations in soil and subsoil are about 2% of the remediation standard of 20,000 mg/kg. No remediation for chloride is required and the soil horizon meets the chloride reclamation criteria.

Because the sampling for hydrocarbons is insufficient, we propose to collect samples for evaluation of hydrocarbons listed in Table 1 of Rule 29 when implementing this reclamation plan. Based upon the 2021 sampling from surface to 4.25 feet below surface, we conclude with a high degree of scientific certainty that the sampling results will demonstrate:

- BTEX is not above the remediation standards of Table 1
- Other petroleum hydrocarbon constituents (GRO, DRO, MRO) will not exceed Rule 29 Table 1 closure standards

The proposed 2022 sampling is our presumptive closure sampling and the protocol is attached. However, if results demonstrate that regulated constituents exceed the Table 1 standards (presented below for the benefit of our client,) we will implement one of the following remediation plans:

1. Monitored natural attenuation that employs rainfall and time to cause bio-degradation of petroleum hydrocarbons and further dispersion of chloride in the 100+ feet thick vadose zone or
2. Preparation of a variance to allow closure if
    a. BTEX components and chloride meet closure criteria and t
    b. he long-chain TPH hydrocarbons, which have no numerical standard for groundwater in New Mexico, pose no threat to successful reclamation

>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

Since the initial site visit in 2019, portions of the impacted area (notably the southwestern portion) have naturally revegetated, albeit with volunteers rather than species in the BLM seed mix. RWO proposes the following reclamation plan:

- Till the affected soil that has not revegetated, including areas impacted with crude oil, and mix in a small volume of straw to improve the soil porosity/permeability
- Prior to seed formation of the volunteer vegetation, till the remaining areas of the spill footprint incorporating the volunteer vegetation into the soil to add biomass and improve porosity
- Seed with the appropriate BLM seed mixture prior to an monsoon rains and
- Monitor re-vegetation and remove any invasive species and other unwanted weeds.

☒ Scaled sitemap with GPS coordinates showing final sampling points.

See Plate A.

☒ Estimated volume of material to be remediated

Upon receipt of the soil sampling results, we anticipate the volume scheduled for remediation will be zero.

☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC

Upon receipt of the results of the proposed sampling, we will provide an additional report to OCD. As indicated above, the results of the anticipated closure sampling may cause submission of a variance to allow for closure with TPH constituents exceeding the Table 1 closure criteria.

☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

We propose performing recommended sampling and site reclamation prior to June 1, 2022 to take advantage of any monsoon rainfall.

C – 141 Site Assessment and Characterization: Report and Plates

Characterization Report

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.

Plate 1 shows the spill footprint (brown-dashed line). Visual observations site in 2019 (see Appendix Site Photos) provided an excellent estimate of the extent of the release footprint. Photos in the appendix from 2022 provide evidence of natural remediation/revegetation over the period of two (2) years.

The Federal Surface ownership is presented in this image as well as our calculation of the surface area of the release, about 4300 square yards and about 31,000 square feet outside of the working pad..

The locations of 2020 samples taken by RT Hicks Consultants are included in Plate 1 as red points labelled by "T1…T4". We obtained the samples by digging trenches and taking a surface sample and samples at 2 feet below the surface and 4 feet on one wall of the trench. We returned to the site in 2022 and collected additional samples at locations very close to T-2, T-3, and T-4. See Plate A.

☒ Field data

Field data from the Hicks Consultants site visit and sampling program is presented in *Site Photos.*

The important observations as shown in the photographs are:

1. A large portion of the area impacted by the release have been re-vegetated.
2. Some areas of the release site are still without vegetation
3. The release contained crude oil and produced water.
4. There is no caliche beneath the aeolian sand in the area except for a small, localized layer near T3.

☒ Data table of soil contaminant concentration

data See Laboratory Reports.

Table 1 (below) shows the following relationships

- We neglected to collect a sufficient number of samples for hydrocarbons
- No BTEX is detected in the three samples, as is often the case with crude oil surface spills
- No samples exceed the remediation standard for chloride (20,000 mg/kg)

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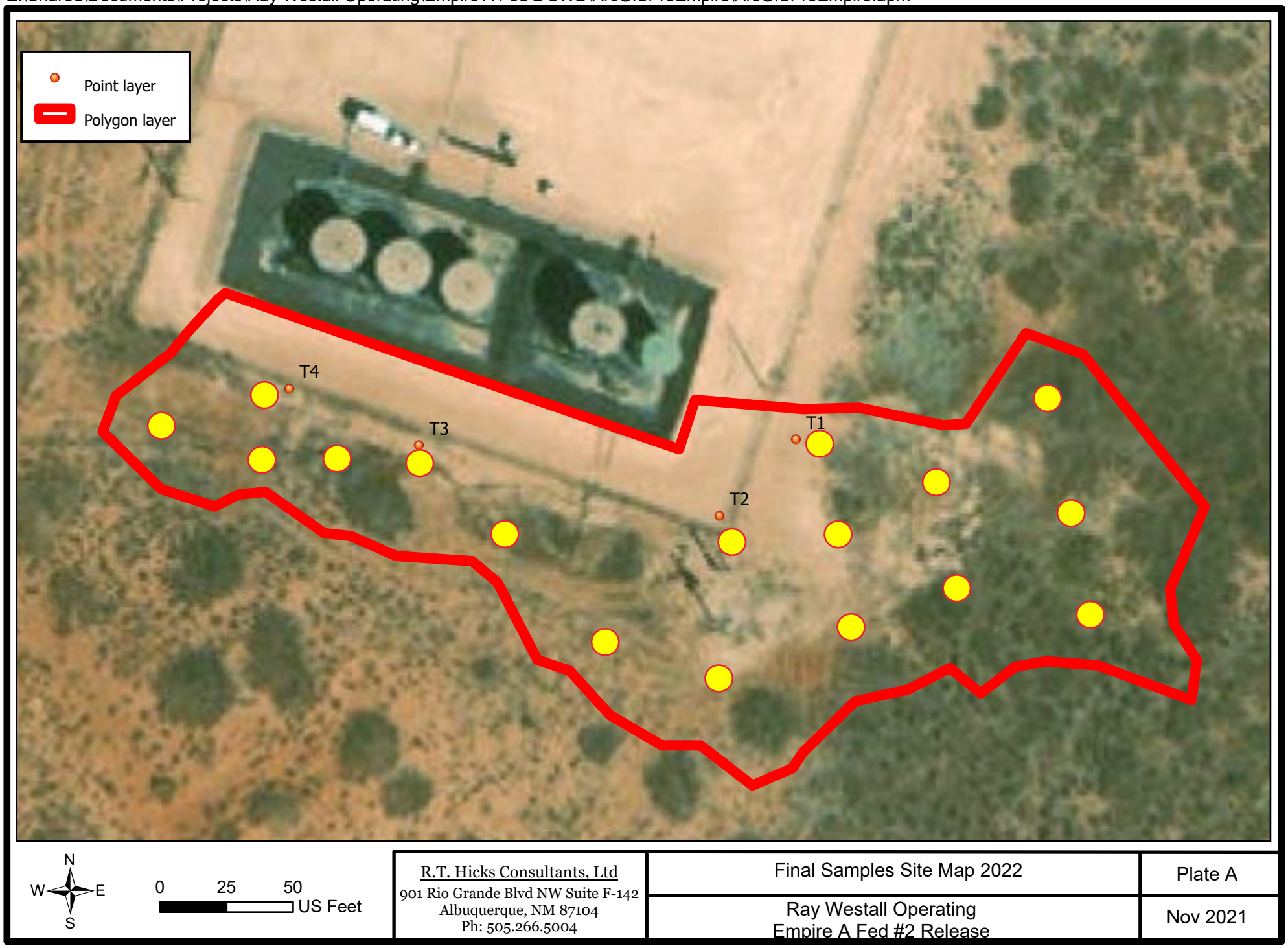

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Final Samples Site Map 2022	Plate A
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

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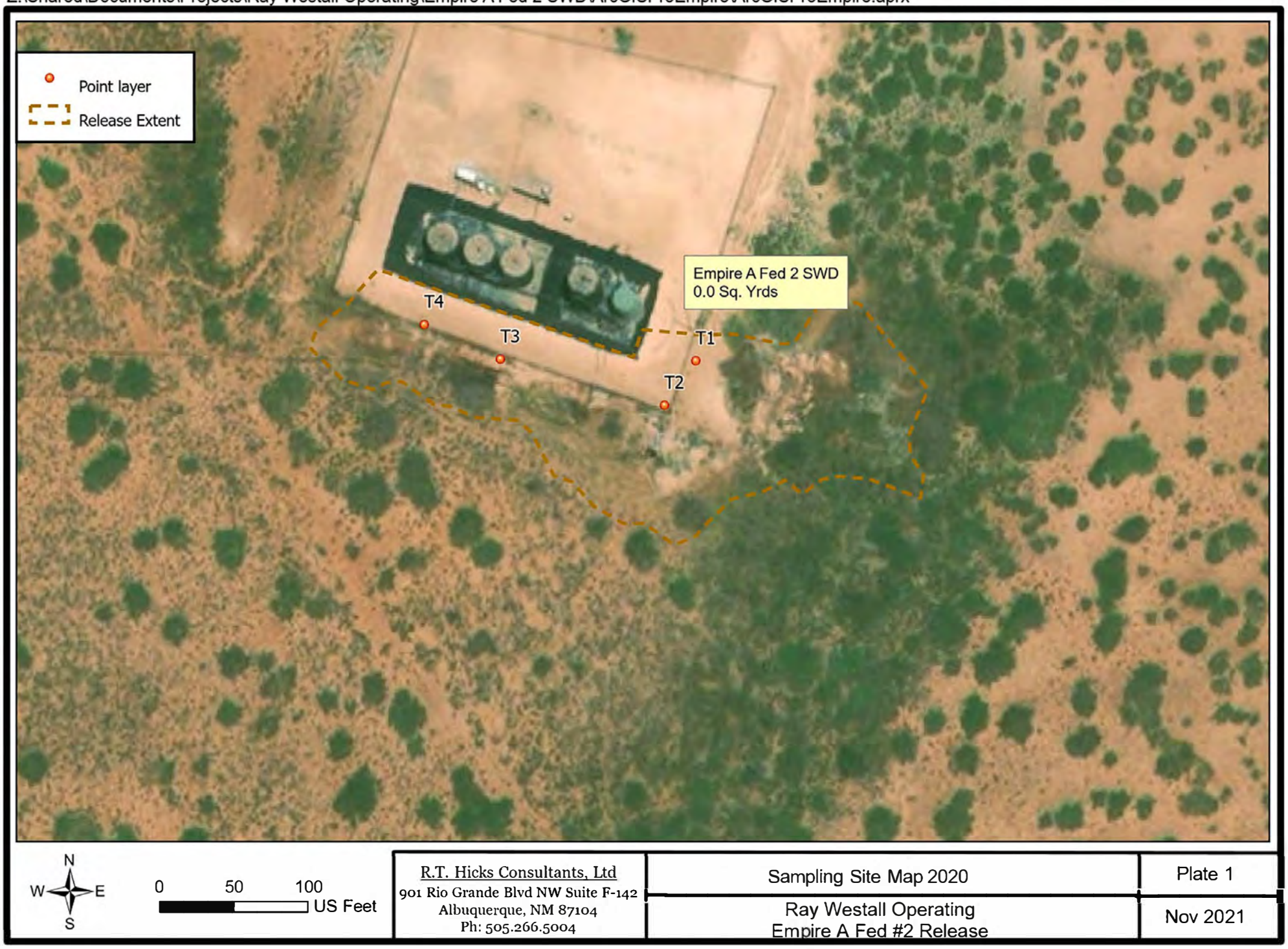


