



Texas Commission on Environmental Quality

Waste Permits Division Correspondence

Cover Sheet

Date: 17 September 2024

Facility Name: Texas Star Property West

Permit or Registration No.: 62054

Nature of Correspondence:

☐ Initial/New

☒ Response/Revision to TCEQ Tracking No.:
29838265 (from subject line of TCEQ letter
regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
<input type="checkbox"/> New Notice of Intent	<input type="checkbox"/> Alternative Daily Cover Report
<input type="checkbox"/> Notice of Intent Revision	<input type="checkbox"/> Closure Report
<input checked="" type="checkbox"/> New Permit (including Subchapter T)	<input type="checkbox"/> Compost Report
<input type="checkbox"/> New Registration (including Subchapter T)	<input type="checkbox"/> Groundwater Alternate Source Demonstration
<input type="checkbox"/> Major Amendment	<input type="checkbox"/> Groundwater Corrective Action
<input type="checkbox"/> Minor Amendment	<input type="checkbox"/> Groundwater Monitoring Report
<input type="checkbox"/> Limited Scope Major Amendment	<input type="checkbox"/> Groundwater Background Evaluation
<input type="checkbox"/> Notice Modification	<input type="checkbox"/> Landfill Gas Corrective Action
<input type="checkbox"/> Non-Notice Modification	<input type="checkbox"/> Landfill Gas Monitoring
<input type="checkbox"/> Transfer/Name Change Modification	<input type="checkbox"/> Liner Evaluation Report
<input type="checkbox"/> Temporary Authorization	<input type="checkbox"/> Soil Boring Plan
<input type="checkbox"/> Voluntary Revocation	<input type="checkbox"/> Special Waste Request
<input type="checkbox"/> Subchapter T Disturbance Non-Enclosed Structure	<input type="checkbox"/> Other:
<input type="checkbox"/> Other:	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
<input type="checkbox"/> New	<input type="checkbox"/> Annual/Biennial Site Activity Report
<input type="checkbox"/> Renewal	<input type="checkbox"/> CPT Plan/Result
<input type="checkbox"/> Post-Closure Order	<input type="checkbox"/> Closure Certification/Report
<input type="checkbox"/> Major Amendment	<input type="checkbox"/> Construction Certification/Report
<input type="checkbox"/> Minor Amendment	<input type="checkbox"/> CPT Plan/Result
<input type="checkbox"/> CCR Registration	<input type="checkbox"/> Extension Request
<input type="checkbox"/> CCR Registration Major Amendment	<input type="checkbox"/> Groundwater Monitoring Report
<input type="checkbox"/> CCR Registration Minor Amendment	<input type="checkbox"/> Interim Status Change
<input type="checkbox"/> Class 3 Modification	<input type="checkbox"/> Interim Status Closure Plan
<input type="checkbox"/> Class 2 Modification	<input type="checkbox"/> Soil Core Monitoring Report
<input type="checkbox"/> Class 1 ED Modification	<input type="checkbox"/> Treatability Study
<input type="checkbox"/> Class 1 Modification	<input type="checkbox"/> Trial Burn Plan/Result
<input type="checkbox"/> Endorsement	<input type="checkbox"/> Unsaturated Zone Monitoring Report
<input type="checkbox"/> Temporary Authorization	<input type="checkbox"/> Waste Minimization Report
<input type="checkbox"/> Voluntary Revocation	<input type="checkbox"/> Other:
<input type="checkbox"/> 335.6 Notification	
<input type="checkbox"/> Other:	

**REVISION 4 -
APPLICATION FOR DEVELOPMENT PERMIT
FOR PROPOSED ENCLOSED STRUCTURE**

**TEXAS STAR PROPERTY WEST
11450 TRINITY BOULEVARD
EULESS, TARRANT COUNTY, TEXAS 76040**

Prepared for:

Texas Commission on Environmental Quality
MSW Authorization No. 62054; Tracking No. 29838265
Voluntary Cleanup Program No. 3237
RN100729763 | CN604539007

Prepared on behalf of the Applicant:

Stonehawk Capital Partners, LLC
4550 Travis Street, Suite 565
Dallas, Texas 75205

Property Owner:

HMH Family Partnership LP
1104 Dayton Drive
Lantana, Texas 76226



**Initial Submission: 28 February 2024
Revision 4 Submission: 17 September 2024**

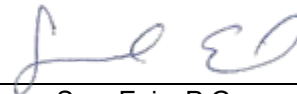


Susan T. Litherland, P.E.

Principal

Texas P.E. No. 57428, F-15202

Signed electronically on 9/17/2024



Sam Enis, P.G.

Principal Project Manager

PN: 1098.015.003

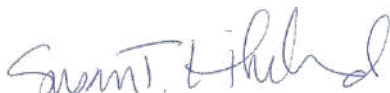


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Susan T. Litherland, P.E.
Principal

Texas P.E. No. 57428, F-15202
Signed electronically on 9/17/2024



APPLICATION FOR DEVELOPMENT PERMIT FOR PROPOSED ENCLOSED STRUCTURE

SQ Environmental, LLC (SQE) prepared this Texas Commission on Environmental Quality (TCEQ) Application for Development Permit for Proposed Enclosed Structure on behalf of Stonehawk Capital Partners, LLC (Applicant) for a portion of the Texas Star Property located at 11450 Trinity Boulevard (Blvd) in Euless, Tarrant County, Texas. The general location of the subject property is shown on **Figure 1** in **Attachment 2**. A more detailed map is provided on **Figure 2** in **Attachment 2**. Tarrant Appraisal District (TAD) parcel No. 03924394 is 12.153 acres (area outlined in orange), and this Application concerns the approximately 7.30-acre western portion of the parcel (area outlined in pink) which is considered the subject property for the purpose of this application. The planned future use of the subject property is for a multi-family residential development.

The entire Texas Star Property (which is the area outlined in orange on **Figure 2** in **Attachment 2** and includes the subject property for this application) is currently enrolled in the TCEQ Voluntary Cleanup Program (VCP). Site Plans presenting the planned residential development layout are included in **Attachment 14**. As shown, residential structures are planned for the subject property, and the small 1.987-acre parcel located adjacent south of the subject property. While this small southern parcel is included in the Site Plan, based on historical aerials and soil borings, no gravel pit digging operations or filling occurred on this southern parcel; therefore, it is not included in this Application (but it is in VCP No. 3237). Additional details are provided in **Section 10**.

A Request for Authorization to Disturb Final Cover Over Closed Municipal Solid Waste (MSW) Landfill for Non-Enclosed Structure (Request) dated 20 December 2023 was submitted separately for the approximately 4.85-acre east-adjacent property (the eastern portion [Texas Star Property – East] of the 12.153-acre tract), where a parking lot and green space associated with the subject property are planned. This is the area outlined in blue on **Figure 2** in **Attachment 2**. This area, identified as “Texas Star Property – East,” was assigned MSW Permit No. 67123. A Request for Authorization to Disturb Final Cover for Non-Enclosed Structure was submitted for the subject property on 8 May 2024 to allow for upcoming construction activities in the event that this Development Permit has not yet been issued when work is set to begin. As discussed in this Application, a Vapor Mitigation System (VMS) is planned for the subject property. A summary of the three properties that comprise the larger Texas Star Property is provided below, and the boundaries are shown on **Figure 2** in **Attachment 2**.

Property Designation in this Permit Application	Portion of the larger 12.153-acre tract	Planned Use	MSW Application Form
“Subject Property”	Western portion, approx. 7.30 acres (pink boundary on Figure 2)	Multi-family residential with structures	This Development Permit for Proposed Enclosed Structure, to address subsurface methane from offsite source
“East-Adjacent Property”	Eastern portion, approx. 4.85 acres (blue boundary on Figure 2)	Parking lot & green space associated with the subject property	Previously submitted Request for Authorization to Disturb Final Cover Over Closed MSW Landfill dated 12/20/23
Southern Property	Southern parcel, approx. 1.987 acres	Multi-family residential with structures.	Not applicable; no MSW present. No evidence of historical gravel pits in this area.

The entire Texas Star Property is currently enrolled in the VCP. Soil and groundwater assessment activities were completed at the property under the VCP, and no impacts to soil or groundwater were identified on the subject property above TCEQ Protective Concentration Levels (PCLs), with the exception of benzene in one isolated groundwater sample, discussed below. Methane is present beneath the subject property, confined at depths of approximately 12 feet (ft) below ground surface (bgs).

BACKGROUND

Based on available information, the subject property appeared to be used for agricultural purposes from approximately 1942 to 1950. By the late 1960s, the eastern portion of the subject property was used as a gravel pit, in addition to the surrounding properties. Gravel pit operations appear to have ceased around the mid-1980s and the pits were backfilled. Hancock Contracting, an earth-moving or construction company, appears to have operated on the subject property from at least 1988 to the late 2000s.

The area of the subject property is located in the Quaternary Fluvial Terrace Deposits (Qt), which are comprised of gravel and sand. It was common for these deposits to be mined for gravel, and numerous gravel pits were identified in the area of the subject property on the historical topographic maps from the 1960s to the 1980s and are visible in aerial photographs. Minor amounts of incidental debris (glass, bricks, concrete, rebar, and asphalt) were observed in shallow soil borings and test pits completed on the subject property at depths between approximately 5 ft and 20 ft bgs. Based on the soil boring observations and site history, it does not appear that the subject property was ever operated as a "landfill" (e.g., did not purposefully accept refuse and trash for landfilling), but rather these incidental materials were brought in with soil that was being used to backfill the property after the gravel pit operations ceased.

The area surrounding the subject property is currently a mix of residential and commercial/industrial properties. Earth Haulers, an excavation / material distribution company, is located adjacent south of the subject property. Based on historical aerial photographs, the area of the onsite gravel pit operations and subsequent backfilling extends beyond the subject property, particularly to the southeast, where Earth Haulers has operated since at least 1992, and portions of the eastern parcel. During a routine investigation in January 2007, a TCEQ Regional Investigator determined that Earth Haulers failed to prevent the unauthorized disposal of MSW on the property, specifically 40,217 cubic yards (yd³) of mulch, debris, and cut wooden logs, in addition to approximately thirty 55-gallon drums of unknown liquid. In December 2009, an Agreed Order (No. 2007-0471-MSW-E) was issued between Earth Haulers and TCEQ that stated Earth Haulers would cease accepting additional waste, remove all accumulated materials from the property, and submit a Notice of Intent (NOI) to operate a recycling facility to the MSW Permits Section. Earth Haulers currently operates under MSW Non-Permitted ID No. 100117. Based on the available information, it appears that this property is the source of the majority of the subsurface methane that has been identified on the Texas Star Property. Based on the types of debris observed (glass, bricks, concrete, rebar, and asphalt), the low percentage of debris relative to the fill dirt, and the lack of vegetation or wood, it is highly unlikely that the debris present is generating significant amounts of methane and could the debris that has been observed on the subject property could not be responsible for generating the methane observed deeper than 10 ft bgs within portions of the subject property.

SQE completed a Phase I Environmental Site Assessment (ESA) for the Texas Star Property (subject property and east-adjacent property) dated 4 February 2022, and a Limited Phase II ESA dated 13 July 2022. As discussed above, the Texas Star Property was enrolled (as one tract which also includes the 1.987-acre southwest-adjacent parcel) into the VCP in August 2022 and assigned VCP No. 3237.

SUBJECT PROPERTY ASSESSMENT ACTIVITIES AND RESULTS

Following enrollment into the VCP, additional assessment activities were conducted, and an Affected Property Assessment Report (APAR) was submitted to TCEQ on 31 August 2023. The assessment activities summarized below were conducted on the subject property (northwestern portion of the Texas Star Property) to investigate potential sources on the subject property and on adjacent properties. The sample locations are shown on **Figure 3** in **Attachment 2**.

- Thirty soil borings were completed to depths of up to 35 ft bgs on the subject property. Twenty soil samples were collected and submitted to the laboratory for analysis of total petroleum hydrocarbons (TPH), Resource Conservation and Recovery Act (RCRA) 8 metals, and/or volatile organic compounds (VOCs).
- Three permanent groundwater monitoring wells (MW-1, MW-4, and MW-6) were installed on the subject property to total depths ranging from 30 to 35 ft bgs. Wells MW-1 and MW-6 were installed in general upgradient locations on the property and MW-4 in a general downgradient location. Two monitoring wells (MW-3 and MW-5) were installed on the east-adjacent property in downgradient locations, and well MW-2 was installed on the southwest-adjacent property in a cross-gradient location. Four groundwater monitoring/sampling events were conducted, and groundwater samples were analyzed for TPH, RCRA 8 metals, and/or VOCs.
- Sixteen soil vapor sample points were completed on the subject property to depths ranging from 5 to 12 ft bgs, and 16 soil vapor samples were collected for analysis of VOCs and/or methane.
- Six geotechnical soil borings (B-01, B-02, PB-02 through PB-05) and four soil test pits (TP-01 through TP-03 and TP-09) were completed on the subject property as part of geotechnical activities.

The analytical results of the samples were compared to the TCEQ Texas Risk Reduction Program (TRRP) PCLs for residential property use and the Texas-Specific Background Concentrations, published in the TRRP Rules (30 TAC §350). The reported soil vapor concentrations were evaluated using “Comparison Values” based on the Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response (OSWER) guidance document.

A summary of the subject property sample results is provided below. Additional details are provided in **Section 10**, including data summary tables and figures from the APAR. It should be noted that some of the samples on the maps and tables were collected from the eastern portion of the Texas Star Property and are not applicable to this Application. As discussed above, a separate Request dated 20 December 2023 was submitted for the east-adjacent property (eastern portion of the Texas Star Property).

- Soil Samples – No concentrations of TPH, metals, or VOC constituents were reported above applicable residential PCLs in soil samples collected from the subject property. A data summary table of soil sample analytical results is provided in **Attachment 10C**.
- Groundwater Samples – No concentrations of TPH, metals, or VOC constituents were reported above applicable residential PCLs in groundwater samples collected from the subject property, with the exception of benzene in one sample collected from well MW-1 in June 2022. The benzene concentration of 0.0945 milligrams per liter (mg/L) in well MW-1 during the June 2022 sampling event was reported above the residential PCL of 0.005 mg/L. Benzene was not detected above the laboratory sample detection limit (SDL) in the groundwater samples collected from well MW-1 during the previous two sampling events in February and March 2022 or the following sampling event in December 2023. Additionally, benzene was not detected above the SDL in any other

groundwater samples collected from any wells during any other sampling event at the subject property and east-adjacent property. Based on this data, the detection of benzene in one isolated sample does not appear to be indicative of impacts to shallow groundwater on the subject property with this compound. A data summary table of groundwater sample analytical results is provided in **Attachment 10C**.

- **Lithology** – Based on boring logs completed on the subject property, shallow lithology is comprised of silty clays, sands, and gravels (i.e., alluvium) encountered from the ground surface to the maximum total depth (35 ft bgs). The upper 10 ft of soil at the subject property is comprised primarily of sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. A clay confining unit was observed at 34 ft bgs on the eastern portion of the Texas Star Property. Incidental debris within the soil borings was typically encountered between 5 and 20 ft bgs on the subject property. A cross-section is provided as **Figure 5** in **Attachment 7**. Boring logs are included in **Attachment 10C**.
- **NAPL** – No light or dense non-aqueous phase liquid (NAPL) was observed in any of the monitoring wells during the four groundwater monitoring events.
- **Groundwater Gradient** – The shallow groundwater flow direction is to the east-southeast, and the gradient is very flat, as shown on the potentiometric surface maps included as **Figures 6** and **7** in **Attachment 7**. Groundwater level measurements are provided in a data summary table in **Attachment 10C**.
- **GWBU** – The uppermost groundwater bearing unit (GWBU) on the subject property was encountered at a depth of approximately 24 to 30 ft bgs. A topographic map is provided as **Figure 4** in **Attachment 2**.
- **Soil Vapor and Methane Samples** – There were no VOC concentration exceedances of the “Comparison Values” in the soil vapor samples collected on the subject property, with the exception of chlorobenzene in one sample (SV-1 collected at 12 ft bgs) at a concentration of 2.0 milligrams per cubic meter (mg/m³). The Comparison Value for chlorobenzene is 1.7 mg/m³. As discussed in this Application, a VMS is planned beneath all enclosed structures on the subject property.

A total of 16 soil vapor samples have been collected from the subject property; four of the samples were collected from a depth of 5 ft bgs and 12 were collected from a depth of 12 ft bgs. These samples were analyzed for VOCs and methane. The methane concentrations in the four 5 ft samples ranged from 0.00042% (SV-A-S) to 0.0091% (SV-1-S). Soil vapor samples collected from seven of the 12 locations at 12 ft bgs also did not contain methane concentrations above 1%. Methane was reported at a concentration above 1% in five of the 12-ft deep soil vapor samples collected from the subject property (SV-1, SV-6, SV-10, SV-11, and SV-B-D). The methane concentrations for these 12-ft samples were between 2.5% and 12%. The elevated methane concentrations appear to be confined to the deeper zone below 10 ft, and do not appear to be migrating vertically to shallow soils or the surface at concentrations above 0.009%. The upper 10 ft of soil at the subject property is comprised primarily of sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. Methane concentrations are delineated to the north, south, east, and west, with the exception of the southeast corner of the subject property. The elevated methane concentrations extend onto the east-adjacent property (eastern portion of Texas Star Property) and onto the property adjacent south, which is the Earth Haulers property. As discussed above, the Earth Haulers property entered into an Agreed Order with TCEQ regarding the unauthorized disposal of approximately 40,000 yd³ of mulch, debris, and cut wooden logs. The Earth Haulers property is thought to be the source of methane on the subject property. Additional

details are provided in **Section 10**. Methane concentration data is shown on **Figure 8** in **Attachment 7**. A data summary table of soil vapor sample analytical results is provided in **Attachment 10C**.

- **Geotechnical** – Six geotechnical soil borings (B-01, B-02, PB-02 through PB-05) and four soil test pits (TP-01 through TP-03 and TP-09) were completed on the subject property. Natural, undisturbed soils were encountered from ground surface to total depth (25 ft bgs) in borings PB-04 and PB-05. Natural soils consist predominantly of lean clay and clayey sand with sand seams and intermittent gravel. Boring PB-03 encountered existing fill material to a total depth of 15 ft bgs. The fill material observed in boring PB-03 was mostly clay with the exception of some concrete and asphalt pieces. Refusal was encountered at 2 ft bgs in boring PB-02. Test pits TP-01 through TP-03 and TP-09 encountered existing fill material to a depth of 20 ft bgs. In general, all of the observed incidental debris is deeper than 5 ft bgs. Natural soils were encountered below the fill. The existing fill materials generally consisted of mostly soil but minor but varying amounts of concrete, asphalt, metal, pipes, brick, and cables. As shown in the test pit photographs in **Attachment 10A**, no plastic bags, plastic sheets, vegetation and/or other similar waste materials appear to be present in the subsurface of the subject property. There may have been one piece of wood observed in one of the test pits. Geotechnical logs are provided in **Attachments 10A** and **10B**.

SITE PLAN

Based on discussions with the MSW Permits Section, TCEQ MSW is taking the position that the incidental debris found on the subject property meets the definition of a Dumping Area or Closed MSW Landfill, as defined by 30 TAC §330. However, the type of debris (glass, bricks, concrete, and asphalt) and the quantity observed in the subsurface of the subject property would not generate the elevated concentrations of methane reported for some of the deep soil vapor samples collected beneath the subject property. Regardless, we are working through the MSW application process to allow issuance of the VCP Certificate of Completion and residential redevelopment of the property. As has been discussed, a VMS will be installed beneath all enclosed structures on the property to prevent any buildup of methane or other VOCs. A deed notice concerning the presence of the debris on the subject property has been filed in the County records.

A Request for Authorization to Disturb Final Cover for Non-Enclosed Structure was submitted for the subject property on 8 May 2024 to allow for the upcoming site preparation activities.

The planned future use of the subject property is multi-family residential development. Site Plans are included in **Attachment 14**. A VMS will be designed and installed during construction of structures on the subject property. The VMS design plan is provided in **Attachment 9B**. This system will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings and that the concentrations of the vented methane are well below the lower explosive limit (LEL). The VMS will consist of a 2- to 4-inch granular layer which will act as bedding for a series of slotted vent pipes. The vent pipes will be extended through any internal beams to the outside of the structure. The granular layer and vent pipe system will be covered with a plastic layer, which will be sealed at overlaps, and all penetrations. As part of the installation oversight, smoke tests will be performed on the system to verify that it is properly sealed, prior to pouring of the concrete foundations. Some or all of the vent pipes will be fitted with fans so that active venting can be performed if passive venting is not sufficient to prevent the buildup of vapors under the building. In addition to monitoring selected vent pipes, monitoring points within the building will be included in the VMS so that interior locations can be sampled, as needed. Additional details on the VMS are provided in **Sections 9** and **12**.

The planned buildings on the subject property will have at or near grade foundations. No subsurface parking or other subsurface structures are planned. The only excavations that will be performed are for utilities (which will likely be limited to the upper 3 to 4 ft), an elevator pit (which will likely extend no more than about 6 to 8 ft bgs), and a swimming pool. The swimming pool will be located in the courtyard of Building 1. The maximum disturbance depth at the subject property will be no deeper than 10 ft, and likely no deeper than 7 ft. As described, based on the planned construction, the only area where incidental debris might be encountered is in the vicinity of the swimming pool, and possibly the elevator pit. In no case will the excavations exceed to the depths of the elevated methane concentrations (deeper than 10 ft bgs) or the saturated zone (24 to 30 ft bgs). The planned concrete building slab foundations with an underlying VMS, along with the asphalt roadways and parking areas will result in a similar or better impervious "cap" over portions of the subject property where incidental debris is present in the subsurface.

As discussed above, groundwater on the subject property has been sampled during four events from the three onsite monitoring wells (and three monitoring wells on other areas of the Texas Star property), and no impacts have been identified. Twenty soil samples have been collected from the subject property at depths ranging between 0.5 and 15 ft bgs and no impacts identified. Based on the sampling that has been performed, the incidental debris that has been found in the soil fill at depths of approximately 5 to 20 ft bgs is not a source of contamination. Methane concentrations above 1% have been demonstrated to be confined to a depth below 10 ft. Based on this information, no environmental impacts due to the planned development of the subject property during or after construction would be anticipated.

ATTACHMENT I

TCEQ FORM-20785 & FORM-20960



Texas Commission on Environmental Quality

Application for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill

Application Tracking Information

Applicant Name: Stonehawk Capital Partners, LLC

Facility Name: Texas Star Property West

Development Permit Number: 62054

Initial Submission Date: 28 February 2024

Revision Date: 17 September 2024

Use this form to apply for a development permit for proposed enclosed structure over a closed municipal solid waste (MSW) landfill. Rules about use of land over a closed MSW landfill are in [Title 30, Texas Administrative Code](#)¹, Chapter 330, Subchapter T. Instructions for completing this form are provided in form [TCEQ 20785-instr](#)². Include a Core Data Form, available at www.tceq.texas.gov/goto/coredata with the application. If you have questions, contact the Municipal Solid Waste Permits Section by email to [REDACTED] or by phone at 512-239-2335.

If you have an existing enclosed structure, use form [TCEQ-20786](#)³, Registration for Existing Enclosed Structure Over Closed Municipal Solid Waste Landfill. If you are proposing a non-enclosed structure, use form [TCEQ-20787](#)⁴, Authorization to Disturb Final Cover Over Closed Municipal Solid Waste Landfill for Non-Enclosed Structure.

Application Data

1. Application Type

☒ New Development Permit ☐ Revisions of Existing Permit

☐ Transfer of an Existing Permit

If existing Permit, indicate the Permit Number: _____

2. Submission Type

☐ Initial Submission ☒ Notice of Deficiency (NOD) Response

¹ www.tceq.texas.gov/goto/view-30tac

² www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20785-instr.pdf

³ www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20786.pdf

⁴ www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20787.pdf

3. Application Fee

The application fee for a development permit is \$2,500.

☒ Paid by Check

☐ Paid Online

If paid online, ePay Confirmation Number: _____

4. Enrollment in Other TCEQ Programs

Indicate if the site is enrolled in the Voluntary Cleanup Program or other Remediation Program.

☒ Yes ☐ No

If Yes, indicate the program: VCP No. 3237; PST No. 67148; MSW Permit No. 67123 (Pending for East Side)

5. Development Type

Is the development a single-family or double-family home that is not part of a housing subdivision?

☐ Yes ☒ No

If "Yes", the construction is exempt from the development permit requirement.

6. Enclosed Structure Description

Provide a brief description of the proposed enclosed structure for which the development permit is requested.

The planned future use of the subject property is a multi-family residential development that includes four buildings, which are planned to have at or near grade foundations. The total square footage of buildings is 203,526 sqft and the total square footage for pavement is 216,640 sqft. No subsurface parking or other subsurface structures are planned. The only excavations that will be performed are for utilities (which will likely be limited to the upper 3 to 4 ft), an elevator pit (which will likely extend no more than about 6 to 8 ft bgs), and a swimming pool (no deeper than 10 ft bgs). A VMS with methane monitors will be installed for the four buildings to address the elevated methane concentrations in the subsurface, which are confined to 10 ft bgs. Groundwater in the saturated zone (24 to 30 ft bgs) is not impacted.

7. Soil Tests

Size of the property (acres): Approx 7.30

Was the existence of the landfill determined through:

☐ Test I

☐ Test II

☒ Test III

☐ Other. Please describe: _____

If soil tests were performed prior to development in accordance with 30 TAC §330.953, the test results shall be included in this application.

8. Notification of MSW Landfill Determination

If soil tests were used to determine the presence of a closed MSW landfill, provide evidence that the engineer who performed the soil tests has notified the following persons of that determination in accordance with 30 TAC §330.953(d).

- ☒ Each owner and lessee
- ☒ Executive Director
- ☒ Local Government Officials
- ☒ Regional Council of Governments

9. Landfill Permit Status

What is the permit status of the landfill?

- ☐ Active MSW Permit
- ☐ Landfill in Post-Closure Care
- ☐ Revoked MSW Permit
- ☒ Non-Permitted Landfill

If the landfill is still in the post-closure care period subject to an active MSW Permit, this development permit application for proposed enclosed structures shall be accompanied by a Permit Modification application prepared in accordance with 30 TAC §305.70, and by a certification signed by an independent engineer in accordance with 30 TAC §330.957(b)(2).

If the landfill has completed the post-closure care period, but the MSW permit has not been revoked (site affected by an active MSW Permit), a Voluntary Revocation request of the MSW Permit shall be submitted in accordance with 30 TAC §330.465 prior to the submittal of this development permit application for proposed enclosed structures over a closed MSW landfill.

10. Application URL

Enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the box below:

www.tceq.texas.gov/goto/wasteapps

11. Public Place for Copy of Application

Name of the Public Place: Eules Public Library

Physical Address: 201 N Ector Dr

City: Eules County: Tarrant State: TX Zip Code: 76039

Phone Number: 817-685-1480

Normal Operating Hours: 9am to 5pm or 6pm or 8pm

12. Party Responsible for Publishing Notice

Indicate who will be responsible for publishing notice:

☐ Applicant ☒ Consultant

Contact Name: Sam Enis

Title: Principal Project Manager

Email Address: s.enis@sqenv.com

13. Alternative Language Notice

Use the Alternative Language Checklist on Public Notice Verification Form TCEQ-20244-Waste-NAORPM available at www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw_notice.html to determine if an alternative language notice is required.

Is an alternative language notice required for this application?

☒ Yes ☐ No

Indicate the alternative language: Spanish

14. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

15. Permits and Construction Approvals

Mark the following tables to indicate status of other permits or approvals.

Permits and Construction Approvals

Permit or Approval	Received	Pending	Not Applicable
Zoning Approval	X		
Preliminary Subdivision Plan		X	
Final Plat		X	
Fire Inspector's Approval		X	
Building Inspector's Approval on Plans		X	
Water Service Tap		X	
Wastewater Service Tap		X	
On-site Wastewater Disposal System Approval			X

Other Environmental Permits

Other Environmental Permits (list)	Received	Pending

16. General Project Information

Facility Name: Texas Star Property West

SubT Development Permit Number (if available): 62054

Regulated Entity Reference Number (if issued): **RN** 100729763

Street or Physical Address: 11450 Trinity Blvd

City: Euless County: Tarrant State: TX Zip Code: 76040

Phone Number: Vacant/Undeveloped

If Regulated Entity Reference Number has not been issued for the facility, complete a Core Data Form (TCEQ-10400) and submit it with this application.

17. Contact Information

Applicant (Lessee/Project Owner)

Name: Stonehawk Capital Partners, LLC

Customer Reference Number (if issued): **CN** 604539007

Mailing Address: 4550 Travis St, Suite 565

City: Dallas County: Dallas State: TX Zip Code: 75205

Phone Number: 714-679-2919

Email Address: bhopkins@stonehawkcapital.com

If Customer Reference Number has not been issued, complete a Core Data Form (TCEQ-10400) and submit it with this application. List the Applicant as the Customer.

Property Owner

Name: HMH Family Partnership LP

Mailing Address: 1104 Dayton Dr

City: Lantana County: Denton State: TX Zip Code: 76226

Phone Number: 972-672-2053

Email Address: --

If the Property Owner is the same as Applicant, indicate "Same as "Applicant".

Consultant (if applicable)

Firm Name: SQ Environmental, LLC

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-15202

Mailing Address: PO Box 1991

City: Austin County: Travis State: TX Zip Code: 78767

Consultant Name: Susan T. Litherland, P.E.

Phone Number: 512-656-9445

Email Address: s.litherland@sqenv.com

Engineer Who Performed Soil Tests

Firm Name: ECS Southwest, LLP

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-8461

Mailing Address: 2621 White Settlement Rd

City: Fort Worth County: Tarrant State: TX Zip Code: 76107

Engineer Name: Mark Zortman, P.E. (TX No. 99872)

Phone Number: 682-350-2250

Email Address: mzortman@ecslimited.com

18. Other Governmental Entities Information:

Fire Chief, Fire Marshal or Fire Inspector Information

Fire Department Name: Bureau of Fire Prevention
Person's Name: James Davis
Mailing Address: 200 Texas St, Lower Level
City: Fort Worth County: Tarrant State: TX Zip Code: 76102
Phone Number: 817-392-6840
Email Address: Jim.Davis@fortworthtexas.gov

Local Floodplain Authority (if applicable)

Authority Name: City of Fort Worth, Floodplain Management & Regulations
Contact Person's Name: Lauren Prieur
Street or P.O. Box: 200 Texas St, 2nd Floor
City: Fort Worth County: Tarrant State: TX Zip Code: 76102
Phone Number: 817-392-1234
Email Address: lauren.prieur@fortworthtexas.gov

City Mayor Information

City Mayor's Name: Mattie Parker
Office Address: 200 Texas St
City: Fort Worth County: Tarrant State: TX Zip Code: 76102
Phone Number: 817-392-6118
Email Address: mattie.parker@fortworthtexas.gov

City Health Authority Information

Contact Person's Name: Cody Whittenburg
Office Address: 818 Missouri Ave
City: Fort Worth County: Tarrant State: TX Zip Code: 76104
Phone Number: 817-392-5455
Email Address: cody.whittenburg@fortworthtexas.gov

Director of Public WorksDepartment Name: City of Fort Worth, Transportation & Public WorksContact Person's Name: Lauren PrieurOffice Address: 200 Texas St, 2nd FloorCity: Fort Worth County: Tarrant State: TX Zip Code: 76102Phone Number: 817-392-1234Email Address: lauren.prieur@fortworthtexas.gov**Director of Utilities**Utility Name: City of Fort Worth, Water DepartmentContact Person's Name: Christopher HarderOffice Address: 908 Monroe StCity: Fort Worth County: Tarrant State: TX Zip Code: 76102Phone Number: 817-392-4477Email Address: christopher.harder@fortworthtexas.gov**Director of Planning**Agency Name: City of Fort Worth, Planning DivisionContact Person's Name: Eric FladagerOffice Address: 200 Texas St, 3rd FloorCity: Fort Worth County: Tarrant State: TX Zip Code: 76102Phone Number: 817-392-8011Email Address: eric.fladager@fortworthtexas.gov**Building Inspector**Agency Name: City of Fort Worth, Development Services, InspectionsContact Person's Name: D.J. HarrellOffice Address: 200 Texas St, Lower LevelCity: Fort Worth County: Tarrant State: TX Zip Code: 76102Phone Number: 817-392-2222Email Address: d.j.harrell@fortworthtexas.gov**County Judge Information**County Judge's Name: Judge Tim O'HareOffice Address: 100 E Weatherford St, Ste 501City: Fort Worth County: Tarrant State: TX Zip Code: 76196Phone Number: 817-884-1441Email Address: countyjudge@tarrantcountytexas.gov

County Engineer Information

County Engineer's Name: Joseph Jackson
County Engineer's P.E. Registration No.: TX No. 129546
Office Address: 100 E Weatherford St, Ste 401
City: Fort Worth County: Tarrant State: TX Zip Code: 76196
Phone Number: 817-884-1153
Email Address: jjjackson@tarrantcountytexas.gov

County Health Authority

Agency Name: Tarrant County Public Health
Contact Person's Name: Dr. Brian Byrd
Office Address: 1101 S Main St, Ste 2300
City: Fort Worth County: Tarrant State: TX Zip Code: 76104
Phone Number: 817-248-6299
Email Address: bbyrd@tarrantcountytexas.gov

State Representative Information

District Number: 94
State Representative's Name: Rep. Tony Tinderholt
District Office Address: 1000 Ballpark Way, Ste 310
City: Arlington County: Tarrant State: TX Zip Code: 76011
Phone Number: 817-476-2660
Email Address: tony.tinderholt@house.texas.gov

State Senator Information

District Number: 9
State Senator's Name: Sen. Kelly Hancock
District Office Address: 306 W Seventh Street, Ste 508
City: Fort Worth County: Tarrant State: TX Zip Code: 76102
Phone Number: 817-332-1131
Email Address: kelly.hancock@senate.texas.gov

Council of Government (COG)COG Name: North Central Texas Council of GovernmentsCOG Representative's Name: Susan AlvarezCOG Representative's Title: Director, Environment & DevelopmentStreet Address or P.O. Box: Centerpoint II, 616 Six Flags DrCity: Arlington County: Tarrant State: TX Zip Code: 76011Phone Number: 817-695-9211Email Address: salvarez@nctcog.org**Local Government Jurisdiction**

Is the property located within the limits or in the ETJ of any City?

☒ Yes ☐ No

If "Yes" city regulations may apply. Issuance of Development Permit for an Enclosed Structure does not exempt the applicant from complying with city codes and zoning.

Within City Limits of: Fort Worth

Within Extraterritorial Jurisdiction of City of: _____

19. Deed Recordation

☒ Verify that the property owner filed a written notice for record in the real property records in the county where the land is located in accordance with 30 TAC §330.962 stating: (a) the former use of the land; (b) the legal description of the tract of land that contains the closed MSW landfill; (c) notice that restrictions on the development or lease of the land exist in the Texas Health and Safety Code and in MSW rules; and (d) the name of the owner.

☒ A certified copy of the Notice to Real Property Records is included in this application in accordance with 30 TAC §330.957(p).

20. Notice to Buyers, Lessees, and Occupants of the Structure

Did the property owner give written notice to all prospective buyers, lessees and/or occupants of the structure in accordance with 30 TAC §330.963 stating the land's former use as a landfill, and the structural controls in place to minimize potential future danger posed by the closed MSW landfill?

☐ Yes ☒ New Structure Not Yet Constructed

If "Yes" certified copies of the notices shall be submitted to TCEQ in accordance with 30 TAC §330.957(p).

If "New Structure Not Yet Constructed" a draft notice to all prospective buyers, lessees and/or occupants of the proposed structure, and procedures for its implementation upon structure's construction shall be included in this application.

21. Notice of Lease Restrictions on the Property

Is the property leased?

☐ Yes ☒ No

If "Yes", verify that the property owner provided written notice to all prospective lessees of the property in accordance with 30 TAC §330.964 concerning:

☐ (a) what is required to bring the property into compliance with 30 TAC Chapter 330, Subchapter T?

☐ (b) the prohibitions or requirements for future disturbance of the final cover?

☐ A certified copy of the notice is included in the application in accordance with 30 TAC §330.957(p).

Professional Engineer's Certification of No Potential Threat to Public Health or the Environment

The applicant's engineer for this project shall complete one of the following certifications:

"I, _____, Texas PE Number _____, certify that the proposed development is necessary to reduce a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations."

Engineer's seal, with signature and date:

Engineering Firm Name: _____

Texas Board of Professional Engineers and Land Surveyors Firm Number: _____

Or:

" I, Susan T. Litherland, P.E., Texas PE Number 57428, certify that the proposed development will not increase or create a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations."

Engineer's seal, with signature and date:



9/13/24

A handwritten signature in blue ink that reads "Susan T. Litherland".

Engineering Firm Name: SQ Environmental, LLC

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-15202

Signature Page

Applicant Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Brandon Hopkins Title: Director of Construction, Stonehawk

Signature:  Date: 9-16-24

Email Address: bhopkins@stonehawkcapital.com

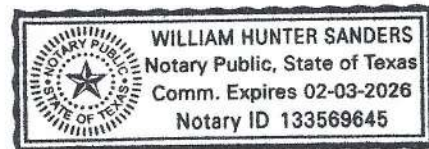
SUBSCRIBED AND SWORN to before me by the said Brandon Hopkins

On this 16th day of September, 2024

My commission expires on the 3rd day of February, 2026

Notary's Name: William Hunter Sanders

Notary Public in and for
Dallas County, Texas



Property Owner Authorization

To be completed by the property owner if the property owner is not the applicant.

I _____, the owner of the property identified by the address _____, hereby authorize the applicant to proceed with the project described in this application, and to apply for any necessary authorizations in order to conduct this project. I understand that, as property owner, I am responsible for maintaining the integrity of the final cover over the closed MSW landfill.

Property Owner Name: _____

Signature: _____ Date: _____

Email Address: _____

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____

My commission expires on the _____ day of _____, _____

Notary's Name: _____

Notary Public in and for
_____ County, Texas

Signature Page

Applicant Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

Email Address: _____

SUBSCRIBED AND SWORN to before me by the said _____

On this ____ day of _____, ____

My commission expires on the ____ day of _____, ____

Notary's Name: _____

Notary Public in and for

_____ County, Texas

Property Owner Authorization

To be completed by the property owner if the property owner is not the applicant.

I HMH Family Partnership LP / Julie Moore, the owner of the property identified by the address 11450 Trinity Boulevard, Euless, TX 76040, hereby authorize the applicant to proceed with the project described in this application, and to apply for any necessary authorizations in order to conduct this project. I understand that, as property owner, I am responsible for maintaining the integrity of the final cover over the closed MSW landfill.

Property Owner Name: HMH Family Partnership LP / Julie Moore

Signature: _____ Date: 9/16/24

Email Address: julie.moore03@verizon.net

SUBSCRIBED AND SWORN to before me by the said Julie Moore

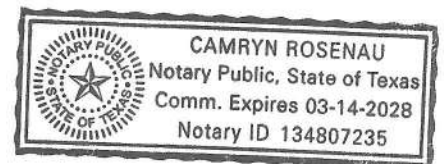
On this 16th day of September, 2024

My commission expires on the 14th day of March, 2028

Notary's Name: Camryn Roseau

Notary Public in and for

Denton County, Texas



Attachments for New Development Permit

Required Attachments

A. Narrative

Attachment	Attachment Number
Proposed Project Description	1
Existing Conditions Summary	2
Legal Authority	3
Evidence of Competency	4
Notice of Engineer Appointment	5
Notices of Coordination with Governmental Agencies and Officials	6
Geology and Soil Statement	7
Groundwater and Surface Water Statement	8
Foundation Plans	9
Soil Tests	10
Closure Plan	11
Structures Gas Monitoring Plan	12
Site Operating Plan	12
Safety and Evacuation Plan	12

B. Maps and Plans

Attachment	Attachment Number
Adjacent Landowners Map	13
Adjacent Landowners List	13
Electronic List or Mailing Labels	13
General Location Map	2
General Topographic Map	2
Site Layout Plan with Limits of Waste Disposal Area	14
Foundation Plans	9
Structure Layout Plan	9
Methane Monitoring Equipment Location Plans	9
Construction Details and Engineering Drawings	9

C. Copies of Legal Documents

Attachment	Attachment Number
Property Legal Description	15
Notice of Landfill Determination	16
Notice to Real Property Records	16
Notices to Buyers, Lessees, and Occupants	17
Notices of Lease Restrictions (if applies)	Not applicable

Additional Attachments as Applicable

Attachment	Attachment Number
<input checked="" type="checkbox"/> TCEQ Core Data Form(s)	18
<input type="checkbox"/> Confidential Documents	
<input checked="" type="checkbox"/> Soil Tests Boring Logs	10
<input checked="" type="checkbox"/> Other maps, plans and engineering drawings	20
<input type="checkbox"/> Methane Monitoring Equipment Specifications	
<input type="checkbox"/> Methane Monitoring Report	
<input type="checkbox"/> Waste Disposal Manifests	
<input checked="" type="checkbox"/> Fee Payment Receipt	19
<input type="checkbox"/> Final Plat Record of Property	

Attachments for Revisions to Existing Development Permit

Required Attachments

A. Revised Pages

Attachment	Attachment Number
Marked (Redline/Strikeout) Pages	A
Unmarked Revised Pages	B

B. Narrative

Attachment	Attachment Number
Description of Proposed Revisions	Cover Letter
Foundation Plans (if revised)	9
Closure Plan (if revised)	11
Site Operating Plan (if revised)	12
Structures Gas Monitoring Plan (if revised)	12
Safety and Evacuation Plan (if revised)	

C. Maps and Plans

Attachment	Attachment Number
General Location Map	
Site Layout Plan	14
Structure Layout Plan	
Methane Monitoring Equipment Location Plans	

Additional Attachments as Applicable

Attachment	Attachment Number



Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

- ☒ New Permit or Registration Application
☐ New Activity - modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

- ☒ Requires public notice,
☐ Considered to have significant public interest, and
☒ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

**If all the above boxes are not checked, a Public Involvement Plan is not necessary.
Stop after Section 2 and submit the form.**

- ☒ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

It does not appear that the subject property was ever operated as a "landfill" (e.g., did not purposefully accept refuse and trash for landfilling), but rather incidental materials (bricks, concrete, rebar, and asphalt) were brought in with soil that was being used to backfill the property after gravel pit operations ceased. As planned, it is unlikely the debris will be disturbed during development. No soil or groundwater impacts have been identified. Subsurface methane concentrations are confined to a depth below 10 feet. A Vapor Mitigation System (VMS) is planned for all enclosed structures. The subject property is vacant land and located in an area of commercial and industrial use. The planned development, with the addition of concrete and asphalt cover and VMS, will improve site conditions of the subject property and add value to the surrounding area.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V
Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)
☐ Texas Land Application Permit (TLAP)
☐ State Only Concentrated Animal Feeding Operation (CAFO)
☐ Water Treatment Plant Residuals Disposal Permit
☐ Class B Biosolids Land Application Permit
☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water
☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water
☐ Add a New or Existing Reservoir
☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☐

City

☐

County

☐

Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☐ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

- ☐ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

- ☐ TCEQ Regional Office ☐ TCEQ Central Office
- ☐ Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

- ☐ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)

1 PROPOSED PROJECT DESCRIPTION

The subject property is currently undeveloped, and the planned future use is for a multi-family residential development. The proposed development extends to a south-adjacent TAD parcel, and the east-adjacent property will support the development as a parking lot and green space. As planned, the development on the subject property is comprised of four multi-family apartment buildings (Buildings 1 through 4) with concrete slab-on-grade foundations. Building 1 will be a four-story apartment structure with a footprint that measures approximately 300 ft by 400 ft including an interior, open-air courtyard that measures approximately 150 ft by 275 ft; Building 2 will be a three-story apartment structure with a footprint that measures approximately 150 ft by 75 ft; and Buildings 3 and 4 will be two-story apartments structures with footprints that measure approximately 150 ft by 75 ft. The total square footage of the buildings is 203,526 square feet (ft²). Asphalt-covered parking lots and landscaped areas will surround the four buildings and cover the majority of the remaining surface area of the subject property. The total square footage for pavement is 216,640 ft². Site Plans are included in **Attachment 14**.

The majority of the incidental debris identified in the subsurface of the subject property is located near the center and the east-central portions of the property. In general, all of the incidental debris is deeper than 5 ft bgs. There is no true "cap" at the surface on the property, although the upper 5 to 10 ft of soil generally does not contain debris and has a higher percentage of clay than the underlying materials.

The planned buildings on the subject property will have at or near grade foundations. No subsurface parking or other subsurface structures are planned. The only excavations that will be performed are for utilities (which will likely be limited to the upper 3 to 4 ft), an elevator pit (which will likely extend no more than about 6 to 8 ft bgs), and a swimming pool. The swimming pool will be located in the courtyard of Building 1. The maximum disturbance depth at the subject property will be no deeper than 10 ft, and likely no deeper than 7 ft. As described, based on the planned construction, the only area where incidental debris might be encountered is in the vicinity of the swimming pool, and possibly the elevator pit. In no case will the excavations exceed to the depths of the elevated methane concentrations (deeper than 10 ft bgs) or the saturated zone (24 to 30 ft bgs).

A VMS will be designed and installed beneath first-floor residential areas. The VMS will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings. As discussed above, the planned concrete building slab foundations with an underlying VMS, along with the asphalt roadways and parking areas will result in a similar or better impervious "cap" over portions of the subject property where incidental debris is present in the subsurface.

No enclosed areas below ground surface to be occupied by people will be constructed on the subject property. It is not anticipated that waste will be encountered during construction. However, minor amounts of incidental debris may be uncovered during construction activities at the subject property. The debris and surrounding soil will be stockpiled on plastic sheeting or loaded directly into 55-gallon drums, trucks, trailers, or containers, and removed from the site for disposal at an appropriate, permitted MSW landfill. Locations where incidental debris is removed will be backfilled with 2-ft of clean, low-plasticity, compacted clay and graded with the surrounding onsite soil to be slightly higher than the existing grade and provide positive drainage. No pilings, borings, or penetrations are planned during development of the subject property. The majority of the subject property will be covered with buildings and asphalt and designed so that surface water quickly exits the property.

It is not anticipated that any stormwater will come into contact with incidental debris on the subject property during construction. However, groundwater on the subject property has been sampled during four events, and no impacts have been identified. There is no indication that groundwater beneath the subject property

is impacted by the debris located above the saturated zone. The debris and groundwater beneath the subject property are not a source of contamination. None of the incidental debris is located at the ground surface, and precautions will be implemented during development of the subject property to prevent excavated material, if any, from coming into contact with stormwater. Any surface water that does come into contact with waste materials will be properly contained, characterized, and disposed of.

If excavation activities result in exposed waste, the exposed waste area will be temporarily covered with clean soil or other materials as soon as practical, but no later than the end of the day. The contractor will provide adequate temporary cover consisting of a minimum of 6 inches of soil or an impermeable membrane material to prevent rainfall from contacting the waste. Temporary diversion berms will be installed around the exposed waste area to prevent stormwater from contacting the waste and will be used upslope of all excavations where waste will be exposed to minimize the amount of surface water coming into contact with waste materials. In addition, temporary containment berms will be constructed around areas of exposed waste to collect surface water. At no time will water that comes into contact with waste materials be allowed to discharge to surface waters. Regarding the management procedures described above, especially the covering of waste and precautions implemented in advance of inclement weather, the generation of water that has made contact with waste materials is expected to be minimal. However, if generated, the water will be collected and disposed of in accordance with standards set forth herein and in accordance with City and State requirements for disposal of such water. Any water generated during construction will be stored onsite, then transported via vacuum truck to an approved wastewater treatment or disposal facility permitted to accept the wastewater.

The stormwater management will include measures to control sediment discharge during construction including, but not be limited to, the use of earthen berms, hay bales, and silt fencing downgradient of slopes which may experience erosion (including material stockpiles). Erosion damage from rainfall events will be repaired by the contractor after such events. All erosion control measures will also be inspected and maintained throughout the redevelopment process. Berms, when used for control of potentially impacted water, will also be maintained as necessary to control erosion. The contractor will pay special attention to erosion on any soil cover over waste materials. Any cover damage to the existing landfill, or in areas where cover must be maintained over solid waste materials that are part of construction, will be repaired immediately and steps taken to prevent a recurrence of that type of damage.

The requirements of §330.453(a), concerning the final cover system, will be implemented for the four elevator pits that are located in Building A. The elevator pits will be over-excavated on all sides on a 4:1 slope. A 2 ft layer of clayey soil with a permeability not greater than 1×10^{-7} cm/sec, compacted in layers no more than 6 inches in thickness, will be placed in the bottom and sides of the elevator pit excavation. The elevator pit will then be covered by the VMS in accordance with §330.957(m). Due to over-excavation, clean fill will be added between the VMS and the concrete slab foundation, where needed. This is shown in **Figure 3** in **Attachment 9**. If the elevator pit does not fit in-between the network of slotted vent pipes for the VMS, then the vent pipes will extend down the sides and bottom of the elevator pit. Methane sensors within the aggregate layer will be placed in or near the elevator pits, in accordance with §330.961(b)(1)(D). The requirements of §330.961(g), concerning the double-containment of subgrade conduits intended for the transport or carrying of fluids over or within the subject property, and §330.331(b), regarding liner criteria for leachate for the swimming pool, will be implemented. Subgrade utility conduits will be installed with double-containment, which will be provided by the single wall utility, that is within a lined trench. On excavation, 2 ft of compacted, clay-rich soil with a permeability not greater than 1×10^{-7} cm/sec will be placed in the base of the trench and a high-density polyethylene (HDPE) 30-mil sealed liner will be installed along the bottom and sides of the trench and sealed. Based on discussions with the project construction contractors, it is not feasible to install 2 ft of compacted clay on the sides of the trenches, as there is no

way to compact the clay horizontally. The conduit for carrying fluids will then be placed above the HDPE liner and clean fill added to the sides. This is shown in **Figure 2** in **Attachment 9**. The HDPE liner will extend approximately 1 ft on top of the trench, be overlapped, and sealed. In accordance with §330.453(a) and (b), 18 inches of compacted clayey soil that is free of waste and 6 inches of topsoil that can support native vegetation will be in place for utility trenches in areas that are not covered by buildings, asphalt, or pavement. The swimming pool excavation will be lined with a HDPE 60-mil sealed geomembrane liner over at least 2 ft of compacted, clay-rich soil with a permeability not greater than 1×10^{-7} cm/sec, followed by clean fill. The area for the pool will be over-excavated on all sides so that the added clay may be compacted on a 4:1 slope. The HDPE liner will be placed over the clay, followed by clean fill that will protect the liner and support the pool shell. The compacted clay and HDPE liner will be installed on a slope up to the base of the pool deck. This is shown in **Figure 1** in **Attachment 9**. The pool location is restricted to the courtyard of Building 1 and will not be placed elsewhere. A quality control plan will be prepared detailing the design, materials, and procedures for construction and testing to meet liner system specifications based on Regulatory Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill (RG-534, September 2017). Construction details, plans, materials to be used, and cross-sections of the elevator pit, utility trench, pool, and the underlying waste down to native soil are provided in **Attachment 9**.

2 EXISTING CONDITIONS SUMMARY

The subject property is the approximately 7.30-acre western portion of a 12.153-acre TAD parcel (Account No. 03924394). Although the subject property is addressed in Euless, Texas, it is located within the Fort Worth City Limits and is governed by the City of Fort Worth. The location of the subject property relative to the City Limits is presented on **Figure 1 in Attachment 2**, and the TAD parcel boundaries are provided on **Figure 2**. The subject property is currently vacant and undeveloped, as shown on **Figure 3 in Attachment 2**. The elevation on the property is approximately 550 ft above mean sea level (MSL), based on the United States Geological Survey (USGS) 2022 Quadrangle, Euless, Texas Sheet. No surface water features were identified on the subject property. The topography is relatively flat and gently slopes to the east across the subject property, as shown on **Figure 4 in Attachment 2**. Stormwater on the subject property generally travels via sheet flow to the east/northeast towards a topographically low area on the east-adjacent property. The subject property was identified within Zone X by the Federal Emergency Management Agency (FEMA), which indicates an area of minimal flood hazard. The West Fork Trinity River is located approximately 1 mile south of the subject property.

Based on boring logs completed on the subject property, the shallow lithology is comprised of silty clays, sands, and gravels (i.e., alluvium) encountered from the ground surface to the maximum total depth (35 ft bgs). The upper 10 ft of soil at the subject property is comprised primarily of sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. A clay confining unit appears to be present below the uppermost GWBU at a depth of approximately 50 ft bgs on the subject property.

Small amounts of incidental debris (glass, bricks, concrete, and asphalt) were observed in the fill soil at depths between approximately 5 and 20 ft bgs. In general, all of the debris is deeper than 5 ft bgs and typically does not extend into the underlying gravel formation. No MSW Permits or other regulatory program identifications have been associated with the subject property. Based on the soil boring observations and site history, it does not appear that the property was ever operated as “landfill” (e.g., did not purposefully accept refuse and trash for landfilling), but rather these incidental materials were brought in with soil that was being used to backfill the property after the gravel pit operations ceased. Hancock Contracting, an earth-moving or construction company, appears to have operated on the subject property from at least 1988 to the late 2000s; this is likely the time period that the backfilling with soil (some of which contained incidental debris) occurred. There is no true “cap” on the property, although the upper 5 to 10 ft of soil generally does not contain debris and has a higher percentage of clay than the underlying materials.

The saturated zone was encountered at a depth of approximately 24 to 30 ft bgs on the subject property. The results of groundwater elevation surveys indicated that the groundwater gradient beneath the subject property is very flat, and to the southeast/east. Based on groundwater samples collected from three onsite monitoring wells during four sampling events, groundwater beneath the subject property is not impacted by the incidental Based on the planned development, the saturated zone will not be encountered during construction of the residential structures.

Methane concentrations in soil vapor samples collected from four locations across the subject property at a depth of 5 ft bgs, and from five locations at 12 ft bgs, were reported well below 1%. Methane was reported at a concentration above 1% in five soil vapor samples from the subject property at a depth of 12 ft bgs. Only the deeper 12 ft bgs soil vapor samples contained methane concentrations above 1%. These elevated methane concentrations appear to be confined to a zone below 10 ft, and methane does not appear to be migrating vertically to the surface due to the higher clay content in the upper 10 ft. Very little surface soil will be disturbed during future construction, and it is unlikely the deeper zone with methane concentrations above 1% will be encountered. Methane concentrations are delineated to the north, south, east, and west, with the exception of the southeast corner of the subject property, which extends to the east-adjacent

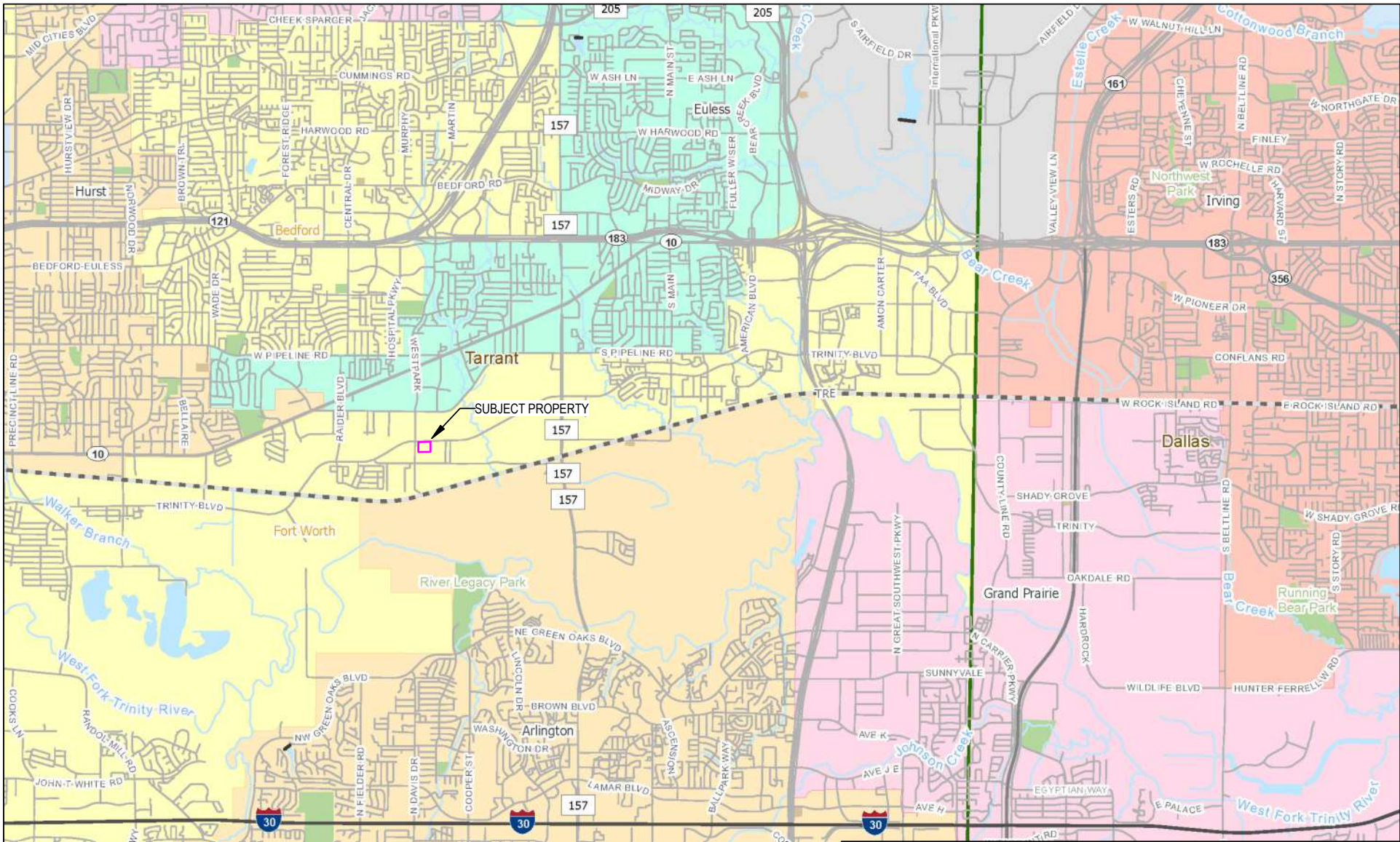
property, where a parking lot associated with the subject property is planned. Based on the available information, it appears that a significant amount (if not all) of the methane present beneath the subject property originated from the significant volume of yard wastes and mulch deposited on the Earth Haulers property adjacent southeast of the subject property. The Earth Haulers property was also used for gravel pit mining during the same time period as the subject property and entered into an Agreed Order with TCEQ due to unauthorized disposal of MSW.

As discussed above, groundwater on the subject property has been sampled during four events and no TPH, metals, or VOC constituent concentrations have been reported above residential PCLs, with the exception of benzene in one (MW-1) of the monitoring wells in one out of four sampling events. The detection of benzene in one isolated sample does not appear to be indicative of impacts to shallow groundwater on the subject property with this compound. Based on this information, the incidental debris that is present above the saturated zone has not resulted in impacts to groundwater. No environmental impacts associated with debris materials or groundwater would be anticipated during or after construction.

The type of debris (glass, bricks, concrete, and asphalt) and the quantity observed in the subsurface of the subject property would not generate the elevated concentrations of methane detected in the zone deeper than 10 ft beneath the surface of the subject property. This Application addresses (at the request of the VCP) the elevated concentrations of methane in the subsurface, which appears to have originated from the offsite Earth Haulers property located adjacent south where the unauthorized disposal of approximately 40,000 yd³ of mulch, debris, and cut wooden logs occurred.

ATTACHMENT 2

FIGURES

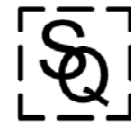


LEGEND

SUBJECT PROPERTY BOUNDARY, APPROXIMATE

SOURCE: TXDOT, TARRANT COUNTY, PAGE 664, 2018

0 3,300 6,600
SCALE IN FEET



SQ Environmental, LLC

FIGURE 1

GENERAL LOCATION MAP

TEXAS STAR PROPERTY - WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

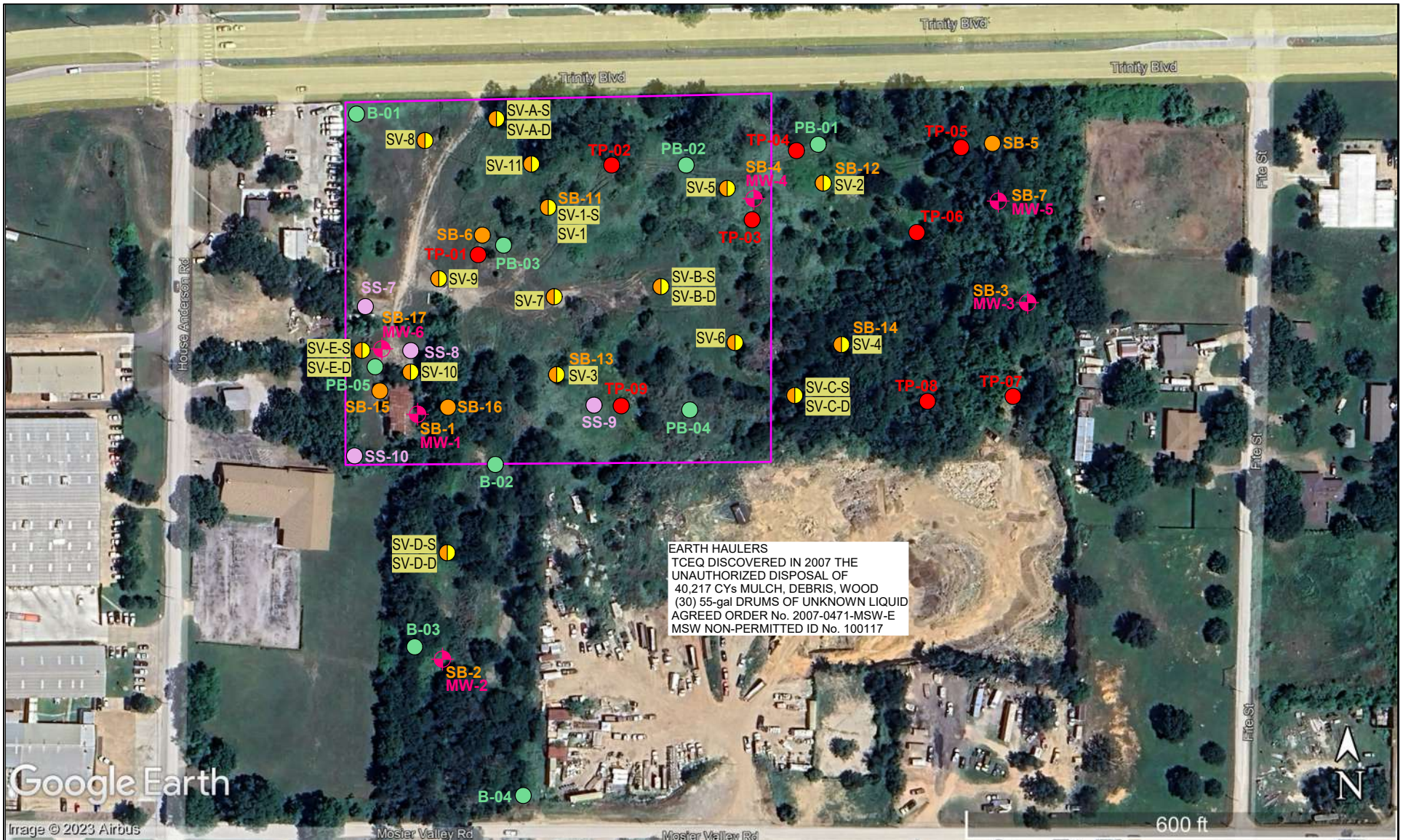
SCALE:
1 IN = 6,600 FT

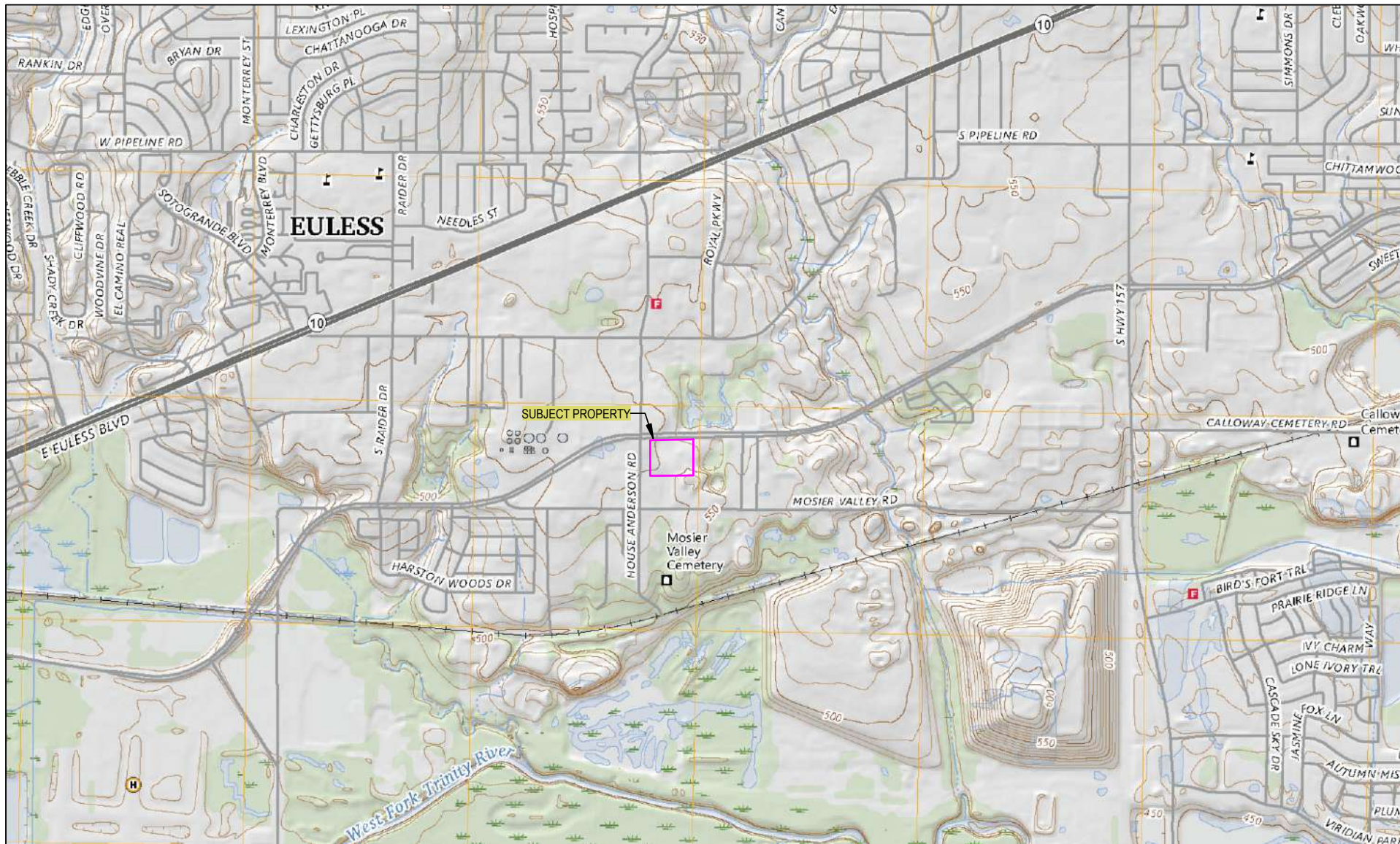
DATE: DEC 2023

PN: 1098.015.003



<div><div>LEGEND</div><div><div><div></div><div>SUBJECT PROPERTY BOUNDARY, APPROXIMATE</div></div><div><div></div><div>EAST-ADJACENT PROPERTY BOUNDARY, APPROXIMATE</div></div><div><div></div><div>TEXAS STAR PROPERTY & VCP No. 3237 BOUNDARY, APPROXIMATE</div></div></div></div>		<div>SOURCE: GOOGLE EARTH IMAGE DATED 5/18/2023</div> <div><div><div></div><div>N</div></div><div><div>0140280</div><div>SCALE IN FEET</div></div></div>		<div><div><div><div></div><div></div></div><div>SQ Environmental, LLC</div></div><div>SCALE: 1 IN = 280 FT</div></div>		<div><div><div>FIGURE 2</div><div>GENERAL LAYOUT MAP</div><div>TEXAS STAR PROPERTY - WEST 11450 TRINITY BLVD EULESS, TEXAS 76040</div></div><div><div>DATE: DEC 2023</div><div>PN: 1098.015.003</div></div></div>	
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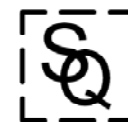


LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- ~ 10-FT TOPOGRAPHIC CONTOUR INTERVAL (FT ABOVE MEAN SEA LEVEL)

SOURCE: USGS 2022 QUADRANGLES EULESS & HURST TX

0 1,000 2,000
SCALE IN FEET



SQ Environmental, LLC

SCALE: 1 IN = 2,000 FT

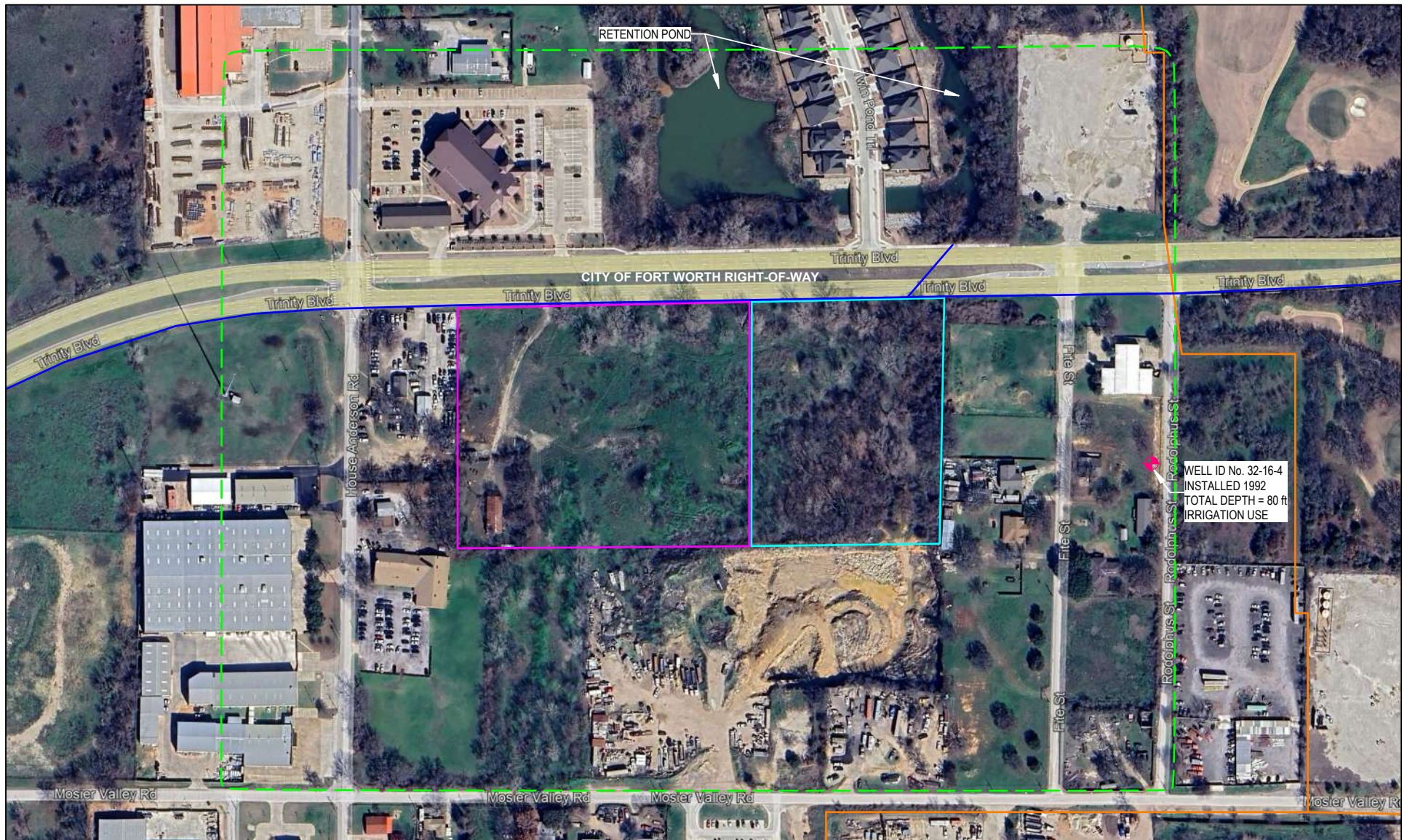
FIGURE 4

GENERAL TOPOGRAPHIC MAP

TEXAS STAR PROPERTY - WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

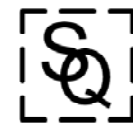
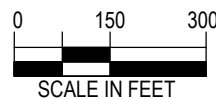
DATE: DEC 2023

PN: 1098.015.003

**LEGEND**

- TEXAS STAR PROPERTY WEST BOUNDARY
- TEXAS STAR PROPERTY EAST BOUNDARY
- 500-ft RADIUS
- UNDERGROUND NATURAL GAS PIPELINE
- UNDERGROUND CITY STORMWATER UTILITY

SOURCE: GOOGLE EARTH IMAGE DATED 2/17/2024

**SQ Environmental, LLC**SCALE:
1 IN = 300 FT**FIGURE 5****GENERAL REQUIREMENTS MAP**

TEXAS STAR PROPERTY WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: JUL 2024

PN: 1098.015.003

NOTE: NO SCHOOLS, LICENSED DAYCARES, HOSPITALS, OR OTHER HEALTHCARE FACILITIES ARE LOCATED WITHIN 1,000 ft OF THE PROPERTY.

