BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the failure of Merit Energy Company, LLC (Operator) to comply with K.A.R. 82-3-603 at its WMSU lease in Morton County, Kansas.	)))))	Docket No. 23-CONS-3273-CPEN CONSERVATION DIVISION License No. 32446

COMBINED PRE-FILED DIRECT AND REBUTTAL TESTIMONY OF

SEAN CRAVEN

MERIT ENERGY COMPANY, LLC

Q. Please state your name and business address for the record.

A. My name is Sean Craven and my business address is 13727 Noel Road, Suite 1200 Dallas, TX 75240.

Q. What is your profession and who is your employer?

A. I am the Environmental Manager at Merit Energy Company LLC ("Merit").

Q. Can you please summarize your educational background and work experience?

A. I obtained a Bachelor of Science in Environmental Science at Bowling Green State University, in Bowling Green, Ohio, in 1998.

After college, I worked as an Environmental Consultant from 1999 to 2012. Most recently, I worked at Gosling Czubak Engineering Sciences in Traverse City, Michigan, from 2002 to 2012. My job responsibilities at Gosling Czubak included performing hydrogeological investigations to determine pollution levels in soil and groundwater, designing and implementing remediation systems to address pollution of soil and groundwater, and supervising spill responses and cleanup activities at pollution sites. Most of this work was for oil and gas clients, but we also had other industrial clients. I also managed compliance for oil and gas clients with state and federal air quality permits.

In 2012, I was hired by Merit to manage environmental compliance of its assets in the Michigan Region. My primary function was managing an asset developed by Shell that Merit had acquired. This asset had legacy soil and groundwater contamination issues that were subject to state oversight, and that required ongoing monitoring and remediation efforts. This asset has since been divested, and I can say Merit left it in far better condition than it was when Merit acquired it.

In 2018, I was promoted to my current position of Environmental Manager for Merit. I now oversee environmental compliance for the entire organization which includes operations and assets in Kansas, Oklahoma, Texas, Arkansas, and Wyoming.

Q. Are you familiar with the spill that is the subject of the Penalty Order in this docket?

A. Yes, I oversaw the immediate response to mitigate and remediate the spill. After the initial cleanup work was done, I continuously worked with staff to develop a viable cleanup method for the contaminated soil left to remediate.

Q. Can you describe what caused the spill at issue to occur?

A. On May 27, 2022, a coated nipple connected to a valve along a fiberglass water line failed causing the release of approximately 1500-1600 barrels of produced saltwater. The line was buried and the coated nipple had corroded and fractured allowing water to escape. Merit replaced the failed valve and other coated metal fittings associated with the valve with new stainless steel and aluminum bronze valves and fittings less suspectable to corrosion. Below is a photo depicting these new high-quality parts:

The release was associated with the line to the WMSU 301 injection well which is part of Wilburton Morrow Sand Unit ("WMSU") waterflood system. Merit injects produced water at the WMSU 301 to enhance oil production from the WMSU. The WMSU was implemented in the 1960's by Cities Services, and was acquired by Merit in 2014 from OXY. The equipment on the waterflood has begun to show its age in recent years, and Merit has responded by spending a tremendous amount of capital—nearly $800,000—to replace and update equipment to mitigate against future spills. Merit has upgraded fittings at the well sites to be all stainless steel, replaced four entire injections lines and also converted five steel flowlines to fiberglass.

Q. How did Merit respond to address the spill?

A. In response to the release, Merit immediately shut down the injection line to the WMSU 301 and deployed vac trucks to the sight. The vac trucks were able to recover approximately

1,230 barrels of standing water, which would be about 80% of the total spill. Had Merit not responded so quickly, this spill could have been much worse. Merit then excavated all visibly saturated soils, which resulted in the recovery of additional barrels of spilled saltwater. Depending on the depth of saturation, anywhere from 6"-18" of impacted soils were removed from the spill area. At this time, a good majority of the release had been cleaned up, but there was still more work to do to fully remediate the spill.

Q. What work remained to fully remediate the spill?

A. In order to assure the spill was remediated as best as possible, and at least to industry standards, Merit contracted with Terracon Consultants Inc. ("Terracon") to perform a site investigation to determine the horizontal and vertical extents of the soil impacts. We needed to know the extent of the impact before we began digging, so that we could minimize the quantity of dirt excavated, which, by extension, would minimize the effects to the ongoing agricultural operation. This testing allows us to identify the chloride contaminated soil and leave in place unaffected native soil used to grow crops. On July 14, 2022, Terracon utilized a GeoProbe to install 48 soil borings in and around the spill area. Three soil samples were collected from each boring, one from 0-2' below ground surface ("bgs"), one from 2-4' bgs, and one from 4-6' bgs. The visual below depicts the location of the spill along the roads and around the wells, and the location of the 48 GeoProbes, which are indicated by red and white squares.

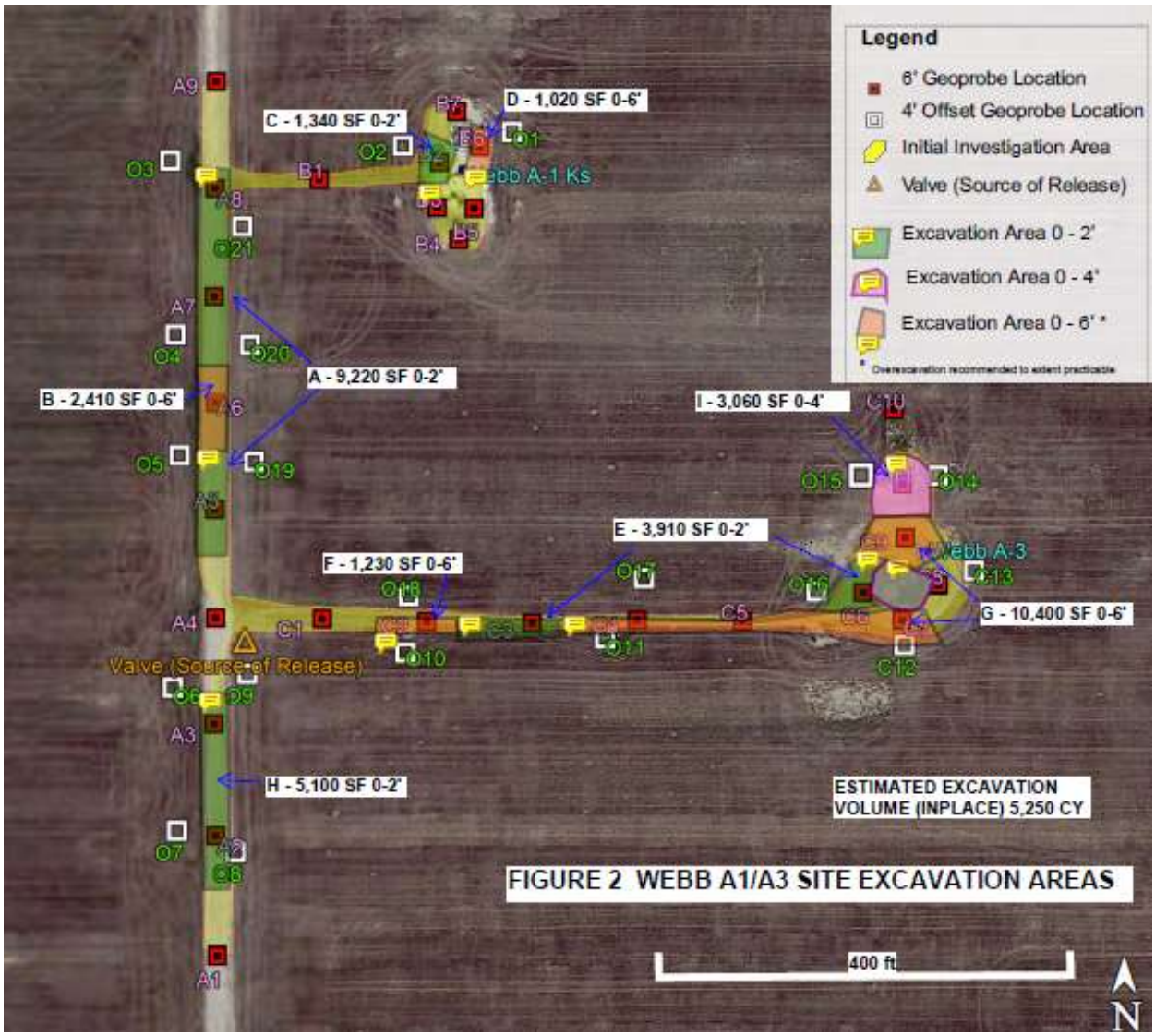


FIGURE 2 WEBB A1/A3 SITE EXCAVATION AREAS

It is important to note that the white squares indicate the locations where Merit probed around the lease roads and well sites to determine the lateral impact of the spill. Mr. Sullivan is asking that this probing be conducted again. Later, I will testify why additional testing is unwarranted.

The samples collected from the GeoProbes were then submitted to a laboratory for analysis of chlorides and electrical conductivity, which would tell us which soils could remain in place and which soils should be excavated. Not long thereafter, Merit received the lab results from testing the samples, which are contained in the Terracon Site Investigation Report dated October 12, 2022, attached as Exhibit M-1. Specifically, Table A-1 and A-2 of Appendix A to that Report shows the chlorides and electrical conductivity results from

testing the soil samples. I would note that 29 of the 48 probes found no contamination resulting from the spill. Again, it is important to note that every single probe testing the lateral extent of the spill showed no contamination. The other 19 probes showed that additional remediation was necessary. This report was forwarded to Mr. Sullivan for review the same day Merit received it from Terracon.

It was at this point in time that Merit's remediation efforts were stalled by Staff.

Q. Why were your remediation efforts stalled?

A. Previously, staff had always authorized and approved physical removal of chloride contaminated soil and placement on a parcel of land owned by Merit about a mile away where it could be used for beneficial reuse. Beneficial reuse is the process of taking the soil and utilizing it for other useful purposes such as lease roads or tank battery containment berm construction. It is important to understand that chloride impacted soil does not present a human health risk. High levels of chlorides in the soil are detrimental to plants and prevents them from growing (referred to as phototoxicity), but are not harmful to humans. This particular parcel of land is where the WMSU tank battery and central production facility is located, and where Merit occasionally stages and stores equipment. It is also the location of the treatment cell, which I will discuss later, where some of the excavated dirt from this spill is being treated.

Staff had long approved hauling chloride contaminated dirt to Merit's property for beneficial reuse. This reuse has included using the dirt to improve roads, and to construct berms around the tank battery and production facility.

It was around the time of the spill at issue that staff informed Merit that we could no longer haul chloride contaminated soils to Merit's property. This presented a huge obstacle for our remediation efforts, because the Terracon report showed that approximately 5,250 cubic yards (in place/6,300 yards to haul) of soil needed to be removed from the spill.

As I will explain in detail below, the lack of clarity in soil management from Staff led to the delay in further remedial efforts. Merit could not begin to excavate additional soils without a clear understanding of where to take them.

Q. Did Merit attempt to work with staff on alternatives for soil management?

A. Yes, extensively. Merit proposed several different options to treat the remaining chloride contaminated soil. These discussions with staff actually began shortly after the spill occurred on May 27, 2022. The options presented by Merit included hauling to landfill, land-spreading, and treatment on the Merit owned parcel of land. I will summarize what each of these proposals were, and when they were proposed.

Hauling to a Landfill

Merit contacted the Morton County Landfill located approximately one mile from the spill site. Originally the Morton County Landfill was interested in taking the soils. A disposal fee of $10 a ton was accepted by the Landfill on June 14, 2022. Then, the landfill abruptly changed positions, explaining "there had been hangups with the [county] commissioners" and backed out of the deal. To this day, the Morton County Landfill will not accept the impacted soils.

Merit also contacted the Stevens County Landfill located approximately 28 miles from spill site. On June 22, 2022, the Stevens County Landfill indicated to Merit that they were not interested in taking the soils.

On August 31, 2022, I contacted the Waste Connections Landfill in Seward County located approximately 52 miles from spill site. The Waste Connections Landfill told to me that they would take the soil as a "special waste" at the cost of $50/ton for disposal. Based on soil volume estimates, and the sheer number of heavy trucks to transport the soils, the cost to dispose of the excavated soils at the landfill would total approximately $650,000. As explained above there is nothing special about the impacted soil, and it presents no threat to human health. Given the cost, and negative environmental and community impact, this was not a realistic option for the impacted soils.

Land Spreading

First, let me explain what land spreading is. Land spreading is an agency approved method to dispose of drill cuttings contaminated with chlorides. Cuttings with a chloride content not to exceed 10,000 ppm or mg/l (ppm and mg/l are the same concentration level and used interchangeably), which I note is 20 times the chloride concentration of the contaminated soil at issue in this matter, is put into a truck and spread across agricultural land for what

is essentially beneficial reuse. The cuttings help break up soil and also allows operators to dispose of chloride contaminated cuttings in an economical manner.

On June 30, 2022, Merit, Terracon and Staff had a phone meeting regarding management of the impacted soils. Staff advised that their regulations for land spreading are intended for drilling muds but not applicable to produced water impacted soils. Staff then directed us to the KDHE to see if their land spreading regulations could apply.

On August 9, 2022, Merit submitted a draft "Application to Landfarm Petroleum Contaminated Soils without a Permit" and "Merit Landfarm and Operation and Closure Plan" to Mr. Sullivan for review. The object of this application and plan was to see if staff would support landfarming of the impacted soils before Merit submitted the proposal to the KDHE. Merit received an email on August 18, 2022 from Mr. Sullivan that stated "after reviewing our rules and regulations, staff will not support the project".

On August 23, 2022, Merit submitted the "Application to Landfarm Petroleum Contaminated Soils Without a Permit" and "Merit Landfarm and Operation and Closure Plan 8-22-22" to Joel Billinger of the KDHE.

Merit received an email on October 10, 2022, from Wally Mack at the KDHE denying the landfarming application because chloride concentrations were above 1,000 mg/l, despite the fact that the chloride concentrations could have easily been reduced to be below 1000 mg/l by mixing higher concentration impacted soils with lower concentration impacted soils. Mr. Mack recommended the Morton County landfill for disposal. As noted above, the Morton County Landfill had already advised it would not accept the impacted soil, so we were back at square one.

On October 25, 2022, Merit and Terracon had a call with the KDHE including Julie Coleman, Joel Billinger, Mindy Bowman, and Wally Mack. The KDHE finalized the meeting with "this is a KCC issue" in reference to landfarming and landspreading as a soil management technique. They indicated that KDHE landfarming regulations would not apply since the primary contaminant is chloride (salts) and not petroleum hydrocarbons. This represented the end of Merit's efforts to manage the impacted soil through landspreading or landfarming.

Treatment on Merit Property

At this point, Merit was eager to get the impacted soil excavated and remediated. The spill occurred several months prior and we felt that it was in everyone's best interest to excavate the soils as soon as possible. The landowner was upset, threatening legal action, and demanding that Merit do something right away, and staff had not come forth with any viable treatment option.

Merit emailed a remediation plan to Mr. Sullivan to address the remaining impacted soils by placing it on Merit's property in a treatment cell so it could be properly remediated. At this time, Merit also explained that the only available landfill, the Waste Connections Landfill in Seward County approximately 52 miles away, was not a viable option. Merit explained that hauling this volume of chloride contaminated soil is detrimental to the environment and public safety, and is not a sound approach. It fills the landfill with soils that can be treated and reused. Merit further explained the cost to do so was in no way economic or viable, and would have constituted economic waste.

On October 28, 2022, we had a phone meeting with staff, including Kenny Sullivan, Ryan Hoffman, and Mr. Schlatter to discuss soil treatment options at Merit's property. Staff seemed open to the idea of soil flushing and treatment. As a result of this call, Merit committed to submitting an alternate plan.

On November 4, 2022 Merit submitted a "Soil Management Plan" dated November 4, 2022, to Mr. Sullivan in follow-up to the items discussed on the October 28, 2022 phone meeting. A copy of this plan is attached as Exhibit M-2.

On November 7, 2022, Mr. Sullivan responded with a questions regarding flushing with water. This seemed to indicate to Merit that progress was being made on staff's side to come to an agreeable cleanup method for the remaining impacted soils. Terracon responded the next day answering Mr. Sullivan's questions and explaining that the flushing of soil with water is not viable given the types of soil.

On November 16, 2022, Mr. Sullivan asked additional questions on volumes of clean soil needed to reduce contamination levels to 1000 mg/l (ppm), total soil mixture volumes and projects for beneficial reuse. In response to Mr. Sullivan's questions Merit submitted yet another plan to the staff, the "Blending and Beneficial Reuse Plan" dated November 17,

2022. A copy of this plan is attached as Exhibit M-3. This plan was submitted to Mr. Sullivan on November 21, 2022.

Finally on December 18, 2022, staff rejected Merit's "Soil Blending and Beneficial Reuse Plan" by stating "*Staff has reviewed your request of the beneficial reuse of soil refuse from spills on and around the WMSU, and has concluded the following. In the regulations and guidelines provided by both the KCC and KDHE, it requires the flushing of brine impacted soils with water and other chemical amendments, and not blending with clean soil. It was also requested that soil only be treated down to 1000 ppm chloride due to the Secondary Maximum Containment Level in the Bureau of Environmental Remediation Policy # BER-RS-13A. After further review it was determined this is a reference for not requiring further remediation of impacted in-situ soils that have tested to that limit, and not a limit set for soil reuse. The KCC only provides guidelines for soil reuse for lease road and dike maintenance from minor spills, but not the construction of new roads etc. of soil from large spills. Therefore, Staff has denied the request for the Soil Blending and Reuse Plan."* The message and guidance was in complete contrast to what staff had approved from 2019 to early 2022 for chloride contaminated soils and beneficial reuse.

Q. After rejecting Merit's numerous proposals to remediate the remaining impacted soil, what proposals did staff make?

A. None, other than to haul this dirt to a landfill, which staff knew was not a viable option.

Q. At 5:23-6:1 of Mr. Sullivan's testimony he stated that "District Staff attempted to work with Operator in good faith to find a *viable* solution to remediate the spill without taking formal action." Is this an accurate statement?

A. No. Staff offered only one option for the dirt, and that was to haul it to a landfill. As explained above and as we repeatedly explained to Mr. Sullivan, there was only one landfill two counties away willing to take the dirt, and the cost to haul it there was nowhere near economic. Moreover, the hauling of the dirt to a landfill would have caused tremendous harm to the environment and presented an unnecessary risk to public safety.

The Waste Connections Landfill in Seward County was the only landfill in the area willing to accept the impacted soils, and is 52 miles and two counties away. The cost to dispose of that soil at that landfill was estimated to be $650,000. This includes landfill disposal

and trucking costs. These soils are impacted with chlorides generally well under 10,000 ppm which does not have a negative human health impact. These are not soils that belong in a landfill. Between treatment with gypsum and adequate tilling, chloride concentrations can be reduced to be below 500 ppm and utilized for beneficial reuse.

Additionally, there are human health impacts with the process of hauling this soil to the Waste Connection Landfill. It is approximately 52 miles away and would require approximately 350 heavy truck loads, or approximately 36,400 trucking miles. Using EPA emission factors for heavy trucks, this would result in greenhouse gas emissions of approximately 50 metric tons of CO2. Add all of this to the fact that the staff agreed that it was appropriate to manage soils from previous releases *contaminated with the same produced water* for beneficial reuse up until March of 2022.

Merit is of the opinion that hauling these soils to the Seward County landfill is not an appropriate use of financial or community resources.

Q. Without a viable cleanup method approved by Staff, what did Merit do to complete the remediation?

A. In early 2023, under threat of legal action from the landowner to remediate his soils, Merit decided to go forward with the remediating the remaining impacted soils without a staff-approved cleanup method according to industry best standard practices. Merit did not want to proceed without staff's consent, but staff had refused to consider any reasonable or practical option to complete remediation. The decision was made, with Terracon input, to construct a soil treatment cell on Merit's property, which is less than 1 mile away, to responsibly address the impacted soils from the spill location.

Soon thereafter the treatment cell was constructed on Merit's property. The cell was constructed with a 6-mil Low Density Polyethylene sheeting liner to prevent contamination of soils beneath the cell, and 1-2' high earthen berms to mitigate against aerial drift. Merit viewed this as the most responsible way to complete the remediation. Mr. Mellini, who is an expert in this space, will testify this is the most prudent treatment method and far less environmentally impactful than hauling to a landfill more than 50 miles away.

In late April 2023, Merit excavated the impacted soil from around each well head and collected soil samples for laboratory analysis. Soils were then hauled to the newly constructed treatment cell.

The Terracon "Soil Treatment Report" dated November 30, 2023 attached as Exhibit M-4 discusses in detail the treatment cell construction, soil treatment process, and the soil sampling that is conducted. Merit was not proposing to just dump the contaminated dirt and forget it. Merit wanted to be proactive with soil treatment and cell construction. I think one of the more interesting things is that current sampling indicates that soil in 3 of the 4 quadrants have chloride concentrations below 500 ppm, which is 500 ppm/CL below the 1,000 ppm metric utilized by staff for an in-situ cleanup criteria. Sampling in the quadrant with concentrations above 500 ppm will be conducted this month to determine future actions, such as additional treatment with gypsum, tilling, and other remedial measures. I believe this effectively demonstrates that soil treatment is the best and correct approach to manage the remaining impacted soils, which are now available for beneficial reuse.

I should also note that Merit did not believe the chloride contaminated dirt on the lease roads should be excavated, because the GeoProbing showed the contamination to be laterally confined. Obviously, there would be no current impact, as vegetation is not established on lease roads. Merit believed a more pragmatic approach would be to commit in writing to remediating the lease roads upon abandonment of the WMSU. Staff rejected this approach, and insisted that the roads be remediated below the local root zone, even though no vegetation would be grown on the roads for a long time for obvious reasons. Merit ultimately decided to accommodate staff's demands on this matter in order to put this matter to rest.

Q. Did staff ever agree to any kind of cleanup method?

A. Finally, after numerous proposals and months of discussions, on August 10, 2023, Staff agreed to a cleanup method for the impacted soils remaining on the lease roads, and in the impacted areas around the well sites (even though this dirt had already been excavated and removed). The terms of this agreement are contained in Mr. Schlatter's email dated August 4, 2023, attached as Exhibit K-1 to Mr. Sullivan's testimony. Notably, all of the remedial

work around the well sites had already been completed at the time this agreement was reached due to Merit's proactive measures. Merit was unable to commence lease road excavation work until late October due to excessive rain and the farmer's request to allow the corn crop to be harvested prior to mobilizing the excavation team and equipment. All agreed upon remedial work was completed on or about November 9, 2023, and promptly reported to staff.

Q. Mr. Sullivan testifies at 6:19-22 that Merit "appeared to agree" to dispose of impacted soils at a landfill. Did Merit ever agree to take the impacted soil to a landfill?

A. Merit never agreed to haul soils to a landfill. The agreement required Merit to excavate the road areas to an electrical conductivity of 4 mS/cm or to 4' bgs and to excavate the wells sites to 500ppm/CL or 10' and incorporate gypsum at these depths. Merit did this work. Merit provided the Waste Transfer Form (CDP-5) to document soils being hauled to the treatment cell.

Merit repeatedly told staff that hauling to a landfill was not economic or environmentally sound, and there was no landfill in the area that would take the soils. Moreover, taking the impacted soils to a landfill is counterproductive, as it would have a significantly negative environmental and community impact. As explained above, the CO2 emissions from burning that much diesel are estimated 50 metric tons. Concerns regarding aerial drift of contaminated soils is significantly increased and spread across a greater geographic region by hauling the dirt over 36,400 trucking miles. A landfill is not a proper place for dirt with these contamination levels, and would take up otherwise useful space in the landfill. Once a landfill is full it must be closed and a new landfill constructed. Lastly, 350 heavy trucks driving 104 miles roundtrip will result in significant wear and tear on roads and creates an unnecessary risk of an accident that could harm people.

Merit has demonstrated to staff that the impacted soils treated at the treatment cell and with gypsum are now below 500 ppm chlorides. This is below the KDHE in-situ cleanup goal of 1,000 ppm established in the Guidance Document for Salt Impacted Soil and Groundwater (BER-RSA-2005). This document establishes that the KDHE considers soils with a chloride concentration of 1,000 ppm acceptable for in-place soils and no risk to plant life.

I cannot, for the life of me, wrap my head around staff wanting Merit to take soils that are well below the most stringent cleanup level to a landfill. That would be an abject waste of resources.

Q. At 7:22-23 of his testimony, Mr. Sullivan recommends that Merit be required to take soil samples around the lease road to a depth of 4 feet. Was this part of the agreed upon cleanup method?

A. It was not, and it would serve no purpose to do so. The agreement with staff was to remove soils in the lease road to a lesser of 4 feet or to a depth that shows electric conductivity level of 4 mS/cm or less. As explained and depicted above, Terracon already probed to a depth of 6 feet in the lease road and to 4' outside of the lease road. Exhibit M-1. This site investigation work was completed in July 2022 and adequately defined the impact of the spill on the soils. As previously explained, the test results from the July 14, 2022, GeoProbing showed that there was no chloride contamination off of the lease roads. *See*, Exhibit M-1, App. A, Tables A-1 and A-2.

Merit and Terracon utilized this data to guide the excavation depths as required by the agreement with staff. This work was conducted during 2023, months after the initial samples were collected. There is no need to conduct additional sampling when the concentrations had already been defined to beyond 4' bgs. As Mr. Sullivan testified, the chlorides will migrate downward in the soil column. The chlorides would obviously not float upward and "re-contaminate" soils higher in the soil column. In addition, the chlorides would not expand horizontally over the limited 4' soil column during any vertical migration, which was demonstrated to be true by the July 14, 2022 sampling. Therefore, the sampling conducted in July, 2022 remains relevant. Figure 5 in the "Soil Excavation Report" dated January 31, 2024 attached as Exhibit M-5 clearly depicts the sampling results and excavation depths for each of the lease road areas and demonstrates that additional sampling would not be required.

Further testing would be a waste of money and time, and yield no new or relevant information.

Q. Had staff agreed to allow Merit to treat the impacted soil on its property, would Merit have paid the $1000 penalty and moved on?

A. Absolutely, and Merit in fact made this offer to staff.

Q. Do you believe the Penalty Order issued in this docket is supported by the facts of the case?

A. No. The Penalty Order was entered on May 2, 2023. Staff did not approve a cleanup method until August 10, 2023, more than three months after the Penalty Order issued. That cleanup method did not include a deadline date. Mr. Sullivan's own testimony demonstrates these facts. Without a staff approved clean up method, Merit could not have violated K.A.R. 82-3-603(e)(1), which expressly requires "Each operator shall clean up any spill that requires notification under this regulation in accordance with the cleanup method approved by the appropriate district office. . . each operator shall complete the cleanup of the spill . . . by the deadline prescribed in writing by the district office." Moreover, Merit implemented and completed the agreed upon plan in a timely manner.

Merit cannot be penalized for failing to cleanup a spill in accordance with a staff approved cleanup method, if a staff approved cleanup method did not exist at the time of the alleged penalty.

I note that staff never proposed a cleanup method. Rather, Merit spent time and money developing numerous plans that staff rejected over and over again, until we finally hit the mark with something. As such, I believe Merit was at all times compliant with the regulation it is alleged to have violated.

Q. Does this conclude your testimony?

A. Yes.

VERIFICATION

STATE OF TEXAS)
) ss:
COUNTY OF DALLAS)

Sean Craven, being first duly sworn, deposes and says that he is the Sean Craven referred to in the foregoing "PRE-FILED DIRECT TESTIMONY OF SEAN CRAVEN" to be filed before the State Corporation Commission of the State of Kansas in Docket No. 23-CONS-3273-CPEN, and that the contents thereof are true and correct to the best of his information, knowledge, and belief.

Sean Craven

SIGNED AND SWORN to before me on this 16th day of February, 2024.

STEPHANIE LOTT
My Notary ID # 10657327
Expires October 17, 2024

Notary Public

My Commission expires:

EXHIBIT M-1

October 12, 2022

Kansas Corporation Commission
Kenny Sullivan, District Geologist
210 E Frontview, Suite A
Dodge City, KS 67801

Telephone: (620) 682-7929
E-mail: k.sullivan@kcc.ks.gov

Re: Limited Site Investigation Report and Remediation Plan
Webb A1/A3 Saltwater Release Site
Southeast 1/4 of Section 28, Township 34 South, Range 41 West
Morton County, Kansas
Terracon Project No. 01227149

Dear Mr. Sullivan:

Terracon Consultants, Inc. (Terracon) is presenting this Limited Site Investigation Report and Remediation Plan on behalf of Merit Energy Company (Merit) to the Kansas Corporation Commission (KCC) for review and approval. A saltwater release occurred at the Webb A1/A3 site located in the Southeast 1/4 of Section 28, Township 34 South, Range 41 West (Figure 1). A Limited Site Investigation (LSI) was conducted to support development of a Remediation Plan. Based on the results of the LSI and the extent of impacts, Merit plans to remove the soil with chloride concentrations greater than 500 milligrams per liter (mg/L) and transport it to a nearby 80-acre parcel owned by Merit Energy. The soil will be temporarily staged on Merit's property. This Remediation Plan has been prepared to guide site cleanup activities.

1.0 LIMITED SITE INVESTIGATION

Terracon collected soil samples from 48 Geoprobe borings to assess impacts from the release and the extent of impacts (Figure 2). Soil samples were collected from 0 to 6 feet below ground surface (bgs). The results of the LSI are provided in Appendix A. Tables A-1 and A-2 (Appendix A) present the results of laboratory testing for soil samples.

Based on the laboratory results, chloride concentrations and extent of impact were delineated for soil removal.

2.0 REMEDIATION PLAN

Remediation activities will include soil removal, transport of impacted soil to Merit's property, and backfilling of the excavations with clean topsoil and/or backfill. Dependent on residual chloride concentrations, supplemental application of gypsum to the excavation bottoms may be implemented.