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Sampling Site Map 2020 Ray Westall Operating Empire A Fed #2 Release	Plate 1 Nov 2021

- The average chloride concentration in the soil and subsoil from surface to a depth of four (4) feet is
  - 490 mg/kg using the 2020 sampling results and assuming 40 mg/kg as the value for T2 at 24 inches
  - 383 mg/kg using the 0-4 composite for T2 and T4 and the average of the two samples from T3

Hall Environmental Results Aug2020						
Sample ID	Chloride	DRO	MRO	GRO	Benzene	BTEX
T1-0	360	-	-	-	-	-
T1-24	220	-	-	-	-	-
T1-48	490	-	-	-	-	-
T2-0	66	-	-	-	-	-
T2-24	ND	-	-	-	-	-
T2-48	100	-	-	-	-	-
T3-0	130	9100	9800	ND	ND	ND
T3-24	69	-	-	-	-	-
T3-48	1200	-	-	-	-	-
T4-0	730	-	-	-	-	-
T4-24	2100	-	-	-	-	-
T4-48	380	-	-	-	-	-
Hall Environmental Results Aug2021						
Sample ID	Chloride	DRO	MRO	GRO	Benzene	BTEX
T2 0-4	540	-	-	-	-	-
T2 4.1	640	-	-	-	-	-
T3 0-2	610	-	-	-	-	ND
T3 2-4	110					ND
T4 0-4	250	-	-	-	-	ND
T4 4.1	1200	-	-	-	-	ND
all results in mg/kg						

☒ Depth to water determination

Distance to Groundwater

Plates 2 and 3 and the discussion presented below demonstrate that groundwater (freshwater, as defined by NMOCD Rules) at the location is greater than 100 feet beneath release footprint.

Hydrogeology of the Release Site

The Empire A Fed #2 release site is located approximately 22.1 miles southeast of Artesia, New Mexico and approximately 23 miles northeast of Carlsbad, New Mexico. According to the Geologic Map of the State of New Mexico, the surficial geologic unit at the site is Quaternary age aeolian and piedmont deposits (Qe/Qp) which are described as:

Qe – Eolian deposits (Holocene to middle Pleistocene)

Qp – Piedmont alluvial deposits (Holocene to lower Pleistocene) – Includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the piedmont slope, and alluvial fans. May locally include uppermost Pliocene deposits.

CP-00863, the closest well to the site, is located 250 feet northwest of the Empire site and was a dry hole drilled to 320 feet. It shows caliche at 6 feet then various clays to 320 feet. R.T. Hicks also caused the drilling of a borehole on August 26th, 2020, near the Empire site, it was also a dry borehole to 80 feet which showed various clays and sands to be present below the site (Well Logs and Boring Log are in Well Log Appendix).

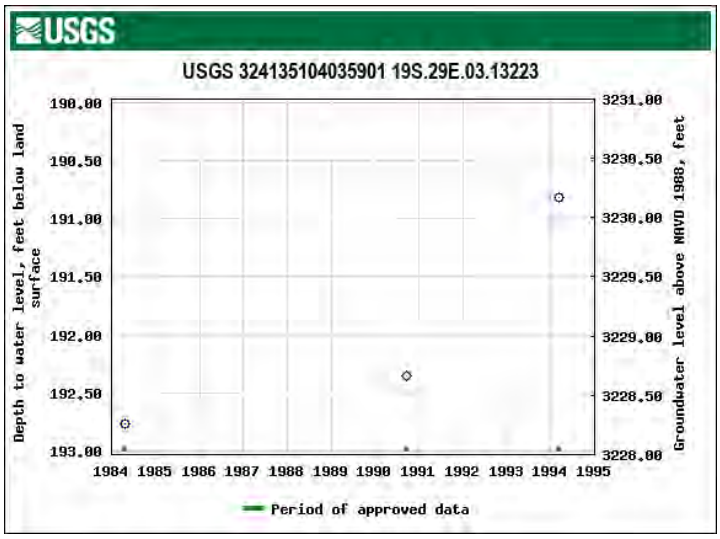
Depth to Water Evaluation

Plate 3 and the associated legend uses a topographic base map overlain by a transparent geologic map of New Mexico and shows:

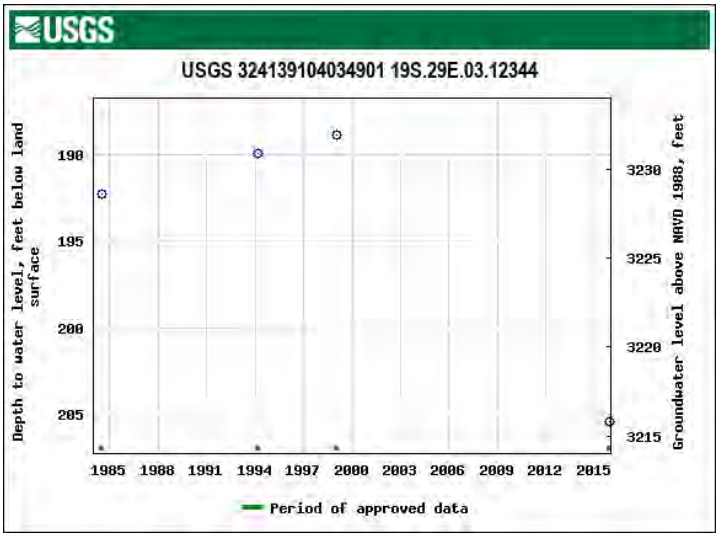
1. The location of the Empire release site labelled with a yellow callout box.
2. Water wells from the USGS database as green with an orange dot, purple, red, and blue triangles. These symbols represent the principal water bearing unit. In this case, the symbols represent Artesia Group, Chinle, Santa Rosa, and Rustler formations. The USGS well number, groundwater elevation measurement, and date the well was completed are also indicated on the Plate.
3. Water wells labeled "MISC" that are from the RT Hicks database, where depth to water measurements from wells in southeast New Mexico has been recorded by professionals over the years and groundwater elevations is subsequently calculated. These wells are symbolized by yellow and green squares with black dots in the center. The color of the square corresponds to the depth to water measurement. The wells are labeled by their number in the MISC database, the groundwater elevation, and the date the measurement was taken.
4. Isocontour lines displaying the elevation of the groundwater surface based upon measurements made by professionals.

We relied upon the USGS and MISC wells from the various water bearing units to create the water table elevation map shown in Plate 3. Water level data from the OSE database rely upon observed water levels by drillers during the completion of the water well. The OSE dataset provides some useful data in certain areas.

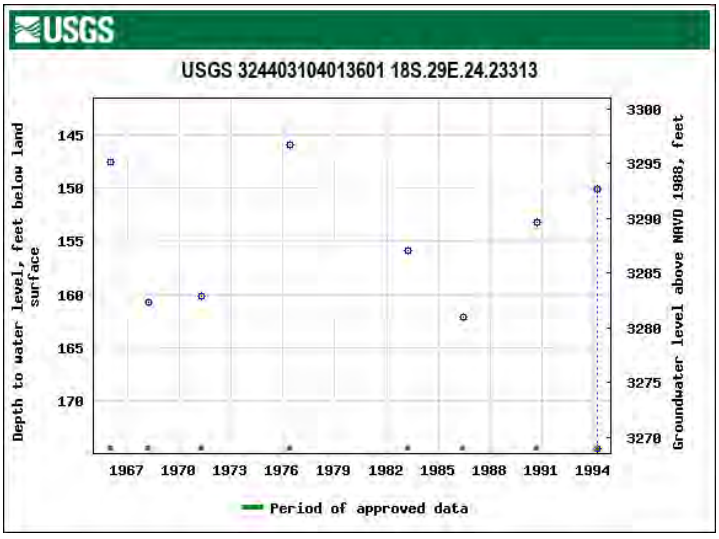
The data demonstrate that the wells in the southern and western areas of the map are completed in the Permian Rustler formation, and the wells in the northern and eastern areas of the map are completed in the Santa Rosa or Chinle formations. We believe this to be true based on our analysis.



USGS-10180 (USGS 3241…5901) is located 1.99 miles to the southwest of the Empire site. The data for this well span about 10 years, from 1984 to 1994. The depth to water measurement ranges from about 192.70 feet below the surface to 190.70 feet below the surface. A 2-foot change over 10 years indicates a relatively stable water level in this well.



USGS-10190 (USGS-3241…4901) is located 1.62 miles to the southwest of the Empire site. The depth to water data for this well span 30 years, from 1985 to 2015. Over these 30 years, the depth to water changes from approximately 192.26 feet below the surface to 205.42 feet. There is an overall 16.56 change in the depth to water over a 30-year period. This indicates a relatively stable water level.



USGS-9220 (USGS-3244…3601) is located 1.72 miles northeast of the site. The data for this well spans 29 years, from 1965 to 1994. Overall, the depth to water changes 28.43 feet in 29 years, which indicates a relatively stable water level.

Based on this data, we can conclude:

- The elevation of the ground water surface beneath the release is approximately 3280 feet above mean sea level.
- OSE Well logs provide evidence that perched, shallow groundwater zones within the area do not exist.
- Ground surface at the site about 3432 feet asl
- The minimum distance between the spill and uppermost water-bearing zone is approximately (3432-3280) = 152 feet.

☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release

As seen in Figure 5, within a half-mile of the release site, there are no water sources or significant watercourses. The nearest mapped watercourse is an intermittent stream called Grass Draw, which is about 0.75 miles to the northwest.

☒ Boring or excavation logs

See Well Logs Appendix.

☒ Photographs including date and GIS information

See Site Photos Appendix

☒ Topographic/Aerial maps

See Plate 5 for the topographic map and Plate 6 for the aerial map.

☒ Laboratory data including chain of custody

See Laboratory Report Appendix.

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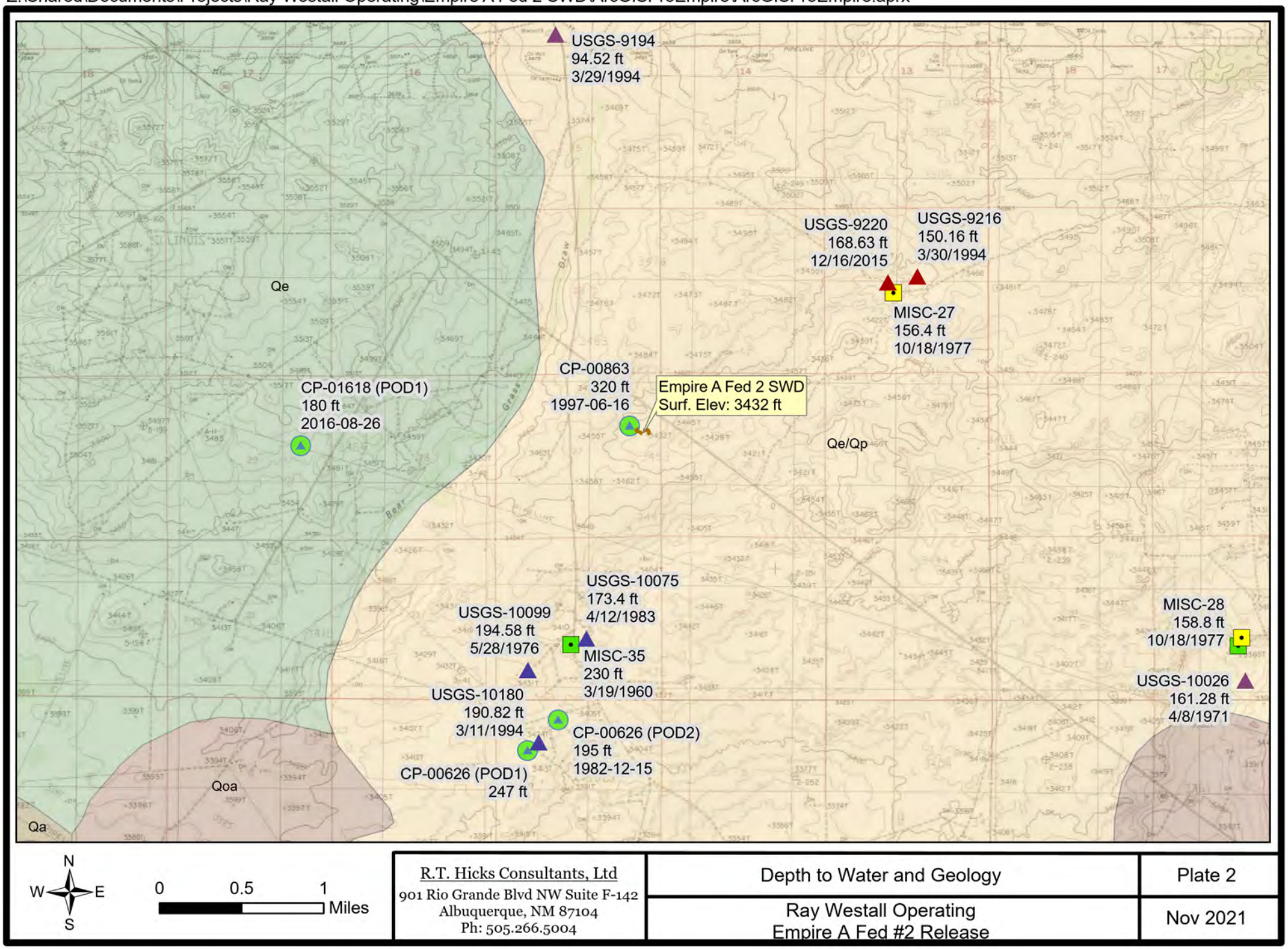

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth to Water and Geology Ray Westall Operating Empire A Fed #2 Release	Plate 2 Nov 2021

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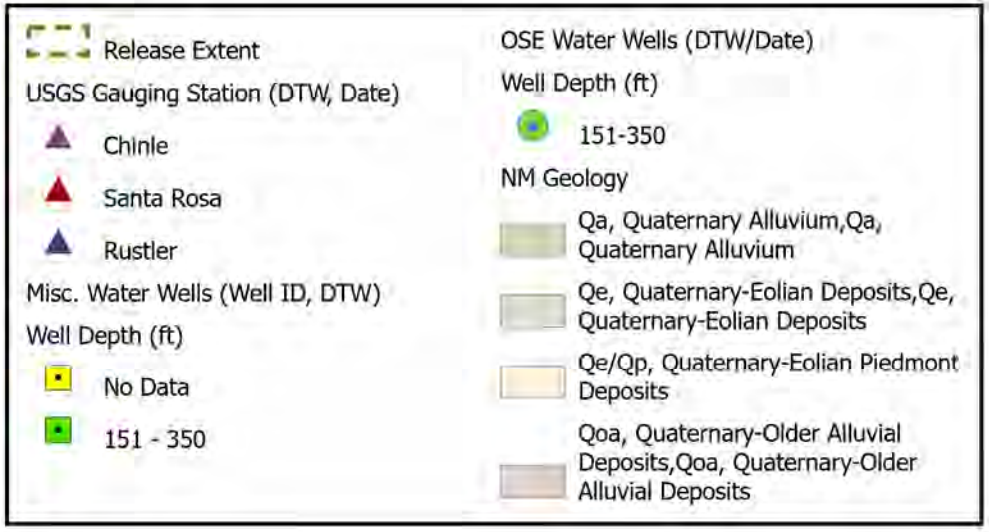

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Depth to Water and Geology Legend

Plate 2

Ray Westall Operating
Empire A Fed #2 Release

Nov 2021

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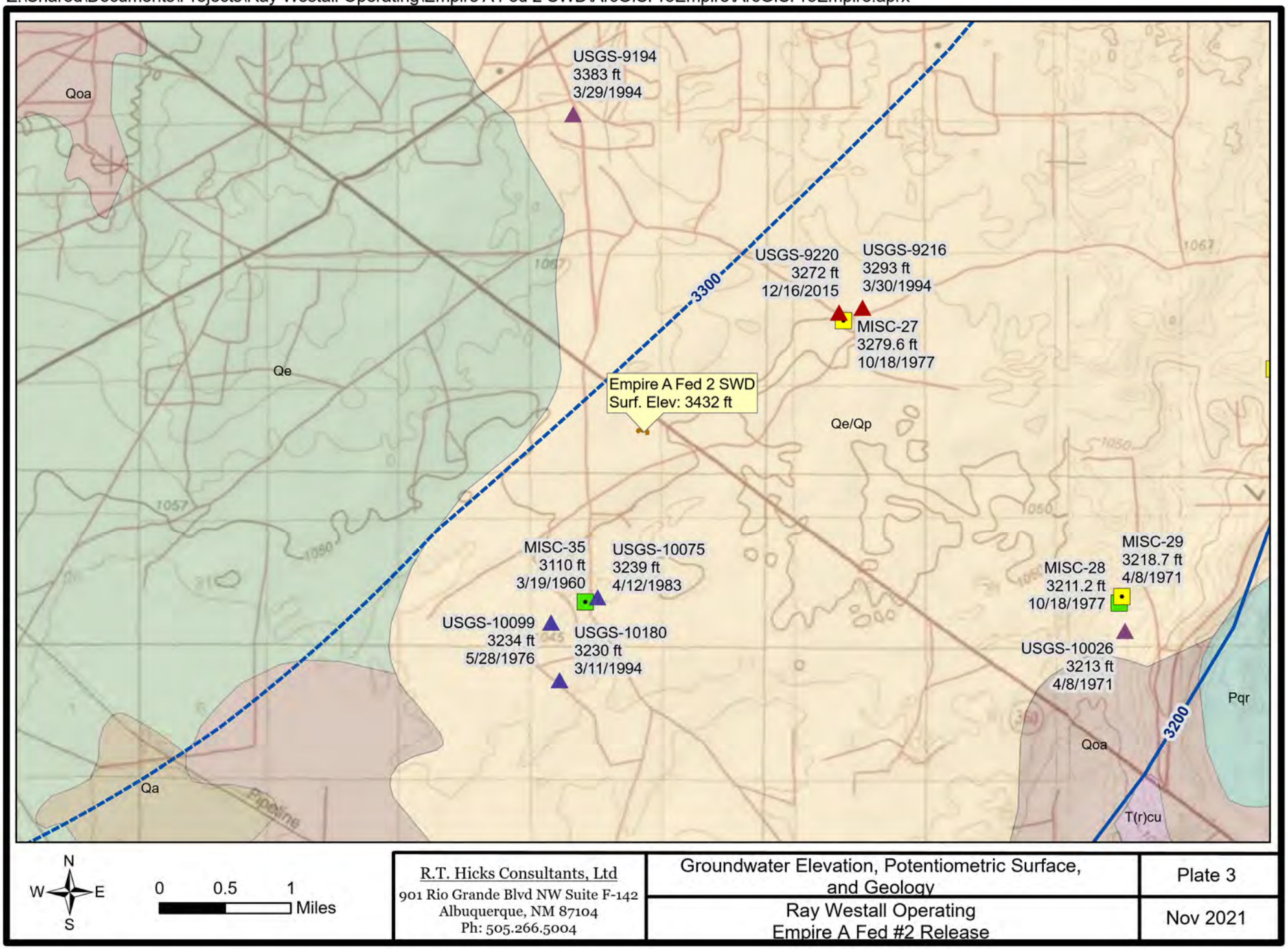

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Groundwater Elevation, Potentiometric Surface, and Geology	Plate 3
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