3 LEGAL AUTHORITY

The filing Certificate of Formation for Stonehawk Capital Partners, LLC, issued by the Texas Secretary of State, is provided as **Attachment 3**.

ATTACHMENT 3

CERTIFICATE OF FILING ISSUED BY THE TEXAS

SECRETARY OF STATE



Office of the Secretary of State

CERTIFICATE OF FILING OF

StoneHawk Capital Partners LLC
File Number: 801757516

The undersigned, as Secretary of State of Texas, hereby certifies that a Certificate of Formation for the above named Domestic Limited Liability Company (LLC) has been received in this office and has been found to conform to the applicable provisions of law.

ACCORDINGLY, the undersigned, as Secretary of State, and by virtue of the authority vested in the secretary by law, hereby issues this certificate evidencing filing effective on the date shown below.

The issuance of this certificate does not authorize the use of a name in this state in violation of the rights of another under the federal Trademark Act of 1946, the Texas trademark law, the Assumed Business or Professional Name Act, or the common law.

Dated: 03/27/2013

Effective: 03/27/2013



A handwritten signature in black ink, appearing to read "John Steen".

John Steen
Secretary of State

4 EVIDENCE OF COMPETENCY

The names of the project principals and supervisors of the Applicant's organization for the Texas Star Property development are provided below.

- Brian Woidneck, Principal, Stonehawk Capital Partners, LLC.
- Brandon Hopkins, Director of Construction, Stonehawk Capital Partners, LLC.

5 NOTICE OF ENGINEER APPOINTMENT

The Notice of Appointment Letter identifying the Applicant's engineer is provided as **Attachment 5**.

ATTACHMENT 5

NOTICE OF ENGINEER APPOINTMENT

21 February 2024

Municipal Solid Waste Permits – MC 124
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Notice of Engineer Appointment
Texas Star Property – West
11450 Trinity Boulevard, Euless, Tarrant County, Texas
VCP No.: 3237; RN100729763 | CN604914119

Dear Sir/Madame:


This is to advise the TCEQ that Stonehawk Capital Partners LLC (Stonehawk) has duly appointed SQ Environmental LLC (SQE) as consulting engineers for the purpose of submitting design and planning material for a Subchapter T Development Permit Application for the western portion of the Texas Star Property located at 11450 Trinity Boulevard (Blvd) in Euless, Tarrant County, Texas. SQE is an engineering firm employing professional engineers in good standing in accordance with State statutes, and the firm has experience in the design and construction of Vapor Mitigation Systems and monitoring. Ms. Susan T. Litherland, P.E. of SQE is the engineer of record for this application.

Stonehawk hereby authorizes TCEQ to review and comment on such reports, planning material, and data on this project as SQE may submit to you.

By: Brian Woidneck, Principal
Stonehawk Capital Partners LLC



Signature



Date

6 NOTICE OF COORDINATION

Coordination with the applicable local, state, and federal government officials and agencies is currently being conducted in preparation for site development. Documentation of the Notice of Coordination letters sent to the Governmental Entities listed in Item 18 of Form TCEQ-20785 is provided in **Attachment 6**. A notification regarding the landfill status of the property has been provided to the City of Fort Worth, Development Services among others. Copies of the Notices of Landfill Determination and delivery receipts are provided in **Section 16**.

ATTACHMENT 6

NOTICES OF COORDINATION



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: James Davis
Bureau of Fire Prevention
City Hall, Lower Level
200 Texas St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Davis:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

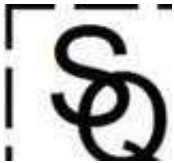
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:47 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Bureau of Fire Prevention 20240719.pdf

Mr. Davis,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Lauren Prieur
Floodplain Management & Regulations, Transportation & Public Works
City Hall, 2nd Floor
200 Texas St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Ms. Prieur:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

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Sincerely,
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Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

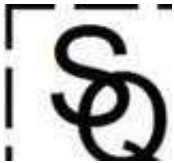
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:49 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Floodplain & Public Works 20240719.pdf

Ms. Prieur,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Mattie Parker
Mayor's Office
City Hall
200 Texas St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Ms. Parker:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

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Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

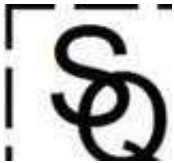
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:50 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Mayor's Office 20240719.pdf

Ms. Parker,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Cody Whittenburg
Environmental Services Department
818 Missouri Ave
Fort Worth, Texas 76104

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Whittenburg:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

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Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

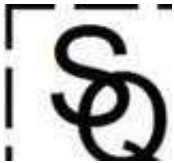
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:51 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West City Health 20240719.pdf

Mr. Whittenburg,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Christopher Harder
Water Department
908 Monroe St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Harder:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

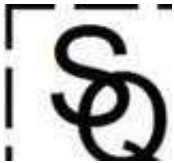
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:53 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Utilities 20240719.pdf

Mr. Harder,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Eric Fladager
Planning Division
City Hall, 3rd Floor
200 Texas St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Fladager:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

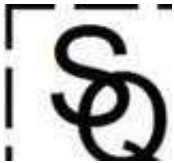
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:54 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Planning 20240719.pdf

Mr. Fladager,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: D.J. Harrell
Development Services, Inspections
City Hall, Lower Level
200 Texas St
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Harrell:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:55 PM
To: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West Bldg Inspector 20240719.pdf

Mr. Harrell,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Judge Tim O'Hare
Tarrant County Court
100 E Weatherford St, Ste 501
Fort Worth, Texas 76196

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Judge O'Hare:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

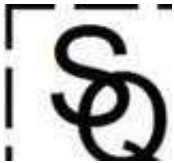
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:56 PM
To: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West County Judge 20240719.pdf

Judge O'Hare,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Joseph Jackson, P.E.
Tarrant County Engineering Division
100 E Weatherford St, Ste 401
Fort Worth, Texas 76196

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Mr. Jackson:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

This letter serves as notification to you that project development will be coordinated through your agency or organization, if required. Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

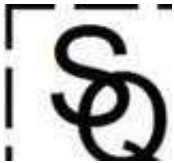
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:57 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West County Engineering 20240719.pdf

Mr. Jackson,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Dr. Brian Byrd
Tarrant County Public Health
1101 S Main St, Ste 2300
Fort Worth, Texas 76104

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Dr. Byrd:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

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Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

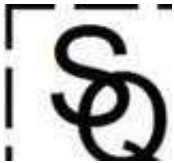
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:58 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Notice of Coordination for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West County Health 20240719.pdf

Dr. Boyd,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Rep. Tony Tinderholt
State Representative, District 94
1000 Ballpark Way, Ste 310
Arlington, Texas 76011

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Rep. Tinderholt:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

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Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

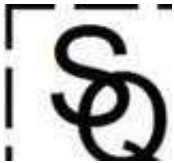
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 12:59 PM
To: [REDACTED]
Cc: [REDACTED]
[REDACTED] for Development Permit for Proposed Enclosed Structure Over
Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West State Representative 20240719.pdf

Rep. Tinderholt,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Sen. Kelly Hancock
State Senator, District 9
306 W Seventh Street, Ste 508
Fort Worth, Texas 76102

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Sen. Hancock:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

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Sincerely,
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Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

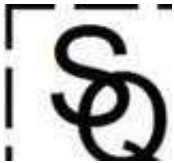
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 1:00 PM
To: [REDACTED]
Cc: [REDACTED]
[REDACTED] for Development Permit for Proposed Enclosed Structure Over
Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West State Senator 20240719.pdf

Sen. Hancock,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

19 July 2024

Attn: Susan Alvarez
North Central Texas Council of Governments
Centerpoint II, 616 Six Flags Dr
Arlington, Texas 76011

Via E-Mail: [REDACTED]

RE: Notification of Coordination
Texas Star Property West, 11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
MSW Authorization No. 62054; VCP No. 3237; RN100729763; CN604539007
SQE PN: 1098.015.003

Dear Ms. Alvarez:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.957(g).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960 Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills) for a proposed development that includes four residential buildings.

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Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, P.E., SQ Environmental LLC

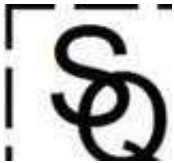
Clint Weaver

From: Clint Weaver [REDACTED]
Sent: Friday, July 19, 2024 1:01 PM
To: [REDACTED]
[REDACTED] for Development Permit for Proposed Enclosed Structure Over
Closed Municipal Solid Waste Landfill
Attachments: Notice of Coordination TX Star West NCTCG 20240719.pdf

Ms. Alvarez,

In accordance with Texas Commission on Environmental Quality (TCEQ) and Texas Administrative Code (TAC) §330.957(g), and on behalf of Stonehawk Capital Partners LLC, SQ Environmental LLC has prepared the attached letter for Notice of Coordination with all local, state, and federal government officials and agencies on the use of land over a closed municipal solid waste landfill. If you have any questions, please do not hesitate to contact me.

Thank you,



Clint Weaver, P.G.
SQ Environmental, LLC
[REDACTED]
(806) 773-9326

7 GENERAL GEOLOGY STATEMENT

According to the USGS Geologic Atlas of Tarrant County, the shallow lithology in the area of the subject property consists of Quaternary alluvial deposits (Qt), underlain by the Woodbine Formation (Kwb), which consists of fine-grained sandstone interbedded with clay and shale with thicknesses ranging between 175 to 250 ft. The alluvial deposits range in thickness from 10 to 100 ft and consist of clay and sand layers with zones of increased silt and gravel. Groundwater from the alluvial deposits does not appear to be considered a source of usable water in the area.

The United States Department of Agriculture (USDA) Soil Conservation Service classifies the dominant soil component on the subject property as Arens, loamy (ArA), a sandy clay loam up to 60 inches in depth with a moderate infiltration rate. The southwestern portion of the subject property is characterized by Bastil fine sandy loam (BfB) which is comprised of fine sandy loam 15 inches in depth, followed by sandy clay loam up to 80 inches deep.

Based on boring logs completed on the subject property, the shallow lithology is comprised of silty clays, sands, and gravels (i.e., alluvium) encountered from the ground surface to the maximum total depth (35 ft bgs). The upper 10 ft of soil at the subject property is comprised primarily of sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. This layer appears to act as a confining layer for the underlying methane. A cross-section is provided as **Figure 5 in Attachment 7**. A lower clay confining unit was observed at a depth of approximately 34 ft bgs in monitoring well borings on the east-adjacent property and is thought to extend beneath the subject property.

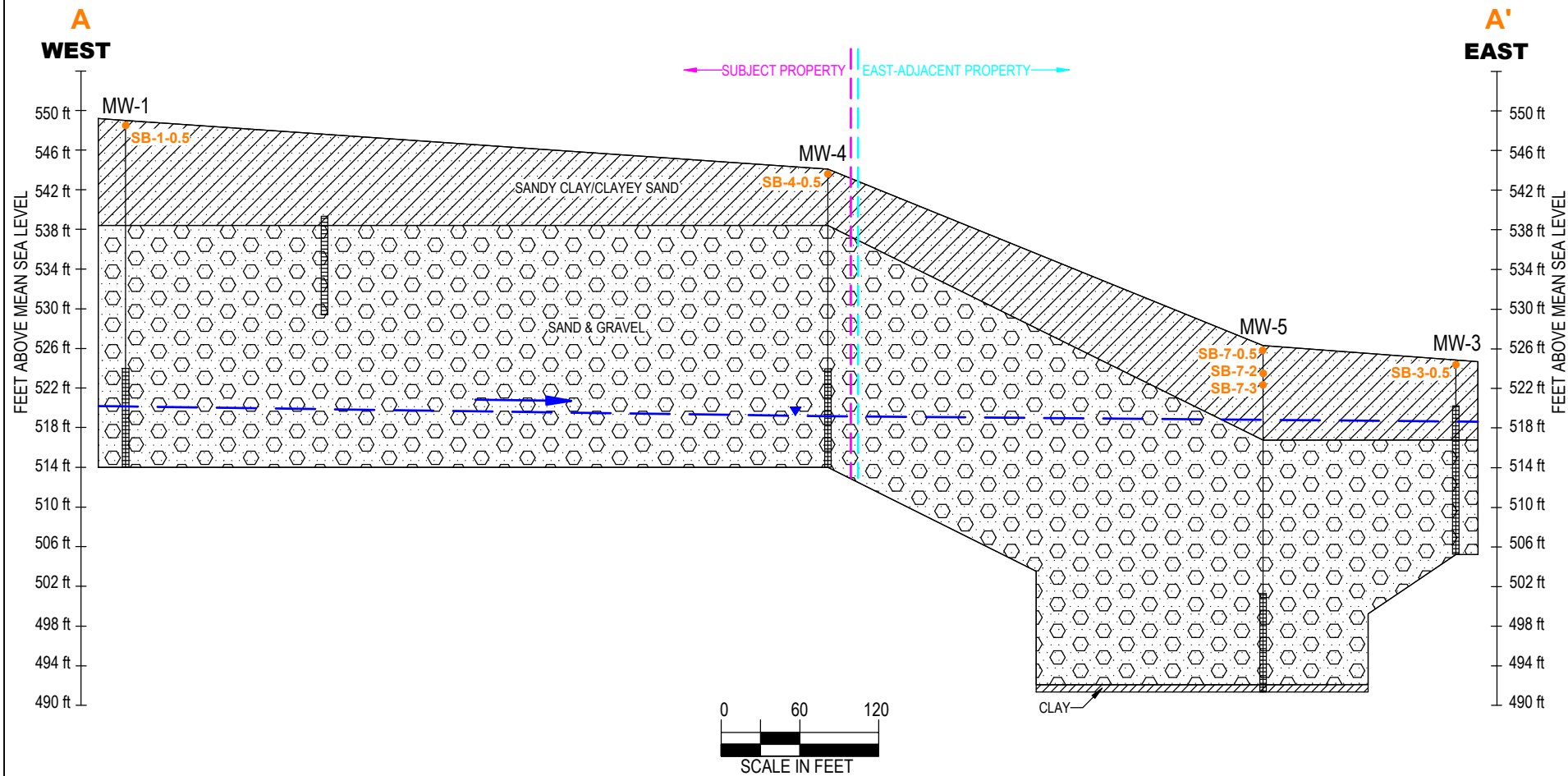
The saturated zone was encountered at a depth of approximately 24 to 30 ft bgs on the subject property. The results of groundwater elevation surveys indicated that the groundwater gradient beneath the subject property is very flat, and to the southeast/east, as shown on the potentiometric surface maps included as **Figures 6 and 7 in Attachment 7**. Based on groundwater samples collected from three onsite monitoring wells during four sampling events, groundwater beneath the subject property is not impacted by the debris located above the saturated zone. As discussed in **Section 2**, the debris that is present above the saturated zone has not resulted in impacts to groundwater. No environmental impacts associated with debris materials or groundwater would be anticipated during or after construction. It is unlikely that the saturated zone will be encountered during future construction.

As discussed in **Section 2**, the methane concentrations above 1% appear to be confined to the zone deeper than 10 ft, and do not appear to be currently migrating vertically to the surface due to the higher clay content in the upper 10 ft. Methane concentration data is shown on **Figure 8 in Attachment 7**. Very little surface soil will be disturbed during future construction, and it is unlikely the deeper zone with methane concentrations above 1% will be encountered. Methane concentrations are delineated to the north, south, east, and west, with the exception of the southeast corner of the subject property, which extends to the east-adjacent property, where a parking lot associated with the subject property is planned.

As demonstrated by multiple property assessments discussed in this Application, there are no known pathways for leachate and landfill gas migration. Regardless, a VMS will be designed and installed during construction of structures on the subject property, which will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings.

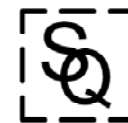
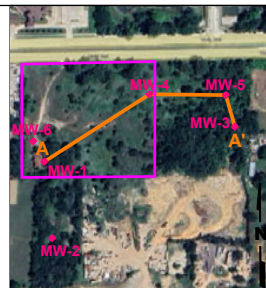
ATTACHMENT 7

FIGURES



LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- MONITORING WELL & SOIL BORING LOCATION
- SOIL SAMPLE
- GROUNDWATER POTENTIOMETRIC SURFACE
- GROUNDWATER FLOW DIRECTION



SQ Environmental, LLC

SCALE: AS SHOWN

FIGURE 5

CROSS-SECTION A-A'

TEXAS STAR PROPERTY - EAST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: DEC 2023

PN: 1098.015.003

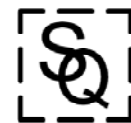
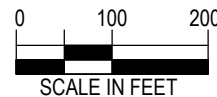


LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- ⊕ MONITORING WELL & SOIL BORING LOCATION
- GROUNDWATER FLOW DIRECTION
- ~ GROUNDWATER POTENTIOMETRIC SURFACE
- 520.25' GROUNDWATER ELEVATION (FT AMSL)

NOTE:
GROUNDWATER MEASUREMENTS COLLECTED 2/2/2022

SOURCE: GOOGLE EARTH IMAGE DATED 5/18/2023



SQ Environmental, LLC

SCALE: 1 IN = 200 FT

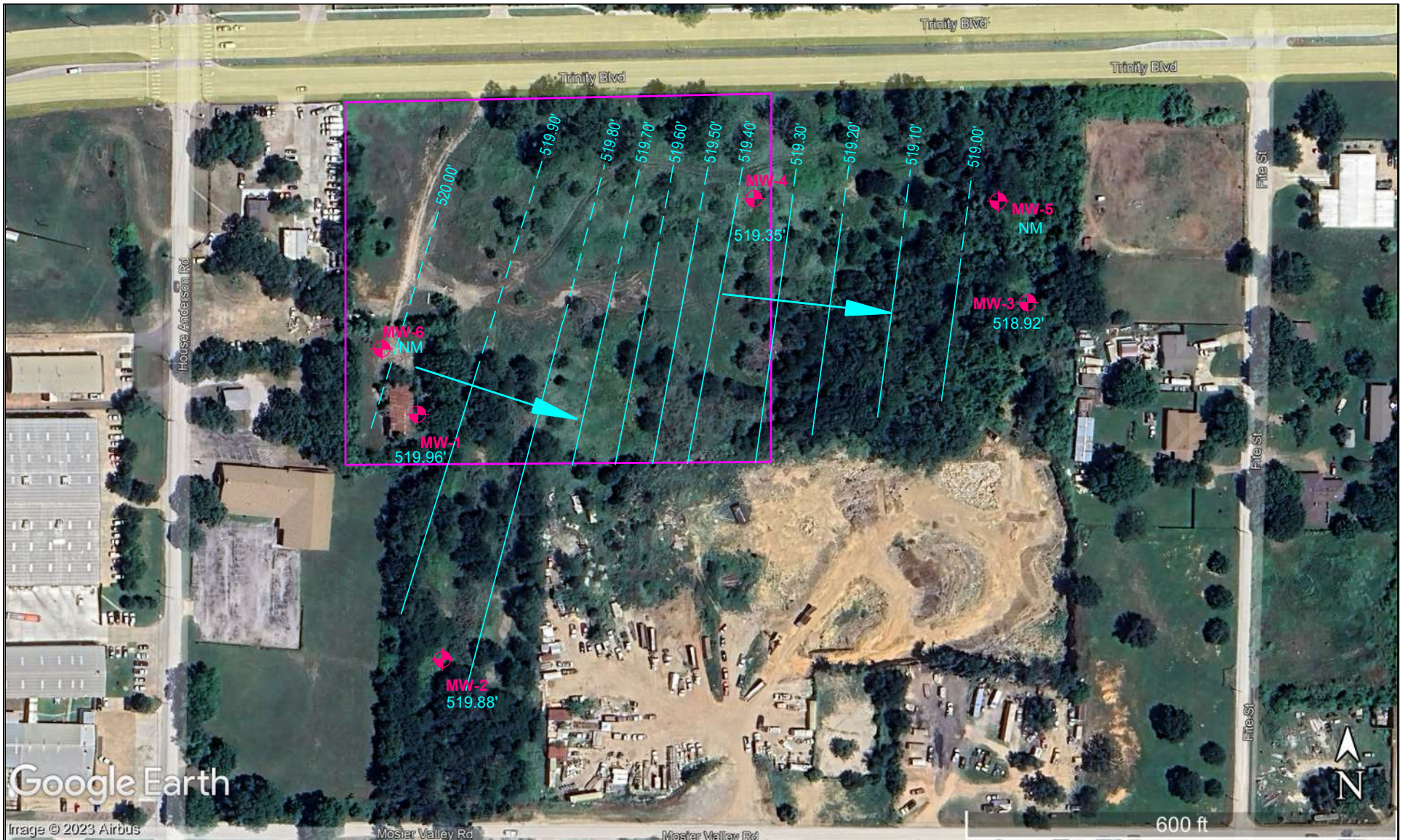
FIGURE 6

FEBRUARY 2022 GROUNDWATER GRADIENT MAP

TEXAS STAR PROPERTY - WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: DEC 2023

PN: 1098.015.003

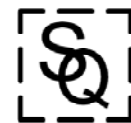
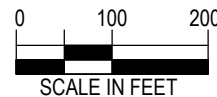


LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- ⊕ MONITORING WELL & SOIL BORING LOCATION
- GROUNDWATER FLOW DIRECTION
- GROUNDWATER POTENTIOMETRIC SURFACE
- 520.25' GROUNDWATER ELEVATION (FT AMSL)

NOTE:
GROUNDWATER MEASUREMENTS COLLECTED 6/6/2022

SOURCE: GOOGLE EARTH IMAGE DATED 5/18/2023



SQ Environmental, LLC

SCALE: 1 IN = 200 FT

FIGURE 7

JUNE 2022 GROUNDWATER GRADIENT MAP

TEXAS STAR PROPERTY - WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: DEC 2023

PN: 1098.015.003



<div>LEGEND</div> <div><div><div></div><div>SUBJECT PROPERTY BOUNDARY, APPROXIMATE</div></div><div><div></div><div>SOIL VAPOR SAMPLE LOCATION</div></div><div><div></div><div>METHANE CONCENTRATION >1% ISOCONTOUR (DASHED WHERE INFERRED)</div></div></div> <div>NOTES: YELLOW VALUES SHOWN REPORTED AS PERCENTAGE (%) OF METHANE IN VAPOR SAMPLE. SV-1 THROUGH SV-11 COLLECTED AT 12 FT BGS. SAMPLES LABELED "-S" DESIGNATE SHALLOW & COLLECTED AT 5 FT BGS. SAMPLES LABELED "-D" DESIGNATE DEEP & COLLECTED AT 12 FT BGS. SHALLOW/DEEP SAMPLES COLLECTED AT ADJACENT (<5 FT) LOCATIONS.</div>		<div>SOURCE: GOOGLE EARTH IMAGE DATED 5/18/2023</div> <div><div></div><div>N</div><div>0100200</div><div>SCALE IN FEET</div></div>		<div><div><div></div><div>SQ Environmental, LLC</div></div><div>SCALE: 1 IN = 200 FT</div></div>		<div><div><div>FIGURE 8</div><div>SOIL VAPOR SAMPLE LOCATION & METHANE CONCENTRATION MAP</div><div>TEXAS STAR PROPERTY - WEST 11450 TRINITY BLVD EULESS, TEXAS 76040</div></div><div><div>DATE: DEC 2023</div><div>PN: 1098.015.003</div></div></div>	
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8 GROUNDWATER & SURFACE WATER STATEMENT

No surface water features were identified on the subject property. The topography is relatively flat and gently slopes to the east across the subject property, as shown on **Figure 4** in **Attachment 2**. Stormwater on the subject property generally travels via sheet flow to the east/northeast towards a topographically low area on the east-adjacent property. The subject property was identified within Zone X by FEMA, which indicates an area of minimal flood hazard. The West Fork Trinity River is located approximately 1 mile south of the subject property.

The deepest soil disturbance will occur at the locations of the planned elevator pits and swimming pool. The swimming pool will be located in the courtyard of Building 1, and the maximum disturbance depth will be no deeper than 10 ft, and likely no deeper than 7 ft in this area. Installation of the swimming pool will not extend to depths of the saturated zone (24 to 30 ft bgs). The disturbance depth for the elevator pits will likely extend no more than about 6 to 8 ft bgs. Similarly, subgrade utility lines will not extend to depths of incidental debris (5 ft bgs), elevated methane concentrations (deeper than 10 ft bgs), or the saturated zone (24 to 30 ft bgs).

It is not anticipated that any stormwater will come into contact with incidental debris on the subject property during construction. There is no indication that groundwater beneath the subject property is impacted by the debris located above the saturated zone. None of the incidental debris is located at the ground surface, and precautions will be implemented during development of the subject property to prevent excavated material, if any, from coming into contact with stormwater.

9 FOUNDATION PLANS

A VMS designed in accordance with 30 TAC 330.957(m) will be installed during development and construction of the four buildings on the subject property. The VMS includes an impermeable barrier installed below the concrete slab of the structures, followed by a 12-inch-thick permeable aggregate bed and a geotextile filter fabric, with vent risers located adjacent to the buildings. This system will allow any vapors (methane or other) that migrate through the soil to the area beneath the structures to be vented outside of the structure. The second component is a monitoring system within the VMS piping network beneath the buildings and within the buildings that will include controller units and remote sensors that can detect methane and other explosive gases. This system will have audible and visual alarms. Sample ports for field monitoring will be installed for the aggregate layer. The foundation plan and VMS design plan are included as **Attachment 9**. Geotechnical soil investigation reports are provided as **Attachments 10A** and **10B**. The Methane Monitoring Plan is discussed in **Section 12**. A Liner Quality Control Plan for the pool is provided below.

LINER QUALITY CONTROL PLAN

This Liner Quality Control Plan (LQCP) was developed for the Texas Star Property to describe the inspection and construction control and testing requirements in support of the application. This Plan was prepared in general accordance with *Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill*, TCEQ Regulatory Guidance RG-534 dated September 2017 and is intended to fulfill requirements of 30 Texas Administrative Code 330.

A General Requirements

This LQCP provides the basis for the type and rate of quality control performance testing. A copy will be maintained on site during construction or available for electronic download in the event an inspection is performed. For ease in this document preparation, any components that are not specifically addressed in this document will default to the requirements of *Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill*, TCEQ Regulatory Guidance RG-534.

B Overview of Project

As discussed in this Application, the swimming pool will be located in the courtyard of Building 1. The maximum disturbance depth at the subject property will be no deeper than 10 ft, and likely no deeper than 7 ft. The area of the pool will be over-excavated and sides sloped to allow placement of 2 ft of compacted, clay-rich soil with a permeability not greater than 1×10^{-7} cm/s, with a 60-mil sealed liner. A protective cover of clean fill will overlay the liner. A cross-section of the liner is provided on the figure included as **Attachment 9 Figure 1**.

C Soil Material Requirements

C.1 Protective Topsoil Requirements

Protective cover is required to be placed above the liner system as shown on the cross sections. Topsoil will be free of deleterious materials and not previously mixed with any onsite soils that were previously mixed with garbage, rubbish, or other solid waste materials. Permeability must be greater than 1×10^{-4} cm/s. The thickness must be greater than or equal to 12 inches. Compaction is not necessary for installation and density

controls are not needed; however, the contractor should place the protective topsoil as soon as possible after installation of the liner and compacted clay-rich soil.

Protective topsoil shall be placed over the HPDE liner during the coolest part of the 8-hour workday. Soil shall be deployed along the surface of the liner to control the amount of slack and minimize any damage to the liner. The liner shall be continuously monitored during installation and any damage to the liner immediately repaired. Only light equipment will be used during construction and a minimum of 12 inches of protective material must be placed on top of the liner before light construction equipment can access the area.

Protective topsoil will not have any rocks greater than 0.375 inches in diameter. The Contractor will keep the protective topsoil layer wet during dry periods to prevent cracking.

C.2 Clay-Rich Soil Requirements

Clay-rich soil will meet the following requirements. One sample from each source must be collected before any material is brought onsite. Test methods will generally follow Standard ASTM Test Methods as outlined in Table B-1 of RG-534 and will include field density, gradation analysis, Atterberg limits, and permeability.

<i>Soil Property</i>	<i>Value</i>
Plasticity Index (PI)	≥ 15
Liquid Limit (LL)	≥ 30
Percent Passing No. 200 Mesh Sieve	$\geq 30\%$
Percent Passing One-Inch Sieve	$= 100\%$
Permeability	$\leq 1 \times 10^{-7}$ cm/sec

In-situ soils will not be used for clay-rich soil. The clay-rich soil will be sampled every 1,000 cubic yards for total petroleum hydrocarbons (TPH) by Texas Method 1005 and metals SW-846 Methods to ensure the materials are suitable for use.

Clay-rich soils will be placed in three 8-inch lifts (a total of 3 lifts). Compaction testing will be performed at a frequency of every 1 acre and one per lift (minimum of three locations). The clay-rich soil will be compacted to at least 95% of standard proctor.

C.3 HDPE Liner Requirements

The HDPE Liner must have a minimum of 60 mil thickness. Recycled or reclaimed HDPE materials are not acceptable. HDPE material and required welding rods shall contain between 2 and 3% carbon black and may contain no more than 1% additives.

The liner will be inspected upon delivery for any damage and defects. The liner must be free from any pinholes, surface blemishes, scratches, or other defects that could affect the integrity of the liner. The liner will be stored at a clean and dry location onsite and protected from any objects that could damage the liner.

All manufacturer's recommendations for the installation of the liner will be followed. In addition, general installation requirements outlined in Table 3-1 of RG-534 must be followed.

- The liner will be placed above the compacted clay-rich soil that will be free of stones and rocks and other debris greater than 3/8-inch. The compacted clay-rich soil will be finished by rolling with flat wheel roller until smooth uniform surface is achieved. The subgrade areas will be inspected for any

desiccation, cracks, erosion, or ponding prior to installation and repaired before liner is placed. If necessary, regular watering and proof rolling will be performed.

- Prohibit construction equipment from traveling directly on the liner.
- Do not place during inclement weather.
- Limit vehicular traffic on the liner to low-ground pressure supporting equipment only. Any damaged areas must be repaired and inspected.
- Only unroll liner sheets that are to be placed and seamed in the same day. Position liner with overlap recommended by manufacturer but not less than 3 inches. Typical overlaps are 3 to 6 inches. There should be no loose flap on the top side of the liner. Overlap distance must be sufficient so that all seam tests can be performed as described below.
- Folds, wrinkles, and fish mouths are not acceptable. Cut, overlap, and weld the material where wrinkles or folds occur. A fish mouth is defined as an area in the seam where one liner panel is first folded over on itself, and a second liner panel is placed and welded over this fold. Where fish mouths occur, the liner must be cut, overlapped, and covered with a patch.
- Use only heat-only tack welds, when necessary. No double-sided tape or glue may be used.
- Fusion or extrusion welding may be used for field seaming and repairs.
- Seaming is permitted only when ambient air conditions are below 104°F.
- At the end of each workday, all unseamed edges will be anchored with sandbags or other approved devices. No penetrating anchors are accepted (stakes, U-rods).

C.4 HDPE Liner Testing Requirements

Verification of HDPE Liner Testing Requirements

Manufacturer information will be reviewed to ensure that QA/QC testing, conformance testing, and seam testing requirements of Table 3-2 of RF-534 are met.

Welds, Repair Welds, and Patches

Shear Strength – the seam, when stressed perpendicular to the direction of the weld should not under any condition fail before stretching and breaking of the liner panel adjacent to the weld. The numerical value of the shear strength of any sample should not be less than 90% of the sheet tensile strength according to manufacturer-provided information.

Trial Seam Testing

Each day, prior to commencing field seaming, each individual employee performing seaming will conduct a trial seam. Each trial seam will be 3 ft long by 1 ft wide. Trial seam criteria is outlined in Table 3-3 of RG 534.

Destructive Testing

Destructive test samples of field seams will be performed at a minimum of one stratified location for every 500 linear feet or major fraction thereof or at the direction of the Engineer. Destructive test requirements will conform with Table 3-4 of RG-534.

Non-Destructive Testing

Non-destructive tests should be performed by the Contractor or engineer on all field seams, patches, and repair welds. Accepted non-destructive test methods include vacuum box testing for extrusion welds and air-pressure testing for dual-track fusion welds. Specific procedures for these tests is included on Table 3-5 of RG-534.

D Documentation

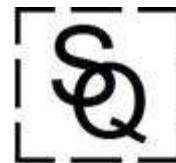
Following installation, the following documentation will be compiled and kept onsite in the facility records. This will include the following elements:

- All field and laboratory test documentation.
- All test documentation.
- Liner certification information and results of manufacturer independent testing.
- Field documentation of field testing, repairs, etc.
- Photographs and field notes.
- A survey of the final liner area.

ATTACHMENT 9

FOUNDATION PLAN & VMS DESIGN PLAN

MEMORANDUM



SQ Environmental, LLC

To: Stonehawk Capital Partners, LLC
From: Susan Litherland, P.E., Sam Enis, P.G., and Adam Harper, P.G.
Date: 6 August 2024 – Revision 1
Subject: Texas Star Property West – Vapor Mitigation System Design Basis

This memo provides the design basis for the Vapor Mitigation System (VMS) for the Texas Star Property West on Trinity Boulevard in Euless, Texas. This document is part of the design package and this entire package should be provided to the General Contractor and appropriate subcontractors (including specialty VMS, structural, electrical, and plumbing). The package includes:

- Design Basis Memorandum
- VMS Design Notes
- VMS Details
- Sheet VA1.0: Overall VMS Layout Plan
- Sheet VS3.0: Overall Building A Layout
- Sheet VS3.0a, VS3.0b, VS3.0c, & VS3.0d: VMS Layout Beneath Building A
- Sheet VS4.0: VMS Layout Beneath Building B
- Sheet VS6.0: VMS Layout Beneath Building D
- Sheet VA4.5, VA4.6, & VA4.7: Vent Locations on Building A Exterior Elevations
- Sheet VA5.3: Vent Locations on Building B Exterior Elevations
- Sheet VA7.4: Vent Locations on Building D Exterior Elevations
- FanTech Spec Sheet for Vent Fans, if needed

BACKGROUND

Based on available information, the subject property appeared to be used for agricultural purposes from approximately 1942 to 1950. Gravel pit operations appear to have ceased around the mid-1980s. Hancock Contracting, an earth-moving or construction company, appears to have operated on the subject property from at least 1988 to the late 2000s. By the late 2000s, the subject property appeared to be primarily vacant. Debris (glass, plastic, bricks, concrete, and wood) were observed in shallow soil borings completed on the property at depths up to approximately 12 feet (ft) below ground surface (bgs). Based on the soil boring observations and site history, it does not appear that the property was ever operated as “landfill” (e.g., did not purposefully accept refuse and trash for landfilling), but rather these incidental materials were brought in with soil that was being used to fill the property.

Elevated methane levels have been found in a layer which is present at least 10 ft from the surface. There is a clay layer between the methane and the surface, which isolates the methane from the surface. Methane has not been found at significant concentrations in the surface clay layer based on testing at a depth of 5 ft. This layer is approximately 10 ft thick. As part of the property development, no penetrations through the

MEMORANDUM

Texas Star Property West VMS Design Basis
Page 2



clay layer are planned. The source of the methane present below 10 ft appears to be a property off-site to the south of the subject property.

As a precautionary measure, a vapor mitigation system is being installed beneath the ground floor residential areas of the apartment complex to minimize the potential for any intrusion of residual vapors from the historical property usage, and or methane.

DESIGN APPROACH

The proposed design approach includes the installation of a passive VMS consisting of a vent layer (12-inch-thick coarse aggregate bedding material, slotted vent pipes, geotextile filter fabric, and vapor-tight membrane) below the foundation of first-floor, residential living portions of the buildings. As planned, the system will have 17 passive vents in Building A, 4 passive vents in Building B, and 4 passive vents in Building D. Vents exiting on an exterior wall will be run through the wall, to an elevation of approximately 2 feet from the final grade. As planned, the VMS that has been designed is a passive system, with provisions for the addition of electric fans to three vents in Building A (V-1, V-7, and/or V-15), two vents in Building B (V-1 and/or V-4), and two vents in Building D (V-1 and/or V-4). The decision regarding whether to install the fans will be made based on testing following the installation. Based on the available information, it is anticipated that passive venting is all that will be needed to prevent accumulation of volatile organic compounds (VOCs) beneath the occupied portions of the building. As part of the design, electrical connections should be included in the vicinity of V-1, V-7, and/or V-15 in Building A, and V-1 and/or V-4 in Buildings B and D so that fans can be installed, if needed. The vents where an electrical connection will be needed are noted on sheets VS3.0a, VS3.0d, VS4.0, and VS6.0 with an "e". The vent pipes will be fitted with a 1/4" mesh screen and covered in a manner that will allow venting of any vapors but prevent entry animals and rainwater. It is recommended that testing be performed approximately six months after the installation to evaluate whether the fans are needed, and then annually for two additional years to verify that the system is performing as designed.

Methane sensors will also be installed within the buildings, and sample ports for field monitoring will be installed within the aggregate layer.

For any questions or clarifications regarding the VMS design, please contact us. Susan Litherland may be reached by phone at 512-656-9445 or e-mail at [REDACTED] Sam Enis may be reached by phone at 512-574-1199 or e-mail at [REDACTED] and Adam Harper may be reached by phone at 512-426-9449 or e-mail at [REDACTED]

**Texas Star Property West
Eules, Texas
VMS Design Notes – 6 August 2024 – Revision 1**

General

1. A passive Vapor Mitigation System (VMS) is to be installed under portions of the building where residences will live. The location of the areas where the VMS is to be installed is shown on Sheet VA1.0. The VMS layouts are illustrated on Sheets VS3.0a, VS3.0b, VS3.0c, VS3.0d, VS4.0, and VS6.0. The VMS will allow venting of soil vapors from beneath the building. Vent locations are shown on Sheets VS3.0a, VS3.0d, VS4.0 and VS6.0.
2. Alternative systems are acceptable with engineer's review and approval.
3. For areas underlain with the VMS, this system will also serve as the moisture barrier.
4. The VMS Contractor will be responsible for placing piping through exterior beams at each of the vent locations. These vent pipes will run up through the exterior wall, to a height of approximately two feet above the top of the slab. The exterior ends of these pipes should be covered in a manner that will prevent concrete from entering the pipes when the exterior beams are poured, and/or debris during construction activities. The concrete contractor will be responsible for protecting these vent pipes and ensuring that the exterior ends are open following completion of the construction of the exterior beams. This pipes must also remain open during the placement of any exterior surfaces, such as bricks.
5. The VMS is described below. See layout and detail sheets for additional information.
 - a. A geotextile filter fabric will be placed on top of the structural fill. An aggregate venting layer, 12 inches thick, will be placed on top of the geotextile filter fabric. The permeable aggregate bed will be comprised of graded No. 57 stone with no more than 5 wt % fines.
 - b. Slotted PVC vent pipes (1.5" dia min 3" max, 0.020" slots), will be bedded in the aggregate layer by the VMS contractor. These pipes are shown as dashed and bolded lines on the VMS layout drawings. With prior engineer approval, piping with larger slots can be used with appropriate filter sock with Maximum Apparent Opening Size of no greater than 0.6 millimeters. Solid piping will be placed across interior and exterior beams in a manner that will prevent concrete from entering and/or plugging the vent pipes. Other permeable piping system with openings that will not allow the aggregate to pass are acceptable with engineer's approval. Where slotted pipes meet or cross, typical connectors should be used. Solid piping should be used for connections outside of the membrane (e.g. through the interior and exterior beams, and under any areas (such as hallways and stairways) where the VMS is not planned, but piping is needed to reach the vent locations).
 - c. Solid piping through interior and exterior beams should be installed perpendicular to beams.
 - d. The vent pipes will be run through the exterior walls, so at each vent location a "90°" will be used. The VMS contractor will be responsible for providing a 24" sub up for each of the vents, and these stub-ups should be clearly labeled as sub-slab vents, using a sticker such as the one below or other similar permanent marking.



- e. A membrane liner on top of aggregate/piping, a minimum of 30 mil thick, with 6" sealed overlaps will be installed by the VMS contractor. This can be a single sheet of plastic, two sheets of plastic, or one sheet of plastic with a spray-on coating. All edges and penetrations are to be taped and/or sealed with mastic. Materials for taping and sealing must be compatible with the sub-slab environment. If the exterior beams are installed prior to the installation of the VMS, the

**Texas Star Property West
Euless, Texas
VMS Design Notes – 6 August 2024 – Revision 1**

membrane should be sealed to the concrete with a mastic or other material that is appropriate for this use. This will require a minimum overlap of 4". This is not needed if the membrane extends beneath the exterior beams.

- f. Smoke testing of the system must be performed by the VMS Contractor following installation and sealing of the membrane, and prior to the installation of the rebar and/or post-tension cables. The smoke test should be observed by the engineer. Any leaks must be repaired prior to the engineer's approval of the membrane installation. An additional inspection is required following the installation of the rebar and/or post-tension cables, and any holes or tears repaired prior to pouring of the concrete.
 - g. The vent pipes should be fitted with a 1/4" mesh cover to keep out animals, and vent covers to prevent rainwater from entering the system. Alternate approaches are allowed, with prior engineer approval.
 - h. Fans may need to be installed at vents V-1, V-7, and/or V-15 in Building A, and vents V-1 and/or V-4 in Buildings B and D. This decision will be made following installation and testing of the system. This will require the appropriate electrical connections be installed at these locations by the electrical contractor in order to accommodate a fan (FanTech HP 190 or equivalent) if fans are needed.
 - i. All materials used in the VMS construction must be compatible with chlorinated solvents, petroleum hydrocarbon, methane and vapors containing chlorinated solvents, petroleum hydrocarbons and methane.
 - j. Sample ports for field monitoring of the aggregate layer will be installed using Schedule 40 2-inch PVC casing and screen. These ports will be flush mount with the finished floor.
6. It is assumed that the 12-inch aggregate layer can be considered part of the select fill beneath the foundation, but the geotechnical and/or structural engineer should be consulted to confirm that this is the case.
7. VMS Construction Quality Control:
- a. Spec sheets for all materials to be used must be provided to the engineer for approval prior to delivery to the job site.
 - b. Particle size distribution must be provided for engineer approval, for every 250 CY of aggregate, prior to aggregate delivery to job site. Particle size distribution documentation should be provided for any alternate/additional sources of aggregate.
 - c. Smoke testing of the liner must be performed for every "pour." These tests are to be performed by the VMS contractor following installation and sealing of the membrane, and prior to installation of the rebar and/or post-tension cables. The smoke test should be scheduled with the engineer so that the test may be observed and documented.
 - d. Care must be taken during the placement of rebar to minimize the potential for damage or puncture of the liner. This should include the use of rebar supports that do not have sharp ends or edges. A final inspection must be made by the engineer following rebar placement and prior to pouring of the foundations to verify that there are no tears or holes. Any such tears or holes will be repaired and the repairs documented.
8. Others (concrete, plumbing and/or electrical contractors) will be responsible for:
- a. Placing a 12-inch aggregate layer to allow bedding of the VMS piping. The thickness of the aggregate layer will be dependent on the diameter of the vent pipes being installed.
 - b. All vent pipes should be extended through the exterior wall to a height of approximately 24" above the top of slab, and then turned to penetrate the exterior wall.
 - c. Vent pipes will need to be protected during construction to prevent damage, filling with debris, entry of rain, and or covering during construction activities. This should be accomplished by covering the opening of the vents with plastic, securely taping the plastic to the pipe, and clearly marking the vent pipes.

**Texas Star Property West
Eules, Texas
VMS Design Notes – 6 August 2024 – Revision 1**

- d. On completion, the vents should be fitted with a ¼" mesh to prevent entry by small animals, and fitted with a cover to allow free movement of air, but prevent rainwater from entering the VMS.
- e. Electrical connections should be installed at vent locations V-1, V-7, and/or V-15 in Building A, and vents V-1 and/or V-4 in Buildings B and D to accommodate a fan (FanTech HP 190 or equivalent), in the event that fans are added in the future.

CONTRACTOR NOTES:

Concrete/Foundation

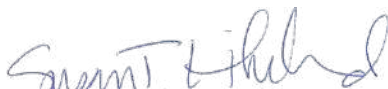
1. The VMS Contractor will install solid pipes through the exterior beams at the locations shown on Sheets VS3.0a, VS3.0b, VS3.0c, VS3.0d, VS4.0, and VS6.0. These pipes will allow the connection between the VMS beneath the building to the exterior vents. These must be protected during pouring of the exterior beams. The concrete contractor will be responsible for making sure that these pipes are open following installation of the exterior beams.
2. It is assumed that the 12 inches of aggregate on the foundation area will replace an equal thickness of select fill, but this must be verified by the geotechnical and/or structural engineer.
3. A grain-size distribution report should be provided for the planned aggregate source for engineer approval prior to the purchase and delivery.
4. Care should be taken when placing the rebar to minimize the potential for holes or tears to the VMS liner. Rebar supports should not have sharp edges.

Plumbing or GC

1. Vents will extend vertically through the exterior walls to a height of approximately 24" above the final exterior grade. The vents will exit the exterior wall horizontally. The vent openings should be fitted with ¼" mesh to prevent entry of animals, and fitted with a cover (such as a dryer vent cover) which will allow free flow of vapors, but prevent rainfall from entering the pipe.
2. For vents existing into the garage, the vent pipes can exit through the exterior building beam and through the wall of the garage. These vent pipes should also be fitted with ¼" mesh and protected from rainfall.

Electrical

1. Electrical connections should be installed by the electrical contractor at vent locations V-1, V-7, and/or V-15 in Building A, and vents V-1 and/or V-4 in Buildings B and D to accommodate fans (FanTech HP 190 or equivalent) at each of these vent locations, in the event that these are needed in the future.



Susan T. Litherland, P.E.

Principal

Texas P.E. No. 57428, F-15202

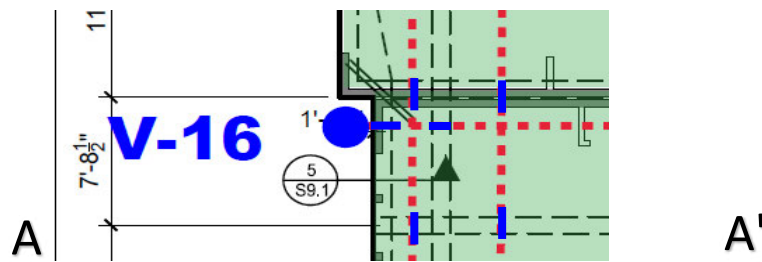
Signed electronically on 8/1/2024



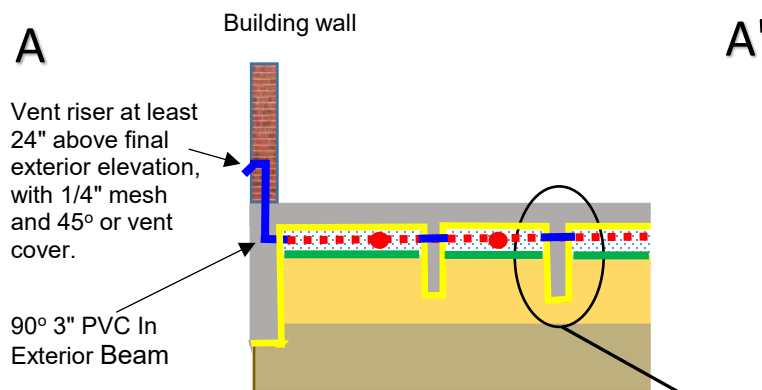
Texas Star Property West
VMS Details
Revision 1 - 8/6/2024
(not to scale)

Detail 1: VMS Layout for Vents

Plan View (See VS3.0a, VS3.0b, VS3.0c, VS3.0d, VS4.0, and VS6.0.):

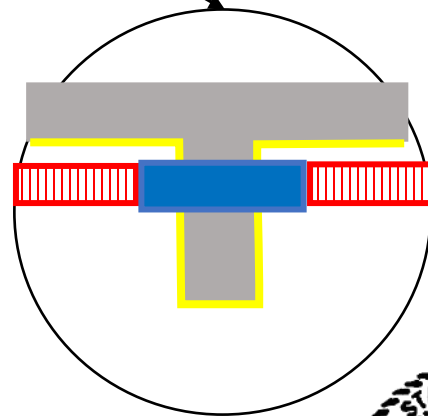


Cross-Section:



Legend:

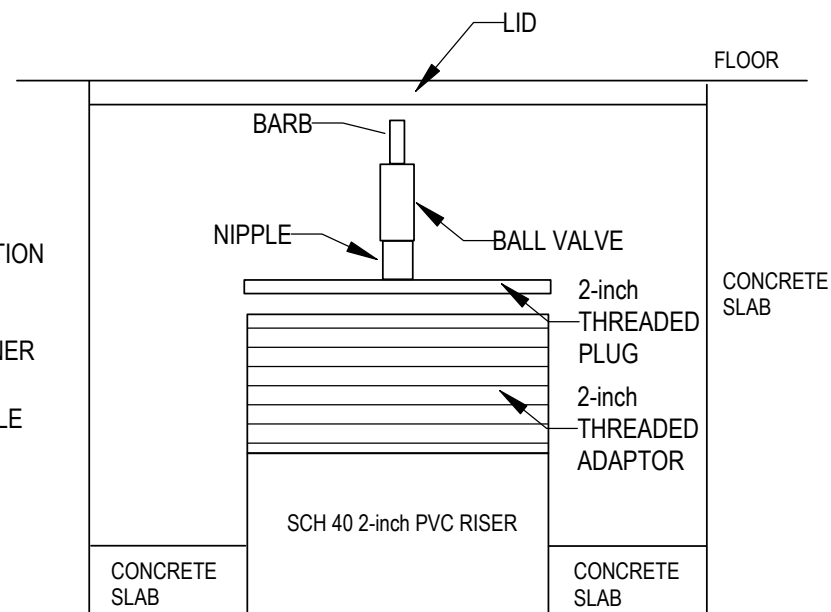
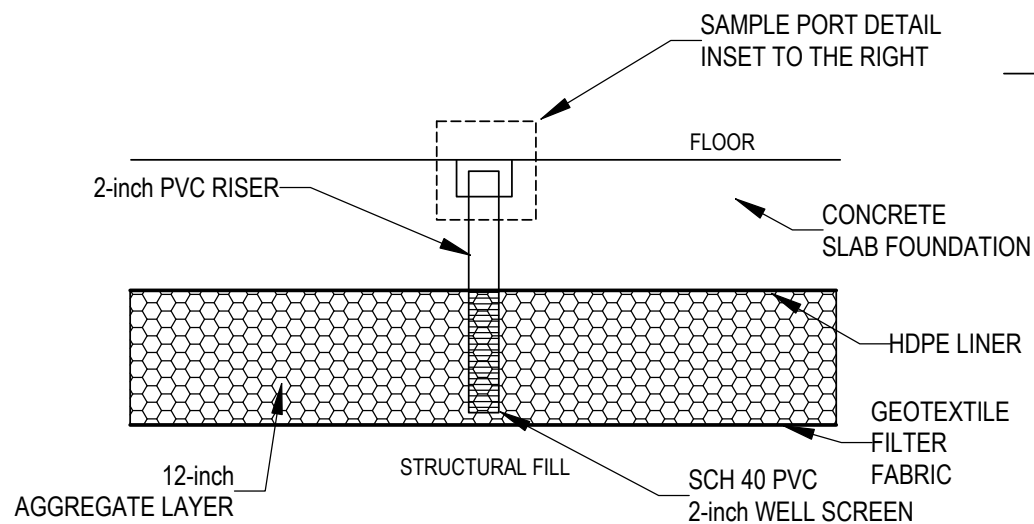
	Concrete Slab
	Beam
	HDPE Liner
	12" Aggregate Layer
	Geotextile Filter Fabric
	PVC Solid Pipe
	Slotted Vent Pipe
	Perpendicular Vent Pipe
	Structural Fill
	Natural Soil
	Moisure Barrier
	Vent Cover



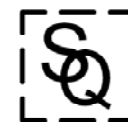
8/1/2024

S. T. Litherland





8/1/2024
S. T. Litherland



SQ Environmental, LLC

SCALE: NOT TO SCALE

VMS DETAILS

SAMPLE PORT DETAIL

TEXAS STAR PROPERTY
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

DATE: JUL 2024

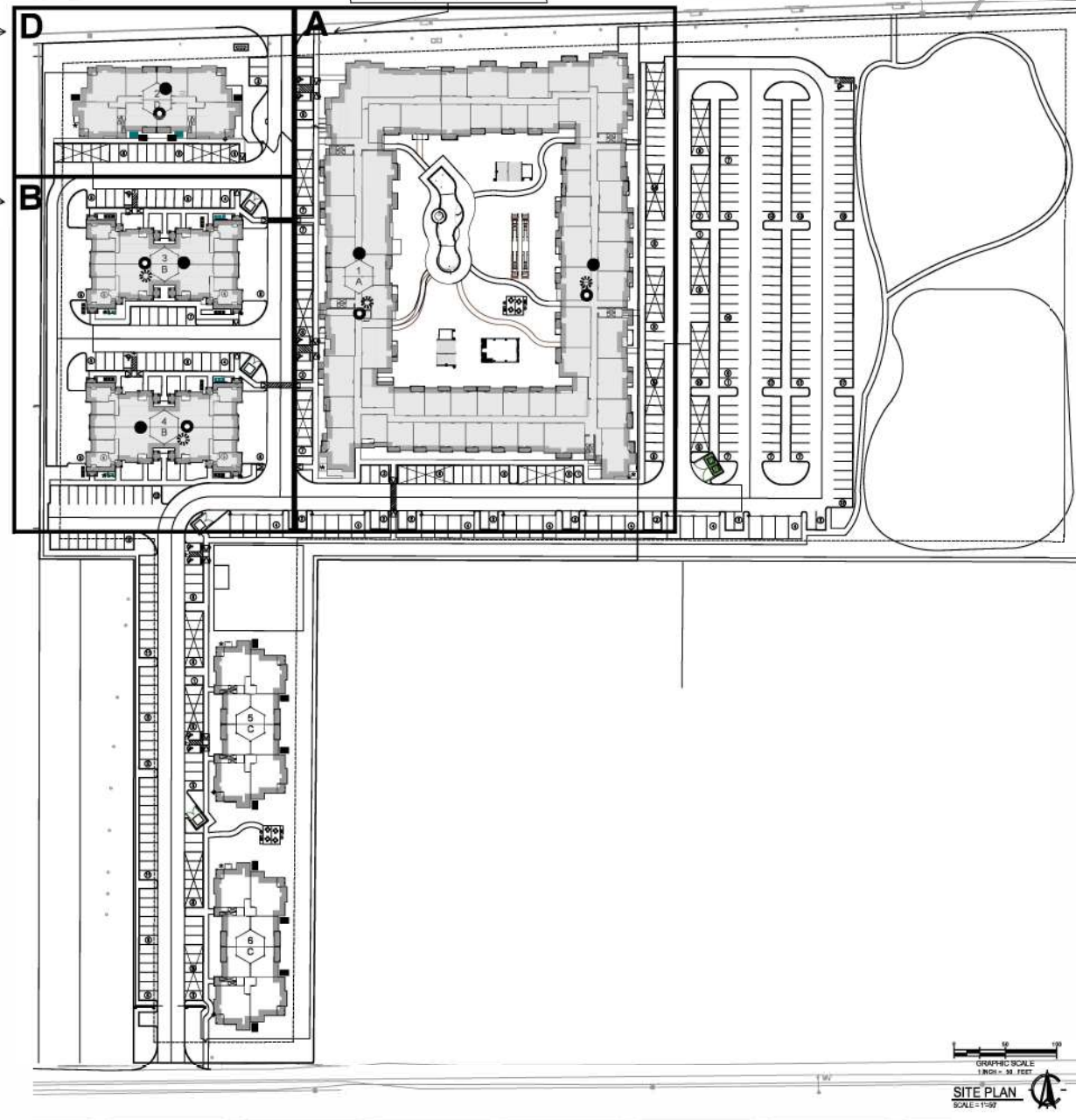
PN: 1098.015.003

Building D - Details regarding the VMS layout are provided on sheet S6.0.

Building B - Details regarding the VMS layout are provided on sheet S4.0.

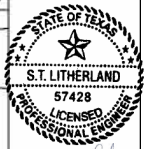
Note: Base Drawings used by SQE prepared by others. Changes to base drawings made by SQE include: areas covered by the VMS; vent locations; vent pipes; and methane monitors (Legend provided on each page). PE sealing by Susan T. Litherland P.E. refers only to the VMS. Modifications to the VMS may be needed if there are changes to the foundation and/or building layout.

Building A - Details regarding the VMS layout are provided on sheet S3.0a-S3.0d.



LEGEND

- METHANE MONITORS (BENEATH BUILDING & INSIDE VMS VENT PIPE)
- METHANE MONITORS (INSIDE BUILDING)
- ✱ SAMPLE PORTS
- AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)



8/1/2024

TEXAS STAR
FORT WORTH, TEXAS

REVISIONS

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1	8/1/2024

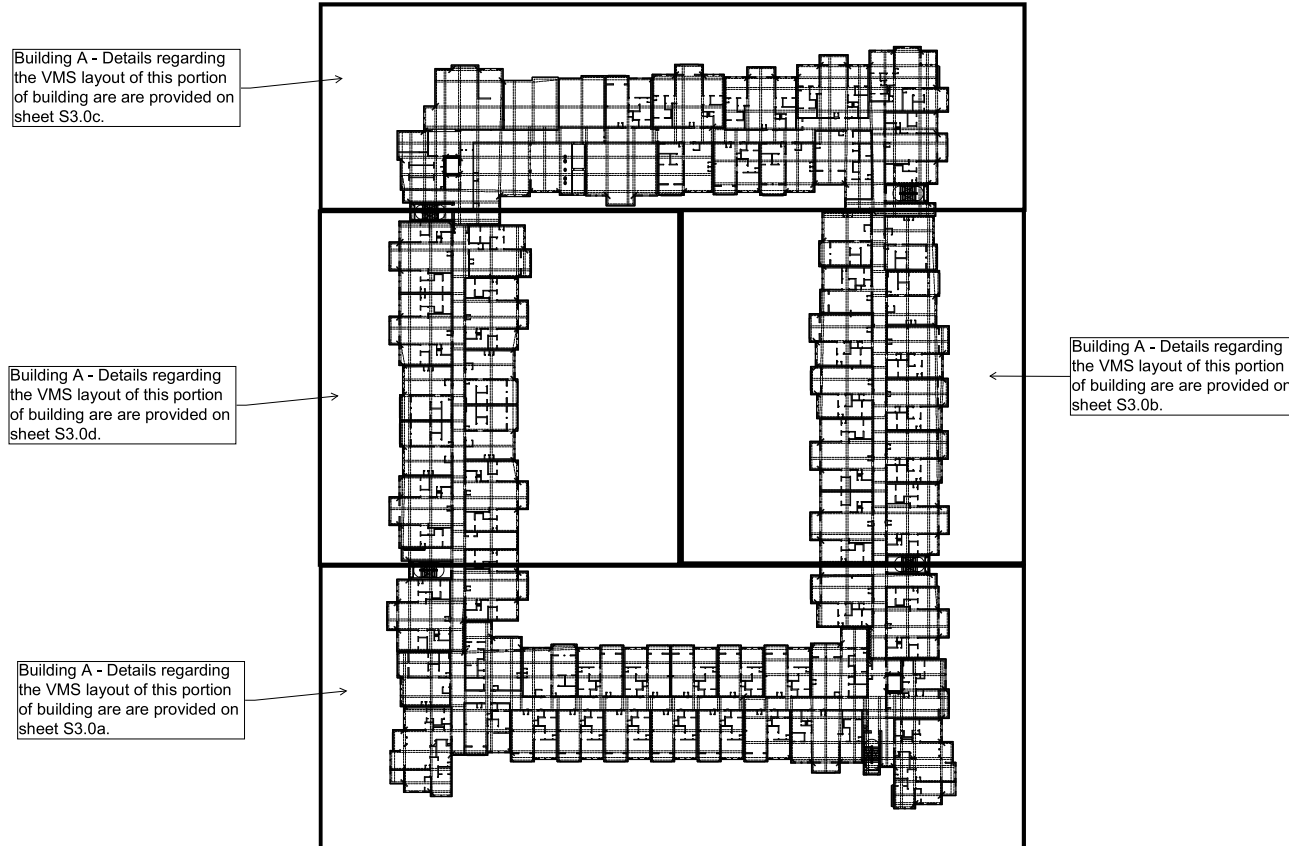
SHEET NUMBER

VA1.0

SITE PLAN

Note: Base Drawings used by SQE prepared by others. Changes to base drawings made by SQE include: areas covered by the VMS; vent locations; vent pipes; and methane monitors (Legend provided on each page). PE sealing by Susan T. Litherland P.E. refers only to the VMS. Modifications to the VMS may be needed if there are changes to the foundation and/or building layout.