2.1 Soil Removal

Soil removal will be implemented where chloride concentrations are greater than 500 mg/L to the extent practicable. In general, the dirt roads and well pad areas, where the release covered, will be excavated to proposed depths as depicted on Figure 2. Table 1 provides the estimated excavation area, depths, and soil volumes for removal. Tables A-1 and A-2 (Appendix A) present chloride concentrations with depth.

Terracon will stake the perimeter for each excavation area prior to excavation and periodically observe excavation activities. Based on the proposed soil removal activities, residual chloride concentration of less than 500 mg/L may remain in place. In areas where the excavation depth is limited by site conditions, removal of soils with residual concentration of greater than 500 mg/L may not be practicable. For these areas (generally the areas designated for 6 feet of excavation), post-excavation sampling and analysis will be conducted to determine residual chloride concentration in excavation bottoms.

After the total excavation depth is achieved for each area, gypsum will be applied to the excavation bottoms (Section 2.4).

2.2 Soil Transport to Merit Property

The excavated soil will be directly loaded into dump trucks for transport to the Merit property located approximately 1 mile south of the release area. The Merit property covers approximately 80 acres of which 3 to 4 acres in the central portion of the site will be used for temporary stockpiling. Merit is currently evaluating an option for landfarming with the KDHE to treat impacted soils through blending of clean soil and/or gypsum with impacted soils based on residual concentrations.

2.3 Soil Re-Use

The stockpiled soil may be utilized for reuse at the 80-acre parcel and the WMUSU tank battery/facility. Soil reuse will include road or parking lot base material, road maintenance material, and tank berm dike construction material. Dependent on the selected reuse, impacted soil may require blending (i.e., ratio to be determined based on final use) with clean soil and/or gypsum for reuse. Merit will also evaluate other potential future reuses for the soil.

2.4 Gypsum Placement

Due to the potential presence of residual chloride concentrations in excavation bottoms, gypsum will be evenly applied across the excavation bottoms. The gypsum application rates (pounds/1,000 square feet) will be adjusted based on the maximum residual chloride concentration in each excavation bottom. Table 2 provides the estimated gypsum application rates and volumes based residual concentrations and excavation areas.

2.5 Clean Soil Replacement

Clean backfill soil will be like kind soil (topsoil and backfill) used for filling of the excavations back to existing grade at minimum. The topsoil and backfill soil will be obtained from Merit's 80-acre parcel and has been verified clean through confirmation sampling and laboratory analysis (Appendix B). Topsoil and/or backfill soil may also be obtained from the property owner.

For the excavated areas along the dirt roads and well pad areas, backfill soil will be placed in 12-inch thick loose lifts and each lift will be compacted by tamping into place using the excavator bucket or by wheel rolling with construction equipment. The clean compacted soil fill (non-topsoil) will be placed up to original surface grade or above current grade, if needed to promote drainage.

Should the excavation areas extend beyond the roadways or well pad areas into vegetated areas or agricultural areas, backfilling operations will be modified to include placement of topsoil and amendments along the surface. A minimum of 12 inches of clean topsoil will be placed in the upper 1 foot of the excavation area and loosely compacted by wheel rolling.

2.6 Soil Amendments

Merit proposes to place manure on the areas outside the roadways and well pad areas that have received topsoil. Soil amendments will be consistent with future agricultural land use.

3.0 GENERAL COMMENTS

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either expressed or implied, regarding findings or conclusions resulting from these services. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of this Plan. Our services were performed in accordance with the agreed scope of work.

Findings and conclusions resulting from these services are based upon information derived from the onsite activities and other services performed under this scope of work; such information is subject to change over time. Subsurface conditions may vary from those encountered at specific borings or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our conclusions are based solely upon data obtained at the time and within the scope of these services.

Upon receipt of the property owner and KCC's approval of this Plan, Merit will implement remediation at the site.

Should you have any questions or comments regarding this Plan, please contact either of the undersigned at 316-262-0171.

Sincerely,
Terracon

Michael Gagne, P.G.
Senior Project Manager

Anthony R. Mellini, Jr., P.G.
Senior Associate

cc: Sean Craven, Merit Energy Company

Attachments:

Figure 1 – Site Location Map
Figure 2 – Site Excavation Areas
Table 1 – Estimated Excavation Volumes
Table 2 – Gypsum Application Rates and Volumes

Appendix A – LSI Results
Appendix B – Backfill Soil Report

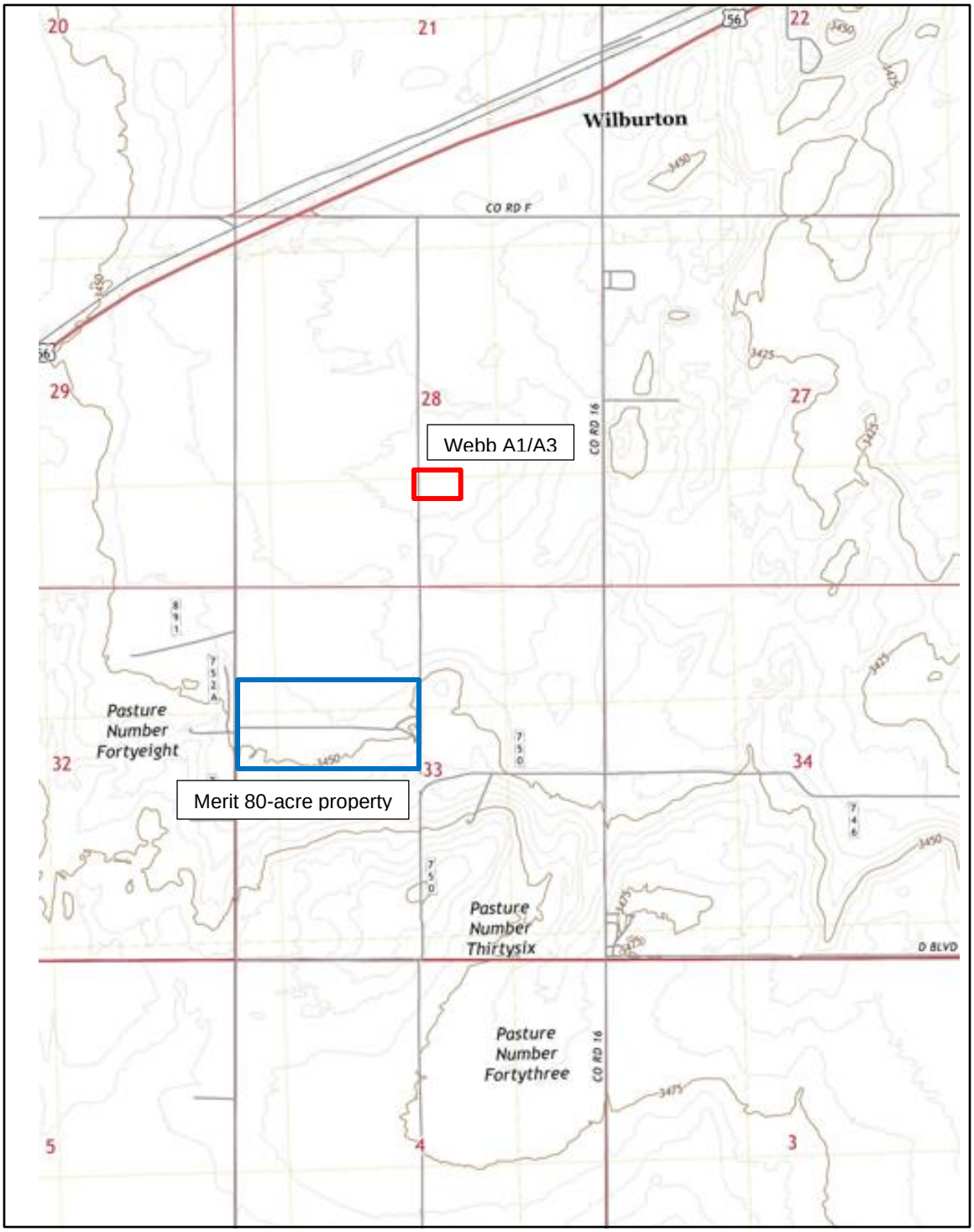


DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

N

Project Mngr:	Scale:	Terracon Consulting Engineers & Scientists 1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Site Location Map Merit Webb A1/A3 Saltwater Release Site Morton County, Kansas	FIGURE 1
Checked By:	Date: 10/11/2022			
Approved By:	Project No: 01227149			
Drawn By:	File Name:			

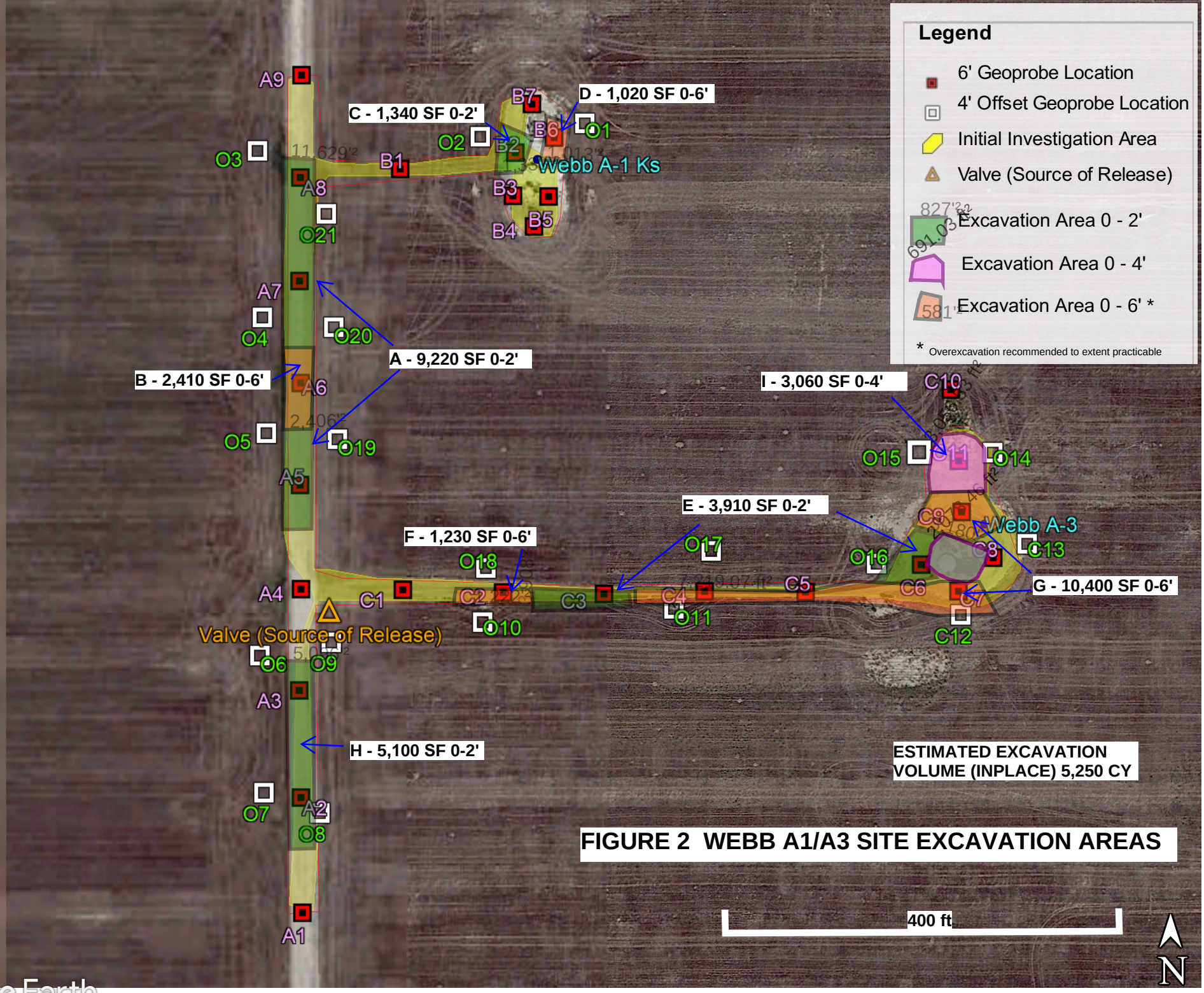


FIGURE 2 WEBB A1/A3 SITE EXCAVATION AREAS

Table 1 Webb A1/A3 Excavation Information

Excavation Area	Area - Sqaure Feet	Depth Interval	Thickness Feet	Cubic Feet	Cubic Yard
A	9,220	0-2'	2	18,440	683
B*	2,410	0-6'	6	14,460	536
C	1,340	0-2'	2	2,680	99
D*	1,020	0-6'	6	6,120	227
E	3,910	0-2'	2	7,820	290
F*	1,230	0-6'	6	7,380	273
G*	10,400	0-6'	6	62,400	2,311
H	5,100	0-2'	2	10,200	378
I	3,060	0-4'	4	12,240	453
Total Estimated Volume (Inplace)					5,250
Total Estimated Volume (Excavated)					6,300
* Overexcavation recommended to the extent practicable.					

Table 2. Webb A1/A3 Gypsum Application Rates and Volumes

Excavation Area	Area - Sqaure Feet	Maximum Excavation Bottom CL Concentration (mg/L)	Application Rate lbs/1000 sf	lbs/area**
A	9,220	187	40	369
B*	2,410	516	40	96
C	1,340	235	40	54
D*	1,020	567	80	82
E	3,910	152	40	156
F*	1,230	3,160	410	504
G*	10,400	2,930	410	4,264
H	5,100	472	40	204
I	3,060	100	40	122
		Total Estimated Pounds		5,483

Residual CL Concentration Range*** (mg/L)		Application Rate lbs/1000 sf
Minimum	Maximum	
50	550	40
551	700	80
701	975	120
976	1,250	160
1,251	1,525	195
1,526	1,800	230
1,801	2,150	275
2,151	2,500	320
2,501	2,850	365
2,851	3,200	410

* Overexcavation recommended to the extent practicable.

** lbs of gypsum to be evenly applied across excavation area

*** Residual concentration at excavation bottom or soil spreading area

APPENDIX A

LSI RESULTS

Table A-1. Webb A1/A3 Initial Prope Laboratory Results

Count	Probe #	Coordinates		Depth Interval (ft)	Sample Number	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L
		Latitude	Longitude					
1	A1	37.058814°	-101.781817°	0-2	A1-0-2	37	0.79	16
				2-4	A1-2-4	49	0.58	12
				4-6	A1-4-6	31	0.62	29
2	A2	37.059129°	-101.781822°	0-2	A2-0-2	31	2.22	623
				2-4	A2-2-4	44	0.36	19
				4-6	A2-4-6	29	1.63	472
3	A3	37.059422°	-101.781828°	0-2	A3-0-2	30	4.95	1580
				2-4	A3-2-4	38	0.75	30
				4-6	A3-4-6	49	0.69	56
4	A4	37.059699°	-101.781822°	0-2	A4-0-2	27	1.14	168
				2-4	A4-2-4	36	0.72	14
				4-6	A4-4-6	41	0.53	18
5	A5	37.059984°	-101.781825°	0-2	A5-0-2	37	3.11	819
				2-4	A5-2-4	39	0.44	21
				4-6	A5-4-6	51	0.46	39
6	A6	37.060263°	-101.781823°	0-2	A6-0-2	45	3.44	1120
				2-4	A6-2-4	42	0.85	158
				4-6	A6-4-6	31	1.66	516
7	A7	37.060542°	-101.781827°	0-2	A7-0-2	39	4.29	1340
				2-4	A7-2-4	48	0.57	153
				4-6	A7-4-6	44	0.93	187
8	A8	37.060825°	-101.781824°	0-2	A8-0-2	45	2.62	957
				2-4	A8-2-4	40	0.5	18
				4-6	A8-4-6	54	0.42	30
9	A9	37.061105°	-101.781820°	0-2	A9-0-2	42	0.89	49
				2-4	A9-2-4	38	0.54	27
				4-6	A9-4-6	30	0.41	32
10	B1	37.060849°	-101.781482°	0-2	B1-0-2	47	0.65	112
				2-4	B1-2-4	44	0.6	133
				4-6	B1-4-6	52	0.5	100
11	B2	37.060893°	-101.781087°	0-2	B2-0-2	44	1.77	602
				2-4	B2-2-4	46	0.59	39
				4-6	B2-4-6	56	1.26	235
12	B3	37.060775°	-101.781095°	0-2	B3-0-2	42	0.74	109
				2-4	B3-2-4	47	0.57	42
				4-6	B3-4-6	46	0.78	61
13	B4	37.060691°	-101.781023°	0-2	B4-0-2	39	1.04	277
				2-4	B4-2-4	42	0.27	76
				4-6	B4-4-6	34	0.59	137
14	B5	37.060773°	-101.780973°	0-2	B5-0-2	45	0.37	30
				2-4	B5-2-4	49	0.37	15
				4-6	B5-4-6	31	0.55	63
15	B6	37.060934°	-101.780954°	0-2	B6-0-2	53	0.76	72
				2-4	B6-2-4	54	2.05	322
				4-6	B6-4-6	51	2.72	567
16	B7	37.061026°	-101.781030°	0-2	B7-0-2	36	0.7	63
				2-4	B7-2-4	45	0.84	40
				4-6	B7-4-6	37	1.1	97
17	C1	37.059697°	-101.781473°	0-2	C1-0-2	38	1.38	341
				2-4	C1-2-4	44	0.55	62
				4-6	C1-4-6	45	1.67	192
18	C2	37.059690°	-101.781129°	0-2	C2-0-2	44	2.27	671
				2-4	C2-2-4	46	1.1	257
				4-6	C2-4-6	41	9.89	3160
19	C3	37.059686°	-101.780783°	0-2	C3-0-2	44	4.53	1390
				2-4	C3-2-4	40	0.84	164
				4-6	C3-4-6	39	0.43	47
20	C4	37.059693°	-101.780438°	0-2	C4-0-2	37	9.36	3580
				2-4	C4-2-4	47	16.7	6560
				4-6	C4-4-6	39	6.6	2360
21	C5	37.059691°	-101.780092°	0-2	C5-0-2	44	6.01	1790
				2-4	C5-2-4	44	3.13	475
				4-6	C5-4-6	48	3.73	1040
22	C6	37.059766°	-101.779696°	0-2	C6-0-2	36	7.98	2930
				2-4	C6-2-4	46	0.66	71
				4-6	C6-4-6	42	0.72	152
23	C7	37.059693°	-101.779568°	0-2	C7-0-2	37	8.43	2660
				2-4	C7-2-4	43	3.43	1020
				4-6	C7-4-6	48	2.01	556

Count	Probe #	Coordinates		Depth Interval (ft)	Sample Number	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L
		Latitude	Longitude					
24	C8	37.059785°	-101.779449°	0-2	C8-0-2	38	1.1	179
				2-4	C8-2-4	49	1.59	269
				4-6	C7-4-6	54	2.15	491
25	C9	37.059910°	-101.779557°	0-2	C9-0-2	35	8.57	2860
				2-4	C9-2-4	42	12.6	4640
				4-6	C9-4-6	54	7.94	2720
26	C10	37.060245°	-101.779594°	0-2	C10-0-2	33	0.39	24
				2-4	C10-2-4	37	0.31	12
				4-6	C10-4-6	32	2.77	9
27	C11	37.060050°	-101.779567°	0-2	C11-0-2	35	5.08	1590
				2-4	C11-2-4	39	1.84	543
				4-6	C11-4-6	44	0.62	100

USDA Soil Salinity Classes:
EC <2 = Non-saline
EC 2-4 = Very Slightly Saline
EC 4-8 = Slightly Saline
EC 8-16 = Moderately Saline
EC > 16 = Strongly Saline

> 500 mg/L

EC = Electrical Conductivity
Chloride = Chloride concentration (Saturated Paste Method)
mmhos/cm = millimhos per centimeter
mg/L = milligrams per liter (parts per million)

Table A-2. Webb A1/A3 Offset Probe Laboratory Results

Count	Probe #	Coordinates		Depth Interval (ft)	Sample Number	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L
		Latitude	Longitude					
1	O1	37.060969°	-101.780853°	0-2	1T	36	0.31	2
				2-4	1B	40	0.38	3
2	O2	37.060933°	-101.781211°	0-2	2T	36	0.37	2
				2-4	2B	39	0.25	2
3	O3	37.060894°	-101.781975°	0-2	3T	41	0.27	7
				2-4	3B	38	0.33	3
4	O4	37.060439°	-101.781958°	0-2	4T	38	0.23	4
				2-4	4B	41	0.27	2
5	O5	37.060122°	-101.781944°	0-2	5T	39	0.25	3
				2-4	5B	40	0.36	2
6	O6	37.059514°	-101.781967°	0-2	6T	36	0.49	6
				2-4	6B	63	0.68	7
7	O7	37.059139°	-101.781953°	0-2	7T	36	0.22	2
				2-4	7B	38	0.31	1
8	O8	37.059083°	-101.781761°	0-2	8T	36	0.34	7
				2-4	8B	41	0.35	3
9	O9	37.059550°	-101.781722°	0-2	9T	37	0.27	2
				2-4	9B	40	0.32	3
10	O10	37.059605°	-101.781203°	0-2	10T	40	0.25	3
				2-4	10B	45	0.21	3
11	O11	37.059642°	-101.780547°	0-2	11T	39	0.20	4
				2-4	11B	35	0.23	4
12	O12	37.059625°	-101.779564°	0-2	12T	36	0.34	2
				2-4	12B	43	0.31	2
13	O13	37.059819°	-101.779336°	0-2	13T	35	0.39	5
				2-4	13B	44	0.31	8
14	O14	37.060069°	-101.779454°	0-2	14T	40	0.20	2
				2-4	14B	46	0.32	2
15	O15	37.060070°	-101.779707°	0-2	15T	41	0.20	1
				2-4	15B	38	0.26	2
16	O16	37.059765°	-101.779853°	0-2	16T	39	0.79	52
				2-4	16B	46	0.87	63
17	O17	37.059800°	-101.780419°	0-2	17T	37	0.26	2
				2-4	17B	40	0.28	1
18	O18	37.059753°	-101.781192°	0-2	18T	34	0.22	8
				2-4	18B	44	0.18	2
19	O19	37.060106°	-101.781701°	0-2	19T	33	0.24	9
				2-4	19B	40	0.33	5
20	O20	37.060412°	-101.781714°	0-2	20T	35	0.21	3
				2-4	20B	42	0.26	2
21	O21	37.060722°	-101.781739°	0-2	21T	34	0.35	16
				2-4	21B	41	0.33	3

USDA Soil Salinity Classes:
EC <2 = Non-saline
EC 2-4 = Very Slightly Saline
EC 4-8 = Slightly Saline
EC 8-16 = Moderately Saline
EC > 16 = Strongly Saline

> 500 mg/L

EC = Electrical Conductivity
Chloride = Chloride concentration (Saturated Paste Method)
mmhos/cm = millimhos per centimeter
mg/L = milligrams per liter (parts per million)

APPENDIX B

BACKFILL SOIL REPORT

October 10, 2022

Merit Energy Company
Sean Craven, Environmental Manager
13727 Noel Road
Dallas, Texas 75240

Telephone: (972) 628-1572
E-mail: Sean.Craven@meritenergy.com

Re: Merit Energy Backfill Soil Report
Morton County, Kansas
Terracon Project No. 01227171

Dear Mr. Craven:

Terracon Consultants, Inc. (Terracon) has prepared this Backfill Soils Analyses Report at Merit Energy Company's (Merit) request. Due to historical releases of chloride into soil, Merit has been conducting removal of chloride impacted soils for various release areas in Morton County and transporting impacted soil to an 80-acre parcel owned by Merit Energy. The soil is being staged onsite. The majority of the releases have impacted the area around the well pad and/or dirt roads to the well pads. In order to backfill excavations, where impacted soil removal has occurred, Merit would like to use clean backfill soil obtained from Merit's 80-acre property. This Report presents the results of the laboratory analyses to support use of this soil for backfill operations.

1.0 BACKGROUND

To identify acceptable clean backfill material, Terracon collected a surface soil (topsoil) and a near surface soil sample from three locations on Merit's 80-acre parcel for laboratory analyses. The borrow area (Figure 1) is located in the southeast corner of Merit's property away from other oil field related operations. Observations and laboratory results are discussed in the following section.

2.0 SOIL RESULTS

2.1 Soil Sampling

Terracon collected soil samples from three location (HA-1, HA-2, and HA-3) at depths approximately 0 to 1 foot below the ground surface (bgs) (topsoil) and 2 to 3 feet bgs. The

topsoil and near surface soil were comprised of a brown sandy silt with organic matter (i.e., roots). No visible evidence of contamination was observed in the samples.

Three topsoil and three near soil samples collected for chloride (CL) and electrical conductivity (EC) were placed in plastic baggies and delivered to Servi-Tech Laboratory, Dodge City, Kansas. The soil samples were also collected for analysis for 8 RCRA metals, Total Petroleum Hydrocarbons (TPH Mid-Range and High-Range) and Volatile Organic Compounds (VOCs), placed into laboratory provided containers and shipped under chain of custody to Pace Analytical, Lenexa, Kansas.

2.2 Laboratory Results

Chloride and EC

Analytical laboratory results for CL in the topsoil samples (0 to 1 foot bgs) ranged from 4 milligrams per liter (mg/L) (HA-1) to 6 mg/L (HA-2 and HA-3). Analytical laboratory results for chlorides in the near surface soil samples (2 to 3 feet bgs) ranged from 2 mg/L (HA-1) to 8 mg/L (HA-3). Electrical conductivity was less than or equal to 0.35 millimhos per centimeter (mmho/cm) in the six samples indicating the soil is non-saline (EC < 2) per US Department of Agriculture soil salinity classes.

Metals

Arsenic, barium, chromium, and lead were detected in the samples at naturally occurring background concentrations.

- Arsenic concentrations - 2.1 to 5.0 milligrams per kilogram (mg/kg)
- Barium concentrations - 44.2 to 202 mg/kg
- Chromium concentrations - 6.1 to 16.9 mg/kg.
- Lead concentrations - 4.4 to 12.0 mg/kg.

Concentration for arsenic, barium, chromium, and lead for both the topsoil and near surface soil were less than their respective Risk-Based Standards for Kansas (RSKs, residential - soil pathway) of 18.9 mg/kg, 15,300 mg/kg, 33.6 mg/kg, and 400 mg/kg. Other metals (cadmium, selenium, silver, and mercury) were not detected above the laboratory detection limits.

VOCs and TPH

Volatile Organic Compounds were not detected above the laboratory detection limit in the six samples.

TPH MRH was not detected above the laboratory detection limit in the six samples. Trace levels of TPH HRH were detected in two topsoil samples and one near surface soil sample at concentrations ranging from 7.6 mg/kg (HA-2, 0 to1 foot bgs) to 20.0 mg/kg (HA-3, 2 to 3 feet bgs). Trace levels of HRH are likely associated with naturally occurring organic matter that was observed in soil. The HRH concentrations for the three samples are also well below the HRH RSK of 6,000 mg/kg.

Refer to the attached laboratory reports for results.

2.3 Conclusions

Based on visual observations and laboratory results, the topsoil and near surface soil appear to be similar in physical and chemical composition with no significant changes with depth. Naturally occurring trace to low concentrations were observed for metals and TPH HRH and concentrations were well below the respective RSKs. Therefore, topsoil and near surface soil from the proposed borrow area is clean and acceptable for use at backfill.

3.0 GENERAL COMMENTS

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either expressed or implied, regarding findings, or conclusions resulting from these services. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of this report. Our services were performed in accordance with the agreed scope of work.

Findings and conclusions resulting from these services are based upon information derived from the onsite activities and other services performed under this scope of work; such information is subject to change over time. Subsurface conditions may vary from those encountered at specific borings or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our conclusions are based solely upon data obtained at the time and within the scope of these services.

Should you have any questions or comments regarding these results, please contact either of the undersigned at 316-262-0171.

Sincerely,
Terracon Consultants, Inc.