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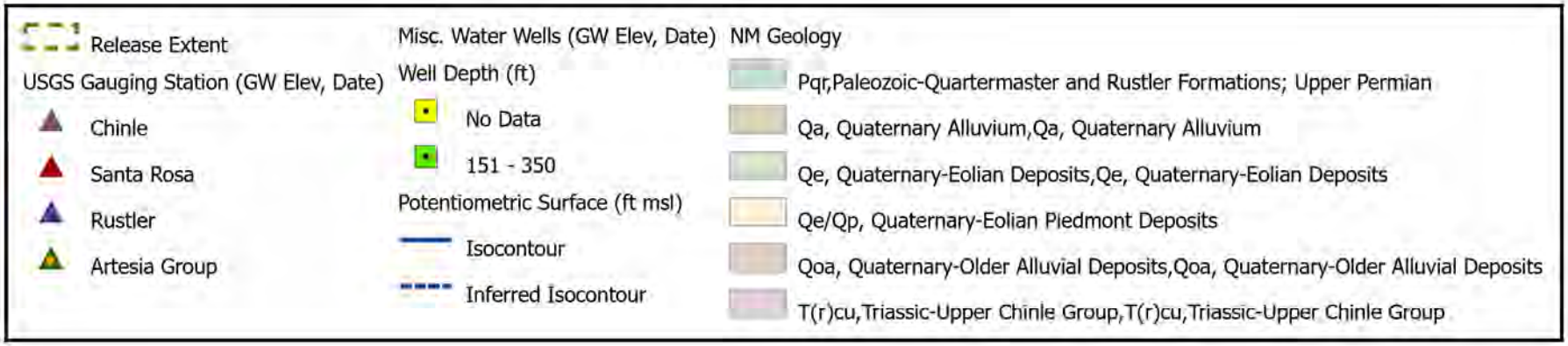

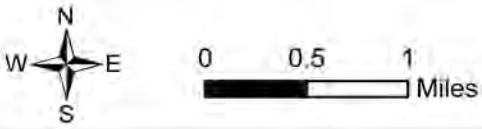

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Groundwater Elevation, Potentiometric Surface, and Geology Legend

Plate 3

Ray Westall Operating
Empire A Fed #2 Release

Nov 2021

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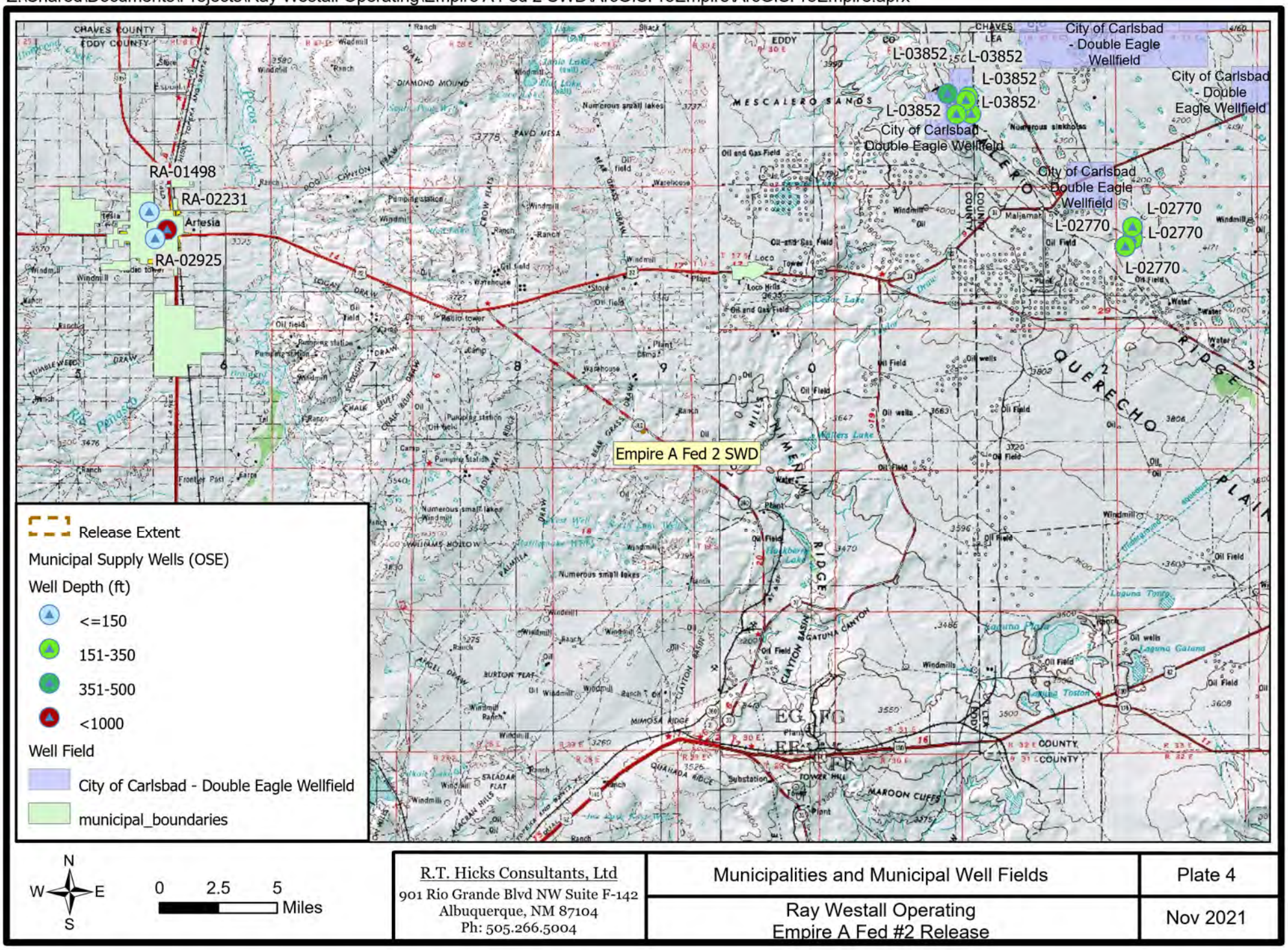
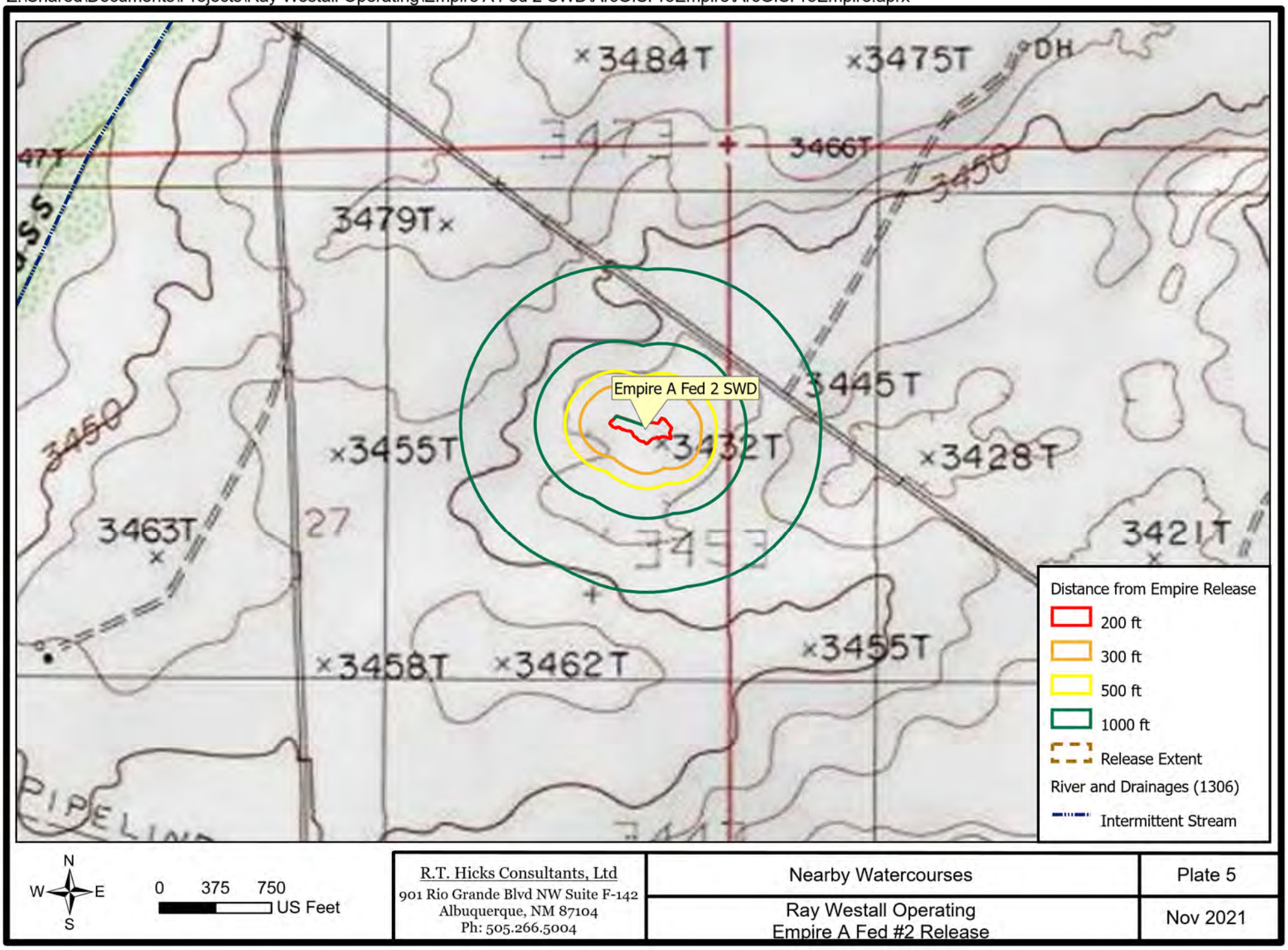


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Municipalities and Municipal Well Fields	Plate 4
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

Z:\Shared\Documents\Projects\Ray Westall Operating\Empire A Fed 2 SWD\ArcGISProEmpire\ArcGISProEmpire.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Watercourses	Plate 5
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