STATE OF TEXAS
S.T. LITHERLAND
57428
LICENSED PROFESSIONAL ENGINEER
8/1/2024



TEXAS STAR
FORT WORTH, TX

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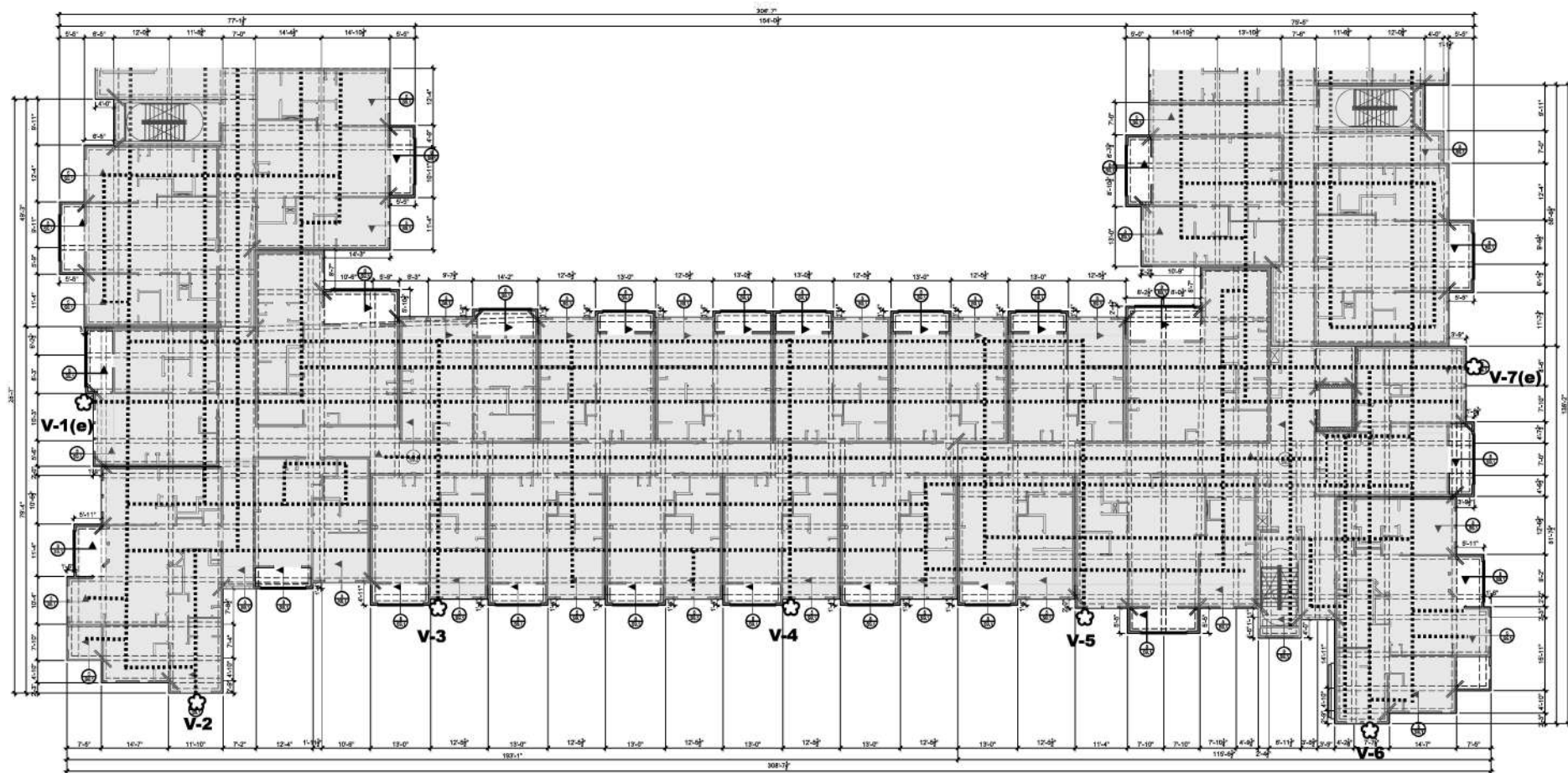
01 BUILDING TYPE 'A' - OVERALL FOUNDATION PLAN
SCALE: 1/32" = 1'-0"

SHEET NUMBER
VS3.0
BLDG. 'A' OVERALL
FOUNDATION
PLAN
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Susan T. Litherland
8/1/2024



LEGEND

- VENT LOCATION
- V-3** VENT NAME
- VENT PIPE
- AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01

BUILDING TYPE 'A' - PARTIAL FOUNDATION PLAN - SEC. 'A'
SCALE: 3/32" = 1'-0"

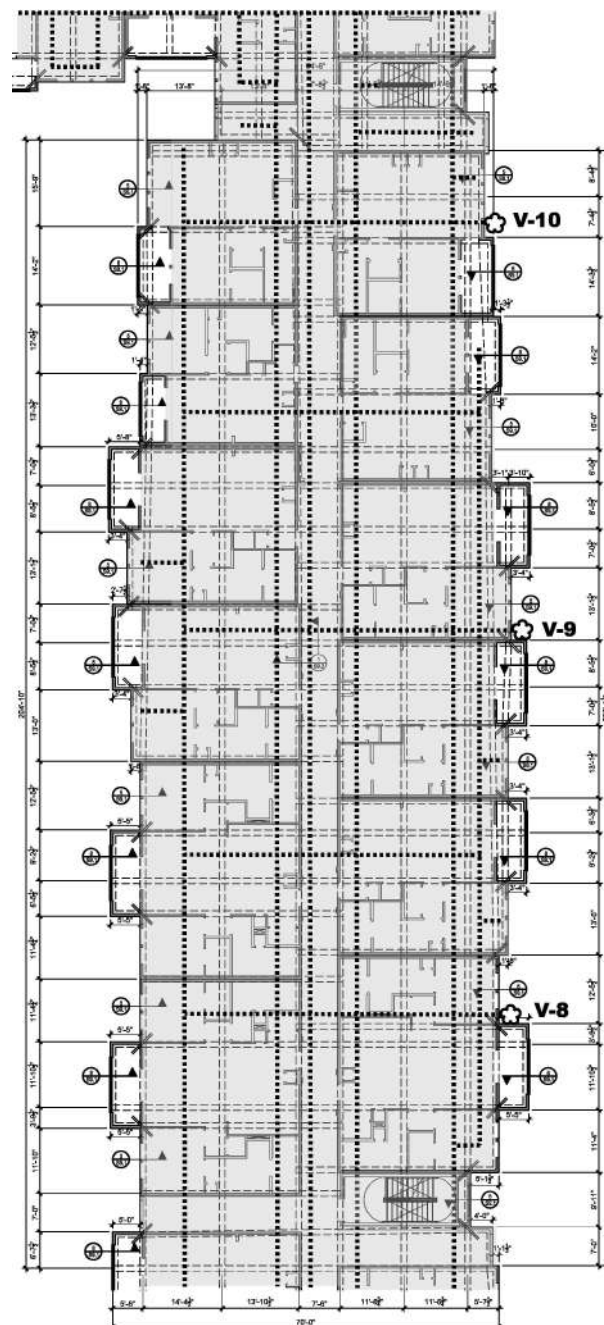
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NO.	DATE
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REVISION NUMBER
VS3.0a
BLDG. 'A' PARTIAL
FOUNDATION
PLAN

Note: Base Drawings used by SQE prepared by others. Changes to base drawings made by SQE include: areas covered by the VMS; vent locations; vent pipes; and methane monitors (Legend provided on each page). PE sealing by Susan T. Litherland P.E. refers only to the VMS. Modifications to the VMS may be needed if there are changes to the foundation and/or building layout.



LEGEND

☼ VENT LOCATION

V-3 VENT NAME

..... VENT PIPE

■ AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01 BUILDING TYPE 'A' - PARTIAL FOUNDATION PLAN - SEC. 'B'

SCALE: 3/32" = 1'-0"



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SHEET NUMBER

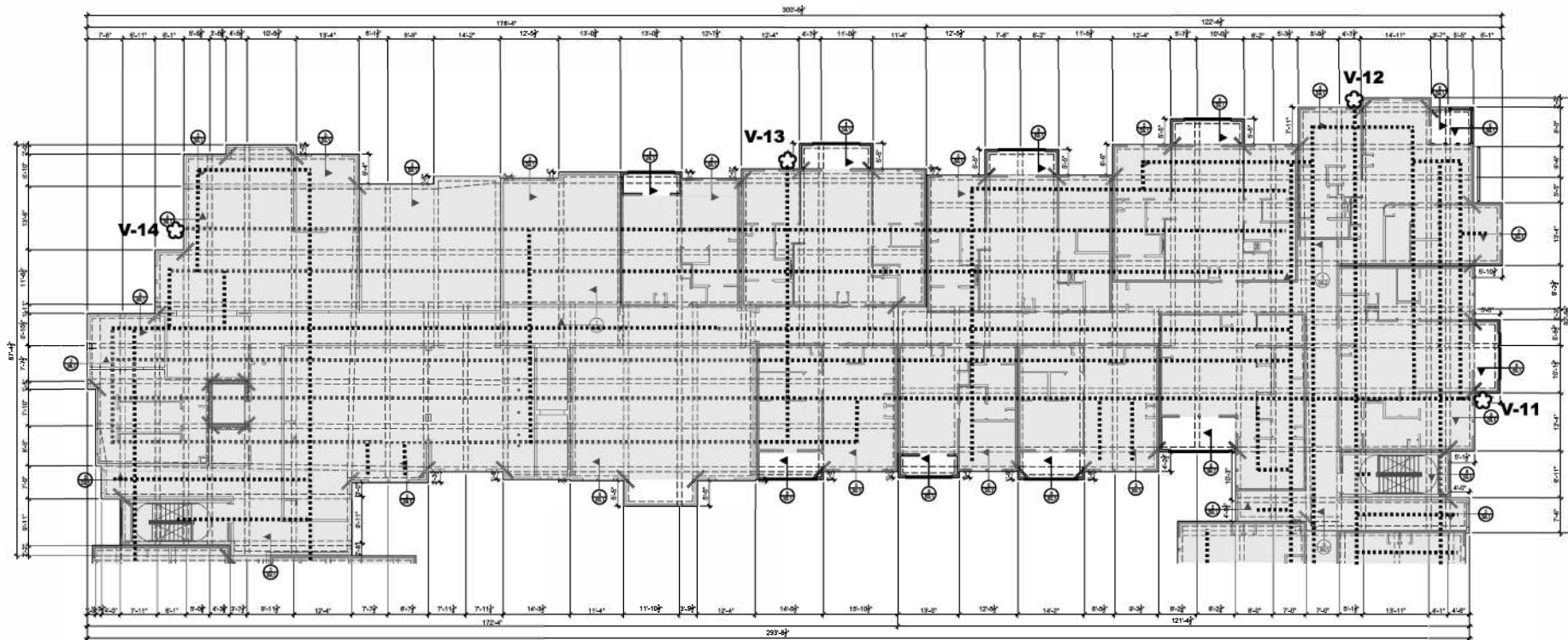
VS3.0b

BLDG. 'A' PARTIAL
FOUNDATION
PLAN

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8/1/2024



LEGEND

- VENT LOCATION
- V-3** VENT NAME
- VENT PIPE
- AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01

BUILDING TYPE 'A' - PARTIAL FOUNDATION PLAN - SEC. 'C'
SCALE: 3/32" = 1'-0"

TEXAS STAR
FORT WORTH, TX

REVISIONS

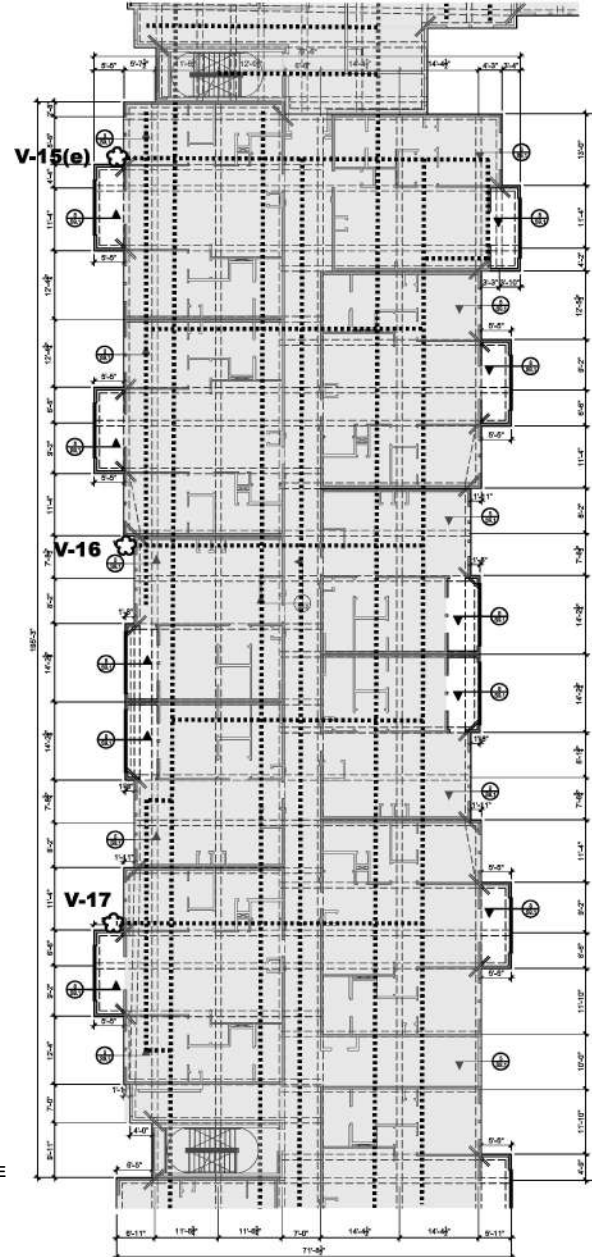
NO.	DATE
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SHEET NUMBER



VS3.0c

BLDG. 'A' PARTIAL
FOUNDATION
PLAN

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LEGEND

-  VENT LOCATION
V-3 VENT NAME
 VENT PIPE
 AREAS COVERED BY VMS(HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01 BUILDING TYPE 'A' - PARTIAL FOUNDATION PLAN - SEC. 'D'
SCALE: 3/32" = 1'-0"



8/1/2024

TEXAS STAR
FORT WORTH, TX

[illegible]

SHEET NUMBER
VS3.0d
BLDG. 'A' PARTIAL
FOUNDATION
PLAN

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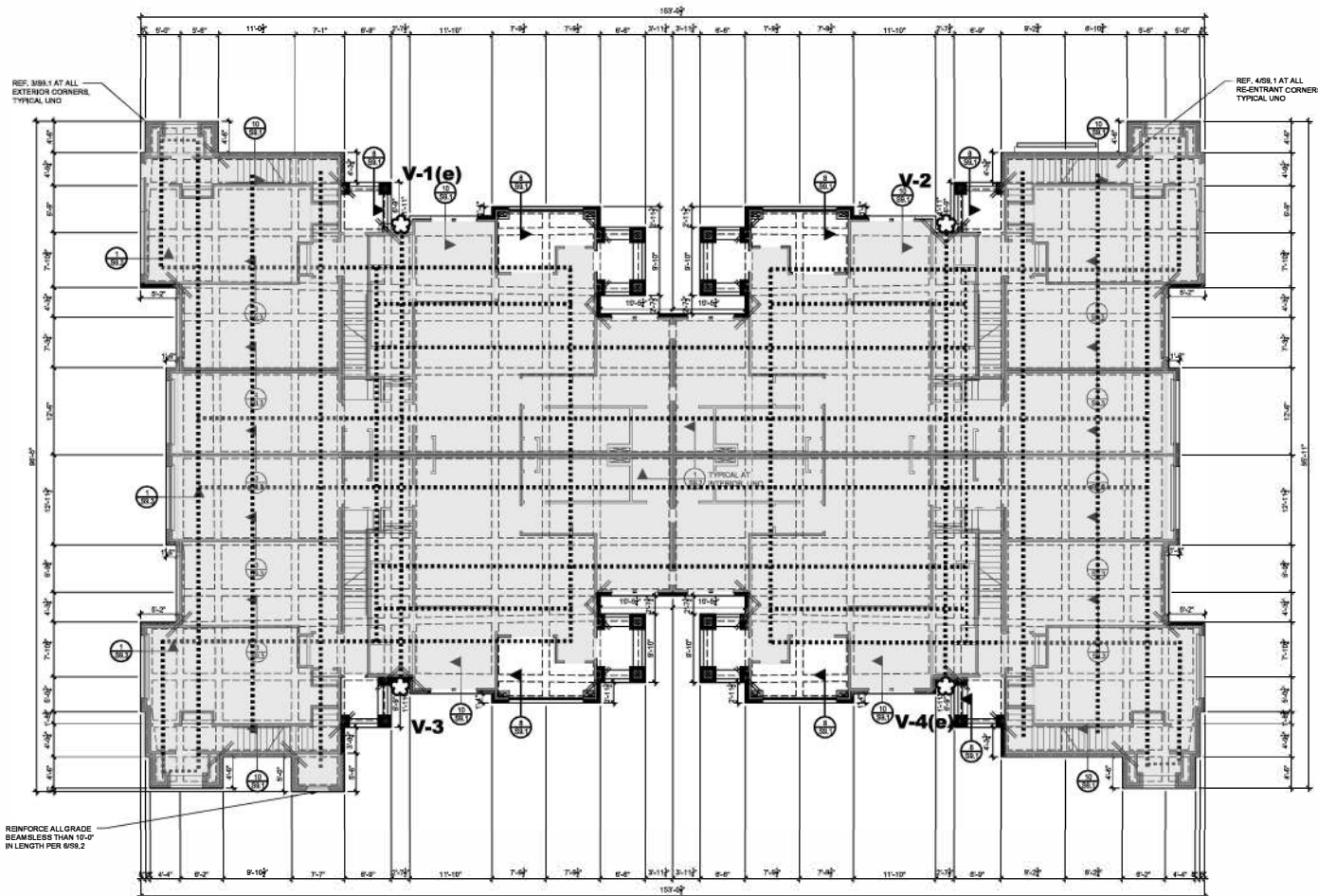
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REVISIONS

NO.	DATE
1	8/1/2024

SHEET NUMBER

VS4.0
BLDG. 'B'
FOUNDATION
PLAN



LEGEND

- VENT LOCATION
- V-3** VENT NAME
- VENT PIPE
- AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01

BUILDING TYPE 'B' - FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

Note: Base Drawings used by SQE prepared by others. Changes to base drawings made by SQE include: areas covered by the VMS; vent locations; vent pipes; and methane monitors (Legend provided on each page). PE sealing by Susan T. Litherland P.E. refers only to the VMS. Modifications to the VMS may be needed if there are changes to the foundation and/or building layout.



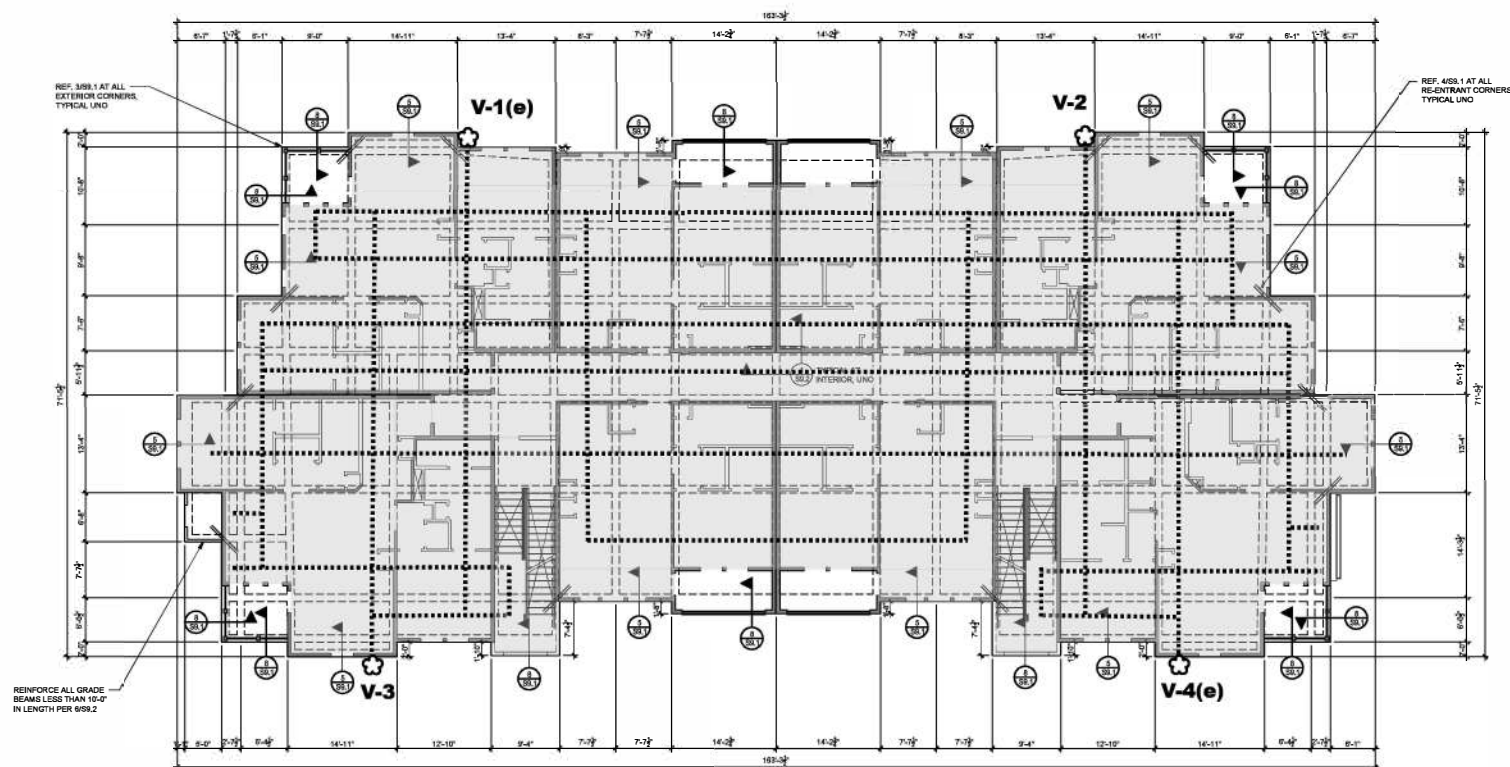
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REVISIONS	
NO.	DATE
1	8/1/2024

SHEET NUMBER
VS6.0
BLDG. 'D'
FOUNDATION
PLAN



LEGEND

- VENT LOCATION
- V-3** VENT NAME
- VENT PIPE
- AREAS COVERED BY VMS (HDPE LINER, AGGREGATE LAYER, & GEOTEXTILE FABRIC FILTER)

01 BUILDING TYPE 'D' - FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

TEXAS STAR
FORT WORTH, TEXAS

[illegible]

02 BUILDING 'A' SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

Architectural elevation drawing of a row of townhouses, labeled V-12 and V-13. The drawing shows a long row of townhouses with varying rooflines and window arrangements. Labels on the left side include: FALSE LOG ON ROOF, BRICK VENEER, BOARD ON BUTTER, BRICK WATER TABLE, and BRICK VENEER. Labels on the right side include: BRICK VENEER, BOARD ON BUTTER, and BRICK VENEER. The drawing is divided into two sections, V-12 and V-13, with a central break line. The drawing is a black and white line drawing with hatching for shading.

01 BUILDING 'A' NORTH ELEVATION
SCALE: 3/32" = 1'-0"

NORTH

VA4.5

BLDG. 'A'
EXTERIOR
ELEVATIONS



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TEXAS STAR
FORT WORTH, TEXAS

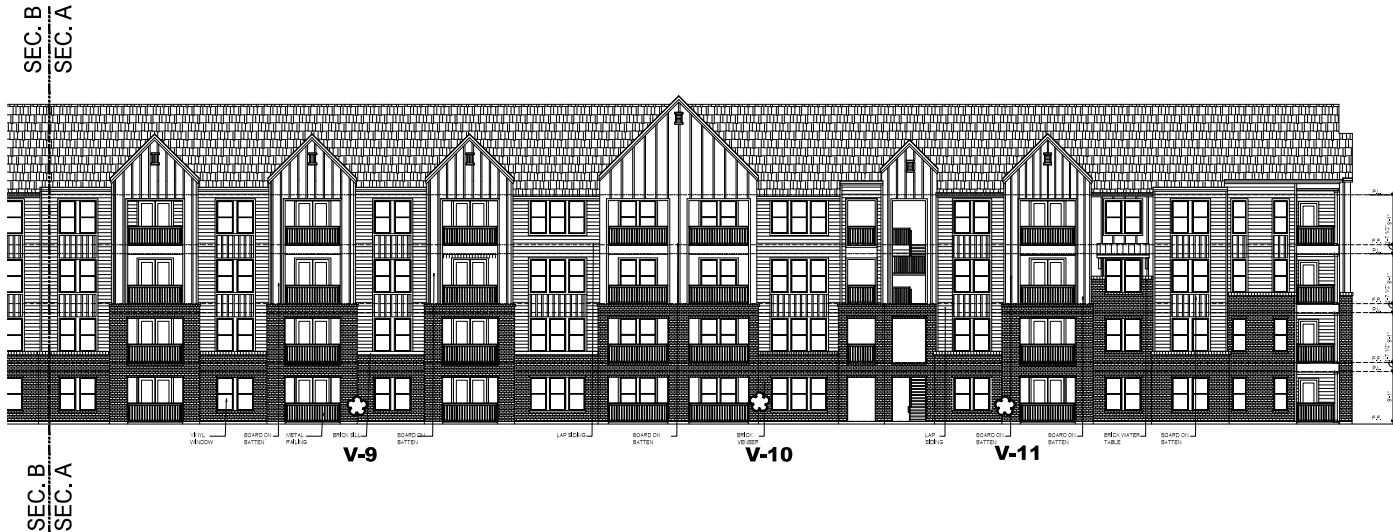
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NO.	DATE
1	8/1/2024

SHEET NUMBER
VA4.6
BLDG. 'A'
EXTERIOR
ELEVATIONS



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02 BUILDING 'A' EAST ELEVATION
SCALE: 3/32" = 1'-0"



LEGEND
* VENT LOCATION
V-3 VENT NAME

01 BUILDING 'A' EAST ELEVATION
SCALE: 3/32" = 1'-0"

EAST

STATE OF TEXAS

★

S.T. LITHERLAND

57428

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Susan T. Litherland

8/1/2024



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02 BUILDING 'A' EAST ELEVATION
SCALE: 3/32" = 1'-0"



LEGEND
✱ VENT LOCATION
V-3 VENT NAME

01 BUILDING 'A' EAST ELEVATION
SCALE: 3/32" = 1'-0"

WEST

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NO.	DATE
1	8/1/2024

SHEET NUMBER
VA4.7
BLDG. 'A'
EXTERIOR
ELEVATIONS



The image displays two architectural elevation drawings of building facades, labeled V-2 and V-1(e). Both drawings show a two-story structure with a gabled roof and a mix of brick and vinyl siding. The drawings include various window types, including dormers and multi-paned windows, and feature balconies with metal railings. The ground level is marked with a dashed line and 'F.F.' (Finished Floor) labels. The roofline is indicated by a dashed line and 'P.L.' (Pitch Line) labels. The drawings are detailed with hatching and cross-hatching to represent different materials and textures.

V-2

V-1(e)

Labels for V-2:

- FALSE LOUVER VENT
- VINYL WINDOWS BOARD ON BATTEN
- BRICK WATER TABLE
- BRICK VENEER
- BRICK WATER TABLE
- BRICK VENEER
- BRICK SILL
- LAP SIDING
- METAL RAILING
- BOARD ON BATTEN
- METAL RAILING
- BRICK SILL
- VINYL WINDOW
- METAL AWNING
- BRICK VENEER
- BRICK WATER TABLE


Labels for V-1(e):

- FALSE LOUVER VENT
- VINYL WINDOWS BOARD ON BATTEN
- BRICK WATER TABLE
- BRICK VENEER
- BRICK SILL
- LAP SIDING
- METAL RAILING
- BOARD ON BATTEN
- METAL RAILING
- BRICK SILL
- VINYL WINDOW
- METAL AWNING
- BRICK VENEER
- BRICK WATER TABLE

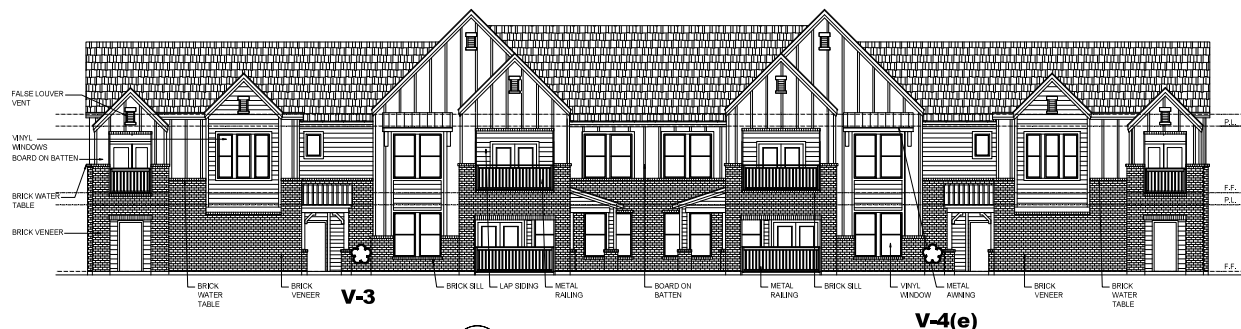
Architectural elevation drawing of a three-story townhouse row. The drawing shows a cross-section of the building with various materials and features labeled. The labels include:

- FALSE LOUVER
- METAL AWNING
- BOARD ON BATTEN
- BRICK WATER TABLE
- BRICK VENEER
- VINYL WINDOWS
- BOARD ON BATTEN
- GARAGE DOOR
- METAL AWNING
- LAP SIDING
- BRICK VENEER
- BRICK HEADER
- BRICK WATER TABLE

LEGEND

 VENT LOCATION

V-3 VENT NAME



01 BUILDING 'B' FRONT ELEVATION
SCALE: 1/8" = 1'-0"

REVISIONS

NO.	DATE
1	8/1/2024

SHEET NUMBER
VA5.3
BLDG. 'B'
BUILDING
ELEVATIONS



8/1/2024

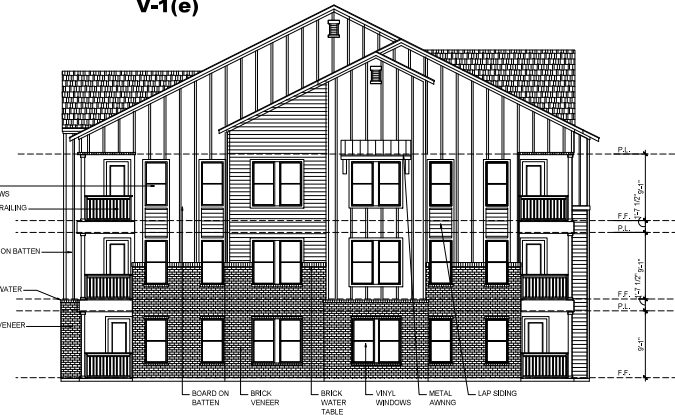
TEXAS STAR
FORT WORTH, TEXAS



04 BUILDING 'D' REAR ELEVATION
SCALE: 1/8" = 1'-0"



03 BUILDING 'D' LEFT ELEVATION
SCALE: 1/8" = 1'-0"



02 BUILDING 'D' RIGHT ELEVATION
SCALE: 1/8" = 1'-0"



01 BUILDING 'D' FRONT ELEVATION
SCALE: 1/8" = 1'-0"

LEGEND
 VENT LOCATION
V-3 VENT NAME

Note: Base Drawings used by SQE prepared by others. Changes to base drawings made by SQE include: areas covered by the VMS; vent locations; vent pipes; and methane monitors (Legend provided on each page). PE sealing by Susan T. Litherland P.E. refers only to the VMS. Modifications to the VMS may be needed if there are changes to the foundation and/or building layout.

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NO.	DATE
1	8/1/2024

SHEET NUMBER

VA7.4

BLDG. 'D'
BUILDING
ELEVATIONS

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GEM5000 Series

The Next Generation of GEM™ Instrument

The GEM™5000 is designed specifically for use on landfills to monitor Landfill Gas (LFG) Collection & Control Systems. The GEM™5000 samples and analyzes the methane, carbon dioxide and oxygen content of landfill gas with options for additional analysis.

GEM5000 Complete

Package Includes:

Instrument, hoses, heavy duty water trap filter, soft case, A.C. battery charger, electronic manual accompanies software, LANDTEC System Gas Analyzer Manager (LSGAM) software, USB download cable and hard-case. Reads: Methane, Carbon Dioxide, Oxygen, temperature (when used with optional probe), atmospheric pressure,

Check also:

GF5.8 External Battery
GEM5000 External Battery



SEM5000
Portable Methane Detector



GA5000
Portable LFG Analyzer



GEM5000 Series
Portable LFG Analyzer



BIOGAS 5000
Portable Biogas Analyzer



differential pressure and
calculates gas flow.

NAV and Plus model
packages also include more
features such as GPS and
additional gas measurements

[**GEM5000 Accessories &
Spare Parts**](#)

Description	Technical Specification
-------------	-------------------------

Description

The GEM™5000 is the next generation in the GEM™ Series of
LANDTEC instruments for accurate measurement and
monitoring on landfills

Now Available. Please call our sales team to request further
information or to place your order.

FEATURES

- Measures % CH4, CO2 and O2 Volume, static pressure and
differential pressure
- Calculates balance gas, flow (SCFM) and calorific value (KW or
BTU)>
- High Accuracy and Fast Response Time
- Lighter and More Compact
- Annual recommended factory service
- Certified intrinsically safe for landfill use
- Calibrated to ISO/IEC 17025
- 3 year warranty

BENEFITS

- Designed specifically for use on landfills to monitor landfill
gas (LFG) extraction systems, flares, and migration control
systems.
- No need to take more than one instrument to site



- Can be used for monitoring subsurface migration probes and for measuring gas composition, pressure and flow in gas extraction systems
- The user is able to set up comments and questions to record information at site and at each sample point
- Ensures consistent collection of data for better analysis
- Streamlined user experience reduces operational times

☰ DOWNLOADS

[Manual](#) – [LSGAM Software](#) – [Brochure](#) – [Easy Steps – Discharge Battery Pack](#) – [Easy Steps, Gas Check](#) – [Easy Steps, Workflow](#)

Related Products

 <p>GF5.8 Exter nal Batte ry GEM5000 External Battery</p>	 <p>BIOG AS 5000 Portable Biogas Analyzer</p>	 <p>BIOG AS 3000 FIXED GAS ANALYZER</p>	 <p>Acces sories Spare Parts</p>
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differential pressure and
calculates gas flow.

NAV and Plus model
packages also include more
features such as GPS and
additional gas measurements

****GEM5000 Accessories &
Spare Parts****

Description	Technical Specification
-------------	-------------------------

Technical Specification

Gas Ranges

Gas Measured	CH ₄	By dual wavelength infrared cell with reference channel
	CO ₂	By dual wavelength infrared cell with reference channel
	O ₂	By internal electrochemical cell
	CO	By internal electrochemical cell
	H ₂ S	By internal electrochemical cell
Ranges	CH ₄	0-100% (vol)
	CO ₂	0-100% (vol)
	O ₂	0-25% (vol)
	CO	0-2000ppm***
	H ₂ S	0-500ppm***
Gas Accuracy*	CH ₄	0-5% ± 0.7% (vol) (0-20% ± 0.5% (vol) 70-100% ± 1.5% FS
	CO ₂	0-5% ± 0.7% (vol) (0-40% ± 0.5% (vol) 60-100% ± 1.5% FS
	O ₂	0-25% ± 1.0% (vol)
	CO/H ₂ **	0-2000ppm ± 1.0% FS
	H ₂ S	0-500ppm ± 2.0% FS

*Typical accuracy after calibration as recommended in the operations manual.

**Hydrogen compensated Carbon Monoxide measurement.

***Additional ranges available, contact LANDTEC for more information

Other Parameters

	Unit	Resolution	Comments
Energy	BTU/hr	1000 BTU/hr	Calculated from specific parameters
Static Pressure	in. H ₂ O	0.01 in. H ₂ O	Direct Measurement
Differential Pressure	in. H ₂ O	0.001 in. H ₂ O	Direct Measurement

Important Note: The information in this document is correct at the time of generation. We do, however, reserve the right to change the specification without prior notice as a result of continuing development.

Pump

Flow	Typically 550cc/min
Flow with 80 in. H ₂ O vacuum	Approximately 80cc/min

Environmental Conditions

Operating Temperature Range	14°F - 122°F (-10°C to +50°C)
Operating Pressure	-100 in. H ₂ O, +100 in. H ₂ O (-250mmbar, +250mmbar)
Relative Humidity	0-95% non condensing
Barometric Pressure	± 14.7 in. Hg (±500mmbar) from calibration pressure
Barometric Pressure Accuracy	± 1% typically

Power Supply

Battery Life	Typical use 8 hours from fully charged
Charge Time	Approximately 3 hours from complete discharge

Certification Rating

ATEX	II 2G Ex ib IIA T1 Gb (T _{amb} -10°C to +50°C)
ISO17025	ISO/IEC 17025:2005 Accreditation #66916
CSA	Ex ib IIA T1 (T _{amb} -10°C to +50°C) (Canada), AEx ib IIA T1 (T _{amb} -10°C to +50°C) USA

Related Products



GF5.8
Exter
nal
Batte
ry
GEM5000
External



BIOG
AS
5000
Portable
Biogas
Analyzer



BIOG
AS
3000
FIXED
GAS
ANALYZER



Acces
sories
Spare
Parts



FOUR CHANNEL WALL MOUNT CONTROLLER

Gas Detection For Life

Beacon™ 410A Model



Features

- Simultaneously control up to 4 gas monitoring channels
- OLED display of all 4 channels
- LEL / O₂ / CO₂ / toxic direct connect sensors
- Accepts any 4-20 mA transmitter, 2 or 3 wire
- Up to 3 programmable alarm levels per channel
- Up to 3 configurable alarm relays per channel
- 4-20 mA analog & Modbus digital output standard
- 115 / 220 VAC or 24 VDC operation
- Audible alarm with silence feature
- RFI / EMI Resistant
- Alarm reset switch
- Built in trouble alarm with relay
- Weather and corrosion resistant NEMA 4X enclosure

Applications

- Petrochemical plants
- Refineries
- Water & wastewater treatment plants
- Pulp & paper mills
- Gas, telephone, & electric utilities
- Parking garages
- Manufacturing facilities
- Steel

The Beacon 410A is a highly configurable, microprocessor-based, flexible and easy to use 4 channel gas monitoring controller. It simultaneously displays the gas type, readings, and status for four channels of gas detection. It can monitor any combination of direct connect sensors (LEL, O₂, CO₂, and toxic gas sensors), as well as any 4-20mA transmitter.

Each channel has up to three fully configurable alarm points. A built-in silenceable audible alarm alerts you to alarm conditions. Each channel also has two dedicated fully configurable relays and there is a bank of common relays as well. The common relays can optionally be configured as additional relays allowing up to 3 alarm relays per channel. Each channel provides a 4-20mA output signal. A digital Modbus interface for remote logging of data via a Modbus network is standard. A Min-Max feature retains high & low peak readings for review at any time.

Optional Strobe Light

A fully configurable, high visibility strobe is available as an option. The unit can be powered from 115/220 VAC, or an external 24 VDC source. A trickle charging battery backup feature with battery assembly is also available as an option.

All features and functions of the Beacon 410A are controlled by easy to use menus on the OLED display. All features including form-C relay contacts of the Beacon 410A are built into the unit so you never need to purchase or maintain any "add-on" cards or components.



RKI Instruments, Inc. • 33248 Central Ave. Union City, CA 94587 • Phone (510) 441-5656 • (800) 754-5165 • Fax (510) 441-5650

World Leader In Gas Detection & Sensor Technology
www.rkiinstruments.com

Beacon™ 410A Model

Physical

Dimensions	Height: 12.5" (31.8 cm) x Width: 11" (27.9 cm) x Depth: 6.4" (13.6 cm)
Enclosure	NEMA 4X Fiberglass / polyester with lexan window for indoor and outdoor locations
Conduit Connection	3/4" NPT conduit hubs, 4 provided, for sensor, power, & relay wiring
Wiring Termination	Screw Type terminal block, 14 gauge max
Power	115 VAC, 220 VAC, or 24 VDC nominal. Battery backup option available
Optional Accessories	Strobe light, and Battery Backup Assembly
Controls	Display PCB Control Switches: <ul style="list-style-type: none"> • UP/YES push button switch • ESCAPE push button switch • External reset switch • DOWN/NO push button switch • ENTER push button switch • On/Off toggle switch

Environmental

Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Enclosure Rating	NEMA-4X enclosure, chemical and weather resistant. Suitable for indoor and outdoor installations

Inputs

Direct Wired Sensors	LEL, Oxygen, Carbon Dioxide, and toxic gas sensors. Remote amp not required for less than 500 feet
4-20 mA	Accepts any 4-20 mA transmitter (24 VDC, 2 or 3 wire). A wide variety of RKI/Riken sensors are available with 4-20 mA signals. Wiring distances up to 8,000 feet
Sampling Methods	Diffusion and sample draw heads available

Outputs

Relays	Two flexible, programmable Form-C (C, NO, NC) relays per channel, plus five common relays (Fail, Alarm-1, Alarm-2, Alarm-3, Alarm-Any). Common relays may optionally be assigned to function as additional channel alarm relays, providing for up to three alarm relays per channel. 10A contact rating, 250V.
4-20 mA	Signal output, 4-20 mA (maximum load impedance 500 ohms), per channel
RS-485	Modbus format RS-485 serial output of all channel data, including gas reading and alarm status.
Display	Four line OLED display
Audible	Built-in audible alarm, 94 dB, mounted on enclosure Coded output: pulsing = gas alarm, steady = fail
Visual	1. Alarm LED's (on Display PCB) <ul style="list-style-type: none"> • Alarm 1 = yellow • Alarm 2 = orange • Alarm 3 = red • Fail = yellow 2. Green Pilot LED to indicate AC power connected (on Display PCB) 3. An optional 24 VDC NEMA 4X strobe mounted to top of case.

Approvals

Approvals	CSA Certified to CSA C22.2 No. 61010-1-12 and UL61010-1
Warranty	One year materials and workmanship



- Toll Free: (800) 754-5165 • Phone: (510) 441-5656
- Fax: (510) 441-5650 • www.rkiinstruments.com

Authorized Distributor:

M2A STAND ALONE TRANSMITTER



- Operates with or without a controller
- Direct digital readout with OLED cold temperature display
- Available gases include
 - LEL, O₂, H₂S, CO, CO₂, and 100% Vol CH₄
 - Toxic gases include NH₃, AsH₃, Cl₂, ClO₂, HCN, & SO₂
- Infrared sensor for combustibles and CO₂
- 4-20 mA & digital Modbus outputs standard
- 2 fully programmable alarm relays & fail relay
- Non-intrusive calibration via magnetic wand
- Explosion proof construction
- Patented water repellent sensor cover
- User friendly setup, push buttons & OLED menus
- Long-life sensors (2 + years typical)

The RKI M2A™ is a state-of-the-art transmitter that can operate as an independent, stand-alone monitor or as part of an integrated system. The M2A connects with an analog or digital signal to virtually any controller, PLC, or DCS. Setup procedures are simplified with user friendly push buttons and OLED menus. It utilizes a magnetic wand technique for performing non-intrusive calibration. The M2A provides an automatic zero drift correction feature, which results in more stable readings and reduces the need for adjustments due to sensor aging.

The housing of the M2A does not need to be opened for zeroing or calibration, making it unnecessary to declassify the area for routine maintenance. It is designed so that a complete field calibration can be performed by one person. Sensor construction is rated Class I, Div. 1 Groups B, C, D for flammables, CO, H₂S, O₂, and CO₂, and Class I, Div. 2 for all other toxics.

The transmitter provides a 4-20 mA output in addition to a Modbus digital output. It also has two levels of alarms with relays, plus a fail alarm with relay. A digital display of the gas concentration, as well as alarm and status lights, can be viewed through the front window.


The toxic sensors are electrochemical type plug-in sensors, which provide high specificity, fast response, and long life. The plug-in design allows quick replacement in the field with no tools required. Toxic sensors are designed for use in Class I, Div. 2 hazardous locations. Sensors available for NH₃, AsH₃, Cl₂, ClO₂, HCN, PH₃, and SO₂

The M2A represents the latest leading edge technology in sensor / transmitters today.

World Leader In Gas Detection & Sensor Technology


Explosion Proof

Class I, Div. 1 , Groups B, C, D

			Combustibles		LEL	PPM	H2 Specific	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	CH4 Methane	HC Hydrocarbons	CO2 Carbon Dioxide
			LEL	PPM									
	Part #	UL	65-2640RK	65-2647RK	65-2641RK	65-2643RK-05	65-2645RK-05	65-2646RK-05	65-2649RK-CH4 65-2658RK-CH4	65-2649RK-HC	65-2660RK-02 65-2660RK-03 65-2660RK-05 65-2660RK-10		
	CSA	65-2640RK-05	65-2647RK-05	65-2641RK-05									
Sensors			Catalytic			Galvanic cell	Electrochemical			Infrared			
Measuring Ranges			0 - 100% LEL	0 - 9000 ppm CH4	0 - 100% LEL	0 - 25.0% Vol.	0 - 100 ppm	0 - 300 ppm	0 - 100% LEL 0 - 100% Vol.	0 - 100% LEL	-02	0 - 5000 ppm	
											-03	0 - 5% Vol.	
											-05	0 - 50% Vol.	
Resolution			1% LEL	20 ppm	1% LEL	0.1% Vol.	1 ppm			1% LEL / 1% Vol.		20 ppm / 0.01% Vol / 0.1% Vol. / 1% Vol.	
Lower Detectable Limit (LDL)			2% of full scale			0.1% Vol.	2% of full scale						
Max Current Draw (24VDC)			160 mA with alarm 1 and alarm 2 active and all relays energized			125 mA with alarm 1 and alarm 2 active and all relays energized			160 mA with alarm 1 and alarm 2 active and all relays energized				
Response Time (T-90)			35 Seconds or less			90 Seconds or less	60 Seconds or less	90 Seconds or less	30 Seconds or less				
Life Expectancy			2 to 3 years with normal service		3 to 5 years with normal service	2 to 3 years with normal service			5 years plus with normal service				
Accuracy (which ever is greater)			± 5% of reading or ± 2% of full scale			± 0.5% Vol. O2	± 5% of reading or ± 2 ppm H2S	± 5% of reading or ± 5 ppm CO	± 5% of reading or ± 2 % of full scale				
Weather Resistant			Patented water repellent sensor coating										
Alarms													
Alarm Settings			Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized										
Alarm Indication			Visual LEDs. Alarm 1, Amber; Alarm 2, Red; Fail, Red										
Relays			5 amp form 'C' contacts for alarm 1, alarm 2, and fail										
Physical													
Dimensions			Height: 8.5" (215 mm), Width: 5.2" (132 mm), Depth: 4.5" (114 mm)										
Display			Alphanumeric OLED display. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup										
Enclosure			Explosion proof for Class I, Div 1, Groups B, C, D.										
Enclosure Rating			NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating										
Controls			Magnet used for calibration functions. Calibrates without opening the housing. Internal push-button controls also available for calibration and setup										
Operating Environment													
Operating Temperature			-40°F to 167°F -40°C to 75°C			-4°F to 113°F -20°C to 45°C	-40°F to 104°F -40°C to 40°C	23°F to 104°F -5°C to 40°C	-40°F to 122°F -40°C to 50°C				
Relative Humidity			5 - 95% RH non-condensing										
Location			Indoor or outdoor. Explosion proof for Class I, Div. 1, Groups B, C, D.										
Operating Voltage			10 VDC - 30 VDC										
Outputs													
Analog			Linear 4-20 mA signal, into 1000 ohms impedance max (24DC), 0 - 500 ohms max (12VDC) corresponding to 0 - full scale										
Digital			Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud										
Approvals			65-2640RK UL	65-2641RK UL	c CSA US				c UL US				
			65-2640RK-05 c CSA US	65-2641RK-05 c CSA US									
Controllers			Beacon 110, Beacon 200, Beacon 410A, Beacon 800 as well as most DCS / PLC systems										
Warranty			One year material and workmanship										

Toxic Gas Transmitters

Class I, Div. 2

	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	Toxics See Chart Below	CO2 Carbon Dioxide	
 Part#	65-2666RK *65-2644RK	65-2662RK	65-2663RK	See Chart Below	65-2661RK-02 65-2661RK-03 65-2661RK-05 65-2661RK-10	
Sensors	Galvanic cell	Electrochemical			Infrared	
Measuring Ranges	0-25% Vol.	0-100 ppm	0-300 ppm	See Chart Below	-02	0 - 5000 ppm
					-03	0 - 5% Vol.
					-05	0 - 50% Vol.
					-10	0 - 100% Vol.
Resolution	0.1% Vol.	1 ppm		See Chart Below	20 ppm / 0.01% Vol. / 0.1% Vol. / 1%Vol.	
Lower Detectable Limit (LDL)	0.1% Vol.	2% of full scale				
Response Time (T-90)	35 Seconds or less			60 Seconds or less	30 Seconds or less	
Max Current Draw (24VDC)	125 mA with alarm 1 and alarm 2 active and all relays energized				160 mA with alarm 1 and alarm 2 active and all relays energized	
Life Expectancy	2 to 3 years with normal service				5 years plus	
Accuracy (which ever is greater)	± 0.5% Vol. O2	± 5% of reading or ± 2 ppm H2S	± 5% of reading or ± 5 ppm CO	± 10% of reading or ± 5% of full scale	± 5% of reading or ± 2% of full scale	
Alarms						
Alarm Settings	Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized,					
Alarm Indication	Visual LEDs. Alarm 1=Amber; Alarm 2=Red; Fail=Red					
Relays	5 Amp form 'C' contacts for alarm 1, alarm 2, and fail					
Physical						
Dimensions	Height: 8.5" (215 mm), Width: 5.2" (132 mm), Depth: 4.5" (114 mm)					
Display	Alphanumeric OLED display. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup					
Sensor Rating	Non explosion proof construction, designed for Class I, Div. 2, Groups B, C, D (no certification)					
Housing J-Box	NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating					
Controls	Magnet used for calibration functions. Calibrates without opening the housing. Internal push-button controls also available for calibration and setup					
Sensor	Aluminum / Plastic (non explosion proof)					
Operating Environment						
Operating Temperature	-4°F to 113°F -20°C to 45°C	-40°F to 104°F -40°C to 40°C	23°F to 104°F -5°C to 40°C	14°F to 104°F -10°C to 40°C	-40°F to 122°F -40°C to 50°C	
Relative Humidity	5 - 95% RH non-condensing					
Location	Indoor or outdoor					
Operating Voltage	10 VDC - 30 VDC					
Outputs						
Analog	Linear 4-20 mA signal, into 1000 ohms impedance max (24DC), 0 - 500 ohms max (12VDC) corresponding to 0 - full scale					
Digital	Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud					
Controllers	Beacon 110, Beacon 200, Beacon 410A, Beacon 800 as well as most DCS / PLC systems					
Warranty	One year materials and workmanship					

*Partial pressure sensor for helium (He) applications. Consult factory for details.

M2A Toxic Transmitter Sensor Ordering Information						
Part Number With J-Box	Gas	Range	Resolution	Sensor Type		
65-2670RK-NH3-75	Ammonia (NH ₃)	0 - 75.0 ppm	0.1 ppm	CT-7		
65-2670-NH3-1	Ammonia (NH ₃)	0 - 100 ppm	1 ppm	CT-7		
65-2670-NH3-2	Ammonia (NH ₃)	0 - 200 ppm	1 ppm	CT-7		
65-2670-NH3-5	Ammonia (NH ₃)	0 - 500 ppm	1 ppm	CT-7		
65-2648RK-AsH3	Arsine (AsH ₃)	0 - 1.50 ppm	0.1 ppm	ESM -01		
65-2670RK-CL2-3	Chlorine (Cl ₂)	0 - 3.00 ppm	0.01 ppm	CT-7		
65-2670RK-CL2-10	Chlorine (Cl ₂)	0 - 10.0 ppm	0.1 ppm	CT-7		
65-2670RK-CLO2	Chlorine Dioxide (ClO ₂)	0 - 1.00 ppm	0.01 ppm	CT-7		
65-2648RK-HCN	Hydrogen Cyanide (HCN)	0 - 15.0 ppm	0.1 ppm	ESM -01		
65-2648RK-PH3	Phosphine (PH ₃)	0 - 1.00 ppm	0.01 ppm	ESM -01		
65-2648RK-SO2	Sulfur Dioxide (SO ₂)	0 - 6.00 ppm	0.01 ppm	ESM -01		

ESM-01

CT-7

* Sensor being phased out, use CT-7 type when possible.

(800) 754-5165

M2A Stand Alone Transmitter

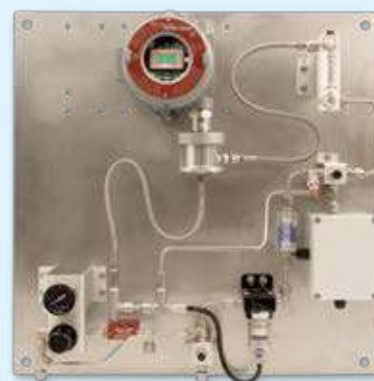
AVAILABLE ACCESSORIES



Remote Mount
Calibration Adaptor



Flow through adaptors



Air aspirator adaptors / panels



Remote horns & lights



Calibration adaptors



Calibration kits

Direct Interface with Beacon 110 / 200 / 410A / 800 Controllers

M2A Wiring Matrix				
	Number of Wires to Controller	Maximum Distance to Controller		
		18 AWG wire	16 AWG wire	14 AWG wire
M2A Transmitter	3	2500 ft.	5,000 ft.	8,000 ft.



Made in the USA

Authorized Distributor:



Safety Products, Inc.

en gas detection

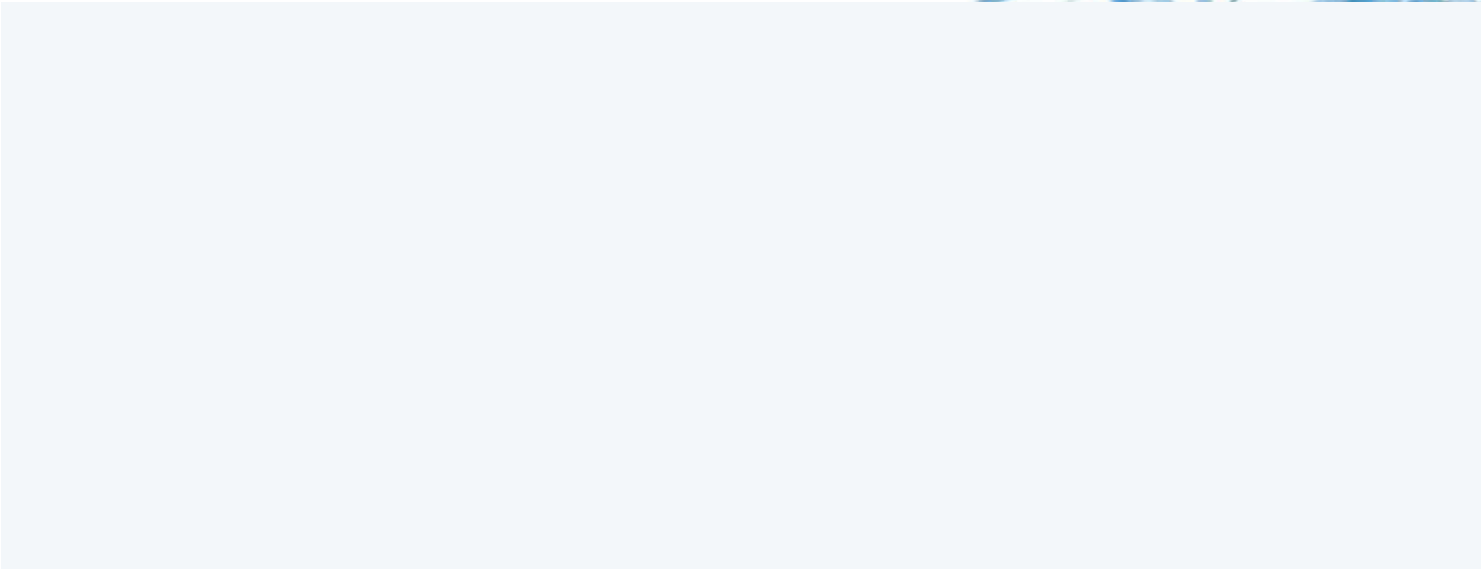
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Protecting your family



HOME

Radon
Detector

Gas
Detector





Carbon Monoxide, Propane and Methane Gas Detector

Model No. HS80504

USD \$64.95



Add to Cart

- 3-in-1 detector.
- Senses dangerous levels of Carbon Monoxide, Propane and Methane Gas.
- Two independent 85dB alarm sounds, one for CO, the other for methane/liquid propane.
- Every detector has computerized calibration to help eliminate false alarms.
- Built-in self-diagnostics assures the unit is operating properly.
- Easily plugs into any standard 110-120v AC electrical outlet and samples the air every 2 1/2 minutes.
- Lock tab feature makes the detector tamper proof.
- 5 year warranty.



Manual



Combustible Gas Detector

Model No. HS80501

USD \$57.95

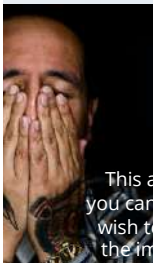


Add to Cart

- Detects dangerous levels of Methane and Propane Gas.
- Computerized calibration helps eliminate false alarms.
- Built-in self-diagnostics assures the unit is operating properly.
- Easily plugs into any standard 110-120v AC electrical outlet and samples the air every 2 1/2 minutes.
- Lock tab feature makes the detector tamper proof.
- Advanced surface mount circuitry.
- Powerful 85dB Alarm.
- 5 year warranty.



Manual



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of CO Poisoning

ptoms are related to carbon monoxide poisoning discussed with all members of the household:

nausea, vomiting, fatigue (often described as "flu-

re g headache, drowsiness, confusion, rapid heart rate.

re s, convulsions, cardiopulmonary failure, death.

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Facts and Concerns about Carbon Monoxide (CO)

Carbon Monoxide (CO) is a colorless, odorless, tasteless gas, which is very toxic and nearly impossible to detect without the use of sensing equipment. Carbon Monoxide can be absorbed into the body's bloodstream nearly 10 times faster than pure oxygen. Thus it can limit the body's ability to absorb oxygen whenever carbon monoxide is present, even in small amounts. This reduced ability of the body to absorb oxygen is known as chemical asphyxiation and it can result in death whenever carbon monoxide is present in small quantities over a period of time.

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Sources of CO Gas

Carbon monoxide results from of carbon-based fuels such as r wood, coal, heating oil, kerosen propane. Many of these fules c the home, for example in kitch water heaters, fireplaces, porta grills and automobiles. If incor occurs in any of these devices a vented to the outside, the dang exists.

and pets may be the first affected by CO poisoning.

DISASTROUS EXPLOSIONS CAN OCCUR FROM LEAKS OF COMBUSTIBLE GASES
Such as natural gas (methane) and LPG gas (propane).

These types of gases are used to fuel a variety of common appliances found in the home. Cooking stoves/ovens, hot-water heaters, clothes dryers, space heaters, fireplace starters and heating furnaces are the most common gas-fuel burning appliances. Natural gas and propane can cause devastating explosions from even the smallest leaks from any of these appliances.

Address:
100 Remico Street SW
Grandville, MI. 49418

516-530-6540

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E-mail address

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Safety Siren™

***Carbon Monoxide,
Propane & Methane***

DETECTOR

Owner's Manual

Model Number

HS80004

HS80104

HS80204

HS80504

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Family Safety Products, Inc.

2879 Remico SW

Grandville, MI 49418

(616) 530-6540

www.fsps-radon.com

Made in USA



Family Safety Products Inc.

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**FACTS AND CONCERNS ABOUT
 CARBON MONOXIDE:**

Carbon Monoxide (CO) is a colorless, odorless, tasteless gas, which is very toxic and nearly impossible to detect without the use of sensing equipment. Carbon monoxide can be absorbed into the body's bloodstream nearly 10 times faster than pure oxygen. Thus it can limit the body's ability to absorb oxygen whenever carbon monoxide is present, even in small amounts. This reduced ability of the body to absorb oxygen is known as chemical asphyxiation and it can result in death whenever carbon monoxide is present in small quantities over a period of time.

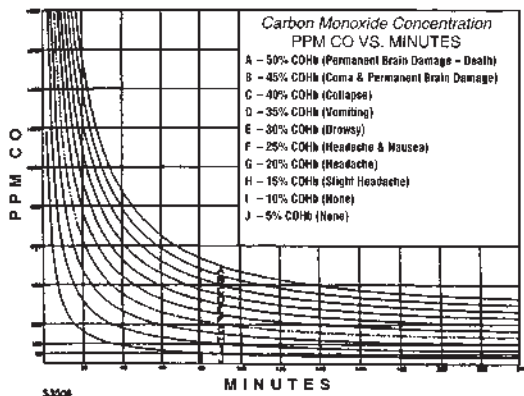
As the level of carbon monoxide rises in a closed environment, the toxic effects require less and less time to occur. This relationship can be seen in Figure 1. While it takes over three hours for an atmosphere with 0.01% CO to produce a headache, it takes only one hour for 0.02% CO to produce the same effects. At 0.04% CO the time required to produce the same headache is only 25 minutes. The HS 80004 SafetySiren™ unit is designed to generate an alarm at the following exposure levels as defined by Underwriters Laboratories:

- in less than 90 minutes at 0.01% CO (100ppm CO)
- in less than 35 minutes at 0.02% CO (200ppm CO)
- in less than 15 minutes at 0.04% CO (400ppm CO)

Warning:

This device may not alarm at low carbon monoxide levels. The federal Occupational Safety and Health Administration (OSHA) has established that continuous exposure to CO levels of 50 ppm should not be exceeded in an eight hour period. This detector has not been investigated for carbon monoxide detection below 100 ppm. Individuals with a medical condition may consider using a more sensitive device.

Figure 1 – Carbon Monoxide Concentration
versus Time and % COHh



Carbon monoxide results from incomplete combustion of carbon-based fuels such as natural gas, charcoal, wood, coal, heating oil, kerosene, gasoline and propane. Many of these fuels can be found throughout the home, for example in kitchen appliances, furnaces, water heaters, fireplaces, portable heaters, barbecue grills, and automobiles. If incomplete combustion occurs in any of the of the devices shown below and they are improperly vented to the outside, the danger of CO poisoning exists.

Figure 2. Sources of carbon monoxide



Water Heater



Automobile



Space Heater



Fireplace



Furnace



Charcoal Grill

Sources of Combustible Gas

Disastrous explosions can occur from leaks of combustible gases, such as natural gas (methane) and LPG gas (propane). These gases are used to fuel a variety of common appliances found in the home. Cooking stoves/ovens, hot-water heaters, clothes dryers, space heaters, fireplace starters, and heating furnaces are the most common gas-fuel burning appliances. Natural gas and propane can cause devastating explosions from even the smallest leaks from any of these appliances.

Sources of Combustible Gases



Fireplace



Furnace



Dryer



Space Heater



Water Heater



Stove

Att 9 Page 37, Rev3 8/6/24 Symptoms of Carbon Monoxide Poisoning

The following symptoms are related to carbon monoxide poisoning and should be discussed with all members of the household:

Mild Exposure:

Slight headache, nausea, vomiting, fatigue (often described as “flu-like” symptoms).

Medium Exposure:

Severe throbbing headache, drowsiness, confusion, rapid heart rate.

Extreme Exposure:

Unconsciousness, convulsions, cardiopulmonary failure, death.

Many cases of reported carbon monoxide poisoning have indicated that although victims were aware they were not well, they became disoriented to the point they were unable to save themselves by either exiting the building or calling for assistance. Young children and household pets may be the first affected by CO poisoning.

OPERATING INSTRUCTIONS

Installation

This HS 80004 SafetySiren™ Carbon Monoxide and Combustible Gas Sensor plugs directly into a standard 110-volt AC household outlet. The unit should be oriented vertically so that all of the script on the face of the unit appears in the upright position. The ventilation slots must not be blocked and the unit must be kept dust free. A proper airflow must be maintained through the unit to obtain an air sampling representative of the local environment. The only maintenance the unit requires is a thorough vacuuming once every six months.

WARNING: There are no user serviceable parts inside the unit. Do not remove the back cover. Removal of the back cover will void the warranty.

CAUTION: When the unit has been stored unplugged for several weeks, its sensitivity to combustible gases will decline. To restore the unit to normal sensitivity, allow a 24-hour warmup period.

Once the unit is plugged into the wall outlet, the green power indicator should light up. The red indicator will flash approximately once every three seconds to indicate the unit is operating properly. It should be noted that the sounding of the alarm will indicate whether the sensor has detected unsafe levels of CO or combustible gas. Continuous appearance of the red indicator and the continuous sounding of the audible buzzer indicates a presence of potentially dangerous levels of CO. Continuous appearance of the red indicator and the intermittent sounding of the audible alarm indicates the presence of potentially dangerous levels of combustible gases. If the unit begins beeping once every 5 seconds or the red LED light is not flashing once every 3 seconds, then a fault has

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occurred in the unit. If either condition exists, disconnect the unit from the AC power immediately and call Family Safety Products at 616-530-6540.

WARNING: Make sure that the unit is not plugged into a wall outlet controlled by a light switch.

CAUTION: This carbon monoxide and combustible gas detector is designed to detect carbon monoxide gas and ANY source of combustion or the combustible gases of methane and propane. It is NOT designed to detect smoke, fire, or other gases.

Location of the Detector

The Consumer Product Safety Commission recommends that each household have at least one Carbon Monoxide detector placed in the sleeping areas of the home. A second detector located near appliances or equipment using combustible fuel adds an extra measure of safety. Figure 3 shows suggested locations in the home. Make sure that airflow through the unit's ventilation slots is not inhibited by curtains, furniture or other items. The audible alarms should be able to be heard from all sleeping areas in the home. Units must not be placed within five feet of open flame cooking appliances. Also, avoid placing units near paint thinner fumes or in areas where the temperature varies outside the range of 40.0°F (4.4°C) to 100°F (37.8°C).

CAUTION: This detector will only indicate the presence of carbon monoxide and combustible gas at the sensor. Carbon monoxide and combustible gas may be present in other areas.

Figure 3 – Suggested locations for SafetySiren™ for Carbon Monoxide and Combustible Gas sensors.