Michael P. Gagné, P.G.*
Senior Project Manager
*Licensed in Kansas

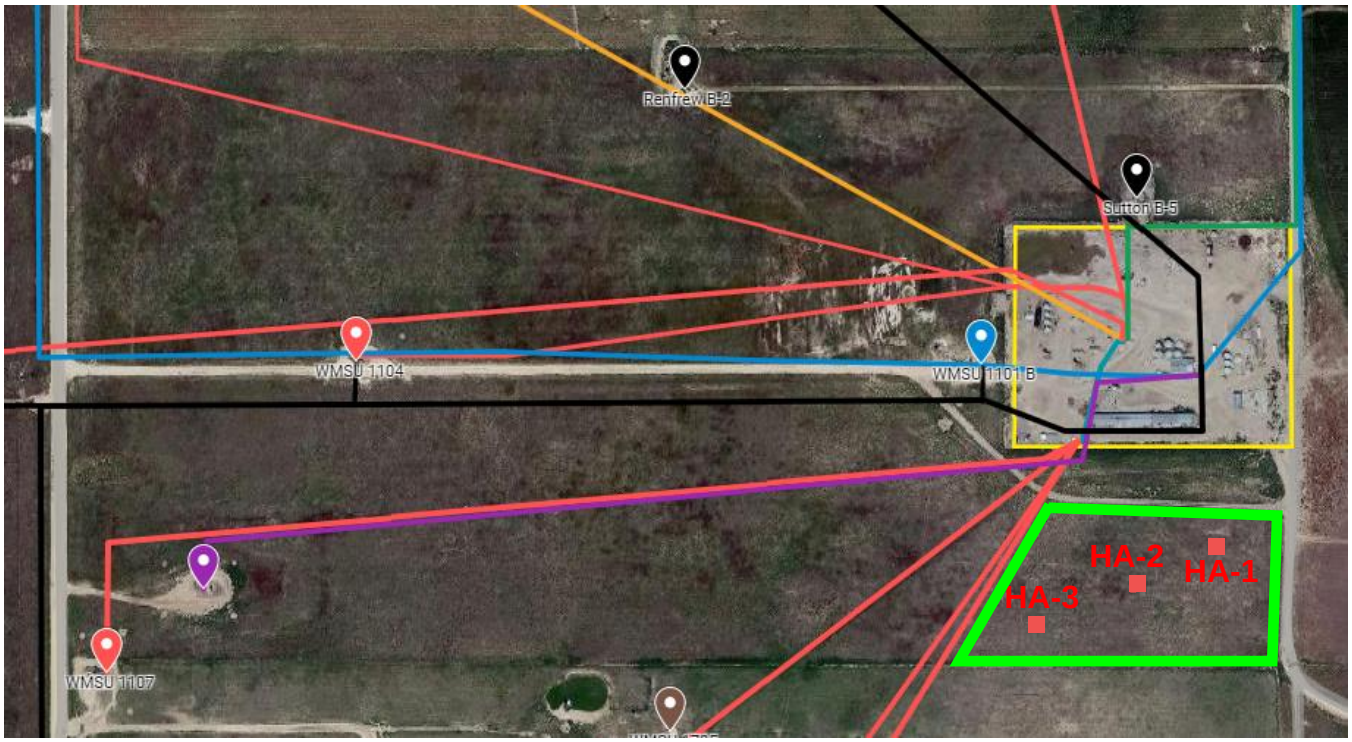
Anthony R. Mellini, Jr., P.G.*
Senior Associate
*Licensed in Kansas

Attachments:

Figure 1 – Borrow Area and Soil Sample Location Map
Table 1 – Backfill Soil Sample Results
Laboratory Reports

Figure 1: Borrow Area and Soil Sample Location Map

WMSU Waterflood - Google My Maps



HAND-AUGER LOCATION
(0 - 3')

BORROW AREA

HA-1 = 37.04777 N, 101.78227 W
A 0-1 foot bgs
B 2-3 feet bgs

HA-2 = 37.04763 N, 101.78309 W
A 0-1 foot bgs
B 2-3 feet bgs

HA-3 = 37.04749 N, 101.78400 W
A 0-1 foot bgs
B 2-3 feet bgs

TABLE 1: BACKFILL SOIL SAMPLE RESULTS

		Sample Identification No. / Sample Depth						KDHE RSK Residential Scenario Soil Pathway
		HA-1 0-1 ft (A)	HA-1 2-3 ft (B)	HA-2 0-1 ft (A)	HA-2 2-3 ft (B)	HA-3 0-1 ft (A)	HA-3 2-3 ft (B)	
		Sample Date						
Analytes	**Units**	9/22/2022	9/22/2022	9/22/2022	9/22/2022	9/22/2022	9/22/2022	
Electrical Conductivity	millimhos/cm	0.26	0.26	0.31	0.30	0.35	0.32	---
Chloride	mg/L	4	2	6	3	6	8	---
VOCs	µg/kg	ND	ND	ND	ND	ND	ND	---
Arsenic	mg/kg	2.2	2.2	2.1	2.3	2.1	5	18.9
Barium	mg/kg	58.1	101.0	44.2	64.7	54.5	202	15,300
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	39
Chromium	mg/kg	7.9	7.7	6.1	6.7	6.9	16.9	34
Lead	mg/kg	4.9	5.2	4.7	4.6	4.4	12	400
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	391
Silver	mg/kg	ND	ND	ND	ND	ND	ND	391
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	2
TPH MRH	mg/kg	ND	ND	ND	ND	ND	ND	250
TPH HRH	mg/kg	ND	ND	7.6	ND	16.6	20	6,000

Notes:

HA = Hand Auger

ft = Sample Depth Feet Below Ground Surface

millimhos/cm = millihos per centimeter

mg/L = milligrams per liter (parts per million)

µg/kg = micrograms per kilogram (parts per billion)

mg/kg = milligrams per kilogram (parts per million)

TPH = Total Petroleum Hydrocarbons

MRH = Kansas Mid-Range Hydrocarbons (>C8 ≤C18)

HRH = Kansas High-Range Hydrocarbons (>C18 ≤C35)

ND = Not detected above laboratory reporting limit

NA = Not Analyzed

USDA Soil Salinity Classes:

EC <2 = Non-saline

EC 2-4 = Very Slightly Saline

EC 4-8 = Slightly Saline

EC 8-16 = Moderately Saline

EC ≥ 16 = Strongly Saline

Kansas Department of Health and Environment (KDHE) Tier 2 Risk-based Standards for Kansas (RSK) levels for residential scenarios:

MRH = 250 mg/kg (soil pathway); 50 mg/kg (soil to groundwater protection pathway)

HRH = 6,000 mg/kg (soil pathway); 6,000 (soil to groundwater protection pathway)

LABORATORY REPORTS

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

servi tech
www.servitech.com
1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	124167
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 1A

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124167		0 - 12	33	0.26	4

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124167																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 124167
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

servi tech
www.servitech.com
1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	124168
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 1B

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124168		24 - 36	32	0.26	2

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124168																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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1816 E. Wyatt Earp
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Dodge City, KS 67801
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620.227.7123
Fax 620.227.2047

LAB NO:	124169
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 2A

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124169		0 - 12	31	0.31	6

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124169																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 124169
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
11905	

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PO Box 1397
Dodge City, KS 67801
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620.227.7123
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LAB NO:	124170
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 2B

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124170		24 - 36	34	0.30	3

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124170																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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LAB NO:	124171
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 3A

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124171		0 - 12	33	0.35	6

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124171																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 124171
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
11905	

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Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	124172
INVOICE NO:	894511
DATE RECEIVED:	09/23/2022
DATE REPORTED:	09/27/2022

SOIL ANALYSIS RESULTS FOR: MERIT ENERGY **FIELD IDENTIFICATION:** HA 3B

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
124172		24 - 36	52	0.32	8

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
124172																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

October 03, 2022

Michael (Mike) Gagne
Terracon
1815 S. Eisenhower
Wichita, KS 67209

RE: Project: 01227171 MERIT
Pace Project No.: 60411308

Dear Michael (Mike) Gagne:

Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Kansas City

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

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: 01227171 MERIT
Pace Project No.: 60411308

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 22-031-0
Arkansas Drinking Water
Illinois Certification #: 2000302021-3
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-21-15
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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SAMPLE SUMMARY

Project: 01227171 MERIT
Pace Project No.: 60411308

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60411308001	**HA-1A**	Solid	09/22/22 15:30	09/24/22 07:50
60411308002	**HA-1B**	Solid	09/22/22 15:50	09/24/22 07:50
60411308003	**HA-2A**	Solid	09/22/22 16:25	09/24/22 07:50
60411308004	**HA-2B**	Solid	09/22/22 16:40	09/24/22 07:50
60411308005	**HA-3A**	Solid	09/22/22 17:05	09/24/22 07:50
60411308006	**HA-3B**	Solid	09/22/22 17:35	09/24/22 07:50
60411308007	**TRIP BLANK 1**	Solid	09/22/22 08:00	09/24/22 07:50

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SAMPLE ANALYTE COUNT

Project: 01227171 MERIT
Pace Project No.: 60411308

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60411308001	**HA-1A**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308002	**HA-1B**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308003	**HA-2A**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308004	**HA-2B**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308005	**HA-3A**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308006	**HA-3B**	KS MRH/HRH	YGR	3	PASI-K
		EPA 6010	MA1	7	PASI-K
		EPA 7471	ALH	1	PASI-K
		EPA 8260C	RAD	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60411308007	**TRIP BLANK 1**	EPA 8260C	RAD	68	PASI-K

PASI-K = Pace Analytical Services - Kansas City

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1A **Lab ID: 60411308001** Collected: 09/22/22 15:30 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	ND	mg/kg	8.1	1	09/29/22 12:54	09/29/22 15:21		
MRH (C9-C18)	ND	mg/kg	6.1	1	09/29/22 12:54	09/29/22 15:21		
Surrogates								
1-Chloro-octadecane (S)	74	%	40-140	1	09/29/22 12:54	09/29/22 15:21	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**2.2**	mg/kg	0.83	1	09/28/22 10:19	09/29/22 08:50	7440-38-2	
Barium	**58.1**	mg/kg	0.41	1	09/28/22 10:19	09/29/22 08:50	7440-39-3	
Cadmium	ND	mg/kg	0.41	1	09/28/22 10:19	09/29/22 08:50	7440-43-9	
Chromium	**7.9**	mg/kg	0.41	1	09/28/22 10:19	09/29/22 08:50	7440-47-3	
Lead	**4.9**	mg/kg	0.83	1	09/28/22 10:19	09/29/22 08:50	7439-92-1	
Selenium	ND	mg/kg	1.2	1	09/28/22 10:19	09/29/22 08:50	7782-49-2	
Silver	ND	mg/kg	0.58	1	09/28/22 10:19	09/29/22 08:50	7440-22-4	M1
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.039	1	09/30/22 16:03	10/03/22 13:14	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	148	1	09/28/22 10:23	09/28/22 17:15	67-64-1	
Benzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	71-43-2	
Bromobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	108-86-1	
Bromochloromethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	74-97-5	
Bromodichloromethane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	75-27-4	
Bromoform	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	75-25-2	
Bromomethane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	74-83-9	
2-Butanone (MEK)	ND	ug/kg	148	1	09/28/22 10:23	09/28/22 17:15	78-93-3	
n-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	104-51-8	
sec-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	135-98-8	
tert-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	98-06-6	
Carbon disulfide	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	75-15-0	
Carbon tetrachloride	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	56-23-5	
Chlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	108-90-7	
Chloroethane	ND	ug/kg	58.8	1	09/28/22 10:23	09/28/22 17:15	75-00-3	
Chloroform	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	67-66-3	L2
Chloromethane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	74-87-3	
2-Chlorotoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	95-49-8	
4-Chlorotoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	96-12-8	
Dibromochloromethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	106-93-4	
Dibromomethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	95-50-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1A **Lab ID: 60411308001** Collected: 09/22/22 15:30 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	75-71-8	
1,1-Dichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	75-34-3	
1,2-Dichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	23.5	1	09/28/22 10:23	09/28/22 17:15	540-59-0	
1,1-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	156-60-5	
1,2-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	78-87-5	
1,3-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	594-20-7	
1,1-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	10061-02-6	
Ethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	87-68-3	
2-Hexanone	ND	ug/kg	148	1	09/28/22 10:23	09/28/22 17:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	98-82-8	
p-Isopropyltoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	99-87-6	
Methylene Chloride	ND	ug/kg	58.8	1	09/28/22 10:23	09/28/22 17:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	148	1	09/28/22 10:23	09/28/22 17:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	1634-04-4	
Naphthalene	ND	ug/kg	23.5	1	09/28/22 10:23	09/28/22 17:15	91-20-3	
n-Propylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	103-65-1	
Styrene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	79-34-5	
Tetrachloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	127-18-4	
Toluene	ND	ug/kg	47.0	1	09/28/22 10:23	09/28/22 17:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	79-00-5	L1
Trichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	79-01-6	
Trichlorofluoromethane	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:15	108-67-8	
Vinyl chloride	ND	ug/kg	30.6	1	09/28/22 10:23	09/28/22 17:15	75-01-4	
Xylene (Total)	ND	ug/kg	35.3	1	09/28/22 10:23	09/28/22 17:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	80-120	1	09/28/22 10:23	09/28/22 17:15	2037-26-5	
4-Bromofluorobenzene (S)	99	%	83-119	1	09/28/22 10:23	09/28/22 17:15	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120	1	09/28/22 10:23	09/28/22 17:15	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1A **Lab ID: 60411308001** Collected: 09/22/22 15:30 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**4.3**	%	0.50	1		09/27/22 14:57		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1B **Lab ID: 60411308002** Collected: 09/22/22 15:50 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	ND	mg/kg	7.2	1	09/29/22 12:54	09/29/22 15:45		
MRH (C9-C18)	ND	mg/kg	5.4	1	09/29/22 12:54	09/29/22 15:45		
Surrogates								
1-Chloro-octadecane (S)	81	%	40-140	1	09/29/22 12:54	09/29/22 15:45	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**2.2**	mg/kg	0.90	1	09/28/22 10:19	09/29/22 08:56	7440-38-2	
Barium	**101**	mg/kg	0.45	1	09/28/22 10:19	09/29/22 08:56	7440-39-3	
Cadmium	ND	mg/kg	0.45	1	09/28/22 10:19	09/29/22 08:56	7440-43-9	
Chromium	**7.7**	mg/kg	0.45	1	09/28/22 10:19	09/29/22 08:56	7440-47-3	
Lead	**5.2**	mg/kg	0.90	1	09/28/22 10:19	09/29/22 08:56	7439-92-1	
Selenium	ND	mg/kg	1.3	1	09/28/22 10:19	09/29/22 08:56	7782-49-2	
Silver	ND	mg/kg	0.63	1	09/28/22 10:19	09/29/22 08:56	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.046	1	09/30/22 16:03	10/03/22 13:21	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	149	1	09/28/22 10:23	09/28/22 17:34	67-64-1	
Benzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	71-43-2	
Bromobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	108-86-1	
Bromochloromethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	74-97-5	
Bromodichloromethane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	75-27-4	
Bromoform	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	75-25-2	
Bromomethane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	74-83-9	
2-Butanone (MEK)	ND	ug/kg	149	1	09/28/22 10:23	09/28/22 17:34	78-93-3	
n-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	104-51-8	
sec-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	135-98-8	
tert-Butylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	98-06-6	
Carbon disulfide	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	75-15-0	
Carbon tetrachloride	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	56-23-5	
Chlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	108-90-7	
Chloroethane	ND	ug/kg	59.1	1	09/28/22 10:23	09/28/22 17:34	75-00-3	
Chloroform	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	67-66-3	L2
Chloromethane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	74-87-3	
2-Chlorotoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	95-49-8	
4-Chlorotoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	96-12-8	
Dibromochloromethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	106-93-4	
Dibromomethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	95-50-1	

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1B **Lab ID: 60411308002** Collected: 09/22/22 15:50 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	75-71-8	
1,1-Dichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	75-34-3	
1,2-Dichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	23.7	1	09/28/22 10:23	09/28/22 17:34	540-59-0	
1,1-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	156-60-5	
1,2-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	78-87-5	
1,3-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	594-20-7	
1,1-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	10061-02-6	
Ethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	87-68-3	
2-Hexanone	ND	ug/kg	149	1	09/28/22 10:23	09/28/22 17:34	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	98-82-8	
p-Isopropyltoluene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	99-87-6	
Methylene Chloride	ND	ug/kg	59.1	1	09/28/22 10:23	09/28/22 17:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	149	1	09/28/22 10:23	09/28/22 17:34	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	1634-04-4	
Naphthalene	ND	ug/kg	23.7	1	09/28/22 10:23	09/28/22 17:34	91-20-3	
n-Propylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	103-65-1	
Styrene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	79-34-5	
Tetrachloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	127-18-4	
Toluene	ND	ug/kg	47.3	1	09/28/22 10:23	09/28/22 17:34	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	79-00-5	L1
Trichloroethene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	79-01-6	
Trichlorofluoromethane	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	11.8	1	09/28/22 10:23	09/28/22 17:34	108-67-8	
Vinyl chloride	ND	ug/kg	30.8	1	09/28/22 10:23	09/28/22 17:34	75-01-4	
Xylene (Total)	ND	ug/kg	35.5	1	09/28/22 10:23	09/28/22 17:34	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1	09/28/22 10:23	09/28/22 17:34	2037-26-5	
4-Bromofluorobenzene (S)	99	%	83-119	1	09/28/22 10:23	09/28/22 17:34	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120	1	09/28/22 10:23	09/28/22 17:34	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-1B **Lab ID: 60411308002** Collected: 09/22/22 15:50 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**4.0**	%	0.50	1		09/27/22 14:57		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2A **Lab ID: 60411308003** Collected: 09/22/22 16:25 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	**7.6**	mg/kg	7.5	1	09/29/22 12:54	09/29/22 15:53		
MRH (C9-C18)	ND	mg/kg	5.6	1	09/29/22 12:54	09/29/22 15:53		
Surrogates								
1-Chloro-octadecane (S)	74	%	40-140	1	09/29/22 12:54	09/29/22 15:53	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**2.1**	mg/kg	0.68	1	09/28/22 10:19	09/29/22 08:58	7440-38-2	
Barium	**44.2**	mg/kg	0.34	1	09/28/22 10:19	09/29/22 08:58	7440-39-3	
Cadmium	ND	mg/kg	0.34	1	09/28/22 10:19	09/29/22 08:58	7440-43-9	
Chromium	**6.1**	mg/kg	0.34	1	09/28/22 10:19	09/29/22 08:58	7440-47-3	
Lead	**4.7**	mg/kg	0.68	1	09/28/22 10:19	09/29/22 08:58	7439-92-1	
Selenium	ND	mg/kg	1.0	1	09/28/22 10:19	09/29/22 08:58	7782-49-2	
Silver	ND	mg/kg	0.48	1	09/28/22 10:19	09/29/22 08:58	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.044	1	09/30/22 16:03	10/03/22 13:23	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	135	1	09/28/22 10:23	09/28/22 17:55	67-64-1	
Benzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	71-43-2	
Bromobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	108-86-1	
Bromochloromethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	74-97-5	
Bromodichloromethane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	75-27-4	
Bromoform	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	75-25-2	
Bromomethane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	74-83-9	
2-Butanone (MEK)	ND	ug/kg	135	1	09/28/22 10:23	09/28/22 17:55	78-93-3	
n-Butylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	104-51-8	
sec-Butylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	135-98-8	
tert-Butylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	98-06-6	
Carbon disulfide	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	75-15-0	
Carbon tetrachloride	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	56-23-5	
Chlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	108-90-7	
Chloroethane	ND	ug/kg	53.4	1	09/28/22 10:23	09/28/22 17:55	75-00-3	
Chloroform	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	67-66-3	L2
Chloromethane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	74-87-3	
2-Chlorotoluene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	95-49-8	
4-Chlorotoluene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	96-12-8	
Dibromochloromethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	106-93-4	
Dibromomethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	95-50-1	

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2A **Lab ID: 60411308003** Collected: 09/22/22 16:25 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	75-71-8	
1,1-Dichloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	75-34-3	
1,2-Dichloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	21.4	1	09/28/22 10:23	09/28/22 17:55	540-59-0	
1,1-Dichloroethene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	156-60-5	
1,2-Dichloropropane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	78-87-5	
1,3-Dichloropropane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	594-20-7	
1,1-Dichloropropene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	10061-02-6	
Ethylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	87-68-3	
2-Hexanone	ND	ug/kg	135	1	09/28/22 10:23	09/28/22 17:55	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	98-82-8	
p-Isopropyltoluene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	99-87-6	
Methylene Chloride	ND	ug/kg	53.4	1	09/28/22 10:23	09/28/22 17:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	135	1	09/28/22 10:23	09/28/22 17:55	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	1634-04-4	
Naphthalene	ND	ug/kg	21.4	1	09/28/22 10:23	09/28/22 17:55	91-20-3	
n-Propylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	103-65-1	
Styrene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	79-34-5	
Tetrachloroethene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	127-18-4	
Toluene	ND	ug/kg	42.7	1	09/28/22 10:23	09/28/22 17:55	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	79-00-5	L1
Trichloroethene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	79-01-6	
Trichlorofluoromethane	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	10.7	1	09/28/22 10:23	09/28/22 17:55	108-67-8	
Vinyl chloride	ND	ug/kg	27.8	1	09/28/22 10:23	09/28/22 17:55	75-01-4	
Xylene (Total)	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 17:55	1330-20-7	
Surrogates								
Toluene-d8 (S)	104	%	80-120	1	09/28/22 10:23	09/28/22 17:55	2037-26-5	
4-Bromofluorobenzene (S)	99	%	83-119	1	09/28/22 10:23	09/28/22 17:55	460-00-4	
1,2-Dichlorobenzene-d4 (S)	99	%	80-120	1	09/28/22 10:23	09/28/22 17:55	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2A **Lab ID: 60411308003** Collected: 09/22/22 16:25 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**2.5**	%	0.50	1		09/27/22 14:57		

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2B **Lab ID: 60411308004** Collected: 09/22/22 16:40 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	ND	mg/kg	7.3	1	09/29/22 12:54	09/29/22 16:02		
MRH (C9-C18)	ND	mg/kg	5.4	1	09/29/22 12:54	09/29/22 16:02		
Surrogates								
1-Chloro-octadecane (S)	78	%	40-140	1	09/29/22 12:54	09/29/22 16:02	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**2.3**	mg/kg	0.77	1	09/28/22 10:19	09/29/22 09:06	7440-38-2	
Barium	**64.7**	mg/kg	0.39	1	09/28/22 10:19	09/29/22 09:06	7440-39-3	
Cadmium	ND	mg/kg	0.39	1	09/28/22 10:19	09/29/22 09:06	7440-43-9	
Chromium	**6.7**	mg/kg	0.39	1	09/28/22 10:19	09/29/22 09:06	7440-47-3	
Lead	**4.6**	mg/kg	0.77	1	09/28/22 10:19	09/29/22 09:06	7439-92-1	
Selenium	ND	mg/kg	1.2	1	09/28/22 10:19	09/29/22 09:06	7782-49-2	
Silver	ND	mg/kg	0.54	1	09/28/22 10:19	09/29/22 09:06	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.046	1	09/30/22 16:03	10/03/22 13:25	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	136	1	09/28/22 10:23	09/28/22 18:16	67-64-1	
Benzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	71-43-2	
Bromobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	108-86-1	
Bromochloromethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	74-97-5	
Bromodichloromethane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	75-27-4	
Bromoform	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	75-25-2	
Bromomethane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	74-83-9	
2-Butanone (MEK)	ND	ug/kg	136	1	09/28/22 10:23	09/28/22 18:16	78-93-3	
n-Butylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	104-51-8	
sec-Butylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	135-98-8	
tert-Butylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	98-06-6	
Carbon disulfide	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	75-15-0	
Carbon tetrachloride	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	56-23-5	
Chlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	108-90-7	
Chloroethane	ND	ug/kg	54.1	1	09/28/22 10:23	09/28/22 18:16	75-00-3	
Chloroform	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	67-66-3	L2
Chloromethane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	74-87-3	
2-Chlorotoluene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	95-49-8	
4-Chlorotoluene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	96-12-8	
Dibromochloromethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	106-93-4	
Dibromomethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	95-50-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2B **Lab ID: 60411308004** Collected: 09/22/22 16:40 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	75-71-8	
1,1-Dichloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	75-34-3	
1,2-Dichloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	21.7	1	09/28/22 10:23	09/28/22 18:16	540-59-0	
1,1-Dichloroethene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	156-60-5	
1,2-Dichloropropane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	78-87-5	
1,3-Dichloropropane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	594-20-7	
1,1-Dichloropropene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	10061-02-6	
Ethylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	87-68-3	
2-Hexanone	ND	ug/kg	136	1	09/28/22 10:23	09/28/22 18:16	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	98-82-8	
p-Isopropyltoluene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	99-87-6	
Methylene Chloride	ND	ug/kg	54.1	1	09/28/22 10:23	09/28/22 18:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	136	1	09/28/22 10:23	09/28/22 18:16	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	1634-04-4	
Naphthalene	ND	ug/kg	21.7	1	09/28/22 10:23	09/28/22 18:16	91-20-3	
n-Propylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	103-65-1	
Styrene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	79-34-5	
Tetrachloroethene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	127-18-4	
Toluene	ND	ug/kg	43.3	1	09/28/22 10:23	09/28/22 18:16	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	79-00-5	L1
Trichloroethene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	79-01-6	
Trichlorofluoromethane	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	10.8	1	09/28/22 10:23	09/28/22 18:16	108-67-8	
Vinyl chloride	ND	ug/kg	28.1	1	09/28/22 10:23	09/28/22 18:16	75-01-4	
Xylene (Total)	ND	ug/kg	32.5	1	09/28/22 10:23	09/28/22 18:16	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	80-120	1	09/28/22 10:23	09/28/22 18:16	2037-26-5	
4-Bromofluorobenzene (S)	99	%	83-119	1	09/28/22 10:23	09/28/22 18:16	460-00-4	
1,2-Dichlorobenzene-d4 (S)	99	%	80-120	1	09/28/22 10:23	09/28/22 18:16	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-2B **Lab ID: 60411308004** Collected: 09/22/22 16:40 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**3.4**	%	0.50	1		09/27/22 14:57		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3A **Lab ID: 60411308005** Collected: 09/22/22 17:05 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	**16.6**	mg/kg	7.3	1	09/29/22 12:54	09/29/22 16:10		
MRH (C9-C18)	ND	mg/kg	5.4	1	09/29/22 12:54	09/29/22 16:10		
Surrogates								
1-Chloro-octadecane (S)	67	%	40-140	1	09/29/22 12:54	09/29/22 16:10	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**2.1**	mg/kg	0.73	1	09/28/22 10:19	09/29/22 09:08	7440-38-2	
Barium	**54.5**	mg/kg	0.37	1	09/28/22 10:19	09/29/22 09:08	7440-39-3	
Cadmium	ND	mg/kg	0.37	1	09/28/22 10:19	09/29/22 09:08	7440-43-9	
Chromium	**6.9**	mg/kg	0.37	1	09/28/22 10:19	09/29/22 09:08	7440-47-3	
Lead	**4.4**	mg/kg	0.73	1	09/28/22 10:19	09/29/22 09:08	7439-92-1	
Selenium	ND	mg/kg	1.1	1	09/28/22 10:19	09/29/22 09:08	7782-49-2	
Silver	ND	mg/kg	0.51	1	09/28/22 10:19	09/29/22 09:08	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.041	1	09/30/22 16:03	10/03/22 13:28	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	127	1	09/28/22 10:23	09/28/22 18:36	67-64-1	
Benzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	71-43-2	
Bromobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	108-86-1	
Bromochloromethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	74-97-5	
Bromodichloromethane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	75-27-4	
Bromoform	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	75-25-2	
Bromomethane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	74-83-9	
2-Butanone (MEK)	ND	ug/kg	127	1	09/28/22 10:23	09/28/22 18:36	78-93-3	
n-Butylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	104-51-8	
sec-Butylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	135-98-8	
tert-Butylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	98-06-6	
Carbon disulfide	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	75-15-0	
Carbon tetrachloride	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	56-23-5	
Chlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	108-90-7	
Chloroethane	ND	ug/kg	50.3	1	09/28/22 10:23	09/28/22 18:36	75-00-3	
Chloroform	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	67-66-3	L2
Chloromethane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	74-87-3	
2-Chlorotoluene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	95-49-8	
4-Chlorotoluene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	96-12-8	
Dibromochloromethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	106-93-4	
Dibromomethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	95-50-1	

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3A **Lab ID: 60411308005** Collected: 09/22/22 17:05 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	75-71-8	
1,1-Dichloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	75-34-3	
1,2-Dichloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	20.1	1	09/28/22 10:23	09/28/22 18:36	540-59-0	
1,1-Dichloroethene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	156-60-5	
1,2-Dichloropropane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	78-87-5	
1,3-Dichloropropane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	594-20-7	
1,1-Dichloropropene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	10061-02-6	
Ethylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	87-68-3	
2-Hexanone	ND	ug/kg	127	1	09/28/22 10:23	09/28/22 18:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	98-82-8	
p-Isopropyltoluene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	99-87-6	
Methylene Chloride	ND	ug/kg	50.3	1	09/28/22 10:23	09/28/22 18:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	127	1	09/28/22 10:23	09/28/22 18:36	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	1634-04-4	
Naphthalene	ND	ug/kg	20.1	1	09/28/22 10:23	09/28/22 18:36	91-20-3	
n-Propylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	103-65-1	
Styrene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	79-34-5	
Tetrachloroethene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	127-18-4	
Toluene	ND	ug/kg	40.2	1	09/28/22 10:23	09/28/22 18:36	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	79-00-5	L1
Trichloroethene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	79-01-6	
Trichlorofluoromethane	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	10.1	1	09/28/22 10:23	09/28/22 18:36	108-67-8	
Vinyl chloride	ND	ug/kg	26.1	1	09/28/22 10:23	09/28/22 18:36	75-01-4	
Xylene (Total)	ND	ug/kg	30.2	1	09/28/22 10:23	09/28/22 18:36	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1	09/28/22 10:23	09/28/22 18:36	2037-26-5	
4-Bromofluorobenzene (S)	99	%	83-119	1	09/28/22 10:23	09/28/22 18:36	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120	1	09/28/22 10:23	09/28/22 18:36	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3A **Lab ID: 60411308005** Collected: 09/22/22 17:05 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**3.6**	%	0.50	1		09/27/22 14:57		

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3B **Lab ID: 60411308006** Collected: 09/22/22 17:35 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
KS MRH/HRH	Analytical Method: KS MRH/HRH Preparation Method: EPA 3546 Pace Analytical Services - Kansas City							
HRH (C19-C35)	**20.0**	mg/kg	7.8	1	09/29/22 12:54	09/29/22 16:18		
MRH (C9-C18)	ND	mg/kg	5.8	1	09/29/22 12:54	09/29/22 16:18		
Surrogates								
1-Chloro-octadecane (S)	64	%	40-140	1	09/29/22 12:54	09/29/22 16:18	3386-33-2	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City							
Arsenic	**5.0**	mg/kg	0.92	1	09/28/22 10:19	09/29/22 09:10	7440-38-2	
Barium	**202**	mg/kg	0.46	1	09/28/22 10:19	09/29/22 09:10	7440-39-3	
Cadmium	ND	mg/kg	0.46	1	09/28/22 10:19	09/29/22 09:10	7440-43-9	
Chromium	**16.9**	mg/kg	0.46	1	09/28/22 10:19	09/29/22 09:10	7440-47-3	
Lead	**12.0**	mg/kg	0.92	1	09/28/22 10:19	09/29/22 09:10	7439-92-1	
Selenium	ND	mg/kg	1.4	1	09/28/22 10:19	09/29/22 09:10	7782-49-2	
Silver	ND	mg/kg	0.65	1	09/28/22 10:19	09/29/22 09:10	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Kansas City							
Mercury	ND	mg/kg	0.046	1	09/30/22 16:03	10/03/22 13:30	7439-97-6	
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	155	1	09/28/22 10:23	09/28/22 18:57	67-64-1	
Benzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	71-43-2	
Bromobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	108-86-1	
Bromochloromethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	74-97-5	
Bromodichloromethane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	75-27-4	
Bromoform	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	75-25-2	
Bromomethane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	74-83-9	
2-Butanone (MEK)	ND	ug/kg	155	1	09/28/22 10:23	09/28/22 18:57	78-93-3	
n-Butylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	104-51-8	
sec-Butylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	135-98-8	
tert-Butylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	98-06-6	
Carbon disulfide	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	75-15-0	
Carbon tetrachloride	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	56-23-5	
Chlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	108-90-7	
Chloroethane	ND	ug/kg	61.5	1	09/28/22 10:23	09/28/22 18:57	75-00-3	
Chloroform	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	67-66-3	L2
Chloromethane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	74-87-3	
2-Chlorotoluene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	95-49-8	
4-Chlorotoluene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	96-12-8	
Dibromochloromethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	106-93-4	
Dibromomethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	95-50-1	