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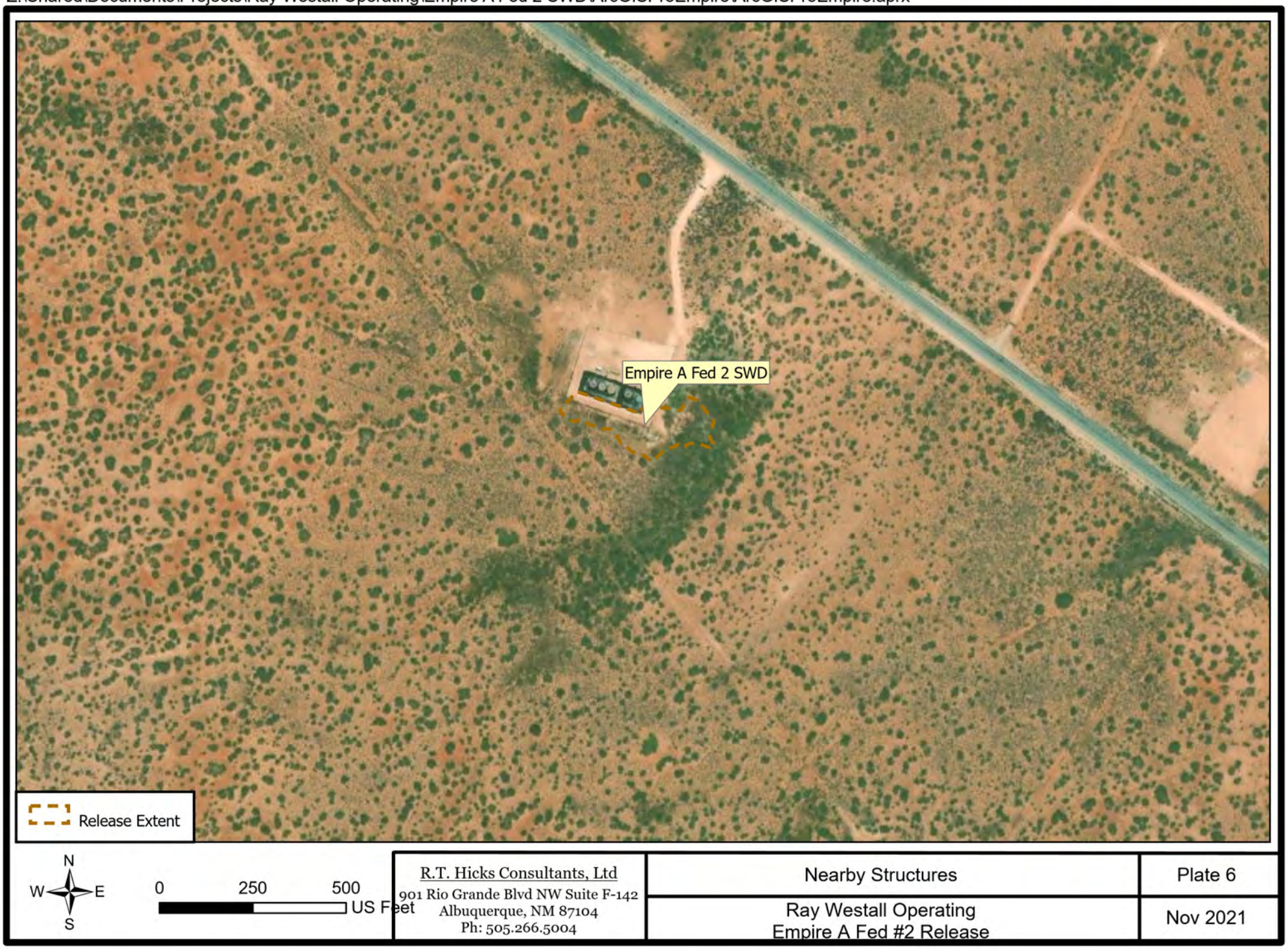

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby Structures	Plate 6
Ray Westall Operating Empire A Fed #2 Release	Nov 2021

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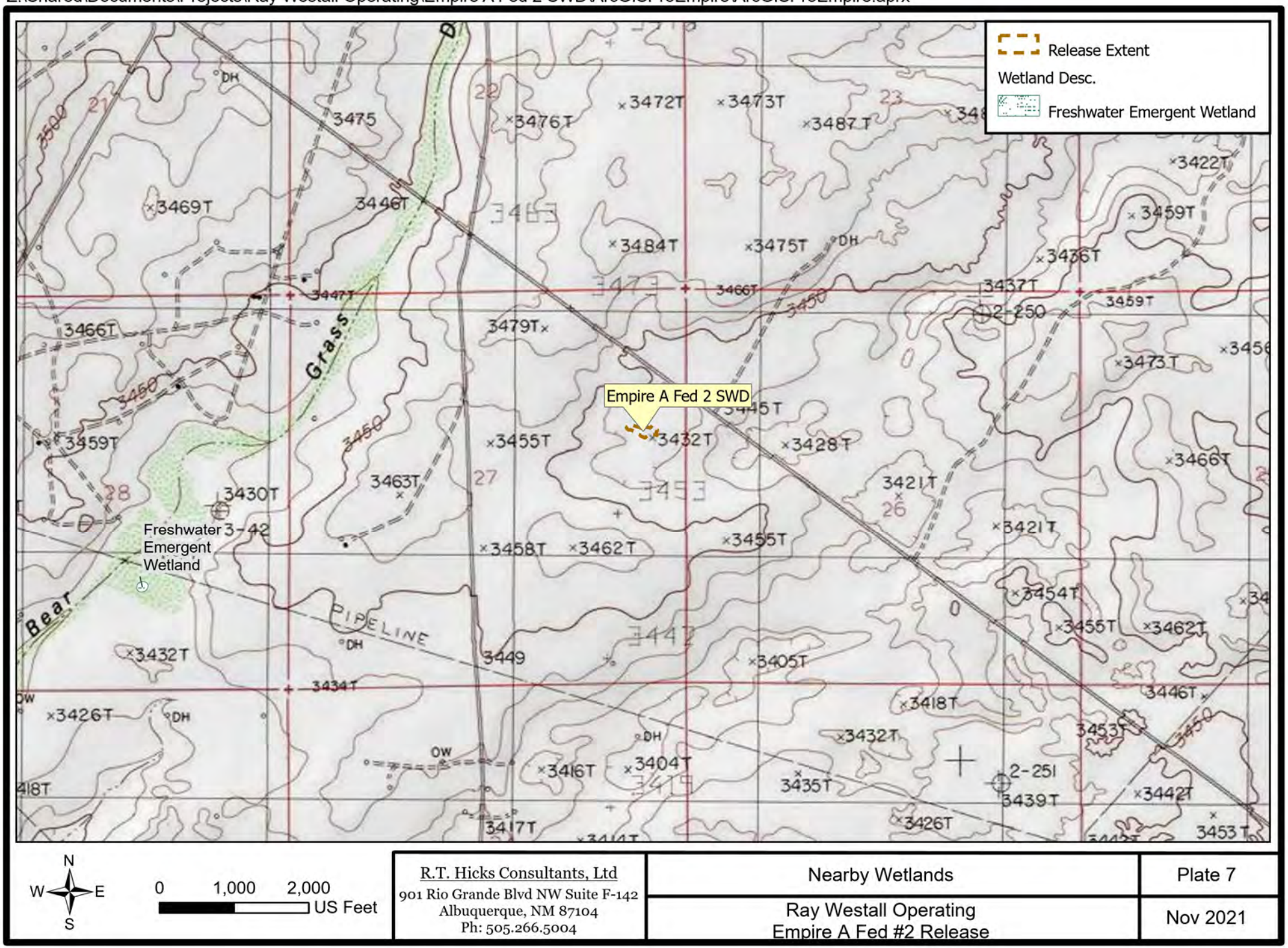
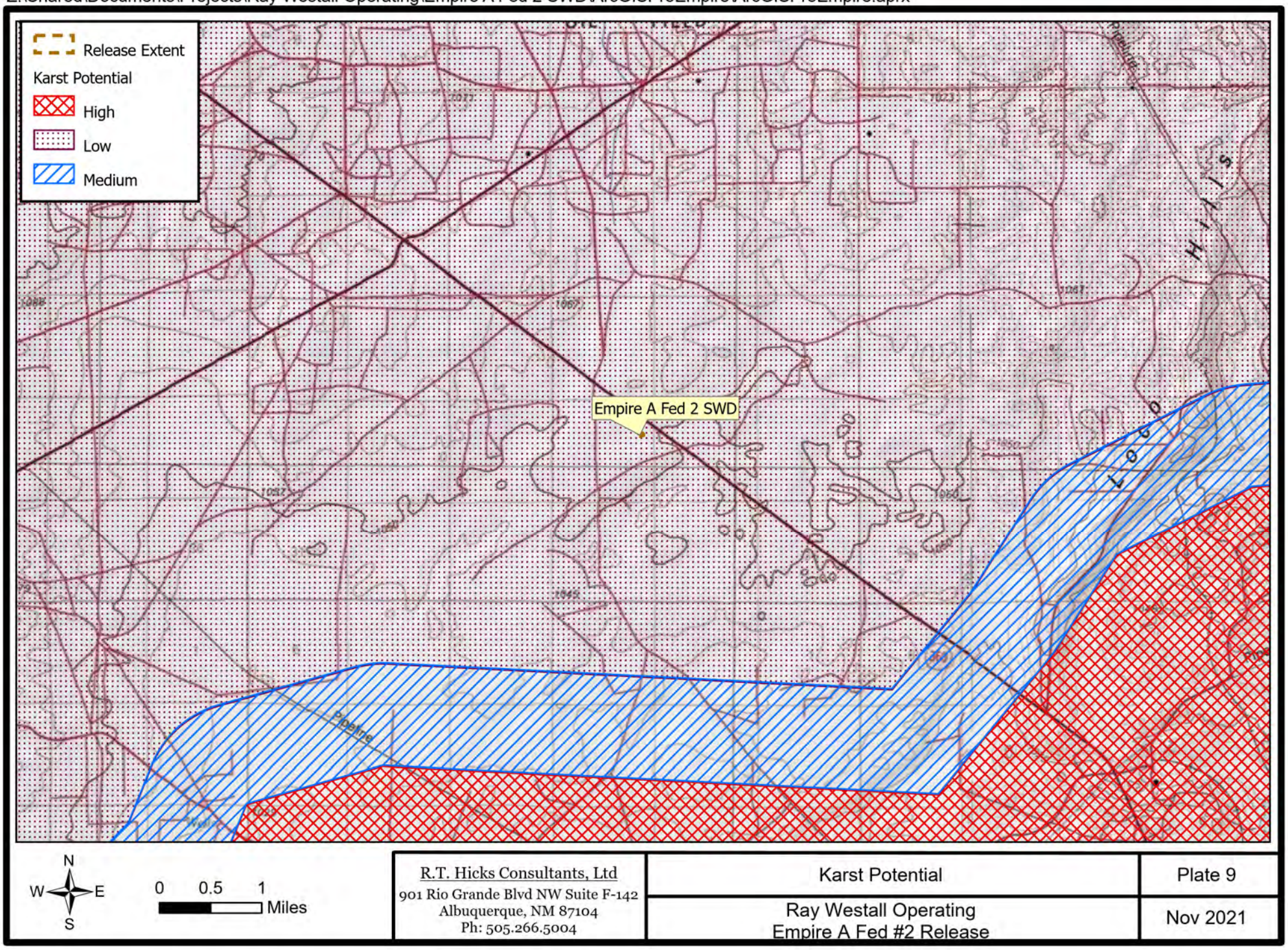