Att 9 Page 39 Rev3 8/6/24 Testing the SafetySiren™ for Carbon Monoxide and Combustible Gas Sensor

To verify the circuitry is operating properly, use the Test/Reset button built into the unit. Simply press down on the button during normal operation and note the red indicator. The red indicator will light continuously and the audible alarm will sound as long as the button is held down. Once you release the Test/Reset, the red indicator will return to blinking at a three-second rate and the audible alarm will cease, indicating the unit has returned to a normal operating mode. Test the unit monthly. If the unit begins beeping once every 5 seconds or the red LED light is not flashing once every 3 seconds, then a fault has occurred in the unit. Disconnect the unit from the AC power immediately and call Family Safety Products at 616-530-6540.

Resetting the Alarm

The Test / Reset button may also be used to reset the audible alarm during the alarm mode. Once the alarm is activated by detection of high CO or combustible gas levels, simply press the Test/Reset button to disable the audible alarm. If the high CO level or combustible gas level continues, the audible alarm will again sound within a 2.5 minute period. The red indicator will remain lit during the time the audible alarm is disabled, indicating that the alarm condition still exists.

WHAT TO DO WHEN THE ALARM SOUNDS

WARNING

If a continuous alarm sounds for Carbon Monoxide

Activation of this device indicates the presence of carbon monoxide which can be FATAL.

- 1) **If anyone has a headache or an upset stomach, call the Fire Department and move to a location which has fresh air. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. DO NOT RE-ENTER THE PREMISES UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM CORRECTED!**

If no one exhibits symptoms of discomfort associated with carbon monoxide poisoning, simply:

- 2) Operate the reset button.
- 3) Turn off appliances, vehicle, or other sources of combustion at once (furnace, water heater, wood burning stove, RV, automobile, or the like).
- 4) Get fresh air into premises or vehicle.
- 5) Call a qualified technician and have the problem fixed before restarting appliances or vehicle.

If the intermittent alarm sounds for Combustible Gas

An intermittent audible alarm from this device indicates the presence of combustible gases, the source of which may be an appliance such as a furnace, water heater, oven/stove, or dryer.

- Do not operate any electrical devices such as light switches or telephones.
- Do not plug or unplug any electrical devices because they may cause a spark.
- Immediately extinguish any flames or pilot lights.
- Ventilate the area by opening doors and windows.
- Determine the source of the gas. Seek a qualified technician or call your local gas company.
- Turn off the gas supply.

**SafetySiren™ for Carbon Monoxide and Combustible Gas Sensor
Model HS 80004 Specifications**

Power Source	110-volt AC/60Hz at 15 Watts
CO Sensor	CO Sensor calibrated at 200 ppm CO specific to avoid false alarms.
CG Sensor	Alarm trip-point set at less than 25% LEL (Lower Explosive Limit) 3.8% by volume Natural gas (methane) in air 2.1% by volume LP-gas (propane) in air
Temperature	4.4°C (40 F) to 37.8°C (100°F)
CO Audible Alarm	Continuous 85dB alarm at 10 ft. for CO
CG Audible Alarm	Intermittent alarm for Combustible Gas
Visual Alarm	(3 second blinking rate for normal operation). Continuous RED LED during alarm condition.
Green LED Operation	Continuous Operation When Power On
Detection frequency	Air sampled every 2.5 minutes for CO. Air sampled continuously for Combustible Gas after an initial warm-up of 2.5 minutes
Test	Test button verifies proper operation when unit is in normal operation. Once in alarm mode the Test button will reset audible alarm until next air sampling
Dimensions	4.7 inches x 3.1 inches x 2.1 inches
Weight	12 ounces

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Limited Warranty

Your Safety Siren™ for Carbon Monoxide and Combustible Gas has a **five-year warranty** from date of purchase against defects in material and workmanship. Units returned to the manufacturer during this period because of such defects will be repaired or replaced free of charge. For repairs within the warranty period or receipt of a faulty unit, call Family Safety Products at 616-530-6540 to receive a Return Authorization Number (RAN). Include a written description of the problem. You may then ship the unit to the address listed below along with the RAN, and proof of purchase.

The warranty covers only defects in material or workmanship in normal use and not damage from negligent handling, misuse, or lack of proper care. Important: Do not remove the back cover. Such removal will void the warranty. This warranty stands in place of any other warranty either expressed or implied.

Family Safety Products, Inc. is not liable for any personal injury, property damage or any incidental or consequential damage resulting from gas leakage, fire, or explosion. The sole remedy for breach of this limited warranty does not, in any instance, exceed the purchase price. Your SafetySiren™ for Carbon Monoxide and Combustible Gas sensor does not constitute property, disability, life or any other type of insurance.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Family Safety Products, Inc.
2879 Remico SW
Grandville, MI 49418
USA

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DATOS Y PREOCUPACIONES RELACIONADOS CON EL MONÓXIDO DE CARBONO

El monóxido de carbono (CO) es un gas incoloro, inodoro e insaboro que es muy tóxico y casi imposible de detectar, si no se utiliza un equipo sensor. El monóxido de carbono puede ser absorbido por la circulación de la sangre del cuerpo con una rapidez casi diez veces mayor a la del oxígeno puro. En consecuencia, puede limitar la capacidad que tiene el cuerpo de absorber oxígeno cuando existe una presencia de monóxido de carbono, incluso cuando se en pequeñas cantidades. Esta capacidad reducida del cuerpo para absorber oxígeno se conoce con el nombre de asfixia química y puede causar la muerte cuando existe una presencia de pequeñas cantidades de monóxido de carbono durante un periodo determinado de tiempo.

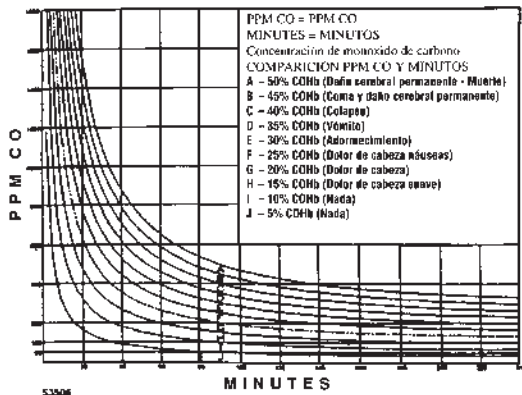
A medida que sube el nivel de monóxido de carbono en un ambiente cerrado, los efectos tóxicos tardan cada vez menos en presentarse. Si bien es cierto que son necesarias más de tres horas para que una atmósfera con un 0.01% de CO ocasione dolores de cabeza, cuando esta cantidad sube hasta el 0.02% sólo es necesaria una hora para que se produzcan los mismos efectos. Si el porcentaje sube hasta el 0.04% de CO, el tiempo necesario para que se ocasionen dolores de cabeza es sólo de 25 minutos. La unidad SafetySiren™ HS 80004 ha sido diseñada para activar la alarma cuando se alcanzan los tiempos de exposición que se indican a continúa, tal y como los define la entidad Underwriters Laboratories:

- en menos de 90 minutos con un 0.01% (100 ppm CO)
- en menos de 35 minutos con un 0.02% (200 ppm CO)
- en menos de 15 minutos con un 0.04% (400 ppm CO)

Advertencia:

Es posible que no se active la alarma de este dispositivo cuando los niveles de monóxido de carbono son bajos. La entidad del gobierno federal, denominada Administración para la Seguridad y la Salud Ocupacional (OSHA) ha determinado que la exposición continuada a niveles de CO de 35 ppm no debe prolongarse por un período superior a las ocho horas. No se ha estudiado la capacidad de este detector para responder a niveles de monóxido de carbono inferiores a los 100 ppm. Es posible que a las personas con problemas de salud les convenga utilizar un dispositivo de detección de mayor sensibilidad.

Figura 1 – Concentración de monóxido de carbono comparada en función del tiempo y del % de COHb.



Fuentes de monóxido de carbono

El monóxido de carbono proviene de la combustión incompleta de los combustibles derivados del carbono como, por ejemplo, gas, carbón de quemar, madera, carbón, combustibles para sistemas de calefacción, gasolina y propano. Muchos de estos combustibles se pueden encontrar en las casas, por ejemplo, en los aparatos de cocina, sistemas de calefacción, calentadores de agua, chimeneas, calentadores portátiles, barbacoas con parrillas y vehículos. Cuando se produce una combustión incompleta en cualquiera de los artículos indicados anteriormente, sin que exista una ventilación adecuada al exterior, se presenta el peligro de intoxicación por CO.

Figura 2 – Fuentes de monóxido de carbono



Calentador de agua



Vehículo



Calentador portátil



Chimenea



Sistema de calefacción



Barbacoa de carbón

Fuentes de gas combustible

Pueden ocurrir explosiones desastrosas como resultado de fugas de gases combustibles tales como el gas natural (metano) y los gases LPG (butano y propano). Estos tipos de gas se utilizan para prender una variedad de equipos de uso doméstico. Entre los más comunes se encuentran las hornillas y los hornos para cocinar, los calentadores de agua caliente, las secadoras de ropa, los calefactores portátiles, los dispositivos para prender chimeneas y los hornos para calefacción. El gas natural, el butano y el propano pueden causar explosiones devastadoras, aun cuando la fuga emitida por tales equipos es mínima.

Fuentes de gas combustible



Chimenea



Sistema de calefacción



Secadora de ropa



Calentador portátil



Calentador de agua



Hornilla

Síntomas de la intoxicación por monóxido de carbono

Los síntomas que se indican a continuación se encuentran relacionados con la intoxicación por monóxido de carbono y todas las personas que habitan en la casa deberían ser conscientes de los mismos:

Exposición de grado menor:

Dolor de cabeza suave, náuseas, vómitos, fatiga (los síntomas se describen frecuentemente como si fueran similares a los provocados por la gripe).

Exposición de grado medio:

Dolor de cabeza con palpitaciones, adormecimiento, confusión, ritmo cardíaco rápido.

Exposición de grado extremo:

Pérdida de conciencia, convulsiones, problemas cardiopulmonares, muerte.

Muchos de los casos de intoxicación por monóxido de carbono que se han dado a conocer han indicado que, si bien las víctimas eran conscientes de que no se sentían bien, se desorientaron hasta el punto de ser incapaces de prevenir las consecuencias saliendo del edificio o pidiendo ayuda. Sus hijos y sus animales domésticos pueden ser los primeros en sufrir los efectos de una intoxicación por CO.

INSTRUCCIONES PARA EL FUNCIONAMIENTO

Instalación

El HS 80004 SafetySiren™ para Sensor de Monóxido de Carbono y de Gas Combustible se enchufa directamente en un tomacorrientes residencial común de 110 voltios C.A. La unidad debe quedar verticalmente orientada de manera que toda la inscripción situada en la cara de la misma aparezca en tal posición. Las aberturas de ventilación no deberán estar bloqueadas y la unidad deberá estar siempre desempolvada. Se debe mantener la circulación de aire adecuada a través de la unidad con el fin de obtener una muestra de aire que sea representativa de la atmósfera local. El único tipo de servicio de mantenimiento que la unidad requiere consiste en limpiarla completamente con una aspiradora cada seis meses.

ADVERTENCIA: En el interior de la unidad no existen componentes de interés para el usuario. No retire la cubierta trasera. Si se retira la cubierta trasera, la garantía será anulada.

PRECAUCIÓN: Si no se utiliza la unidad durante varias semanas estando desenchufada de la electricidad, disminuirá su capacidad de detección. La unidad requerirá un período de recalentamiento de 24 horas para volver a funcionar con su capacidad de detección normal.

Una vez que la unidad esté conectada al tomacorrientes de la pared, se encenderá el indicador de luz verde. El indicador de luz roja se iluminará intermitentemente cada tres segundos para indicar que la unidad está funcionando correctamente. Si el indicador de luz roja se ilumina continuamente y se escucha un zumbido, esto quiere decir que la atmósfera contiene un nivel de CO que puede ser peligroso.

Si se detecta un alto nivel de gas combustible, la operación continua del indicador con luz roja y y el sonido intermitente de la alarma de zumbido indicarán la posibilidad de que exista una condición peligrosa. Si la unidad comienza a sonar cada 5 segundos, o si el indicador de luz roja no se enciende cada tres segundos, esto indica que existe un fallo en el sistema. Si cualquiera de estas dos condiciones persiste, desconecte inmediatamente la unidad y llame a Family Safety Products marcando el 616-530-6540.

ADVERTENCIA: Asegúrese de que la unidad no esté conectada a un tomacorrientes controlado por un interruptor de luz.

PRECAUCION: Este detector de monóxido de carbono ha sido diseñado para detectar gas de monóxido de carbono proveniente de CUALQUIER fuente de combustión. No ha sido diseñado para detectar humo, fuego u otro tipo de gases.

Ubicación del Detector

El Consumer Product Safety Commission (Comisión para la Seguridad de los Productos) recomienda que cada hogar tenga al menos un detector colocado en el área que se utiliza para dormir. Otro detector situado cerca de electrodomésticos o de equipo que consuma gas combustible constituye una medida de seguridad adicional. En la Figura 3 se sugieren ubicaciones dentro de una casa. Asegúrese de que la circulación de aire a través de las aberturas de ventilación de la unidad no se encuentre obstaculizada por cortinas, muebles u otros objetos. Se deberán instalar las alarmas de forma que se puedan escuchar en todas las áreas del hogar utilizadas para dormir. Se deberá mantener una distancia mínima de cinco pies entre las unidades y cualquier equipo de cocina que funcione con llamas abiertas. Además, evite colocar las unidades cerca de los vapores emitidos por un diluyente de pintura o en áreas cuya temperatura sea inferior a los 40.0°F (4.4°C) o superior a los 100°F (37.8°C).

Precaucion: Este detector sólo indica la presencia en el sensor de gas de monóxido de carbono o de gas combustible. Es posible que en otras áreas también exista monóxido de carbono y gas combustible.

Figura 3. Sugerencias de ubicaciones para los sensores de SafetySiren™ para Monóxido de Carbono y de Gas Combustible

Comprobación del funcionamiento de SafetySiren™ para Sensor de Monóxido de Carbono y de Gas Combustible

Para comprobar que el conjunto de circuitos esté funcionando correctamente, utilice el botón "Test/Reset" (Comprobación/Reactivación) incorporado a la unidad. Sólo tiene que oprimir el botón durante el funcionamiento normal y observar el indicador de luz roja. El indicador de luz roja permanecerá iluminado y la alarma sonará mientras el botón se mantenga oprimido. Una vez que suelte el botón "Test/Reset", el indicador de luz roja volverá a iluminarse de forma intermitente a intervalos de tres segundos y la alarma dejará de sonar, lo cual indica que la unidad ha vuelto a su funcionamiento normal. Compruebe mensualmente el funcionamiento de la unidad. Si la unidad no funciona de la manera indicada anteriormente, desconéctela inmediatamente del suministro de electricidad de C.A. y llame a Family Safety Products marcando al 616-530-6540.

Reactivación del dispositivo de alarma

También se puede utilizar el botón "Test/Reset" para reactivar el dispositivo de alarma sonora mientras la unidad se encuentra en el modo de alarma. Si se activa la alarma debido a la detección de altos niveles de CO o de gas combustible, simplemente oprima el botón "Test/Reset" para desactivar la alarma sonora. Si continúa existiendo un alto nivel de CO o gas combustible, la alarma volverá a sonora al cabo de 2.5 segundos. El indicador de luz roja permanecerá iluminado mientras la alarma sonora se encuentre desactivada, para indicar que persisten las condiciones de alarma.

QUE HACER CUANDO SUENA LA ALARMA

ADVERTENCIA

Si la alarma suena continuamente debido a la detección de Monóxido de Carbono

La activación de este dispositivo indica la presencia de monóxido de carbono, lo cual puede tener consecuencias FATALES.

1) Si alguien tiene dolor de cabeza o mal de estómago, llame a los Bomberos y trasládese a un área donde circule aire fresco. CUENTE LAS PERSONAS QUE SE ENCUENTRAN PRESENTES PARA ASEGURARSE DE QUE NO FALTE NADIE. ¡NO VUELVA A ENTRAR A LA CASA O AL LOCAL HASTA QUE SE HAYA EVACUADO EL AIRE CONTAMINADO Y SE HAYA CORREGIDO EL PROBLEMA!

Se nadie tiene síntomas de malestar relacionados con la intoxicación por monóxido de carbono, simplemente:

- 2) Oprima nuevamente el botón de reactivación.
- 3) Apague de inmediato todo electrodoméstico, vehículo u otra fuente de combustión (horno, calentador de agua, hornilla de carbón de madera, vehículo recreativo, automóvil, o cualquier equipo de esta índole).
- 4) Haga que el aire fresco circule por el interior de la casa, del local o del vehículo.
- 5) Llame a un técnico competente para que corrija el problema antes de volver a encender los electrodomésticos o vehículos.

Si suena la alarma intermitente debido a la detección de Gas Combustible

La alarma de este dispositivo suena intermitente para indicar la presencia de gases combustibles, cuya fuente puede ser un horno de recalentar, un calentador de agua, un horno u hornilla para cocinar o una secadora de ropa.

- **No active o utilice ningún equipo eléctrico; por ejemplo, interruptores de luz o teléfonos.**
- **No enchufe o desenchufe ningún dispositivo eléctrico, puesto que se pueden producir chispas.**
- **Extinga inmediatamente cualquier llama abierta o llama de piloto.**
- **Abra puertas y ventanas para ventilar el área.**
- **Determine la fuente de la emisión de gas. Solicite el servicio de un técnico competente o llame a la compañía de suministro de gas correspondiente a su área.**
- **Apague o cierre el suministro de gas.**

Att 9 Page 48 Rev3 8/6/24 Datos específicos relacionados con el SafetyShen™ para Sensor de Monóxido de Carbono y de Gas Combustible

Suministro eléctrico	110 voltios CA/60Hz a 10 Vatios
Sensor de CO	El Sensor ha sido regulado para detectar específicamente CO a 200 ppm, lo cual permite evitar falsas alarmas
Sensor de GC	La alarma se activa cuando el sensor detecta que existe menos de un 25% del límite inferior de nivel de gas explosivo; 3.8% por volumen de gas natural (metano) en el ambiente; 2.1% por volumen de gas LP (propano) en el ambiente
Temperatura	4.4°C (40°F) a 37.8°C (100°F)
Alarma sonora	Para CO, 85dB continuos a 10 pies Para gas combustible, alarma intermitente
Alarma visible	(a intervalos de 3 segundos durante funcionamiento normal); el indicador de luz ROJA permanece encendido cuando existe una condición de alarma.
Funcionamiento del indicador con luz verde	Iluminación continua cuando la unidad se encuentra funcionando bajo condiciones de peligro.
Frecuencia de detección	Para CO, Toma de muestra de aire cada 2.5 segundos Para Gas Combustible, toma de muestra de aire continua, después de calentamiento inicial de 2.5 minutos
Prueba	El botón "Test" permite comprobar que la unidad esté funcionando correctamente. Al ponerlo nuevamente en el modo de alarma, el botón "Test" volverá a activar la alarma sonora hasta que se efectúe una nueva toma de aire
Dimensiones	4.7 pulgadas x 3.1 pulgadas x 2.1 pulgadas
Peso	12 onzas

Garantía Limitada

Su SafetySiren™ para Monóxido de Carbono y Gas Combustible tiene una garantía de cinco años contra defectos de los materiales o de la mano de obra. Esta garantía comienza a partir de la fecha de adquisición. Las unidades que sean devueltas al fabricante durante este período por motivo de tales defectos, serán reparadas o reemplazadas sin cargo alguno. Para solicitar reparaciones (dentro del período cubierto por la garantía, o después de después de haber recibido una unidad defectuosa, llame a Family Safety Products al 616-530-6540 y se le dará un Return Authorization Number (RAN - Número de Aprobación de Devoluciones). Escriba una nota describiendo el problema. Dirija el envío de la unidad a la dirección que figura más abajo e incluya el RAN.

La garantía cubre únicamente los defectos de material o de mano de obra en unidades sometidas a uso normal, pero no cubre daños por manejo negligente, uso indebido o cuidado inapropiado. Importante: no retire la cubierta trasera. El hecho de retirar la cubierta trasera tendrá como resultado la anulación de la garantía. Esta garantía prevalece sobre cualquier otra garantía, bien sea ésta explícita o implícita.

Family Safety Products, Inc., no asume la responsabilidad de ningún lesión que pueda sufrir una persona, de ningún daño a la propiedad o de ningún daño accidental o emergente que pueda tener origen en una fuga de gas, incendio o explosión. El único recurso derivado del incumplimiento de esta garantía limitada no sobrepasará, bajo ninguna circunstancia, el precio de adquisición del producto. Su SafetySiren™ para Monóxido de Carbono y Gas Combustible no constituye un seguro de la propiedad, un seguro contra daños y perjuicios, un seguro de vida o de cualquier otro tipo.

Att 9 Page 49, Rev3 8/6/24

Esta garantía le otorga derechos legales específicos. Puede que usted goce de otros derechos que pueden variar de un estado a otro.

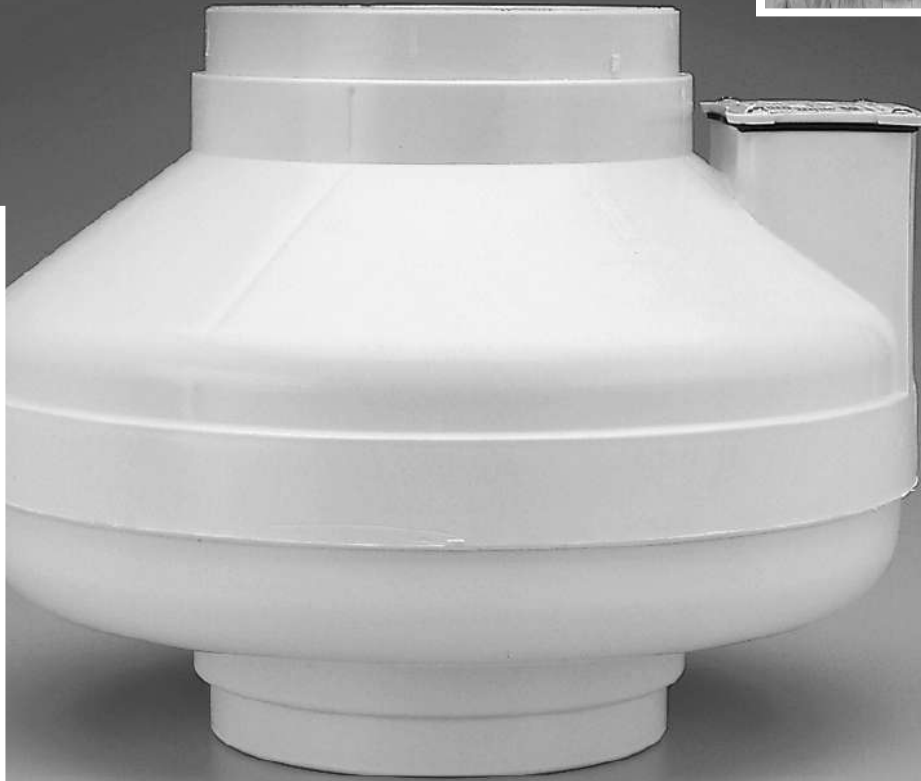
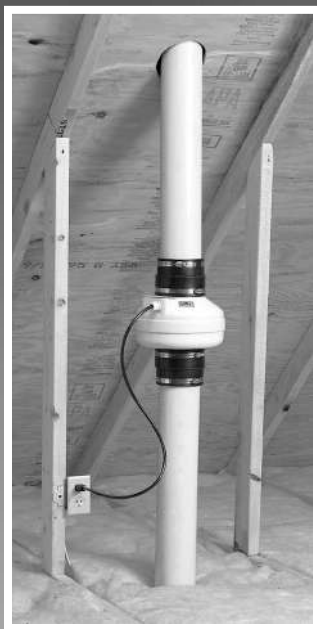
Family Safety Products, Inc.
2879 Remick SW
Grandville, MI 49418
USA



HP SERIES

FANS FOR RADON APPLICATIONS

WITH IMPROVED UV RESISTANCE!



TRUST THE INDUSTRY STANDARD. **HERE'S WHY:**

Don't put your reputation at stake by installing a fan you know won't perform like a Fantech! For nearly twenty years, Fantech has manufactured quality ventilation equipment for Radon applications. Fantech is the fan Radon contractors have turned to in over 1,000,000 successful Radon installations worldwide.



Fantech external rotor motor

FANTECH HP SERIES FANS MEET THE CHALLENGES OF RADON APPLICATIONS:

HOUSING

- UV resistant, UL Listed durable plastic
- UL Listed for use in commercial applications
- Factory sealed to prevent leakage
- Watertight electrical terminal box
- Approved for mounting in wet locations - i.e. Outdoors

MOTOR

- Totally enclosed for protection
- High efficiency EBM motorized impeller
- Automatic reset thermal overload protection
- Average life expectancy of 7-10 years under continuous load conditions

RELIABILITY

- Five Year Full Factory Warranty
- Over 1,000,000 successful radon installations worldwide

IMPROVING INDOOR AIR QUALITY THROUGH BETTER VENTILATION

www.fantech.net



HP Series Fans are Specially Designed with Higher Pressure Capabilities for Radon Mitigation Applications

MOST RADON MITIGATORS WHO PREVIOUSLY USED THE FANTECH FR SERIES FANS HAVE SWITCHED TO THE NEW HP SERIES.

PERFORMANCE DATA

Fan Model	Volts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.								Max. Ps
				0"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	
HP2133	115	14 - 20	0.17	134	68	19	-	-	-	-	-	0.84
HP2190	115	60 - 85	0.78	163	126	104	81	58	35	15	-	1.93
HP175	115	44 - 65	0.57	151	112	91	70	40	12	-	-	1.66
HP190	115	60 - 85	0.78	157	123	106	89	67	45	18	1	2.01
HP220	115	85 - 152	1.30	344	260	226	193	166	137	102	58	2.46

HVI
MEMBER™

PERFORMANCE CURVES

Fantech provides you with independently tested performance specifications.

The performance curves shown in this brochure are representative of the actual test results recorded at Texas Engineering Experiment Station/Energy Systems Lab, a recognized testing authority for HVI. Testing was done in accordance with AMCA Standard 210-85 and HVI 916 Test Procedures. Performance graphs show air flow vs. static pressure.

Use of HP Series fans in low resistance applications such as bathroom venting will result in elevated sound levels. We suggest FR Series or other Fantech fans for such applications.

HP FEATURES INCLUDE

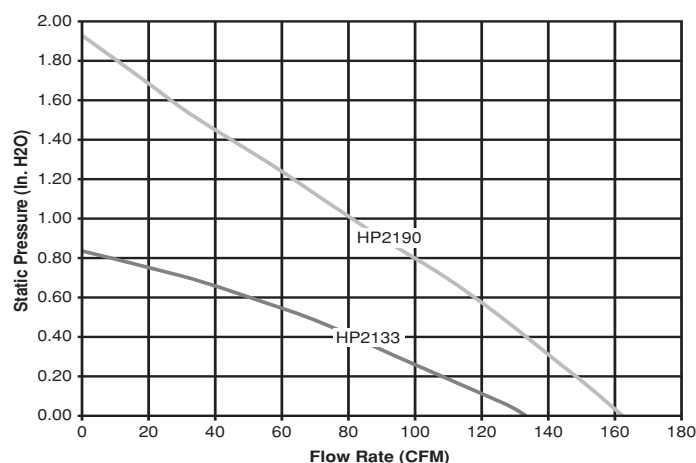
- Improved UV resistant housings approved for commercial applications.
- UL Approved for Wet Locations (Outdoors)
- Sealed housings and wiring boxes to prevent Radon leakage or water penetration
- Energy efficient permanent split capacitor motors
- External wiring box
- Full Five Year Factory Warranty



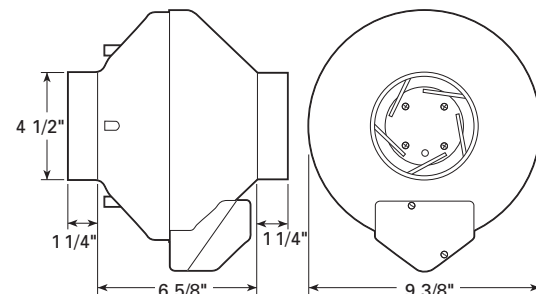
NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

HP2133 & HP2190 RADON MITIGATION FANS



Tested with 4" ID duct and standard couplings.



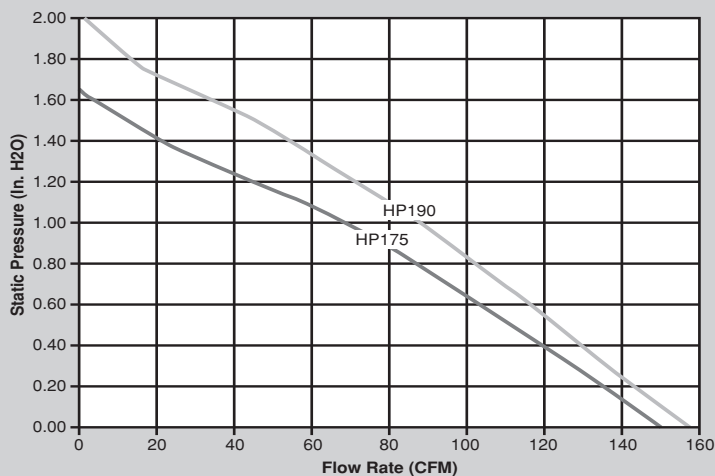
HP2133 – For applications where lower pressure and flow are needed. Record low power consumption of 14-20 watts! Often used where there is good sub slab communication and lower Radon levels.

HP2190 – Performance like the HP190 but in a smaller housing. Performance suitable for the majority of installations.

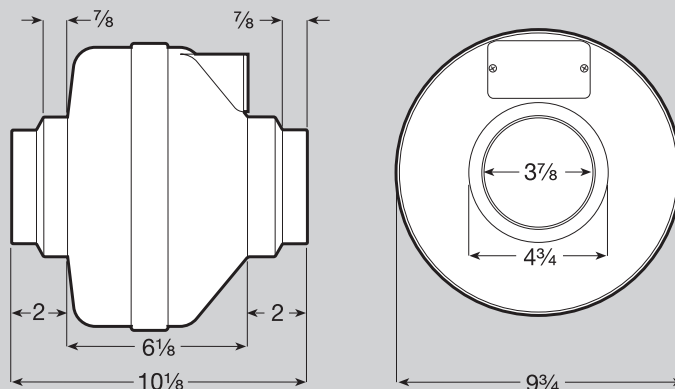
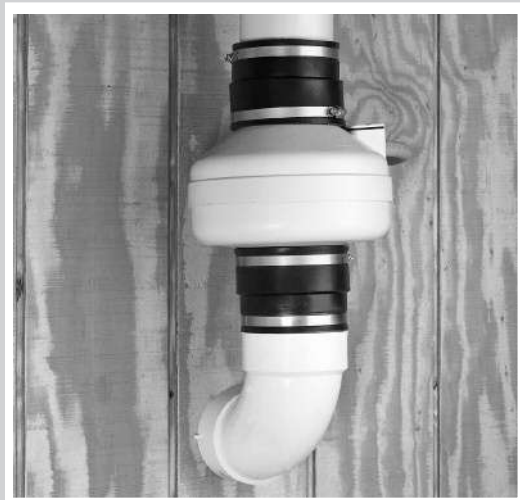
Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #156-44, Pipeconx PCX 56-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP175 & HP190 RADON MITIGATION FANS



Tested with 4" ID duct and standard couplings.



HP175 – The economical choice where slightly less air flow is needed. Often used where there is good sub slab communication and lower Radon levels.

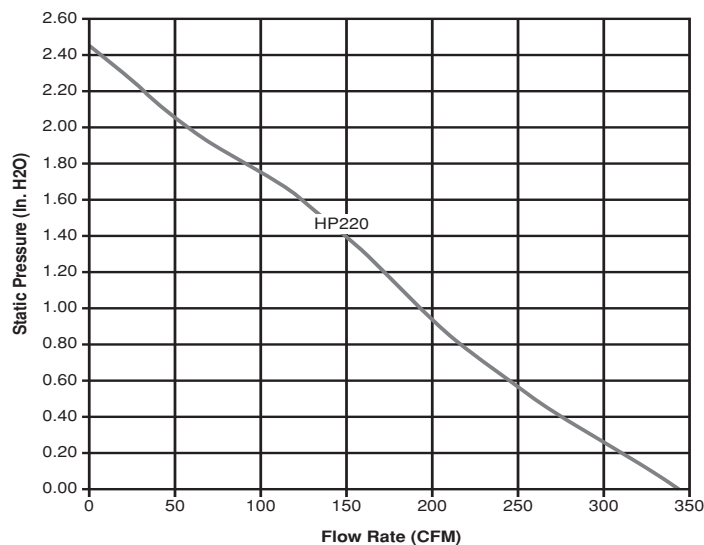
HP190 – The standard for Radon Mitigation. Ideally tailored performance curve for a vast majority of your mitigations.

Fans are attached to PVC pipe using flexible couplings.

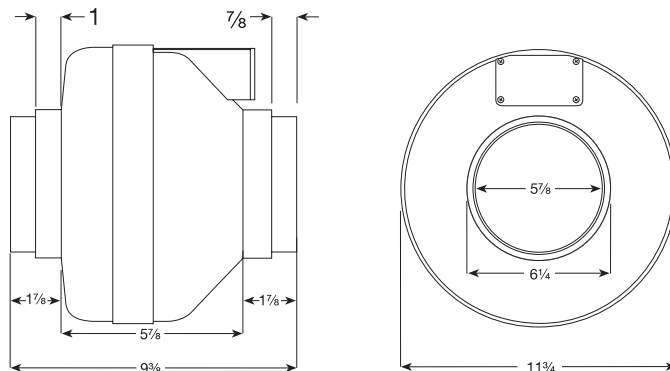
For 4" PVC pipe use Indiana Seals #151-44, Pipeconx PCX 51-44 or equivalent.

For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP220 RADON MITIGATION FAN



Tested with 6" ID duct and standard couplings.



HP 220 – Excellent choice for systems with elevated radon levels, poor communication, multiple suction points and large subslab footprint. Replaces FR 175.

Fans are attached to PVC pipe using flexible couplings.

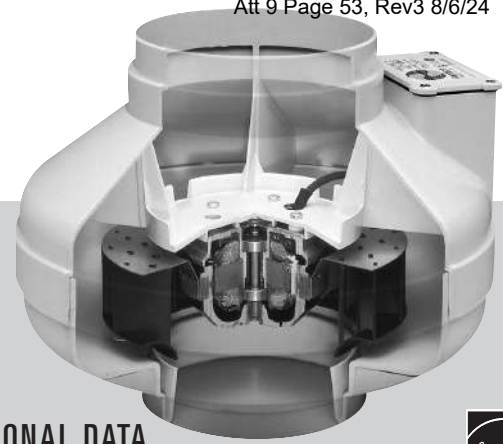
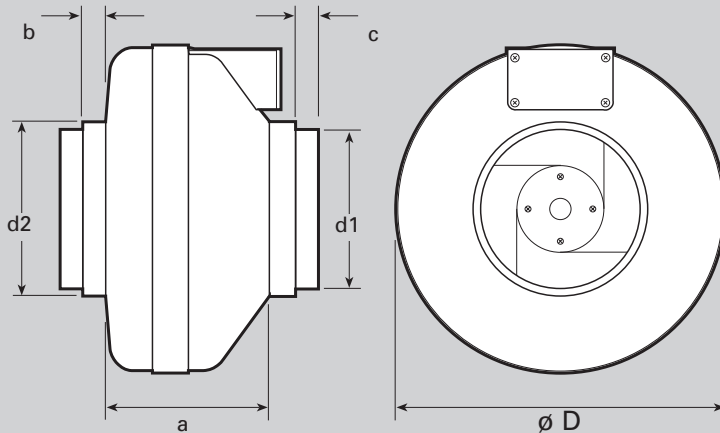
For 4" PVC pipe use Indiana Seals #156-64, Pipeconx PCX 56-64 or equivalent.

For 3" PVC pipe use Indiana Seals #156-63, Pipeconx PCX 56-63 or equivalent.



FR SERIES

THE ORIGINAL MITIGATOR



DIMENSIONAL DATA

model	øD	d1	d2	a	b	c
FR100	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR110	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR125	9 1/2	—	4 7/8	6 1/8	7/8	—
FR140	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR150	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR160	11 3/4	5 7/8	6 1/4	6 3/8	1	7/8
FR200	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR225	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR250	13 1/4	—	9 7/8	6 1/4	—	1 1/2

All dimensions in inches



PERFORMANCE DATA

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2950	120	21.2	13 - 22	0.18	137	110	83	60	21	-	-	0.90"	4"
FR125	✓	2950	115	18	15 - 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	71	54 - 72	0.67	263	230	198	167	136	106	17	1.58"	6"
FR160	-	2750	115	129	103 - 130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 - 128	1.11	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 - 152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250*	-	2850	115	241	146 - 248	2.40	649	600	553	506	454	403	294	2.58"	10"

FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program, charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2 inches W.G.

* Also available with 8" duct connection. Model FR 250-8. Special Order.

NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

FIVE YEAR WARRANTY

DURING ENTIRE WARRANTY PERIOD:

FANTECH will replace any fan which has a factory defect in workmanship or material. Product may need to be returned to the Fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST:

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty fan and is invoiced.

The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

FANTECH WARRANTY TERMS DO NOT PROVIDE FOR REPLACEMENT WITHOUT CHARGE PRIOR TO INSPECTION FOR A DEFECT. REPLACEMENTS ISSUED IN ADVANCE OF DEFECT INSPECTION ARE INVOICED, AND CREDIT IS PENDING INSPECTION OF RETURNED MATERIAL. DEFECTIVE MATERIAL RETURNED BY END USERS SHOULD NOT BE REPLACED BY THE DISTRIBUTOR WITHOUT CHARGE TO THE END USER, AS CREDIT TO DISTRIBUTOR'S ACCOUNT WILL BE PENDING INSPECTION AND VERIFICATION OF ACTUAL DEFECT BY FANTECH.

THE FOLLOWING WARRANTIES DO NOT APPLY:

- Damages from shipping, either concealed or visible. Claim must be filed with freight company.

- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:
 1. Improper maintenance
 2. Misuse, abuse, abnormal use, or accident, and
 3. Incorrect electrical voltage or current.
- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty, expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

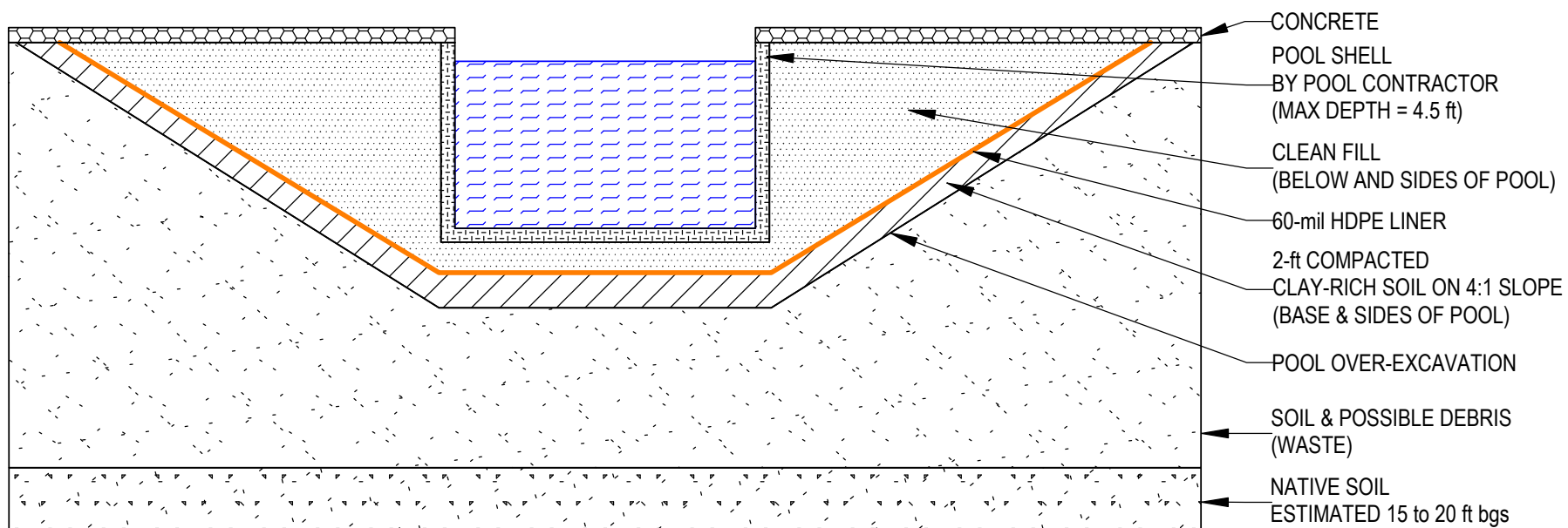
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Item #: 411741
Rev Date: 021010

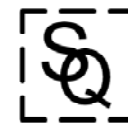
Fantech, reserves the right to modify, at any time and without notice, any or all of its products' features, designs, components and specifications to maintain their technological leadership position.

**NOTES**

1. 2-ft COMPACTED CLAY-RICH SOIL MUST HAVE PERMEABILITY NO GREATER THAN 1×10^{-7} cm/sec.

9/13/24

S. T. Litherland



SQ Environmental, LLC

SCALE: NOT TO SCALE

FIGURE 1**POOL LINER SECTION DETAIL**

TEXAS STAR PROPERTY
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: REV 13 SEPT 2024

PN: 1098.015.003

Landprint.

Landscape Architecture & Urban Design
7822 Mason Dallas Drive
Dallas, Texas 75226
469.987.3100 www.landprint.io



Project
**Texas Star
Multifamily**

For Worth, Texas
Stonehawk Capital Partners

Project Number SCH-003
Drawn By CC, JJ
Checked By CC, JJ
Issue Date 05-29-2024

Revisions
PERMIT 2024-05-29

Sheet Title
**Sitework
Materials
Schedule**
Sheet Number
L3.0.01

POOL				
PL.1 WATERLINE TILE JOSA 204MYZV PORCELAIN SIZE: 20x4	MID WARM GREY	STANDARD	KNOX TILE DONNA MCLENDON 214.781.5659	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.2 WATERLINE DEPTH MARKERS CUSTOM MOSAIC 1X1 SERIES: FRESH	FIELD COLOR: WHITE GLOSSY 1X1 SCRIPT COLOR: BLACK GLOSSY	STANDARD	KNOX TILE DONNA MCLENDON 214.781.5670	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.3 DELINEATOR/ BENCH LINE FRESH BLACK SIZE: 1X1	BLACK	ANTI-SLIP	KNOX TILE DONNA MCLENDON 214.781.5671	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.4 SWANNO BRITE EXPOSED AGGREGATE POOL FINISH	FRENCH GREAY	STANDARD	SCM 804.641.9247	EXPOSED AGGREGATE POOL FINISH
PL.5 JEDERS LIMESTONE POOL COPING, 2" THICK	CHARCOAL	SAWN TOP & BOTTON & 4 SIDES	CONTRACTOR'S CHOICE	CONTRACTOR TO PROVIDE SAMPLES OF COLOR TO LANDSCAPE ARCHTEC FOR APPROVAL PRIOR TO PURCHASING.
PL.6 POOL HANDRAIL, 1 1/2" DIA.	STAINLESS STEEL	BRUSHED #4	CONTRACTOR'S CHOICE	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO OR APPRIVED EQUAL, INSTALL PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL, BY OWNER AND LANDSCAPE ARCHITECT
PL.8 12" DIAMETER CANNON SCUPPER, ROUND ESSUTCHECK PLATE	STAINLESS STEEL	POLISHED	BOBE WATER & FIRE TEXTURE, BOBEWATERANDFIRE.COM	
RAILING				
R.1 STEPS HANDRAIL, 1 1/2" DIA.	TO MATCH ARCHITECTURAL RAILING	PAINTED	CONTRACTOR'S CHOICE	REF. PLANS FOR LAYOUT, REF. DETAILS ON SHEET L3.3.02
SITE FURNITURE				
SF.1 TRASH RECEPTACLE, DUMOR MODEL# 272-32-50	TEXTURED CHARCOAL	POWERCOATED	OLMOR 804.598.4018	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.2 BIKE RACK DUMOR MODEL F.350-005151	TEXTURED CHARCOAL	POWERCOATED	OLMOR 804.598.4019	SURFACE MOUNTED, LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.3 "ET" STATION MODEL# 1003-L	GREEN	POWERCOATED	DOGPOUT PRODCUTS 800.354.7681	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.4 TABLE 299-0018S, FREESTANDING, 2 BENCHES	TEXTURED CHARCOAL	POWERCOATED	OLMOR 804.598.4019	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.5 CONCRETE CORN HOLE BOARDS	GREY	SMOOTH	STONE AGE CONCRETE TABLE TENNIS 541.671.6218	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.6 JOG WATERING STATION	SATIN FINISH	STAINLESS STEEL	DOG-ON-IT-PARKS.COM	OR APPROVED EQUAL, LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.7 WOOD ARK HAMMOCK STAND - JEREMIAH LARCH	WOOD	STANDARD	CRIBBEANHAMMOCKS.COM	OR APPROVED EQUAL, LOCATE PER PLAN
SF.8 12" X 18" V X 24" H METAL BOX PLANTER, KS_3211924	FAK DARK BRONZE MATTE	POWDERCOATED	FORMANDFIBER.COM	OR APPROVED EQUAL, LOCATE PER PLAN, REF. TO DETAIL ON SHEET L3.3.01
STONE				
S.1 ELDER LIMESTONE COUNTER TOP 1 1/4" MIN. THICKNESS	CHARCOAL	SAWN WITH EASED EDGES ON ALL SIDES	CONTRACTOR'S CHOICE	
S.2 ELDER LIMESTONE BLOCK 16" X 18" X 14"	CHARCOAL	REF. DETAIL ON SHEET L3.3.01	CONTRACTOR'S CHOICE	LIMESTONE BLOCK, LOCATE PER PLAN, PROVIDE PHOTOS OF ACTUAL SLABS FOR APPROVAL PRIOR TO PURCHASING, EXPOSED WEDGE HOLES ON PERIMETER EDGES.

Hardscape Material Schedule					
KEY	DESCRIPTION	MODEL #	COLOR	FINISH	CONTACT
CONCRETE					
C.1	STANDARD GREY CONCRETE 1		GREY	LIGHT BROOM	CONTRACTOR'S CHOICE
C.2	STANDARD GREY CONCRETE 2		GREY	MEDIUM SANDBLAST	CONTRACTOR'S CHOICE
C.3	CAST-IN-PLACE CONCRETE WALL		GREY	RUBBED CONCRETE	CONTRACTOR'S CHOICE
C.4	BURNISHED BLOCK WALL, VARIOUS SIZES AND SHAPES, STACKED BOND PATTERN		CONAL	STANDARD	TEXASBUILDINGPRODUCTS.COM
EDGING					
E.1	3/8" X 4" STEEL EDGING		BLACK	POWERCOATED	JD RUSSELL CO. 800.888.8672
FENCE & GATE					
F.1	POOL FENCE 48" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.2	PRIVATE YARD FENCE, BEER GARDEN FENCE, DOG PARK FENCE & GUARDRAIL 42" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.3	PERIMETER FENCE 72" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.4	WOOD FENCE AT SOUTHERN PROPERTY LINE - 72" HEIGHT, HORIZONTAL BOARD-ON-BOARD, STAINED CEDAR		BENJAMIN MOORE CORDOVAN BROWN	PAINTED	CONTRACTOR'S CHOICE
GRAVEL					
G.1	DECOMPOSED GRANITE		NATURAL	NATURAL	CONTRACTOR'S CHOICE
G.2	#37 STONE, 1 3/4" AGGREGATE WASHED, GENERAL DRAINAGE GRAVEL		NATURAL	NATURAL	CONTRACTOR'S CHOICE
G.3	MEDIUM LAVA ROCK FIRE PIT ROCK		STANDARD	NATURAL	WOODLAND DIRECT 844.279.0543
G.4	TEXAS BLACK STAR, 2" TO 3" DIA.		NATURAL	NATURAL	OUTDOOR WAREHOUSE 972.423.4001
MISCELLANEOUS					
M.1	OUTDOOR GRILL A&I CORPORATION POS T SERIES MODEL # 827T1P WITH EMERGENCY STOP		STAINLESS STEEL	STAINLESS STEEL	A&I CORPORATION LORI HEM GHAIUS 948.474.3070
M.2	OUTDOOR GRILL DOUBLE DOOR CABINET		STAINLESS STEEL	STAINLESS STEEL	A&I CORPORATION LORI HEM GHAIUS 948.474.3071
M.3	FIREPLACE BURNER, 31" CROSSFIRE H SYSTEM BY WARMING TRENDS, (1) PER FIRE PIT		STANDARD	STANDARD	WOODLAND DIRECT 844.279.0543
M.5	BIG ASS FAN IN BLACK 80" DIA.		BLACK	POWERCOATED	BIG ASS FANS 877.244.3287
M.6	ARTIFICIAL TURF - NAT'VE GRASS		STANDARD	STANDARD	SYNTHETIC GRASS PROS MARCO GORTANA 214.577.3680
M.7	PUTTING GREEN TURF - SHORT GAME ELITE		STANDARD	STANDARD	SYNTHETIC GRASS PROS MARCO GORTANA 214.577.3680
M.8	STEEL FIREPLACE BASE BOX		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
M.9	WOOF FIBER ENGINEERED WOOD FIBER MULCH		NATURAL	NATURAL	DOG-ON-IT-PARKS.COM



Project

Texas Star
Multifamily

Fort Worth, Texas

Stonehawk Capital Partners

Project Number SCP-003

Drawn By CC, JJ

Checked By CC, JJ

Issue Date 05-29-2024

Revisions

PERMIT 2024-05-29

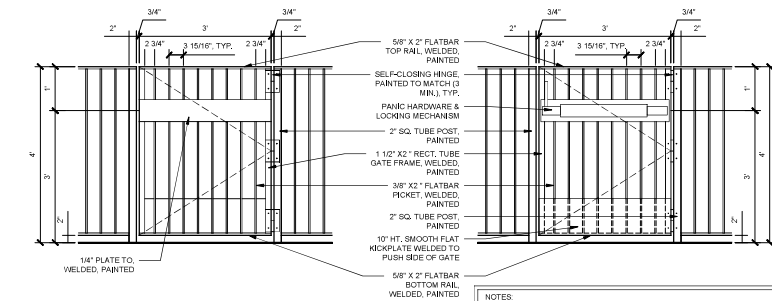
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Pool Details

Sheet Number

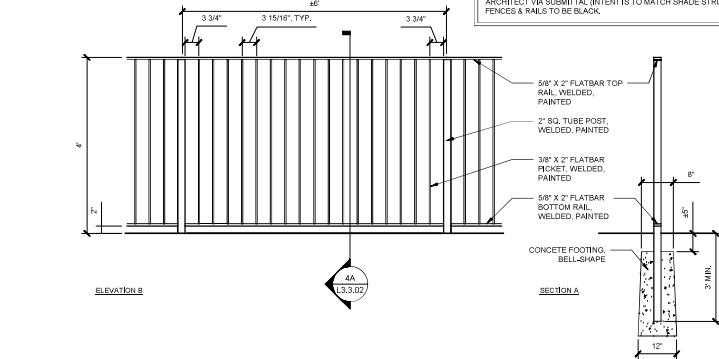
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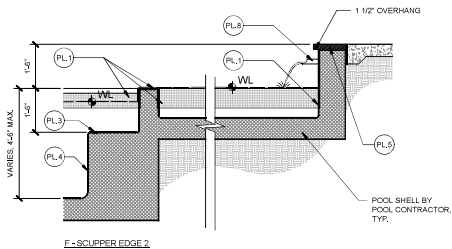
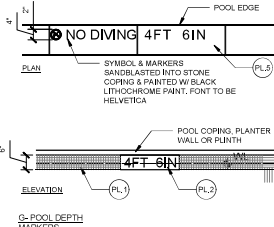
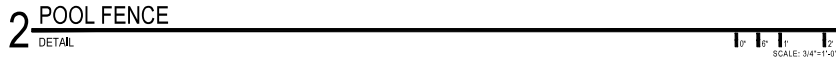


3 POOL GATE
DETAIL

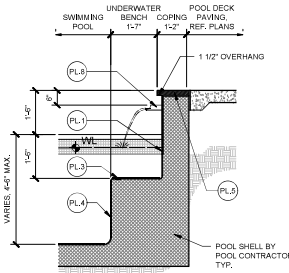
NOTES:
-FENCE & RAIL DETAILS SHOWN FOR DESIGN INTENT ONLY. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL.
-ALL METAL (EXCEPT STAINLESS) MEMBERS TO BE PAINTED WITH SHERWIN WILLIAMS "SURFTON" EXTERIOR ACRYLIC COATING, SATIN FINISH. POOL FENCE & RAIL COLOR SHALL BE FROM THE "DARK BRONZE" COLOR FAMILY & SELECTED BY LANDSCAPE ARCHITECT. (VS. SUBMITTAL, INTENT IS TO MATCH SHADE STRUCTURE). ALL OTHER FENCES & RAILS TO BE BLACK.



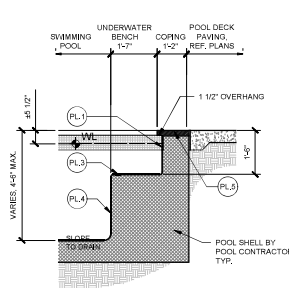
2 POOL FENCE
DETAIL



F - SCUPPER EDGE 2



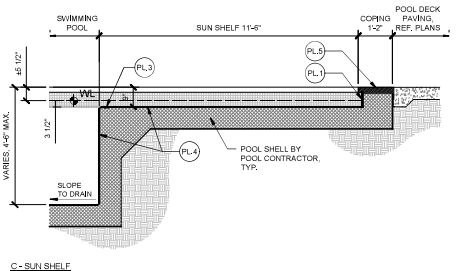
E - SCUPPER EDGE



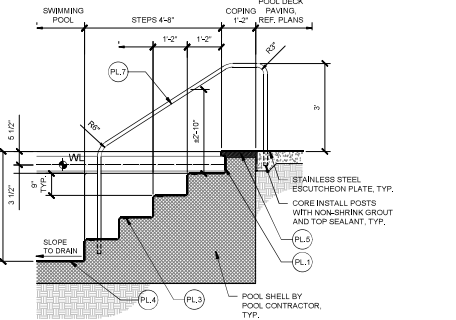
D - UNDERWATER BENCH

1 SWIMMING POOL
DETAILS

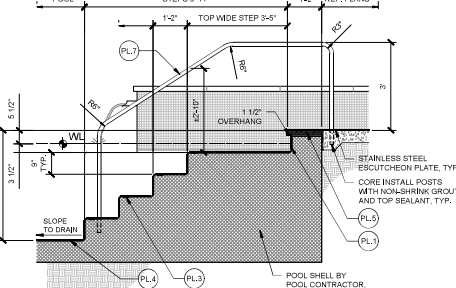
NOTES:
-POOL DETAILS SHOWN FOR DESIGN INTENT ONLY.
-POOL CONTRACTOR TO PROVIDE ENGINEERED SHOP DRAWINGS FOR APPROVAL.
-POOL CONTRACTOR TO COORDINATE ALL PLUMBING & ELECTRICAL, STUB LOCATIONS AND SIZES WITH GENERAL CONTRACTOR FOR CONNECTION.



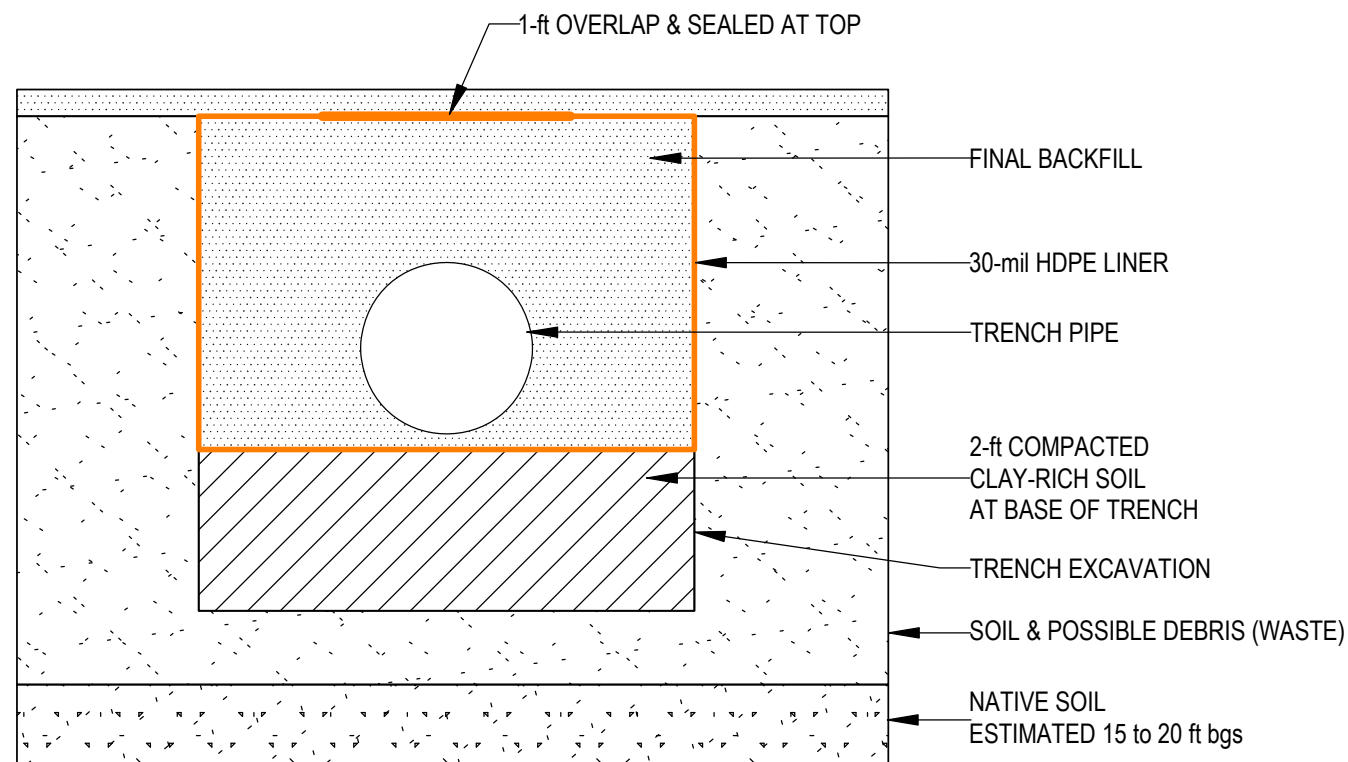
G - SUN SHELF



B - POOL STEPS



A - POOL STEPS

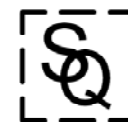


9/13/24

S.T. Litherland

NOTES

1. UTILITY TRENCH LINER DETAIL WILL APPLY TO ALL UTILITY LINES INCLUDING WATER LINES, SANITARY SEWER LINES, AND STORM SEWER LINES.
2. 2-ft COMPACTED CLAY-RICH SOIL MUST HAVE PERMEABILITY NO GREATER THAN 1×10^{-7} cm/sec.
3. IN AREAS NOT COVERED BY BUILDINGS, ASPHALT, OR PAVEMENT, A FINAL COVER IN ACCORDANCE WITH 330.453(a) & (b) WILL BE IN PLACE FOR THE UTILITY TRENCHES.



SQ Environmental, LLC

SCALE: NOT TO SCALE

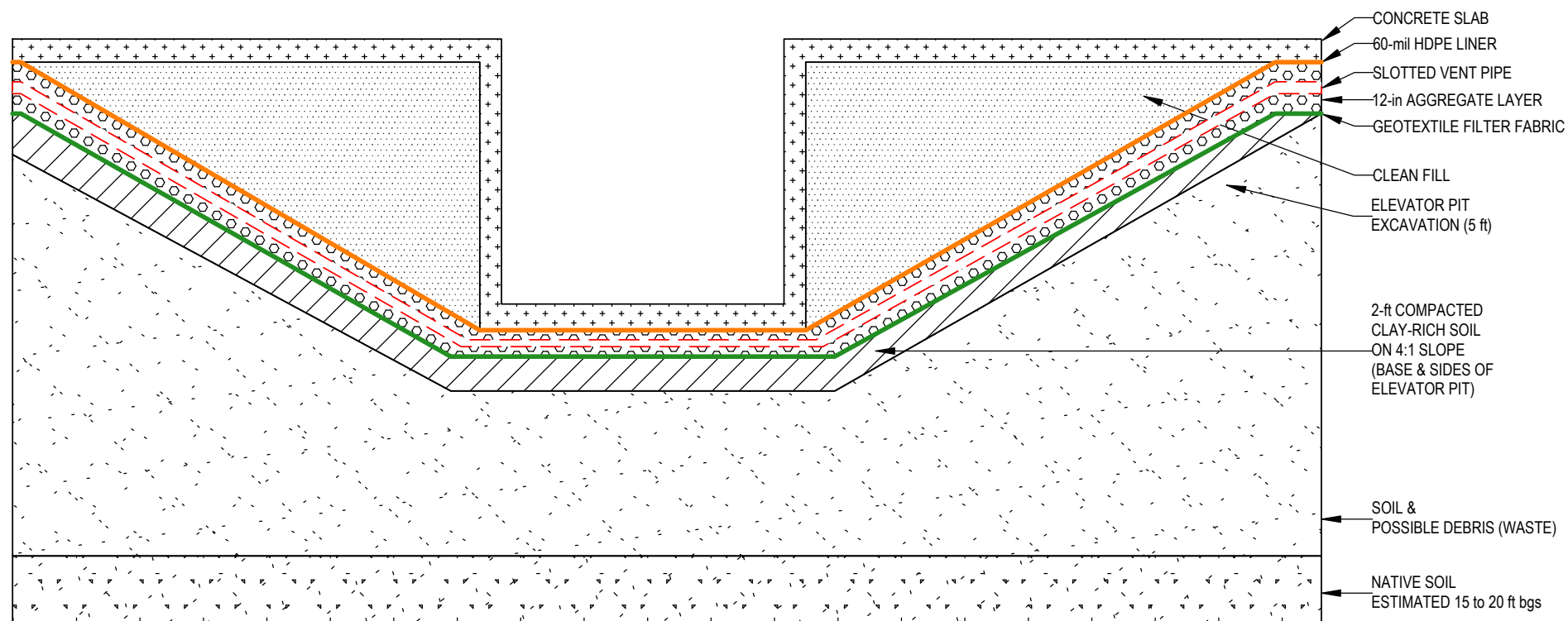
FIGURE 2

UTILITY TRENCH SECTION DETAIL

TEXAS STAR PROPERTY
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: REV 13 SEPT 2024

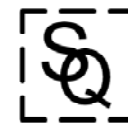
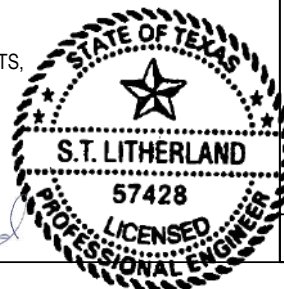
PN: 1098.015.003

**NOTES**

1. 2-ft COMPACTED CLAY-RICH SOIL MUST HAVE PERMEABILITY NO GREATER THAN 1×10^{-7} cm/sec.
2. METHANE SENSORS IN THE AGGREGATE LAYER WILL BE LOCATED IN OR NEAR THE ELEVATOR PITS, IN ACCORDANCE WITH 330.961(b)(1)(D).

9/13/24

S. T. Litherland



SQ Environmental, LLC

SCALE: NOT TO SCALE

FIGURE 3**ELEVATOR PIT SECTION DETAIL**

TEXAS STAR PROPERTY
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: REV 13 SEPT 2024

PN: 1098.015.003



TEXAS STAR
FORT WORTH, TEXAS

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01 ELEVATOR HOISTWAY SECTION
SCALE: 3/8" = 1'-0"

FIRE RATING:	
ROOF/CLG:	2HR. #U.L. P571
FLOOR/CLG:	1 HR. #U.L. L529
G.M.WALL:	2 HR. #U.L. 905

10 SOIL TESTS

This Section provides the results of soil tests and site assessments completed at the subject property. Multiple subsurface investigations conducted at the development site for geotechnical or environmental purposes (Soil Test III) were completed in 2022 and 2023, complying with §330.953(c)(3). Below are the attachments included in this Section.

- **Attachment 10A:** *Geotechnical Engineering Report*, Residential Development at Trinity Boulevard, 11450 Trinity Boulevard, Euless, Texas 76040, prepared by ECS Southwest LLP, prepared for Stonehawk Capital Partners LLC, dated 19 April 2022.
- **Attachment 10B:** *Geotechnical Letter Report on Test-Pits*, Residential Development at Trinity Boulevard, 11450 Trinity Boulevard, Euless, Texas 76040, prepared by ECS Southwest LLP, prepared for Stonehawk Capital Partners LLC, dated 20 May 2022.
- **Attachment 10C:** *Tables and boring logs from the APAR.*

VCP ASSESSMENT ACTIVITIES

SQE completed a Phase I ESA for the subject property and east-adjacent property dated 4 February 2022, and a Limited Phase II ESA dated 13 July 2022. The subject property and east-adjacent property were enrolled (as one tract which also includes the 1.987-acre southwest-adjacent parcel) into the TCEQ VCP in August 2022 and assigned VCP No. 3237.

Following enrollment into the VCP, additional assessment activities were conducted. An APAR was submitted to TCEQ on 31 August 2023. The assessment activities were conducted to investigate potential sources on the subject property and on adjacent properties. A summary of the sampling activities is provided below.

- Thirty-nine soil borings were completed to depths up to 35 ft bgs on the VCP No. 3237 property (30 located on the subject property). Twenty-six soil samples were collected (20 samples from the subject property) and submitted to the laboratory for analysis of TPH, RCRA 8 metals, and/or VOCs.
- Six permanent groundwater monitoring wells were installed on the on the VCP No. 3237 property (three wells located on the subject property, two wells on the east-adjacent property, and one well on the south-adjacent property), to total depths ranging from 20 and 35 ft bgs. Four groundwater monitoring/sampling events were conducted, and groundwater samples were analyzed for TPH, RCRA 8 metals, and/or VOCs.
- Twenty-two soil vapor sample points were installed on the VCP No. 3237 property (16 located on the subject property) to depths ranging from 5 to 12 ft bgs, and 22 soil vapor samples were collected (16 from the subject property) for analysis of VOCs and/or methane.
- Nine soil borings and nine soil test pits were completed on the VCP No. 3237 property (10 located on the subject property) as part of geotechnical activities.

As documented in the APAR, all identified sources have been fully investigated.

SUBJECT PROPERTY ASSESSMENT RESULTS

As discussed above, soil, groundwater, and soil vapor samples have been collected from the subject property. The analytical results of the samples collected at the subject property were compared to the TCEQ TRRP PCLs for residential property use, site-specific Tier 2 PCLs, and the Texas-Specific Background Concentrations, published in the TRRP Rules (30 TAC §350). The TRRP exposure pathways considered in the assessment included the soil-to-groundwater ($^{GW}Soil_{Ing}$), soil direct-contact ($^{Tot}Soil_{Comb}$), and soil-to-air inhalation ($^{Air}Soil_{Inh-V}$) for soil, and the groundwater ingestion ($^{GW}GW_{Ing}$) and groundwater-to-air inhalation ($^{Air}GW_{Inh-V}$) pathways for groundwater. A summary of the sample results is provided below. Data summary tables and figures are provided in **Attachment 10C**.