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ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3B **Lab ID: 60411308006** Collected: 09/22/22 17:35 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
1,3-Dichlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	75-71-8	
1,1-Dichloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	75-34-3	
1,2-Dichloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	24.6	1	09/28/22 10:23	09/28/22 18:57	540-59-0	
1,1-Dichloroethene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	156-60-5	
1,2-Dichloropropane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	78-87-5	
1,3-Dichloropropane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	594-20-7	
1,1-Dichloropropene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	10061-02-6	
Ethylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	87-68-3	
2-Hexanone	ND	ug/kg	155	1	09/28/22 10:23	09/28/22 18:57	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	98-82-8	
p-Isopropyltoluene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	99-87-6	
Methylene Chloride	ND	ug/kg	61.5	1	09/28/22 10:23	09/28/22 18:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	155	1	09/28/22 10:23	09/28/22 18:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	1634-04-4	
Naphthalene	ND	ug/kg	24.6	1	09/28/22 10:23	09/28/22 18:57	91-20-3	
n-Propylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	103-65-1	
Styrene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	79-34-5	
Tetrachloroethene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	127-18-4	
Toluene	ND	ug/kg	49.2	1	09/28/22 10:23	09/28/22 18:57	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	79-00-5	L1
Trichloroethene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	79-01-6	
Trichlorofluoromethane	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	12.3	1	09/28/22 10:23	09/28/22 18:57	108-67-8	
Vinyl chloride	ND	ug/kg	32.0	1	09/28/22 10:23	09/28/22 18:57	75-01-4	
Xylene (Total)	ND	ug/kg	36.9	1	09/28/22 10:23	09/28/22 18:57	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	80-120	1	09/28/22 10:23	09/28/22 18:57	2037-26-5	
4-Bromofluorobenzene (S)	101	%	83-119	1	09/28/22 10:23	09/28/22 18:57	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120	1	09/28/22 10:23	09/28/22 18:57	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: HA-3B **Lab ID: 60411308006** Collected: 09/22/22 17:35 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City							
Percent Moisture	**9.9**	%	0.50	1		09/27/22 14:58		

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: TRIP BLANK 1 **Lab ID: 60411308007** Collected: 09/22/22 08:00 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
Acetone	ND	ug/kg	63.0	1	09/28/22 10:23	09/28/22 16:54	67-64-1	
Benzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	71-43-2	
Bromobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	108-86-1	
Bromochloromethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	74-97-5	
Bromodichloromethane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	75-27-4	
Bromoform	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	75-25-2	
Bromomethane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	74-83-9	
2-Butanone (MEK)	ND	ug/kg	63.0	1	09/28/22 10:23	09/28/22 16:54	78-93-3	
n-Butylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	98-06-6	
Carbon disulfide	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	108-90-7	
Chloroethane	ND	ug/kg	25.0	1	09/28/22 10:23	09/28/22 16:54	75-00-3	
Chloroform	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	67-66-3	L2
Chloromethane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	96-12-8	
Dibromochloromethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	106-93-4	
Dibromomethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	10.0	1	09/28/22 10:23	09/28/22 16:54	540-59-0	
1,1-Dichloroethene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	142-28-9	L1
2,2-Dichloropropane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	10061-02-6	
Ethylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	87-68-3	
2-Hexanone	ND	ug/kg	63.0	1	09/28/22 10:23	09/28/22 16:54	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	99-87-6	
Methylene Chloride	ND	ug/kg	25.0	1	09/28/22 10:23	09/28/22 16:54	75-09-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 01227171 MERIT
Pace Project No.: 60411308

Sample: TRIP BLANK 1 **Lab ID: 60411308007** Collected: 09/22/22 08:00 Received: 09/24/22 07:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5035A Low Level	Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City							
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	63.0	1	09/28/22 10:23	09/28/22 16:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	1634-04-4	
Naphthalene	ND	ug/kg	10.0	1	09/28/22 10:23	09/28/22 16:54	91-20-3	
n-Propylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	103-65-1	
Styrene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	127-18-4	
Toluene	ND	ug/kg	20.0	1	09/28/22 10:23	09/28/22 16:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	79-00-5	L1
Trichloroethene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	79-01-6	
Trichlorofluoromethane	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.0	1	09/28/22 10:23	09/28/22 16:54	108-67-8	
Vinyl chloride	ND	ug/kg	13.0	1	09/28/22 10:23	09/28/22 16:54	75-01-4	
Xylene (Total)	ND	ug/kg	15.0	1	09/28/22 10:23	09/28/22 16:54	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	80-120	1	09/28/22 10:23	09/28/22 16:54	2037-26-5	
4-Bromofluorobenzene (S)	100	%	83-119	1	09/28/22 10:23	09/28/22 16:54	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120	1	09/28/22 10:23	09/28/22 16:54	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

QC Batch: 810419 | Analysis Method: EPA 7471
QC Batch Method: EPA 7471 | Analysis Description: 7471 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

METHOD BLANK: 3223040 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.050	10/03/22 13:09	

LABORATORY CONTROL SAMPLE: 3223041

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.5	0.49	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3223042 3223043

Parameter	Units	60411308001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	ND	0.43	0.4	0.41	0.36	94	90	75-125	12	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

QC Batch: 809929
QC Batch Method: EPA 3050
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

METHOD BLANK: 3221363 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	09/29/22 08:46	
Barium	mg/kg	ND	0.50	09/29/22 08:46	
Cadmium	mg/kg	ND	0.50	09/29/22 08:46	
Chromium	mg/kg	ND	0.50	09/29/22 08:46	
Lead	mg/kg	ND	1.0	09/29/22 08:46	
Selenium	mg/kg	ND	1.5	09/29/22 08:46	
Silver	mg/kg	ND	0.70	09/29/22 08:46	

LABORATORY CONTROL SAMPLE: 3221364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	100	82.0	82	80-120	
Barium	mg/kg	100	95.7	96	80-120	
Cadmium	mg/kg	100	94.4	94	80-120	
Chromium	mg/kg	100	94.6	95	80-120	
Lead	mg/kg	100	94.7	95	80-120	
Selenium	mg/kg	100	83.4	83	80-120	
Silver	mg/kg	50	46.4	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3221365 3221366

Parameter	Units	60411308001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	2.2	79.2	83	65.0	67.7	79	79	75-125	4	20	
Barium	mg/kg	58.1	79.2	83	119	130	77	86	75-125	9	20	
Cadmium	mg/kg	ND	79.2	83	72.6	76.1	92	92	75-125	5	20	
Chromium	mg/kg	7.9	79.2	83	80.0	84.8	91	93	75-125	6	20	
Lead	mg/kg	4.9	79.2	83	75.2	79.1	89	89	75-125	5	20	
Selenium	mg/kg	ND	79.2	83	61.2	63.7	77	77	75-125	4	20	
Silver	mg/kg	ND	39.6	41.5	.44J	.57J	1	1	75-125		20	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

QC Batch: 809935
QC Batch Method: EPA 5035A/5030B
Analysis Method: EPA 8260C
Analysis Description: 8260C MSV 5035A Low Level
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006, 60411308007

METHOD BLANK: 3221383 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006, 60411308007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,1,1-Trichloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,1,2-Trichloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,1-Dichloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,1-Dichloroethene	ug/kg	ND	5.0	09/28/22 16:13	
1,1-Dichloropropene	ug/kg	ND	5.0	09/28/22 16:13	
1,2,3-Trichlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,2,3-Trichloropropane	ug/kg	ND	5.0	09/28/22 16:13	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,2-Dibromo-3-chloropropane	ug/kg	ND	13.0	09/28/22 16:13	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	09/28/22 16:13	
1,2-Dichlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,2-Dichloroethane	ug/kg	ND	5.0	09/28/22 16:13	
1,2-Dichloroethene (Total)	ug/kg	ND	10.0	09/28/22 16:13	
1,2-Dichloropropane	ug/kg	ND	5.0	09/28/22 16:13	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,3-Dichlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
1,3-Dichloropropane	ug/kg	ND	5.0	09/28/22 16:13	
1,4-Dichlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
2,2-Dichloropropane	ug/kg	ND	5.0	09/28/22 16:13	
2-Butanone (MEK)	ug/kg	ND	63.0	09/28/22 16:13	
2-Chlorotoluene	ug/kg	ND	5.0	09/28/22 16:13	
2-Hexanone	ug/kg	ND	63.0	09/28/22 16:13	
4-Chlorotoluene	ug/kg	ND	5.0	09/28/22 16:13	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	63.0	09/28/22 16:13	
Acetone	ug/kg	ND	63.0	09/28/22 16:13	
Benzene	ug/kg	ND	5.0	09/28/22 16:13	
Bromobenzene	ug/kg	ND	5.0	09/28/22 16:13	
Bromochloromethane	ug/kg	ND	5.0	09/28/22 16:13	
Bromodichloromethane	ug/kg	ND	13.0	09/28/22 16:13	
Bromoform	ug/kg	ND	13.0	09/28/22 16:13	
Bromomethane	ug/kg	ND	13.0	09/28/22 16:13	
Carbon disulfide	ug/kg	ND	5.0	09/28/22 16:13	
Carbon tetrachloride	ug/kg	ND	5.0	09/28/22 16:13	
Chlorobenzene	ug/kg	ND	5.0	09/28/22 16:13	
Chloroethane	ug/kg	ND	25.0	09/28/22 16:13	
Chloroform	ug/kg	ND	5.0	09/28/22 16:13	
Chloromethane	ug/kg	ND	13.0	09/28/22 16:13	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

METHOD BLANK: 3221383 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006, 60411308007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	5.0	09/28/22 16:13	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	09/28/22 16:13	
Dibromochloromethane	ug/kg	ND	5.0	09/28/22 16:13	
Dibromomethane	ug/kg	ND	5.0	09/28/22 16:13	
Dichlorodifluoromethane	ug/kg	ND	13.0	09/28/22 16:13	
Ethylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
Hexachloro-1,3-butadiene	ug/kg	ND	5.0	09/28/22 16:13	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	09/28/22 16:13	
Methyl-tert-butyl ether	ug/kg	ND	5.0	09/28/22 16:13	
Methylene Chloride	ug/kg	ND	25.0	09/28/22 16:13	
n-Butylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
n-Propylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
Naphthalene	ug/kg	ND	10.0	09/28/22 16:13	
p-Isopropyltoluene	ug/kg	ND	5.0	09/28/22 16:13	
sec-Butylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
Styrene	ug/kg	ND	5.0	09/28/22 16:13	
tert-Butylbenzene	ug/kg	ND	5.0	09/28/22 16:13	
Tetrachloroethene	ug/kg	ND	5.0	09/28/22 16:13	
Toluene	ug/kg	ND	20.0	09/28/22 16:13	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	09/28/22 16:13	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	09/28/22 16:13	
Trichloroethene	ug/kg	ND	5.0	09/28/22 16:13	
Trichlorofluoromethane	ug/kg	ND	13.0	09/28/22 16:13	
Vinyl chloride	ug/kg	ND	13.0	09/28/22 16:13	
Xylene (Total)	ug/kg	ND	15.0	09/28/22 16:13	
1,2-Dichlorobenzene-d4 (S)	%	100	80-120	09/28/22 16:13	
4-Bromofluorobenzene (S)	%	102	83-119	09/28/22 16:13	
Toluene-d8 (S)	%	104	80-120	09/28/22 16:13	

LABORATORY CONTROL SAMPLE: 3221384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1250	1170	94	84-125	
1,1,1-Trichloroethane	ug/kg	1250	1200	96	81-121	
1,1,2,2-Tetrachloroethane	ug/kg	1250	1390	111	76-121	
1,1,2-Trichloroethane	ug/kg	1250	1530	122	83-118	L1
1,1-Dichloroethane	ug/kg	1250	1130	90	74-120	
1,1-Dichloroethene	ug/kg	1250	1050	84	71-124	
1,1-Dichloropropene	ug/kg	1250	1230	98	73-123	
1,2,3-Trichlorobenzene	ug/kg	1250	1400	112	81-123	
1,2,3-Trichloropropane	ug/kg	1250	1320	106	81-116	
1,2,4-Trichlorobenzene	ug/kg	1250	1330	106	79-126	
1,2,4-Trimethylbenzene	ug/kg	1250	1390	111	79-121	
1,2-Dibromo-3-chloropropane	ug/kg	1250	1540	123	74-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

LABORATORY CONTROL SAMPLE: 3221384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	1250	1220	97	64-137	
1,2-Dichlorobenzene	ug/kg	1250	1290	103	83-119	
1,2-Dichloroethane	ug/kg	1250	1180	94	58-128	
1,2-Dichloroethene (Total)	ug/kg	2500	2180	87	82-117	
1,2-Dichloropropane	ug/kg	1250	1320	106	77-122	
1,3,5-Trimethylbenzene	ug/kg	1250	1360	109	81-122	
1,3-Dichlorobenzene	ug/kg	1250	1330	107	83-119	
1,3-Dichloropropane	ug/kg	1250	1500	120	83-118	L1
1,4-Dichlorobenzene	ug/kg	1250	1270	101	83-116	
2,2-Dichloropropane	ug/kg	1250	1160	93	76-124	
2-Butanone (MEK)	ug/kg	6250	6690	107	63-122	
2-Chlorotoluene	ug/kg	1250	1320	106	79-119	
2-Hexanone	ug/kg	6250	7010	112	68-122	
4-Chlorotoluene	ug/kg	1250	1350	108	84-119	
4-Methyl-2-pentanone (MIBK)	ug/kg	6250	6960	111	63-128	
Acetone	ug/kg	6250	6580	105	55-124	
Benzene	ug/kg	1250	1240	99	67-126	
Bromobenzene	ug/kg	1250	1340	107	85-117	
Bromochloromethane	ug/kg	1250	1190	95	78-122	
Bromodichloromethane	ug/kg	1250	1350	108	82-120	
Bromoform	ug/kg	1250	1150	92	77-133	
Bromomethane	ug/kg	1250	901	72	20-168	
Carbon disulfide	ug/kg	1250	1070	85	60-133	
Carbon tetrachloride	ug/kg	1250	1320	106	79-128	
Chlorobenzene	ug/kg	1250	1260	101	84-118	
Chloroethane	ug/kg	1250	1160	93	53-139	
Chloroform	ug/kg	1250	1010	81	82-120	L2
Chloromethane	ug/kg	1250	1040	83	33-143	
cis-1,2-Dichloroethene	ug/kg	1250	1120	90	83-117	
cis-1,3-Dichloropropene	ug/kg	1250	1470	117	80-122	
Dibromochloromethane	ug/kg	1250	1160	93	82-128	
Dibromomethane	ug/kg	1250	1220	98	82-119	
Dichlorodifluoromethane	ug/kg	1250	1030	82	12-159	
Ethylbenzene	ug/kg	1250	1230	99	69-127	
Hexachloro-1,3-butadiene	ug/kg	1250	1230	98	77-133	
Isopropylbenzene (Cumene)	ug/kg	1250	1290	103	83-122	
Methyl-tert-butyl ether	ug/kg	1250	1390	111	58-137	
Methylene Chloride	ug/kg	1250	1280	103	68-125	
n-Butylbenzene	ug/kg	1250	1350	108	73-131	
n-Propylbenzene	ug/kg	1250	1310	105	82-122	
Naphthalene	ug/kg	1250	1420	114	60-136	
p-Isopropyltoluene	ug/kg	1250	1350	108	74-129	
sec-Butylbenzene	ug/kg	1250	1310	105	71-133	
Styrene	ug/kg	1250	1240	99	84-121	
tert-Butylbenzene	ug/kg	1250	1330	107	81-122	
Tetrachloroethene	ug/kg	1250	1290	103	78-130	
Toluene	ug/kg	1250	1150	92	80-118	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

LABORATORY CONTROL SAMPLE: 3221384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/kg	1250	1050	84	78-118	
trans-1,3-Dichloropropene	ug/kg	1250	1240	100	81-123	
Trichloroethene	ug/kg	1250	1190	95	78-127	
Trichlorofluoromethane	ug/kg	1250	1080	86	64-133	
Vinyl chloride	ug/kg	1250	1140	91	45-139	
Xylene (Total)	ug/kg	3750	3740	100	69-130	
1,2-Dichlorobenzene-d4 (S)	%			100	80-120	
4-Bromofluorobenzene (S)	%			98	83-119	
Toluene-d8 (S)	%			90	80-120	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

QC Batch: 810005 | Analysis Method: KS MRH/HRH
QC Batch Method: EPA 3546 | Analysis Description: EPA 8015 KS TPH
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

METHOD BLANK: 3221667 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
HRH (C19-C35)	mg/kg	ND	7.9	09/29/22 14:56	
MRH (C9-C18)	mg/kg	ND	5.9	09/29/22 14:56	
1-Chloro-octadecane (S)	%	69	40-140	09/29/22 14:56	

LABORATORY CONTROL SAMPLE & LCSD: 3221668 3221669

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
HRH (C19-C35)	mg/kg	6.9	5.7J	7.5J	82	98	40-140		25	
MRH (C9-C18)	mg/kg	5.2	3.7J	5.1J	71	88	40-140		25	
1-Chloro-octadecane (S)	%				69	87	40-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3221670 3221671

Parameter	Units	60411308001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
HRH (C19-C35)	mg/kg	ND	7.9	7.9	16.7	15.4	127	110	40-140	8	50	
MRH (C9-C18)	mg/kg	ND	6	6	5.3J	5.1J	79	76	40-140		50	
1-Chloro-octadecane (S)	%						80	76	40-140			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 01227171 MERIT
Pace Project No.: 60411308

QC Batch: 809789
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

METHOD BLANK: 3220830 Matrix: Solid
Associated Lab Samples: 60411308001, 60411308002, 60411308003, 60411308004, 60411308005, 60411308006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	09/27/22 14:57	

SAMPLE DUPLICATE: 3220831

Parameter	Units	60411308001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.3	4.6	6	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: 01227171 MERIT
Pace Project No.: 60411308

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 01227171 MERIT
Pace Project No.: 60411308

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60411308001	**HA-1A**	EPA 3546	810005	KS MRH/HRH	810270
60411308002	**HA-1B**	EPA 3546	810005	KS MRH/HRH	810270
60411308003	**HA-2A**	EPA 3546	810005	KS MRH/HRH	810270
60411308004	**HA-2B**	EPA 3546	810005	KS MRH/HRH	810270
60411308005	**HA-3A**	EPA 3546	810005	KS MRH/HRH	810270
60411308006	**HA-3B**	EPA 3546	810005	KS MRH/HRH	810270
60411308001	**HA-1A**	EPA 3050	809929	EPA 6010	809945
60411308002	**HA-1B**	EPA 3050	809929	EPA 6010	809945
60411308003	**HA-2A**	EPA 3050	809929	EPA 6010	809945
60411308004	**HA-2B**	EPA 3050	809929	EPA 6010	809945
60411308005	**HA-3A**	EPA 3050	809929	EPA 6010	809945
60411308006	**HA-3B**	EPA 3050	809929	EPA 6010	809945
60411308001	**HA-1A**	EPA 7471	810419	EPA 7471	810638
60411308002	**HA-1B**	EPA 7471	810419	EPA 7471	810638
60411308003	**HA-2A**	EPA 7471	810419	EPA 7471	810638
60411308004	**HA-2B**	EPA 7471	810419	EPA 7471	810638
60411308005	**HA-3A**	EPA 7471	810419	EPA 7471	810638
60411308006	**HA-3B**	EPA 7471	810419	EPA 7471	810638
60411308001	**HA-1A**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308002	**HA-1B**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308003	**HA-2A**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308004	**HA-2B**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308005	**HA-3A**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308006	**HA-3B**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308007	**TRIP BLANK 1**	EPA 5035A/5030B	809935	EPA 8260C	809979
60411308001	**HA-1A**	ASTM D2974	809789		
60411308002	**HA-1B**	ASTM D2974	809789		
60411308003	**HA-2A**	ASTM D2974	809789		
60411308004	**HA-2B**	ASTM D2974	809789		
60411308005	**HA-3A**	ASTM D2974	809789		
60411308006	**HA-3B**	ASTM D2974	809789		

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Samp	WO# : 60411308
	Revision: 2	Effective Date: 01/12/20

Client Name: Terracon Wichita

Courier: FedEx ☐ UPS ☐ VIA ☒ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☒ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☒ Bubble Bags ☐ Foam ☒ None ☐ Other ☐

Thermometer Used: T-299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.7 **Corr. Factor** 0 **Corrected** 1.7

Date and initials of person examining contents: BC 9/27

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested: 5-7 Day	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☒No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☒No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: SL	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:**	☐Yes ☐No ☒N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State: KS	☐Yes ☒No ☐N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☒No ☐N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelabs.com/hubfs/pas-standard-terms.pdf.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	TERRACON Wichita	Report To:	Michael (Mike) Gagne	Attention:	
Address:	1815 S. Eisenhower	Copy To:		Company Name:	
Wichita, KS 67209				Address:	
Email:	mike.gagne@terracon.com	Purchase Order #:		Pace Quote:	
Phone:	(316)250-2093 Fax	Project Name:	Merit	Pace Project Manager:	heather.wilson@pacelabs.com,
Requested Due Date:	5-7 day TAT	Project #:		Pace Profile #:	15499, 2

Regulatory Agency	
State / Location	KS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: KS TPH MRH/HRH	8260 Full List	KS TBH — MRS	6010/7471 Total RCRA 8 Me	Residual Chlorine (Y/N)	6041138
1	HA-1a	SL	G	9-22	1530				3	X						X			X	X	X	X			
2	HA-1b	SL	G	9-22	1550				3	X						X			X	X	X	X			
3	HA-2a	SL	G	9-22	1625				3	X						X			X	X	X	X			
4	HA-2b	SL	G	9-22	1640				3	X						X			X	X	X	X			
5	HA-3a	SL	G	9-22	1705				3	X						X			X	X	X	X			
6	HA-3b	SL	G	9-22	1735				3	X						X			X	X	X	X			
7	Trip Blank	WT		9-22	1740				2							X				X					
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Michael Folk / Terracon	9/23/22	1230		9/24/22	0750	L7	Y	Y	

SAMPLER NAME AND SIGNATURE						
PRINT Name of SAMPLER:	Michael Folk		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
SIGNATURE of SAMPLER:	Michael Folk	DATE Signed: 9/23/2022				

Client: Terracon Wichita Profile # 15499, 2

Site: Merit Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	SL						2									1																
2	SL						2									1																
3	SL						2									1																
4	SL						2									1																
5	SL						2									1																
6	SL						2									1																
7	SL						2		Trip Blank 1																							
8	SL						2		Trip Blank 2																							
9																																
10																																
11																																
12																																

Container Codes

Glass			
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar
DG9H	40mL HCl amber voa vial	WGFU	4oz clear soil jar
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass
		AG5U	100mL unpres amber glass

Plastic	
BP1C	1L NAOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2C	500mL NAOH plastic
BP2N	500mL HNO3 plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3F	250mL HNO3 plastic - field filtered
BP3N	250mL HNO3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, Zn Acetate
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic
WPDU	16oz unpresserved plstic

Misc.	
I	Wipe/Swab
SP5T	120mL Coliform Na Thiosulfate
ZPLC	Ziploc Bag
AF	Air Filter
C	Air Cassettes
R	Terracore Kit
U	Summa Can

Matrix	
WT	Water
SL	Solid
NAL	Non-aqueous Liquid
OL	OIL
WP	Wipe
DW	Drinking Water

Work Order Number: 60411308

EXHIBIT M-2

Soil Management Plan

Merit Soil Management Project
Morton County, Kansas

November 4, 2022
Terracon Project No. 01227171

Prepared for:
Merit Energy Company
Dallas, Texas

Prepared by:
Terracon Consultants, Inc.
Wichita, Kansas

1.0 BACKGROUND

A site designated for impacted soil management, known as the Merit Energy (Merit) property (property) covers approximately 80 acres and is located approximately 1.4 miles south of Highway 56 on Forest Service Road 750, Morton County, Kansas (37° 02' 56.9" N, 101° 46' 58.0" W) (Figure 1). The property is used for industrial use (oil and gas Exploration and/or Production (E&P) operations). Figure 2 presents this site layout which contains storage areas and is also underlain by various pipelines. The surrounding land area is vacant land with some portions of the land used for agriculture. Most of Merit's E&P operations occur on leased land.

As part of Merit's operations in the area, surface releases of saltwater have occurred from well heads and/or associated pipelines on leased property. Merit has been in communication with Kansas Corporation Commission (KCC) and the property owner for these releases and has been implementing assessment and remediation for these releases with KCC approval. Chloride (CL) impacted soil removal has been occurring at different release areas and the soil has been temporarily staged on the Merit property for beneficial reuse as a berm (Figure 2).

Th soil berm located on the western and southern edges of the storage area in the eastern portion of the property is comprised of approximately 20,000 cubic yards (cy) of soil. Additional ongoing cleanup operations will also generate CL impacted soil for management. The various impacted soil sites are presented on Figure 3. Merit intends to initiate cleanup and soil management for these sites in the following sequence:

1. Webb A1/A3 Site
2. 2A01 Site
3. 604 Site
4. 1107 Site
5. Kneller Site

Impacted soils from these areas and the existing berm will be managed in accordance with this Soil Management Plan (SMP).

2.0 SITE LOCATION

Figure 2 presents the proposed Soil Management Areas (SMAs) and existing subsurface piping. Based on the location of subsurface pipelines, four SMAs (1 through 4) have been identified for soil management. Soil management will not occur over buried pipelines or other buried utilities

transecting the site. SMAs 1 and 2 are located in the interior of the property and SMAs 3 and 4 are located along the northern and southern boundary of the properties.

Based on review of the aerial photos and available readily available data, the site is not located within 500 feet of residences, business, domestic or public water supply; within 200 feet of waters of the state; and within 100 feet from a drainage swale, ditch, or other physical feature with channel overland flow. Based on the water well data for the area, the static water level can range from approximately 131 feet to 221 feet below ground surface.

The estimated acreage for each of the proposed SMAs is as follows:

- SMA 1 - 6 Acres
- SMA 2 – 6 Acres
- SMA 3 – 8.5 Acres
- SMA 4 – 3.5 Acres

SMAs will be developed in a sequential manner, as needed, based on the volumes and CL concentrations of impacted soil requiring amendments.

3.0 SITE PREPARATION

The site is relatively flat and sparsely covered with topsoil and vegetation. Prior to any impacted soil placement in an SMA, a designate area and footprint required for management of a specified soil volume within an SMA will be determined prior to development. Each SMA may be developed in phases, as needed, to accommodate and properly manage the soil as it is generated during soil removal activities. The general development sequence for each phase will be as follows:

1. Clear vegetation and topsoil and stage outside the SMA.

2. Modify grades and slopes and construct an approximate1 to 2 feet high earthen perimeter berm for soil containment and stormwater management.

3. Continue this process, as needed, to expand each phase of an SMA.

SMA 1 will be the first area to be developed and will require a temporary staging area be constructed within the SMA for impacted soil. As soil is excavated from each source area site, it will be hauled to and deposited in the staging area.

An approximate 1-acre temporary staging area will be constructed within the berm for SMA 1. The staging area will be lined with poly sheeting for temporary impacted soil staging, until it can be moved to an amendment area for immediate spreading, tilling, mixing, and/or blending within the SMA, as discussed in Section 4.

4.0 SOIL AMENDMENT PROCESS

Chloride concentrations can be variable across each site. However, typically during over-excavation activities, mixing of impacted and clean soil occurs. Composite samples of the mixed soil (berm material) derived from past typical cleanup operations indicate CL concentrations range from 1,360 to 1,740 milligrams per liter (mg/L CL). For reference, the Kansas Department of Health and Environment (KDHE) Cleanup Goal for CL impacted soil (soil to groundwater pathway) is 1,000 ppm. Associated electrical conductivity (EC) are up to 5.70 mmho/cm indicating the impacted soil is slightly saline. Residual total petroleum hydrocarbons (TPHs) are also present in the impacted soils. TPH mid-range hydrocarbons (MRH) range from non-detect to 329 milligrams per kilogram (mg/kg) and TPH high-range hydrocarbons (HRH) range from 12.2 mg/kg to 677 mg/kg. The KDHE RSKs for non-residential scenarios soil pathway for MRH and HRH are 350 mg/kg and 27,000 mg/kg, respectively. Future removal activities will generally be conducted in a similar manner and will likely generate similar mixtures of soil.

After soil has been placed in the staging area, a workable volume of the soil will then be moved to an amendment area. Multiple designated amendment areas within the SMA will likely range in size from 10,000 square feet (sf) to 40,000 sf and each lift within an area will be approximately 1-foot thick. Once soil is placed in a designated amendment area it will immediately go through the following process:

- Soil will be mixed and tilled (approximate 1-foot thick lifts) for a specified area and one composite soil sample will be prepared from 5 aliquots or sample locations for each approximate 10,000 sf area. Terracon will collect soil samples with a hand auger or post-hole digger through the entire lift thickness. The composite samples will be analyzed by Servi-Tech Laboratory for CL using the saturated paste method.