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Wetlands	Plate 7
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

Z:\Shared\Documents\Projects\Ray Westall Operating\Empire A Fed 2 SWD\ArcGISProEmpire\ArcGISProEmpire.aprx

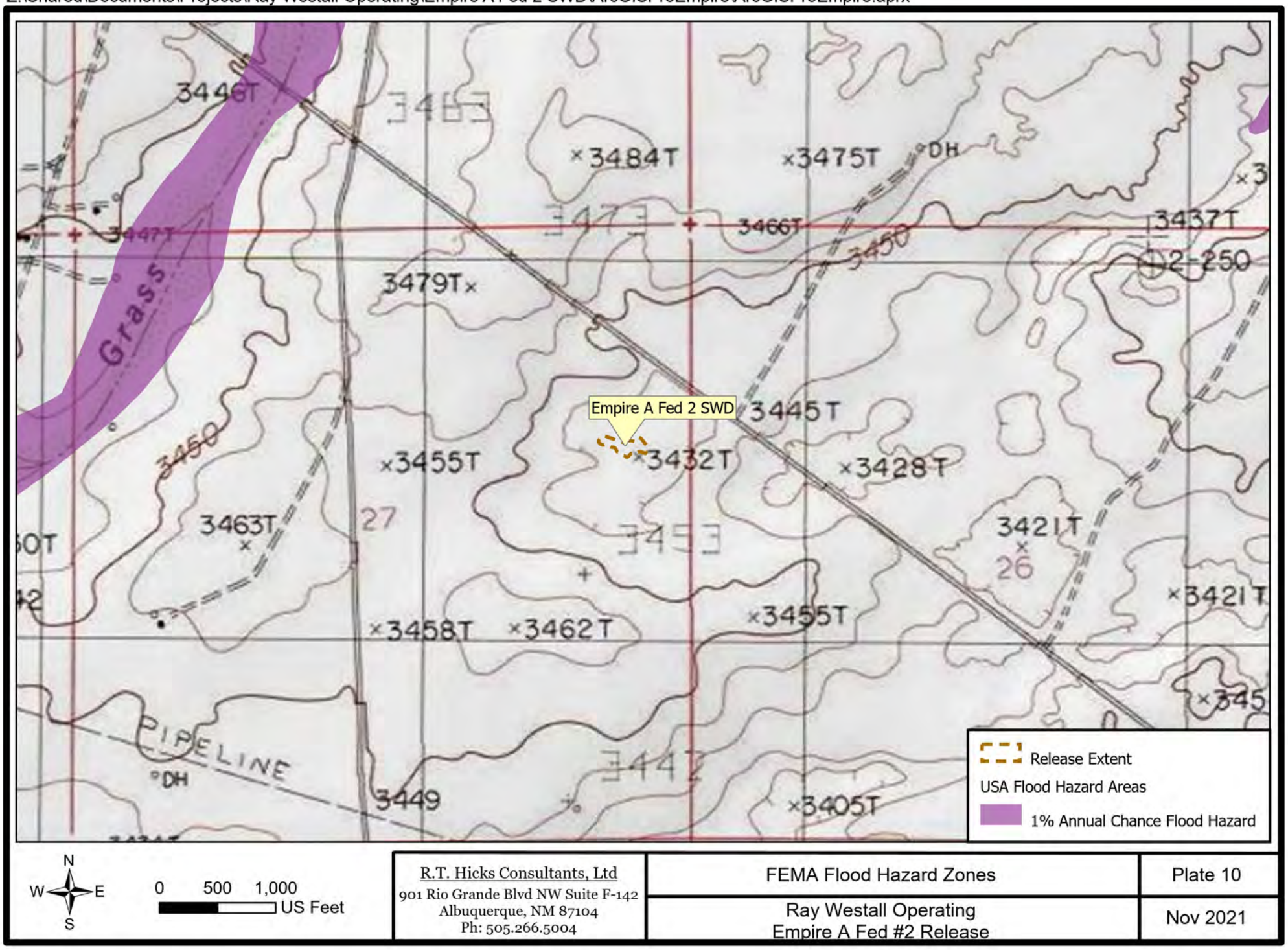
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Mines and Minerals	Plate 8
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

Z:\Shared\Documents\Projects\Ray Westall Operating\Empire A Fed 2 SWD\ArcGISProEmpire\ArcGISProEmpire.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Karst Potential	Plate 9
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

Z:\Shared\Documents\Projects\Ray Westall Operating\Empire A Fed 2 SWD\ArcGISProEmpire\ArcGISProEmpire.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	FEMA Flood Hazard Zones	Plate 10
	Ray Westall Operating Empire A Fed #2 Release	Nov 2021

Remediation/Reclamation Plan

Remediation/Reclamation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique

Data presented in the Characterization show that the August 2020 and August 2021 sampling data demonstrate that chloride concentrations in the upper 4 feet of impacted soil is below the 600 mg/Kg requirement stated in Rule 29 for site reclamation. Chloride concentrations in soil and subsoil are about 2% of the remediation standard of 20,000 mg/kg. No remediation for chloride is required and the soil horizon meets the chloride reclamation criteria.

Because the sampling for hydrocarbons is insufficient, we propose to collect samples for evaluation of hydrocarbons listed in Table 1 of Rule 29 when implementing this reclamation plan. Based upon the 2021 sampling from surface to 4.25 feet below surface, we conclude with a high degree of scientific certainty that the sampling results will demonstrate:

- BTEX is not above the remediation standards of Table 1
- Other petroleum hydrocarbon constituents (GRO, DRO, MRO) will not exceed Rule 29 Table 1 closure standards

The proposed 2022 sampling is our presumptive closure sampling and the protocol is attached. See Plate A. However, if results demonstrate that regulated constituents exceed the Table 1 standards
(presented below for the benefit of our client,) we will implement one of the following remediation plans:

1. Monitored natural attenuation that employs rainfall and time to cause bio-degradation of petroleum hydrocarbons and further dispersion of chloride in the 100+ feet thick vadose zone or
2. Preparation of a variance to allow closure if
    a. BTEX components and chloride meet closure criteria and t
    b. he long-chain TPH hydrocarbons, which have no numerical standard for groundwater in New Mexico, pose no threat to successful reclamation

>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

Since the initial site visit in 2019, portions of the impacted area (notably the southwestern portion) have naturally revegetated, albeit with volunteers rather than species in the BLM seed mix. RWO proposes the following reclamation plan:

- Till the affected soil that has not revegetated naturally, including areas impacted with crude oil, and mix in a small volume of straw to improve the soil porosity/permeability
- Prior to seed formation of the volunteer vegetation, till the remaining areas of the spill footprint incorporating the volunteer vegetation into the soil to add biomass and improve porosity
- Seed with the appropriate BLM seed mixture prior to an monsoon rains and
- Monitor re-vegetation and remove any invasive species and other unwanted weeds.

☒ Scaled sitemap with GPS coordinates showing delineation points See Plate A and 1.

☒ Estimated volume of material to be remediated

Upon receipt of the soil sampling results, we anticipate the volume scheduled for remediation will be zero.

☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC

Upon receipt of the results of the proposed sampling, we will provide an additional report to OCD. As indicated above, the results of the anticipated closure sampling may cause submission of a variance to allow for closure with TPH constituents exceeding the Table 1 closure criteria.

☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

We propose performing recommended sampling and site reclamation prior to June 1, 2022 to take advantage of any monsoon rainfall.

Site Photographs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

APPENDIX SITE PHOTOS

SP1 View southeast along southern fence line showing vegetation impact in 2019.

SP2 View in 2021 from the same location as SP1 in 2021. Vegetation growth has covered some of the spill footprint but impairment in some areas remains.

APPENDIX SITE PHOTOS

SP3 Soil staining and vegetation impairment allowed an accurate measurement of the spill footprint in 2019 (the date of this image).

SP4 This 2019 image shows that RWO placed clean soil in certain areas of the release to absorb crude and to stabilize the release.