Soil and Groundwater Sampling

- Soil Samples – No concentrations of TPH, metals, or VOC constituents were reported above applicable residential PCLs in soil samples collected from the subject property. A data summary table of soil sample analytical results is provided in **Attachment 10C**.
- Groundwater Samples – No concentrations of TPH or metals constituents were reported above applicable residential PCLs in groundwater samples collected from the subject property. No concentrations of VOC constituents were reported above applicable residential PCLs in groundwater samples collected from the subject property, with the exception of benzene in one sample collected from well MW-1 in June 2022. The benzene concentration of 0.0945 mg/L in well MW-1 during the June 2022 sampling event was reported above the Tier 1 residential $^{GW}GW_{Ing}$ PCL of 0.005 mg/L. Benzene was not detected above the laboratory sample detection limit (SDL) in the groundwater samples collected from well MW-1 during the previous two sampling events or the following sampling event, and was not detected above the SDL in any other groundwater samples collected from any wells during any other sampling event at the subject property and east-adjacent property. Based on this data, the detection of benzene in one isolated sample does not appear to be indicative of impacts to shallow groundwater on the subject property with this compound. A data summary table of groundwater sample analytical results is provided in **Attachment 10C**.
- Lithology – Based on boring logs completed on the subject property, shallow lithology is comprised of silty clays, sands, and gravels (i.e., alluvium) encountered from the ground surface to the maximum total depth (35 ft bgs). The upper 10 ft of soil at the subject property is comprised primarily of sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. A clay confining unit was observed at 34 ft bgs on the east-adjacent property. Incidental debris within the soil fill was typically encountered between 5 and 20 ft bgs on the subject property. A cross-section is provided as **Figure 4** in **Attachment 5**. Boring logs are provided in **Attachment 10C**.
- NAPL – No light or dense non-aqueous phase liquid (NAPL) was observed in any of the monitoring wells during the three groundwater monitoring events.
- Groundwater Gradient – The shallow groundwater flow direction is to the east-southeast, and the gradient is very flat, as shown on the potentiometric surface maps included as **Figures 5** and **6** in **Attachment 10C**. Groundwater level measurements are provided in a data summary table in **Attachment 10C**.
- GWBU – The uppermost GWBU on the subject property was encountered at a depth of approximately 24 to 30 ft bgs. A topographic map is provided as **Figure 4** in **Attachment 2**.

Soil Vapor and Methane Sampling

A total of 16 soil vapor samples were collected from the subject property, four soil vapor samples were collected from the east-adjacent property, and two soil vapor samples from the southwest-adjacent parcel. The sample points were installed to depths of 5 ft bgs or 12 ft bgs using direct-push drilling methods. Samples were analyzed for VOCs by method TO-15 and/or methane by method TO-3. The reported soil vapor concentrations were screened using the residential risk-based exposure limit (RBEL) for air-inhalation ($^{Air}RBEL_{Inh}$) values. RBEL values were developed by TCEQ under the TRRP Rules for breathing air and not for soil vapor. The soil vapor to human inhalation pathway is not complete. Therefore, for any constituent exceeding a $^{Air}RBEL_{Inh}$ value, the soil vapor concentration was evaluated using a "Comparison Value." The "Comparison Values" are based on the EPA OSWER guidance document. An exceedance of a "Comparison Value" would suggest that additional evaluation was needed regarding soil vapors and the potential for vapor intrusion. As discussed below, there were no exceedances of the "Comparison Values", in the soil vapor samples collected on the subject with the exception of chlorobenzene in one sample (SV-1 collected at 12 ft bgs) at a concentration of 2.0 mg/m³. The Comparison Value for chlorobenzene is 1.7 mg/m³. As discussed in this Application, a VMS is planned for the subject property. A data summary table of soil vapor sample analytical results is provided in **Attachment 10C**.

Soil vapor samples were collected from a depth of approximately 5 ft bgs at four locations across the subject property and analyzed for methane. The methane concentrations in the 5 ft samples ranged from 0.00042% (SV-A-S) to 0.0091% (SV-1-S). Soil vapor samples collected from seven locations at 12 ft bgs also did not contain methane concentrations above 1%. Methane was reported at a concentration above 1% in five deep soil vapor samples collected from the subject property (SV-1, SV-6, SV-10, SV-11, and SV-B-D) at a depth of 12 ft bgs. The methane concentrations were between 2.5% and 12%. The elevated methane concentrations appear to be confined to the deeper zone beneath 10 ft, and do not appear to be migrating vertically to shallow soils or the surface at concentrations above 0.009%. Methane concentration data is shown on **Figure 8** in **Attachment 7**.

As shown on the boring logs in **Attachment 10C**, the upper 10 ft of soil at the subject property is made up of primarily sandy clay and clayey sand, and contains a higher clay content than the soil beneath 10 ft. Methane concentrations are delineated to the north, south, east, and west, with the exception of the southeast corner of the subject property. The elevated methane concentrations extend onto the east-adjacent property (eastern portion of Texas Star Property) and onto the Earth Haulers property adjacent south. The gravel pit mining operations that involved the subject property also extended north and south onto what is now the Earth Haulers property. The Earth Haulers Property was entered into an Agreed Order with TCEQ due to unauthorized disposal of MSW. During a routine investigation in January 2007, a TCEQ Regional Investigator determined that Earth Haulers failed to prevent the unauthorized disposal of MSW on the property, specifically 40,217 yd³ of mulch, debris, and cut wooden logs, in addition to approximately thirty 55-gallon drums of unknown liquid. In December 2009, an Agreed Order (No. 2007-0471-MSW-E) was issued between Earth Haulers and TCEQ that stated Earth Haulers would cease accepting additional waste, remove all accumulated materials from the property, and submit an NOI to operate a recycling facility to the TCEQ MSW Permits Section. Earth Haulers currently operates under MSW Non-Permitted ID No. 100117. Based on the available information, it appears that the Earth Haulers property is the source of the majority of the methane that has been identified on the Texas Star Property.

The methane concentrations above 1% appear to be confined to the zone deeper than 10 ft, and methane does not appear to be currently migrating vertically to the surface due to the higher clay content in the upper 10 ft. There are no plans to disturb soil deeper than 10 ft, and likely no deeper than 7 ft during construction, and it is unlikely the deeper zone with methane concentrations above 1% will be encountered.

Geotechnical Assessment Activities

Geotechnical activities were conducted at the subject property in March, April, and May 2022 by ECS Southwest, LLP (ECS) and are documented in two reports provided as **Attachments 10A** and **10B**. Five soil borings (PB-01 through PB-05) were completed in March 2022; four soil borings (B-06 through B-09) were completed in April 2022; and nine test pits (TP-01 through TP-09) were completed in April 2022. Six geotechnical soil borings (B-01, B-02, PB-02 through PB-05) and four soil test pits (TP-01 through TP-03 and TP-09) were completed on the subject property. According to the reports, natural soils were encountered from ground surface to total depth (25 ft bgs) in borings PB-04 and PB-05. Natural soils consist predominantly of lean clay and clayey sand with sand seams and intermittent gravel. Boring PB-03 encountered existing fill material to a total depth of 15 ft bgs. The fill material observed in boring PB-03 was mostly clay with the exception of some concrete and asphalt pieces. Refusal was encountered at 2 ft bgs in boring PB-02. Test pits TP-01 through TP-03 and TP-09 encountered existing fill material to a depth of 20 ft bgs. In general, all of the incidental debris is deeper than 5 ft bgs. Natural soils were encountered below the fill. The existing fill materials generally consisted of mostly soil but varying amounts of concrete, asphalt, metal, pipes, brick, and cables. Geotechnical logs are provided in **Attachments 10A** and **10B**.

SITE PLAN

The planned future use of the subject property is a multi-family residential development. A VMS will be installed during development and construction of structures on the subject property, which will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings. The subject property will be almost entirely covered with the buildings, asphalt roadways and parking, and landscaped areas.

ATTACHMENT 10A

GEOTECHNICAL LETTER REPORT ON TEST-PITS



April 19, 2022

Mr. Matt Swedenburg
Development Associate
Stone Hawk Capital Partners
2722 Routh Street
Dallas, Texas 75201

ECS Project No. 63: 1625-A

Reference: Geotechnical Letter Report on Test-Pits
Residential Development at Trinity Boulevard
11450 Trinity Boulevard
Euless, Texas 76040

Dear Mr. Swedenburg:

In accordance with our Proposal No. ECS Proposal 63:2184-GP (Rev.1) dated on March 17, 2022, and executed on March 23, 2022, which includes consulting agreement between ECS Southwest, LLP and Stone Hawk Capital Partners. ECS is providing the following discussion on the subsurface materials observed on-site during test pit excavation to identify the extent of fill soils.

Subsurface exploration was conducted by performing nine (9) test pits on the at the approximate locations shown attached with this letter. The test pits encountered fill soils with Clay and Sand to the depths of about 12 to 20.5 feet with varying amounts of concrete, asphalt, plastic bags, plastic sheets, wood, metal, pipes, steel drum, brick and cables. Natural soils were encountered below the existing ground surface in test pit TP-7 and below the existing fill in test pits TP-1, TP-2, TP-4, TP-5 and TP-8.

We did not encounter native soils in TP-3, TP-6 and TP-9 after excavating about 18.5 to 20.5 feet below existing site grades. Our excavator could only go to a maximum depth of about 20.5 feet.

ECS will continue to provide information as our field work is completed. Based on the test pit observations, the preliminary recommendations in our previous report (ECS Project No. 63:1625, dated March 9, 2022) remain applicable to the project.

[Redacted]

[Redacted]

[Redacted]

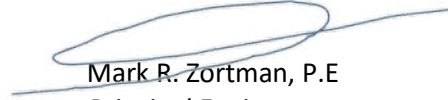
If we can be of further assistance to you, please contact us at (682) 350-2250.

Respectfully submitted,

ECS Southwest, LLP



Ishtiaque Hossain, PhD, P.E.
Geotechnical Department Manager



Mark R. Zortman, P.E.
Principal Engineer



Aaron (Haicheng) Mao, MCE, P.E.
Geotechnical Project Manager




Appendices: Test Pit Location Diagram
Test Pit Logs TP-1 to TP-9
Log Profiles with Site Pictures



TEST PIT LOCATION DIAGRAM RESIDENTIAL DEVELOPMENT AT TRINITY BLVD

11450 TRINITY BOULEVARD EULESS, TEXAS 76040
STONE HAWK CAPITAL PARTNERS


ENGINEER HM
SCALE AS NOTED
PROJECT NO. 63:1625
SHEET 1 OF 1
DATE 4/15/2022

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-1 (B-09)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938614.0		EASTING: 2546637.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		539	FILL, CLAY WITH SAND, brown, orange and grayish brown, with some roots, concrete (up to 48" in size), asphalt (up to 12" in size), rebar (No. 3 or No. 4 in size), bricks, 4" PVC pipe and wood					
10		534						
15		529	NATIVE SOIL, CLAYEY SAND, light brown, reddish brown, with less gravel at 13.5', with silty layer at 14.5'					
			END OF TEST PIT AT 15.0 FT					
20		524						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-2 (B-07)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938735.6		EASTING: 2546809.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		538	FILL, CLAYEY SAND WITH GRAVEL, orange, reddish, brown, light brown, with concrete (abundant, up to 48" in size), rebar (No. 3 or No. 4 in size), asphalt, tire, plastic bags and sheets, brick (up to 16" in size), 4" PVC pipe					
10		533						
			NATIVE SOIL, CLAYEY SAND, orange and reddish brown					
15		528	END OF TEST PIT AT 14.0 FT					
20		523						
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			


CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-3 (B-06)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938665.3		EASTING: 2546973.7	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		542	FILL, CLAY WITH SAND, brown, dark brown, orange, reddish brown with concrete (up to 28" size), plastic bags, brick, wood, asphalt (abundant, up to 12" in size) and metal wire and rebar (No. 3 and 4 in size)					
10		537						
15		532						
20		527						
			END OF TEST PIT AT 20.5 FT					
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<div> <div> <div></div> <div>WL (First Encountered)</div> </div> <div> <div></div> <div>Dry</div> </div> </div>	<div> <div></div> <div>WL (Seasonal High)</div> </div>	CONTRACTOR:	OPERATOR:
<div> <div></div> <div>WL (Completion)</div> </div> <div> <div></div> <div>Dry</div> </div>			MAKE/MODEL:
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:


TEST PIT LOG

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-4 (B-04)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938754.5		EASTING: 2547080.0	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		531	FILL, CLAY WITH SAND, orange, reddish, yellowish, brown, with concrete (up to 60" in size), asphalt (up to 36" in size), rebar (No. 3 or No. 4 in size), metal plate, plastic bags and sheets, brick (up to 8" in size) and wood					
10		526						
15		521						
			NATIVE SOIL, SAND, orange brown, with gravels and cobbles					
20		516	END OF TEST PIT AT 17.5 FT					
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-5 (B-01)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938766.0		EASTING: 2547338.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5	☒	521	FILL, CLAYEY SAND, orange, reddish, grayish brown, with gravel (up to 12" in size), boulder (up to 32" in size), concrete (up to 30" in size), brick (up to 12" in size), asphalt (12" in size), wood, rebar (No.3 or No. 4 in size) steel drum and plastic bags					
10		516						
15		511	NATIVE SOIL, POORLY GRADED GRAVEL, brown, gray					
			END OF TEST PIT AT 16.5 FT					
20		506						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
☒ WL (First Encountered) 5.50	☒ WL (Seasonal High)	CONTRACTOR:	OPERATOR:
☒ WL (Completion) 6.00			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-6 (B-02)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938646.9		EASTING: 2547186.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		527	FILL, CLAY, orange brown, dark brown, with concrete (up to 84" in size), asphalt (up to 14" in size) and rebar (No. 3 or No. 4 in size), plastic bags, steel pipe and brick					
10	⚡	522						
15		517						
20		512	END OF TEST PIT AT 20.0 FT					
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<div> <div>⚡</div> <div>WL (First Encountered) 11.00</div> </div> <div> <div>▼</div> <div>WL (Completion) 11.50</div> </div>	<div> <div>⚡</div> <div>WL (Seasonal High)</div> </div>	CONTRACTOR:	OPERATOR: Gary
ECS REP.: HM6		DATE COMPLETED: Apr 07 2022	UNITS: English
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-7 (B-03)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938420.4	EASTING: 2547384.0		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		525	NATIVE SOIL, CLAYEY SAND, reddish brown, some roots					
10		520	END OF TEST PIT AT 7.0 FT					
15		515						
20		510						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-8 (B-05)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938428.7		EASTING: 2547220.7	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5	▼	518	FILL, CLAYEY SAND, orange, grayish brown, dark gray, with concrete, plastic bags and sheets, wood and round, concrete (up to 72" in size), rebar (No. 3 or No. 4 in size) tire and shoes					
10		513						
15		508	NATIVE SOIL, POORLY GRADED GRAVEL, light orange and yellowish brown END OF TEST PIT AT 13.5 FT					
20		503						
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
▽ WL (First Encountered) 3.00 ▼ WL (Completion) 3.00	▽ WL (Seasonal High)	CONTRACTOR:	OPERATOR: Gary
		MAKE/MODEL:	
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-9 (B-08)	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938404.3		EASTING: 2546833.2	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		542	FILL, SANDY CLAY, orange brown, dark brown, grayish brown, with concrete (up to 60" in size), asphalt (up to 12" in size), plastic bags, brick, 4" PVC pipe, rebar (No. 3 or No. 4 in size), steel pipe					
10		537						
15		532						
20		527	END OF TEST PIT AT 18.5 FT					
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			



Project: 1625-A-Residential Development at Trinity Boulevard

Project Address: 11450 Trinity Boulevard, Euless, Texas


Field work: Test pits

Date: 04/07/2022

TP-1 (B-9)


Depth (ft.)	Site pictures	Descriptions
0-12		FILL, CLAY WITH SAND, brown, orange and grayish brown, with some roots, concrete (up to 48" in size), asphalt (up to 12" in size), rebar (No. 3 or No. 4 in size), bricks, 4" PVC pipe and wood
12-15		NATIVE SOIL, CLAYEY SAND, light brown, reddish brown, with less gravel at 13.5', with silty layer at 14.5'

TP-2 (B-7)


Depth (ft.)	Site pictures	Descriptions
0-13		<p>FILL, CLAYEY SAND WITH GRAVEL, orange, reddish, brown, light brown, with concrete (abundant, up to 48" in size), rebar (No. 3 or No. 4 in size), asphalt, tire, plastic bags and sheets, brick (up to 16" in size), 4" PVC pipe</p>

13-14		NATIVE SOIL, CLAYEY SAND, orange and reddish brown
-------	--	---

TP-3 (B-6)

Depth (ft.)	Site pictures	Descriptions
0- 20.5		FILL, CLAY WITH SAND, brown, dark brown, orange, reddish brown with concrete (up to 28" size), plastic bags, brick, wood, asphalt (abundant, up to 12" in size) and metal wire and rebar (No. 3 and 4 in size)


TP-4 (B-4)

Depth (ft.)	Site pictures	Descriptions
0-17		<p>FILL, CLAY WITH SAND, orange, reddish, yellowish, brown, with concrete (up to 60" in size), asphalt (up to 36" in size), rebar (No. 3 or No. 4 in size), metal plate, plastic bags and sheets, brick (up to 8" in size) and wood</p>

17-17.5		NATIVE SOIL, SAND, orange brown, with gravels and cobbles
---------	---	---

TP-5 (B-1)

Depth (ft.)	Site pictures	Descriptions
0-13	      	<p>FILL, CLAYEY SAND, orange, reddish, grayish brown, with gravel (up to 12" in size), boulder (up to 32" in size), concrete (up to 30" in size), brick (up to 12" in size), asphalt (12" in size), wood, rebar (No.3 or No. 4 in size) steel drum and plastic bags</p>

13-16.5		NATIVE SOIL, POORLY GRADED GRAVEL, brown, gray
---------	--	---


TP-6 (B-2)

Depth (ft.)	Site pictures	Descriptions
0-20		FILL, CLAY, orange brown, dark brown, with concrete (up to 84" in size), asphalt (up to 14" in size) and rebar (No. 3 or No. 4 in size), plastic bags, steel pipe and brick

TP-7 (B-3)

Depth (ft.)	Site pictures	Descriptions
0-7		NATIVE SOIL, CLAYEY SAND, reddish brown, some roots

TP-8 (B-5)

Depth (ft.)	Site pictures	Descriptions
0-13		FILL, CLAYEY SAND, orange, grayish brown, dark gray, with concrete, plastic bags and sheets, wood and round, concrete (up to 72" in size), rebar (No. 3 or No. 4 in size) tire and shoes

13-13.5		NATIVE SOIL, POORLY GRADED GRAVEL, light orange and yellowish brown
---------	---	---

TP-9 (B-8)

Depth (ft.)	Site pictures	Descriptions
0-18.5	    	<p>FILL, SANDY CLAY, orange brown, dark brown, grayish brown, with concrete (up to 60" in size), asphalt (up to 12" in size), plastic bags, brick, 4" PVC pipe, rebar (No. 3 or No. 4 in size), steel pipe</p>

ATTACHMENT 10B

GEOTECHNICAL ENGINEERING REPORT



ECS Southwest, LLP

Geotechnical Engineering Report

Residential Development at Trinity Boulevard

11450 Trinity Boulevard
Eules, Texas 76040

ECS Project Number 63:1625-A

May 20, 2022





May 20, 2022

Mr. Matt Swedenburg
Development Associate
Stone Hawk Capital Partners
2772 Routh Street
Dallas, Texas 75201

ECS Project No. 63:1625-A

Reference: Geotechnical Engineering Report
Residential Development at Trinity Boulevard
11450 Trinity Boulevard
Euless, Texas 76040

Dear Mr. Swedenburg:

ECS Southwest, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted, and our design and construction recommendations.

It has been our pleasure to be of service to Stone Hawk Capital Partners during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify subsurface conditions assumed for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Southwest, LLP

Ishtiaque Hossain, PhD, P.E.
Geotechnical Department Manager

Aaron (Haicheng) Mao, MCE, P.E.
Geotechnical Project Manager

Mark R. Zortman, P.E.
Principal Engineer



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- Boring Location Diagram
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EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. This Executive Summary is intended as a very brief overview of the primary geotechnical conditions that are expected to affect design and construction. Information gleaned from the executive summary should not be utilized in lieu of reading the entire geotechnical report.

- Based on the information supplied by the Stone Hawk Capital Partners, the project consists of multi-family community development. Associated surface parking and driveways are also included in the project.
- Borings PB-1 to PB-3 encountered existing fill to depths up to 15 feet below the existing site grades. Test pits TP-1 to TP-6, TP-8 and TP-9 encountered existing fill to the depths up to 20.5 feet below the existing site grades. The existing fill materials generally consisted of mostly soil but varying and distinct amounts of concrete, asphalt, plastic bags, plastic sheets, wood, metal, pipes, steel drum, brick and cables. Remaining borings encountered natural soils which consist predominantly of lean clay and clayey sand with sand seams and intermittent gravel to the maximum boring termination depth of about 25 feet.
- Groundwater was not observed in any borings during or upon the completion of drilling operations. However, groundwater was observed in test pits TP-5, TP-6 and TP-8 at depths of about 3 feet to 11 feet below the existing site grades during the excavation operations and observed in these test pits at depths of 3 feet to 11.5 feet below the existing site grades. Groundwater was not observed in remaining test pits during or upon the completion of excavation operations.
- Subgrade improvements will be required to address both expansive natural soils as well as existing undocumented fill.
- Subsequent to the recommended subgrade improvements, the planned residential buildings can be supported on a monolithic slab on grade foundation system.
- It is recommended that ECS conduct a geotechnical review of the project plans (prior to issuance for construction) to check to see that ECS' geotechnical recommendations have been properly interpreted and implemented.
- To prevent misinterpretation of ECS recommendations, ECS should be retained to perform quality control testing and documentation during construction of the earthwork and foundations for the project.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design and construction of new multifamily residential buildings on an approximate 14-acre parcel. Associated utility improvement, and surface parking and driveways are also included in this project. The recommendations developed for this report are based on project information supplied by client.

Our services were provided in accordance with our Proposal No. 63:2184-GP (Rev.1), dated on March 17, 2022, and executed on March 23, 2022, which includes our standard Terms and Conditions.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the project.

The report includes the following items.

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of area and site geologic conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- A final copy of our soil test borings and test pits.
- Recommendations for foundation.
- Recommendations for site retaining walls.
- Recommendations for pavements.
- Recommendations for detention pond.
- Recommendations for site preparation and construction of compacted fills, including an evaluation of on-site soils for use as compacted fills.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE

The project site is located at 11450 Trinity Boulevard in Euless, Texas (GPS: 32.8099 N, 97.1204 W). The site is currently undeveloped with some vegetation and trees. The location is depicted in Figure 2.1.1 as shown below.



Figure 2.1.1 Site Location

2.2 PROPOSED CONSTRUCTION

Based on the contour map obtained from NCTCOG (www.dfwmaps.com) the overall property slopes down from west to east with maximum and minimum elevations of about 550 and 530 ft. The following information explains our understanding of the planned development including the proposed buildings:

SUBJECT	DESIGN INFORMATION / ASSUMPTIONS
Site Area	14 acres
Usage	Residential
Framing (assumed)	Wooden Structure
Finish Floor Elevation	No site plan available

3.0 FIELD EXPLORATION

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations.

The subsurface conditions were explored by four (4) borings drilled to a maximum depth of about 25 feet below the existing site grades. A truck-mounted drill rig with continuous flight augers was utilized to drill the borings. Previously, 5 borings and 9 test pits were performed on the subject site. The previous boring and test pit logs are included with this report.

The boring and test pit locations were determined by and identified in the field by ECS personnel using the supplied diagram. The approximate as-drilled boring and as-excavated test pit locations are shown on the Boring and Test Pit Location Diagram in Appendix A. The ground surface elevations noted in this report were obtained from NCTCOG (www.dfwmaps.com), which provided elevation contours in 2-foot intervals.

Representative soil samples were obtained by means of the split-barrel and Shelby tube sampling procedures in accordance with ASTM Specifications D-1586 and D-1587, respectively. In the split-barrel sampling procedure, a 2-inch O.D., and split-barrel sampler is driven into the soil a distance of 18 inches by means of a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through a 12-inch interval is termed the Standard Penetration Test (SPT) value and is indicated for each sample on the boring logs. In the Shelby tube sampling procedure, a thin walled, steel seamless tube with sharp cutting edges is pushed hydraulically into the soil, and a relatively undisturbed sample is obtained.

Field logs of the soils encountered in the borings were maintained by the drill crew and in test pits by ECS personnel. After recovery, each geotechnical soil sample was removed from the sampler and visually classified. Representative portions of each soil sample were then wrapped in plastic and transported to our laboratory for further visual examination and laboratory testing. After completion of the drilling operations, the boreholes were backfilled with auger cuttings to the existing ground surface.

3.1 SUBSURFACE CHARACTERIZATION

The regional parent geologic mapping indicates that the site is underlain by the Fluvial Terrace Deposits (Qt). In the Fluvial Terrace soil deposits have been transported to the areas where they lay by water instead of having been weathered from their original rock. They are often "flood plane" deposits at some of the lowest elevations in the region. Typically, water that deposits these soils first erodes portions of their original formation(s), then transports and leaves behind these types of deposits. Please refer to the regional geology in Appendix A.

With the exception of the undocumented fill, the subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil and rock strata from the soil borings. Please refer to the boring logs in Appendix B.

Subsurface Stratigraphy

Approximate Depth to Bottom of Strata (ft)	Elevation of Bottom of Strata ⁽¹⁾ (ft)	Stratum	Description	Consistency
0 to 15 ²	EL. + 524.0 to 540.0	II	FILL, LEAN CLAY, brown, light brown, with sand seams, asphalt, concrete, plastic bags	Very Stiff to Hard
4 to 23 ³	EL. + 521.0 to 542.0	II	(CL) LEAN CLAY, dark brown, brown, light brown, with sand seams, gravel	Very Stiff to Hard
11 to 25 ⁴	EL. + 521.0 to 535.0	III	(SC) CLAYEY SAND, brown, light brown, reddish brown, olive brown, light grayish and yellowish brown, yellowish brown	Very loose to Very Dense
25 ⁵	EL. + 519.0 to 521.0	V	CEMENTED SAND, reddish brown, yellowish brown, brown, with clay seams	-

Notes:

- (1) Please note that the ground surface elevations were not surveyed by a licensed surveyor; these elevations are approximate based on dfwmaps.com. Elevation ranges are approximate +/- several feet.
- (2) Encountered in boring PB-01 and PB-04.
- (3) Encountered in borings B-01 to B-04.
- (4) Encountered in borings B-01 to B-04. B-03 was terminated in this stratum at a depth of 25 feet.
- (5) Encountered in borings B-01 and B-04. These borings were terminated in this stratum at a depth of 25 feet.

The test pits encountered fill soils with Clay and Sand to the depths of about 12 to 20.5 feet with varying amounts of concrete, asphalt, plastic bags, plastic sheets, wood, metal, pipes, steel drum, brick and cables. Natural soils were encountered below the existing ground surface in test pit TP-7 and below the existing fill in test pits TP-1, TP-2, TP-4, TP-5 and TP-8. We did not encounter native soils in TP-3, TP-6 and TP-9 after excavating about 18.5 to 20.5 feet below existing site grades. Our excavator could only go to a maximum depth of about 20.5 feet. Please refer to the test pits logs in Appendix B.

3.2 GROUNDWATER OBSERVATIONS

Groundwater level observations were made in the borings during drilling operations and in test pits during excavation operations. In auger drilling operations, water is not introduced into the borehole and the groundwater position can often be determined by observing water flowing into the excavation. Furthermore, visual observation of soil samples retrieved can often be used in evaluating the groundwater conditions. Groundwater seepage was not encountered in any borings during drilling or upon the completion of drilling operations. However, groundwater was observed in test pits TP-5, TP-6 and TP-8 at depths of about 3 feet to 11 feet below the existing site grades during the excavation operations and observed in these test pits at depths of 3 feet to 11.5 feet below the existing site grades. Groundwater was not observed in remaining test pits during or upon the completion of excavation operations.

Variations in groundwater levels can occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors not immediately apparent at the time of this exploration. The highest groundwater observations are normally observed in the late

winter and early spring. Therefore, the groundwater conditions at this site could be different at the time of construction. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project.

3.3 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples. The tests included moisture content, Atterberg limits and gradation tests (percent passing No. 200 sieve).

Soil samples were visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 DESIGN RECOMMENDATIONS

The following recommendations have been developed on the basis of previously described project characteristics and subsurface conditions. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, ECS should be consulted so that the recommendations of this report can be reviewed. Grading plan or site plan was not available during the preparation of this report. When a site plan or finished floor elevations are available the recommendations provided below should be evaluated by our office.

4.1 EXISTING FILL MATERIALS

For our Preliminary Report of Subsurface Exploration & Geotechnical Analysis report dated March 9, 2022, five borings were drilled on the site. Clay fill materials were encountered in three (3) of these borings to the auger-refusal depths of 2 feet to 15 feet below the existing site grades. Auger refusal materials are indicators of very hard or very dense zones unable to be advanced by the drilling equipment due to fill obstructions (concrete, rebar, other). In generally, the surficial several feet of surficial soil cover predominately consisted of soil type material with variable but distinct amounts of asphalt, concrete and reinforcing debris. In order to delineate the fill soils, we proposed to perform test pits across the fill area.

Based on our Geotechnical Letter Report on Test-Pits dated April 19, 2022, test pits encountered fill soils with Clay and Sand to the depths of about 12 to 20.5 feet with varying amounts of concrete, asphalt, plastic bags, plastic sheets, wood, metal, pipes, steel drum, brick and cables. Natural soils were encountered below the existing ground surface in one test pit and below the existing fill in four test pits. We did not encounter native soils in three test pits after excavating about 18.5 to 20.5 feet below existing site grades.

Given these observations and the lack of documentation that would substantiate that the existing fill materials were placed in a controlled manner, we do not recommend supporting the foundations and slabs directly on the existing fill soils since undesirable differential settlements may occur.

4.2 GROUND IMPROVEMENTS

Buildings and pavements within the areas of undocumented fill will be required ground improvement in order to reduce the long-term movements to more tolerable levels. These options are summarized below.

4.2.1 Full Excavation

The first option is to remove the existing fill materials in their entirety from the limits of the proposed building pads (including a 10 foot off-set on all sides of the building) and establish the proposed grades with suitable material. The engineered fill material may be generated from on-site excavations, which has been adequately sieved and/or crushed to meet the requirements of this report or imported as defined previously. The proposed foundations and or slabs then be supported on the new fill material.

A significant portion of the existing fill contains varying amounts and sizes of trashes and unsuitable materials. Any trashes and unsuitable materials including cobble, boulder, plastic trash, wood and metal plates, round wood, steel pipe, PVC pipe, clay pipe, steel drum, brick, trash, rebar and cable and any other particles including concrete and asphalt with a diameter greater than four (4) inches encountered in existing fill should be removed from the site. Accordingly, most of the existing fill would need to be replaced with imported fills. We anticipate that with an aggressive sieving and processing operation potentially 20% to 30% of the existing materials will be suitable for re-use.

Under this option, the fills would be completely removed and replaced, minimizing the potential for excessive movements related to the existing fills. Long term movements will be on the order of 1 inch or less with differential movements of 3/4".

4.2.2 Partial Excavation

The second alternative will be to excavate the existing fills, where encountered, to about half the full depth of existing fill below the finished floor subgrade elevation and replace those soils with engineered fills, plus a 10-foot building offset. With this option, the movements related to the existing fills is reduced, but not eliminated.

The partial undercut method would likely be less expensive than the full undercut option and reduce the risk associated with doing nothing. However, the existing fill left below the engineered fill does create some risk of future settlement. Long term movements will be on the order of 2 inches with differential movements of about 1 inch.

4.2.3 Aggregate Geopiers™

A third ground improvement technique is the use of short drilled aggregate piers. The piers are typically extended to depths of 12 to 15 feet below the existing ground surface (through the fill and into the natural soils) and consist of 30-inch diameter drilled excavations, which are backfilled in 1-foot lifts utilizing compactive effort and granular aggregate. The Geopiers™ are compacted utilizing a flat plate on the end of a backhoe mounted hoe ram. The soil reinforcement occurs as a result of the excavation of the existing soils and replacement by dense granular aggregate. In addition, some limited densification of the surrounding soils is reported to occur. The engineering characteristics of the reinforced soil are significantly improved to allow the placement of spread footing foundations PTI slabs.

Geopiers™ are normally designed by a design build contractor and the proposed soil improvement plan is reviewed by the Geotechnical Engineer of Record.

4.3 POTENTIAL VERTICAL MOVEMENT AND SUBGRADE IMPROVEMENT

Outside of the areas where existing undocumented fill was encountered, the natural soils have low to moderate expansion potential.

The natural clay soils encountered at this site are highly expansive. These soils are susceptible to shrink swell tendencies, occurring seasonally, throughout the life of the building with the changes in moisture content. Based on test method TEX-124-E in the Texas Department of Transportation (TxDOT) Manual of Testing Procedures, overburden swell tests and our experience with similar soils, we estimate potential vertical soil movements (PVM) are on the order of about 3.0 inches,

based on dry conditions. The actual movements could be greater if poor drainage, ponded water, and/or other unusual sources of moisture are allowed to saturate the soils beneath the structure after construction.

In order to reduce the risk associated with future movements, we recommend the following subgrade improvements to achieve a uniform PVM across the subgrade. Please note, these recommendations are the minimum requirements to reduce potential movements below the floor slab due to expansion potential. Other recommendations presented in this report regarding foundation support should also be followed. The depth of subgrade modification should be selected based on the allowable post-construction movement of the floor slabs.

Recommended Subgrade Improvements (Natural Soil Areas)

Options	Depth of Moisture Conditioning (feet) ¹	Total Depth of Improved Zone (feet) ^{1, 2}	Anticipated PVM (inch)
Option I	6	6	1
Option II	4	4	1.5
Option III	2	2	2

¹ - All Fill Above Existing Grades Should Be Moisture Conditioned

² - If the moisture of the pads is maintained throughout construction, no cap is required. Otherwise, the pads should be covered with a 12-inches granular cap, 8-inches of lime stabilized clay, or covered with poly.

The subgrade improvements should extend at least 5 feet beyond the edge of the building pad and include any flatwork sensitive to movements such as sidewalks or pavements. Exterior grade beam backfill should consist of onsite moisture conditioned clay.

These design parameters assume that positive drainage will be provided away from the structures and with moderate irrigation of surrounding lawn and planter areas with no excessive wetting or drying of soils adjacent to the foundations. Greater potential movements could occur with extreme wetting or drying of the soils due to ponding of water, plumbing leaks or lack of irrigation. Recommendations for earthwork operations are found in the "Site Construction Recommendations" portion of this report.

4.4 FOUNDATIONS-MONOLITHIC SLAB-ON-GRADE

The planned multi-family structures may be supported by a monolithic slab-on-grade/grade beam structural foundation system. This system may be designed with conventional reinforcing or by post-tensioning. The slab should be designed in accordance with WRI/CRSI "Design Slab-On-Ground Foundations" or PTI "Design and Construction of Post-Tensioned Slabs-On-Ground". The following design parameters are recommended for the Post-Tensioning Institute's slab-on-grade design method (3rd Edition):

Multi-Family PTI Parameters (PVM 2 Inches or Less)

Perimeter Beam Depth Below Finished Exterior Grade	Center Lift		Edge Lift	
	Em (feet)	Ym (inches)	Em (feet)	Ym (inches)
12 inches	9.0	1.0	5.1	1.4
24 inches	9.0	0.8	5.1	1.0
30 inches	9.0	0.6	5.1	0.8

Slab Parameters

BRAB/WRI Slab Parameters	
Design Parameter	Design Values
Allowable Bearing Capacity	3,000 psf
Design PI	26
Climatic Rating (Cw)	20
Unconfined Compressive Strength (tsf)	1.25
Soil-Climate Support Index (1-C)	0.11

A net allowable soil bearing pressure of 3,000 psf can be used to design grade beams founded on the reworked existing soils or compacted non-expansive fill, as described in the section titled "Earthwork Operations". Grade beams should have a minimum width of 12 inches to reduce the possibility of foundation bearing failure and excessive settlement due to local shear or "punching" failures. Additionally, the grade beams should extend at least 12 inches below final adjacent grade to utilize this bearing pressure. Fills should be sloped to drain surface water away from the structure. A soil modulus of subgrade reaction (ks) of 125 pci may be used in the design of the slab.

These design parameters assume that positive drainage will be provided away from the structures and with moderate irrigation of surrounding lawn and planter areas with no excessive wetting or drying of soils adjacent to the foundations. Greater potential movements could occur with extreme wetting/drying of the soils due to ponding of water, plumbing leaks or lack of irrigation.

If floor treatments that are sensitive to moisture will be used, a 10-mil vapor barrier of polyethylene sheeting or similar material should be placed beneath the slab to minimize moisture migration through the slab. If a vapor barrier is considered to provide moisture protection, special attention should be given to the surface curing of the slabs to minimize uneven drying of the slabs and associated cracking and/or slab curling. The use of a blotter or cushion layer above the vapor barrier can also be considered for project specific reasons. Please refer to ACI 302.1R96 Guide for Concrete Floor and Slab Construction and ASTM E 1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs for additional guidance on this issue.

4.4 BUILDING PERIMETER CONDITIONS

Soils placed along the exterior of each building should be on-site clay soils placed and compacted in accordance with this report. The purpose of this clay backfill is to reduce the opportunity for surface or subsurface water infiltration beneath the structure. Additionally, where penetrations into the structure occur, a clay plug (or suitable synthetic alternative) should be placed at the building line to reduce the opportunity for infiltrating water, regardless of the backfill material. A typical clay plug at utility trench detail is provided in Appendix D of the report.

Positive drainage away from the structures should also be provided. Additionally, Irrigation of lawn and landscaped areas should be moderate, with no excessive wetting or drying of soils around the perimeter of the structures allowed. Trees and bushes/shrubs planted near the perimeter of the structures can withdraw large amounts of water from the soils and should be planted at least their anticipated mature height away from the buildings.

Where flatwork is placed against or near the structure, a positive seal must be installed and adequately maintained to reduce water intrusion. Down spouts and gutters should be used to collect and distribute water away from the structure.

Routine maintenance is required to ensure that the recommendations contained in this report are followed and maintained. Greater potential movements could occur with extreme wetting or drying of the soils due to poor drainage, ponding of water, plumbing leaks, lack of irrigation, and/or lack of routine maintenance, etc.

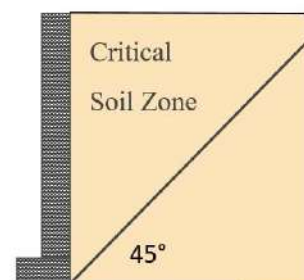
4.5 SITE RETAINING WALLS

Retaining walls should not be supported by the existing fills and should be supported by the ground improvements noted previously. Additionally, where any fill is within the zone of influence of the retaining walls, this may create global instabilities. Therefore, ECS should be consulted during the design of any retaining walls.

Unlike below grade walls, site retaining walls are free to rotate at the top (not restrained). For these walls the "Active" (k_a) soil condition should be used along with a triangular distribution of earth pressures. In addition, site retaining walls should be designed to withstand lateral earth pressures exerted by the backfill and any surcharge loads within the "Critical Soil Zone". The Critical Zone is defined as the area between the back of the retaining wall footing and an imaginary line projected upward and rearward at a 45-degree angle (see figure below).

The lateral earth pressures developed behind site retaining walls are a function of the backfill soil type, backfill slope angle, and any surcharge loads. For the design of site retaining walls, we recommend the soil parameters provided below.

RETAINING WALL BACKFILL IN THE CRITICAL SOIL ZONE		
Soil Parameter	Estimated Value	
Soil Classification	PI 20 or less	On-site soils
Coefficient of Active Earth Pressure (K_a)	0.29	0.49
Retained Soil Moist Unit Weight (γ)	125 pcf	120 pcf
Cohesion (C)	-	100 psf



RETAINING WALL BACKFILL IN THE CRITICAL SOIL ZONE		
Soil Parameter	Estimated Value	
Angle of Internal Friction (ϕ)	32°	18°
Active Equivalent Fluid Pressure	40H (psf)	60H (psf)

FOUNDATION SOILS	
Soil Parameter	Estimated value
Allowable Soil Bearing Pressure	3,000
Minimum Wall Embedment Below Grade	24 inches
Coefficient of Passive Earth Pressure (K_p)	2.04
Soil Moist Unit Weight (γ)	120 pcf
Cohesion (C)	100 psf
Interface Friction Angle [Concrete on Soil] (ϕ_f)	18°
Sliding Friction Coefficient [Concrete on Soil] (μ)	0.3
Passive Equivalent Fluid Pressure	245H (psf)

It is critical that the soils used for backfilling of the retaining walls meet the soil parameters recommended above. If the soils available do not meet those parameters, then ECS should be contacted to provide revised values, and to confirm that only suitable soils will be used for wall backfill.

Care should be used to avoid the operation of heavy equipment to compact the wall backfill since it may overload and damage the wall. In addition, such loads are not typically considered in the design of site retaining walls and are not provided for in our recommendations.

Wall Drainage: Retaining walls should be provided with a wall and foundation drainage system to relieve hydrostatic pressures which may develop behind the walls. This system should consist of weepholes through the wall and/or a 4-inch perforated, closed joint drain line located along the backside of the walls above the top of the footing. The drain line should be surrounded by a minimum of 6 inches of AASHTO #57 Stone wrapped with an approved non-woven geotextile, such as Mirafi 140-N or equivalent. Wall drains can consist of a 12-inch-wide zone of free draining gravel, such as AASHTO #57 Stone, employed directly behind the wall and separated from the soils beyond with a non-woven geotextile. Alternatively, the wall drain can consist of a suitable geocomposite drainage board material. The wall drain should be hydraulically connected to the foundation drain.

4.6 SEISMIC DESIGN CONSIDERATIONS

Seismic Site Classification: The International Building Code (IBC) requires site classification for seismic design based on the upper 100 feet of a soil profile. The methods are utilized in classifying sites, namely the shear wave velocity (v_s) method; the undrained shear strength (s_u) method; and the Standard Penetration Resistance (N-value) method. The undrained shear strength (s_u) method was used in classifying this site.

Seismic Site Classification

SEISMIC SITE CLASSIFICATION				
Site Class	Soil Profile Name	Shear Wave Velocity, V_s , (ft./s)	N value (bpf)	S_u (psf)
A	Hard Rock	$V_s > 5,000$ fps	N/A	N/A
B	Rock	$2,500 < V_s \leq 5,000$ fps	N/A	N/A
C	Very dense soil and soft rock	$1,200 < V_s \leq 2,500$ fps	>50	$S_u \geq 2,000$
D	Stiff Soil Profile	$600 \leq V_s \leq 1,200$ fps	15 to 60	$1,000 \leq S_u \leq 2000$
E	Soft Soil Profile	$V_s < 600$ fps	<15	$S_u < 1000$

Based upon our interpretation of the subsurface conditions, we recommend a Seismic Site Classification of "C" for foundation placed on improved subgrades and "E" where any existing fill materials remain in place.

Ground Motion Parameters: In addition to the seismic site classification, ECS has determined the design spectral response acceleration parameters following the IBC methodology. The Mapped Responses were estimated from the USGS website <https://earthquake.usgs.gov/ws/designmaps/>. The design responses for the short (0.2 sec, S_{D5}) and 1-second period (S_{D1}) are noted in bold at the far right end of the following table.

Ground Motion Parameters

GROUND MOTION PARAMETERS [IBC Method]								
Period (sec)	Mapped Spectral Response Accelerations (g)		Values of Site Coefficient for Site Class		Maximum Spectral Response Acceleration Adjusted for Site Class (g)		Design Spectral Response Acceleration (g)	
Reference	Figures 1613.3.1 (1) & (2)		Tables 1613.3.3 (1) & (2)		Eqs. 16-37 & 16-38		Eqs. 16-39 & 16-40	
0.2	S_s	0.092	F_a	1.2	$S_{MS}=F_a S_s$	0.110	$S_{D5}=2/3 S_{MS}$	0.074
1.0	S_1	0.050	F_v	1.7	$S_{M1}=F_v S_1$	0.085	$S_{D1}=2/3 S_{M1}$	0.057

The Site Class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses. If a higher site classification is beneficial to the project, we can provide additional testing methods that may yield more favorable results.

4.7 PAVEMENT SECTIONS – EXTERIOR PARKING AND TRAVEL

As previously noted, both PVR and existing fill materials can create long term differential movements on this site, and this include the impact to pavements. Should these movements be unacceptable for the pavements, the recommendations included in this report to achieve more desirable future movements, should be followed.

All proposed paved areas should be proof rolled with heavy compaction equipment to attempt to locate any soft or undesirable soils so they can be removed and replaced with properly placed and compacted soils. Any new fill may consist of on-site soils or similar. These materials should be compacted to at least 95% of the Maximum Dry Density at or above optimum as obtained using the

Standard Proctor Method (ASTM D-698). Care should be taken to verify and preserve the specified moisture levels in the reworked clays prior to placement of the pavements.

Both asphalt pavement and Portland cement concrete pavement can be considered for this site. Lime stabilization is recommended beneath asphaltic concrete pavements. Portland cement concrete pavement may be placed on lime stabilized subgrade or compacted subgrade without lime stabilization. If lime stabilization is considered, we recommend testing the soils for soluble sulfate during construction. We should be contacted to evaluate the feasibility of lime stabilization.

For lime stabilization, a preliminary application rate of 7% lime by dry weight of clay can be used. The actual amount of lime required should be confirmed by additional laboratory tests (lime series) during the construction phase. The lime stabilization should conform TxDOT Item 260. The stabilized soil should be compacted to at least 95% of the Maximum Dry Density at workable moisture contents of about 3 percentage points above the optimum moisture content as obtained using the Standard Proctor Method (ASTM D-698). Stabilization should extend at least 1 foot beyond the pavement edges.

Typical pavement sections are provided below. The Standard Duty and Medium Duty asphalt pavements with lime stabilization are adequate for design life of 50,000 and 100,000 ESAL, respectively. The Standard Duty and Medium Duty concrete pavements without lime stabilization are adequate for design life of 50,000 and 125,000 ESAL, respectively. If lime stabilization is performed beneath concrete pavements, the Standard Duty and Medium Duty concrete pavements are adequate for design life of 80,000 and 200,000 ESAL, respectively.

In some cases, jurisdictional standards for pavement section construction may exceed those provided below. In that case, the pavement sections should follow the jurisdictional standards.

Pavement Sections – Private Drives and Parking

Material Description	Asphaltic Concrete Pavement		Portland Cement Concrete (PCC) Pavement		
	Standard Duty (Parking)	Medium Duty (Firelane)	Standard Duty (Parking)	Medium Duty (Firelane)	Dumpster Area
Asphalt Surface Course	2 inches	2 inches	--	--	--
Asphalt Binder Course ¹	3 inches	4 inches	--	--	--
Portland Cement Concrete	--	--	5 inches	6 inches	7 inches
Subgrade ²	6 inches Reworked Subgrade	6 inches Lime Stabilized	6 inches Reworked Subgrade	6 inches Lime Stabilized	6 inches Lime Stabilized
Notes: <ol style="list-style-type: none"> Flexible base material may be substituted for the asphalt binder using a substitute ratio of three inches of flexible base for each inch of asphalt binder. Flexible base materials may be substituted with the lime stabilization at an equivalent thickness substitution. In lieu of lime stabilized subgrades, the concrete can be increased by one (1) inch. 					

An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the

base course layer, softening of the subgrade and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should reduce the possibility of the subgrade materials becoming saturated during the normal service period of the pavement.

Pavement should be specified, constructed and tested to meet the following requirements:

1. Reinforcing steel may consist of #3 reinforcing steel bars placed at 18 inches on center each way. The reinforcing steel should be placed at mid-point of the pavement section.
2. Hot Mix Asphaltic Concrete: Item 340 of the TxDOT Standard Specifications, Type A or B Base Course (binder), Type D Surface Course. The coarse aggregate in the surface course should be crushed limestone rather than gravel.
3. Portland Cement Concrete: Minimum compressive strength of 3,600 lbs per sq inch at 28 days. Concrete should be designed with 3 to 6 percent entrained air.
4. Flexible Base Material: Item 247 of the TxDOT Standard Specifications, Type D, Grade 1 or 2. The material should be compacted to a minimum 95 percent of standard Proctor maximum dry density (ASTM D 698) and within three percentage points of the material's optimum moisture content.

4.8 DETENTION POND

For any underground detention facility, at minimum, a non-woven geotextile should be placed as a "separation" layer between any soil and granular drainage material. This will likely include placement over the subgrade soils, excavation sidewalls and any fill material above the facility. The geotextile selected should meet the requirements of AASHTO M288 Class 2 for a separation fabric or as recommended by the designer. The contractor should provide ECS the anticipated separation geotextile for review and approval.

For open detention features, we recommend that the side slopes be no steeper than 4H:1V. The embankment section, including the backfill of the conduits through the natural soils, should be constructed as a homogenous section. Circular discharge conduits from the pond should be underlain by a concrete cradle on the upstream 1/3 and a drainage blanket installed on the downstream 2/3 of the embankment. Both features extending up to the spring line of the pipe. For box structures, the concrete cradle is not required, but drainage should be considered.

All fills placed within the pond limits should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned on the wet side of the optimum moisture content (+2% or higher) and compacted to at least 95% of the Maximum Dry Density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. Any fills placed within the embankment sections should be benched into natural soils in order to reduce weak planes and seepage zones between the new fill and natural soils. All subgrade soils (walkways, fill subgrades, etc.) should be scarified, re-worked, moisture conditioned and compacted to these requirements as well.

In order to facilitate the establishment of grass on the embankment side slopes, it is considered acceptable to place up to a 12-inch-thick layer of topsoil on the faces of the embankment slopes. The topsoil material should be placed in maximum 6-inch loose lifts and should be compacted or tracked in with at least four passes of a tracked dozer.

The final slope configuration of the embankments should be constructed at gradients of 4H:1V, or flatter to provide adequate factors of safety with respect to stability. The suggested maximum slopes are based on past experience with similar pond slopes and embankment construction within similar geologic settings.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

In a dry and undisturbed state, the soil at the site will provide good subgrade support for fill placement and construction operations. However, the soils at the site contain fines which are considered moderately erodible, moisture and disturbance sensitive when wet and degrade quickly with disturbance from contractor operations. Therefore, good site drainage should be maintained during earthwork operations in order to keep the surface water away from the project area during the construction phase. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern. The erosion and sedimentation shall be controlled in accordance with sound engineering practice and current jurisdictional requirements.

5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping vegetation, rootmat, topsoil, existing pavements, and soft or yielding materials from the 5-foot expanded pavement limits. In grassy areas of the site may have about 6 inches of topsoil. Deeper topsoil or organic laden soils may be present in other landscaping areas. The root balls in large trees may extend deep and will require additional localized stripping depth to completely remove the organics.

ECS should be retained to verify that topsoil and yielding surficial materials have been removed prior to the placement of new fill or construction of pavements.

5.1.2 Proofrolling (Soil Subgrades)

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be proofrolled with construction equipment having a minimum axle load of 10 tons [e.g. fully loaded tandem-axle dump truck]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. This procedure is intended to assist in identifying any localized yielding materials.

Where proofrolling identifies areas that are yielding or “pumping” subgrade those areas should be repaired prior to the placement of subsequent fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in identifying the cause of the observed unstable materials, and to assist in the evaluation of appropriate actions to prepare the subgrade.

5.1.3 Site Temporary Dewatering

Perched Groundwater: Groundwater on this site can be characterized as being broadly perched above less permeable materials. The depth at which perched water is present on the site varies with surface elevation. In higher areas and on ridge lines, perched water may be present, including above design cut elevations, but is less concentrated. Soils at contact with perched water levels were very moist to wet. In most cases, moisture then decreased with depth.

Limited Excavation Dewatering: Based upon our subsurface exploration at this site, we believe construction dewatering at this site will be mainly limited to removing accumulated rainwater from low lying areas and some minor seepage from the support of excavation (SOE).

Deep wells should not be required for the temporary dewatering system. However, the dewatering operations can be handled by the use of conventional submersible pumps directly in the excavation, temporary trenches, and/or French drains.

If temporary sump pits are used, we recommend they be established at an elevation approximately 4 feet below the bottom of the excavation subgrade or bottom of footing. A perforated 55-gallon drum or other temporary structure could be used to house the pump. If dewatering cannot be accomplished by other means, we recommend continuous dewatering of the excavations using electric pumps or manned gasoline pumps be used during construction.

Details of a typical French drainage installation are included in Appendix D. A typical French drain consists of an 18 to 24-inch wide by 18- to 24-inch-deep bed of AASHTO #57 stone wrapped in a medium duty, non-woven geotextile. Actual dimensions should be as determined necessary during construction. After the installation has been completed, the geotextile should be wrapped over the top of the gravel followed by placement of backfill.

5.2 EARTHWORK OPERATIONS

Prior to placement of any new general fill, subgrades should be scarified to a depth of 6 inches, compacted to at least 95% of Maximum Dry Density as obtained by the Standard Proctor Method (ASTM D-698) and moisture conditioned above the optimum value. Fills should be benched into the existing soils.

Onsite soils can be used as fill materials. Imported soil used for general fill should not have a Plasticity Index (PI) of greater than the material encountered onsite. General fill material, outside of the building subgrade improvements, should be placed at or above optimum moisture content and compacted to at least 95% of the Maximum Dry Density as obtained by the Standard Proctor Method (ASTM D-698). Fill soils should be placed in 8-inch loose lifts for mass grading operations and 4-inch lifts for trench type excavations where walk behind or "jumping jack" compaction equipment is used.

Upon completion of the filling operations, care should be taken to maintain the soil moisture content prior to construction of floor slabs and pavements. Soil moisture levels can be preserved by various methods that can include covering with plastic, watering, etc. If the soil becomes desiccated, the affected material should be removed and replaced, or these materials should be scarified, moisture conditioned and recompacted.

Utility cuts should not be left open for extended periods of time and should be properly backfilled. Backfilling should be accomplished with properly compacted on-site soils, rather than granular materials. The clay plugs at utility trench detail provided in Appendix D is an acceptable method for the utility trench cut-off.

Field density and moisture tests should be performed on each lift as necessary to verify that adequate compaction is achieved. As a guide, one test per 2,500 square feet per lift is recommended in the building and paving areas (two tests minimum per lift). Utility trench backfill

should be tested at a rate of one test per lift per each 150 linear feet of trench (two tests minimum per lift). Certain jurisdictional requirements may require testing in addition to that noted previously. Therefore, these specifications should be reviewed and the more stringent specifications should be followed.

5.3 MATERIAL SPECIFICATIONS

5.3.1 Moisture Conditioning Clay Fill

Moisture conditioning may be performed within the building and flatwork areas sensitive to movements. Moisture conditioning of the existing clays, and all new clayey fill is performed to increase the moisture of the clays to a level that reduces their ability to absorb additional water that could result in post-construction heave in these soils.

The moisture conditioning should consist of undercutting the existing soils to the depths recommended in **Section 4.4 Foundations - Monolithic Slab-on-Grade**, scarifying the exposed subgrade, and reworking of excavated soils, as required to achieve the required subgrade improvement. During this process, the clay should receive adequate amounts of water to ensure uniform moisture content of at least 3 percentages or higher above the optimum moisture content. During the addition of water, the soils should be adequately mixed, and re-mixed, to ensure a uniform distribution of the moisture throughout the soil mass. Once appropriately mixed, the material should be compacted to at least 93% of the Maximum Dry Density as obtained using the Standard Proctor Method (ASTM D-698).

Outside of the moisture conditioned zone and where clay is used to establish site grades, we recommend that the clay material be placed and compacted to at least 95% of the Maximum Dry Density at or above the optimum moisture content as obtained using the Standard Proctor Method (ASTM D-698). These soils should be free of deleterious materials and be reworked to ensure a uniform distribution of water in order to achieve a uniform moisture content above the optimum moisture content.

Care should be taken to verify and preserve the specified moisture levels in the reworked clays prior to placement of floor slabs and pavements.

5.4 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils in foundations if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed immediately after the excavation has been completed, cleaned, and observed. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation immediately prior to placement of concrete.

5.5 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in our exploration are expected to be generally acceptable for support of utility pipes. The pipe subgrades should be observed and probed for stability by ECS. Any loose or yielding materials encountered should be removed and replaced with acceptable material.

Utility Backfilling: The granular bedding material (often AASHTO #57 stone) should be at least 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should satisfy the project requirements.

Excavation Safety: All excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining stable temporary excavations and slopes. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 CLOSING

ECS has prepared this report of findings, evaluations, and recommendations to guide geotechnical-related design and construction aspects of the project.

The description of the proposed project is based on information provided to ECS by the client. If any of this information is inaccurate, either due to our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted immediately in order that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed construction.

We recommend that ECS be allowed to review the project's plans and specifications pertaining to our work so that we may ascertain consistency of those plans/specifications with the intent of the geotechnical report.

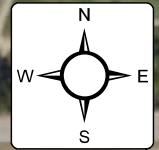
Field observations, monitoring, and quality assurance testing during earthwork and foundation installation are an extension of and integral to the geotechnical design recommendation. We recommend that the owner retain these quality assurance services and that ECS be allowed to continue our involvement throughout these critical phases of construction to provide general consultation as issues arise. ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings, test pits and tests performed at the locations as indicated on the Boring Location Diagram and other information referenced in this report. This report does not reflect any variations, which may occur between the borings and between the test pits. In the performance of the subsurface exploration, specific information is obtained at specific locations at specific times. However, it is a well-known fact that variations in subsurface conditions exist on most sites between boring locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, after performing on-site observations during the construction period and noting characteristics and variations, a reevaluation of the recommendations for this report will be necessary.

APPENDIX A – Figures

Site Location Map
Boring Location Diagram
Test Pit Location Diagram
Regional Geology

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

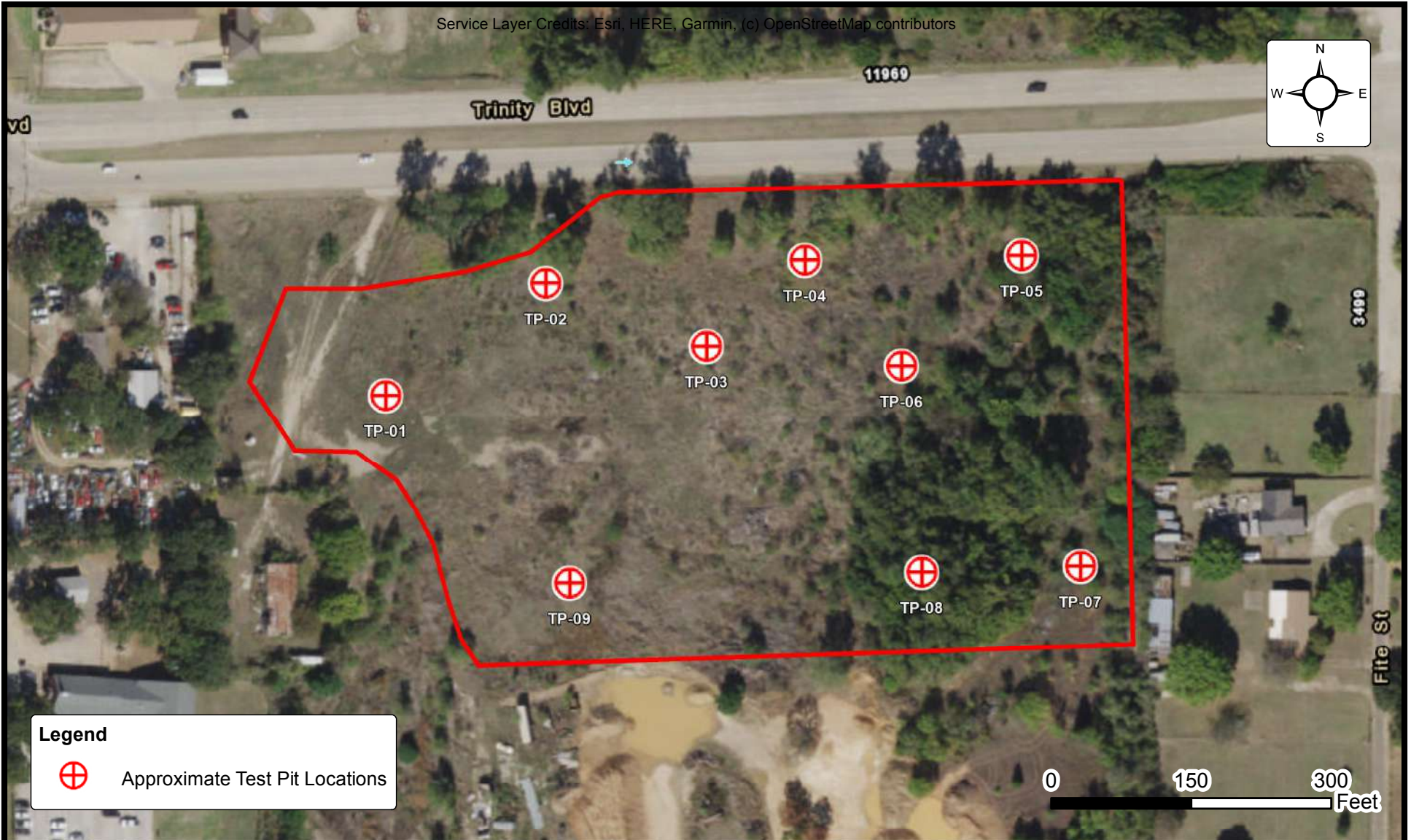


SITE LOCATION DIAGRAM RESIDENTIAL DEVELOPMENT AT TRINITY BOULEVARD

**11450 TRINITY BLVD, EULESS, TEXAS 76040
STONE HAWK CAPITAL PARTNERS**

ENGINEER HM
SCALE AS NOTED
PROJECT NO. 63:1625-A
SHEET 1 OF 1
DATE 5/11/2022

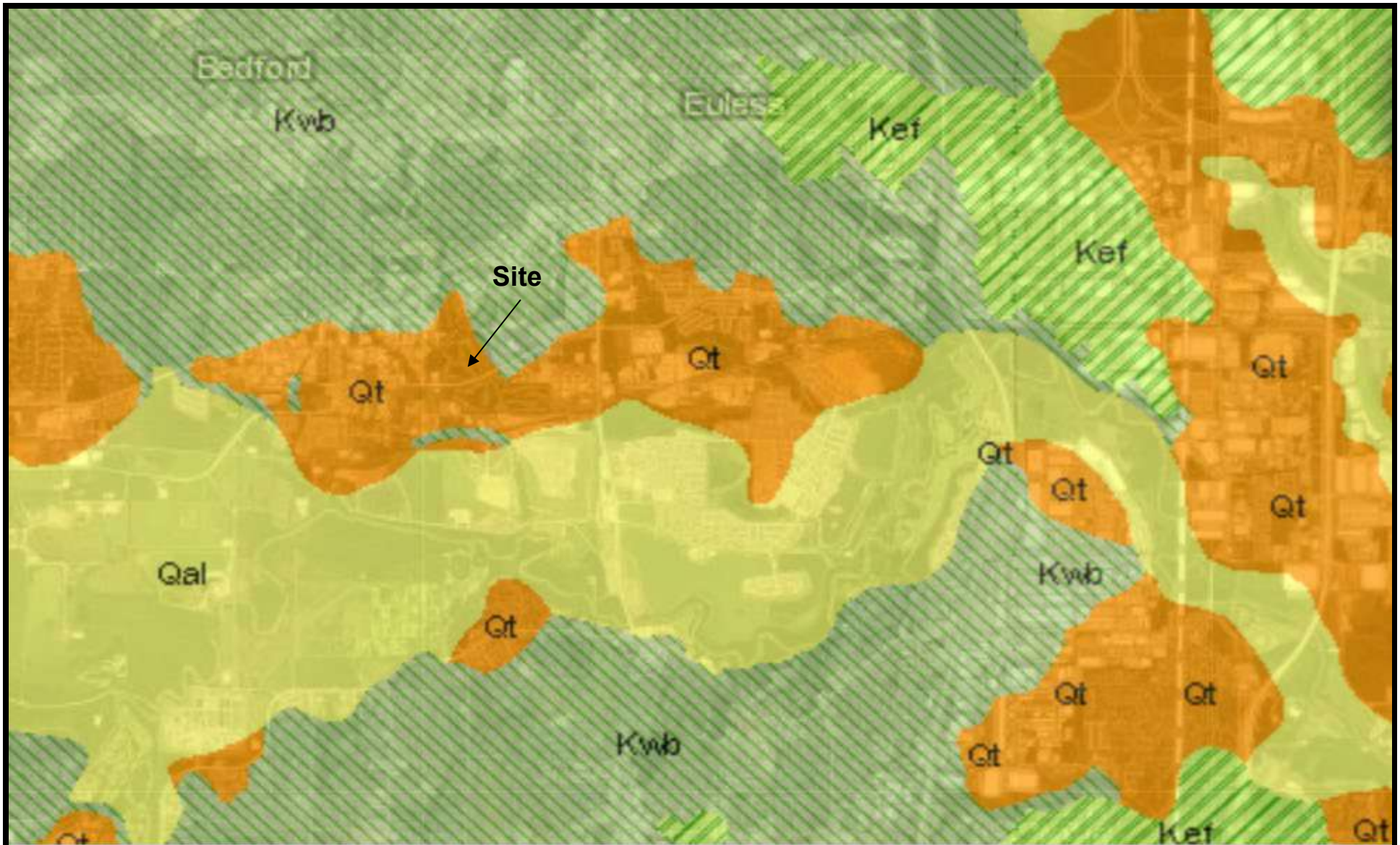
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



TEST PIT LOCATION DIAGRAM RESIDENTIAL DEVELOPMENT AT TRINITY BOULEVARD

11450 TRINITY BOULEVARD EULESS, TEXAS 76040
STONE HAWK CAPITAL PARTNERS

ENGINEER HM
SCALE AS NOTED
PROJECT NO. 63:1625
SHEET 1 OF 1
DATE 4/15/2022



REGIONAL GEOLOGY RESIDENTIAL DEVELOPMENT AT TRINITY BOULEVARD

Fluviatile Terrace Deposits (Qt)
11450 TRINITY BLVD, EULESS, TEXAS 76040
STONE HAWK CAPITAL PARTNERS

ENGINEER

HM

SCALE
AS NOTED

PROJECT NO.
63:1625-A

SHEET
1 OF 1

DATE
05/11/2021

APPENDIX B – Field Operations

Reference Notes for Boring Logs
Boring Logs PB-1 to PB-5, and B-01 to B-04
Test Pit Logs TP-1 to TP-9



REFERENCE NOTES FOR BORING AND TEST PIT LOGS

MATERIAL^{1,2}

	ASPHALT
	CONCRETE
	GRAVEL
	TOPSOIL
	VOID
	BRICK
	AGGREGATE BASE COURSE
	GW WELL-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GP POORLY-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GM SILTY GRAVEL gravel-sand-silt mixtures
	GC CLAYEY GRAVEL gravel-sand-clay mixtures
	SW WELL-GRADED SAND gravelly sand, little or no fines
	SP POORLY-GRADED SAND gravelly sand, little or no fines
	SM SILTY SAND sand-silt mixtures
	SC CLAYEY SAND sand-clay mixtures
	ML SILT non-plastic to medium plasticity
	MH ELASTIC SILT high plasticity
	CL LEAN CLAY low to medium plasticity
	CH FAT CLAY high plasticity
	OL ORGANIC SILT or CLAY non-plastic to low plasticity
	OH ORGANIC SILT or CLAY high plasticity
	PT PEAT highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION	PARTICLE SIZES
Boulders	12 inches (300 mm) or larger
Cobbles	3 inches to 12 inches (75 mm to 300 mm)
Gravel: Coarse	¾ inch to 3 inches (19 mm to 75 mm)
Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand: Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")	<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSION STRENGTH, QP ⁴	SPT ⁵ (BPF)	CONSISTENCY ⁷ (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

RELATIVE AMOUNT ⁷	COARSE GRAINED (%) ⁸	FINE GRAINED (%) ⁸
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective (ex: "Silty")	25 - 45	30 - 45

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT ⁵	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

WATER LEVELS⁶

	WL (First Encountered)
	WL (Completion)
	WL (Seasonal High Water)
	WL (Stabilized)

FILL AND ROCK

FILL	POSSIBLE FILL	PROBABLE FILL	ROCK

¹Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

²To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

³Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].