- Composite sample results for each designate amendment area will be used to establish an appropriated clean soil and/or gypsum amendments rate, if required. Based on these test results, one of the following Scenarios will be implemented:

Scenario 1

CL concentrations less than or equal to 1,000 mg/L, addition of amendments will not be required, and the soil will be considered acceptable for future beneficial reuse.

Scenario 2

CL concentrations exceed 1,000 mg/L, clean soil and/or gypsum amendments will be applied to the specified amendment area, at a rate based on the CL concentration for that area. Amendments will be thoroughly tilled into the impacted soil. Some typical application rates for gypsum, based on CL concentrations, are presented in Table 1. The

gypsum rates may be modified based on the volume of clean soil that may also be tilled in simultaneously with gypsum. Following amendment additions, one composite confirmation sample will be prepared for each approximate 10,000 sf area and submitted for CL analysis. Composite samples will be collected from the surface to approximate bottom of each amended lift.

The Scenario 2 blending and amendment process should be effective at reducing salt concentrations to the 1,000 mg/L level without the water addition. Based on the nature of the soil (primarily a silty clay) and the semi-arid environment (high evapotranspiration rate), an excessive amount of tilling and water application would be required to flush each lift. The only source for water in the area would be well water. Preservation of groundwater resources should take priority over the amendment process, especially if Scenarios 1 or 2 can meet the 1,000 mg/L requirement.

Terracon will prepare a summary of volumes, areas, application rates, and laboratory data to document the soil management process. A summary report will be provided to the KCC quarterly, when active soil management and testing is occurring in a given quarter.

After confirmation sample results indicate that CL concentrations for a specific amendment area meet the 1,000 mg/L requirement, that soil will be deemed acceptable for beneficial reuse. Options for soil deposition and/or beneficial use are discussed in Section 5.

5.0 SOIL DEPOSITION

Merit's long-term goal for soil managed under this SMP is beneficial reuse. The soil may be used for roadbeds, well pad areas, berms, or other uses to be determined based on future needs. Until beneficial reuse of the soil is implemented, the soil will remain on Merit's 80-acre property.

Options for soil deposition onsite will vary. Soil that meets the 1,000 mg/L requirement may remain inside the SMA or may be removed and stockpiled outside the SMA on the property until needed for beneficial reuse. To minimize double handling of the amended soils and construction of additional SMAs, additional lifts (approximately 1-foot thick) of unamended soil may be placed on top of the previously placed lifts that meet the 1,000 mg/L requirement. The unamended lifts will go through the soil amendment and testing process as described in Section 4, until it is deemed acceptable for beneficial reuse. A maximum limit of 4 lifts will be allowed for each amendment area.

Following placement of the final lift within an amendment area, grading (0.5% to 2%) will be conducted for each amendment area to minimize erosion.

FIGURES & TABLE

FIGURE 1: SITE LOCATION MAP
Wilburton 2022 USGS Topographic Map

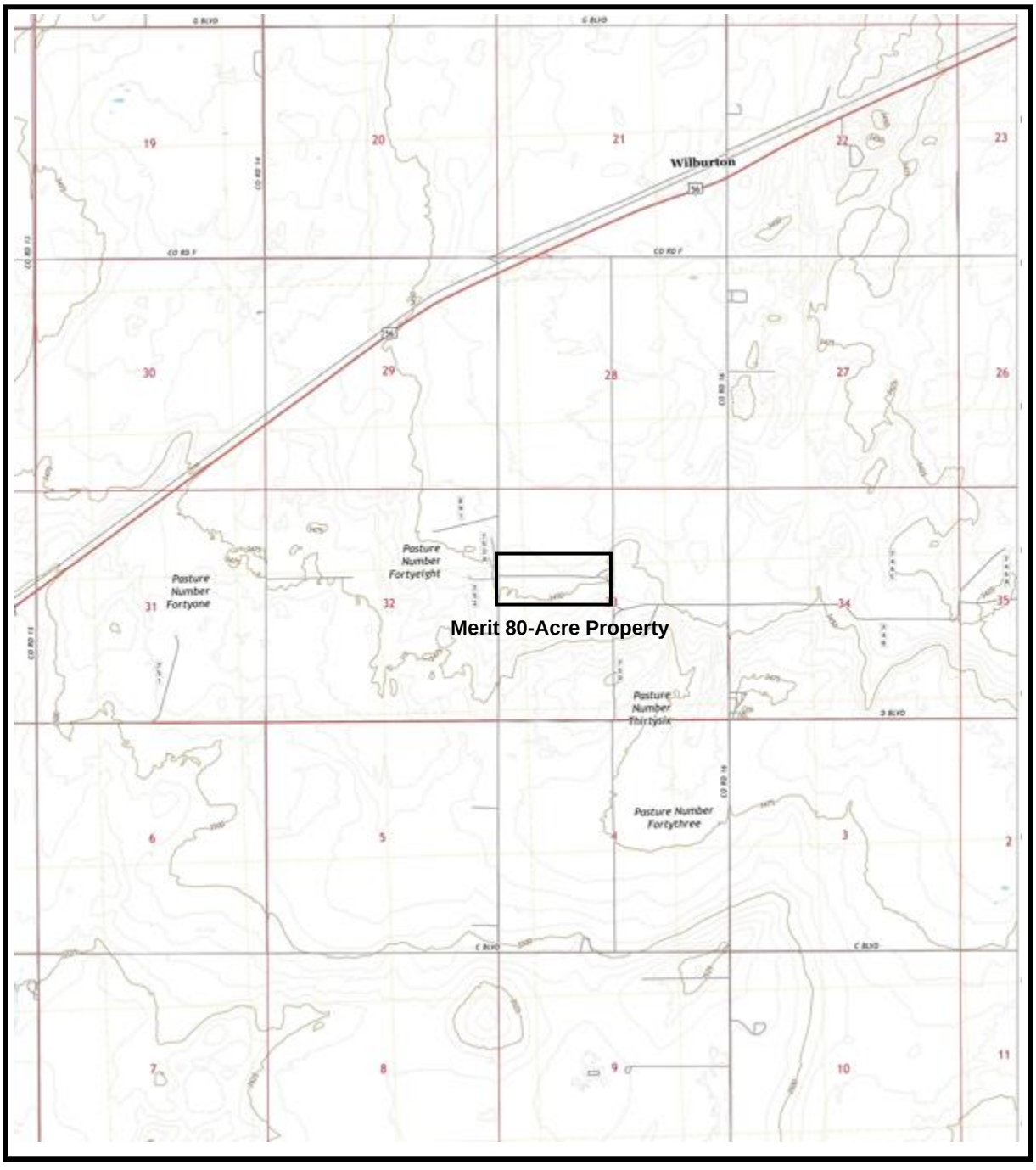


FIGURE 2: PROPOSED SOIL MANAGEMENT AREAS &
ASSOCIATED SUBSURFACE PIPING RUNS

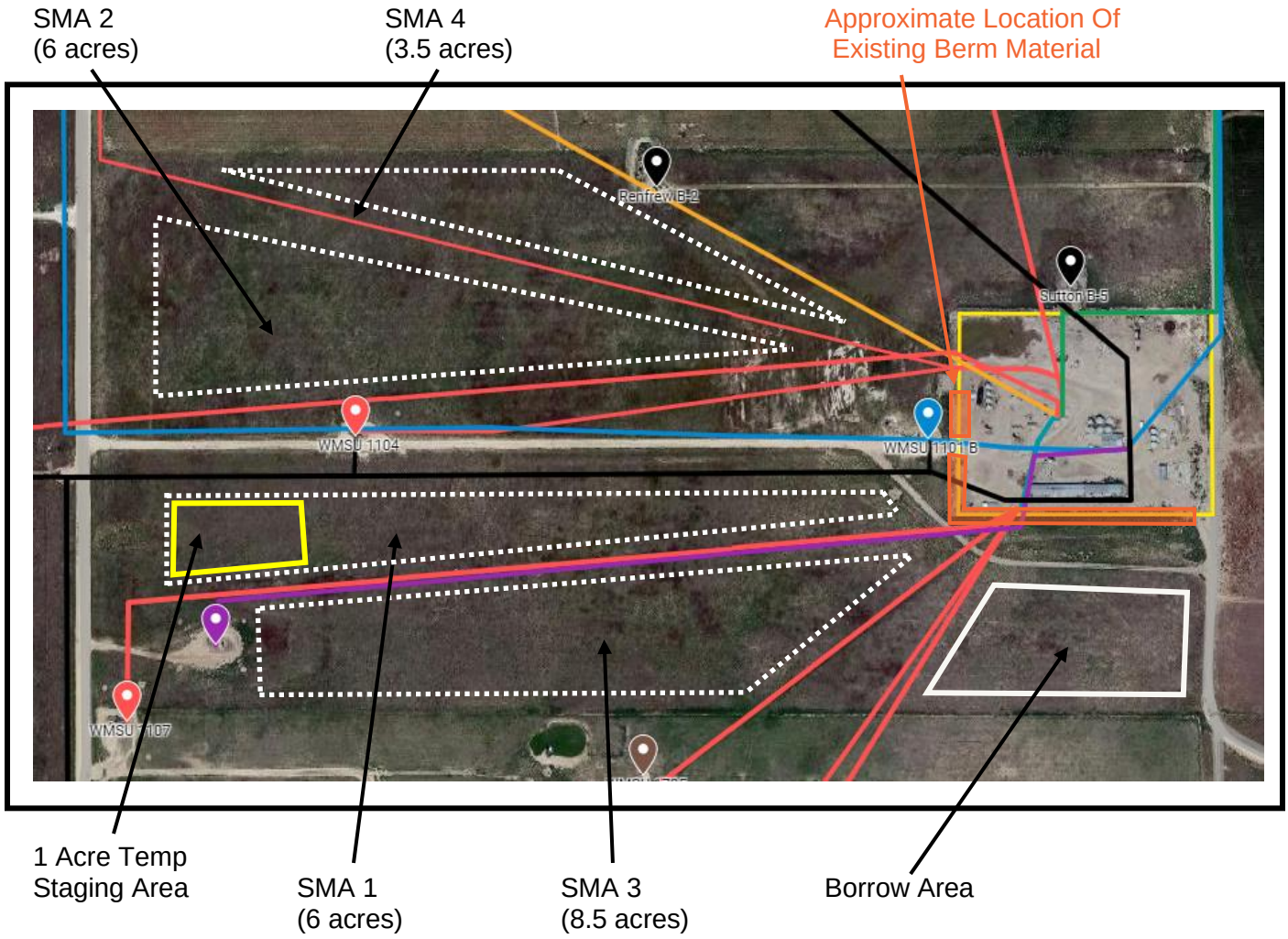


FIGURE 3: CURRENT SOURCE AREAS FOR IMPACTED SOIL
Wilburton 2022 USGS Topographic Map

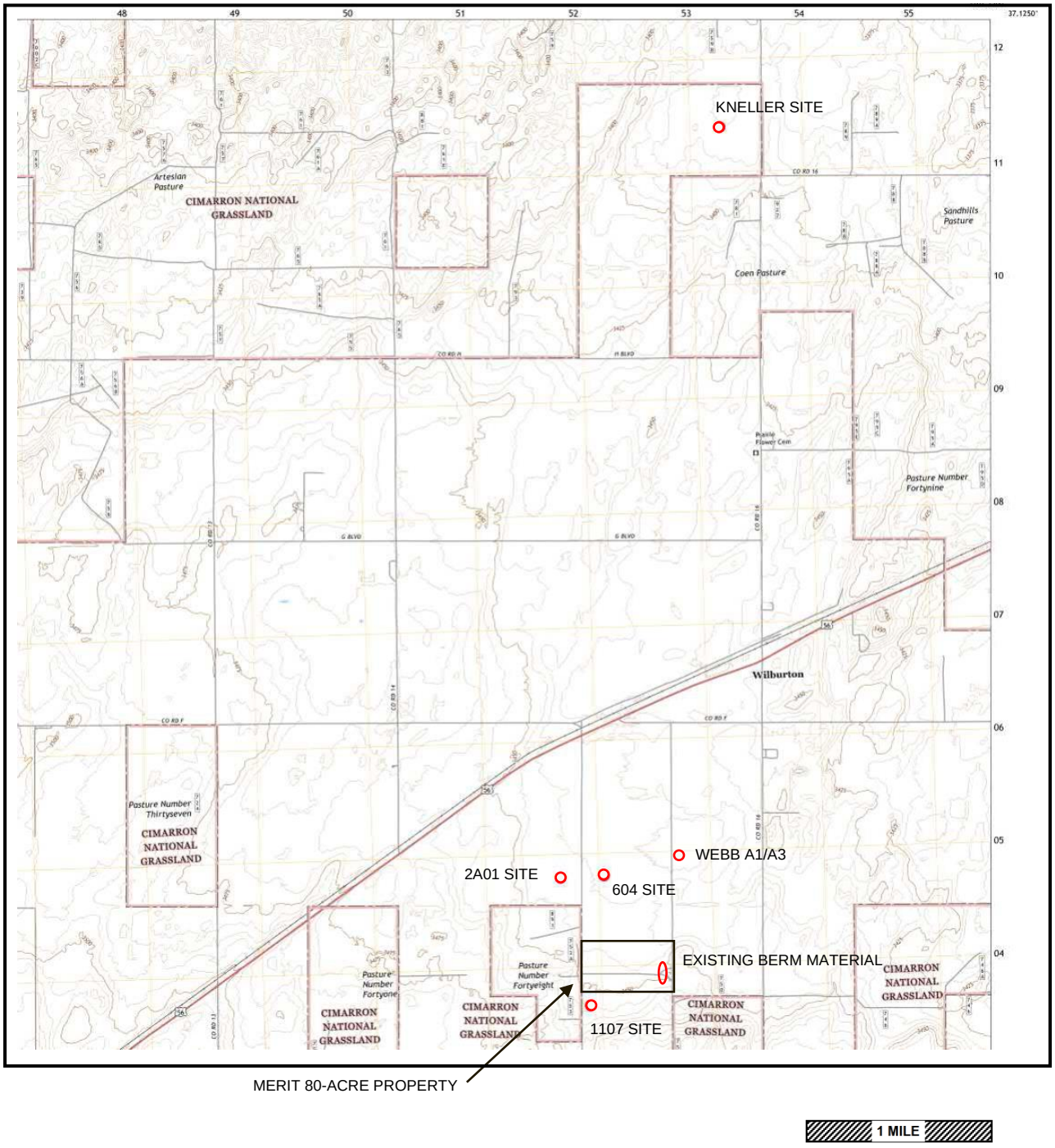


Table 1
Gypsum Application Rates

Residual CL Concentration Range (mg/L) *		Application Rate (lbs/1000 sf)
Minimum	**Maximum**	
50	550	40
551	700	80
701	975	120
976	1,250	160
1,251	1,525	195
1,526	1,800	230
1,801	2,150	275
2,151	2,500	320
2,501	2,850	365
2,851	3,200	410

* Residual concentration at excavation bottom or soil amendment areas

EXHIBIT M-3

Merit Energy Soil Blending and Beneficial Reuse Plan

November 17, 2022

Terracon Project No. 01227171

Merit intends to excavate and remediate CL-impacted soil from oil production areas as well as soil stockpiled on Merit's 80-acre property (Figure 1). The excavation areas, on leased property, resulting from impacted soil removal will be backfilled with clean soil. Merit estimates upwards of 40,000 cubic yards (cy) of CL-impacted soil would require management at Merit's property.

CL-impacted soil will be transported to Merit's 80-acre parcel and managed in accordance with a KCC-approved Soil Management Plan. CL-impacted soil would be placed in designated Soil Management Area (SMA) 1 and mixed and tilled with clean soil and/or gypsum to reduce the CL concentration to a maximum concentration of 1,000 parts per million (ppm) or less.

After blending, soils will remain on Merit's property until beneficial reuse occurs for road development and maintenance, well pad maintenance, berm construction and/or other maintenance for Merit's operations in the area.

Soil Blending Process

Soil blending calculations provided assume no addition of gypsum during the blending process at this time. For volume estimation purposes, a specified volume has been designated with average minimum CL concentrations of 1,300 ppm and average maximum CL concentrations of 1,700 ppm based on composite sample test results.

Assumptions have been developed to estimate clean soil volumes required to blend with impacted soil to reduce the CL concentration to a target maximum concentration of 1,000 ppm or less.

Assuming an average minimum CL concentration of 1,300 ppm:

- CL-impacted soil approximately 0.5 feet thick spread over an area 10,000 square foot (sf) (approximately 185 cy).
- Reduction in CL concentrations from 1,300 ppm to 1,000 ppm.
- Estimated clean soil volume is approximately 56 cy or 0.15 feet applied over the spreading area and mixed.

Assuming an average minimum CL concentration of 1,700 ppm:

- CL-impacted soil approximately 0.5 feet thick spread over an area 10,000 sf (approximately 185 cy).
- Reduction in CL concentrations from 1,700 ppm to 1,000 ppm.
- Estimated clean soil volume is approximately 130 cy or 0.35 feet applied over the spreading area and mixed.

Actual CL concentration my vary in the field after spreading and tilling. Therefore, initial CL testing of soils will be conducted in the SMA to better approximate the blending ratios for each batch of soil within a 10,000 sf area.

Refer to Table 1 for soil blending volume calculations. This equation can be used with differing CL concentrations to increase or decrease the needed clean soil volume.

Overall blending operation may require between approximately 12,000 cubic yards (30% blending ratio) up to 28,000 cubic yards (70% blending ratio) of clean soil for blending to manage the approximately 40,000 cubic yards of CL-impacted soil. Final blending ratios

will be dependent on the CL concentrations measure during initial soil testing in each designated blending area.

Soil Beneficial Reuse

After soil blending is completed and the target CL-concentration has been met, Merit will implement beneficial reuse for soil for various operations in the area. Figure 2 shows the general area and well locations for Merit's operations. Beneficial soil reuse would occur for the following activities:

- Road development (16 feet wide, 2 feet thick) along north, south, and western perimeter of 80-acre Merit property to monitor property boundary.
- Road development of north-south roads connecting the perimeter roads at a minimum of 3 locations of Merit Property.
- Reconstruct road, well pad and berm for Renfrew B2 well.
- Reconstruct road, well pad and berm for WMSU 1104 well.
- Construct berm for WMSU 1101 well pad.
- Construct perimeter berm and access road for SMA 1.
- Construct roads to borrow area.
- Maintain other current access roads to wells (estimated 2.2 miles) and maintain approximately 14 well pad areas (estimated 10,000 square feet per pad area). (Assume annual maintenance is required for up to 20% of these combined areas).
- Others beneficial reuses and areas may be defined as Merit's operation change with time.

Table 2 provides an estimate for initial beneficial soil reuse and projected reuse for annual maintenance associated with Merit's operations in the area. Based on review of Merit's operations, there appears to be a current beneficial reuse need for approximately

43,000 cy of soil. On-going maintenance activities could require approximately 5,000 to 6,000 cy annually.

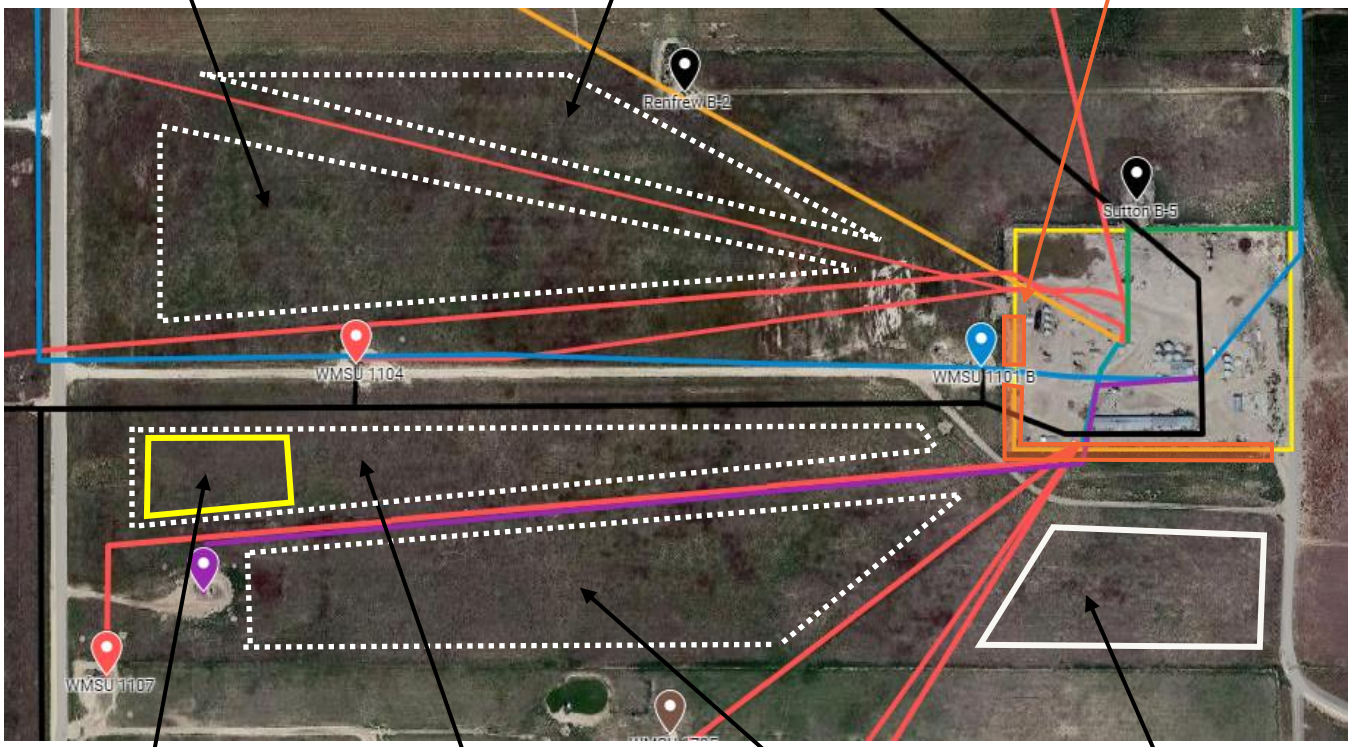
As other future beneficial reuses are identified, Merit will review these potential uses with the KCC for approval, prior to implementation.

FIGURE 1: PROPOSED SOIL MANAGEMENT AREAS &
ASSOCIATED SUBSURFACE PIPING RUNS

SMA 2
(approx. 6 acres)

SMA 4
(approx. 3.5 acres)

Approximate Location Of Existing
Berm Material



1 Acre Temp
Staging Area

SMA 1
(approx. 6 acres)

SMA 3
(approx. 8.5 acres)

Borrow Area

SMA = Soil Management Area

FIGURE 2: GENERAL MERIT OPERATIONS

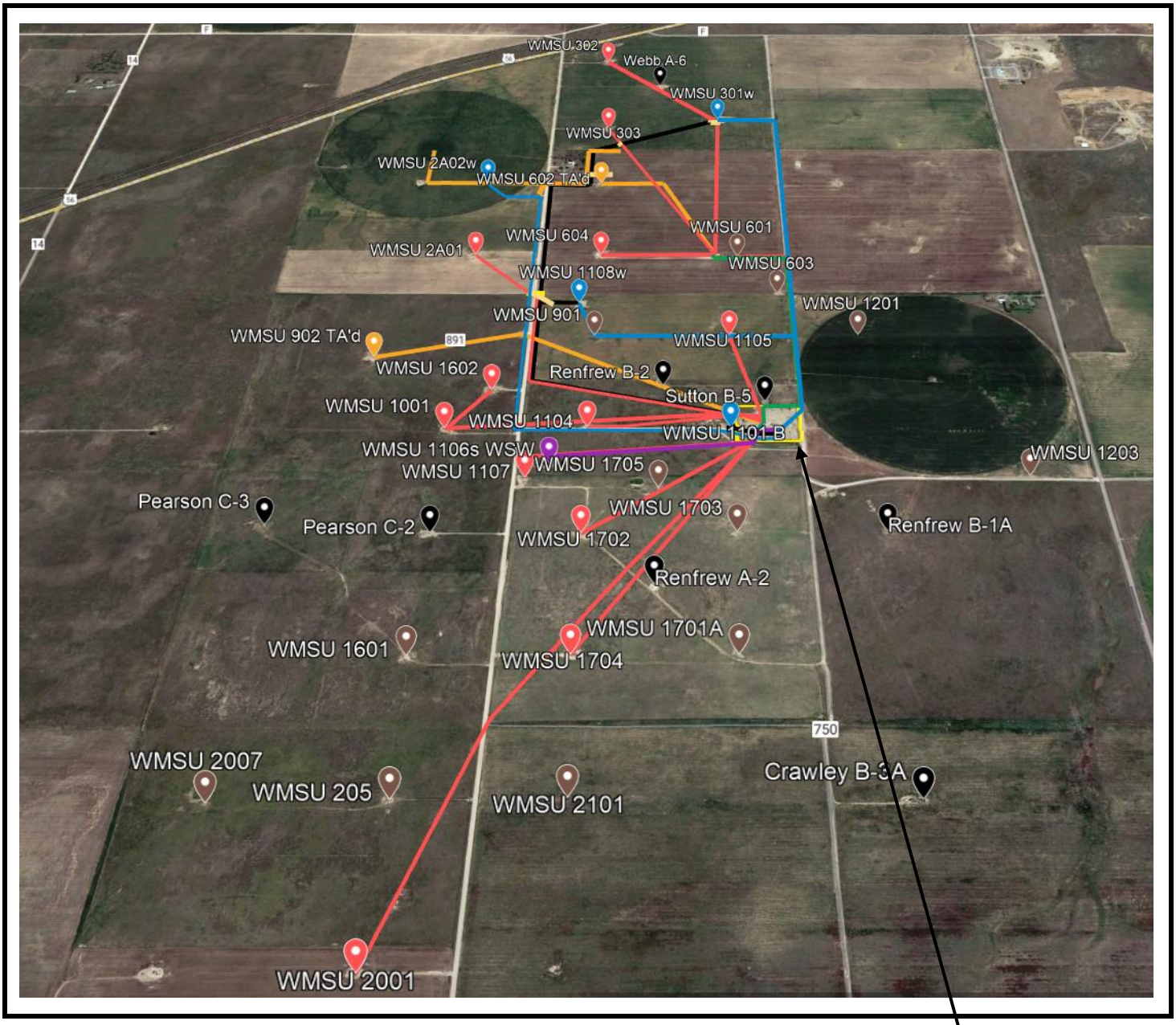


TABLE 1. SOIL BLENDING VOLUME ESTIMATES

C1	=	FV2	SOIL BLENDING EQUATION
TC2		V1	

Where:			Average Minimum CL Concentration		Average Maximum CL Concentration	
C1	=	Concentration of CL-impacted soil	1,300	ppm	1,700	ppm
TC2	=	Target Concentration of CL-impacted soil (1,000 ppm)	1,000	ppm	1,000	ppm
V1	=	Volume of CL-impacted soil (placed as 0.5 ft thick lift in a 10,000 sf blending area)	185	cu yd	185	cu yd
FV2	=	Final Estimated Volume of Soil at Target Concentration (CL impacted + clean soil)	X	cu yd	X	cu yd
X	=	Final Estimated Volume of Soil = CL-impacted + clean soil	**241**	cu yd	**315**	cu yd
		Clean soil volume needed to meet Target Concentration	***56***	cu yd	***130***	cu yd
		Clean soil blending thickness	***0.15***	ft	***0.35***	ft

Added Soil Volume Increase Based on CL Concentration	30%		70%		
Added Soil Volume Estimates to Treat 40,000 cy	12,000	cu yd	28,000	cu yd	

Table 2: Proposed Areas for Beneficial Soil Reuse

Areas	*Length (ft)*	*Width (ft)*	*Soil Thickness (ft)*	*Cross-Sectional Area (sq ft)*	*Cu Ft*	*Cu Yd*
Add N Permeter Road on 80-acre Property	2,640	16	2	44	116,160	4,302
Add S Permeter Road on 80-acre Property	2,640	16	2	44	116,160	4,302
Add W Permeter Road on 80-acre Property	1,300	16	2	44	57,200	2,119
Reconstruct E-W Access Road on 80-acre Property	3,000	16	2	44	132,000	4,889
Add N-S Road 1 to connect Perimeter Roads on 80-acre Property	1,300	16	2	44	57,200	2,119
Add N-S Road 2 to connect Perimeter Roads on 80-acre Property	1,300	16	2	44	57,200	2,119
Add N-S Road 3 to connect Perimeter Roads on 80-acre Property	100	16	2	44	4,400	163
Add Access Road 1 to Soil Management Area (SMA) 1 on 80-acre Property	250	16	2	44	11,000	407
Add Access Road 2 to SMA 1 on 80-acre Property	250	16	2	44	11,000	407
Add Access Road 1 to Borrow Area on 80-acre Property	250	16	2	44	11,000	407
Add Berm* Around SMA 1	4,000	--	2	64	256,000	9,481
Reconstruct Renfrew B2 Road	1,300	16	2	44	57,200	2,119
Reconstruct Renfrew B2 Pad	--	--	2	11,460	22,920	849
Reconstruct WMSU 1106 Road	200	16	2	44	8,800	326
Reconstruct WMSU 1106 Pad	--	--	2	13,155	26,310	974
Reconstruct WMSU 1106 Berm	475	--	4	64	30,400	1,126
Reconstruct WMSU 1104 Berm	225	--	4	64	14,400	533
Construct WMSU 1101 Berm	175	--	4	64	11,200	415
Maintain 2.2 Miles of Well Access Roads (assume 20% maintained per year) **	11,740	16	2	44	103,312	3,826
Maintain 14 Existing Well Pads (assume 20% maintained per year) ***			2	10,000	56,000	2,074
				Total Estimate Beneficial Reuse Volume		**42,958**

* Berm construction a minimum of 4 feet high, 2 feet wide top, and 3H:1V side slopes

** Total estimated length of Merit's remainig well access roads.

*** Assumes up to 14 well pads with an estimated area of 10,000 sq ft for each pad and added soil thickness of 2 feet.

EXHIBIT M-4

1815 S Eisenhower St.
Wichita, KS 67209
P 316-262-0171
F 316-262-6997
Terracon.com

November 30, 2023

Merit Energy Company
Sean Craven, Environmental Manager
13727 Noel Road
Dallas, Texas 75240

Attention: Mr. Sean Craven
Telephone: (972) 628-1572
E-mail: Sean.Craven@meritenergy.com

Re: Soil Treatment Report
Merit's 80-Acre Property, Morton County, Kansas
Terracon Project Nos. 01227171

Dear Mr. Craven:

Terracon Consultants, Inc. (Terracon) is pleased to present the attached Soil Treatment Report to Merit for activities at Merit's 80-acres site in Morton County, Kansas.