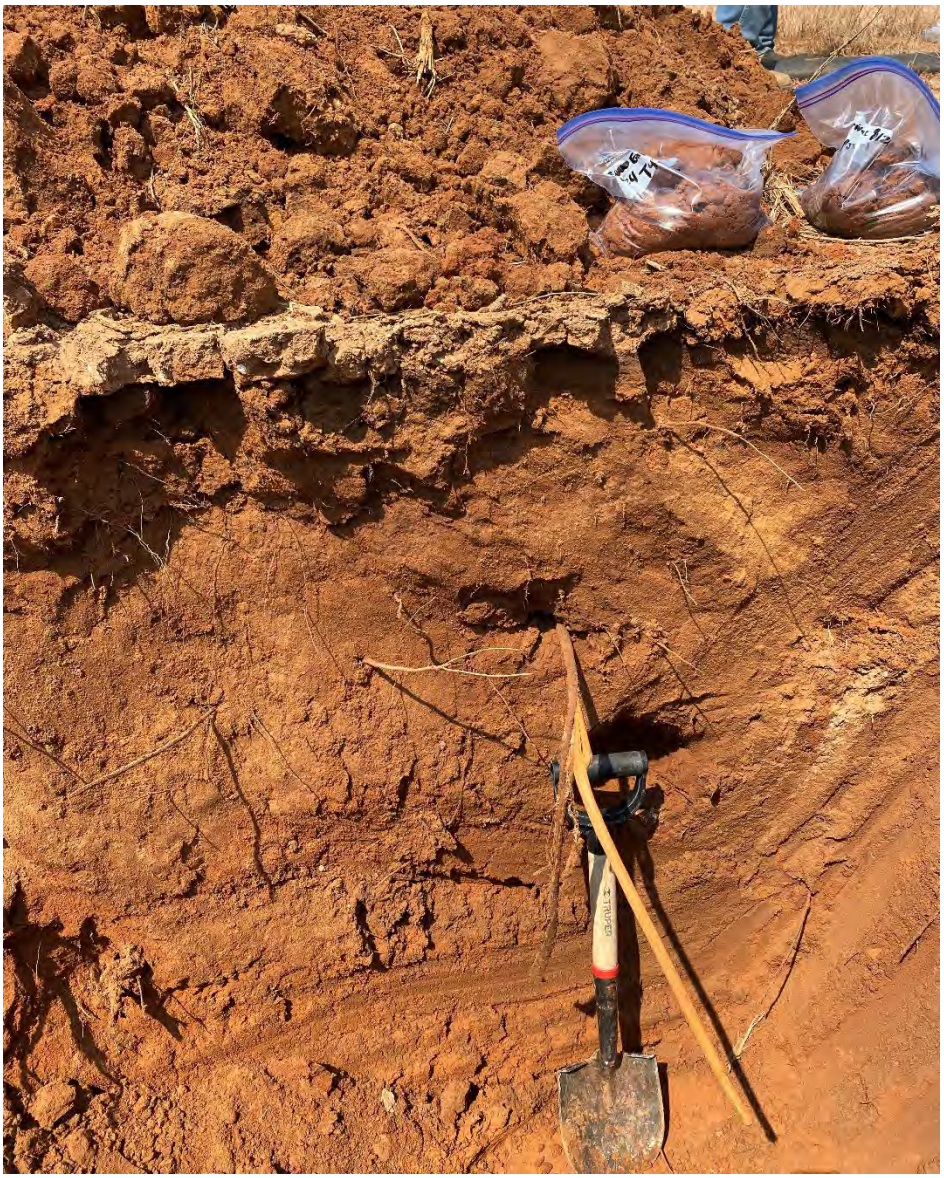
APPENDIX SITE PHOTOS

SP5 This 2021 image shows the 2021 sample boring at the same location as the 2020 sample T3. Soil staining and stressed vegetation remains in many areas of the spill footprint while much of the spill footprint is re-vegetated.

SP6- This 2019 images shows the release footprint to the east of the tank battery.

SP7 This image shows the location of the 2021 sample at T2 at the southeast corner of the tank battery. Note that the sample is on clean fill that is not re-vegetated but the vegetation to the left of the sample location lies in a small depression.

SP8- This 2019 image shows the edge of fill at that time. The red arrow that is the location of T2. The stressed vegetation at the southeast fence corner is healthy in the 2021 image (above).



SP9 This image shows the sidewall of the 4-24 foot sampling trench for sample T4. The lithology of the upper 4-feet is mainly aeolian fine sand with some clay matrix.

Laboratory Reports

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

August 30, 2021

Madison Buechter

R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, NM 87104
TEL: (505) 266-5004
FAX (505) 266-0745

RE: RWO Empire OrderNo.: 2108C18

Dear Madison Buechter:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/20/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T2 0-4
Project: RWO Empire
Collection Date: 8/19/2021 10:33:00 AM
Lab ID: 2108C18-001 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	540	60		mg/Kg	20	8/24/2021 2:53:47 PM	62145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T2 4.1
Project: RWO Empire
Collection Date: 8/19/2021 10:35:00 AM
Lab ID: 2108C18-002 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	640	60		mg/Kg	20	8/24/2021 3:06:08 PM	62145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T4 0-4
Project: RWO Empire
Collection Date: 8/19/2021 10:13:00 AM
Lab ID: 2108C18-003 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	250	60		mg/Kg	20	8/25/2021 7:57:40 PM	62179
EPA METHOD 8021B: VOLATILES						Analyst: **mb**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	8/24/2021 6:55:00 PM	62134
Benzene	ND	0.024		mg/Kg	1	8/24/2021 6:55:00 PM	62134
Toluene	ND	0.048		mg/Kg	1	8/24/2021 6:55:00 PM	62134
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2021 6:55:00 PM	62134
Xylenes, Total	ND	0.095		mg/Kg	1	8/24/2021 6:55:00 PM	62134
Surr: 4-Bromofluorobenzene	80.5	70-130		%Rec	1	8/24/2021 6:55:00 PM	62134

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T4 4.1
Project: RWO Empire
Collection Date: 8/19/2021 10:15:00 AM
Lab ID: 2108C18-004 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	1200	60		mg/Kg	20	8/25/2021 8:10:05 PM	62179
EPA METHOD 8021B: VOLATILES						Analyst: **mb**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	8/24/2021 7:15:00 PM	62134
Benzene	ND	0.024		mg/Kg	1	8/24/2021 7:15:00 PM	62134
Toluene	ND	0.048		mg/Kg	1	8/24/2021 7:15:00 PM	62134
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2021 7:15:00 PM	62134
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2021 7:15:00 PM	62134
Surr: 4-Bromofluorobenzene	80.3	70-130		%Rec	1	8/24/2021 7:15:00 PM	62134

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T3 2-4
Project: RWO Empire
Collection Date: 8/19/2021 9:55:00 AM
Lab ID: 2108C18-005 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	110	60		mg/Kg	20	8/25/2021 8:22:30 PM	62179
EPA METHOD 8021B: VOLATILES						Analyst: **mb**	
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	8/24/2021 7:36:00 PM	62134
Benzene	ND	0.023		mg/Kg	1	8/24/2021 7:36:00 PM	62134
Toluene	ND	0.046		mg/Kg	1	8/24/2021 7:36:00 PM	62134
Ethylbenzene	ND	0.046		mg/Kg	1	8/24/2021 7:36:00 PM	62134
Xylenes, Total	ND	0.092		mg/Kg	1	8/24/2021 7:36:00 PM	62134
Surr: 4-Bromofluorobenzene	79.7	70-130		%Rec	1	8/24/2021 7:36:00 PM	62134

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108C18**
Date Reported: **8/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T3 0-2
Project: RWO Empire
Collection Date: 8/19/2021 9:22:00 AM
Lab ID: 2108C18-006 **Matrix:** SOIL **Received Date:** 8/20/2021 4:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **VP**	
Chloride	610	59		mg/Kg	20	8/25/2021 9:24:35 PM	62179
EPA METHOD 8021B: VOLATILES						Analyst: **mb**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	8/24/2021 7:56:00 PM	62134
Benzene	ND	0.023		mg/Kg	1	8/24/2021 7:56:00 PM	62134
Toluene	ND	0.046		mg/Kg	1	8/24/2021 7:56:00 PM	62134
Ethylbenzene	ND	0.046		mg/Kg	1	8/24/2021 7:56:00 PM	62134
Xylenes, Total	ND	0.093		mg/Kg	1	8/24/2021 7:56:00 PM	62134
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	1	8/24/2021 7:56:00 PM	62134

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108C18**

30-Aug-21

Client: R.T. Hicks Consultants, LTD

Project: RWO Empire

Sample ID: **MB-62145**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **62145**	RunNo: **80766**							
Prep Date: **8/24/2021**	Analysis Date: **8/24/2021**	SeqNo: **2849582**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-62145**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **62145**	RunNo: **80766**							
Prep Date: **8/24/2021**	Analysis Date: **8/24/2021**	SeqNo: **2849583**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.0	90	110			

Sample ID: **MB-62179**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **62179**	RunNo: **80774**							
Prep Date: **8/25/2021**	Analysis Date: **8/25/2021**	SeqNo: **2850756**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-62179**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **62179**	RunNo: **80774**							
Prep Date: **8/25/2021**	Analysis Date: **8/25/2021**	SeqNo: **2850757**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108C18**
30-Aug-21

Client: R.T. Hicks Consultants, LTD
Project: RWO Empire

Sample ID: **mb-62134** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **62134** RunNo: **80764**
Prep Date: **8/23/2021** Analysis Date: **8/24/2021** SeqNo: **2849579** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		87.9	70	130			

Sample ID: **lcs-62134** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **62134** RunNo: **80764**
Prep Date: **8/23/2021** Analysis Date: **8/24/2021** SeqNo: **2849592** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.89	0.10	1.000	0	89.1	80	120			
Benzene	0.87	0.025	1.000	0	86.6	80	120			
Toluene	0.88	0.050	1.000	0	88.1	80	120			
Ethylbenzene	0.91	0.050	1.000	0	90.6	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.7	80	120			
Surr: 4-Bromofluorobenzene	0.81		1.000		81.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: R.T. Hicks Consultants, LTD

Work Order Number: 2108C18

RcptNo: 1

Received By: Juan Rojas 8/20/2021 4:55:00 PM

Completed By: Sean Livingston 8/23/2021 11:01:04 AM

Reviewed By: JR 8/23/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples not frozen.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: KPH 8/23/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-4.5	Good				

Chain-of-Custody Record

Client: RTHicks Consultants

Mailing Address: 901 Rio Grande Blvd NW RW0 EMPIRE
Ste F-142 Albuquerque NM 87104

Phone #: (505) 266-5004

email or Fax#: madison@rthicksconsult.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name:
RW0 EMPIRE

Project #:

Project Manager:
Madison Buechter

Sampler: Randall Hicks

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): -4.3-0.2=4.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108C19	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2021 08 19	1033	soil	T2 0-4	4oz Jar	Ice	001							X			
	1035		T2 4.1		Ice	002							X			
	1013		T4 0-4			003	X						X			
	1015		T4 4.1			004	X						X			
	955		T3 2-4			005	X						X			
	922		T3 0-2			006	X						X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
08 19 2021	455			CDO	8/20/21	16:55
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Samples not frozen SCC 8/23/21

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 15, 2020

Randall Hicks

R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, NM 87104
TEL: (505) 266-5004
FAX: (505) 266-0745

RE: RWO Empire OrderNo.: 2008H40

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 12 sample(s) on 8/31/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T1-0
Project: RWO Empire
Collection Date: 8/24/2020 1:45:00 PM
Lab ID: 2008H40-001 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	360	61		mg/Kg	20	9/11/2020 12:35:06 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T1-24
Project: RWO Empire
Collection Date: 8/24/2020 1:48:00 PM
Lab ID: 2008H40-002 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	220	60		mg/Kg	20	9/11/2020 1:12:20 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T1-48
Project: RWO Empire
Collection Date: 8/24/2020 1:53:00 PM
Lab ID: 2008H40-003 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	490	60		mg/Kg	20	9/11/2020 1:24:44 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T2-0
Project: RWO Empire
Collection Date: 8/24/2020 1:56:00 PM
Lab ID: 2008H40-004 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	66	59		mg/Kg	20	9/11/2020 1:37:09 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T2-24
Project: RWO Empire
Collection Date: 8/24/2020 1:59:00 PM
Lab ID: 2008H40-005 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	9/11/2020 1:49:34 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T2-48
Project: RWO Empire
Collection Date: 8/24/2020 2:02:00 PM
Lab ID: 2008H40-006 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	100	60		mg/Kg	20	9/11/2020 2:26:48 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T3-0
Project: RWO Empire
Collection Date: 8/24/2020 2:05:00 PM
Lab ID: 2008H40-007 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CAS**
Chloride	130	60		mg/Kg	20	9/11/2020 2:39:12 PM	55099
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	9100	190		mg/Kg	20	9/4/2020 5:59:37 AM	54866
Motor Oil Range Organics (MRO)	9800	970		mg/Kg	20	9/4/2020 5:59:37 AM	54866
Surr: DNOP	0	30.4-154	S	%Rec	20	9/4/2020 5:59:37 AM	54866
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/2/2020 9:37:24 PM	54841
Surr: BFB	88.5	75.3-105		%Rec	1	9/2/2020 9:37:24 PM	54841
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	9/2/2020 9:37:24 PM	54841
Toluene	ND	0.049		mg/Kg	1	9/2/2020 9:37:24 PM	54841
Ethylbenzene	ND	0.049		mg/Kg	1	9/2/2020 9:37:24 PM	54841
Xylenes, Total	ND	0.098		mg/Kg	1	9/2/2020 9:37:24 PM	54841
Surr: 4-Bromofluorobenzene	93.1	80-120		%Rec	1	9/2/2020 9:37:24 PM	54841