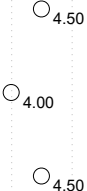
⁴Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).





⁵Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

⁶The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

⁷Minor deviation from ASTM D 2488-17 Note 14.

⁸Percentages are estimated to the nearest 5% per ASTM D 2488-17.





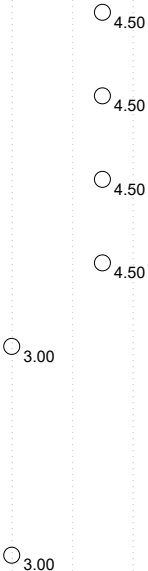

CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625		BORING NO.: PB-01		SHEET: 1 of 1		
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth						
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 		
NORTHING: 14938762.0		EASTING: 2547093.4		STATION:		SURFACE ELEVATION: 536.0		BOTTOM OF CASING 		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ———— Δ	
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY	
									— RQD — REC	
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %	
5	S-1	ST	24	24	FILL, LEAN CLAY, brown, light brown, hard, with sand seams, trashes, asphalt, bricks, plastics, and rebars		531			
	S-2	ST	24	24						
	S-3	ST	24	24						
10					Auger Only - No Sampling		526			
15					Refusal encountered at 12.0 feet. END OF DRILLING AT 12.0 FT		521			
20							516			
25							511			
30										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
☒ WL (First Encountered) DRY					BORING STARTED: Mar 03 2022			CAVE IN DEPTH:		
▼ WL (Completion) DRY					BORING COMPLETED: Mar 03 2022			HAMMER TYPE: Auto		
☒ WL (Seasonal High Water)					EQUIPMENT: Truck		LOGGED BY: TL2		DRILLING METHOD: CFA	
☒ WL (Stabilized)										
GEOTECHNICAL BOREHOLE LOG										

CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625		BORING NO.: PB-02		SHEET: 1 of 1		
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth						
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 		
NORTHING: 14938752.8		EASTING: 2546833.8		STATION:		SURFACE ELEVATION: 542.00		BOTTOM OF CASING 		
DEPTH (FT)	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL		WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ———— Δ	
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC	
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %	
5	S-1	ST	24	24	FILL, LEAN CLAY, brown, very stiff, with sand seams, asphalt, concrete, and rebars					○ 3.00
10					Refusal encountered at 2.0 feet. END OF DRILLING AT 2.0 FT					
15										
20										
25										
30										





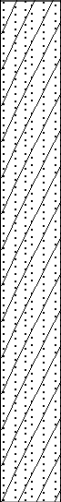
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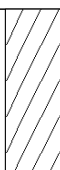

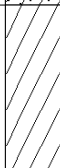

<input checked="" type="checkbox"/> WL (First Encountered)	DRY	BORING STARTED: Mar 03 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	DRY	BORING COMPLETED: Mar 03 2022	
<input checked="" type="checkbox"/> WL (Seasonal High Water)		EQUIPMENT: Truck	LOGGED BY: TL2
<input checked="" type="checkbox"/> WL (Stabilized)		DRILLING METHOD: CFA	

GEOTECHNICAL BOREHOLE LOG





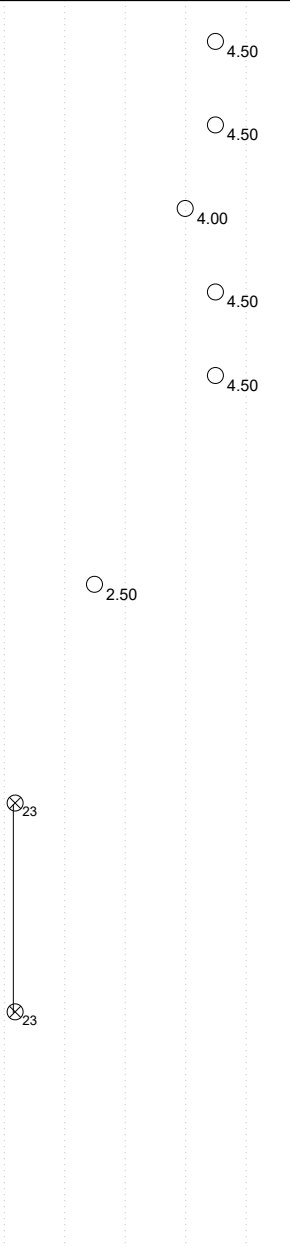
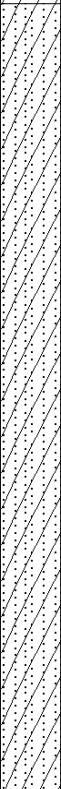
CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625		BORING NO.: PB-03		SHEET: 1 of 1			
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth							
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 			
NORTHING: 14938406.6		EASTING: 2546865.5		STATION:		SURFACE ELEVATION: 546.00		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ———— Δ		
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %		
5	S-1	ST	24	24	FILL, LEAN CLAY, brown, light brown, hard, with sand seams and asphalt pieces		541				
	S-2	ST	24	24							
	S-3	ST	24	24							
	S-4	ST	24	24							
	S-5	ST	24	24							
10					FILL, LEAN CLAY, brown, light brown, very stiff, with sand seams and concrete		536				
	S-6	ST	24	24							
15					Refusal encountered at 15.0 feet. END OF DRILLING AT 15.0 FT		531				
20							526				
25							521				
30											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
☒ WL (First Encountered)		DRY		BORING STARTED: Feb 21 2022		CAVE IN DEPTH:					
▼ WL (Completion)		DRY		BORING COMPLETED: Feb 28 2022		HAMMER TYPE: Auto					
☒ WL (Seasonal High Water)				EQUIPMENT: Truck		LOGGED BY: TL2		DRILLING METHOD: CFA			
☒ WL (Stabilized)											
GEOTECHNICAL BOREHOLE LOG											

CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625		BORING NO.: PB-04		SHEET: 1 of 1			
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth							
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 			
NORTHING: 14938624.8		EASTING: 2546652.4		STATION:		SURFACE ELEVATION: 544.00		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ————— ∆		
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %		
5	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, brown, very stiff to hard, with sand seams, gravel		539				
	S-2	ST	24	24							
	S-3	ST	24	24							
	S-4	ST	24	24							
10	S-5	ST	24	24							
15	S-7	SS	18	18	(SC) CLAYEY SAND, brown, light brown, loose to medium dense, with gravel		529	4-5-5 (10)	⊗ ₁₀		
20	S-8	SS	18	18							
	S-9	SS	18	18							
25	END OF BORING AT 25.0 FT						519	13-11-10 (21)	⊗ ₂₁		
30											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
☒ WL (First Encountered)		DRY		BORING STARTED: Mar 03 2022		CAVE IN DEPTH:					
▼ WL (Completion)		DRY		BORING COMPLETED: Mar 03 2022		HAMMER TYPE: Auto					
☒ WL (Seasonal High Water)				EQUIPMENT: Truck		LOGGED BY: TL2		DRILLING METHOD: CFA			
☒ WL (Stabilized)											
GEOTECHNICAL BOREHOLE LOG											


CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625		BORING NO.: PB-05		SHEET: 1 of 1			
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth							
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 			
NORTHING: 14938459.1		EASTING: 2546480.5		STATION:		SURFACE ELEVATION: 550.00		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ——— Δ		
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %		
5	S-1	ST	24	24	(CL) LEAN CLAY, brown, light brown, very stiff to hard, with gravel		545		○ 4.00		
	S-2	ST	24	24					○ 3.50		
	S-3	ST	24	24					○ 4.00		
	S-4	ST	24	24					○ 4.50		
10	S-5	ST	24	24					○ 4.00		
15	S-6	SS	18	18	(SC) CLAYEY SAND, brown, reddish brown, loose to very dense, with gravel		535	1-2-5 (7)	⊗ 72/10"		
	S-7	SS	16	16					⊗ 50/3"		
20	S-8	SS	3	3							
25	END OF BORING AT 25.0 FT						530	6-22-50/4" (72/10")			
30							525	50/3" (50/3")			
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
☒ WL (First Encountered)		DRY		BORING STARTED: Mar 03 2022		CAVE IN DEPTH:					
☒ WL (Completion)		DRY		BORING COMPLETED: Mar 03 2022		HAMMER TYPE: Auto					
☒ WL (Seasonal High Water)				EQUIPMENT: Truck		LOGGED BY: TL2		DRILLING METHOD: CFA			
GEOTECHNICAL BOREHOLE LOG											

CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625-A		BORING NO.: B-06		SHEET: 1 of 1			
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth							
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 			
NORTHING: 14938768.8		EASTING: 2546491.8		STATION:		SURFACE ELEVATION: 544.0		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● Δ		
									⊗ STANDARD PENETRATION BLOWS/FT		
									— ROCK QUALITY DESIGNATION & RECOVERY		
									— RQD		
									— REC		
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %		
5	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, reddish brown, very stiff to hard, with sand seams						
	S-2	ST	24	24							
	S-3	ST	24	24	(SC) CLAYEY SAND, reddish brown, very loose to medium dense		539				
	S-4	ST	24	24							
10	S-5	ST	24	24			534				
15	S-6	SS	18	18	(CL) LEAN CLAY, reddish brown, very stiff, with sand seams		529	7-14-15 (29)			
20	S-7	ST	24	24			524				
25	S-8	SS	3	3	CEMENTED SAND, reddish brown, with clay seams		519	50/3" (50/3")			
					END OF BORING AT 25 FT						
30											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
▽ WL (First Encountered)		Dry		BORING STARTED: Apr 15 2022		CAVE IN DEPTH:					
▼ WL (Completion)		Dry		BORING COMPLETED: Apr 15 2022		HAMMER TYPE: Auto					
▼ WL (Seasonal High Water)		N/A		EQUIPMENT: Truck		LOGGED BY: HM6		DRILLING METHOD: CFA			
▽ WL (Stabilized)		N/A									
GEOTECHNICAL BOREHOLE LOG											

CLIENT: StoneHawk Capital Partners						PROJECT NO.: 63:1625-A		BORING NO.: B-07		SHEET: 1 of 1					
PROJECT NAME: Residential Development at Trinity Boulevard						DRILLER/CONTRACTOR: Total Depth									
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040									LOSS OF CIRCULATION 						
NORTHING: 14938322.0			EASTING: 2546657.8			STATION:		SURFACE ELEVATION: 548.0		BOTTOM OF CASING 					
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL		WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ——— Δ					
										⊗ STANDARD PENETRATION BLOWS/FT					
										— RQD					
										— REC					
										○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %					
	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, reddish brown, very stiff to hard, with sand seams			543		○ 4.50					
	S-2	ST	24	24	(SC) CLAYEY SAND, reddish brown, medium dense							538		○ 3.00	○ 4.00
5	S-3	ST	24	24										○ 4.50	
	S-4	ST	24	24											
	S-5	ST	24	24	(SC) CLAYEY SAND, reddish brown, yellowish brown, medium dense, with cemented sand seams			533		○ 4.50					
10															
	S-6	ST	24	24											
15					(SC) CLAYEY SAND, reddish brown, yellowish brown, medium dense, with cemented sand seams			528		7-12-12 (24)	⊗ ₂₄				
	S-7	SS	18	18											
20															
	S-8	SS	18	18	END OF BORING AT 25 FT			523		10-14-15 (29)	⊗ ₂₉				
25															
30															
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL															
▽ WL (First Encountered)		Dry	BORING STARTED: Apr 15 2022		CAVE IN DEPTH:										
▼ WL (Completion)		Dry	BORING COMPLETED: Apr 15 2022		HAMMER TYPE: Auto										
▼ WL (Seasonal High Water)		N/A	EQUIPMENT: Truck		LOGGED BY: HM6										
▽ WL (Stabilized)		N/A			DRILLING METHOD: CFA										
GEOTECHNICAL BOREHOLE LOG															

CLIENT: StoneHawk Capital Partners				PROJECT NO.: 63:1625-A		BORING NO.: B-08		SHEET: 1 of 1			
PROJECT NAME: Residential Development at Trinity Boulevard				DRILLER/CONTRACTOR: Total Depth							
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 			
NORTHING: 14938054.3		EASTING: 2546560.5		STATION:		SURFACE ELEVATION: 546.0		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ————— ● ————— △		
									⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		
									○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %		
5	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, reddish brown, hard, with sand seams		541				
	S-2	ST	24	24							
	S-3	ST	24	24							
10	S-4	ST	24	24							
	S-5	ST	24	24							
15	S-6	ST	24	24							
20	S-7	SS	18	18							
					(SC) CLAYEY SAND, reddish brown, light grayish and yellowish brown, yellowish brown, medium dense		536				
	S-8	SS	18	18							
25	END OF BORING AT 25 FT						531				
							526	11-13-10 (23)			
							521	9-12-11 (23)			
30											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
☒ WL (First Encountered)		Dry		BORING STARTED: Apr 15 2022		CAVE IN DEPTH:					
▼ WL (Completion)		Dry		BORING COMPLETED: Apr 15 2022		HAMMER TYPE: Auto					
☒ WL (Seasonal High Water)		N/A		EQUIPMENT: Truck		LOGGED BY: HM6		DRILLING METHOD: CFA			
☒ WL (Stabilized)		N/A									
GEOTECHNICAL BOREHOLE LOG											


CLIENT: StoneHawk Capital Partners						PROJECT NO.: 63:1625-A		BORING NO.: B-09		SHEET: 1 of 1																																																																																																																						
PROJECT NAME: Residential Development at Trinity Boulevard						DRILLER/CONTRACTOR: Total Depth																																																																																																																										
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040								LOSS OF CIRCULATION 																																																																																																																								
NORTHING: 14937875.7			EASTING: 2546695.2			STATION:		SURFACE ELEVATION: 546.0		BOTTOM OF CASING 																																																																																																																						
<table border="1"><thead><tr><th rowspan="4">DEPTH (FT)</th><th rowspan="4">SAMPLE NUMBER</th><th rowspan="4">SAMPLE TYPE</th><th rowspan="4">SAMPLE DIST. (IN)</th><th rowspan="4">RECOVERY (IN)</th><th rowspan="4">DESCRIPTION OF MATERIAL</th><th rowspan="4">WATER LEVELS</th><th rowspan="4">ELEVATION (FT)</th><th rowspan="4">BLOWS/6"</th><th colspan="3">Plastic Limit Water Content Liquid Limit X ● ——— Δ</th></tr><tr><th colspan="3">⊗ STANDARD PENETRATION BLOWS/FT</th></tr><tr><th colspan="3">— ROCK QUALITY DESIGNATION & RECOVERY</th></tr><tr><th colspan="3">— RQD</th></tr><tr><td colspan="9"></td><td colspan="3">○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %</td></tr></thead><tbody><tr><td rowspan="5">5</td><td>S-1</td><td>ST</td><td>24</td><td>24</td><td rowspan="5">(CL) LEAN CLAY, dark brown, reddish brown, very stiff to hard, with sand seams</td><td rowspan="5"></td><td rowspan="5">541</td><td rowspan="5">50/4" (50/4")</td><td rowspan="5">2.00</td><td rowspan="5">4.50</td><td rowspan="5">4.50</td></tr><tr><td>S-2</td><td>ST</td><td>24</td><td>24</td></tr><tr><td>S-3</td><td>ST</td><td>24</td><td>24</td></tr><tr><td>S-4</td><td>ST</td><td>24</td><td>24</td></tr><tr><td>S-5</td><td>ST</td><td>24</td><td>24</td></tr><tr><td rowspan="3">15</td><td>S-6</td><td>SS</td><td>4</td><td>4</td><td rowspan="3">(SC) CLAYEY SAND, reddish brown, olive brown, medium dense</td><td rowspan="3">536</td><td rowspan="3">531</td><td rowspan="3">37-50/5" (50/5")</td><td rowspan="3">50/4"</td><td rowspan="3">50/5"</td><td rowspan="3">50/3"</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td rowspan="3">25</td><td>S-7</td><td>SS</td><td>11</td><td>11</td><td rowspan="3">CEMENTED SAND, brown, yellowish brown</td><td rowspan="3">526</td><td rowspan="3">521</td><td rowspan="3">21-50/3" (50/3")</td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">30</td><td>S-8</td><td>SS</td><td>9</td><td>9</td><td rowspan="2">END OF BORING AT 25 FT</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr><tr><td></td><td></td><td></td><td></td></tr></tbody></table>												DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ——— Δ			⊗ STANDARD PENETRATION BLOWS/FT			— ROCK QUALITY DESIGNATION & RECOVERY			— RQD												○ CALIBRATED PENETROMETER TON/SF [FINES CONTENT] %			5	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, reddish brown, very stiff to hard, with sand seams		541	50/4" (50/4")	2.00	4.50	4.50	S-2	ST	24	24	S-3	ST	24	24	S-4	ST	24	24	S-5	ST	24	24	15	S-6	SS	4	4	(SC) CLAYEY SAND, reddish brown, olive brown, medium dense	536	531	37-50/5" (50/5")	50/4"	50/5"	50/3"									25	S-7	SS	11	11	CEMENTED SAND, brown, yellowish brown	526	521	21-50/3" (50/3")												30	S-8	SS	9	9	END OF BORING AT 25 FT										
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	Plastic Limit Water Content Liquid Limit X ● ——— Δ																																																																																																																							
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5	S-1	ST	24	24	(CL) LEAN CLAY, dark brown, reddish brown, very stiff to hard, with sand seams		541	50/4" (50/4")	2.00	4.50	4.50																																																																																																																					
	S-2	ST	24	24																																																																																																																												
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	S-4	ST	24	24																																																																																																																												
	S-5	ST	24	24																																																																																																																												
15	S-6	SS	4	4	(SC) CLAYEY SAND, reddish brown, olive brown, medium dense	536	531	37-50/5" (50/5")	50/4"	50/5"	50/3"																																																																																																																					
25	S-7	SS	11	11	CEMENTED SAND, brown, yellowish brown	526	521	21-50/3" (50/3")																																																																																																																								
30	S-8	SS	9	9	END OF BORING AT 25 FT																																																																																																																											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																																																																																																																																
WL (First Encountered) Dry						BORING STARTED: Apr 15 2022			CAVE IN DEPTH:																																																																																																																							
WL (Completion) Dry						BORING COMPLETED: Apr 15 2022			HAMMER TYPE: Auto																																																																																																																							
WL (Seasonal High Water) N/A						EQUIPMENT: Truck			LOGGED BY: HM6																																																																																																																							
WL (Stabilized) N/A									DRILLING METHOD: CFA																																																																																																																							
GEOTECHNICAL BOREHOLE LOG																																																																																																																																

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-1	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938614.0		EASTING: 2546637.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		539	FILL, CLAY, brown, orange and grayish brown, with sand seams, some roots, concrete (up to 48" in size), asphalt (up to 12" in size), rebar (No. 3 or No. 4 in size), bricks, 4" PVC pipe and wood					
10		534						
15		529	NATIVE SOIL, CLAYEY SAND, light brown, reddish brown, with less gravel at 13.5', with silty layer at 14.5'					
			END OF TEST PIT AT 15.0 FT					
20		524						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input checked="" type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-2	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938735.6		EASTING: 2546809.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		538	FILL, CLAYEY SAND, orange, reddish, brown, light brown, with some gravels, concrete (abundant, up to 48" in size), rebar (No. 3 or No. 4 in size), asphalt, tire, plastic bags and sheets, brick (up to 16" in size), 4" PVC pipe					
10		533						
			NATIVE SOIL, CLAYEY SAND, orange and reddish brown					
15		528	END OF TEST PIT AT 14.0 FT					
20		523						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-3	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938665.3		EASTING: 2546973.7	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		542	FILL, CLAY, brown, dark brown, orange, reddish brown with sand seams, concrete (up to 28" size), plastic bags, brick, wood, asphalt (abundant, up to 12" in size) and metal wire and rebar (No. 3 and 4 in size)					
10		537						
15		532						
20		527						
			END OF TEST PIT AT 20.5 FT					
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-4	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938754.5	EASTING: 2547080.0		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		531	FILL, CLAY, orange, reddish, yellowish, brown, with sand seams, concrete (up to 60" in size), asphalt (up to 36" in size), rebar (No. 3 or No. 4 in size), metal plate, plastic bags and sheets, brick (up to 8" in size) and wood					
10		526						
15		521						
			NATIVE SOIL, SAND, orange brown, with gravels and cobbles					
20		516	END OF TEST PIT AT 17.5 FT					
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-5	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938766.0		EASTING: 2547338.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5	☒	521	FILL, CLAYEY SAND, orange, reddish, grayish brown, with gravel (up to 12" in size), boulder (up to 32" in size), concrete (up to 30" in size), brick (up to 12" in size), asphalt (12" in size), wood, rebar (No.3 or No. 4 in size) steel drum and plastic bags					
10		516						
15		511	NATIVE SOIL, POORLY GRADED GRAVEL, brown, gray					
			END OF TEST PIT AT 16.5 FT					
20		506						
25								


REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
☒ WL (First Encountered) 5.50	☒ WL (Seasonal High)	CONTRACTOR:	OPERATOR: Gary
☒ WL (Completion) 6.00			MAKE/MODEL:
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-6	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938646.9		EASTING: 2547186.4	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		527	FILL, CLAY, orange brown, dark brown, with concrete (up to 84" in size), asphalt (up to 14" in size) and rebar (No. 3 or No. 4 in size), plastic bags, steel pipe and brick					
10	⚡	522						
15		517						
20		512	END OF TEST PIT AT 20.0 FT					
25								


REMARKS:			
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
∇ WL (First Encountered) 11.00 ▼ WL (Completion) 11.50	∇ WL (Seasonal High)	CONTRACTOR:	OPERATOR: Gary
		MAKE/MODEL:	
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-7	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938420.4		EASTING: 2547384.0	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		525	NATIVE SOIL, CLAYEY SAND, reddish brown, some roots					
10		520	END OF TEST PIT AT 7.0 FT					
15		515						
20		510						
25								

REMARKS:


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-8	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938428.7		EASTING: 2547220.7	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5	▼	518	FILL, CLAYEY SAND, orange, grayish brown, dark gray, with concrete, plastic bags and sheets, wood and round, concrete (up to 72" in size), rebar (No. 3 or No. 4 in size) tire and shoes					
10		513						
15		508	NATIVE SOIL, POORLY GRADED GRAVEL, light orange and yellowish brown END OF TEST PIT AT 13.5 FT					
20		503						
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
▽ WL (First Encountered) 3.00 ▼ WL (Completion) 3.00	▽ WL (Seasonal High)	CONTRACTOR:	OPERATOR: Gary
		MAKE/MODEL:	
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

CLIENT: StoneHawk	PROJECT NO.: 63:1625-A	SHEET: 1 of 1	
PROJECT NAME: Residential Development at Trinity Blvd	TEST PIT NO.: TP-9	SURFACE ELEVATION:	
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040		STATION:	
NORTHING: 14938404.3	EASTING: 2546833.2		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
5		542	FILL, CLAY, orange brown, dark brown, grayish brown, with sand seams, concrete (up to 60" in size), asphalt (up to 12" in size), plastic bags, brick, 4" PVC pipe, rebar (No. 3 or No. 4 in size), steel pipe					
10		537						
15		532						
20		527	END OF TEST PIT AT 18.5 FT					
25								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL			
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT			
<input type="checkbox"/> WL (First Encountered) Dry	<input type="checkbox"/> WL (Seasonal High)	CONTRACTOR:	OPERATOR:
<input checked="" type="checkbox"/> WL (Completion) Dry			Gary
ECS REP.: HM6	DATE COMPLETED: Apr 07 2022	UNITS: English	CAVE-IN-DEPTH:
TEST PIT LOG			

APPENDIX C – Laboratory Testing

Laboratory Testing Summary



ECS Southwest, LLP
Fort Worth, Texas
Laboratory Testing Summary

Project Number: 63:1625-A

Project Name: Residential Development at Trinity Boulevard

Date: 05/11/2022

Project Engineer: HM

Principal Engineer: MRZ

Boring Number	Sample Number	Depth (feet)	MC ¹ (%)	Soil Type ²	Atterberg Limits ³			Percent Passing No. 200 Sieve ⁴	Dry Unit Weight ⁵ (pcf)	One-Dimensional Swell ⁶			Unconfined Compressive Strength ⁷ (tsf)	pH
					LL	PL	PI			Final Moisture (%)	Surcharge (psf)	Swell (%)		
PB-1	S-1	0 - 2	3.0	SC										
	S-2	2 - 4	19.2											
	S-3	4 - 6	11.5		46	20	26	46.7						
PB-2	S-1	0 - 2	10.5											
PB-3	S-2	2 - 4	14.7	SC										
	S-5	8 - 10	11.2		27	15	12	24.1						
PB-4	S-1	0 - 2	9.5	SC										
	S-3	4 - 6	12.1		34	16	18	36.1						
	S-5	8 - 10	10.0											
PB-5	S-1	0 - 2	7.1	SC										
	S-3	4 - 6	5.0		19	13	6	28.7						
B-01	S-1	0 - 2	4.5	SC										
	S-3	4 - 6	8.7		22	12	10	34.9						
	S-5	8 - 10	8.3		23	14	9	26.3						
B-02	S-2	2 - 4	16.8	SC										
	S-4	6 - 8	10.6		35	15	20	24.1						

Notes:

1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 7260, 5. ASTM D 1140, 6. ASTM D 4546

Definitions:

MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, NP: Non Plastic



ECS Southwest, LLP
Fort Worth, Texas
Laboratory Testing Summary

Project Number: 63:1625-A

Project Name: Residential Development at Trinity Boulevard

Date: 05/11/2022

Project Engineer: HM

Principal Engineer: MRZ

Boring Number	Sample Number	Depth (feet)	MC ¹ (%)	Soil Type ²	Atterberg Limits ³			Percent Passing No. 200 Sieve ⁴	Dry Unit Weight ⁵ (pcf)	One-Dimensional Swell ⁶			Unconfined Compressive Strength ⁷ (tsf)	pH
					LL	PL	PI			Final Moisture (%)	Surcharge (psf)	Swell (%)		
B-03	S-2	2 - 4	8.6	SC	36	16	20	22.8						
	S-4	6 - 8	7.5											
B-04	S-1	0 - 2	9.4	SC	28	16	12	36.9						
	S-3	4 - 6	12.0											
	S-5	8 - 10	6.8											

Notes:

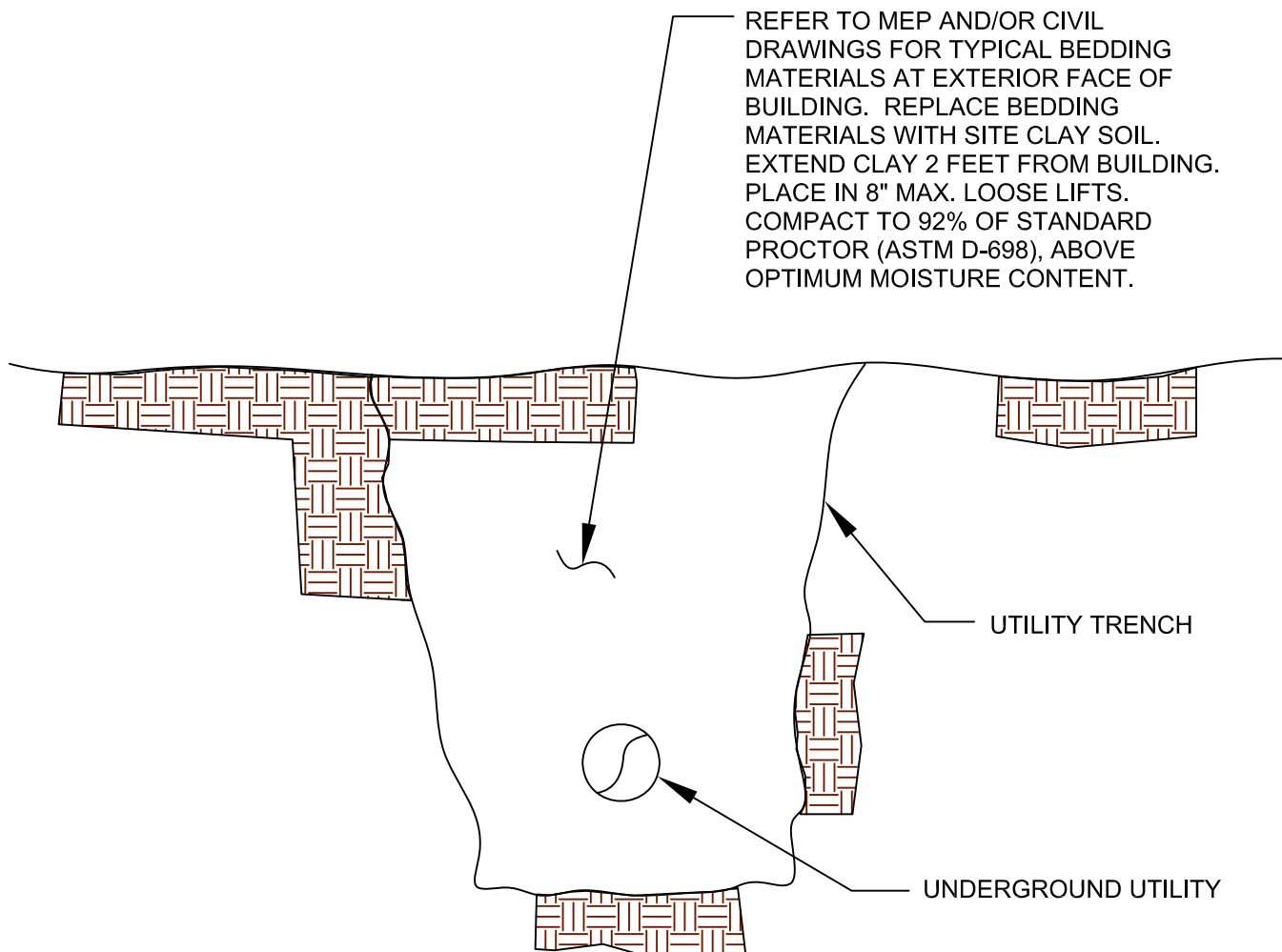
1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 7260, 5. ASTM D 1140, 6. ASTM D 4546

Definitions:

MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, NP: Non Plastic

APPENDIX D – Supplemental Report Documents

Clay Plug at Utility Trench
French Drain Installation Procedure



TYPICAL DETAIL DIAGRAM



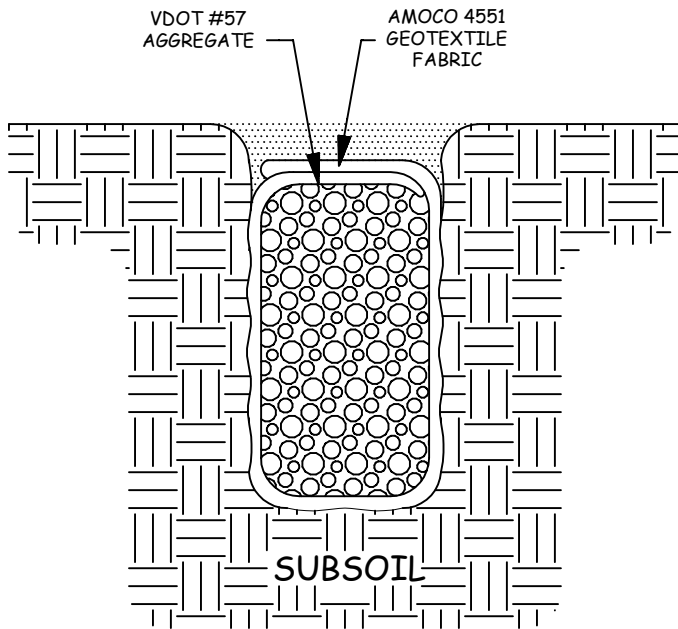
CLAY PLUG AT UTILITY TRENCH

ENGINEER	SCALE
	NTS
DRAFTSMAN CLL	PROJECT NO.
REVISIONS	SHEET
	1 OF 1
	DATE
	11/7/08

FRENCH DRAIN INSTALLATION PROCEDURE

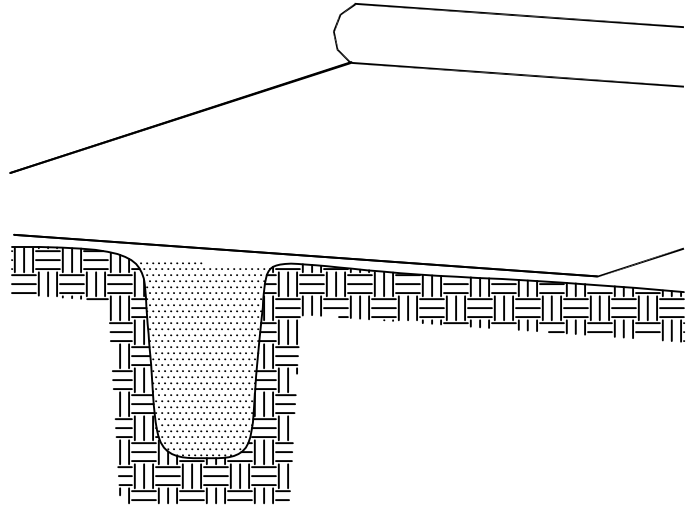
NOT TO SCALE

FINAL CONFIGURATION



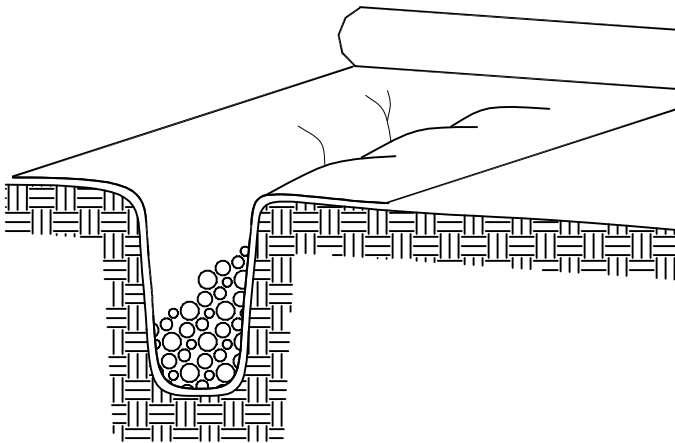
SUBDRAIN USING FILTER FABRIC

STEP 1



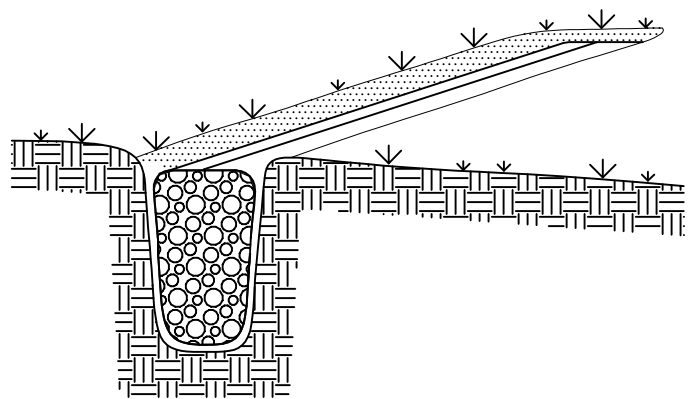
FABRIC IS UNROLLED DIRECTLY OVER TRENCH

STEP 2



THE TRENCH IS FILLED WITH AGGREGATE

STEP 3



THE FABRIC IS LAPPED CLOSED AND COVERED WITH BASE STONE



ATTACHMENT 10C

TABLES AND BORING LOGS FROM APAR

**TABLE 4D-1
SUMMARY OF SOIL ANALYTICAL RESULTS**

TEXAS STAR; VCP No. 3237

11450 TRINITY BLVD

EULESS, TEXAS 76040

Analyte	TRRP Tier 1 Residential PCLs ¹ 0.5-acre		Texas-Specific Background Concentration	Sample ID Lab ID Date Depth Units	SB-1-0.5		SB-2-0.5		SB-3-0.5		SB-4-0.5		SB-5-0.5		SB-6-0.5	
	Tot ^{Soil} _{Comb} mg/kg	GW ^{Soil} _{Ing} mg/kg			870-5980-2 2/21/2022 0.5 FT BGS mg/kg		870-5980-5 2/21/2022 0.5 FT BGS mg/kg		870-5980-8 2/22/2022 0.5 FT BGS mg/kg		870-5980-11 2/21/2022 0.5 FT BGS mg/kg		870-5980-15 2/22/2022 0.5 FT BGS mg/kg		870-5980-18 2/22/2022 0.5 FT BGS mg/kg	
TPH (TX1005)																
C6-C12	--	--	--		<19.9	U	<117	U	<27.1	U	<22.9	U	<23.3	U	<41.6	U
C12-C28	--	--	--		<19.9	U	145	J	28.8	J	26.7	J	24.7	J	52.8	J
C28-C35	--	--	--		<19.9	U	373		67.8		59.3		65.3		119	
Total C6-C35	7,250 ^A	880 ^A	--		<19.9	U	518		96.6		86.0		90.0		172	
Metals (RCRA 8)																
Arsenic	24	16 ^B	5.9		2.18	J	4.43		7.00		6.66		5.21		4.31	
Barium	8,100	440	300		36.8		39.7		95.2		68.5		36.2		67.7	
Cadmium	52	1.5	--		<0.104	U	0.148	J	0.307	J	0.131	J	0.135	J	0.239	J
Chromium	33,000	2,400	30		11.1		10.5		16.2		18.7		9.46		11.0	
Lead	500	307 ^B	15		6.11		11.7		14.6		12.1		10.4		8.83	
Selenium	310	2.3	0.30		<0.446	U	0.496	J	<0.654	U	0.629	J	<0.568	U	<0.518	U
Silver	97	0.48	--		<0.143	U	<0.144	U	<0.209	U	<0.165	U	<0.182	U	<0.166	U
Mercury	8.3	2.1	0.04		0.0104	J	0.0109	J	0.0267		0.0191	J	0.0406		0.0280	
VOCs (SW8260B)²																
n-Butylbenzene	3,300	150	--		==		==		==		==		==		==	
sec-Butylbenzene	3,300	85	--		==		==		==		==		==		==	
Ethylbenzene	6,400	7.6	--		==		==		==		==		==		==	
Isopropylbenzene	4,300	350	--		==		==		==		==		==		==	
Naphthalene	220	31	--		==		==		==		==		==		==	
n-Propylbenzene	2,200	45	--		==		==		==		==		==		==	

NOTES:

¹ Based on TRRP Tables dated 10 May 2023.

² Only detected analytes summarized. For the full list, see the laboratory reports.

^A Tier 1 site-specific PCL with TRRP Calculator (v 3.0 - 02/2020). See Appendix 9.

^B Tier 2 site-specific PCL with Soil Attenuation Modeling. See Appendix 9.

^C Location re-sampled on 6/20/2023 and elevated concentration not confirmed.

-- No value.

== Constituent was not analyzed.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Method Quantitation Limit (MQL).

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

Bold values indicate concentration reported above the SDL.

**TABLE 4D-1
SUMMARY OF SOIL ANALYTICAL RESULTS**

TEXAS STAR; VCP No. 3237

11450 TRINITY BLVD

EULESS, TEXAS 76040

Analyte	TRRP Tier 1 Residential PCLs ¹ 0.5-acre		Texas-Specific Background Concentration mg/kg	Sample ID Lab ID Date Depth Units	SB-6-3 870-5980-19 2/22/2022 3 FT BGS mg/kg		SB-6-6 870-5980-20 2/22/2022 6 FT BGS mg/kg		SB-6R-7 HS23041620-01 4/25/2023 7 FT BGS mg/kg		SB-6R-8 HS23041620-02 4/25/2023 8 FT BGS mg/kg		SB-6R-8 (RESAMPLE) HS23061389-01 6/20/2023 8 FT BGS mg/kg		SB-6R-9 HS23041620-03 4/25/2023 9 FT BGS mg/kg	
	Tot _{Soil} _{Comb} mg/kg	GW _{Soil} _{ing} mg/kg														
TPH (TX1005)																
C6-C12	--	--	--		<109	U	<21.2	U	==		==		==		==	
C12-C28	--	--	--		127	J	57.5		==		==		==		==	
C28-C35	--	--	--		340		<21.2	U	==		==		==		==	
Total C6-C35	7,250 ^A	880 ^A	--		467		57.5		==		==		==		==	
Metals (RCRA 8)																
Arsenic	24	16 ^B	5.9		4.00	J	6.97		==		==		==		==	
Barium	8,100	440	300		20.7		42.9		==		==		==		==	
Cadmium	52	1.5	--		<0.117	U	0.253	J	==		==		==		==	
Chromium	33,000	2,400	30		23.4		16.3		==		==		==		==	
Lead	500	307 ^B	15		17.2		45.9		44.4		932 ^C		5.51		188	
Selenium	310	2.3	0.30		<0.499	U	0.605	J	==		==		==		==	
Silver	97	0.48	--		<0.160	U	<0.174	U	==		==		==		==	
Mercury	8.3	2.1	0.04		0.00940	J	0.0321		==		==		==		==	
VOCs (SW8260B)²																
n-Butylbenzene	3,300	150	--		0.0126		<0.000230	U	==		==		==		==	
sec-Butylbenzene	3,300	85	--		0.00803		<0.000219	U	==		==		==		==	
Ethylbenzene	6,400	7.6	--		0.00425		<0.000282	U	==		==		==		==	
Isopropylbenzene	4,300	350	--		0.00314	J	<0.000146	U	==		==		==		==	
Naphthalene	220	31	--		0.0746		<0.00168	U	==		==		==		==	
n-Propylbenzene	2,200	45	--		0.00645		<0.000240	U	==		==		==		==	

NOTES:

¹ Based on TRRP Tables dated 10 May 2023.

² Only detected analytes summarized. For the full list, see the laboratory reports.

^A Tier 1 site-specific PCL with TRRP Calculator (v 3.0 - 02/2020). See Appendix 9.

^B Tier 2 site-specific PCL with Soil Attenuation Modeling. See Appendix 9.

^C Location re-sampled on 6/20/2023 and elevated concentration not confirmed.

-- No value.

== Constituent was not analyzed.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Method Quantitation Limit (MQL).

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

Bold values indicate concentration reported above the SDL.

**TABLE 4D-1
SUMMARY OF SOIL ANALYTICAL RESULTS**

TEXAS STAR; VCP No. 3237

11450 TRINITY BLVD

EULESS, TEXAS 76040

Analyte	TRRP Tier 1 Residential PCLs ¹ 0.5-acre		Texas-Specific Background Concentration	Sample ID Lab ID Date Depth Units	SB-6R-10	SB-6R-11	SB-6R-13	SB-6R-15	SB-7-.05	SB-7R-2
	Tot _{Soil} Comb mg/kg	GW _{Soil} Ing mg/kg			HS23041620-04 4/25/2023 10 FT BGS mg/kg	HS23060505-05 4/25/2023 11 FT BGS mg/kg	HS23060505-06 4/25/2023 13 FT BGS mg/kg	HS23060505-07 4/25/2023 15 FT BGS mg/kg	HS22030367-01 3/7/2022 0.5 FT BGS mg/kg	HS23041620-08 4/25/2023 2 FT BGS mg/kg
TPH (TX1005)										
C6-C12	--	--	--		==	==	==	==	<7.8	U
C12-C28	--	--	--		==	==	==	==	<10	U
C28-C35	--	--	--		==	==	==	==	<10	U
Total C6-C35	7,250 ^A	880 ^A	--		==	==	==	==	<7.8	U
Metals (RCRA 8)										
Arsenic	24	16 ^B	5.9		==	==	==	==	15.1	11.1
Barium	8,100	440	300		==	==	==	==	141	==
Cadmium	52	1.5	--		==	==	==	==	0.938	==
Chromium	33,000	2,400	30		==	==	==	==	27.9	==
Lead	500	307 ^B	15		55.7	197	20.7	3.69	16.6	==
Selenium	310	2.3	0.30		==	==	==	==	1.04	==
Silver	97	0.48	--		==	==	==	==	0.00179	J
Mercury	8.3	2.1	0.04		==	==	==	==	0.0136	==
VOCs (SW8260B)²										
n-Butylbenzene	3,300	150	--		==	==	==	==	<0.000230	U
sec-Butylbenzene	3,300	85	--		==	==	==	==	<0.000219	U
Ethylbenzene	6,400	7.6	--		==	==	==	==	<0.000282	U
Isopropylbenzene	4,300	350	--		==	==	==	==	<0.000146	U
Naphthalene	220	31	--		==	==	==	==	<0.00168	U
n-Propylbenzene	2,200	45	--		==	==	==	==	<0.000240	U

NOTES:

¹ Based on TRRP Tables dated 10 May 2023.

² Only detected analytes summarized. For the full list, see the laboratory reports.

^A Tier 1 site-specific PCL with TRRP Calculator (v 3.0 - 02/2020). See Appendix 9.

^B Tier 2 site-specific PCL with Soil Attenuation Modeling. See Appendix 9.

^C Location re-sampled on 6/20/2023 and elevated concentration not confirmed.

-- No value.

== Constituent was not analyzed.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Method Quantitation Limit (MQL).

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

Bold values indicate concentration reported above the SDL.

**TABLE 4D-1
SUMMARY OF SOIL ANALYTICAL RESULTS**

TEXAS STAR; VCP No. 3237

11450 TRINITY BLVD

EULESS, TEXAS 76040

Analyte	TRRP Tier 1 Residential PCLs ¹ 0.5-acre		Texas-Specific Background Concentration	Sample ID Lab ID Date Depth Units	SB-7R-3	SB-15-5	SB-16-5	SS-7	SS-8	SS-9	SS-10
	Tot ^{Soil} Comb mg/kg	GW ^{Soil} Ing mg/kg			HS23041620-09 4/25/2023 3 FT BGS mg/kg	HS23041620-17 4/25/2023 5 FT BGS mg/kg	HS23041620-19 4/25/2023 5 FT BGS mg/kg	870-5980-21 2/22/2022 0.5 FT BGS mg/kg-dry	870-5980-22 2/22/2022 0.5 FT BGS mg/kg	870-5980-23 2/22/2022 0.5 FT BGS mg/kg	870-5980-24 2/22/2022 0.5 FT BGS mg/kg
TPH (TX1005)											
C6-C12	--	--	--		==	<6.7 U	<6.3 U	<23.2 U	<38.9 U	<26.4 U	<22.6 U
C12-C28	--	--	--		==	<8.9 U	<8.3 U	33.4 J	<38.9 U	33.4 J	<22.6 U
C28-C35	--	--	--		==	<8.9 U	<8.3 U	<23.2 U	<38.9 U	82.6	<22.6 U
Total C6-C35	7,250 ^A	880 ^A	--		==	<6.7 U	<6.3 U	33.4 J	<38.9 U	116	<22.6 U
Metals (RCRA 8)											
Arsenic	24	16 ^B	5.9		4.15	==	==	1.93 J	6.61	6.13	3.17 J
Barium	8,100	440	300		==	==	==	27.7	249	46.0	69.0
Cadmium	52	1.5	--		==	==	==	<0.119 U	0.282 J	<0.126 U	<0.120 U
Chromium	33,000	2,400	30		==	==	==	7.80	18.5	16.7	6.83
Lead	500	307 ^B	15		==	==	==	5.20	44.0	10.2	11.1
Selenium	310	2.3	0.30		==	==	==	<0.510 U	0.565 J	0.640 J	<0.515 U
Silver	97	0.48	--		==	==	==	<0.163 U	<0.152 U	<0.173 U	<0.165 U
Mercury	8.3	2.1	0.04		==	==	==	0.0107 J	0.0108 J	0.0324	0.0118 J
VOCs (SW8260B)²											
n-Butylbenzene	3,300	150	--		==	==	==	==	==	==	==
sec-Butylbenzene	3,300	85	--		==	==	==	==	==	==	==
Ethylbenzene	6,400	7.6	--		==	==	==	==	==	==	==
Isopropylbenzene	4,300	350	--		==	==	==	==	==	==	==
Naphthalene	220	31	--		==	==	==	==	==	==	==
n-Propylbenzene	2,200	45	--		==	==	==	==	==	==	==

NOTES:

¹ Based on TRRP Tables dated 10 May 2023.

² Only detected analytes summarized. For the full list, see the laboratory reports.

^A Tier 1 site-specific PCL with TRRP Calculator (v 3.0 - 02/2020). See Appendix 9.

^B Tier 2 site-specific PCL with Soil Attenuation Modeling. See Appendix 9.

^C Location re-sampled on 6/20/2023 and elevated concentration not confirmed.

-- No value.

== Constituent was not analyzed.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Method Quantitation Limit (MQL).

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

Bold values indicate concentration reported above the SDL.

TABLE 4D-2
SUMMARY OF SOIL TPH 1006 ANALYTICAL RESULTS
 TEXAS STAR; VCP No. 3237
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

Analyte	TRRP Tier 1 Residential PCLs ¹ 0.5-acre		Sample ID Lab ID Date Depth Units	SB-2-0.5 870-5980-5 2/21/2022 0.5 FT BGS mg/kg	
	Tot ^{Soil} _{Comb} mg/kg	GW ^{Soil} _{Ing} mg/kg			
TPH (TX1006)²					
6 C aliphatics (TPH) (>53% n-hexane content)	3,300	170		<23.4	U
>6-8 C aliphatics (TPH) (>53% n-hexane content)	3,300	420		66.6	
>8-10 C aliphatics (TPH)	4,000	3,600		<23.4	U
>10-12 C aliphatics (TPH)	3,600	25,000		<23.4	U
>12-16 C aliphatics (TPH)	4,300	490,000		<23.4	U
>16-21 C aliphatics (TPH)	130,000	1,000,000		33.2	J
>21-35 C aliphatics (TPH)	130,000	1,000,000		435	
>7-8 C aromatics (TPH)	6,400	20		<23.4	U
>8-10 C aromatics (TPH)	1,600	65		<23.4	U
>10-12 C aromatics (TPH)	1,900	100		<23.4	U
>12-16 C aromatics (TPH)	2,300	200		<23.4	U
>16-21 C aromatics (TPH)	2,000	470		<23.4	U
>21-35 C aromatics (TPH)	2,000	3,700		284	

NOTES:

¹ Based on TRRP Tables dated 10 May 2023.

² Only detected analytes summarized. For the full list, see the laboratory reports.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Method Quantitation Limit (MQL).

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

Bold values indicate concentration reported above the SDL.

TABLE 5B
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
 TEXAS STAR: VCP No. 3237
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

Analyte	TRRP Tier 1	Well ID	MW-1				MW-2				MW-3				MW-4				MW-5				MW-6												
	Residential	Sample ID	MW-1	MW-1	MW-1	MW-1	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-4	MW-4	MW-4	MW-5	MW-5																		
	PCLs ¹ GW _{ing}	Lab ID Date	870-5981-1 02/22/2022	HS22030367-6 03/07/2022	870-8640-1 06/06/2022	HS23120306-01 12/05/2023	870-5981-2 02/22/2022	HS22030367-7 03/07/2022	870-8640-2 06/06/2022	870-5981-3 02/22/2022	HS22030367-8 03/07/2022	870-8640-3 06/06/2022	870-5981-4 02/22/2022	HS22030367-9 03/07/2022	870-8640-4 06/06/2022	HS22030367-10 03/07/2022	870-8640-5 06/06/2022	HS23120304-01 12/05/2023																	
mg/L	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L																	
TPH (TX1005)																																			
C6-C12	0.98		<0.690	U	<0.20	U	<0.745	U	<0.19	U	<0.690	U	<0.20	U	<0.740	U	<0.694	U	<0.20	U	<0.733	U	<0.692	U	<0.20	U	<0.735	U	<0.19	U	<0.735	U	<0.18	U	
C12-C28	0.98		<0.690	U	<0.20	U	<0.745	U	<0.19	U	<0.690	U	<0.20	U	<0.740	U	<0.694	U	<0.20	U	<0.733	U	<0.692	U	<0.20	U	<0.735	U	<0.19	U	<0.735	U	<0.18	U	
C28-C35	0.98		<0.690	U	<0.20	U	<0.745	U	<0.19	U	<0.690	U	<0.20	U	<0.740	U	<0.694	U	<0.20	U	<0.733	U	<0.692	U	<0.20	U	<0.735	U	<0.19	U	<0.735	U	<0.18	U	
total C6-C35	--		<0.690	U	<0.20	U	<0.745	U	<0.19	U	<0.690	U	<0.20	U	<0.740	U	<0.694	U	<0.20	U	<0.733	U	<0.692	U	<0.20	U	<0.735	U	<0.19	U	<0.735	U	<0.18	U	
Dissolved Metals (RCRA 8)																																			
Arsenic	0.01		==		==		<0.000860	U	==		==		<0.000860	U	==		==											0.00284	J	==		0.00359		==	
Barium	2		==		==		0.106		==		==		0.0807		==		==											0.132		==		0.134		==	
Cadmium	0.005		==		==		<0.0000780	U	==		==		<0.0000780	U	==		==										<0.0000780	U	==		<0.0000780	U	==		
Chromium	0.1		==		==		0.00817		==		==		<0.00260	U	==		==											0.00521		==		0.00547		==	
Lead	0.015		==		==		<0.000340	U	==		==		<0.000340	U	==		==											0.00109	J	==		0.00123	J	==	
Selenium	0.05		==		==		<0.00120	U	==		==		<0.00120	U	==		==											<0.00120	U	==		<0.00120	U	==	
Silver	0.12		==		==		<0.000390	U	==		==		<0.000390	U	==		==											<0.000390	U	==		<0.000390	U	==	
Mercury	0.002		==		==		<0.0000800	U	==		==		<0.0000800	U	==		==											<0.0000800	U	==		<0.0000800	U	==	
VOCs (SW8260B) ²																																			
Acetone	22		==		<0.0020	U	<0.0213	U	<0.0014	U	==		<0.0020	U	<0.0213	U	==		<0.0020	U	<0.0213	U	==		<0.0020	U	<0.0213	U		0.029		<0.0213	U	<0.0014	U
Benzene	0.005		<0.000214	U	<0.00020	U	0.0945		<0.00020	U	<0.000214	U	<0.00020	U	0.000540	J	<0.000214	U	<0.00020	U	<0.000496	U	<0.000214	U	<0.00020	U	<0.000496	U	<0.00020	U	<0.000496	U	<0.00020	U	
n-Butylbenzene	1.2		<0.000286	U	==		0.00146	J	==		<0.000286	U	==		<0.000845	U	<0.000286	U	==		<0.000845	U	<0.000286	U	==		<0.000845	U	==		<0.000845	U	==		
sec-Butylbenzene	0.98		<0.000199	U	==		0.00737		==		<0.000199	U	==		<0.000773	U	<0.000199	U	==		<0.000773	U	<0.000199	U	==		<0.000773	U	==		<0.000773	U	==		
tert-Butylbenzene	0.98		<0.000195	U	==		0.00378	J	==		<0.000195	U	==		<0.000808	U	<0.000195	U	==		<0.000808	U	<0.000195	U	==		<0.000808	U	==		<0.000808	U	==		
2-Chlorotoluene	0.49						0.00151	J	==				<0.000447	U	==				<0.000447	U	==					<0.000447	U	==			<0.000447	U	==		
Dichloroethane, 1,2-	0.005		<0.000285	U	<0.00020	U	0.00284	J	<0.00020	U	<0.000285	U	<0.00020	U	<0.00153	U	<0.000285	U	<0.00020	U	<0.00153	U	<0.000285	U	<0.00020	U	<0.00153	U	<0.00020	U	<0.00153	U	<0.00020	U	
Dichloroethene, cis-1,2-	0.07		<0.000174	U	<0.00020	U	<0.000796	U	<0.00020	U	0.000328	J	<0.00020	U	<0.000796	U	0.00427		0.0039		<0.000796	U	0.000437	J	0.00049	J	0.00366	J	0.0020		<0.000796	U	<0.00020	U	
Ethylbenzene	0.7		<0.000515	U	<0.00030	U	0.0270		<0.00030	U	<0.000515	U	<0.00030	U	<0.000878	U	<0.000515	U	<0.00030	U	<0.000878	U	<0.000515	U	<0.00030	U	<0.000878	U	0.00036	J	<0.000878	U	<0.00030	U	
Isopropylbenzene	2.4		<0.000161	U	<0.00030	U	0.00433	J	<0.00030	U	<0.000161	U	<0.00030	U	<0.00118	U	<0.000161	U	<0.00030	U	<0.00118	U	<0.000161	U	<0.00030	U	<0.00118	U	<0.00030	U	<0.00118	U	<0.00030	U	
Methylene Chloride	0.005		<0.00191	U	<0.0010	U	<0.000829	U	<0.0010	U	<0.00191	U	<0.0010	U	<0.000829	U	<0.00191	U	<0.0010	U	<0.000829	U	<0.00191	U	<0.0010	U	<0.000829	U	<0.0010	U	<0.000829	U	<0.0010	U	
MTBE	0.24		<0.000571	U	<0.00020	U	0.00869	J	<0.00020	U	<0.000571	U	<0.00020	U	<0.00268	U	<0.000571	U	<0.00020	U	<0.00268	U	<0.000571	U	<0.00020	U	<0.00268	U	<0.00020	U	<0.00268	U	<0.00020	U	
N-Propylbenzene	0.98		<0.000179	U	==		0.00387	J	==		<0.000179	U	==		<0.00165	U	<0.000179	U	==		<0.00165	U	<0.000179	U	==		<0.00165	U	==		<0.00165	U	==		
Styrene	0.1		<0.000623	U	<0.00030	U	<0.00127	U	<0.00030	U	<0.000623	U	<0.00030	U	<0.00127	U	<0.000623	U	<0.00030	U	<0.00127	U	<0.000623	U	<0.00030	U	<0.00127	U		0.0027		<0.00127	U	<0.00030	U
Trimethylbenzene, 1,3,5-	0.83		<0.000279	U	==		0.00517		==		<0.000279	U	==		<0.000703	U	<0.000279	U	==		<0.000703	U	<0.000279	U	==		<0.000703	U	==		<0.000703	U	==		
Vinyl acetate	24				==		<0.00100	U	==				==		<0.00100	U	==											0.00105	J	==		<0.00100	U	==	
Vinyl chloride	0.002		<0.000234	U	<0.00020	U	<0.000592	U	<0.00020	U	<0.000234	U	<0.00020	U	<0.000592	U	<0.000234	U	<0.00020	U	<0.000592	U	<0.000234	U	0.00043	J	<0.000592	U	0.00064	J	<0.000592	U	<0.00020	U	
Xylene, m,p-	10		<0.000330	U	<0.00050	U	0.0321		<0.00050	U	<0.000330	U	<0.00050	U	<0.00113	U	<0.000330	U	<0.00050	U	<0.00113	U	<0.000330	U	0.00093	J	<0.00113	U	<0.00050	U	<0.00113	U	<0.00050	U	
Xylene, o-	10		<0.000192	U	<0.00030	U	0.00130	J	<0.00030	U	<0.000192	U	<0.00030	U	<0.000488	U	<0.000192	U	<0.00030	U	<0.000488	U	<0.000192	U	0.00061	J	<0.000488	U	<0.00030	U	<0.000488	U	<0.00030	U	
Xylenes, Total	10		<0.000330	U	<0.00030	U	0.0334		<0.00030	U	<0.000330	U	<0.00030	U	<0.00113	U	<0.000330	U	<0.00030	U	<0.00113	U	<0.000330	U	0.0015		<0.00113	U	<0.00030	U	<0.00113	U	<0.00030	U	

NOTES:

¹ Based on TRRP Tables dated 6 January 2021.

² Only detected VOCs summarized. For the full VOC list, see the laboratory reports.

-- No value.

== Constituent was not analyzed.

< and U - Analyte not detected above Sample Detection Limit (SDL).

J - Analyte was identified above the SDL and below the Reporting Limit (RL).

mg/L - milligram per liter

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

Bold values indicate concentration reported above the RL.

Green shaded value indicates sample result exceeds Tier 1 GW_{ing} PCL.

**TABLE 5D
GROUNDWATER ELEVATION SUMMARY**

TEXAS STAR; VCP No. 3237
11450 TRINITY BLVD
EULESS, TEXAS 76040

Well ID	Well Installation Date	Screen Interval (ft bgs)	Boring Depth (ft bgs)	Survey Date	Top of Casing (ft AMSL) ¹	02/22/2022			06/06/2022			12/05/2023		
						Measured TD (ft btoc)	Depth to Water (ft btoc)	Groundwater Elevation (ft AMSL)	Measured TD (ft btoc)	Depth to Water (ft btoc)	Groundwater Elevation (ft AMSL)	Measured TD (ft btoc)	Depth to Water (ft btoc)	Groundwater Elevation (ft AMSL)
MW-1	02/21/2022	25-35	35.0	02/22/2022	548.88	35.10	28.57	520.31	35.05	28.92	519.96	35.10	29.21	519.67
MW-2	02/21/2022	25-35	35.0	02/22/2022	543.87	35.23	23.62	520.25	34.99	23.99	519.88	--	--	--
MW-3	02/22/2022	5-20	20.0	02/22/2022	524.89	20.08	5.60	519.29	20.08	5.97	518.92	--	--	--
MW-4	02/21/2022	20-30	30.0	02/22/2022	544.14	30.28	24.42	519.72	30.28	24.79	519.35	--	--	--
MW-5	03/07/2022	25-35	35.0	NS	NS	--	--	--	34.67	7.31	NS	--	--	--
MW-6	12/01/2023	25-35	35.0	NS	NS	--	--	--	--	--	--	35.00	30.85	NS

NOTES:

¹ Top of Casing elevations were unofficially surveyed by Dunaway Surveyors.

Depth to Water measurements collected by SQE on date specified

NS - No survey data obtained

AMSL - Above Mean Sea Level

bgs - below the ground surface

btoc - below top of casing

ft - feet

TD - total depth

TABLE 11A
SUMMARY OF SOIL VAPOR SAMPLE RESULTS
 TEXAS STAR; VCP No. 3237
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

Analyte ³	TRRP Residential		Sample ID Lab ID Date Type Units	SV-1		SV-2		SV-3		SV-4	
	Air ¹ RBEL _{Inh} mg/m ³	Comparison Value ² mg/m ³		2215854001		2215854002		2215854003		2215854004	
				6/6/2022		6/6/2022		6/6/2022		6/6/2022	
				200 mL/min		200 mL/min		200 mL/min		200 mL/min	
				mg/m ³		mg/m ³		mg/m ³		mg/m ³	
Petroleum Constituents											
Benzene	0.011	0.37		0.370		0.0094		0.014		0.100	
Ethyl benzene	2.0	67		<0.043	U	0.0070		0.0037		<0.043	U
Hexane	0.70	23		0.140		0.0088		0.014		0.350	
Toluene	4.3	143		0.042		0.018		0.015		0.083	
Trimethylbenzene, 1,2,4-	0.19	6.3		<0.098	U	<0.0049	U	<0.0049	U	0.120	
Xylene, m,p-	0.64	21		<0.087	U	0.0053		<0.0043	U	<0.087	U
Xylene, o-	0.64	21		<0.043	U	0.0023		<0.0022	U	<0.043	U
Chlorinated Solvent Constituents											
Vinyl Chloride	0.0029	0.097		<0.026	U	<0.0013	U	0.0013		<0.026	U
Other Constituents											
Acetone	32	1,067		0.780		0.140	E	0.087	E	0.460	
Butadiene, 1,3-	0.034	1.1		<0.022	U	0.003		0.0083		0.060	
Carbon disulfide	0.73	24		4.3	E	0.010		0.0038		0.110	
Chlorobenzene	0.052	1.7		2.0	E	<0.0023	U	<0.0023	U	<0.046	U
Chloromethane (Methyl chloride)	0.014	0.47		<0.021	U	0.0035		0.0021		<0.021	U
Cyclohexane	6.3	210		0.210		<0.0017	U	<0.0017	U	<0.034	U
Dichlorobenzene, 1,2-	0.031	1.0		0.200		<0.006	U	<0.006	U	<0.12	U
Dichlorodifluoromethane	0.1	3.3		<0.049	U	<0.0025	U	0.051		<0.049	U
Freon 114	--	--		0.080		<0.0035	U	<0.0035	U	<0.07	U
Heptane	9.4	313		0.089		0.0082		0.0098		0.260	
Methyl ethyl ketone (2-Butanone)	9.2	307		0.160		0.021		0.016		0.110	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	3.1	103		<0.041	U	0.0023		<0.002	U	<0.041	U
Trichlorofluoromethane (Freon 11)	--	--		<0.056	U	<0.0028	U	0.0039		<0.056	U

NOTES:

¹ Values from Texas Risk Reduction Program (TRRP) Individual RBELs - Residential (Table 9), dated 6 March 2023.

² Comparison value based on 0.03 attenuation factor for soil vapor to indoor air (EPA 4-11-13 DRAFT, "OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air," Table 6-1).

³ Only those VOCs of particular interest included in table. For full list of VOCs, see lab report.

-- No Standard.

< and U - analyte was not detected above the method detection limit (MDL)

E - analyte result exceeds the calibration range

mg/m³ - milligrams per cubic meter

Bold values indicate concentration reported above the MQL.

Green shaded value indicates sample result exceeds Tier 1 RBEL and below "Comparison Value".

Yellow shaded value indicates sample result exceeds "Comparison Value".