If you have any questions or comments, please contact me at 316-262-0171 or mike.balleau@terracon.com.

Sincerely,
Terracon Consultants, Inc.

Michael T. Balleau, P.G.
Project Manager

Anthony R. Mellini, Jr., P.G.
Senior Associate

Attachment: Report

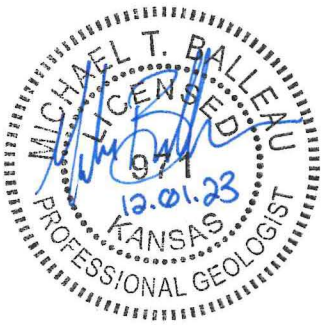
Soil Treatment Report

Merit's 80-Acre Property
Morton County, Kansas

November 30, 2023
Terracon Project No. 01227171

Prepared for:
Merit Energy Company
Dallas, Texas

Prepared by:
Terracon Consultants, Inc.
Wichita, Kansas



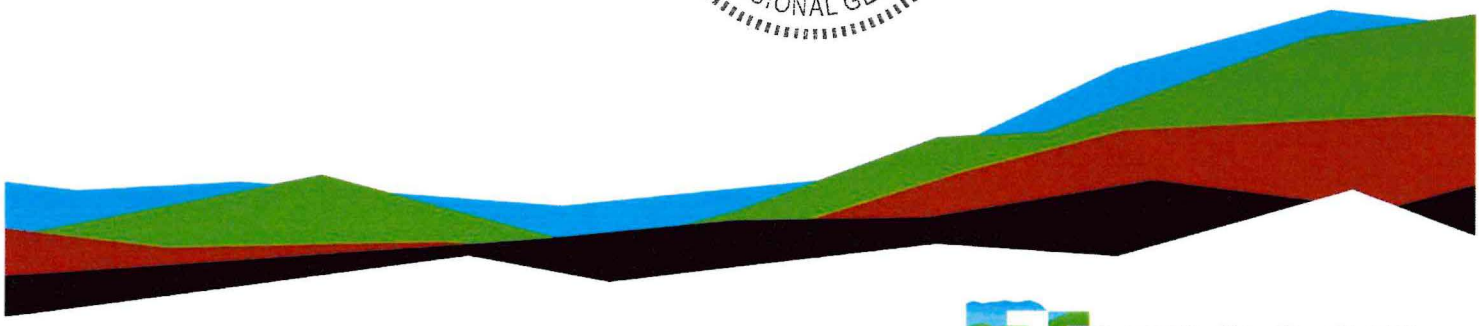


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TABLE OF CONTENTS

1.0 INTRODUCTION

The site, known as the Merit Energy (Merit) property (property) covers approximately 80 acres and is located approximately 1.4 miles south of Highway 56 on Forest Service Road 750, Morton County, Kansas (37.04955 latitude, -101.78281 longitude). The property is used for industrial use (oil and gas Exploration and/or Production (E&P) operations). The site contains storage areas and is also underlain by various pipelines. The surrounding land area is used for agriculture which also includes leased land for oil and gas operations.

As part of Merit's operations in the area, surface releases of saltwater have occurred from well heads and/or associated pipelines on leased property. Merit has been in communication with Kansas Corporation Commission (KCC) for these releases and has been implementing assessment and remediation for these releases with KCC approval. Chloride (CL) impacted soil removal has been occurring and the soil has been temporarily staged on the Merit property for beneficial reuse as a berm. Soil impacted by a recent release associated with the Webb A-1 and A-3 locations was excavated and the impacted soil transported to the Merit 80-acre property from May through November 2023. This soil has been placed in a lined treatment cell for containment, testing, and gypsum application, if required. Merit would like to consider use of the soil for beneficial reuse, assuming CL concentrations meet the cleanup criteria of 500 parts per million (ppm).

A report discussing excavation activities at Webb A-1 and A-3 is presented under separate cover: Soil Excavation Report for Webb A-1 and A-3 Well Pads and Access Roads, Morton County, Kansas, dated November 30, 2023.

This Soil Treatment Report (Report) presents a discussion of treatment activities of impacted soils from areas around the well pads for the Webb A-1 and A-3 sites as well as results of soil samples collected (pre-treatment) from the treatment cell. Appendix A – Figures 1 and 2 present the treatment cell location and layout, respectively. Two lifts of soil have been placed within the treatment cell. The most recent chloride concentrations for Lift 1 were less than the cleanup up criteria for three of four quadrants of the treatment cell. The fourth (NE) quadrant contained CL concentrations above the cleanup criteria. Gypsum application was conducted for Lift 1 based on pre-treatment results. Gypsum application for Lift 2 was not necessary, since CL concentrations were less than the cleanup criteria. Post-treatment sampling will be conducted for the NE quadrant of Lift 1 in February 2024, approximately four months after initial gypsum application (October 17, 2023).

2.0 TREATMENT ACTIVITIES

The site is relatively flat and sparsely covered with topsoil and vegetation. Prior to impacted soil placement in the treatment cell, a designated area and footprint required for soil management was determined prior to development.

2.1 Treatment Cell Construction

The general development sequence for the treatment cell construction was as follows:

1. The treatment cell dimensions are approximately 210 feet by 188 feet located in the west-central portion of Merit's 80-acre property (Appendix A – Figure 2).

2. Clear vegetation and topsoil within an approximately one-acre area and stage outside the treatment cell.

3. Modify grade and construct an approximate 1 to 2-foot high earthen perimeter berm for soil containment and stormwater management.

4. Install 6-mil low-density polyethylene (LDPE) sheeting within the treatment cell and over the berms.

2.2 Soil Treatment Process

As soil was excavated from the source area sites (e.g., Webb A1 and A3), it was hauled to the treatment cell and deposited in lifts for immediate mixing. Due to the limited thickness of the initial soil lift placement on the poly liner in the treatment area, care was taken when placing and mixing soil to avoid tearing the poly liner.

Excavated soil was placed in the treatment cell and handled in the following manner:

- Impacted soil was spread across the treatment cell.
- Soil was placed in lifts and graded to a thickness of approximately one foot to two feet for each lift. Two lifts have been placed to date.
- Pre-treatment samples were collected after initial soil placement for Lift 1 and again approximately four months after placement of the soil (see Section 3.0).
- Gypsum application rates were recommended based on maximum concentrations detected in initial and four-month pre-treatment samples for Lift 1 in a given quadrant.
- Gypsum was generally applied at the prescribed application rate for Lift 1 followed by water addition through precipitation and/or supplemental addition.

- Four months after gypsum application, post-treatment samples will be collected from the NE quadrant of Lift 1 and analyzed for chloride (CL) and electrical conductivity (EC) by Servi-Tech Laboratory in Dodge City, Kansas. Laboratory results will be compared to the cleanup criteria (500 ppm) to determine if soil can be considered for beneficial reuse or additional gypsum application is required.
- Subsequent lifts may be placed over previous lifts and generally managed in the same manner as above.

3.0 LIFT 1 PRE-TREATMENT SAMPLE RESULTS

3.1 Soil Sampling

Terracon collected four initial pre-treatment composite samples on May 2, 2023 immediately following Lift 1 placement of soil (approximately 1 foot thick). Figure 2 (Appendix A) and Table 1 (Appendix B) present the soil sampling information. Composite samples were collected from each the four quadrants designated northeast (NE), southeast (SE), southwest (SW), and northwest (NW). Each treatment cell quadrant consists of approximately 9,870 square feet. Pre-treatment composite soil samples were prepared from five aliquots collected from each quadrant. Each aliquot was collected through the entire soil column, placed into a clean bucket, and thoroughly mixed. Pre-treatment composite soil samples were analyzed for CL and EC.

Additional pre-treatment samples were also collected on September 12, 2023 (approximately four months following soil placement). Table 1 (Appendix B) presents a summary of the pre-treatment results.

3.2 Lift 1 Pre-Treatment Results – May 2023

As presented in Table 1 and Figure 2, CL concentrations ranged from 153 ppm (Sample SW) to 1,960 ppm (Sample NE). EC concentrations ranged from 1.52 mmho/cm (Sample SW) to 8.84 mmho/cm (Sample NE) indicating that the pre-treatment soil is non-saline (EC < 2) to moderately saline (EC 8-16) per US Department of Agriculture (USDA) soil salinity classes. Appendix C presents laboratory reports.

3.3 Lift 1 Pre-Treatment Results – September 2023

Initial pre-treatment results were followed by supplemental analysis in September. As presented in Table 1 and Figure 2, CL concentrations ranged from 6 ppm (Sample SE) to 2,730 ppm (Sample NE). EC concentrations ranged from 0.49 mmho/cm (Sample SE) to 14.2 mmho/cm (Sample NE) indicating that the treatment cell soil is non-saline (EC < 2) to moderately saline (EC 8-16) per USDA soil salinity classes. The more recent pre-treatment sample results for the NW, SW, and SE quadrants were less than the cleanup

criteria and this soil can be considered for removal for beneficial reuse. However, the pre-treatment results for the NE quadrant exceed the cleanup criteria.

3.4 Lift 1 Amendment Applications

Based on the laboratory results, gypsum amendments were applied to Lift 1 on October 17, 2023, based on CL concentrations. Treatment of Lift 1 was implemented for the NE quadrant and treatment of the NW SW, and SE quadrants was not implemented, but nominal gypsum application was recommended. Gypsum was applied to each quadrant as follows based on the recommended rates presented in Tables 1 and 2 and Figure 3:

- Quadrant NE: 913 pounds (proposed) / 1,000 pounds (actual)
- Quadrant SE: 100 pounds (proposed) / 100 pounds (actual)
- Quadrant SW: 100 pounds (proposed) / 100 pounds (actual)
- Quadrant NW: 100 pounds (proposed) / 100 pounds (actual)

The gypsum amendment was thoroughly mixed into the impacted soil to allow for water addition through precipitation and/or supplemental addition.

Following an approximate four-month treatment duration, post-treatment samples will be collected from the NE quadrant of Lift 1 in a similar manner as pre-treatment samples as outlined in Section 3.1 above. One composite sample will be prepared from five aliquots for the NE quadrant and submitted for CL and EC analyses.

4.0 LIFT 2 PRE-TREATMENT SAMPLE RESULTS

Following the application of gypsum and mixing of Lift 1, additional soil was placed as Lift 2 (approximately 1 foot thick) on October 30 through November 1, 2023, within the NW, SW, and SE quadrants from additional soil removed from the Webb A-1 and A-3 well pad and access road excavations as outlined in Section 2.2 above.

Terracon collected three pre-treatment composite samples from Lift 2 on November 2, 2023, immediately following placement of second layer of soil in a manner as outlined in Section 3.1 above.

4.1 Lift 2 Pre-Treatment Results – November 2023

As presented in Table 1 and Figure 2, CL concentrations ranged from 95 ppm (Sample NW) to 315 ppm (Sample SW). EC concentrations ranged from 1.36 mmho/cm (Sample NW) to 2.67 mmho/cm (Sample SW) indicating that the pre-treatment soil is non-saline (EC < 2) to very slightly saline (EC 2-4) per USDA soil salinity classes. Appendix C presents laboratory reports. CL concentrations for the three Lift 2 quadrants were less than the

cleanup criteria and gypsum amendment was not required. This soil can be considered for removal for beneficial reuse.

5.0 POST-TREATMENT SAMPLING

Application of gypsum occurred in October for Lift 1, prior to placement of Lift 2. Post-treatment sampling and analysis will be conducted for the NE quadrant of Lift 1 in February 2024 to allow sufficient time for treatment of CL within the soil column. Post-treatment sampling of the soil column will be conducted in a similar manner as pre-treatment samples. A report will be issued with post-treatment results for the NE quadrant of Lift 1.

Post-treatment sampling will not be conducted for the NW, SW, and SE quadrants for Lifts 1 and 2. Since concentrations are less than 500 ppm this soil can be considered for removal for beneficial reuse.

6.0 GENERAL COMMENTS

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either expressed or implied, regarding findings, or conclusions resulting from these services. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of this report. Our services were performed in accordance with the agreed scope of work.

Findings and conclusions resulting from these services are based upon information derived from the onsite activities and other services performed under this scope of work; such information is subject to change over time. Subsurface conditions may vary from those encountered at specific borings or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our conclusions are based solely upon data obtained at the time and within the scope of these services.

APPENDIX A

Figure 1: Site Location Map

Figure 2: Soil Treatment Cell Map

Figure 3: Soil Treatment Application Rates - Lift 1

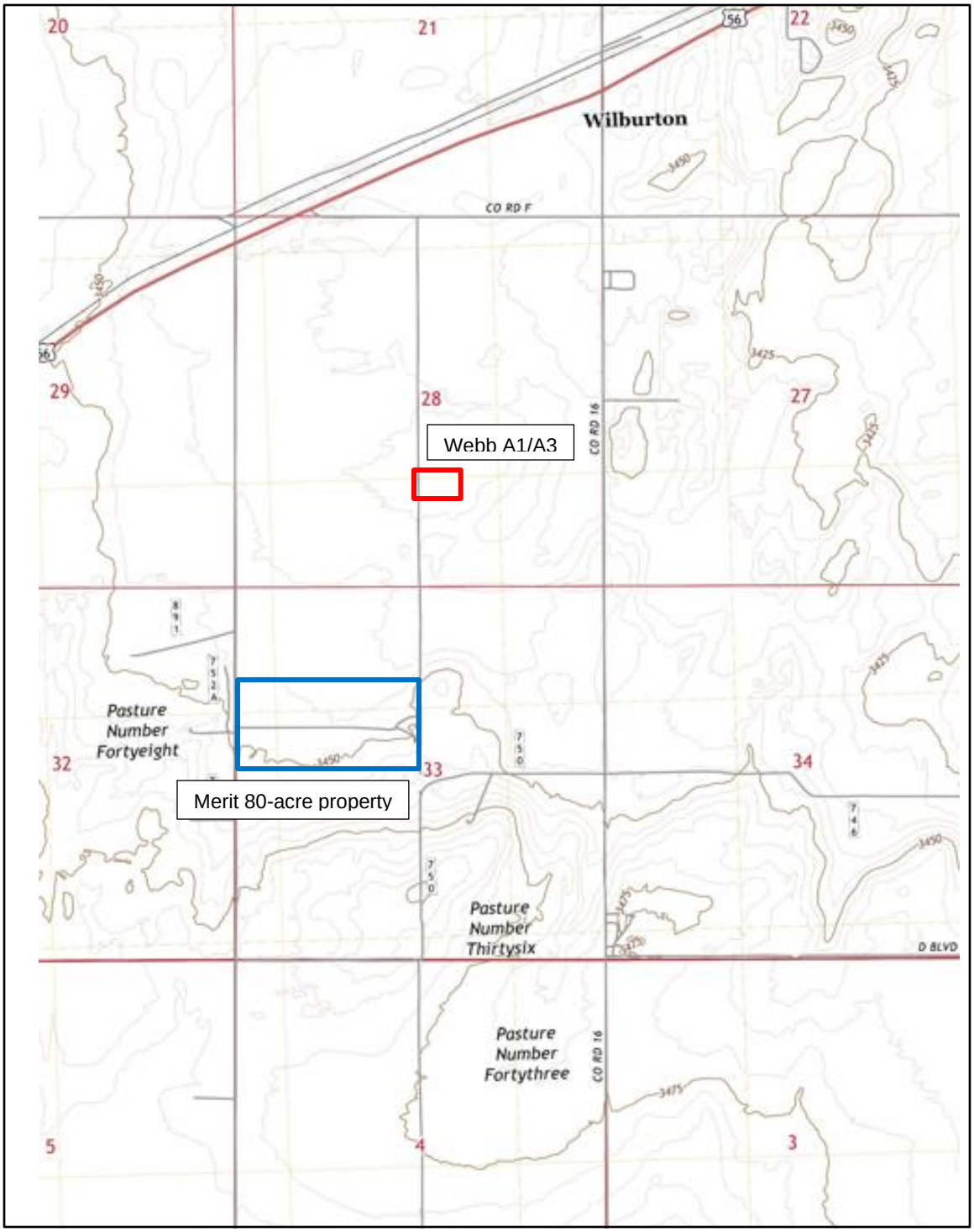
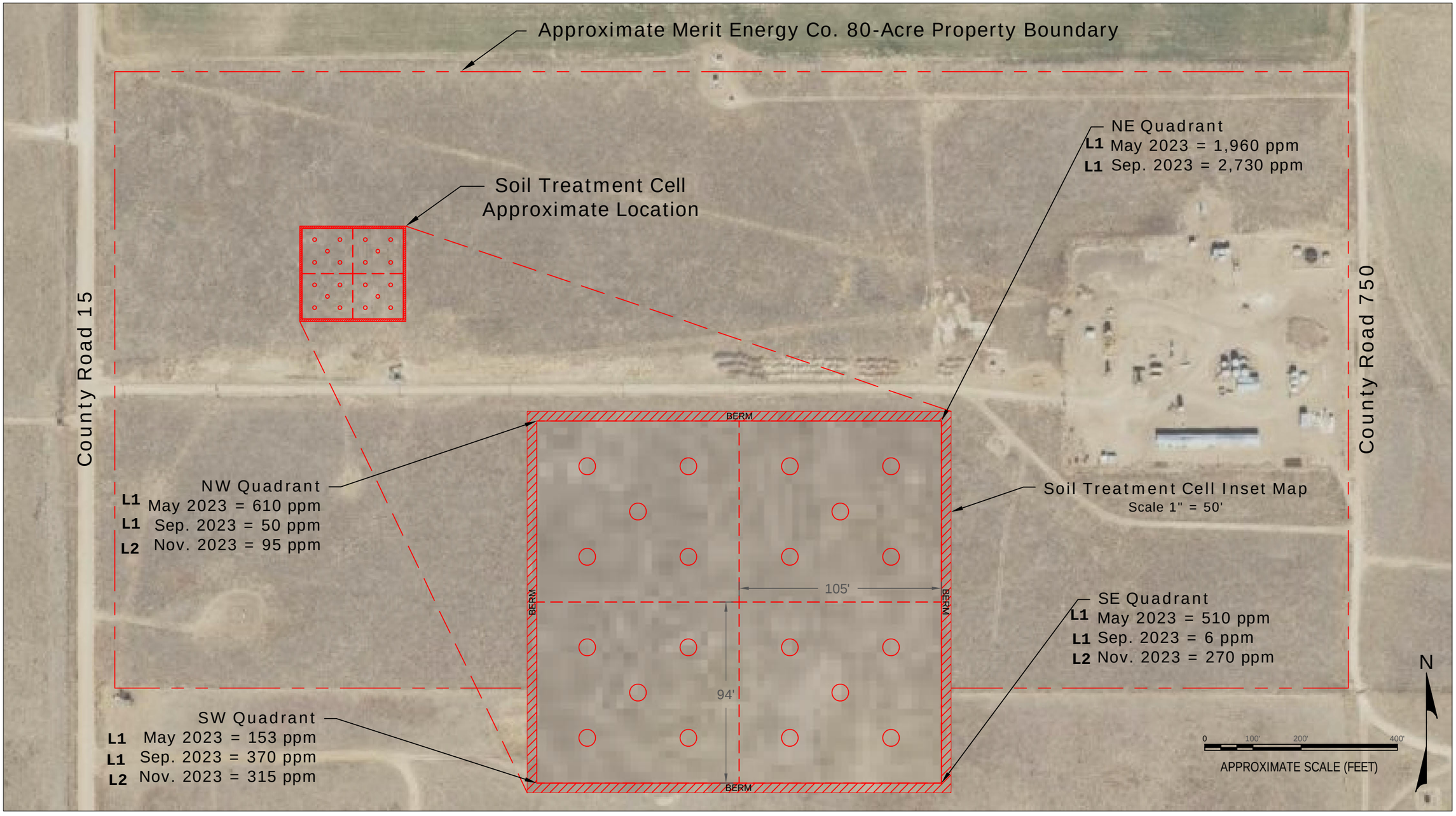


DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

N

Project Mngr:	Scale:	Terracon Consulting Engineers & Scientists 1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Site Location Map Saltwater Release Treatment Site Morton County, Kansas	FIGURE 1
Checked By:	Date: 10/11/2022			
Approved By:	Project No: 01227171			
Drawn By:	File Name:			



2021 NG911 Aerial Photo - Morton County, Kansas Open Records for Kansas Appraisers (ORKA)

LEGEND

Labels indicate pre-treatment chloride concentrations of composite soil samples in parts per million (ppm)

○ Approximate locations of soil composite sample aliquots

L - Lift

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	MG
Checked By:	MG
Approved By:	ARM
Drawn By:	MWM
Scale:	SHOWN
Date:	11/17/2023
Project No:	01227171
File Name:	Figure_2

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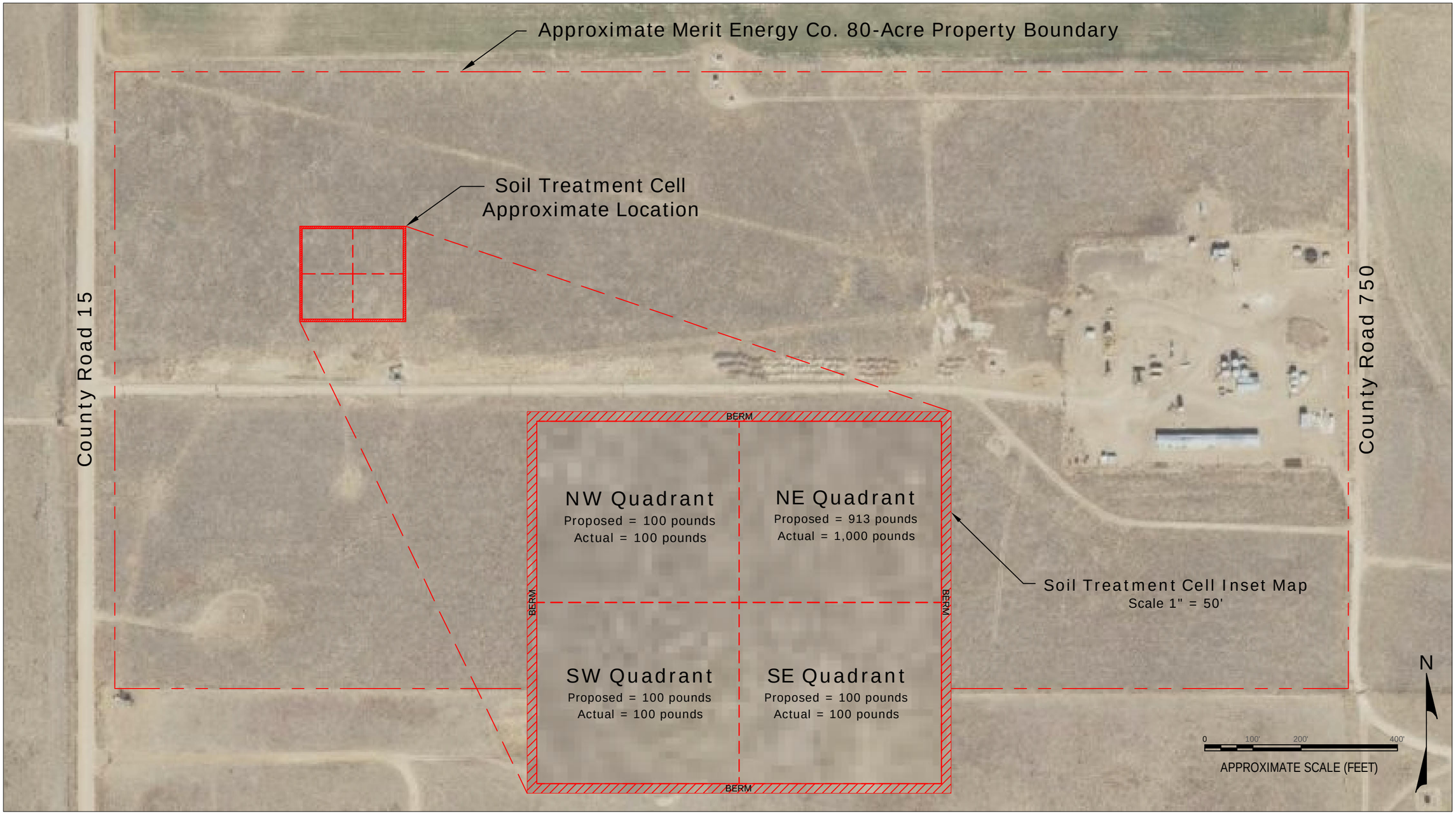
Explore with Us
1815 S. Eisenhower Wichita, Kansas 67209
Phone: (316) 262-0171 Fax: (316) 262-6997

Soil Treatment Cell Map
Merit Energy Company
Saltwater Release Treatment
County Road 750
Morton County, Kansas

FIGURE
2



2021 NG911 Aerial Photo - Morton County, Kansas Open Records for Kansas Appraisers (ORKA)

LEGEND

Labels indicate pounds of gypsum proposed to be added to each quadrant, and pounds of gypsum actually added.

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	MG
Checked By:	MG
Approved By:	ARM
Drawn By:	MWM
Scale:	SHOWN
Date:	11/17/2023
Project No:	01227171
File Name:	Figure_3

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Phone: (316) 262-0171 Fax: (316) 262-6997

Soil Treatment Application Rates - Lift 1

Merit Energy Company

Saltwater Release Treatment

County Road 750

Morton County, Kansas

FIGURE 3

APPENDIX B

Table 1: Soil Sample Results

Table 2: Gypsum Application Rates

TABLE 1: SOIL SAMPLE RESULTS

Cell Quadrant	*Sample ID*	*Soil Source*	*Area (sf)*	*Pre-or Post Treatment Sample Collection*	*Lift No.*	*Sample Date*	*Electrical Conductivity (millimhos/cm)*	*Chloride (ppm)*	*Proposed Gypsum Application Rate * (lbs/1,000 sf)*	*Proposed Gypsum Application Rate ** (lbs/quadrant)*	*Application Date*	*Actual Application Rate*
NE	NE	Webb A1/A3	2,500	Pre	1	5/2/2023	8.84	1,960				
	NE 9-12-23			Pre	1	9/12/2023	14.2	2,730	365	913	10/17/2023	1,000
	TBD			Post	1	February 2024						
SE	SE	Webb A1/A3	2,500	Pre	1	5/2/2023	3.87	510	40	100	10/17/2023	100
	SE 9-12-23			Pre	1	9/12/2023	0.49	6				
	SE 11-2-23			Pre	2	11/2/2023	2.15	270	NR	NR	NR	NR
SW	SW	Webb A1/A3	2,500	Pre	1	5/2/2023	1.52	153				
	SW 9-12-23			Pre	1	9/12/2023	3.72	370	40	100	10/17/2023	100
	SW 11-2-23			Pre	2	11/2/2023	2.67	315	NR	NR	NR	NR
NW	NW	Webb A1/A3	2,500	Pre	1	5/2/2023	3.76	610	40	100	10/17/2023	100
	NW 9-12-23			Pre	1	9/12/2023	0.77	50				
	NW 11-2-23			Pre	2	11/2/2023	1.36	95	NR	NR	NR	NR

NOTES:

NR = Not Required

Pre- or Post-Treatment Sample Collection refers to whether soil samples were collected prior to the application of gypsum (Pre) or after the application of gypsum (Post), if implemented.

millimhos/cm = millihos per centimeter

ppm = parts per million

sf = Square Feet

lbs/1,000 sf = Pounds Per 1,000 Square Feet

* Based on applications rates provided in Table 2 below

** Highest Chloride concentration per Quadrant used for application rate

USDA Soil Salinity Classes:

EC <2 = Non-saline

EC 2-4 = Very Slightly Saline

EC 4-8 = Slightly Saline

EC 8-16 = Moderately Saline

EC ≥ 16 = Strongly Saline

Table 2: Gypsum Application Rates

Residual CL Concentration Range+ (ppm)		*Application Rate (lbs/1,000 sq ft)*
Minimum	*Maximum*	
50	550	40
551	700	80
701	975	120
976	1,250	160
1,251	1,525	195
1,526	1,800	230
1,801	2,150	275
2,151	2,500	320
2,501	2,850	365
2,851	3,200	410

ppm = parts per million

lbs/1,000 sq ft - pounds per 1,000 square feet.

+ Residual concentration within Treatment Cell quadrant.