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T3-24
Project: RWO Empire
Collection Date: 8/24/2020 2:08:00 PM
Lab ID: 2008H40-008 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	69	60		mg/Kg	20	9/11/2020 2:51:37 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T3-48
Project: RWO Empire
Collection Date: 8/24/2020 2:11:00 PM
Lab ID: 2008H40-009 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	1200	60		mg/Kg	20	9/11/2020 3:04:01 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T4-0
Project: RWO Empire
Collection Date: 8/24/2020 2:14:00 PM
Lab ID: 2008H40-010 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	730	60		mg/Kg	20	9/11/2020 3:16:25 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T4-24
Project: RWO Empire
Collection Date: 8/24/2020 2:17:00 PM
Lab ID: 2008H40-011 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	2100	60		mg/Kg	20	9/11/2020 3:28:49 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2008H40**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: T4-48
Project: RWO Empire
Collection Date: 8/24/2020 2:20:00 PM
Lab ID: 2008H40-012 **Matrix:** SOIL **Received Date:** 8/31/2020 2:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	380	60		mg/Kg	20	9/11/2020 3:41:13 PM	55099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2008H40**
15-Sep-20

Client: R.T. Hicks Consultants, LTD
Project: RWO Empire

Sample ID: **MB-55099**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **55099**	RunNo: **71802**							
Prep Date: **9/11/2020**	Analysis Date: **9/11/2020**	SeqNo: **2512241**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-55099**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **55099**	RunNo: **71802**							
Prep Date: **9/11/2020**	Analysis Date: **9/11/2020**	SeqNo: **2512242**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2008H40**
15-Sep-20

Client: R.T. Hicks Consultants, LTD
Project: RWO Empire

Sample ID: **LCS-54866**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **54866**	RunNo: **71591**
Prep Date: **9/1/2020**	Analysis Date: **9/4/2020**	SeqNo: **2503518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	116	70	130			
Surr: DNOP	5.2		5.000		104	30.4	154			

Sample ID: **MB-54866**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **54866**	RunNo: **71591**
Prep Date: **9/1/2020**	Analysis Date: **9/4/2020**	SeqNo: **2503522** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		101	30.4	154			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2008H40**
15-Sep-20

Client: R.T. Hicks Consultants, LTD
Project: RWO Empire

Sample ID: **mb-54841**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **54841**	RunNo: **71546**
Prep Date: **9/1/2020**	Analysis Date: **9/2/2020**	SeqNo: **2500649** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.1	75.3	105			

Sample ID: **lcs-54841**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **54841**	RunNo: **71546**
Prep Date: **9/1/2020**	Analysis Date: **9/2/2020**	SeqNo: **2500650** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.7	72.5	106			
Surr: BFB	1100		1000		107	75.3	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2008H40**
15-Sep-20

Client: R.T. Hicks Consultants, LTD
Project: RWO Empire

Sample ID: **mb-54841** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54841** RunNo: **71546**
Prep Date: **9/1/2020** Analysis Date: **9/2/2020** SeqNo: **2500692** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **LCS-54841** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54841** RunNo: **71546**
Prep Date: **9/1/2020** Analysis Date: **9/2/2020** SeqNo: **2500693** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.2	80	120			
Toluene	0.91	0.050	1.000	0	91.5	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.2	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: R.T. Hicks Consultants, LTD Work Order Number: 2008H40 RcptNo: 1

Received By: **Juan Rojas** 8/31/2020 2:50:00 PM

Completed By: **Juan Rojas** 8/31/2020 3:18:05 PM

Reviewed By: EM 8/31/20

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☑ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Not Required Yes ☐ No ☑ NA ☐
5. Sample(s) in proper container(s)? Not required Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JR 8/31/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	25.4	Good				

Chain-of-Custody Record

Client: RT Hicks Consultants

Mailing Address: 901 Rio Grande Blvd NW Ste F-142 Albuquerque NM 87104

Phone #: (505) 266-5004

email or Fax#: madison@rthicksconsult.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: RWO Empire

Project #:

Project Manager: Randall Hicks

Sampler: MB

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(including CF): 25.4-0=25.4 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2008140	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2020 0824	1:45	soil	T1-0	1(4oz)jar	N/A	-001	X	X					X			
	1:48		T1-24			-002	X	X					X			
	1:53		T1-48			-003	X	X					X			
	1:56		T2-0			-004	X	X					X			
	1:59		T2-24			-005	X	X					X			
	2:02		T2-48			-006	X	X					X			
	2:05		T3-0			-007	X	X					X			
	2:08		T3-24			-008	X	X					X			
	2:11		T3-48			-009	X	X					X			
	2:14		T4-0			-010	X	X					X			
	2:17		T4-24			-011	X	X					X			
↓	2:20	↓	T4-48	↓	↓	-012	X	X					X			

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/31/2020	14:30			CDO	8/31/20	14:50
8						

Remarks: BTEX + TPH tests only needed on Sample T3-0

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Boring Logs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Logger:	Madison Buechter	**Client:**	**Well ID:**
Driller:	Ready Drill	Ray Westall Operating	**Empire BH**
Drilling Method:	Conductor Drilling 20"	**Project Name:**	
Start Date:	8/26/2020	Curry Comb	
End Date:	8/26/2020	**Location:** 32.720802, -104.056206	
		Artesia, NM	

Depth (feet)	Description	Lithology	Grain Size	Comments
5.0	Dark Red Sand		FL	
10.0	Dark Red Clayey sand		ML	
15.0	Dark Red Sand		FU	some pebble to gravel clasts
20.0	Dark Red Sandy Clay		FU	pebble to gravel clasts
25.0	Brown Sand		VFL	
30.0	Dark Red Clayey Sand		FU	
35.0			FU	
40.0			FL	
45.0	Dark Orange/Red sand		VFL	
50.0			FL	
55.0	Dark Red Clayey sand		MU	
60.0	Red Sand		ML	
65.0	Dark Red Sand		ML	pebble to gravel clasts
70.0	Red Sand		VFL	
75.0			FU	
80.0	Dark Red Sand		FL	granule-sized clasts
85.0	Brown/Red Sand		ML	
90.0	Dark Red Sand		FU	
95.0			FU	
100.0			FU	

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	**Ray Westall Operating**	
	Empire Exploritory Borehole	**Sept 2020**

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE ROSWELL, NEW MEXICO 2016 SEP 12 PM 2:09

	OSE FILE NUMBER(S): CP 01618
WELL OWNER NAME(S): KEY LIVESTOCK, LLC	PHONE (OPTIONAL):
WELL OWNER MAILING ADDRESS: 1012 E 2ND ST	CITY: ROSWELL STATE: NM

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	43	10.16	N
	LONGITUDE	104	5	30.08	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHJIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1058	DON KUEHN III	KEYS DRILLING & PUMP SERVICE INC.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
08/23/16	08/26/16	240	240	180

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 180

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	200	8-3/4"	PVC	SPLINE	4-1/2"	SCH40	
200	240	8-3/4"	PVC	SPLINE	4-1/2"	SCH40	.030

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	8-3/4"	CEMENT		HAND
20	240	8-3/4"	VEALMORE PEA GRAVEL		HAND

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	CP-1618	POD NUMBER	1	TRN NUMBER	591553
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4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet 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	20	20	TOP SOIL, GRAVEL & SAND	☐ Y ■ N	
20	40	20	COURSE SAND & GRAVEL	☐ Y ■ N	
40	60	20	BROWN CLAY	☐ Y ■ N	
60	140	80	RED BED	☐ Y ■ N	
140	200	60	SANDSTONE	■ Y ☐ N	
200	240	40	GRAVEL	■ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
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				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ■ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 2

5. TEST; RIG SUPERVISION

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:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

DON KUEHN III

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

GARY KEY — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

09-13-16 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	CP-1618	POD NUMBER		TRN NUMBER	591553
LOCATION	18S 29E Sec 29 342				PAGE 2 OF 2

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

476334

Section 1. GENERAL INFORMATION

(A) Owner of well Medallion Resourses Owner's Well No. _____

Street or Post Office Address c/o Glenn's Water Well Service Inc.

City and State P.O. Box 692 Tatum, New Mexico 88267

Well was drilled under Permit No. CP-863 and is located in the:

a. _____ ¼ NW ¼ SE ¼ NE ¼ of Section 27 Township 18-S. Range 29-E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD 421

Address Box 692 Tatum, New Mexico 88267

Drilling Began 6/16/97 Completed 6/16/97 Type tools rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 320 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well none ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			dry hole	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
			none					

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor well was back filled with cuttings

Address and drilling mud

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received 06/24/97

Quad _____ FWL _____ FSL _____

File No. CP-863 Use OWD Location No. 18.29.27.24141

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	6	6	sand and clay
6	12	6	caleche
12	22	10	hard clay
22	165	143	red clay
165	210	45	sandy clay
210	320	110	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Corky Glenn
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

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 127416

CONDITIONS

Operator: RAY WESTALL OPERATING, INC. P.O. Box 4 Loco Hills, NM 88255	OGRID: 119305
	Action Number: 127416
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. Samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Confirmation samples should be collected every 200 ft2. All off pad areas must contain a minimum of 4 feet non-waste containing uncontaminated, earthen material with chloride concentrations less than 600 mg/kg and less than 100 mg/kg for TPH. The variance to allow for closure with TPH constituents exceeding the Table 1 closure criteria is denied. The work will need to occur in 90 days after the work plan has been approved.	11/15/2022