TABLE 11B
SUMMARY OF SOIL VAPOR METHANE RESULTS
 TEXAS STAR: VCP No. 3237
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

Analyte	Sample ID	SV-1	SV-1S	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8	SV-9	SV-10
	Lab ID	2215854001	P2301886-004	2215854002	2215854003	2215854004	P2301886-006	P2301886-005	P2301886-003	P2301886-001	P2301886-002	P2301886-007
	Date	6/6/2022	4/26/2023	6/6/2022	6/6/2022	6/6/2022	4/26/2023	4/26/2023	4/26/2023	4/26/2023	4/26/2023	4/26/2023
	Type	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min
	Depth	11-12 ft	4-5 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft	11-12 ft
Methane		2.5%	0.091%	0.0023%	<0.0020% U	0.14%	0.00031%	5.6%	0.00043%	0.00023%	0.00024%	11%

NOTES:

< and U - analyte not detected above Reporting Limit (RL).

Bold values indicate concentration reported above RL.

Green shaded values indicate sample result exceeds 1%.

TABLE 11B
SUMMARY OF SOIL VAPOR METHANE RESULTS
 TEXAS STAR: VCP No. 3237
 11450 TRINITY BLVD
 EULESS, TEXAS 76040

Analyte	Sample ID	SV-11	SV-A-S	SV-A-D	SV-B-S	SV-B-D	SV-C-S	SV-C-D	SV-D-S	SV-D-D	SV-E-S	SV-E-D
	Lab ID	P2301886-008	P2302847-001	P2302847-002	P2302847-003	P2302847-004	P2302847-005	P2302847-006	P2302847-007	P2302847-008	P2302847-009	P2302847-010
	Date	4/26/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023
	Type	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min	200 mL/min
	Depth	11-12 ft	4-5 ft	11-12 ft	4-5 ft	11-12 ft	4-5 ft	11-12 ft	4-5 ft	11-12 ft	4-5 ft	11-12 ft
Methane		12%	0.00042%	0.00031%	0.00036%	3.9%	0.00021%	4.8%	0.00038%	0.00039%	0.00036%	0.00016%

NOTES:

< and U - analyte not detected above Reporting Limit (RL).

Bold values indicate concentration reported above RL.

Green shaded values indicate sample result exceeds 1%.

**SQ ENVIRONMENTAL, LLC**

PO BOX 1991

AUSTIN, TX 78767-1991

(512) 900-7731

BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SB-1

WELL ID: MW-1

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/21/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 35.10 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: 548.88 ft
GROUND ELEV: N/A

N. LATITUDE:

32.809401°

W. LONGITUDE:

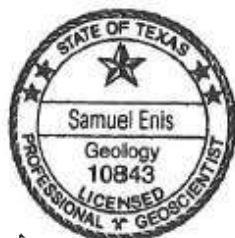
-97.121845°

REMARKS: Installed near the western boundary of the subject property. MW-1 was surveyed on 02/22/2022. Developed well using a submersible pump for 40-minutes producing 15-gallons.

WATER LEVEL IN WELL: 28.57ft. below top-of-casing

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC ³ lo	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-2.5': SILTY SAND, tan to brown, very fine to fine grained, small pebble to gravel inclusions.	SB-1-0.5				Concrete (2'x2' Flush Mount): 0 ft. - 2 ft.
5		CL	2.5-5': SANDY CLAY, red, no plasticity, well packed, small white inclusions.					
		SC	5'-10': CLAYEY SAND, red, very fine to fine grained, small pebble to gravel inclusions.					
10		GP	10'-14': GRAVELLY SAND, red, very fine to fine grained.					Bentonite Chips (3/8-in): 2 ft - 23 ft
		SP	14'-16': SAND, orange to red, very fine to fine grained, moderately indurate.					
15		SP	16'-17': SANDSTONE, light tan to white, very fine to fine grained, angular cuttings.					
		SP	17'-18': SAND, black, very fine to fine grained, mild moisture.					PVC Riser Casing (2-in blank): 0 ft - 25 ft
20		SP	18'-21': SAND, orange and black, very fine to fine grained, mild moisture.					
		CL	21'-24': CLAY, white to tan, high plasticity, well packed.					
25		SP	24'-25': SAND, white, very fine to fine grained, mild saturation.					Sand (40/20): 23 ft - 35 ft
		SP	25'-27.5': SAND, white, very fine to fine grained, saturated.					Screen (0.01"): 25 ft - 35 ft
30		GP	27.5'-35': GRAVELLY SAND, brown to tan, very fine to coarse grained, saturated.					Bottom of Well: 35 ft bgs
35								
40								
45								
50								



Samuel Enis
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BORING/WELL LOG

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BORING ID: SB-2

WELL ID: MW-2

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/21/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 35 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: 543.87 ft
GROUND ELEV: N/A

N. LATITUDE:

32.808567°

W. LONGITUDE:

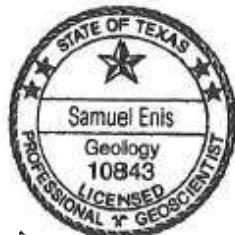
-97.121782°

REMARKS: Installed in the southernmost portion of the subject property. MW-2 was surveyed on 02/22/2022. Developed well using a submersible pump for 40-minutes producing 15-gallons.

WATER LEVEL IN WELL: 23.62ft. below top-of-casing

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-2.5': SILTY SAND, black, organic rich top soil.	SB-2-0.5		0-5		Concrete (2'x2' Flush Mount): 0 ft - 2 ft
		SP	2.5-5': SAND, orange, very fine to fine grained, mild clay content.		70	0.0		
5		GP	5'-7.5': SANDY GRAVEL, orange/black, very fine to pebble/gravel.			5-10		
					90	0.2		
10		SP	7.5-15': SANDY, orange, very fine to fine grained.			10-15		Bentonite: 0 ft - 23 ft
					90	0.0		
15		SP	15'-16': SAND, black/brown, very fine to fine grained with white inclusions.			15-20		
		SP	16'-19': SAND, white/tan, very fine to fine grained.		60	0.0		PVC Riser Casing (2-in blank): 0 ft - 25 ft
		SP	19'-20': SAND, black/brown, very fine to fine grained, white inclusions.			20-25		
20		GW	20'-25': SANDY GRAVEL, white/tan, very fine to coarse grained with pebble & gravel (~2-3"), beach sand with large gravel, saturated.		55	0.0		
25						25-30		Sand (40/20): 23 ft - 35 ft
					10	0.0		
30		GW	25'-35': NO RECOVERY (DESCRIPTION FROM CUTTINGS) SANDY GRAVEL, white/tan, very fine to coarse grained with pebble & gravel (~2-3"), beach sand with large gravel, saturated.			20-35		Screen (0.01"): 25 ft - 35 ft
					0	NO REC		Bottom of Well: 35 ft bgs
35								
40								
45								
50								



Samuel Enis
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**SQ ENVIRONMENTAL, LLC**

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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SB-3

WELL ID: MW-3

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 20 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: 524.89 ft
GROUND ELEV: N/A

N. LATITUDE:

32.809755°

W. LONGITUDE:

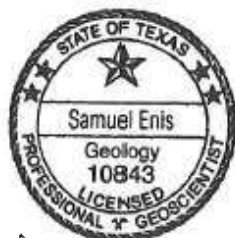
-97.119074°

REMARKS: Installed along dirt road running near eastern boundary of the subject property. MW-3 was surveyed on 02/22/2022. Developed well using a submersible pump for 40-minutes producing 15-gallons.

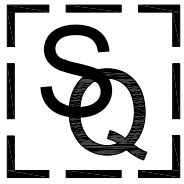
WATER LEVEL IN WELL: 5.20 ft. below top-of-casing

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0'-1': SILTY SAND, black, very fine to fine grained.	SB-3-0.5				Concrete (2'x2' Flush Mount):
		GW	1'-4': SANDY GRAVEL, red, very fine to coarse grained with gravel.			100	0-5 0.0	0 ft - 2 ft
5		SC	4'-8': SANDY CLAY, red and tan mix, small gravel inclusions, saturated.			60	5-10 0.0	Bentonite Chips (3/8-in): 2 ft - 3 ft
10		SP	8'-16': SAND, light tan, fine to coarse grained, saturated.			60	10-15 0.0	PVC Riser Casing (2-in blank): 0 ft - 5 ft
15		SC	16'-17': SANDY CLAY, very plastic, saturated.			50	15-20 0.0	Sand(40/20): 3 ft - 20 ft
20		GP	17'-20': GRAVELY SAND, light tan, saturated.					Screen (0.01"): 5 ft - 20 ft
25								Bottom of Well: 20 ft bgs
30								
35								
40								
45								
50								



Samuel Enis
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BORING/WELL LOG

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BORING ID: SB-4

WELL ID: MW-4

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/21/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 30 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: 544.14 ft
GROUND ELEV: N/A.

N. LATITUDE:

32.810211°

W. LONGITUDE:

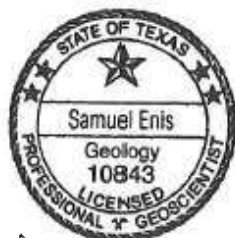
-97.120274°

REMARKS: Installed in the central location of the subject property, as close to the excavated stockpile as the rig can get to. MW-4 was surveyed on 02/22/2022. Developed well using a submersible pump for 40-minutes producing 15-gallons.

WATER LEVEL IN WELL: 24.42ft below top-of-casing

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-2.5': SILTY SAND, black, very fine to fine grained, organic rich top soil.	SB-4-0.5		0-5		Concrete (2'x2' Flush Mount):
		SM	2.5-3': SILTY SAND, orange, very fine to fine grained.			0.0		0 ft. - 2 ft.
		CL	3'-4': SILTY CLAY, gray, no plasticity, very packed.					
		GW	4'-5': SANDY GRAVEL, light brown/tan, very fine to coarse grained sands with pebble and small gravel.					
5						5-10		Bentonite Chips (3/8-in):
						NO		2 ft - 18 ft
						REC		
10		SP	5'-15': NO RECOVERY (DESCRIPTION FROM CUTTINGS) Bottom section showed red sandstone along with debris.			10-15		PVC Riser Casing (2-in blank):
						NO		0 ft - 20 ft
						REC		
15		SM	15'-20': NO RECOVERY (DESCRIPTION FROM CUTTINGS) Bottom section showed silty sand, dark black, debris, saturated.			15-20		Sand (40/20):
						NO		18 ft - 30 ft
						REC		
20								
		SP	20'-28': NO RECOVERY (DESCRIPTION FROM CUTTINGS) Cuttings showed sand, black, saturated.			20-28		Screen (0.01"):
						NO		20 ft - 30 ft
						REC		
25								
		SM	28'-30': SILTY SAND, black to brown, very fine to fine grained, odor, saturated.			28-30		Bottom of Well:
						5	1.2	30 ft bgs
30								
35								
40								
45								
50								



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BORING/WELL LOG

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BORING ID: SB-5

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 10 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.810341°

W. LONGITUDE:

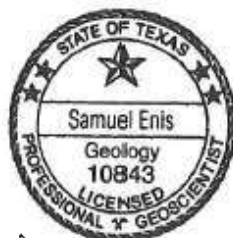
-97.119262°

REMARKS: Located near the northeast corner of the subject property.

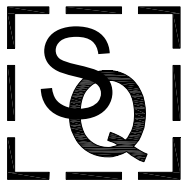
WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-1': SILTY SAND, black, very fine to fine grained.	SB-5-0.5				
		SM	1'-5': SILTY SAND, orange, very fine to fine grained, minor gravel gravel inclusions, various debris including glass, carpet, and fabric.		80	0.0		
5		SC	5'-10': SANDY CLAY, black, various debris including glass, carpet, and fabric.		40	0.4		
10								
15								
20								
25								
30								
35								
40								
45								
50								



Samuel Enis
6 April 2022

**SQ ENVIRONMENTAL, LLC**

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BORING/WELL LOG

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BORING ID: SB-6

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 10 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.810234°

W. LONGITUDE:

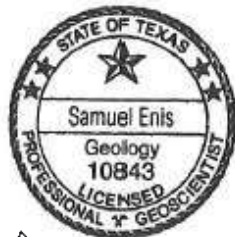
-97.121583°

REMARKS: Located near northwest corner of subject property.

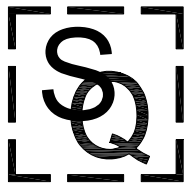
WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-1': SILTY SAND, black, very fine to fine grained, organic rich top soil.	SB-6-0.5				
		SW	1'-2': GRAVELLY SAND, very fine to fine grained, 2-4 cm gravel.			0-5		
		CL	2'-3': CLAY, tan to brown, moderate plasticity, poorly packed.		100	0.0		
		SP	3'-5': SAND, tan, very fine to fine grained.					
5		SM	5'-10': SILTY SAND, tan to black, very fine to fine grained with pebble inclusions.		80	5-10 0.0		
10								
15								
20								
25								
30								
35								
40								
45								
50								



Samuel Enis
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BORING/WELL LOG

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BORING ID: SB-6R2

WELL ID: N/A

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.0023
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: West Drilling
DRILLING METHOD: Direct-Push Technology
TOTAL DEPTH: 20 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.810108°

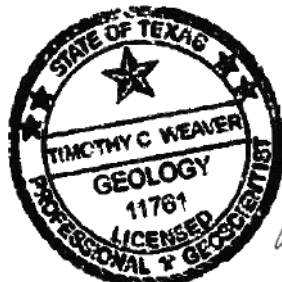
W. LONGITUDE:
-97.121567°

REMARKS: Located near the entrance of the subject property near former SB-6 location.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		GM	0-2': GRAVELLY SILT, gray					
		SC	2-5': CLAYEY SAND, orange/black, very fine to fine grained		100	0.0		
5		SC	5-10': CLAYEY SAND, orange/black, very fine to fine grains, gravel lens at ~6 ft bgs		100	0.0		
10		SP	10-14': SAND, red/brown, very fine to fine grained		100	N/A		
15		CL	14-15': CLAY, red/brown, moderate to high plasticity, well packed					
		SC	15-20': CLAYEY SAND, red, very fine to fine grained with some plasticity, saturation at ~20 ft bgs		100	N/A		
20								
25								
30								
35								
40								
45								
50								



8/15/2023



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SB-7

WELL ID: MW-5

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 03/07/2022

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 35 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.809990°

W. LONGITUDE:

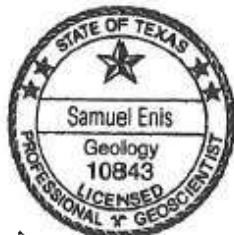
-97.119249°

REMARKS: Installed near the northeast corner of the subject property along the road roughly midway between SB-5 and SB-3. The well was pumped using a submersible pump for 40 minutes producing 15-gallons. Periodic pumping was a result of low recharge rate in the well.

WATER LEVEL IN WELL: 33.45 ft below top-of-casing (See Remarks)

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USC	DESCRIPTION	SAMPLE ID	REC ^{olo}	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-1': SILTY SAND, black, very fine to fine grained.	SB-7-0.5				Concrete (2'x2' Flush Mount): 0 ft - 2 ft.
		SP	1-5': SAND, orange, very fine to fine grained.		80	0.0		
5								
10		FILL	5-15': NO RECOVERY (DESCRIPTION FROM CUTTINGS) Fill material with debris, saturated at ~5-6 ft bgs			5-15 NO REC		Bentonite Chips (3/8-in): 2 ft - 23 ft
15								
		SP/ FILL	15-20': SAND, tan, very fine to fine grained, mixed with fill material and debris (consistent with the 5-15' interval), saturated.		10	0.0		PVC Riser Casing (2-in blank): 0 ft - 25 ft
20								
		SW	20-25': GRAVELLY SILTY SAND, tan to orange, very fine to coarse grained, saturated.		5	0.0		
25								
30		GW	25-34': GRAVELLY SAND, tan, very fine to coarse grained, saturated.		10	0.0		Sand (40/20): 23 ft - 35 ft
35		CL	34-35': CLAY, gray, moderate plasticity, moderately packed.			30-35 10	0.0	Screen (0.01"): 25 ft - 35 ft
								Bottom of Well: 35 ft bgs
40								
45								
50								



Samuel Enis
6 April 2022

**SQ ENVIRONMENTAL, LLC**

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BORING/WELL LOG

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BORING ID: SS-7

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: N/A
DRILLING METHOD: Hand Auger
TOTAL DEPTH: 0.5 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

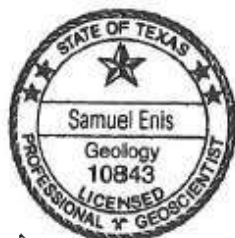
N. LATITUDE: 32.809761°
W. LONGITUDE: -97.122145°

REMARKS: Located near the northeast corner of the subject property near the observed "waste oil" AST along the western boundary.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USC	DESCRIPTION	SAMPLE ID	REC ^{ols}	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-0.5': SILTY SAND, black, very fine to fine grained.	SS-7	100	0.0		
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



Samuel Enis
6 April 2022

**SQ ENVIRONMENTAL, LLC**

PO BOX 1991
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(512) 900-7731

BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SS-8

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Eules, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: N/A
DRILLING METHOD: Hand Auger
TOTAL DEPTH: 0.5 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.809642°

W. LONGITUDE:

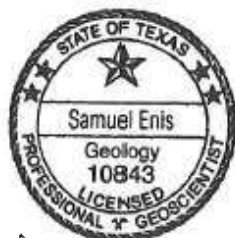
-97.121864°

REMARKS: Installed near the northeast corner of the fenced in house area.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SC	0-0.5': SILTY SANDY CLAY, black, mild plasticity, moderately packed.	SS-8	100	0.0		
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



Samuel Enis
6 April 2022

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BORING/WELL LOG

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BORING ID: SS-9

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 02/22/2022

DRILLING COMPANY: N/A
DRILLING METHOD: Hand Auger
TOTAL DEPTH: 0.5 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.809324°

W. LONGITUDE:

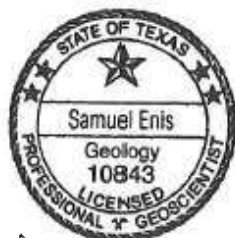
-97.120952°

REMARKS: Installed near the southern boundary of the subject property west of SB-1 in an area of stockpile mounding.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC ^{ch}	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-0.5': SILTY SAND, brown to tan, very fine to fine grained.	SS-9	100	0.0		
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



Samuel Enis
6 April 2022

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BORING/WELL LOG

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BORING ID: SS-10

WELL ID: N/A

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.002

SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040

PROJECT MANAGER: Sam Enis, P.G.

LOGGED BY: Jacob C. Sullivan, G.I.T.

DATE DRILLED: 02/22/2022

DRILLING COMPANY: N/A

DRILLING METHOD: Hand Auger

TOTAL DEPTH: 0.5 feet (ft) below ground surface (bgs)

BORING DIAMETER: 3-inch

WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A

N. LATITUDE:

W. LONGITUDE:

GROUND ELEV: N/A

32.809230°

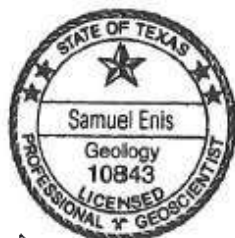
-97.122105°

REMARKS: Installed near southwest corner of the fenced in house area, along the western boundary of the subject property.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-0.5': SILTY SAND, black, very fine to fine grained.	SS-10	100	0.0		
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



6 April 2022



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BORING/WELL LOG

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BORING ID: SB-11

WELL ID: SV-1

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/06/2022

DRILLING COMPANY: ELC
DRILLING METHOD: Direct-Push Technology
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-IN WELL DIAMETER: 1-IN

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.810183°

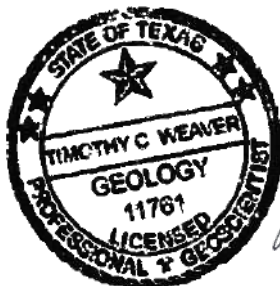
W. LONGITUDE:
-97.121278°

REMARKS: Installed near the northeast corner of the subject property.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SC	0-1': CLAYEY SAND, tan/gray, mild plasticity, poor packing					Concrete
		CL	1-3': SANDY CLAY, black, moderate plasticity, moderate packing					0 ft - 7 ft
		GM	3-5': GRAVELLY SILT, chert nodules, black					PVC Riser Casing
5		SC	5-6': CLAYEY SAND, brown/tan, mild plasticity, mild packing					(1-in blank):
		CL	6-10': CLAY, black, moderate plasticity, well packed					0 ft - 11 ft
10		CL	10-15': SANDY CLAY, black/brown, possible staining					Granular Bentonite:
								7 ft - 10 ft
								Sand (40/20):
								10 ft - 12 ft
15								Screen (0.01"):
								11 ft - 12 ft
								Bottom of Well:
								12 ft bgs
20								Annular Space and
								Casing Space filled
								with sand, bentonite,
								and concrete
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

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BORING ID: SB-12

WELL ID: SV-2

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/06/2022

DRILLING COMPANY: ELC
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.810203°

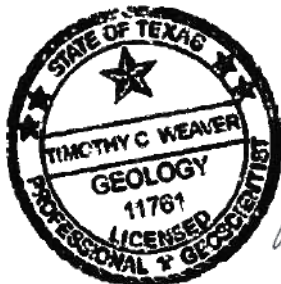
W. LONGITUDE:
-97.119792°

REMARKS: Installed near MW-4 installation location in the northeast corner of the subject property. .

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	P/D	WELL COMPLETION	INSTALLATION NOTES
0								Concrete 0 ft - 7 ft
		SC	0-2.5': CLAYEY SAND, brown and red, low plasticity, well packed			90	4.1	PVC Riser Casing (1-in blank): 0 ft - 11 ft
		CL	2.5-5': SANDY GRAVELLY CLAY, brown/gray, moderate plasticity well packed					Granular Bentonite: 7 ft - 10 ft
5		SP	5-6': SAND tan, very fine to fine grained			90	2.9	Sand (40/20): 10 ft - 12 ft
		CL	6-11': CLAY, brown, high plasticity, well packed					Screen (0.01"): 11 ft - 12 ft
10		GP	11-12': GRAVEL, white			20	1.0	Bottom of Well: 12 ft bgs
								Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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PO BOX 1991
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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SB-13

WELL ID: SV-3

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/06/2022

DRILLING COMPANY: ELC
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809540°

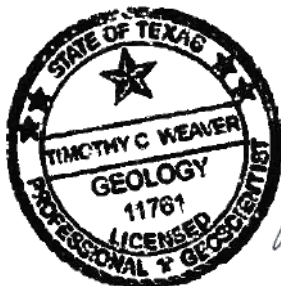
W. LONGITUDE:
-97.121180°

REMARKS: Installed east-northeast of MW-1 near the southwest corner of the former fill area.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0								Concrete 0 ft - 7 ft
5		SC	0-5': CLAYEY SAND, brown, small white gravel inclusions		80	0.8		PVC Riser Casing (1-in blank): 0 ft - 11 ft
10		GP	5-10': CLAYEY GRAVELLY SAND, brown/white, very fine, pebble gravel		90	0.5		Granular Bentonite: 7 ft - 10 ft
15		SP	10-12': SAND, red/brown, very fine to fine grained		100	1.3		Sand (40/20): 10 ft - 12 ft
20								Screen (0.01"): 11 ft - 12 ft
25								Bottom of Well: 12 ft bgs
30								Annular Space and Casing Space filled with sand, bentonite, and concrete
35								
40								
45								
50								



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BORING/WELL LOG

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BORING ID: SB-14

WELL ID: SV-4

PROJECT INFORMATION**PROJECT INFORMATION**

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/06/2022

DRILLING COMPANY: ELC
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809579°

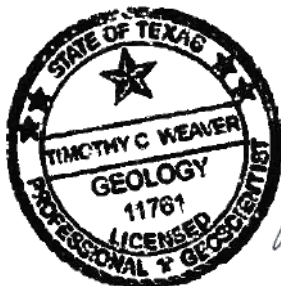
W. LONGITUDE:
-97.119993°

REMARKS: Installed near the southeastern portion of the subject property near debris piles..

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		CL	0-1': GRAVELLY CLAY, brown/gray, moderate plasticity, moderately packed, 2-6 cm gravel					Concrete 0 ft - 7 ft
		SP	1-6': SAND, tan, very fine to fine grained		50	0.0		PVC Riser Casing (1-in blank): 0 ft - 11 ft
5		SM	6-8': MICACEOUS SILT, black, very fine grained		75	1.4		Granular Bentonite: 7 ft - 10 ft
		CL	8-10': CLAY, black, high plasticity, well packed					Sand (40/20): 10 ft - 12 ft
10		CL	10-12': CLAY, black/green, high plasticity, moderately packed		100	1.4		Screen (0.01"): 11 ft - 12 ft
								Bottom of Well: 12 ft bgs
15								Annular Space and Casing Space filled with sand, bentonite, and concrete
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

BORING ID: SB-15
WELL ID: N/A

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

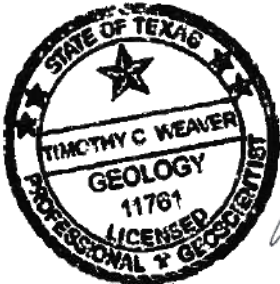
TOP OF CASING ELEV: N/A	N. LATITUDE:	W. LONGITUDE:
GROUND ELEV: N/A	32.809462°	-97.122828°

REMARKS: Completed below Diesel AST west of the orange roof house.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC ^{ols}	PID	WELL COMPLETION	INSTALLATION NOTES
0		SM	0-1': SILTY SAND, red, very fine to fine grained, gravel inclusions			0.0		
		CL	1-5': CLAY, red, moderate plasticity, moderate packing	SB-15-4 15:40 SB-15-5 15:45	100	0.4 0.3 0.9 0.5		Bentonite 0 ft - 5 ft
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



Tim Weaver
8/15/2023



SQ ENVIRONMENTAL, LLC

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BORING/WELL LOG

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BORING ID: SB-16

WELL ID: N/A

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: N/A

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

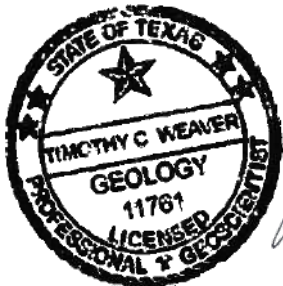
N. LATITUDE: 32.809427°
W. LONGITUDE: -97.121721°

REMARKS: Completed east of the orange roof house near 5-gallon buckets.

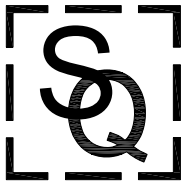
WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	US	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		SP	0-1': SAND, red, very fine to fine grained			0.0		
		CL	1-5': CLAY, red, low plasticity, well packed	SB-16-4 15:25 SB-16-5 15:30	100	0.9 0.4 1.7 0.5		Bentonite 0 ft - 5 ft
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								



Tim Weaver
8/15/2023



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: SB-17

WELL ID: MW-6

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.00
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 12/01/2023

DRILLING COMPANY: Eagle Remediation and Demolition
DRILLING METHOD: Hollow Stem Auger
TOTAL DEPTH: 34.85 feet (ft) below ground surface (bgs)
BORING DIAMETER: 8.25-inch WELL DIAMETER: 2-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:

32.809560°

W. LONGITUDE:

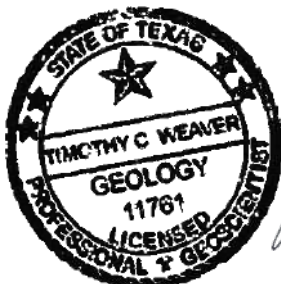
-97.122120°

REMARKS: Installed near the western boundary of the subject property within the fenced housing area. Approximately 48-gallons were purged during initial well development on 12/01/2023.

WATER LEVEL IN WELL: 30.80 ft. below top-of-casing

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0								Concrete (2'x2' Flush Mount): 0 ft. - 2 ft.
		SW	0-2': GRAVELLY SAND, brown, very fine to fine grained, gravel inclusions up to ~2cm					
		CL	2-5': CLAY, red, low to moderate plasticity, well packed					
5								
		CL	5-10': GRAVELLY SANDY CLAY, red, moderate to high plasticity, poor packing (90% of split spoon fell out, observed cuttings)					
10								
		N/A	10-15': NO RECOVERY, soil cuttings show SAND, light tan, very fine to fine grained, dry					Bentonite Chips (3/8-in): 2 ft - 23 ft
15								
		SP	15-19': SAND, light tan, very fine grained, dry					
		SP	19-20': SAND, light tan/ white, fine grained, indurated, well packed					PVC Riser Casing (2-in blank): 0 ft - 25 ft
20								
		SC	20-25': SANDY CLAY (moderate sand content), light tan, moderate plasticity, well packed					
25								
								Sand (40/20): 23 ft - 35 ft
		SP	25-35': SAND, light tan/white, saturated, ~2-3" of sandstone at end of split spoon. [Saturation @~27.5 feet below ground surface]					Screen (0.01"): 25 ft - 35 ft
30								
								Bottom of Well: 35 ft bgs
35								
40								
45								
50								



12/2/2023



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-5

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.810212°

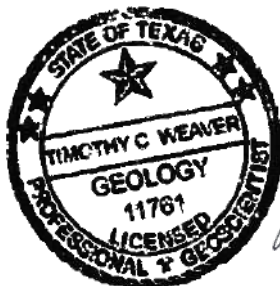
W. LONGITUDE:
-97.120530°

REMARKS: Installed near MW-4 installation location.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC ¹⁰	PID	WELL COMPLETION	INSTALLATION NOTES
0		CL	0-2.5': CLAY, brown, low plasticity, well packed			0.7		Concrete 0 ft - 7 ft
		CL	2.5-5': CLAY, gray/brown, moderate plasticity, moderate packing			0.6		PVC Riser Casing (1-in blank): 0 ft - 11 ft
5		GP	5-6': GRAVEL, black/white			1.4		Granular Bentonite: 7 ft - 10 ft
		CL	6-7': CLAY, black, moderate plasticity, moderate packing, moist			0.9		Sand (40/20): 10 ft - 12 ft
		SP	7-8': SAND, tan, very fine to fine grained			0.4		Screen (0.01"): 11 ft - 12 ft
10		CL	8-10': CLAY, black, moderate plasticity, moderate packing					Bottom of Well: 12 ft bgs
		CL	10-12': CLAY, gray, sand lenses, moderate plasticity, moderate packing					Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



8/15/2023



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BORING/WELL LOG

BORING ID: N/A
WELL ID: SV-6

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

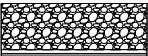

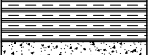

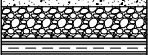
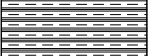
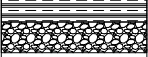
DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

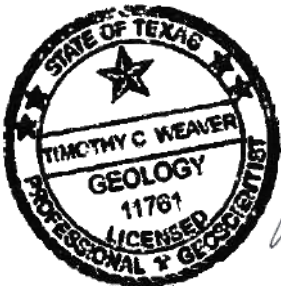
TOP OF CASING ELEV: N/A	N. LATITUDE:	W. LONGITUDE:
GROUND ELEV: N/A	32.809582°	-97.120385°

REMARKS: Installed in the southwestern central portion of the 1973 & 1979 gravel pit extent.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		GP	0-2': GRAVEL, chert with sand, tan/gray	SV-6 04/26/23 12:10	100	0.1		Concrete 0 ft - 7 ft
		CL	2-4': CLAY, tan, moderate plasticity, moderate packing					PVC Riser Casing (1-in blank): 0 ft - 11 ft
5		SP	4-6': SAND, tan, very fine to fine grained					Granular Bentonite: 7 ft - 10 ft
		GP	6-7': GRAVEL CALICHE, white with black base (~1"), slight odor					Sand (40/20): 10 ft - 12 ft
10		GC	7-11': GRAVELLY CLAY, gray, moderate plasticity, moderate packing moist					Screen (0.01"): 11 ft - 12 ft
		GP	11-12': GRAVEL, black, odor					Bottom of Well: 12 ft bgs
15								Annular Space and Casing Space filled with sand, bentonite, and concrete
20								
25								
30								
35								
40								
45								
50								



Tim Weaver
8/15/2023



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(512) 900-7731

BORING/WELL LOG

BORING ID: N/A
WELL ID: SV-7

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

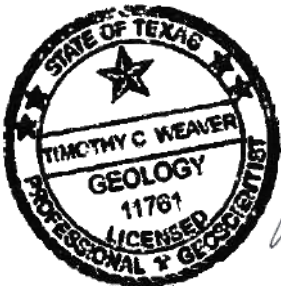
TOP OF CASING ELEV: N/A	N. LATITUDE:	W. LONGITUDE:
GROUND ELEV: N/A	32.809806°	-97.121122°

REMARKS: Installed northeast of the orange roof house.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	P/D	WELL COMPLETION	INSTALLATION NOTES
0		SC	0-5': SANDY CLAY, tan/brown, moderate plasticity, well packed, chert and gravel inclusions			0.0		Concrete 0 ft - 7 ft
5		GP	5-6': GRAVEL, black/white, slight odor			0.6		PVC Riser Casing (1-in blank): 0 ft - 11 ft
		CL	6-8': CLAY, gray, moderate plasticity, moderate packing, gravel inclusions			3.0		Granular Bentonite: 7 ft - 10 ft
		GP	8-9': GRAVEL, black/white, slight odor			1.3		Sand (40/20): 10 ft - 12 ft
10		SC	9-10': SANDY CLAY, black/white/tan, moderate plasticity, moderate packing, slight odor			0.7		Screen (0.01"): 11 ft - 12 ft
		GP	10-11': GRAVEL, black/white, slight odor					Bottom of Well: 12 ft bgs
		SC	11-12': CLAYEY SAND, gray/brown, very fine to fine grained, moderate plasticity, moist	SV-7 04/26/23 11:00				Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

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BORING ID: N/A

WELL ID: SV-9

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809919°

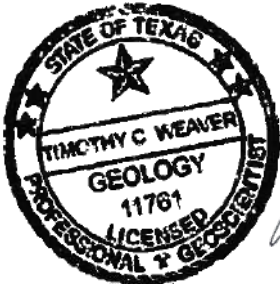
W. LONGITUDE:
-97.121819°

REMARKS: Installed northeast of the orange roof house, outside the fence, near the dirt trail intersection.

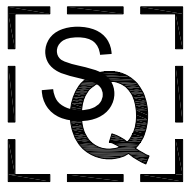
WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC ¹⁰	PID	WELL COMPLETION	INSTALLATION NOTES
0								Concrete 0 ft - 7 ft
5		SP	0-5': SAND, orange, very fine to fine grained					PVC Riser Casing (1-in blank): 0 ft - 11 ft
		SC	5-6': SANDY CLAY, orange, low plasticity, poor packing, gravel inclusions					Granular Bentonite: 7 ft - 10 ft
		SC	6-10': SANDY CLAY, orange, gravel inclusions, saturated					Sand (40/20): 10 ft - 12 ft
		SC	10-12': SANDY CLAY, orange, gravel inclusions, less saturated					Screen (0.01"): 11 ft - 12 ft
				SV-9 04/26/23 10:35				Bottom of Well: 12 ft bgs
								Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-10

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809506°

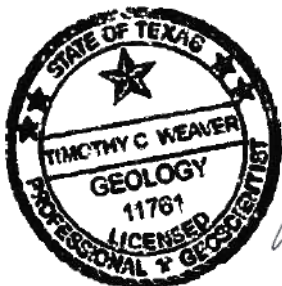
W. LONGITUDE:
-97.121867°

REMARKS: Installed northeast of the orange roof house, inside the fence.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC ^o	PID	WELL COMPLETION	INSTALLATION NOTES
0		SP	0-2': SAND, orange, very fine to fine grained					Concrete 0 ft - 7 ft
5		CL	2-5': SANDY CLAY, orange, moderate plasticity, moderate packing					PVC Riser Casing (1-in blank): 0 ft - 11 ft
10		SC	5-10': CLAYEY SAND, orange, very fine to fine grained, slight plasticity, moist					Granular Bentonite: 7 ft - 10 ft
10		SP	10-12': SAND, orange, very fine to fine grained					Sand (40/20): 10 ft - 12 ft
15				SV-10 04/26/23 12:30				Screen (0.01"): 11 ft - 12 ft
20								Bottom of Well: 12 ft bgs
25								Annular Space and Casing Space filled with sand, bentonite, and concrete
30								
35								
40								
45								
50								



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BORING/WELL LOG

BORING ID: N/A
WELL ID: SV-11

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.002
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 04/25/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

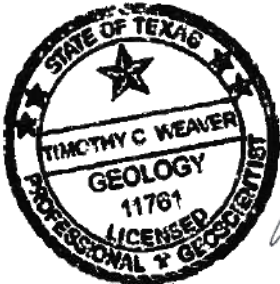
TOP OF CASING ELEV: N/A
GROUND ELEV: N/A
N. LATITUDE: 32.810372°
W. LONGITUDE: -97.121421°

REMARKS: Installed near the northeast entrance of the subject property, east of the main entrance.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	USCS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		GW	0-1': SILTY GRAVEL, top soil, brown, very fine to fine grained					Concrete
		SP	1-2': SAND, tan, very fine to fine grained					0 ft - 7 ft
		GW	2-3': CLAYEY GRAVEL, black					PVC Riser Casing
		GP	3-4': GRAVEL CALICHE, white					(1-in blank):
5		SP	4-5': SAND, tan, very fine to fine grained, moist					0 ft - 11 ft
		SP	5-9': SAND, light tan, very fine to fine grained, moist					Granular Bentonite:
		SC	9-9.5': SANDY CLAY, tan, moderate plasticity, moderately packed					7 ft - 10 ft
		SP	9.5-10': SAND, tan, very fine to fine grained, moist					Sand (40/20):
10		SP	10-12': SAND, tan/white/orange, very fine to fine grained, gravel inclusions	SV-11 04/26/23 13:25				10 ft - 12 ft
								Screen (0.01"):
								11 ft - 12 ft
								Bottom of Well:
								12 ft bgs
								Annular Space and
								Casing Space filled
								with sand, bentonite,
								and concrete



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-A-S/D

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 and 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.810432°

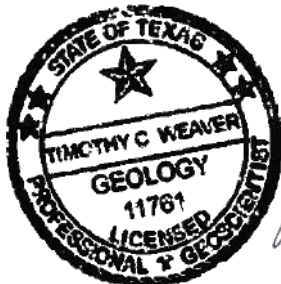
W. LONGITUDE:
-97.121469°

REMARKS: Installed near the north entrance of the subject property. Shallow (5 ft bgs) and deep (12 ft bgs) borings were completed approximately 2 feet apart and showed the same lithology.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		GW	0-2': SILTY GRAVEL, gray/brown					Concrete 0 ft - 7 ft
5		SC	2-5': CLAYEY SAND, tan/orange/black					PVC Riser Casing (1-in blank): 0 ft - 11 ft
10		SC	5-12': CLAY AND SAND, orange, very fine with moderate plasticity, well packed, black/orange clay					Granular Bentonite: 7 ft - 10 ft
								Sand (40/20): 10 ft - 12 ft
								Screen (0.01"): 11 ft - 12 ft
								Bottom of Well: 12 ft bgs
								Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-B-S/D

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 and 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809873°

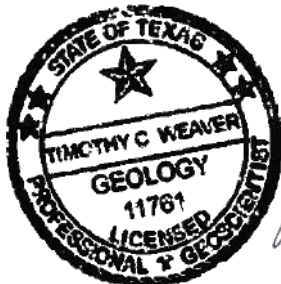
W. LONGITUDE:
-97.120913°

REMARKS: Installed near the center of the subject property. Shallow (5 ft bgs) and deep (12 ft bgs) borings were completed approximately 2 feet apart and showed the same lithology.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		ML	0-1': SILT WITH CLAY, gray, mild plasticity, poor packing					Concrete
		CL	1-2': GRAVELLY CLAY, gray, angular gravel ~1cm					0 ft - 7 ft
		GM	2-3': GRAVELLY SAND, black/light tan, angular gravel 5-10cm	100	0.9			PVC Riser Casing
		CL	3-5': CLAY, tan, high plasticity, well packed					(1-in blank):
5								0 ft - 11 ft
		CL	5-10': CLAY, gray/black/tan, possible staining	100	0.4			Granular Bentonite:
								7 ft - 10 ft
10		CL	10-12': CLAY, gray, moderate plasticity, well packed	100	0.1			Sand (40/20):
								10 ft - 12 ft
								Screen (0.01"):
								11 ft - 12 ft
								Bottom of Well:
								12 ft bgs
								Annular Space and
								Casing Space filled
								with sand, bentonite,
								and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-C-S/D

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 and 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809289°

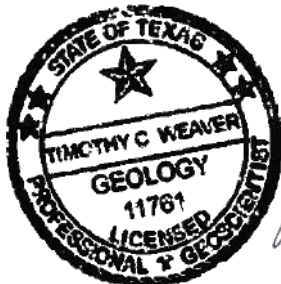
W. LONGITUDE:
-97.120313°

REMARKS: Installed near southern boundary of the subject property. Shallow (5 ft bgs) and deep (12 ft bgs) borings were completed approximately 2 feet apart and showed the same lithology.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		CL	0-1': CLAY, tan, very low plasticity, well packed, dry					Concrete
		GW	1-2': GRAVEL, caliche, gray/black					0 ft - 7 ft
		CL	2-5': CLAY, gray, low plasticity, very well packed		100	0.5		PVC Riser Casing
5		SC	5-7': SANDY CLAY, tan, very fine to fine grained, moderate plasticity, well packed		100	0.4		(1-in blank):
		GW	7-9': GRAVEL, caliche, white					0 ft - 11 ft
10		CL	9-12': CLAY, black, moderate plasticity, well packed		100	0.3		Granular Bentonite:
								7 ft - 10 ft
								Sand (40/20):
								10 ft - 12 ft
								Screen (0.01"):
								11 ft - 12 ft
								Bottom of Well:
								12 ft bgs
								Annular Space and
								Casing Space filled
								with sand, bentonite,
								and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-D-S/D

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 and 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809095°

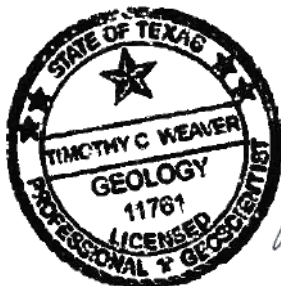
W. LONGITUDE:
-97.121746°

REMARKS: Installed in the southern most area of the subject property along the western boundary..
Shallow (5 ft bgs) and deep (12 ft bgs) borings were completed approximately 2 feet apart
and showed the same lithology.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0								Concrete 0 ft - 7 ft
		CL	0-5': GRAVELLY CLAY, orange, low plasticity, well packed			100 0.6		PVC Riser Casing (1-in blank): 0 ft - 11 ft
5		SP	5-10': SAND, orange/red, very fine to fine grained			100 0.4		Granular Bentonite: 7 ft - 10 ft
10		SP	10-12': SAND, light tan, very fine to fine grained			100 0.1		Sand (40/20): 10 ft - 12 ft
								Screen (0.01"): 11 ft - 12 ft
								Bottom of Well: 12 ft bgs
								Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



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(512) 900-7731

BORING/WELL LOG

PAGE 1 OF 1

BORING ID: N/A

WELL ID: SV-E-S/D

PROJECT INFORMATION

PROJECT INFORMATION

PROJECT NUMBER: 1098.015.003
SITE LOCATION: 11450 Trinity Blvd, Euless, Texas 76040
PROJECT MANAGER: Sam Enis, P.G.
LOGGED BY: Jacob C. Sullivan, G.I.T.
DATE DRILLED: 06/20/2023

DRILLING COMPANY: WEST DRILLING
DRILLING METHOD: DIRECT-PUSH TECHNOLOGY
TOTAL DEPTH: 5 and 12 feet (ft) below ground surface (bgs)
BORING DIAMETER: 3-inch WELL DIAMETER: 1-inch

TOP OF CASING ELEV: N/A
GROUND ELEV: N/A

N. LATITUDE:
32.809657°

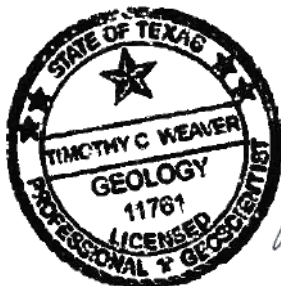
W. LONGITUDE:
-97.122145°

REMARKS: Installed near the northwest corner of the fenced area along the western boundary of the subject property. Shallow (5 ft bgs) and deep (12 ft bgs) borings were completed approximately 2 feet apart and showed the same lithology.

WATER LEVEL IN WELL: N/A

PRODUCT LEVEL IN WELL: N/A

DEPTH	LITHOLOGY	SS	DESCRIPTION	SAMPLE ID	REC%	PID	WELL COMPLETION	INSTALLATION NOTES
0		GM	0-1': SILTY GRAVEL, gray					Concrete 0 ft - 7 ft
		CL	1-5': CLAY, red, low plasticity, well packed		100	0.3		PVC Riser Casing (1-in blank): 0 ft - 11 ft
5		SW	5-8': GRAVELLY SAND, orange, pebble inclusions		100	0.5		Granular Bentonite: 7 ft - 10 ft
10		SP	8-12': SAND, light tan/orange, very fine to fine grained		100	0.4		Sand (40/20): 10 ft - 12 ft
								Screen (0.01"): 11 ft - 12 ft
								Bottom of Well: 12 ft bgs
								Annular Space and Casing Space filled with sand, bentonite, and concrete
15								
20								
25								
30								
35								
40								
45								
50								



8/15/2023

11 CLOSURE PLAN

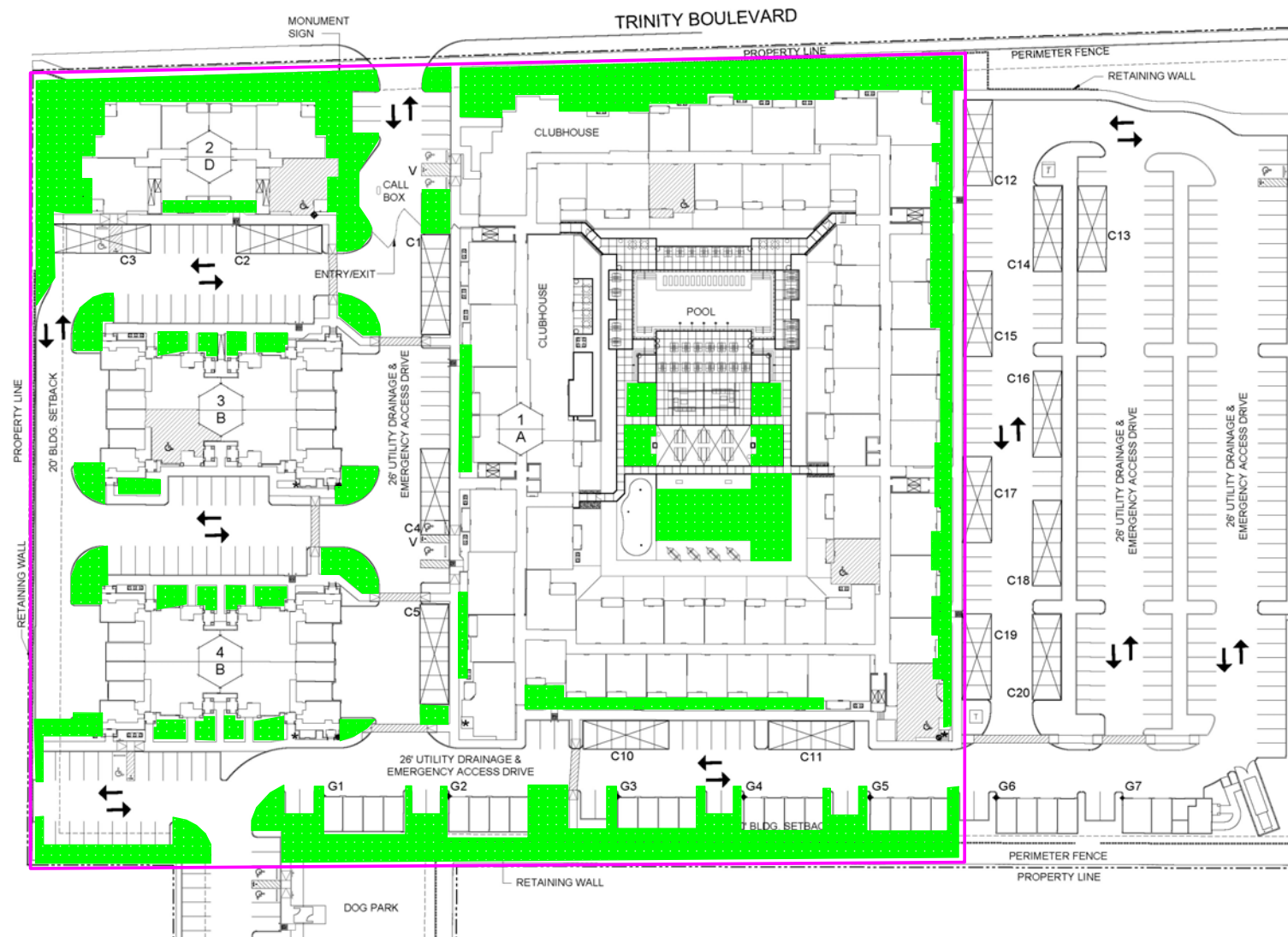
The future development on the subject property is comprised of four multi-family apartment buildings with concrete slab-on-grade foundations. A VMS will be designed and installed beneath residential ground floor areas. The VMS will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings. Asphalt-covered parking lots will surround the four buildings and cover other areas of the subject property.

There is no true "cap" on the property, although the upper 5 to 10 ft of soil generally does not contain debris and has a higher percentage of clay than the underlying materials. The proposed construction associated with this development permit application is not expected to result in significant removal of existing soil and is not expected to disturb soil deeper than 10 ft, and likely no deeper than 7 ft. The planned concrete slab foundations with a VMS and the asphalt cover (parking lot) will result in a similar or better impervious "cap" over portions of the subject property where incidental debris is present in the subsurface.

The remaining area that will not be covered, i.e., the interior open-air courtyard of Building 1 and green space between buildings, will conform to §330.957(q). In accordance with §330.453(a) and (b), 18 inches of compacted clayey soil that is free of waste and 6 inches of topsoil that can support native vegetation will be present in areas of soil disturbance that are not covered by buildings, asphalt, or pavement. The grass/landscaped areas are on shown on **Figure 1 of Attachment 11**.

ATTACHMENT 11

GRASS/LANDSCAPED AREA MAP



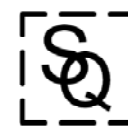
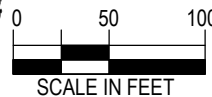
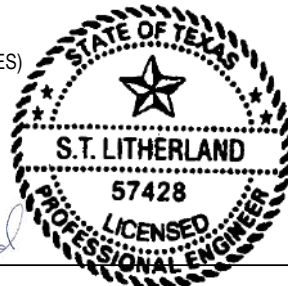
LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- GRASS / LANDSCAPED AREA (APPROXIMATELY 1.1 ACRES)

SOURCE: CROSS ARCHITECTS SITE PLAN, DATED 4/30/24

9/13/24

S.T. Litherland



SQ Environmental, LLC

SCALE: 1 IN = 100 FT

FIGURE 1

LANDSCAPED AREA MAP

TEXAS STAR PROPERTY WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: SEP 2024

PN: 1098.015.003

12 STRUCTURES GAS MONITORING, SITE OPERATING, SAFETY & EVACUATION PLAN

A VMS (provided in **Attachment 9**) designed in accordance with 30 TAC 330.957(m) will be installed during development and construction of the four buildings on the subject property, which will direct any vapors (methane or other) out from beneath the buildings, and the vapors monitored to verify that there is no vapor accumulation beneath the buildings. Methane sensors will also be located within the buildings. The Methane Monitoring Plan provided in **Attachment 12** includes the requirements of a Structures Gas Monitoring Plan (SGMP), Site Operating Plan, and Safety and Evacuation Plan related to the VMS and subject property.

ATTACHMENT 12

METHANE MONITORING PLAN

STRUCTURES GAS MONITORING PLAN

This SGMP fulfills the requirements of 30 TAC §330.957(t). It will be part of the operating record for the development permit. A copy of this information will be maintained onsite throughout the life of the facility. The SGMP includes a VMS with an impermeable barrier installed below the structures with vent risers located adjacent to the buildings. This system will allow any vapors (methane or other) that migrate through the soil to the area beneath the structures to be vented outside of the structure, as shown in **Section 9**. A monitoring system will be installed within the VMS piping network beneath the buildings that will include controller units and remote sensors that can detect methane and other explosive gases at concentrations below 1% by volume (BV) or 20% of the Lower Explosive Limit (LEL). This system will have audible and visual alarms that will trigger if methane concentrations exceed 1% beneath a building. The monitoring system is intended to confirm that the concentration of vapor (methane or other) beneath the facility structures does not exceed 20% of the LEL. Methane sensors will also be installed within the buildings, and sample ports for field monitoring will be installed for the aggregate layer.

Facility Characteristics and Potential Migration Pathways (§330.957(t)(2)(A))

The nature and age of the incidental debris that has been found in the area of the planned structures is discussed in detail in **Section 2**. Based on soil vapor sample results described in **Section 10**, elevated methane concentrations appear to be confined to the deeper gravel zone below 10 ft from the surface, and methane does not appear to be migrating vertically to shallow soils or the surface due to the higher clay content in the upper 10 ft of soil across the property. Although there is no true “cap” on the property, the upper 10 ft of clayey soil appears to minimize the vertical migration of methane gas. As part of the property development, any excavations will not exceed a depth of 10 ft bgs (and likely no deeper than 7 ft bgs), leaving at least 2 ft of the overlying clayey soil at the subject property undisturbed.

The planned multi-family residential development will consist of a four-story building, a three-story building, and two two-story buildings. The planned facility layout is included in **Section 14**. The buildings will be constructed on a reinforced concrete slab foundation. The VMS, which will consist of a geotextile filter fabric, a 12-inch-thick permeable layer of aggregate with a network of vent pipes, and covered with a sealed HDPE geomembrane liner, will be installed beneath each of the buildings and beneath any areas with an ignition source. The planned residential units will be leased and occupied by residents and the duration of occupation could be up to 24 hours. The foundation design and VMS will minimize the potential for any vapors in the underlying soil to enter the buildings. Potential ignition sources include water heaters, heating, ventilation, and air conditioning (HVAC) units, and static or sparking associated with equipment. As has been discussed, monitoring of the vapors within the VMS piping network will be performed so that vapors beneath the buildings will be maintained at 20% or less of the LEL, to eliminate the potential for explosive conditions within or near the building. Methane sensors will also be installed within the buildings.

Building Design Characteristics Related to Gas Accumulation Prevention (§330.957(t)(2)(B))

As described in **Section 9**, the design of the residential structures includes several features that will minimize the potential for the accumulation of methane gas within the building. The addition of an engineered fill layer above the soil will provide additional separation and protection from potential methane gas migration. The vapor barrier and ventilation system design will be installed beneath the foundation of the ground floor residential areas and any areas where there could be an ignition source. The system will consist of a granular layer up to 12-inches in thickness, which will act as bedding for a network of slotted vent pipes. The vent pipes will be extended through any internal beams to allow venting of the area where vapors could accumulate. The pipes will be extended outside of the structure to allow venting. The granular layer and vent pipe system will be covered with a plastic layer, which will be sealed at overlaps, and all penetrations. A geotextile filter fabric will be installed beneath the granular layer and above the structural

fill. As part of the installation oversight, smoke tests will be performed on the system to verify that it is properly sealed, prior to pouring of the concrete foundations. Some or all of the vent pipes will be fitted with fans so that active venting can be performed if passive venting is not sufficient to prevent the buildup of vapors under the building. The additional engineered fill, vapor barrier, and ventilation system provide the primary systems to prevent vapor migration into the structure and minimize the potential for methane gas accumulation beneath the buildings. The sub-slab gas collection system will be under negative pressure from an electric exhaust fan if and when needed. Methane is lighter than air and will dissipate upward and away from vents on each building.

The vapor monitoring system within the VMS piping network will provide continuous monitoring for methane to provide early detection and warning in the event of methane gas accumulation beneath the buildings. In addition to the monitoring equipment in the VMS piping, methane monitoring will be conducted continuously using methane sensors within the buildings to verify that methane is not entering the buildings in concentrations above residential risk-based levels. In addition, the landfill gas collection system will have ports for sampling the aggregate layer beneath the slab. . Proposed locations of the methane gas sensors are provided in the VMS design plan included in **Section 9**.

Gas Collection and Ventilation System Description (§330.957(t)(2)(C))

The VMS will consist of an impermeable methane barrier layer, aggregate layer, and geotextile filter fabric, as described in **Section 9**. The barrier and ventilation layer will be installed beneath the slabs of the ground floor of the residential areas and portions of the buildings where there could potentially be a source of ignition.

Gas Monitoring Equipment (§330.957(t)(2)(D))

The vapor monitoring system will include a total of five controllers and five sensors (a controller and sensor for each building with two in Building A) in the VMS piping system. Landfill gas will be monitored by three different sensors. Within the occupied spaces, a permanently mounted Family Safety Products, Inc. Safety Siren Pro Series methane detector (Model No. HS80504), or similar, will be used. On the sub-slab landfill gas collection system, a permanently mounted RKI Instruments M2A gas sensor, or similar, will monitor the exhaust gas stream. The exhaust fan will be a FanTech HP 190 or similar. Locations of sensors are provided in **Attachment 9**. For port landfill gas measurements, a Landtec GEM 5000 portable landfill gas detector, or similar, will be used. The VMS design plan included in **Section 9** provides a plan for the location of the vapor monitoring equipment. Specification sheets for the monitoring equipment will be provided following finalization of the VMS design. Calibration will be performed at least twice annually or every six months.

Implementation Schedule for Monitoring Equipment (§330.957(t)(2)(E))

Monitoring equipment will be installed and tested prior to completion of construction of the proposed residential structures. The monitoring equipment will be in continuous operation at least one week prior to buildings being occupied.

Sampling and Analysis Plan (§330.957(t)(2)(F))

Indoor air samples will be initially collected prior to residential occupancy. This will be a one-time sampling event to characterize the indoor air. Five samples will be collected, one from each building with two from Building A. These samples will be collected using evacuated “Summa” canisters fitted with regulators that will collect the sample over a 24-hour period. The selected analytical laboratory will provide canisters and chain of custody forms for the sampling activities.

The sampling method to collect the indoor air samples includes using an evacuated 1.4-liter Summa canister equipped with a flow controller calibrated to draw in 1.4-liters of ambient indoor air over an

approximate 24-hour time period. The main valve on the Summa canister will be opened to initiate the sampling and then closed after approximately 24 hours has elapsed, while observing the gauge on the flow controller to ensure the Summa canister does not equilibrate to ambient conditions.

The ambient indoor air samples collected from the residential buildings will be analyzed for methane by EPA method TO-3. The samples will be shipped to an accredited laboratory offsite that will perform the approved testing.

Laboratory QA/QC procedures will be provided by the laboratory chosen to perform the analysis and will be included with the test results.

Analysis Of Landfill Gas Samples (§330.957(t)(2)(G))

Two landfill gas samples (SV-10R and SV-11R) were collected at 12 ft bgs from previous vapor sample locations SV-10 and SV-11 on 12 July 2024. The samples were analyzed for methane, carbon monoxide, hydrogen sulfide, mercaptans, and ammonia by ALS Environmental in Simi Valley, California. Volatile organic compounds (VOCs) were analyzed during previous sampling events. Water vapor was measured in the field. Laboratory results are provided at the end of this attachment. The analytical results of constituents reported above the laboratory method detection limit (MDL) are summarized below.

Analyte	SV-10R	SV-11R	Air RBEL / VISL (Res)
Hydrogen sulfide	0.0088 mg/m ³	ND (<0.0036 mg/m ³)	0.0695 mg/m ³
Carbonyl sulfide	0.011 mg/m ³	0.011 mg/m ³	3.48 mg/m ³
Carbon disulfide	0.0062 mg/m ³	0.010 mg/m ³	0.73 mg/m ³
Ammonia	0.22 mg/m ³	0.11 mg/m ³	0.33 mg/m ³
Water vapor	21 ppm	21 ppm	--
Carbon dioxide	7.65%	0.796%	--
Oxygen	15.2%	21.5%	--
Nitrogen	77.1%	77.7%	--
Methane (4/26/2023)	11%	12%	10%
VOCs	ND	ND	--

Based on these landfill gas samples, the landfill gases do not contain significant concentrations of mercaptans, hydrogen sulfide, carbon monoxide, ammonia, or VOCs. Carbon dioxide was detected in the landfill gas sample from SV-10R, and methane has been detected in other gas monitoring probes in the past. Carbon dioxide and methane will be monitored quarterly from the sample ports.

Sampling Plan and Procedures

During each landfill gas monitoring event, the integrity of each monitoring port or probe will be inspected and recorded on the Landfill Gas Monitoring System Data Sheets included in this attachment. If any

monitoring port or probe is observed to be damaged, the port or probe will be repaired. If irreparable, the damaged port or probe will be decommissioned and replaced with a new monitoring port or probe.

The landfill gas collection system under each building will be continuously monitored for methane concentration by permanently installed sensors. In addition, field monitoring will be periodically performed for the ports on the landfill gas collection system under each building. This period field monitoring will include measurements of for methane, carbon dioxide, and oxygen as a check on the permanently installed sensors. The frequency of the field monitoring of the ports beneath the buildings will occur quarterly for the first year, and then annually for the following three years.

For the field monitoring, a CES-Landtec GEM 5000 Landfill Gas Monitor (GEM 5000), or similar, will be used to measure the methane and carbon dioxide concentrations at each port. This meter provides the readings of methane and carbon dioxide (and oxygen) as a percentage by volume in air.

The field monitoring of the landfill gas collection system will be conducted on a quarterly basis for the first year and then annually for the following three years. The field monitoring events will be conducted in accordance with the following procedure:

1. Perform equipment checks and calibration tests.
2. Inspect the sampling location. The inspection is to include the following:
 - a. Verify that the location is accessible as necessary for monitoring.
 - b. Verify that any surface protective devices are in place and are in good condition, and
 - c. Verify that the label is in place and clearly readable.
3. Open any protective cover.
4. Turn on the CES-Landtec GEM 5000, or similar, meter and allow for the meter to adjust to the ambient air.
5. Connect the GEM 5000, or similar, meter to the quick-connector or port.
6. Open the valve on the port.
7. Turn on the GEM 5000 pump, or similar, and allow for the meter to purge the port.
8. Allow the meter to purge the trapped air for at least 30 seconds to get an accurate reading.
9. Record the observed methane, carbon dioxide, and oxygen readings.
10. Record the ambient barometric pressure from the GEM 5000, or similar, meter.
11. Disconnect the GEM 5000, or similar, methane meter from the quick-connector or port.
12. Close the port and reinstall any protective cover.

The above procedure will be repeated to obtain readings at each port location. All readings and inspection results will be recorded on the Landfill Gas Monitoring System Data Sheets with any needed maintenance and/or repairs noted. All results will be placed in the operating record of the facility.

SITE OPERATING PLAN

The proposed residential structures will consist of a four-story building, a three-story building, and two two-story buildings. The buildings will be a wood or metal framed structure and be constructed over reinforced concrete structural slabs. The VMS beneath each building will be equipped with methane sensors that will produce both an audible and visual alarm if concentrations of methane exceed 1% BV or 20% of the LEL. Methane sensors will also be installed within the buildings. Other than residential units, other spaces in the four buildings include offices, storage closets, maintenance rooms, and equipment rooms.

In accordance with §330.958, construction plans and specifications of the proposed residential structures will be prepared and maintained onsite during construction. After completion of construction, one set of as-built construction plans and specifications will be maintained at the permitted development. Plans maintained at the development be made available for inspection by executive director representatives.

This SGMP, Site Operating Plan, and Safety and Evacuation Plan will be implemented and maintained in accordance with the requirements of §330.961(a) through (h) by an environmental professional or person(s) trained by an environmental professional. These documents will be considered a part of the operating record of the development and a copy will be maintained onsite in an office at the development for the life of the structure to aid in the implementation and maintenance of the SGMP, Site Operating Plan, and Safety and Evacuation Plan. Additionally, the remaining documents listed in §330.961(a)(1) will be considered part of the operating record and maintained onsite, including but not limited to the Development Permit and Closure Plan. Any deviation from the development permit and incorporated plans or other related documents associated with the development permit will seek approval of the executive director. The development permit holder will notify the executive director, and any local pollution agency with jurisdiction that has requested to be notified, of any incident involving the facility relative to the development permit and provisions for the remediation of the incident.

The owner or lessee of the development will provide equipment for monitoring on-site structures. Monitoring of onsite structures will include permanently installed monitoring probes and continuous monitoring systems. Structures located on top of the waste area shall be monitored on a continuous basis, and monitoring equipment shall be designed to trigger an audible alarm if the volumetric concentration of methane in the sampled air is greater than 1% within the venting pipe or permeable layer, and/or inside the structure. Areas of the structure where gas may accumulate will be monitored. Gas monitoring and control systems will be modified as needed to reflect modifications to the structure.

All sampling results will be placed in the operating record of the facility and be made available for inspection by the executive director, and any local pollution agency with jurisdiction that has requested to be notified. If methane gas levels exceeding the limits are detected, the owner, operator, or lessee shall notify the executive director and take action.

The ponding of water over waste in the closed MSW landfill will be prevented. Ponded water that occurs on a closed MSW landfill unit will be eliminated as quickly as possible.

Surface drainage in and around the structure will be controlled to minimize surface water running onto, into, and off the closed MSW landfill.

All conduits intended for the transport or carrying of fluids over or within the closed MSW landfill will be double-containment. Or, 2 ft of compacted, clay-rich soil with a permeability not greater than 1×10^{-7} cm/sec will be placed in the base of the trench and a HDPE 30-mil sealed liner will be installed on the bottom and sides of the trench. The conduit for carrying fluids will then be placed above the HDPE liner in the trench and clean backfill added to the sides. The HDPE liner will extend approximately 1 ft on top of the trench, be overlapped, and sealed. In accordance with §330.453(a) and (b), 18 inches of compacted clayey soil that is free of waste and 6 inches of topsoil that can support native vegetation will be in place for utility trenches in areas that are not covered by buildings, asphalt, or pavement.

The owner or lessee shall promptly record and retain in the operating record the following information:

- all results from gas monitoring and any remediation plans pertaining to explosive and other gases;
- all unit design documentation for the placement of gas monitoring systems and leachate or gas condensate removal or disposal related to the closed MSW landfill unit;
- copies of all correspondence and responses relating to the development permit;
- all documents relating to the operation and maintenance of the building, facility, or monitoring systems as they relate to the development permit; and
- any other document(s) as specified by the approved development permit or by the executive director.

The owner, operator, or lessee shall provide written notification to the executive director, and any local pollution agency with jurisdiction that has requested to be notified, for each occurrence that documents listed in subsection (h) of this section are placed into or added to the operating record. All information contained in the operating record shall be furnished upon request to the executive director and shall be made available at all reasonable times for inspection by the executive director or his representative.

The following equipment is expected to be used at the structures and a maintenance schedule for this equipment is provided below.

Description	Procedures and Function	Maintenance Schedule
Offices	Daily office use	As-needed office updates
Cleaning/maintenance equipment	General housekeeping/maintenance	As-needed maintenance/cleaning
HVAC	Interior climate control	Semi-annually
Electric water heaters	Hot water control	Annually
Lighting	Interior lighting control	As-needed replacement
IT/Network equipment	Telephone, internet, cameras, etc.	As-needed repair/replacement

The equipment list will be reviewed and updated as needed. In addition, two of the structures will have enclosed garages for vehicles.