APPENDIX C

Laboratory Report

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
11905	

servi tech
www.servitech.com
1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	94163 - 94172
INVOICE NO:	899493
DATE RECEIVED:	05/03/2023
DATE REPORTED:	05/09/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD IDENTIFICATION:**

METHOD USED: Hg Thiocyanate; Sat. Paste

Lab Number	Sample ID	Sample Depth	Chloride ppm	Chloride lb. Cl/A	Saturation % Sat	Electrical Conductivity mmho/cm	
94163	D-1	~~0 - 8~~	1860	4460	51	8.40	6 ft
94164	D-2	~~0 - 8~~	1270	3050	50	7.72	6 ft
94165	D-3	~~0 - 8~~	164	394	38	1.49	6 ft
94166	D-4	~~0 - 8~~	71	170	50	0.77	6 ft
94167	B-1	~~0 - 8~~	52	125	28	1.00	6 ft
94168	B-2	~~0 - 8~~	800	1920	53	5.16	6 ft
94169	SE	~~0 - 8~~	510	1220	47	3.87	Lift 1
94170	NE	~~0 - 8~~	1960	4700	46	8.84	Lift 1
94171	NW	~~0 - 8~~	610	1460	46	3.76	Lift 1
94172	SW	~~0 - 8~~	153	367	41	1.52	Lift 1

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
94163	D-1																
94164	D-2																
94165	D-3																
94166	D-4																
94167	B-1																
94168	B-2																
94169	SE																
94170	NE																
94171	NW																
94172	SW																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Sample depths corrected by Terracon for clarity.

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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1816 E. Wyatt Earp
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Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	94163 - 94172
INVOICE NO:	899493
DATE RECEIVED:	05/03/2023
DATE REPORTED:	05/09/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD IDENTIFICATION:**

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 94163, 94164, 94165, 94166, 94167, 94168, 94169, 94170, 94171, 94172
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
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620.227.7123
Fax 620.227.2047

LAB NO:	117917 - 117920
INVOICE NO:	902113
DATE RECEIVED:	09/13/2023
DATE REPORTED:	09/15/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD IDENTIFICATION:**

METHOD USED: Hg Thiocyanate; Sat. Paste

Lab Number	Sample ID	Sample Depth	Chloride ppm	Chloride lb. Cl/A	Saturation % Sat	Electrical Conductivity mmho/cm														
117917	SE 9-12-33	~~0 - 8~~	6	14	39	0.49	Lift 1													
117918	SW 9-12-13	~~0 - 8~~	370	888	43	3.72	Lift 1													
117919	NW 9-12-23	~~0 - 8~~	50	120	45	0.77	Lift 1													
117920	NE 9-12-23	~~0 - 8~~	2730	6550	43	14.2	Lift 1													

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
117917	SE 9-12-33																
117918	SW 9-12-13																
117919	NW 9-12-23																
117920	NE 9-12-23																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 117917, 117918, 117919, 117920

Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Sample depths corrected by Terracon for clarity.

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	20400 - 20402
INVOICE NO:	903587
DATE RECEIVED:	11/02/2023
DATE REPORTED:	11/16/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD ID:**

METHOD USED: Hg Thiocyanate; Sat. Paste

Lab Number	Sample ID	Sample Depth	Chloride ppm	Chloride lb. Cl/A	Saturation % Sat	Electrical Conductivity mmho/cm														
20400	NW 11-2-23	~~0 - 8~~	95	228	39	1.36	Lift 2													
20401	SW 11-2-23	~~0 - 8~~	315	756	30	2.67	Lift 2													
20402	SE 11-2-23	~~0 - 8~~	270	648	34	2.15	Lift 2													

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
20400	NW 11-2-23																
20401	SW 11-2-23																
20402	SE 11-2-23																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 20400, 20401, 20402
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Sample depths corrected by Terracon for clarity.

Reviewed and Approved By: Steve Harrold, Laboratory Manager

EXHIBIT M-5

Soil Excavation Report
Webb A-1 And A-3 Sites

Morton County, Kansas

January 31, 2024

Terracon Project No. 01227149

Prepared for:

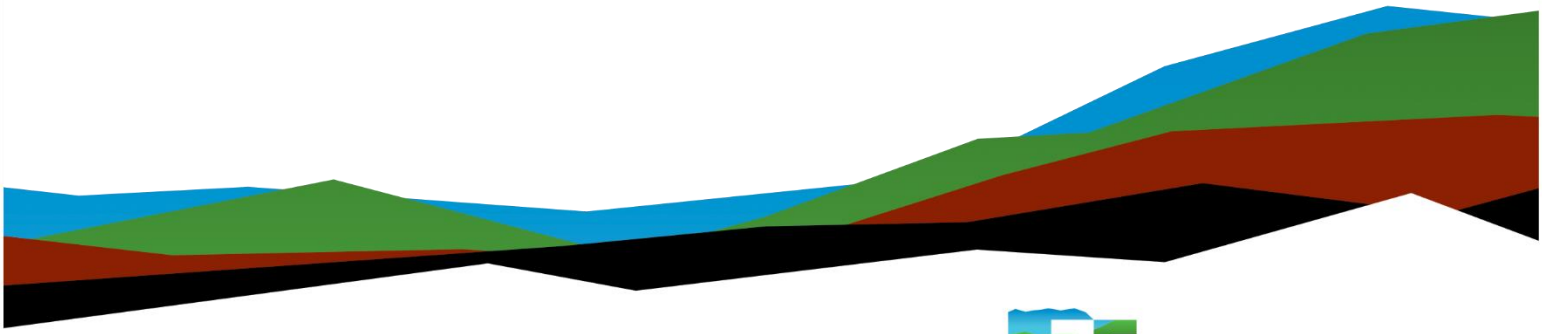
Merit Energy Company

Dallas, Texas

Prepared by:

Terracon Consultants, Inc.

Wichita, Kansas



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Terracon.com

January 31, 2024

Merit Energy Company
Sean Craven, Environmental Manager
13727 Noel Road
Dallas, Texas 75240

Telephone: (972) 628-1572
E-mail: Sean.Craven@meritenergy.com

Re: Soil Excavation Report For Webb A-1 And A-3 Sites
Morton County, Kansas
Terracon Project Nos. 01227149

Dear Mr. Craven:

Terracon Consultants, Inc. (Terracon) is pleased to present the attached Soil Excavation Report For Webb A-1 and A-3 Sites located in Morton County, Kansas. This report supersedes the Preliminary Soil Excavation Report for Webb A1 and A3 Well Pads dated June 8, 2023 and includes the excavation areas for Roadways and additional clarification of the Geoprobe and excavation verification sampling results.

If you have any questions or comments, please contact me at 316-262-0171 (office), 316-448-3680 (direct), or Tony.Mellini@Terracon.com.

Sincerely,
Terracon Consultants, Inc.

Anthony R. Mellini, Jr., P.G.
Senior Associate

for Mike H. Adams
Manager Remediation Construction

Attachment: Report

TABLE OF CONTENTS

1.0 INTRODUCTION

The excavation sites, known as Merit Energy (Merit) Webb A-1 and Webb A-3 are located approximately 0.75 miles south of Highway 56 on Forest Service Road 750, Morton County, Kansas. Webb A-1 is located at 37.06084 latitude, -101.78104 longitude, and Webb A-3 is located at 37.05976 latitude, -101.77962 longitude. Appendix A – Figures 1 and 2 present the Webb A-1 and A-3 site locations.

As part of Merit's operations in the area, surface releases of saltwater have occurred from well heads and/or associated pipelines on leased property. Merit has been in communication with Kansas Corporation Commission (KCC) for these releases and has been implementing assessment and remediation for these releases with KCC approval.

Following a June 2022 surface release of saltwater, Terracon conducted a soil assessment in July 2022 using a Geoprobe along farm and access roads and well pad areas at the Webb A-1 and A-3 sites (Site). Soil samples were collected at 0 to 2 feet below ground surface (bgs), 2 to 4 feet bgs, and 4 to 6 feet bgs, and submitted to ServiTech, Dodge City, Kansas, for residual chloride (CL) and electrical conductivity (EC) analyses. Terracon provided a report, dated October 12, 2022, to the KCC presenting laboratory results for the July 2022 sampling activities.

Terracon also initiated communications with the KCC and the Kansas Department of Health and Environment (KDHE) to determine an appropriate and viable approach (i.e., land spreading, landfarming) for management and treatment of impacted soils for future beneficial reuse. The review process resulted in delays to implement removal of impacted soils from the Webb A-1 and A-3 sites in a timely manner. Therefore, Merit initiated removal actions and staged soils within a bermed and lined cell on their 80-acre property for confirmation sampling and gypsum amendments. The soil management, staging, and treatment process has been documented in the Soil Treatment Report dated November 20, 2023.

The primary focus of the impacted soil removal was in the immediate areas around well pads and along access roads. Soil excavation and backfilling operations occurred from late April through early November 2023. Weather delays also affected the excavation and backfilling operations.

Final excavation depths for well pad areas ranged from 2 to 10 feet bgs. Excavation depth for road ranged from 2 to 4 feet bgs with the maximum final excavation depth for roadways established at 4 feet bgs based on KCC approval. Supplemental sampling was conducted post-excavation for several well pad areas.

This Soil Excavation Report for the Webb A-1 and A-3 Sites presents a discussion of excavation activities of impacted soils from areas around the well pads and along roads and results of soil samples collected from pre-excavation soil probes and/or excavations bottoms. Based on pre- and post-excavation sampling and analysis gypsum was applied to excavation floors at prescribed optimum rates prior to backfilling.

2.0 EXCAVATION PROCESS

Soil probe results were used to establish initial proposed excavations depths based on the CL concentrations for well pads and EC measurements for roads. Terracon staked the perimeter for each excavation area prior to excavation and observed excavation activities.

Excavation depths for well pad areas were proposed to remove impacted soil with residual CL concentrations greater than 500 milligrams per liter (mg/L) or parts per million (ppm), when practicable. Excavation depths for roads were proposed to remove impacted soil with EC measurements greater than 4 millimho/cm (mmho/cm) or 4 milliSiemens/cm (mS/cm), when practicable, or a maximum depth of 4 feet bgs. These excavation criteria were established with KCC approval.

Per US Department of Agriculture (USDA) soil salinity classes, EC concentrations for the excavation areas varied from:

- Non-saline (EC < 2 mmho/cm)
- Very slightly saline (EC 2 - 4 mmho/cm)
- Slightly saline (EC 4 - 8 mmho/cm)
- Moderately saline (EC 8 -16 mmho/cm)
- Strongly saline (EC>16 mmho/cm)

Based on these criteria and the prescribed 4 mmho/cm EC limit establish by the KCC for roadway soils, non-saline and very slightly saline soils may remain in place along roadways.

Appendix A - Figures 3, 4, and 5 present the excavation areas and depths along with key sampling results used to guide excavation activities. Excavation depths were pre-determined based on the Geoprobe results presented in Appendix B – Table 1 and supplemented with excavation floor samples in several areas.

Analytical laboratory results for geoprobe samples and/or supplemental excavation floor samples indicated that CL concentrations at various locations in the vicinity of the Webb A-1 and A-3 well pads ranged from 39 ppm to 4,640 ppm. Electrical conductivity measurements for soil samples from various locations along the roads ranged from 0.36 to 16.7 mmho/cm. Refer to Section 3.0 for more details on laboratory results and associated excavation depths.

Initial well pad excavation depths ranged from 2 to 6 feet bgs with several excavations extended to maximum depths of 10 feet bgs as illustrated on Figures 3 and 4. Roadway soils with EC measurements greater than 4 mmho/cm were excavated to depths of 2 to 4 feet bgs (maximum excavation depth for roads) as illustrated on Figure 5. Upon completion of excavation work for each area, gypsum was applied to the excavation floor bottoms at prescribed rates based generally the maximum residual CL concentration noted for each excavation area. Refer to Section 4.0 for prescribed gypsum application rates.

Due to the necessity of backfilling the excavations in an expedited manner, confirmation sampling of final excavation floors was not conducted and pre-excavation Geoprobe results were used in lieu of confirmation sampling. In areas where the excavations were limited by site conditions (i.e., buried utilities, narrow work areas) or prescribed maximum excavation depths (i.e., roadways), removal of soils with residual CL concentrations greater than 500 ppm (well pads) and/or EC measurements greater than 4 mmho/cm (roads) was not practicable. For these areas, to be conservative, generally the maximum residual CL concentration noted for each excavation area was used to prescribe the optimum gypsum application rate for that specific area. Refer to Section 4 for more details on the prescribed optimum gypsum application rates.

Appendix C presents a photo log of excavation activities.

3.0 SAMPLE RESULTS

Chloride concentrations and/or EC measurements noted during 2022 Geoprobe sampling activities were used to guide excavation activities. Generally, higher CL concentrations or EC measurements were noted near the surface and decreased with depth. Supplemental sampling of the excavation floor was also conducted after initial excavation activities for Excavation Areas B and D.

Geoprobe sampling results and/or intermediate excavation sampling results were used to document residual CL concentrations or EC measurements in the excavation areas. The residual and/or elevated CL concentration associated with each excavation was also used to develop optimum gypsum application rates for each excavation. See Section 4 for more details.

At minimum, the upper 2 feet of surface material was removed from all excavation areas independent of the CL concentrations or EC measurements. Soil sample results from 2 to 6 feet below ground surface (bgs) were used to better guide excavation activities. Applicable results are presented below and on Figures 3, 4, and 5 and Table 1. Surface soil sample results (0 to 2 feet bgs) for shallow soil removed from excavation areas are provided in the Laboratory Reports in Appendix D. The following results were used to establish final excavation depths.

3.1 A-1 Pad (Excavation Area A)

Soil sample analytical laboratory results for CL/EC are as follows:

- B2 (2 - 4 feet bgs): 39 ppm / 0.59 millimhos per centimeter (mmho/cm)
- B2 (4 - 6 feet bgs): 235 ppm / 1.26 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 235 ppm remained within the excavation at 4 to 6 feet bgs. The excavation was terminated at 2 feet bgs.

3.2 A-1 Pad (Excavation Area B)

Soil sample analytical laboratory results for CL/EC are as follows:

- B6 (2 - 4 feet bgs): 322 ppm / 2.05 mmho/cm
- B6 (4 - 6 feet bgs): 567 ppm / 2.72 mmho/cm
- B-1 (6 feet bgs): 52 ppm / 1.00 mmho/cm
- B-2 (6 feet bgs): 800 ppm / 5.16 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 800 ppm was present within the excavation at 6 feet bgs. The excavation was increased to a maximum depth of 10 feet bgs.

3.3 A-3 Pad (Excavation Area C)

Soil sample analytical laboratory results for CL/EC are as follows:

- C6 (2 - 4 feet bgs): 71 ppm / 0.66 mmho/cm
- C6 (4 - 6 feet bgs): 152 ppm / 0.72 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 152 ppm remained within the excavation at 4 to 6 feet bgs. The excavation was terminated at 2 feet bgs.

3.4 A-3 Pad (Excavation Area D)

Soil sample analytical laboratory results for CL/EC are as follows:

Area D (North)

- C9 (2 - 4 feet bgs): 4,640 ppm / 12.6 mmho/cm
- C9 (4 - 6 feet bgs): 2,720 ppm / 7.94 mmho/cm
- D-1 (6 feet bgs): 1,860 ppm / 8.40 mmho/cm
- D-2 (6 feet bgs): 1,270 ppm / 7.72 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 1,860 ppm was present within the initial excavation at 6 feet bgs (excavation floor). The excavation was increased to a maximum depth of 10 feet bgs.

Area D (South E 1/3)

- C7 (2 - 4 feet bgs): 1,020 ppm / 3.43 mmho/cm
- C7 (4 - 6 feet bgs): 556 ppm / 2.01 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 556 ppm was present within the excavation at 4 to 6 feet bgs. The excavation was increased to a maximum depth of 10 feet bgs.

Area D (South)

- D-3 (6 feet bgs): 164 ppm / 1.49 mmho/cm
- D-4 (6 feet bgs): 71 ppm / 0.77 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 164 ppm remained within the excavation at 6 feet bgs (floor). The excavation was terminated at 6 feet bgs.

3.5 A-3 Pad (Excavation Area E)

Soil sample analytical laboratory results for CL/EC are as follows:

- C11 (2 - 4 feet bgs): 543 ppm / 1.84 mmho/cm
- C11 (4 - 6 feet bgs): 100 ppm / 0.62 mmho/cm

Based on soil sample results, a maximum residual CL concentration of 100 ppm remained within the excavation at 4 to 6 feet bgs. The excavation was terminated at 4 feet bgs.

3.6 Farm Road (Excavation Area F)

Soil sample analytical laboratory results for CL/EC are as follows:

- A5 (2 - 4 feet bgs): 21 ppm / 0.44 mmho/cm
- A5 (4 - 6 feet bgs): 39 ppm / 0.46 mmho/cm
- A6 (2 - 4 feet bgs): 158 ppm / 0.85 mmho/cm
- A6 (4 - 6 feet bgs): 516 ppm / 1.66 mmho/cm
- A7 (2 – 4 feet bgs): 153 ppm / 0.57 mmho/cm
- A7 (4 – 6 feet bgs): 187 ppm / 0.93 mmho/cm
- A8 (2 – 4 feet bgs): 18 ppm / 0.50 mmho/cm
- A8 (4 - 6 feet bgs): 30 ppm / 0.42 mmho/cm

Based on soil sample results, EC measurements ranged from 0.42 to of 1.66 mmho/cm from 2 and 6 feet bgs. Based on these results only the upper 2 feet of surface material was removed. The excavation was terminated at 2 feet bgs.

3.7 Farm Road (Excavation Area G)

Soil sample analytical laboratory results for CL/EC are as follows:

- A2 (2 - 4 feet bgs): 19 ppm / 0.36 mmho/cm
- A2 (4 - 6 feet bgs): 472 ppm / 1.63 mmho/cm
- A3 (2 - 4 feet bgs): 30 ppm / 0.75 mmho/cm
- A3 (4 - 6 feet bgs): 56 ppm / 0.69 mmho/cm

Based on soil sample results, EC measurements ranged from 0.36 to 1.63 mmho/cm from 2 to 6 feet bgs. Based on these results only the upper 2 feet of surface material was removed. The excavation was terminated at 2 feet bgs.

3.8 A-3 Access Road (Excavation Area H)

Soil sample analytical laboratory results for CL/EC are as follows:

- C2 (2 - 4 feet bgs): 257 ppm / 1.10 mmho/cm
- C2 (4 - 6 feet bgs): 3,160 ppm / 9.89 mmho/cm
- C3 (2 - 4 feet bgs): 164 ppm / 0.84 mmho/cm
- C3 (4 – 6 feet bgs): 47 ppm / 0.43 mmho/cm

Based on soil sample results, the EC measurements ranged from 0.43 to 9.89 mmho/cm from 2 to 6 feet bgs with only one exceedance of the 4 mmho/cm criteria in the 4 to 6 feet bgs sample (C2).

Based on these results, the soil from 2 to 4 feet bgs did not require removal and the soil below 4 feet bgs did not require removal based on the prescribed maximum excavation depth of 4 feet. Therefore, the excavation was terminated at 2 feet bgs after surface soil removal was completed.

3.9 A-3 Access Road (Excavation Area I)

Soil sample analytical laboratory results for CL / EC are as follows:

- C4 (2 - 4 feet bgs): 6,560 ppm / 16.7 mmho/cm
- C4 (4 - 6 feet bgs): 2,360 ppm / 6.60 mmho/cm
- C5 (2 - 4 feet bgs): 475 ppm / 3.13 mmho/cm
- C5 (4 - 6 feet bgs): 1,040 ppm / 3.73 mmho/cm

Based on soil sample results, a maximum EC measurement of 6.60 mmho/cm was noted within the excavation area from 4 to 6 feet bgs. However, based on the prescribed maximum excavation depth for roads the excavation was terminated at a depth of 4 feet.

4.0 EXCAVATION ACTIVITIES

4.1 A-1/A3 Well Pad Excavations

Initial shallow excavations were completed to depths of 2 to 6 feet bgs based on Geoprobe sample CL concentrations. Additional excavation activities were conducted at well pad Excavation Areas B, D (North), and D (South E 1/3) due to elevated CL concentrations previously identified and these excavations were extended from 6 to 10 feet bgs.

The approximate estimated in-place volume of soil removed from each excavation area (Appendix B - Table 2) is as follows:

- A-1 Excavation Area A - 30 cubic yards (cu yds) excavated to 2 feet bgs
- A-1 Excavation Area B - 284 cu yds excavated to 10 feet deep
- A-3 Excavation Area C - 113 cu yds excavated to 2 feet bgs
- A-3 Excavation Area D North - 625 cu yds excavated to 10 feet bgs
- A-3 Excavation Area D South (E 1/3) - 167 cu yds excavated to 10 feet bgs
- A-3 Excavation Area D South - 303 cu yds excavated to 6 feet bgs
- A-3 Excavation Area E - 83 cu yds excavated to 4 feet bgs

4.2 Roadway Excavations

Shallow excavations were completed to depths of 2 to 4 feet bgs based on Geoprobe sample EC results. A maximum excavation depth of 4 feet was established with the KCC approval for roadways.

The approximate in-place volume of soil removed from each excavation area (Appendix B - Table 2) was as follows:

- Excavation Area F - 503 cubic yards (cu yds) excavated to 2 feet bgs
- Excavation Area G - 253 cu yds excavated to 2 feet deep
- Excavation Area H - 129 cu yds excavated to 2 feet bgs
- Excavation Area I - 672 cu yds excavated to 4 feet bgs

4.3 Gypsum Applications

In areas where the excavations were limited by site conditions (i.e., buried utilities, narrow work areas) and/or the prescribed maximum depth (4 feet) and CL concentration or EC measurements were greater than 500 ppm (well pad areas) or 4 mmho/cm (roads), respectively, gypsum was applied to the excavation bottoms prior to backfilling. Appendix B – Table 2 provides the optimum gypsum application rates and volumes. Generally, the highest residual CL concentration within an excavation area was used to calculate the optimum gypsum application rate for that excavation.

The actual gypsum application rates are also summarized on Table 2. Several deviations from the general plan for gypsum application were noted for Excavation Areas H and I. The optimum gypsum application rate for the west end of Excavation Area H (C2) was underestimated. However, the actual gypsum application rate was greater than the optimum rate for most of the excavation area. A higher than optimum gypsum application rate was also placed across Excavation Area I.

After gypsum application was completed the excavation areas were backfilled with soil from the property owner. The soil was bucket tamped and compacted in lifts to the surface and the surface area was regraded.

5.0 GENERAL COMMENTS

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either expressed or implied, regarding findings, or conclusions resulting from these services. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of this report. Our services were performed in accordance with the agreed scope of work.

Findings and conclusions resulting from these services are based upon information derived from the onsite activities and other services performed under this scope of work; such information is subject to change over time. Subsurface conditions may vary from those encountered at specific borings or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our conclusions are based solely upon data obtained at the time and within the scope of these services.

APPENDIX A

Figure 1: Site Location Map

Figure 2: Webb A-1 And A-3 Locations Map

Figure 3: Webb A-1 Excavation Map

Figure 4: Webb A-3 Excavation Map

Figure 5: Farm Road & Webb A-3 Access Road Excavation Map

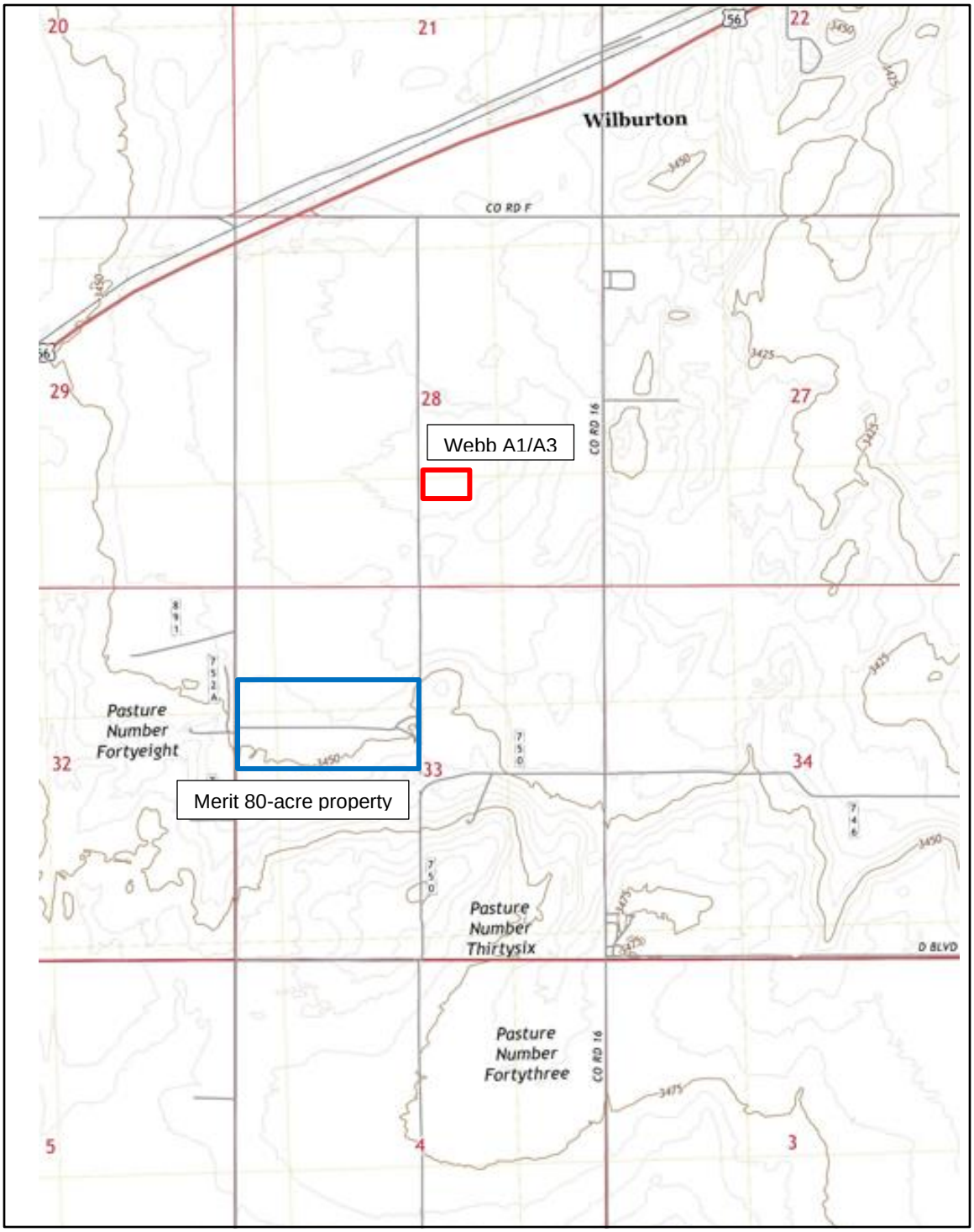


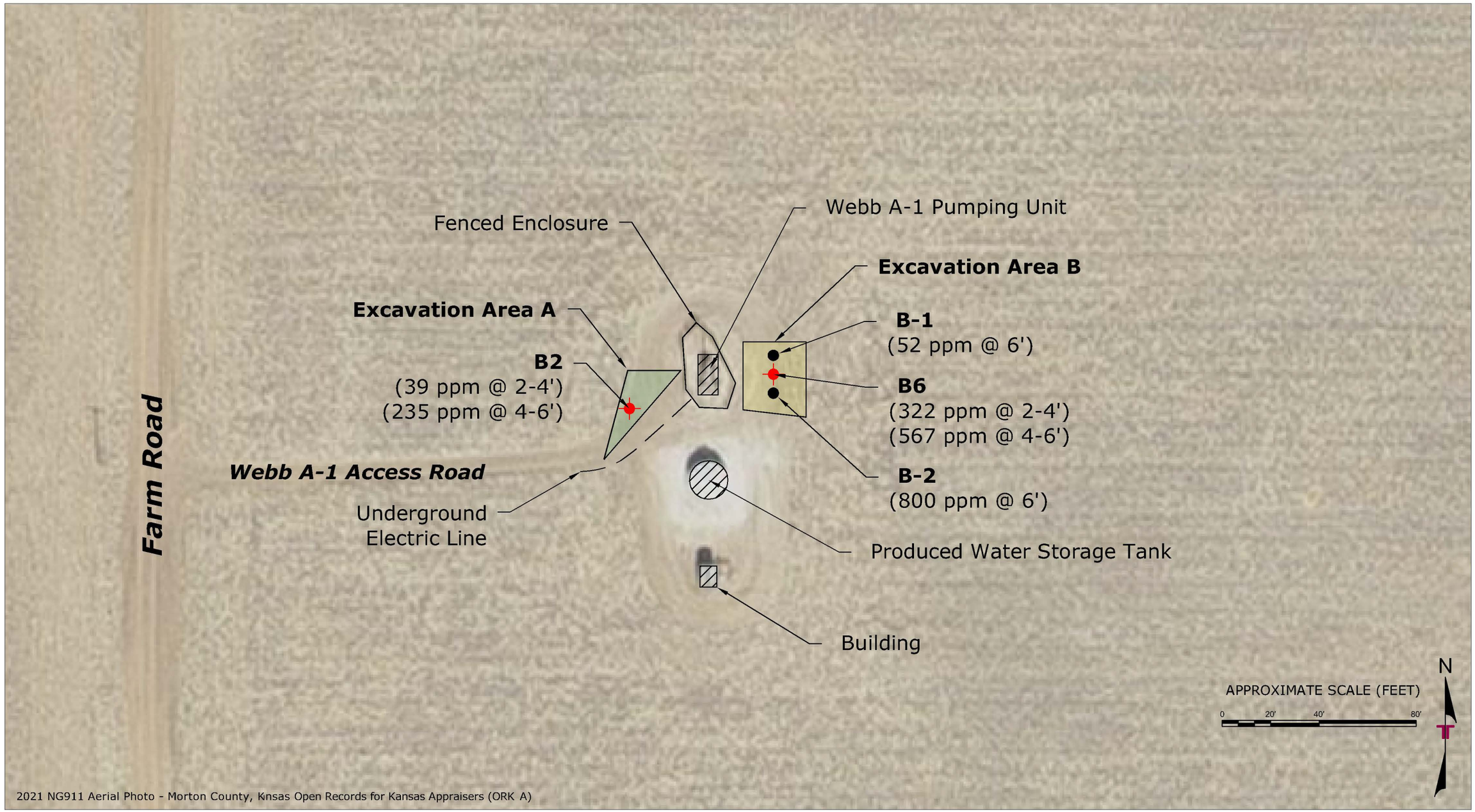
DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

N

Project Mngr:	Scale:	Terracon Consulting Engineers & Scientists 1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Site Location Map Merit Energy Company **Webb A-1 & A-3 Saltwater Release Site** Road 750 Morton, Kansas	FIGURE 1
Checked By:	Date: 05/26/2023			
Approved By:	Project No: 01227149			
Drawn By:	File Name:			

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	Project Number: 01227149	Terracon	WEBB A-1 AND A-3 LOCATIONS MAP	FIGURE
Drawn by:	Scale: NTS	1815 South Eisenhower Wichita, Kansas 67209 Phone (316) 262 0171 Fax (316) 262 6997	Merit Energy Company **Webb A-1 & A-3 Saltwater Release Site** Road 750 Morton, Kansas	2
Checked by:	File No.:			
Approved by:	Date: 05/26/2023			



LEGEND

- Excavation depth approximately 2 feet
- Excavation depth approximately 10 feet
- Excavation bottom soil sample location (approximate), with chloride concentration in parts per million (ppm) at indicated depth in feet below ground surface (bgs)
- Soil probe location (approximate), with chloride concentration in ppm at indicated depth in feet bgs

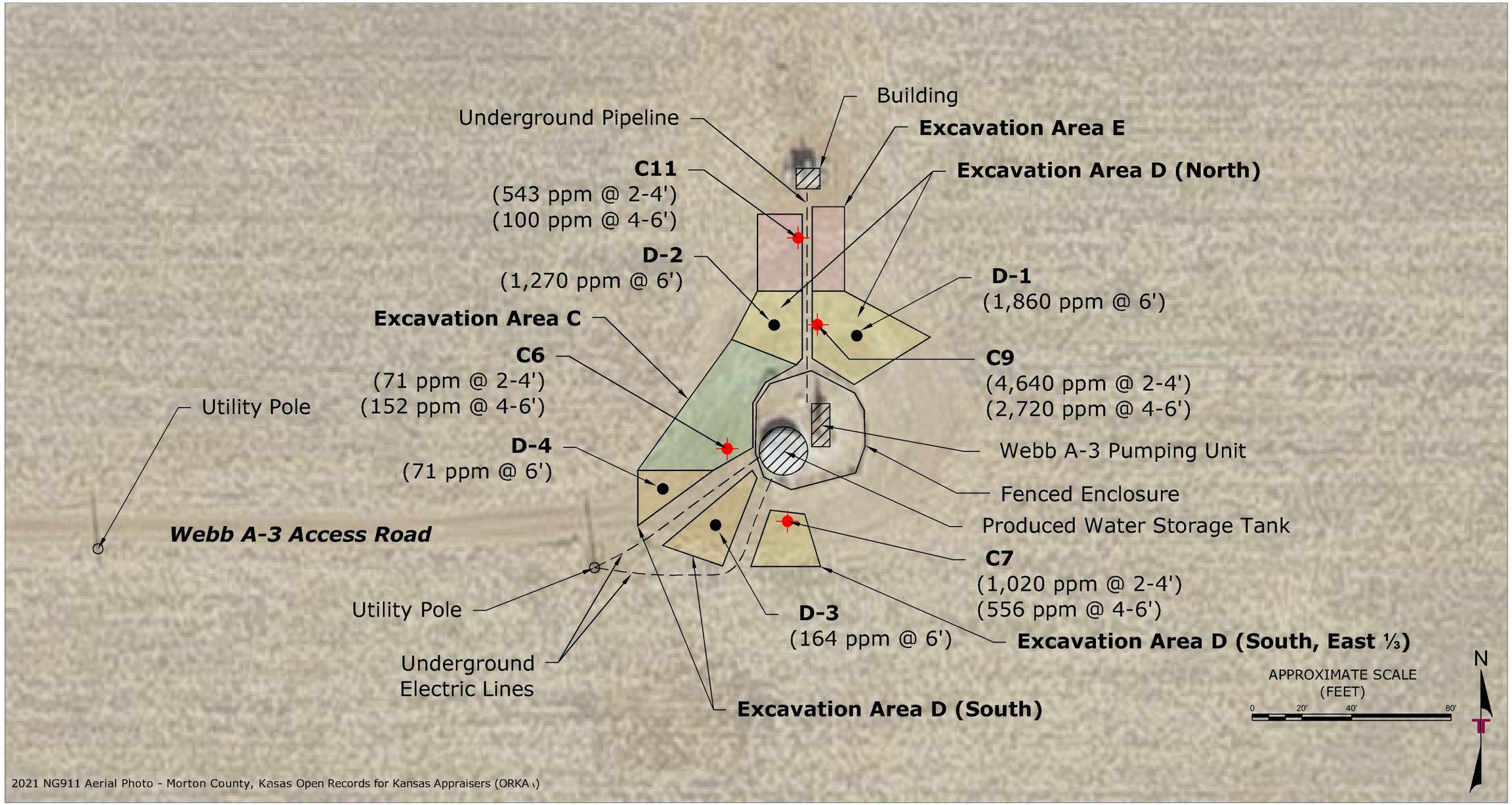
DIAGRAM IS NTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	ARM
Checked By:	ARM
Approved By:	ARM
Drawn By:	MWM
Scale:	SHOWN
Date:	01/29/2024
Project No:	01227149
File Name:	Figure_3

Terracon
Explore with Us
1815 S. Eisenhower Wichita, Kansas 67209
Phone: (316) 262-0171 Fax: (316) 262-6997

Webb A-1 Pad Excavation Map
Merit Energy Company
Webb A1 & Webb A3 Saltwater Release Site
Road 750
Morton County, Kansas

FIGURE
3



LEGEND

- Excavation depth approximately 2 feet
- Excavation depth approximately 4 feet
- Excavation depth approximately 6 feet
- Excavation depth approximately 10 feet

- ● Excavation bottom soil sample location (approximate), with chloride concentration in parts per million (ppm) at depth indicated in feet below ground surface (bgs)
- ⌖ Soil probe location (approximate), with chloride concentration in ppm at indicated depth in feet bgs

DIAGRAM IS NTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	ARM
Checked By:	ARM
Approved By:	ARM
Drawn By:	MWM
Scale:	SHOWN
Date:	01/29/2024
Project No:	01227149
File Name:	Figure_4

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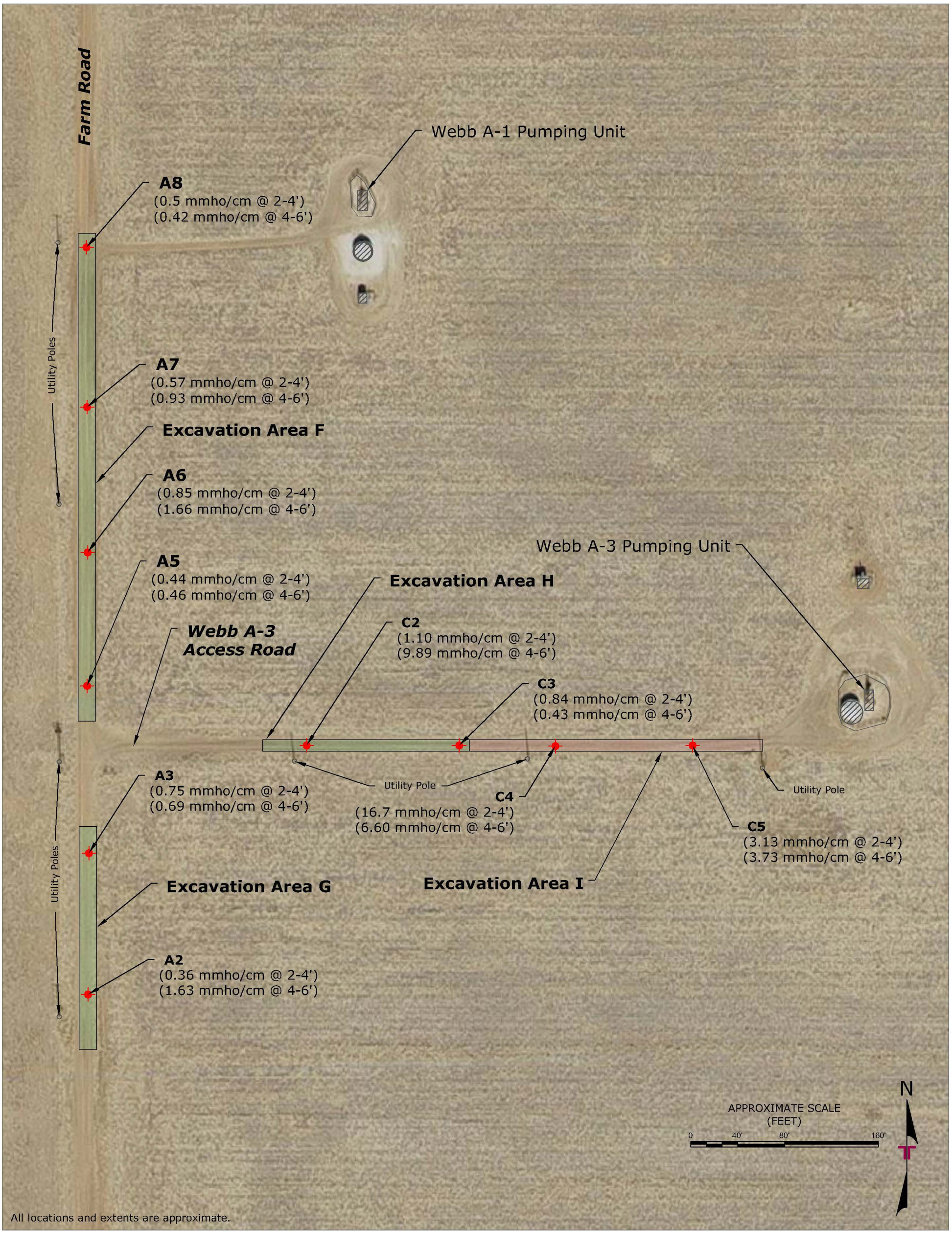
Webb A-3 Pad Excavation Map
Merit Energy Company
Webb A1 & Webb A3 Saltwater Release Site
Road 750
Morton County, Kansas

FIGURE
4



2021 NG911 Aerial Photo - Morton County, Kansas Open Records for Kansas Appraisers (ORKA)

LEGEND

- Excavation depth approximately 2 feet
- Excavation depth approximately 4 feet
- Soil probe location (approximate), with electrical conductivity (EC) in millimhos per centimeter (mmho/cm) at indicated depth in feet below ground surface (bgs).

1 mmho/cm = 1 millisiemen per centimeter (mS/cm)

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	ARM
Checked By:	ARM
Approved By:	ARM
Drawn By:	MWM

Scale:	SHOWN
Date:	01/29/2024
Project No:	01227149
File Name:	Figure_5

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FARM ROAD & WEBB A-3 ACCESS ROAD EXCAVATION MAP

Merit Energy Company

Webb A1 & Webb A3 Saltwater Release Site

Road 750

Morton County, Kansas

FIGURE 5

APPENDIX B

Table 1: Soil Sample Results

Table 2: Excavation Volumes and Gypsum Application Rates/Volumes

TABLE 1: SOIL SAMPLE RESULTS - WEBB A1/A3 Site

Analytes	Location	A-1 PAD						A-3 PAD											
	Excavation Area/Depth	A/2 ft		B/10 ft				C//2 ft		D - North/ 10 ft				D - South (E 1/3)/10 ft		D-South/6 ft		E/4 ft	
	Sample #	B2	B2	B6	B6	B-1	B-2	C6	C6	C9	C9	D-1	D-2	C7	C7	D-3	D-4	C11	C11
	Depth ft (bgs)	2-4*	4-6*	2-4*	4-6*	6**	6**	2-4*	4-6*	2-4*	4-6*	6**	6**	2-4*	4-6*	6**	6**	2-4*	4-6*
	Sample Date	7/14/2022	7/14/2022	7/14/2022	7/14/2022	5/2/2023	5/2/2023	7/14/2022	7/14/2022	7/14/2022	7/14/2022	4/25/2023	4/25/2023	7/14/2022	7/14/2022	5/2/2023	5/2/2023	7/14/2022	7/14/2022
Electrical Conductivity	Units (mmho/cm)	0.59	1.26	2.05	2.72	1.0	5.16	0.66	0.72	12.60	7.94	8.40	7.72	3.43	2.01	1.49	0.77	1.84	0.62
Chloride	Units (mg/L, ppm)	39	235	322	567	52	800	71	152	4,640	2,720	1,860	1,270	1,020	556	164	71	543	100

Analytes	Location	FARM ROAD											
	Excavation Area/Depth	F/2 ft								G/2 ft			
	Sample #	A5	A5	A6	A6	A7	A7	A8	A8	A2	A2	A3	A3
	Depth ft (bgs)	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*
	Sample Date	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022
Electrical Conductivity	Units (mmho/cm)	0.44	0.46	0.85	1.66	0.57	0.93	0.50	0.42	0.36	1.63	0.75	0.69
Chloride	Units (mg/L, ppm)	21	39	158	516	153	187	18	30	19	472	30	56

Analytes	Location	A-3 ACCESS ROAD							
	Excavation Area/Depth	H/2 ft				I/4 ft			
	Sample #	C2	C2	C3	C3	C4	C4	C5	C5
	Depth ft (bgs)	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*	2-4*	4-6*
	Sample Date	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022	7/14/2022
Electrical Conductivity	Units (mmho/cm)	1.10	9.89	0.84	0.43	16.70	6.60	3.13	3.73
Chloride	Units (mg/L, ppm)	257	3,160	164	47	6,560	2,360	475	1,040

Notes:
millimhho per centimeter (mmho/cm) = milliSiemens per centimeter (mS/cm)
mg/L = milligrams per liter (parts per million)
* Pre-Excavation geoprobe sample.
** Excavation bottom sample.
Concentration used for optimum gypsum applicaton rate. (See Table 2)

USDA Soil Salinity Classes:
EC <2 = Non-saline
EC 2-4 = Very Slightly Saline
EC 4-8 = Slightly Saline
EC 8-16 = Moderately Saline
EC ≥ 16 = Strongly Saline

TABLE 2: EXCAVATION VOLUMES AND GYPSUM APPLICATION RATES/VOLUMES

Excavation Area	*Excavation Area (sq ft)*	*Initial Planned Excavation Depth (ft)*	*Final Excavation Depth (ft bgs)*	*Inplace Excavation Volume (cu yd)*	*Residual CL Excavation Concentration (ppm)*	*Maximum Excavation CL Concentration Used For Gypsum Application Rate (ppm)*	*Optimujm Gypsum Application Rate (lbs/1,000 sq ft)*	*Calculated Gypsum Applied At Each Excavation Area (lbs/area)*	*Date Gypsum Applied to Excavation Bottom*	*Actual Gypsum Applied At Each Excavation Area (lbs/area)*
A-1 Pad										
A	404	2	2	30	235	235*	40	16	10/17/2023	25
B	767	6	10***	284	800	800**	120	92	10/19/2023	100
A-3 Pad										
C	1,520	2	2	113	152	152*	40	61	10/17/2023	75
D (North)	1,688	6	10***	625	1,860	1,860**	275	464	10/19/2023	500
D (South)	1,364	6	6	303	164	164**	40	55	10/17/2023	75
D (South E 1/3) -	450	6	10***	167	556	556*	80	36	10/19/2023	50
E	558	4	4	83	100	100*	40	22	10/17/20232	25
Farm Road										
F	6,786	2	2	503	516	1,340*	195	1,323	11/2/2023	1,350
G	3,420	2	2	253	472	1,580*	230	787	11/2/2023	800
A-3 Access Road										
H	1,746	2	2	129	3,160	1,390****	195	340	10/27/20232	350
I	4,536	4	4	672	2,360	2,900*****	410	1,860	10/27/2023	1,900

Residual CL Concentration Range (ppm)		*Application Rate (lbs/1,000 sq ft)*
Minimum	*Maximum*	
50	550	40
551	700	80
701	975	120
976	1,250	160
1,251	1,525	195
1,526	1,800	230
1,801	2,150	275
2,151	2,500	320
2,501	2,850	365
2,851	3,200	410

NOTES:
sq ft = square feet
ft bgs = feet below ground surface
cu yd = cubic yards
lbs/1,000 sq ft - pounds per 1,000 square feet
lbs/area = pounds per area
mg/L = milligrams per liter (ppm)

* CL concentration from Geoprobe soil sample.
** CL concentration from sample collected at bottom of excavation at planned excavation depth.
*** A final excavation bottom sample was not collected at 10' (maximum excavation depth), CL concentrations from 6' were used to developed gypsum application rates for excavation area.
**** Optimum gypsum application rate was underestimated for west end of Excavation H Area (C2 location below 4'). However, the actual application rate was greater than the optimum rate for the majority of the excavation area with lower residual CL concentrations.
***** Optimum gypsum application rate was overestimated for Excavation I Area. A higher than optimum application rate was used for the excavation area.

APPENDIX C

Photo Log

Photo #1 Looking north at Excavation Area A (Webb A1). Excavation is two feet deep.

Photo #2 Looking northeast at Excavation Area A (Webb A1). Excavation is two feet deep.

Photo #3 Looking north at Excavation Area B (Webb A1). Excavation will be six feet deep and will be over-excavated to 10 feet.

Photo #4 Looking north at Excavation Area B (Webb A1). Excavation is six feet deep.

Photo #5 Looking northwest at Excavation Area C (Webb A3). Excavation is two feet deep.

Photo #6 Looking east-northeast at the three southern portions of Excavation Area D (Webb A3). Buried electrical lines are located within the un-excavated flagged areas. Excavations are six feet deep and will be over-excavated to 10 feet. Excavation Area C is located to the left (north) of the photo.

Photo #7 Looking east at the two northern portions of Excavation Area D (Webb A3). A buried electrical line is located within the un-excavated area. Excavations are six feet deep.

Photo #8 Looking southeast at the two portions of Excavation Area E (Webb A3). A buried electrical line is located within the un-excavated area. Excavations are four feet deep. The northern portion of Excavation Area D and located to the top right (south) of the photo.

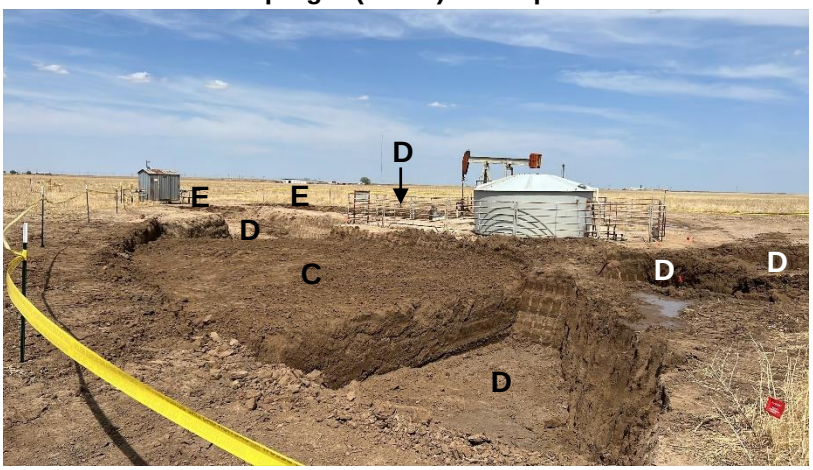

Photo #9 Looking northeast at Excavation Areas C (two feet deep), D (six feet deep and will be over-excavated to 10 feet), and E (four feet deep) (Webb A3).

Photo #10 Looking east at backfilling completed at A1.

Photo #11 Looking northwest at backfilling completed at A3.

Photo #12 Looking south at backfilling completed at A3.

Photo #13 Looking northeast eastern portion of the East-West access road to A3 excavated to 4 feet.

Photo #14 Looking south at the southern portion of the excavated North-South access road. Excavation was to 2 feet.

Photo #15 Looking north at the northern portion of the excavated North-South access road. Excavation was to 2 feet.

Photo #16 Looking north at the west side of the northern portion of the excavated North-South access road. Excavation was to 2 feet. An underground electric line is marked by the red flags.

Photo #17 Looking north at the east side of the northern portion of the excavated North-South access road. Excavation was to 2 feet. An underground water line is marked by the blue flags.

Photo #18 Looking north at the northern portion of the excavated North-South access road. An underground electric line and petroleum line cross the road in the unexcavated area at the left-center of the photo.

Photo #19 Looking northwest at the northern portion of the excavated North-South access road. An underground electric line crosses the road in the unexcavated area marked by the red flags.

Photo #20 Looking west at the northern portion of the excavated North-South access road. An underground petroleum line crosses the road in the unexcavated area marked by the yellow flags.

APPENDIX D

Laboratory Report

Geoprobe Soil Sample Results

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
11905	

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6921 S. Bell
Amarillo, TX 79109
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Fax 806.677.0329

LAB NO:	105489 - 105498
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105489	A1	0 - 24	37	0.79	16
105490	A1	24 - 48	49	0.58	12
105491	A1	48 - 72	31	0.62	29
105492	A2	0 - 24	31	2.22	623
105493	A2	24 - 48	44	0.36	19
105494	A2	48 - 72	29	1.63	472
105495	A3	0 - 24	30	4.95	1580
105496	A3	24 - 48	38	0.75	30
105497	A3	48 - 72	49	0.69	56
105498	A4	0 - 24	27	1.14	168

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105489	A1																
105490	A1																
105491	A1																
105492	A2																
105493	A2																
105494	A2																
105495	A3																
105496	A3																
105497	A3																
105498	A4																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	105499 - 105508
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105499	A4	24 - 48	36	0.72	14
105500	A4	48 - 72	41	0.53	18
105501	A5	0 - 24	37	3.11	819
105502	A5	24 - 48	39	0.44	21
105503	A5	48 - 72	51	0.46	39
105504	A6	0 - 24	45	3.44	1120
105505	A6	24 - 48	42	0.85	158
105506	A6	48 - 72	31	1.66	516
105507	A7	0 - 24	39	4.29	1340
105508	A7	24 - 48	48	0.57	153

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105499	A4																
105500	A4																
105501	A5																
105502	A5																
105503	A5																
105504	A6																
105505	A6																
105506	A6																
105507	A7																
105508	A7																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	105509 - 105518
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105509	A7	48 - 72	44	0.93	187
105510	A8	0 - 24	45	2.62	957
105511	A8	24 - 48	40	0.50	18
105512	A8	48 - 72	54	0.42	30
105513	A9	0 - 24	42	0.89	49
105514	A9	24 - 48	38	0.54	27
105515	A9	48 - 72	30	0.41	32
105516	B1	0 - 24	47	0.65	112
105517	B1	24 - 48	44	0.60	133
105518	B1	48 - 72	52	0.50	100

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105509	A7																
105510	A8																
105511	A8																
105512	A8																
105513	A9																
105514	A9																
105515	A9																
105516	B1																
105517	B1																
105518	B1																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	105519 - 105528
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105519	B2	0 - 24	44	1.77	602
105520	B2	24 - 48	46	0.59	39
105521	B2	48 - 72	56	1.26	235
105522	B3	0 - 24	42	0.74	109
105523	B3	24 - 48	47	0.57	42
105524	B3	48 - 72	46	0.78	61
105525	B4	0 - 24	39	1.04	277
105526	B4	24 - 48	42	0.27	76
105527	B4	48 - 72	34	0.59	137
105528	B5	0 - 24	45	0.37	30

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105519	B2																
105520	B2																
105521	B2																
105522	B3																
105523	B3																
105524	B3																
105525	B4																
105526	B4																
105527	B4																
105528	B5																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

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LAB NO:	105529 - 105538
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105529	B5	24 - 48	49	0.37	15
105530	B5	48 - 72	31	0.55	63
105531	B6	0 - 24	53	0.76	72
105532	B6	24 - 48	54	2.05	322
105533	B6	48 - 72	51	2.72	567
105534	B7	0 - 24	36	0.70	63
105535	B7	24 - 48	45	0.84	40
105536	B7	48 - 72	37	1.10	97
105537	C1	0 - 24	38	1.38	341
105538	C1	24 - 48	44	0.55	62

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
				6.0	6.5	7.0											
105529	B5																
105530	B5																
105531	B6																
105532	B6																
105533	B6																
105534	B7																
105535	B7																
105536	B7																
105537	C1																
105538	C1																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

SOIL ANALYSIS REPORT

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LAB NO:	105539 - 105548
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105539	C1	48 - 72	45	1.67	192
105540	C2	0 - 24	44	2.27	671
105541	C2	24 - 48	46	1.10	257
105542	C2	48 - 72	41	9.89	3160
105543	C3	0 - 24	44	4.53	1390
105544	C3	24 - 48	40	0.84	164
105545	C3	48 - 72	39	0.43	47
105546	C4	0 - 24	37	9.36	3580
105547	C4	24 - 48	47	16.7	6560
105548	C4	48 - 72	39	6.60	2360

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105539	C1																
105540	C2																
105541	C2																
105542	C2																
105543	C3																
105544	C3																
105545	C3																
105546	C4																
105547	C4																
105548	C4																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
11905	

servi tech
www.servitech.com

6921 S. Bell
Amarillo, TX 79109
800.557.7509
806.677.0093
Fax 806.677.0329

LAB NO:	105549 - 105558
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105549	C5	0 - 24	44	6.01	1790
105550	C5	24 - 48	44	3.13	475
105551	C5	48 - 72	48	3.73	1040
105552	C6	0 - 24	36	7.98	2930
105553	C6	24 - 48	46	0.66	71
105554	C6	48 - 72	42	0.72	152
105555	C7	0 - 24	37	8.43	2660
105556	C7	24 - 48	43	3.43	1020
105557	C7	48 - 72	48	2.01	556
105558	C8	0 - 24	38	1.10	179

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
				6.0	6.5	7.0											
105549	C5																
105550	C5																
105551	C5																
105552	C6																
105553	C6																
105554	C6																
105555	C7																
105556	C7																
105557	C7																
105558	C8																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

SOIL ANALYSIS REPORT

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Fax 806.677.0329

LAB NO:	105559 - 105568
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105559	C8	24 - 48	49	1.59	269
105560	C8	48 - 72	54	2.15	491
105561	C9	0 - 24	35	8.57	2860
105562	C9	24 - 48	42	12.6	4640
105563	C9	48 - 72	54	7.94	2720
105564	C10	0 - 24	33	0.39	24
105565	C10	24 - 48	37	0.31	12
105566	C10	48 - 72	32	2.77	9
105567	C11	0 - 24	35	5.08	1590
105568	C11	24 - 48	39	1.84	543

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
				6.0	6.5	7.0											
105559	C8																
105560	C8																
105561	C9																
105562	C9																
105563	C9																
105564	C10																
105565	C10																
105566	C10																
105567	C11																
105568	C11																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Michele Pacheco

SOIL ANALYSIS REPORT

CLIENT:	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209
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LAB NO:	105569
INVOICE NO:	892884
DATE RECEIVED:	07/15/2022
DATE REPORTED:	07/27/2022

SOIL ANALYSIS RESULTS FOR: **FIELD IDENTIFICATION:**

METHOD USED: Sat. Paste

Lab Number	Sample ID	Sample Depth	Saturation % Sat	Electrical Conductivity mmho/cm	Chloride mg/L Cl
105569	C11	48 - 72	44	0.62	100

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
105569	C11																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Pacheco, Data Review Coordinator

Excavation Areas B & D

Excavation Floor Samples (6 ft bgs)

SOIL ANALYSIS REPORT

CLIENT: 11905	TERRACON CONSULTANTS 1815 S EISENHOWER WICHITA, KS 67209

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1816 E. Wyatt Earp
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Dodge City, KS 67801
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620.227.7123
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LAB NO:	94163 - 94172
INVOICE NO:	899493
DATE RECEIVED:	05/03/2023
DATE REPORTED:	05/09/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD IDENTIFICATION:**

METHOD USED: Hg Thiocyanate | Sat. Paste

Lab Number	Sample ID	Sample Depth	Chloride ppm	Chloride lb. Cl/A	Saturation % Sat	Electrical Conductivity mmho/cm
94163	D-1	~~0 - 8~~	1860	4460	51	8.40
94164	D-2	~~0 - 8~~	1270	3050	50	7.72
94165	D-3	~~0 - 8~~	164	394	38	1.49
94166	D-4	~~0 - 8~~	71	170	50	0.77
94167	B-1	~~0 - 8~~	52	125	28	1.00
94168	B-2	~~0 - 8~~	800	1920	53	5.16
94169	SE	~~0 - 8~~	510	1220	47	3.87
94170	NE	~~0 - 8~~	1960	4700	46	8.84
94171	NW	~~0 - 8~~	610	1460	46	3.76
94172	SW	~~0 - 8~~	153	367	41	1.52

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
94163	D-1																
94164	D-2																
94165	D-3																
94166	D-4																
94167	B-1																
94168	B-2																
94169	SE																
94170	NE																
94171	NW																
94172	SW																

Cation Exchange Capacity

Lab Number	CEC	%H	%K	%Ca	%Mg	%Na
94163						
94164						
94165						
94166						
94167						
94168						
94169						
94170						
94171						
94172						

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Sample depths corrected by Terracon for clarity.

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

SOIL ANALYSIS REPORT

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LAB NO:	94163 - 94172
INVOICE NO:	899493
DATE RECEIVED:	05/03/2023
DATE REPORTED:	05/09/2023

SOIL ANALYSIS RESULTS FOR: MERIT **FIELD IDENTIFICATION:**

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 94163, 94164, 94165, 94166, 94167, 94168, 94169, 94170, 94171, 94172
Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

CERTIFICATE OF SERVICE

I, Jonathan A. Schlatter, hereby certify that on this 16th day of February, 2024, I caused the original of the foregoing **Combined Pre-Filed Direct and Rebuttal Testimony of Sean Craven, Merit Energy Company, LLC** to be electronically filed with the Conservation Division of the State Corporation Commission of the State of Kansas, and caused true and correct copies of the same to be delivered by electronic mail to the following persons:

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Kansas Corporation Commission
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/s/ Jonathan A. Schlatter
Jonathan A. Schlatter