SAFETY AND EVACUATION PLAN

The residential structures will consist of two to four story buildings with offices, residential spaces, community spaces, restrooms, and garages on two of the buildings. As previously discussed, the VMS beneath each building will be equipped with methane sensors that will produce both an audible and visual alarm if concentrations of methane beneath the building exceeds 1% BV or 20% of the LEL.

By maintaining the potential concentration of methane beneath the building at 1% or 20% of the LEL, methane cannot accumulate to these levels in the building. Typically, "attenuation" levels through a building slab are 0.03 meaning that even as a worst case, the methane concentrations in the building cannot exceed 33% of 20% of the LEL since the "trigger" will be the methane concentration beneath the building, and not in the building. Methane will also be installed within the buildings and will be equipped with methane monitors with audible alarms. In the event that the methane monitors within the VMS detect elevated levels of methane, the VMS vent fans will immediately be turned on (if they were not already running) and monitoring at the sample ports will be performed to verify that the concentrations within the buildings are below the threshold levels.

Building occupants will be notified that the building is located over methane gas, and that controls are in place to minimize the potential danger posed by the methane gas. In the event that the methane monitors inside the building detect elevated levels of methane, alarms will be triggered, and residents will evacuate the building and only re-enter when conditions are safe. Each living space will be equipped with a graphic evacuation plan map directing occupants where to go in the event of an alarm including a rally point and contact phone numbers.

LANDFILL GAS SAMPLE PORT MONITORING DATA SHEET

SAMPLE PORT LOCATION ID	SAMPLER NAME	DATE	TIME	METHANE (%)	CARBON DIOXIDE (%)	OXYGEN (%)	OTHER
NOTES (CONDITION/DAMAGE):							
NOTES (CONDITION/DAMAGE):							
NOTES (CONDITION/DAMAGE):							
NOTES (CONDITION/DAMAGE):							

ALS Environmental

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Simi Valley, CA 93065
T +1 805 526 7161



right solutions.
right partner.

LABORATORY REPORT

July 22, 2024

Sam Enis
SQ Environmental, LLC
PO Box 1991
Austin, TX 78767

RE: TX Star, Euless / 1098.015.003

Dear Sam:

Enclosed are the results of the samples submitted to our laboratory on July 15, 2024. For your reference, these analyses have been assigned our service request number P2402855.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

ALS | Environmental

Sue Anderson
Project Manager



Client: SQ Environmental, LLC
Project: TX Star, Euless / 1098.015.003

Service Request No: P2402855

CASE NARRATIVE

The samples were received intact under chain of custody on July 15, 2024 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Fixed Gases Analysis

The samples were analyzed for fixed gases (hydrogen, oxygen, nitrogen, carbon monoxide, methane and carbon dioxide) according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This procedure is described in laboratory SOP VOA-EPA3C. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not included in the NELAP accreditation.

Sulfur Analysis

The samples were also analyzed for twenty sulfur compounds per ASTM D 5504-20 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	https://dec.alaska.gov/spar/csp/lab-approval/list-of-approved-labs	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	https://internet.deq.louisiana.gov/portal/divisions/lalap/accredited-laboratories	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtm	2022028
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	006-999-456
New Jersey DEP (NELAP)	https://dep.nj.gov/dsr/oqa/certified-laboratories/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oklahoma DEQ (NELAP)	labaccreditation.deq.ok.gov/labaccreditation/	2207
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-012
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-23-14
Utah DOH (NELAP)	https://uphl.utah.gov/certifications/environmental-laboratory-certification/	CA016272023-15
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Job No. P402855 and laboratory batch no(s). GC38071724 & GC13071624 consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- ☒ R1 - Field chain-of-custody documentation;
- ☒ R2 - Sample identification cross-reference;
- ☒ R3 - Test reports (analytical data sheets) for each environmental sample that includes:
 - a. Items consistent with NELAC Chapter 5,
 - b. dilution factors,
 - c. preparation methods,
 - d. cleanup methods, and
 - e. if required for the project, tentatively identified compounds (TICs).
- ☐ R4 - Surrogate recovery data including:
 - a. Calculated recovery (%R), and
 - b. The laboratory's surrogate QC limits.
- ☒ R5 - Test reports/summary forms for blank samples;
- ☒ R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
 - a. LCS spiking amounts,
 - b. Calculated %R for each analyte, and
 - c. The laboratory's LCS QC limits.
- ☐ R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
 - a. Samples associated with the MS/MSD clearly identified,
 - b. MS/MSD spiking amounts,
 - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
 - d. Calculated %Rs and relative percent differences (RPDs), and
 - e. The laboratory's MS/MSD QC limits
- ☒ R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
 - a. The amount of analyte measured in the duplicate,
 - b. The calculated RPD, and
 - c. The laboratory's QC limits for analytical duplicates.
- ☒ R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- ☐ R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: ☐ This laboratory meets an exception under 30 TAC §25.6 and was last inspection by ☐ TCEQ or ☐ _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name (Printed)	Signature	Official Title (printed)	Date
Sue Anderson		Project Manager	07/22/2024

Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name: ALS Environmental		LRC Date: 07/22/2024					
Project Name: TX Star, Euleess		Laboratory Job Number: P2402855					
Reviewer Name: Sue Anderson		Prep Batch Number(s): GC38071724 & GC13071624					
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER# ⁵
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
		Were all departures from standard conditions described in an exception report?			✓		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	✓				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	✓				
		Were calculations checked by a peer or supervisor?	✓				
		Were all analyte identifications checked by a peer or supervisor?	✓				
		Were sample detection limits reported for all analytes not detected?	✓				
		Were all results for soil and sediment samples reported on a dry weight basis?			✓		
		Were % moisture (or solids) reported for all soil and sediment samples?			✓		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			✓		
		If required for the project, are TICs reported?			✓		
R4	O	Surrogate recovery data			✓		
		Were surrogates added prior to extraction?					
		Were surrogate percent recoveries in all samples within the laboratory QC limits?					
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	✓				
		Were blanks analyzed at the appropriate frequency?	✓				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
		Were blank concentrations < MQL?					
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS? Sue 7/22/24		✓			
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
		Were LCSs analyzed at the required frequency?	✓				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				

Laboratory Name: ALS Environmental			LRC Date: 07/22/2024				
Project Name: TX Star.Euless			Laboratory Job Number: P2402855				
Reviewer Name: Sue Anderson			Prep Batch Number(s): GC38071724 & GC13071624				
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER# ⁵
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	✓				
		Was the LCSD RPD within QC limits?	✓				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data			✓		
		Were the project/method specified analytes included in the MS and MSD?					
		Were MS/MSD analyzed at the appropriate frequency?					
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?					
		Were MS/MSD RPDs within laboratory QC limits?					
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	✓				
		Were analytical duplicates analyzed at the appropriate frequency?	✓				
		Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	✓				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	✓				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	✓				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	✓				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period;</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name: ALS Environmental		LRC Date: 07/22/2024					
Project Name: TX Star, Euless		Laboratory Job Number: P2402855					
Reviewer Name: Sue Anderson		Prep Batch Number(s): GC38071724 & GC13071624					
#1	A ²	Description	Yes	No	NA ³	NR ⁴	ER ⁵
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	✓				
		Were percent RSDs or correlation coefficient criteria met?	✓				
		Was the number of standards recommended in the method used for all analytes?	✓				
		Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
		Are ICAL data available for all instruments used?	✓				
		Has the initial calibration curve been verified using an appropriate second source standard?	✓				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	✓				
		Were percent differences for each analyte within the method-required QC limits?	✓				
		Was the ICAL curve verified for each analyte?	✓				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	✓				
S3	O	Mass spectral tuning			✓		
		Was the appropriate compound for the method used for tuning?					
		Were ion abundance data within the method-required QC limits?					
S4	O	Internal standards (IS)			✓		
		Were IS area counts and retention times within the method-required QC limits?					
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
		Were data associated with manual integrations flagged on the raw data?	✓				
S6	O	Dual column confirmation			✓		
		Did dual column confirmation results meet the method-required QC?					
S7	O	Tentatively identified compounds (TICs)			✓		
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?					
S8	I	Interference Check Sample (ICS) results			✓		
		Were percent recoveries within method QC limits?					
S9	I	Serial dilutions, post digestion spikes, and method of standard additions			✓		
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?					
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?		✓			
		Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Laboratory Name: ALS Environmental			LRC Date: 07/22/2024				
Project Name: TX Star, Euless			Laboratory Job Number: P2402855				
Reviewer Name: Sue Anderson			Prep Batch Number(s): GC38071724 & GC13071624				
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER# ⁵
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	✓				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	✓				
		Is documentation of the analyst's competency up-to-date and on file?	✓				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	✓				
<ol style="list-style-type: none"> Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); NA = Not applicable; NR = Not reviewed; ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked). 							

Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name: ALS Environmental		LRC Date: 07/22/2024	
Project Name: TX Star, Euless		Laboratory Job Number: P2402855	
Reviewer Name: Sue Anderson		Prep Batch Number(s): <u>GC38071724 & GC13071624</u>	
ER #¹	DESCRIPTION		
R6	The LCS/DLCS for the sulfur analysis includes Hydrogen Sulfide, Carbonyl Sulfide and Methyl Mercaptan. All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.		
<ol style="list-style-type: none"> 1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. 2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); 3. NA = Not applicable; 4. NR = Not reviewed; 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked). 			

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: SQ Environmental, LLC
Project ID: TX Star, Euless / 1098.015.003

Service Request: P2402855

Date Received: 7/15/2024
Time Received: 09:18

								3C Modified - Fxd Gases Can	ASTM D 5504-20 - Sulfur Can
Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfi1 (psig)		
SV-10R	P2402855-001	Air	7/12/2024	10:15	1SS01668	-2.27	7.70	X	X
SV-11R	P2402855-002	Air	7/12/2024	11:20	1SS01512	-1.47	7.83	X	X



Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No. PJ402855

Company Name & Address (Reporting Information) <u>SQ Environmental</u> <u>PO BOX 1991</u> <u>AUSTIN TX 78767</u>				Project Name <u>TX Star, Enless</u>				ALS Contact:		Comments e.g. Actual Preservative or specific instructions																																																																																																																														
Project Manager <u>Sam Enis</u>				Project Number <u>1098-015-003</u>				Analysis Method																																																																																																																																
Phone <u>512-574-1199</u>				P.O. # / Billing Information				<u>Methane, CO, Hydrogen sulfide, Meraptan</u>																																																																																																																																
Fax				Sampler (Print & Sign) <u>MUHAMMAD CHHAIDAN M. h</u>																																																																																																																																				
Email Address for Result Reporting <u>S.ENIS@SQENV.COM, C.WEAVER@SQENV.COM</u>				Canister ID (Bar code # - AC, SC, etc.)				Canister Start Pressure "Hg		<table border="1"> <thead> <tr> <th>Client Sample ID</th> <th>Laboratory ID Number</th> <th>Date Collected</th> <th>Time Collected</th> <th>Canister ID (Bar code # - AC, SC, etc.)</th> <th>Flow Controller ID (Bar code # - FC #)</th> <th>Canister Start Pressure "Hg</th> <th>Canister End Pressure "Hg/psig</th> <th>Sample Volume</th> </tr> </thead> <tbody> <tr> <td><u>SU-10R</u></td> <td><u>1</u></td> <td><u>7/12/24</u></td> <td><u>10:15</u></td> <td><u>15501668</u></td> <td><u>SG500110</u></td> <td><u>-27</u></td> <td><u>-2</u></td> <td><u>✓</u></td> </tr> <tr> <td><u>SU-11R</u></td> <td><u>2</u></td> <td><u>7/12/24</u></td> <td><u>11:20</u></td> <td><u>15501512</u></td> <td><u>SG500120</u></td> <td><u>-28</u></td> <td><u>-2</u></td> <td><u>✓</u></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	<u>SU-10R</u>	<u>1</u>	<u>7/12/24</u>	<u>10:15</u>	<u>15501668</u>	<u>SG500110</u>	<u>-27</u>	<u>-2</u>	<u>✓</u>	<u>SU-11R</u>	<u>2</u>	<u>7/12/24</u>	<u>11:20</u>	<u>15501512</u>	<u>SG500120</u>	<u>-28</u>	<u>-2</u>	<u>✓</u>																																																																																																			
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Report Tier Levels - please select				Tier I - Results (Default if not specified) _____				Tier III (Results + QC & Calibration Summaries) _____																																																																																																																																
Tier II (Results + QC Summaries) _____				Tier IV (Data Validation Package) 10% Surcharge <u>✓</u>				EDD required Yes / No																																																																																																																																
Relinquished by: (Signature) <u>[Signature]</u>				Date: <u>07/12/24</u>				Time: _____																																																																																																																																
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Chain of Custody Seal: (Circle) <u>ABSENT</u>				INTACT				BROKEN																																																																																																																																
Project Requirements (MRLs, QAPP)				Cooler / Blank Temperature _____ °C																																																																																																																																				

ALS Environmental
Sample Acceptance Check Form

Client: SQ Environmental, LLC Work order: P2402855
Project: TX Star, Euless / 1098.015.003
Sample(s) received on: 7/15/24 Date opened: 7/15/24 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8 Were custody seals on outside of cooler/Box/Container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Lab Notification: Analyst and PM were alerted of Short HT or RUSH samples? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Client Notification: Client has been notified regarding HT exceedances and/or other CoC discrepancies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2402855-001.01	1.0 L Source Silonite Canister					
P2402855-002.01	1.0 L Source Silonite Canister					
P2402855-003.01	1.0 L Source Silonite Canister					Return Unused

Explain any discrepancies: (include lab sample ID numbers): _____

Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-10R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-001

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 8890/GC38/TCD
Analyst: Stephanie Reynoso
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01668

Date Collected: 7/12/24
Date Received: 7/15/24
Date Analyzed: 7/17/24
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -2.27 **Final Pressure (psig):** 7.70

Container Dilution Factor: 1.80

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.18	
7782-44-7	Oxygen*	15.2	0.18	
7727-37-9	Nitrogen	77.1	0.18	
630-08-0	Carbon Monoxide	ND	0.18	
74-82-8	Methane	ND	0.18	
124-38-9	Carbon Dioxide	7.65	0.18	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-11R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-002

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 8890/GC38/TCD
Analyst: Stephanie Reynoso
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01512

Date Collected: 7/12/24
Date Received: 7/15/24
Date Analyzed: 7/17/24
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -1.47 **Final Pressure (psig):** 7.83

Container Dilution Factor: 1.70

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.17	
7782-44-7	Oxygen*	21.5	0.17	
7727-37-9	Nitrogen	77.7	0.17	
630-08-0	Carbon Monoxide	ND	0.17	
74-82-8	Methane	ND	0.17	
124-38-9	Carbon Dioxide	0.796	0.17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: Method Blank
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
ALS Sample ID: P240717-MB

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 8890/GC38/TCD
Analyst: Stephanie Reynoso
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/17/24
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.10	
7782-44-7	Oxygen*	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
630-08-0	Carbon Monoxide	ND	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P240717-DLCS

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 8890/GC38/TCD
Analyst: Stephanie Reynoso
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/17/24
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS ppmV	LCS ppmV	DLCS ppmV	LCS	DLCS	Acceptance Limits			
1333-74-0	Hydrogen	39,700	42,900	43,600	108	110	96-117	2	5	
7782-44-7	Oxygen*	25,100	23,800	24,000	95	96	92-112	1	7	
7727-37-9	Nitrogen	49,800	47,000	47,500	94	95	89-113	1	7	
630-08-0	Carbon Monoxide	49,600	49,600	50,300	100	101	96-113	1.0	5	
74-82-8	Methane	40,000	39,100	39,700	98	99	95-111	1	5	
124-38-9	Carbon Dioxide	49,600	53,200	54,200	107	109	93-112	2	6	

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-11R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-002DUP

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 8890/GC38/TCD
Analyst: Stephanie Reynoso
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01512

Date Collected: 7/12/24
Date Received: 7/15/24
Date Analyzed: 7/17/24
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -1.47 **Final Pressure (psig):** 7.83

Container Dilution Factor: 1.70

CAS #	Compound	Sample Result %, v/v	Duplicate Sample Result %, v/v	Average	% RPD	RPD Limit	Data Qualifier
1333-74-0	Hydrogen	ND	ND	-	-	5	
7782-44-7	Oxygen*	21.5	21.4	21.45	0.5	7	
7727-37-9	Nitrogen	77.7	77.8	77.75	0.1	7	
630-08-0	Carbon Monoxide	ND	ND	-	-	5	
74-82-8	Methane	ND	ND	-	-	5	
124-38-9	Carbon Dioxide	0.796	0.778	0.787	2	6	

ND = Compound was analyzed for, but not detected.

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-10R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-001

Test Code: ASTM D 5504-20
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01668

Date Collected: 7/12/24
Time Collected: 10:15
Date Received: 7/15/24
Date Analyzed: 7/16/24
Time Analyzed: 09:42
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -2.27 **Final Pressure (psig):** 7.70

Container Dilution Factor: 1.80

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	8.8	13	3.8	6.3	9.0	2.7	J
463-58-1	Carbonyl Sulfide	11	22	8.4	4.6	9.0	3.4	J
74-93-1	Methyl Mercaptan	ND	18	7.1	ND	9.0	3.6	
75-08-1	Ethyl Mercaptan	ND	23	9.1	ND	9.0	3.6	
75-18-3	Dimethyl Sulfide	ND	23	9.1	ND	9.0	3.6	
75-15-0	Carbon Disulfide	6.2	14	5.6	2.0	4.5	1.8	J
75-33-2	Isopropyl Mercaptan	ND	28	11	ND	9.0	3.6	
75-66-1	tert-Butyl Mercaptan	ND	33	13	ND	9.0	3.6	
107-03-9	n-Propyl Mercaptan	ND	28	11	ND	9.0	3.6	
624-89-5	Ethyl Methyl Sulfide	ND	28	11	ND	9.0	3.6	
110-02-1	Thiophene	ND	31	12	ND	9.0	3.6	
513-44-0	Isobutyl Mercaptan	ND	33	13	ND	9.0	3.6	
352-93-2	Diethyl Sulfide	ND	33	13	ND	9.0	3.6	
109-79-5	n-Butyl Mercaptan	ND	33	13	ND	9.0	3.6	
624-92-0	Dimethyl Disulfide	ND	17	6.9	ND	4.5	1.8	
616-44-4	3-Methylthiophene	ND	36	14	ND	9.0	3.6	
110-01-0	Tetrahydrothiophene	ND	32	13	ND	9.0	3.6	
638-02-8	2,5-Dimethylthiophene	ND	41	17	ND	9.0	3.6	
872-55-9	2-Ethylthiophene	ND	41	17	ND	9.0	3.6	
110-81-6	Diethyl Disulfide	ND	22	18	ND	4.5	3.6	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-11R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-002

Test Code: ASTM D 5504-20
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01512

Date Collected: 7/12/24
Time Collected: 11:20
Date Received: 7/15/24
Date Analyzed: 7/16/24
Time Analyzed: 10:01
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -1.47 **Final Pressure (psig):** 7.83

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	12	3.6	ND	8.5	2.6	
463-58-1	Carbonyl Sulfide	11	21	7.9	4.4	8.5	3.2	J
74-93-1	Methyl Mercaptan	ND	17	6.7	ND	8.5	3.4	
75-08-1	Ethyl Mercaptan	ND	22	8.6	ND	8.5	3.4	
75-18-3	Dimethyl Sulfide	ND	22	8.6	ND	8.5	3.4	
75-15-0	Carbon Disulfide	10	13	5.3	3.2	4.3	1.7	J
75-33-2	Isopropyl Mercaptan	ND	26	11	ND	8.5	3.4	
75-66-1	tert-Butyl Mercaptan	ND	31	13	ND	8.5	3.4	
107-03-9	n-Propyl Mercaptan	ND	26	11	ND	8.5	3.4	
624-89-5	Ethyl Methyl Sulfide	ND	26	11	ND	8.5	3.4	
110-02-1	Thiophene	ND	29	12	ND	8.5	3.4	
513-44-0	Isobutyl Mercaptan	ND	31	13	ND	8.5	3.4	
352-93-2	Diethyl Sulfide	ND	31	13	ND	8.5	3.4	
109-79-5	n-Butyl Mercaptan	ND	31	13	ND	8.5	3.4	
624-92-0	Dimethyl Disulfide	ND	16	6.5	ND	4.3	1.7	
616-44-4	3-Methylthiophene	ND	34	14	ND	8.5	3.4	
110-01-0	Tetrahydrothiophene	ND	31	12	ND	8.5	3.4	
638-02-8	2,5-Dimethylthiophene	ND	39	16	ND	8.5	3.4	
872-55-9	2-Ethylthiophene	ND	39	16	ND	8.5	3.4	
110-81-6	Diethyl Disulfide	ND	21	17	ND	4.3	3.4	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: Method Blank
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P240716-MB

Test Code: ASTM D 5504-20
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/16/24
Time Analyzed: 09:14
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	2.1	ND	5.0	1.5	
463-58-1	Carbonyl Sulfide	ND	12	4.7	ND	5.0	1.9	
74-93-1	Methyl Mercaptan	ND	9.8	3.9	ND	5.0	2.0	
75-08-1	Ethyl Mercaptan	ND	13	5.1	ND	5.0	2.0	
75-18-3	Dimethyl Sulfide	ND	13	5.1	ND	5.0	2.0	
75-15-0	Carbon Disulfide	ND	7.8	3.1	ND	2.5	1.0	
75-33-2	Isopropyl Mercaptan	ND	16	6.2	ND	5.0	2.0	
75-66-1	tert-Butyl Mercaptan	ND	18	7.4	ND	5.0	2.0	
107-03-9	n-Propyl Mercaptan	ND	16	6.2	ND	5.0	2.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	6.2	ND	5.0	2.0	
110-02-1	Thiophene	ND	17	6.9	ND	5.0	2.0	
513-44-0	Isobutyl Mercaptan	ND	18	7.4	ND	5.0	2.0	
352-93-2	Diethyl Sulfide	ND	18	7.4	ND	5.0	2.0	
109-79-5	n-Butyl Mercaptan	ND	18	7.4	ND	5.0	2.0	
624-92-0	Dimethyl Disulfide	ND	9.6	3.9	ND	2.5	1.0	
616-44-4	3-Methylthiophene	ND	20	8.0	ND	5.0	2.0	
110-01-0	Tetrahydrothiophene	ND	18	7.2	ND	5.0	2.0	
638-02-8	2,5-Dimethylthiophene	ND	23	9.2	ND	5.0	2.0	
872-55-9	2-Ethylthiophene	ND	23	9.2	ND	5.0	2.0	
110-81-6	Diethyl Disulfide	ND	12	10	ND	2.5	2.0	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P240716-DLCS

Test Code: ASTM D 5504-20
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/16/24
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
7783-06-4	Hydrogen Sulfide	1,000	771	856	77	86	72-122	11	18	
463-58-1	Carbonyl Sulfide	1,000	820	837	82	84	72-121	2	17	
74-93-1	Methyl Mercaptan	1,000	1,050	1,120	105	112	74-127	6	18	

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Page 1 of 1

Client: SQ Environmental, LLC
Client Sample ID: SV-11R
Client Project ID: TX Star, Euless / 1098.015.003

ALS Project ID: P2402855
 ALS Sample ID: P2402855-002DUP

Test Code: ASTM D 5504-20
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS01512

Date Collected: 7/12/24
Time Collected: 11:20
Date Received: 7/15/24
Date Analyzed: 7/16/24
Time Analyzed: 10:21
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -1.47 **Final Pressure (psig):** 7.83

Container Dilution Factor: 1.70

CAS #	Compound	Sample Result		Duplicate Sample Result		Average ppbV	% RPD	RPD Limit	Data Qualifier
		µg/m³	ppbV	µg/m³	ppbV				
7783-06-4	Hydrogen Sulfide	ND	ND	ND	ND	-	-	18	
463-58-1	Carbonyl Sulfide	10.9	4.44	9.48	3.86	4.15	14	17	J
74-93-1	Methyl Mercaptan	ND	ND	ND	ND	-	-	18	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172408.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:22:44
Operator : SR/BK
Sample : P2402855-001
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 09:42:35 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	4.337	1354433776	102077.559 ppm
3) Nitrogen	5.084f	7076803054	516315.193 ppm
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	3.685	832011899	51220.644 ppm

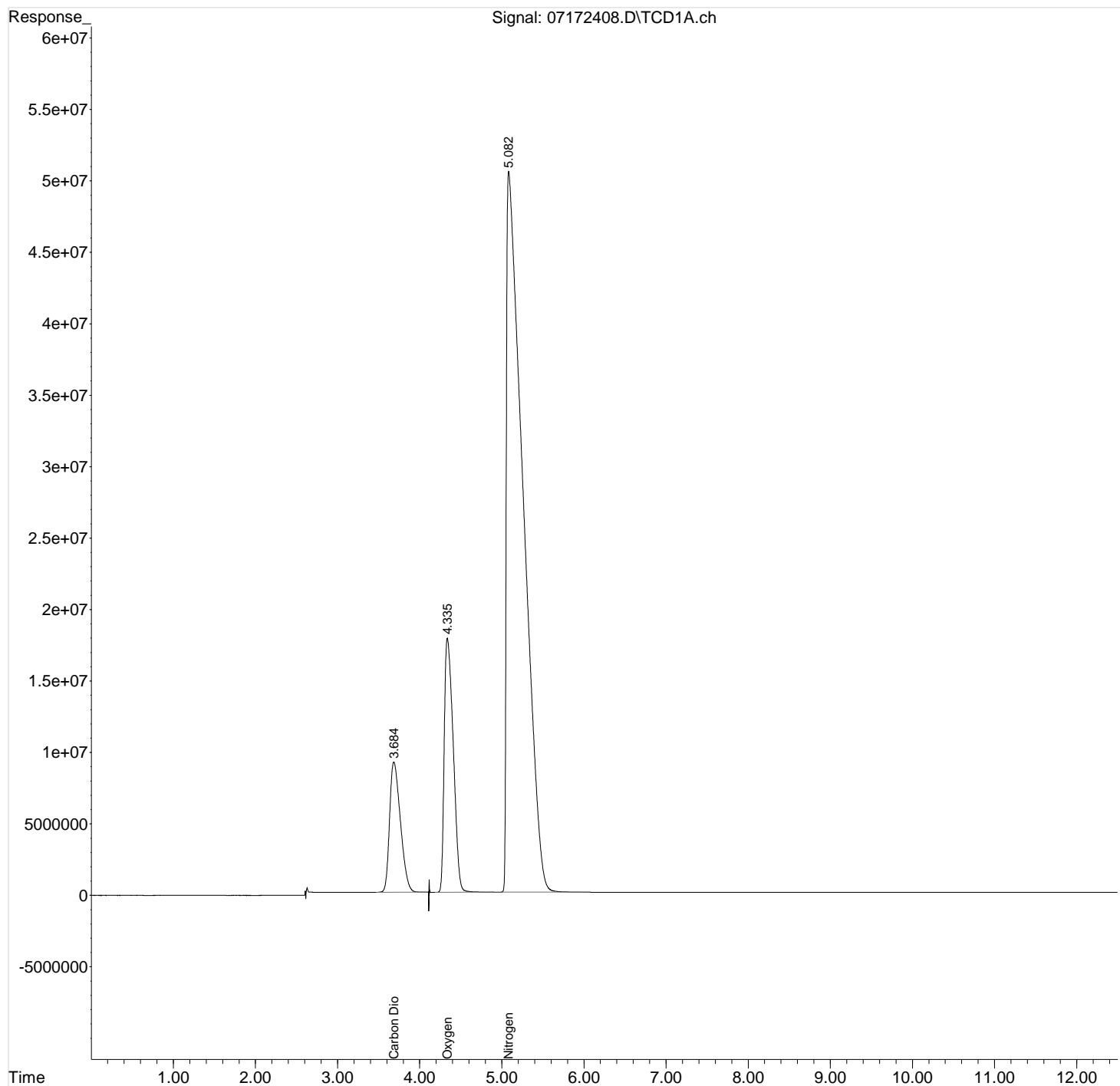
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(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172408.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:22:44
Operator : SR/BK
Sample : P2402855-001
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 09:42:35 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172409.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:36:53
Operator : SR/BK
Sample : P2402855-002
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 10:00:00 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	4.317	1994314979	150940.321 ppm
3) Nitrogen	5.071f	7468352825	546562.446 ppm
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	3.741	90929045	5597.810 ppm

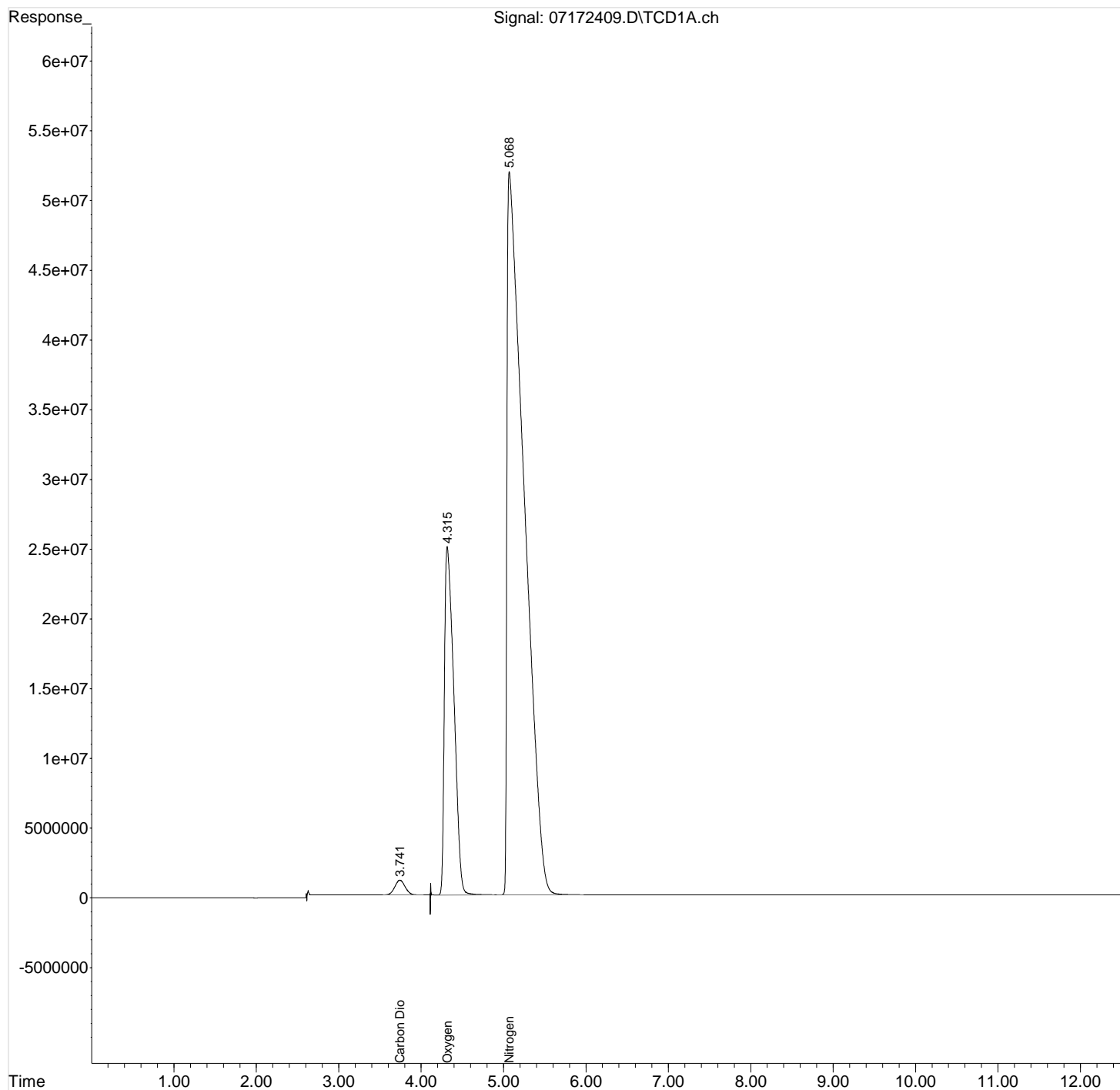
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(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172409.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:36:53
Operator : SR/BK
Sample : P2402855-002
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 10:00:00 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:15:09 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm d
2) Oxygen	4.439	1231990	92.038 ppm m
3) Nitrogen	5.395	3883102	269.188 ppm m
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	3.758	1248722	76.874 ppm m

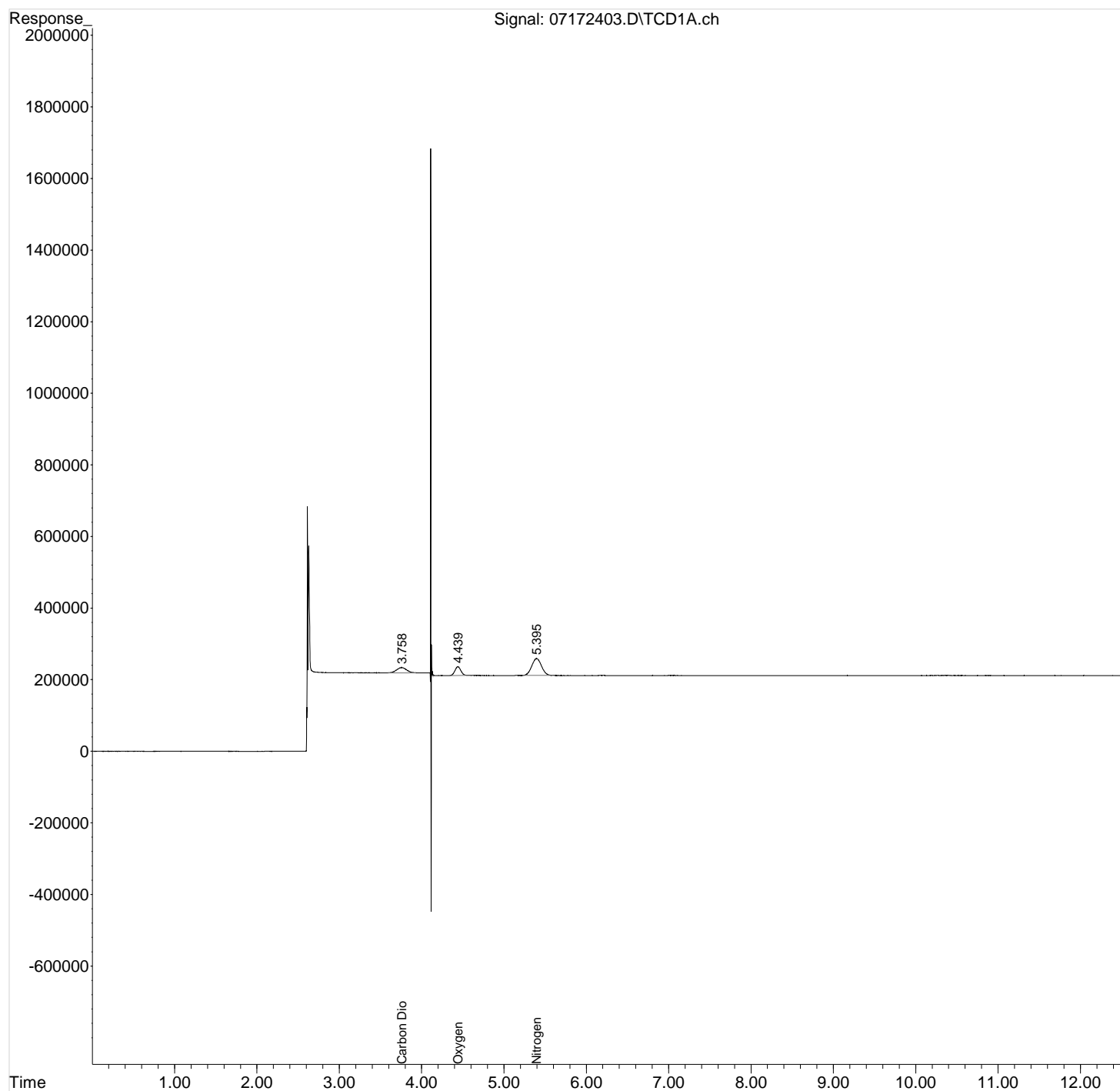
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(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 08:15:09 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

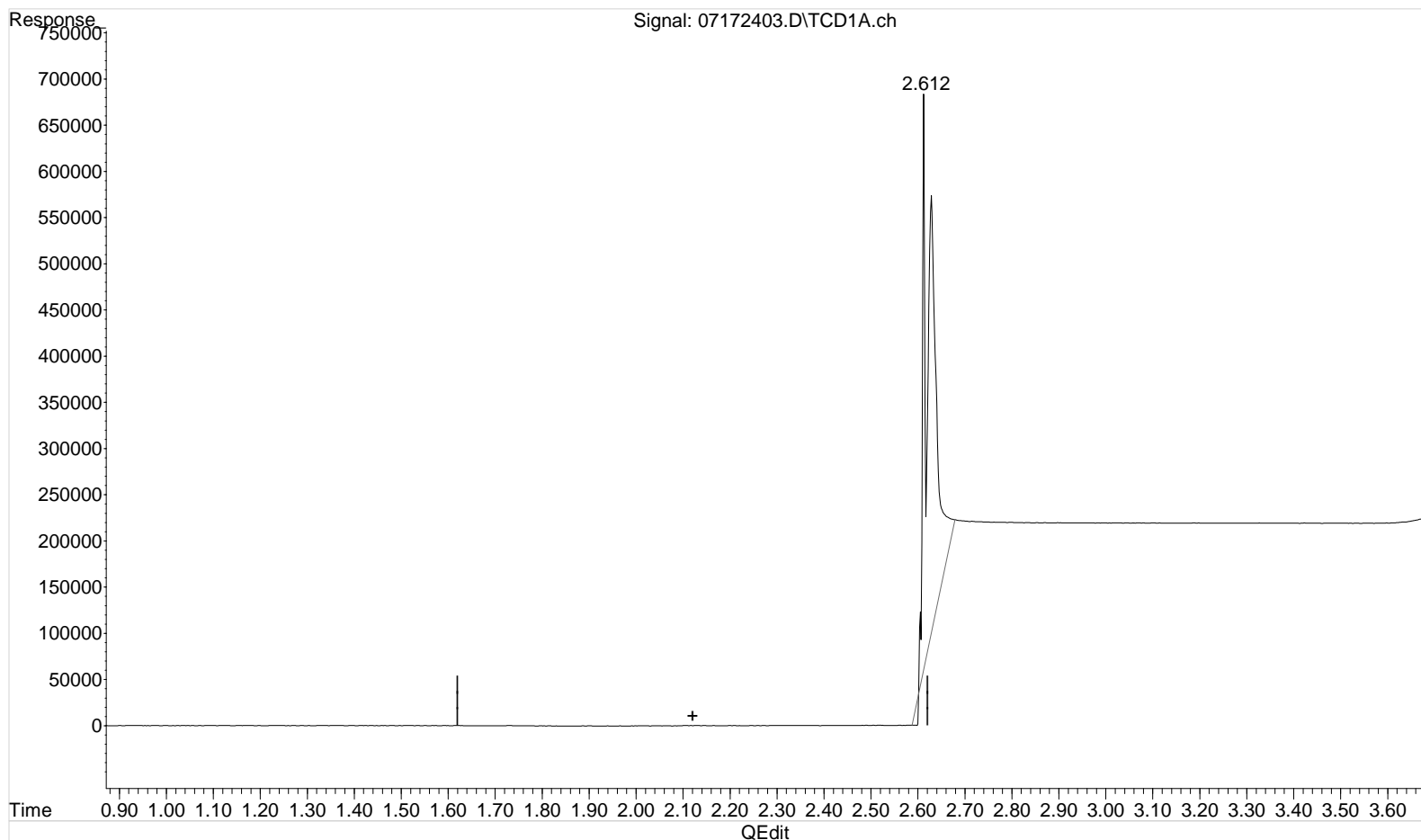


Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(1) Hydrogen

2.613min 11421.619 ppm

response 8185663

Manual Integration:

Before

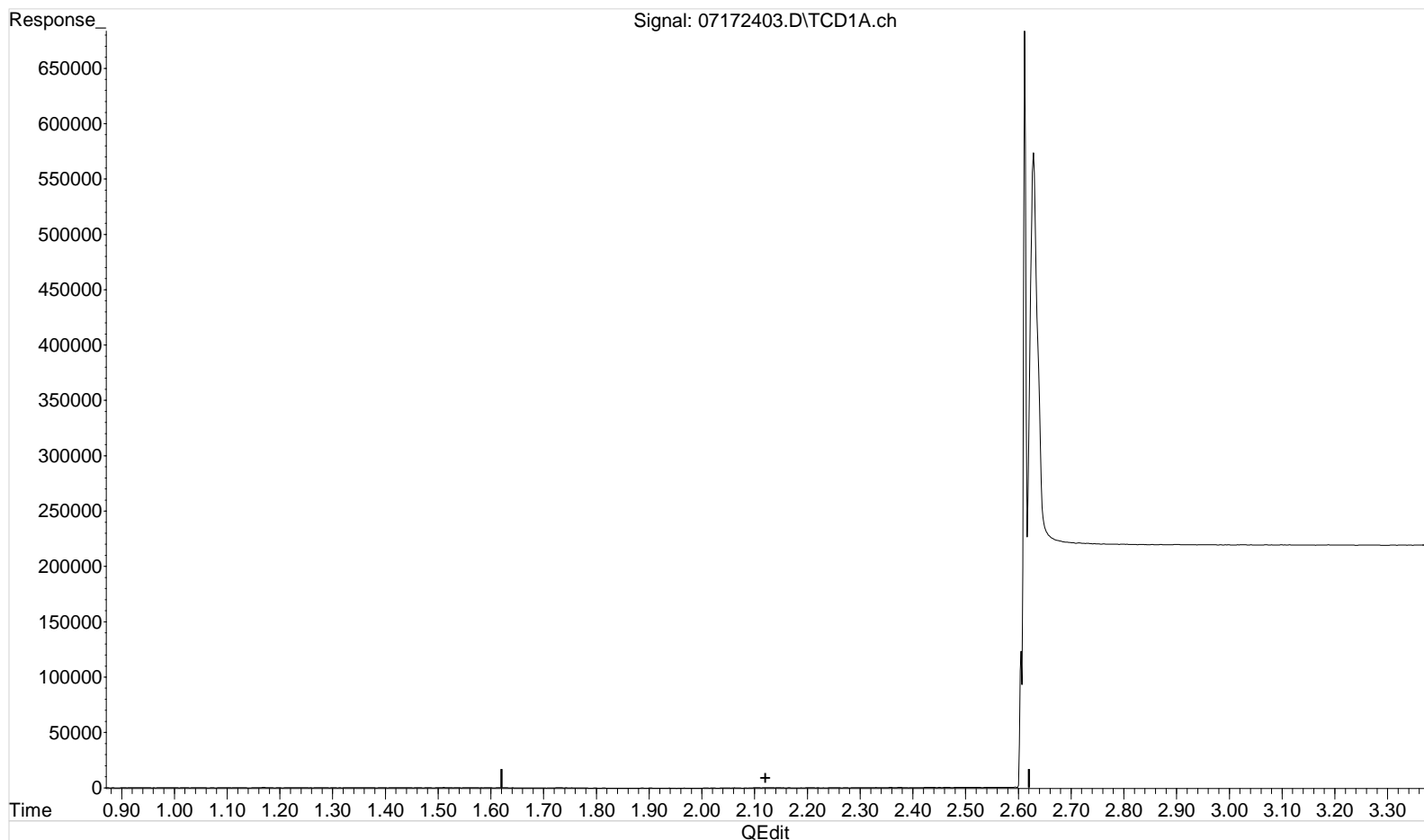
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(1) Hydrogen

0.000min 0.000 ppm d

response 0

Manual Integration:

After

FP

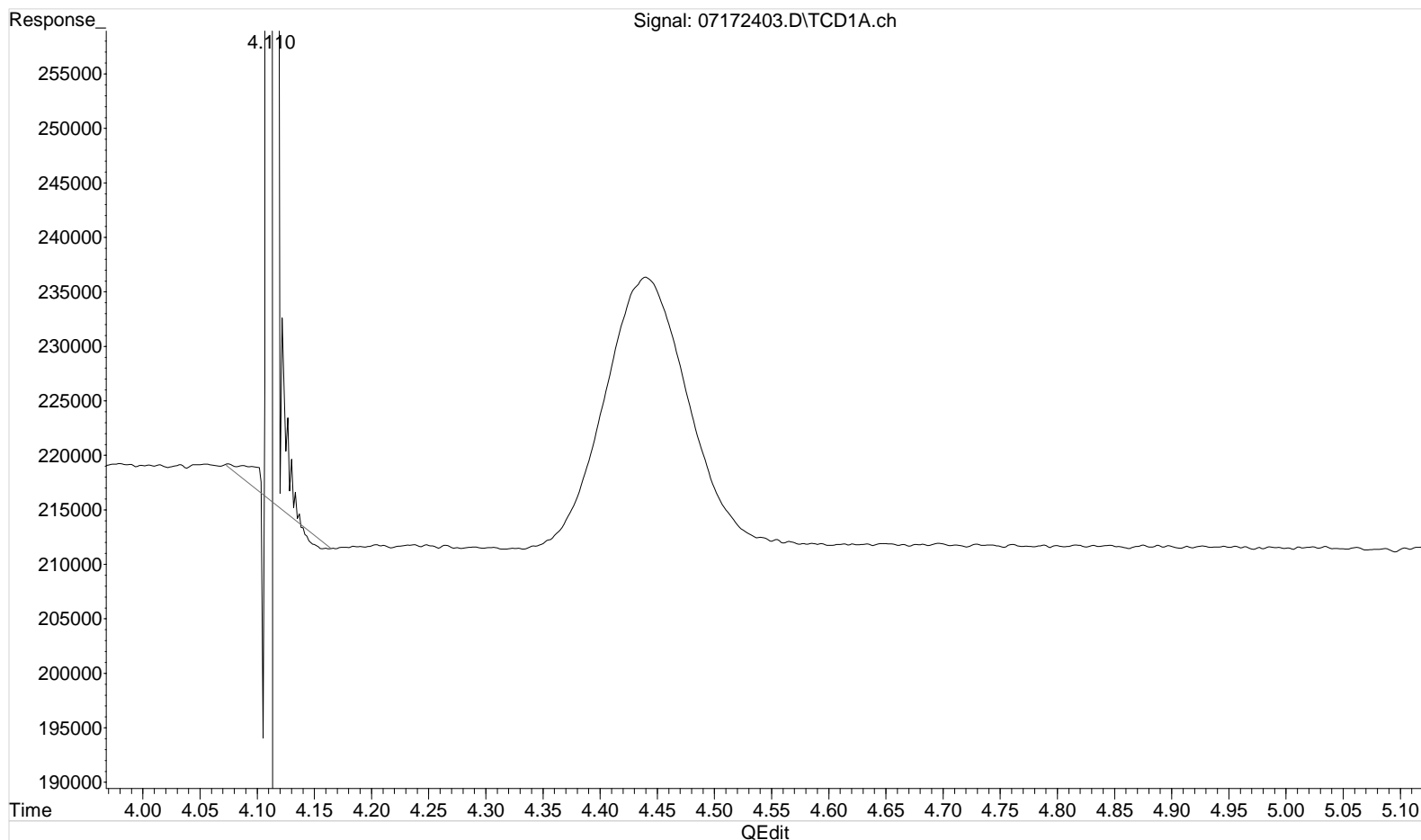
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

4.111min 179.164 ppm

response 2398213

Manual Integration:

Before

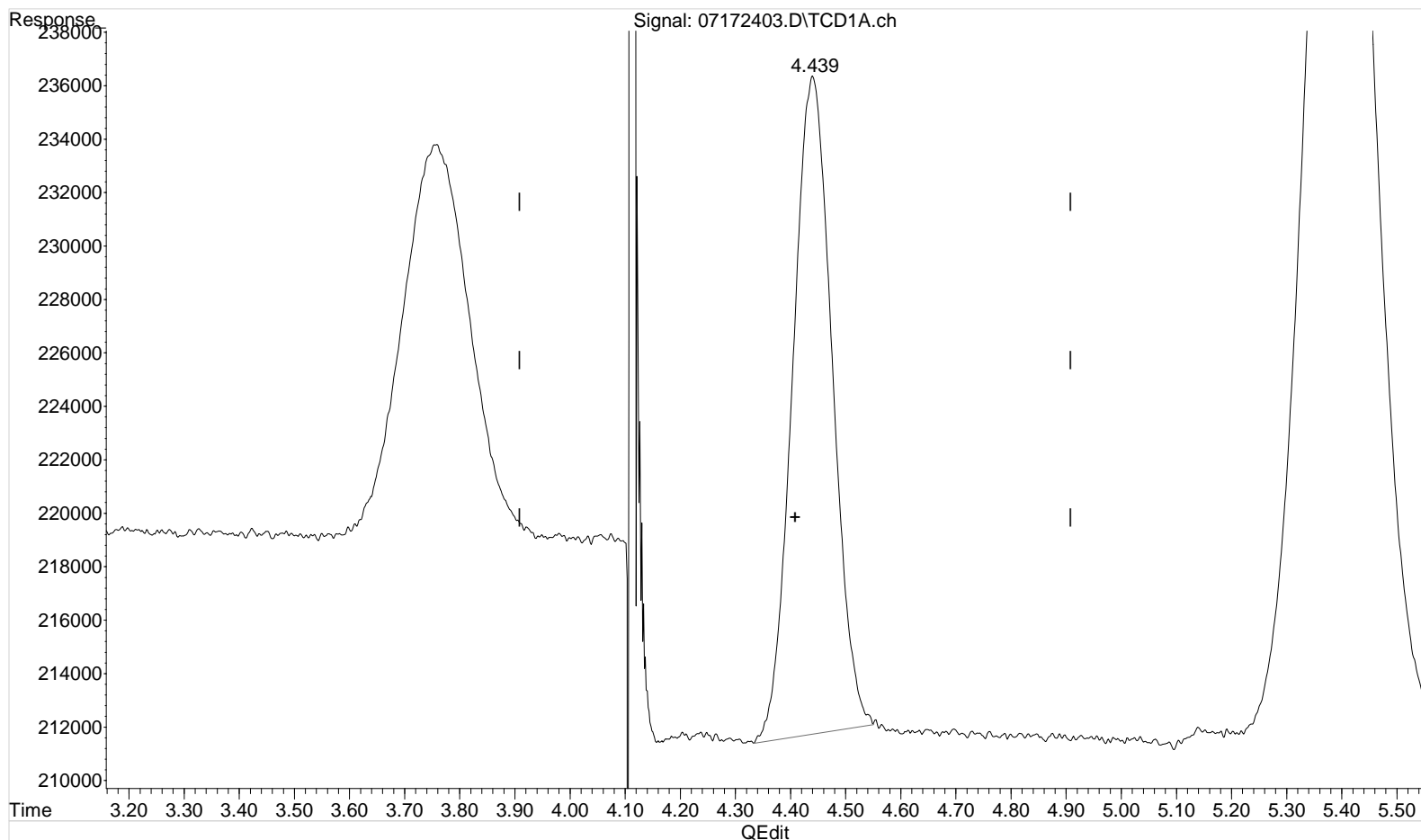
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

4.439min 92.038 ppm m

response 1231990

Manual Integration:

After

WP

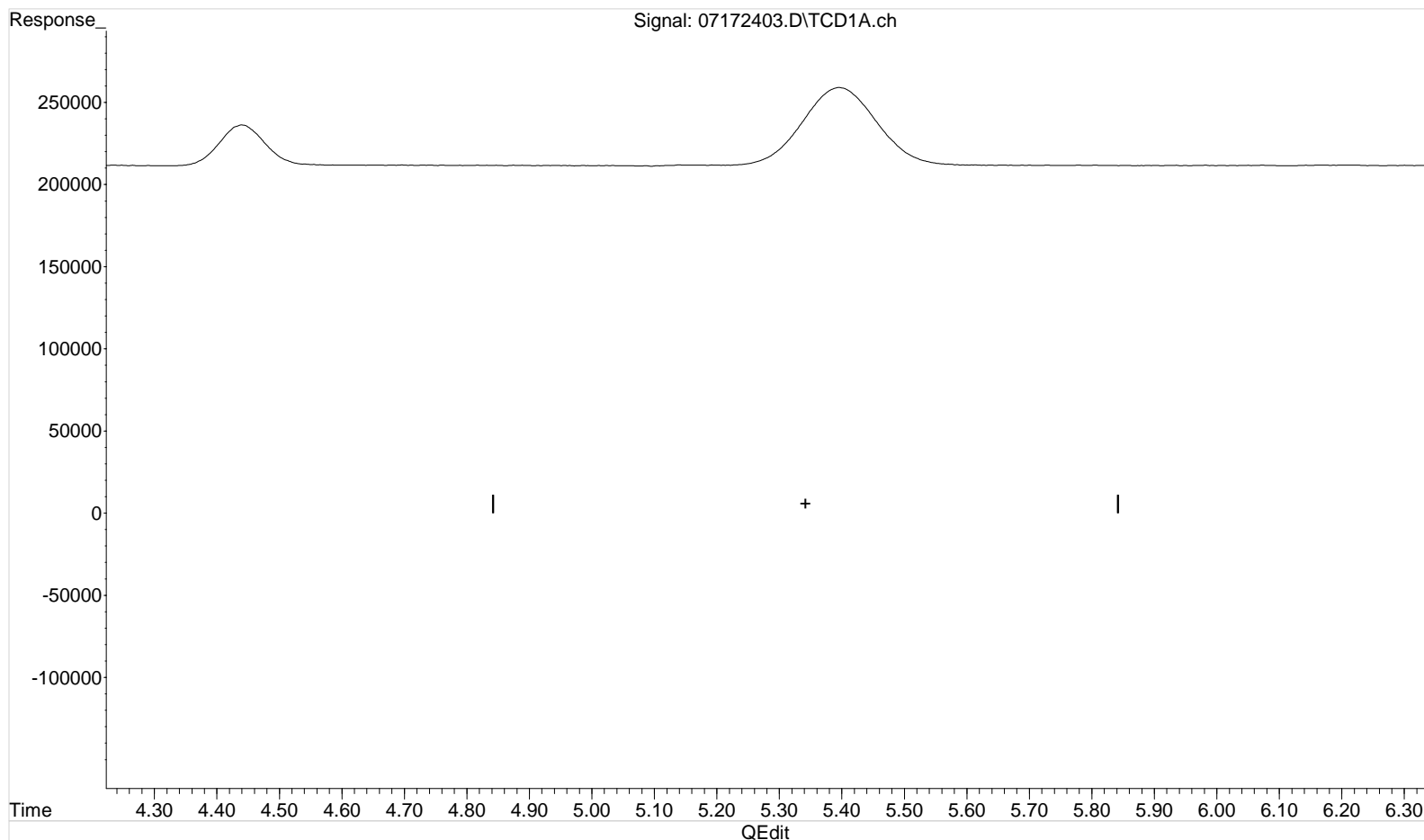
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

5.342min 0.000 ppm

response 0

Manual Integration:

Before

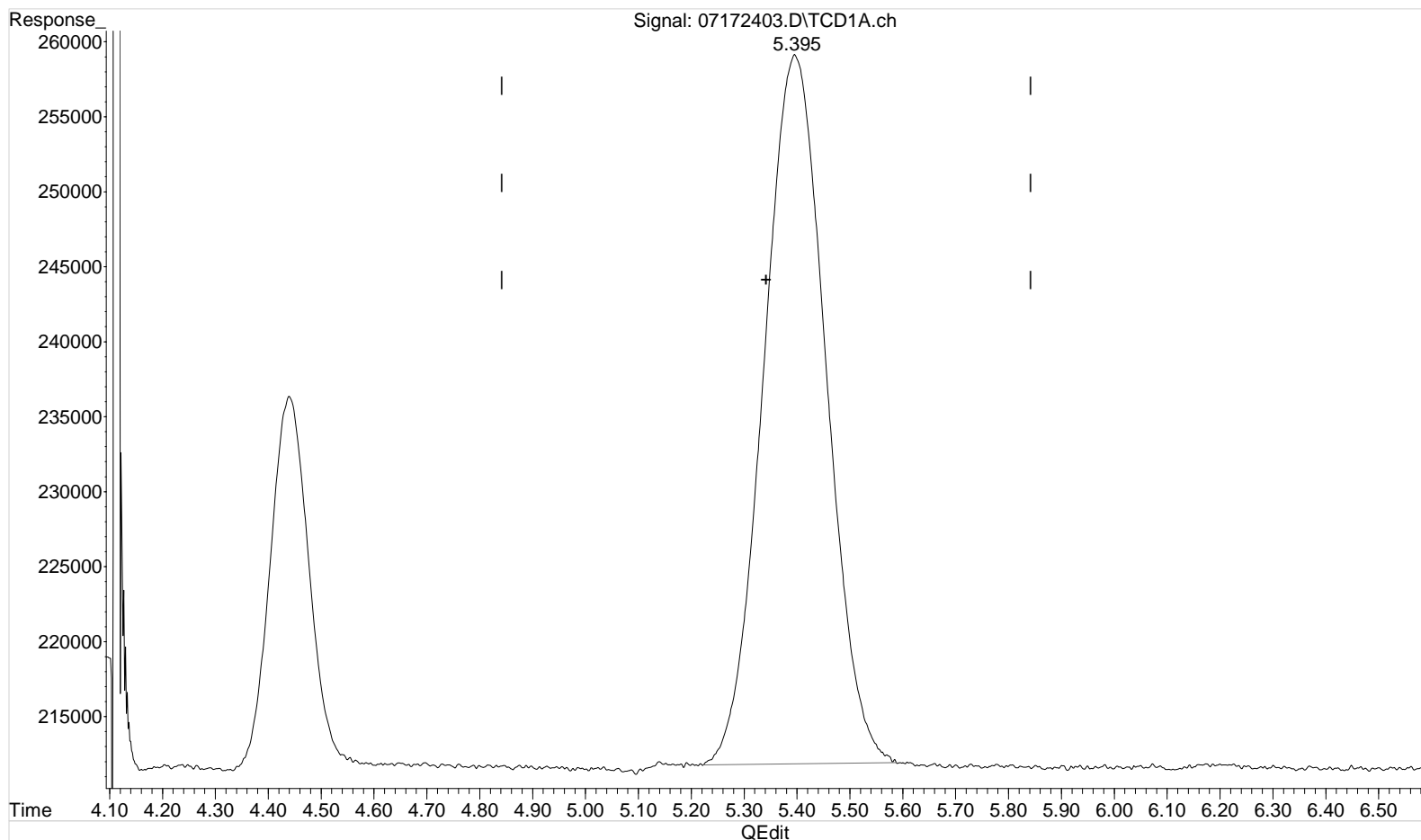
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

5.395min 269.188 ppm m

response 3883102

Manual Integration:

After

MP

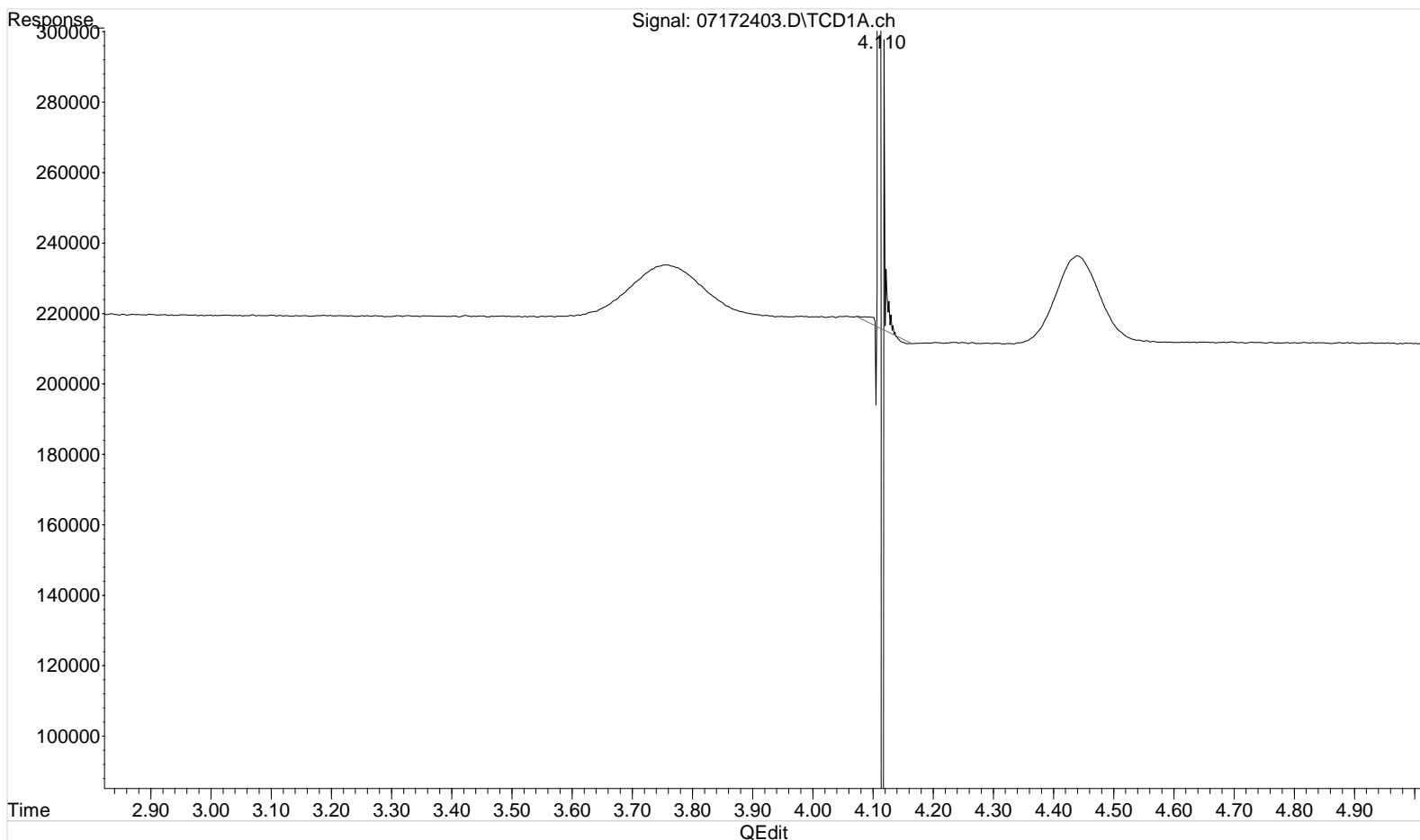
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00:43
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:14:04 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(6) Carbon Dioxide

4.111min 147.640 ppm

response 2398213

Manual Integration:

Before

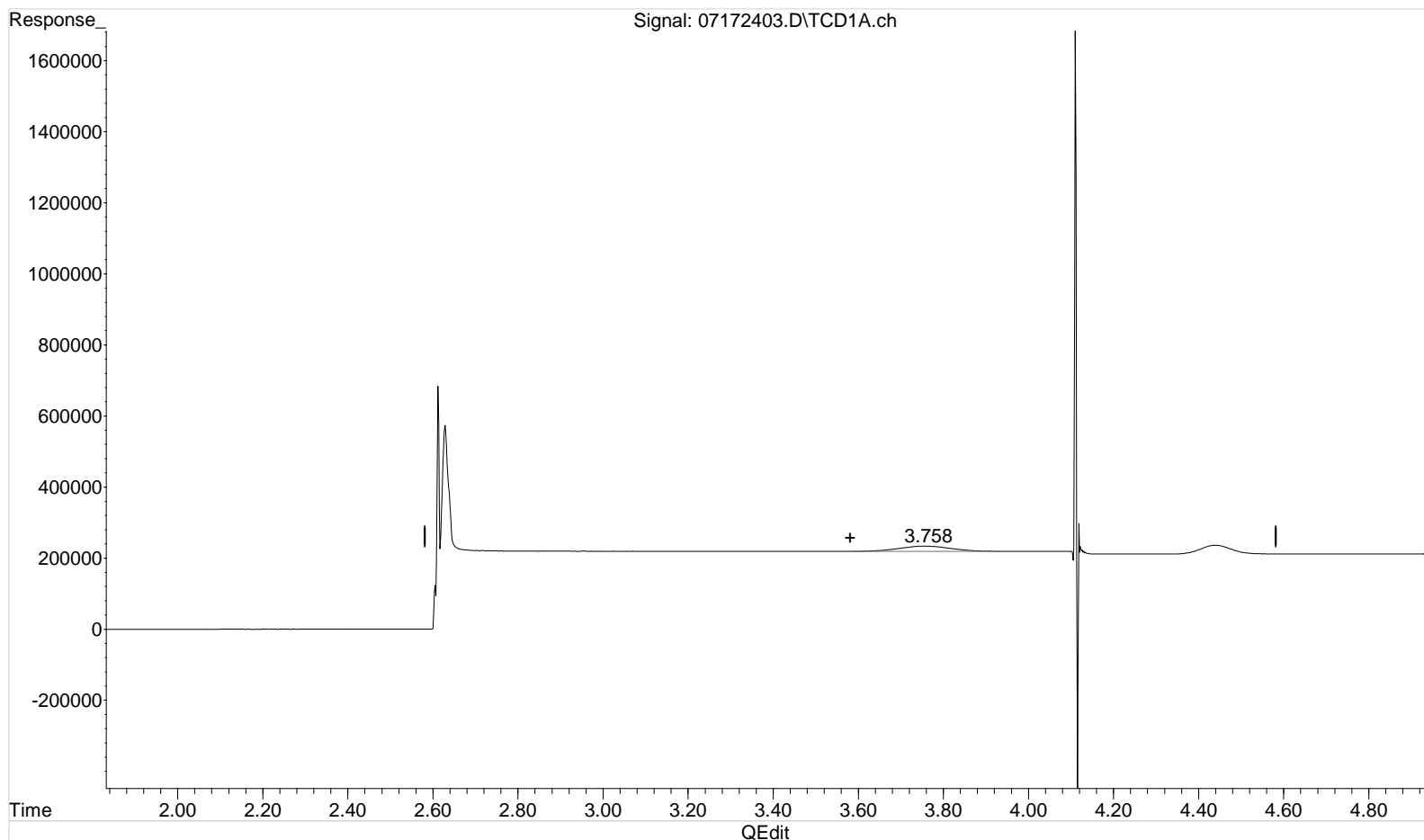
07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172403.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:00
Operator : SR/BK
Sample : MB STD00251
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:15:09 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(6) Carbon Dioxide

3.758min 76.874 ppm m

response 1248722

Manual Integration:

After

WP

07/17/24

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172405.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:34:39
Operator : SR/BK
Sample : LCS S33-07272202
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 08:50:28 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.113	30719811	42863.966 ppm
2) Oxygen	4.404	317362038	23757.237 ppm
3) Nitrogen	5.336	674364859	46960.687 ppm
4) Carbon Monoxide	10.192	703650236	49630.834 ppm
5) Methane	6.992	406473609	39104.026 ppm
6) Carbon Dioxide	3.678	863880567	53182.556 ppm

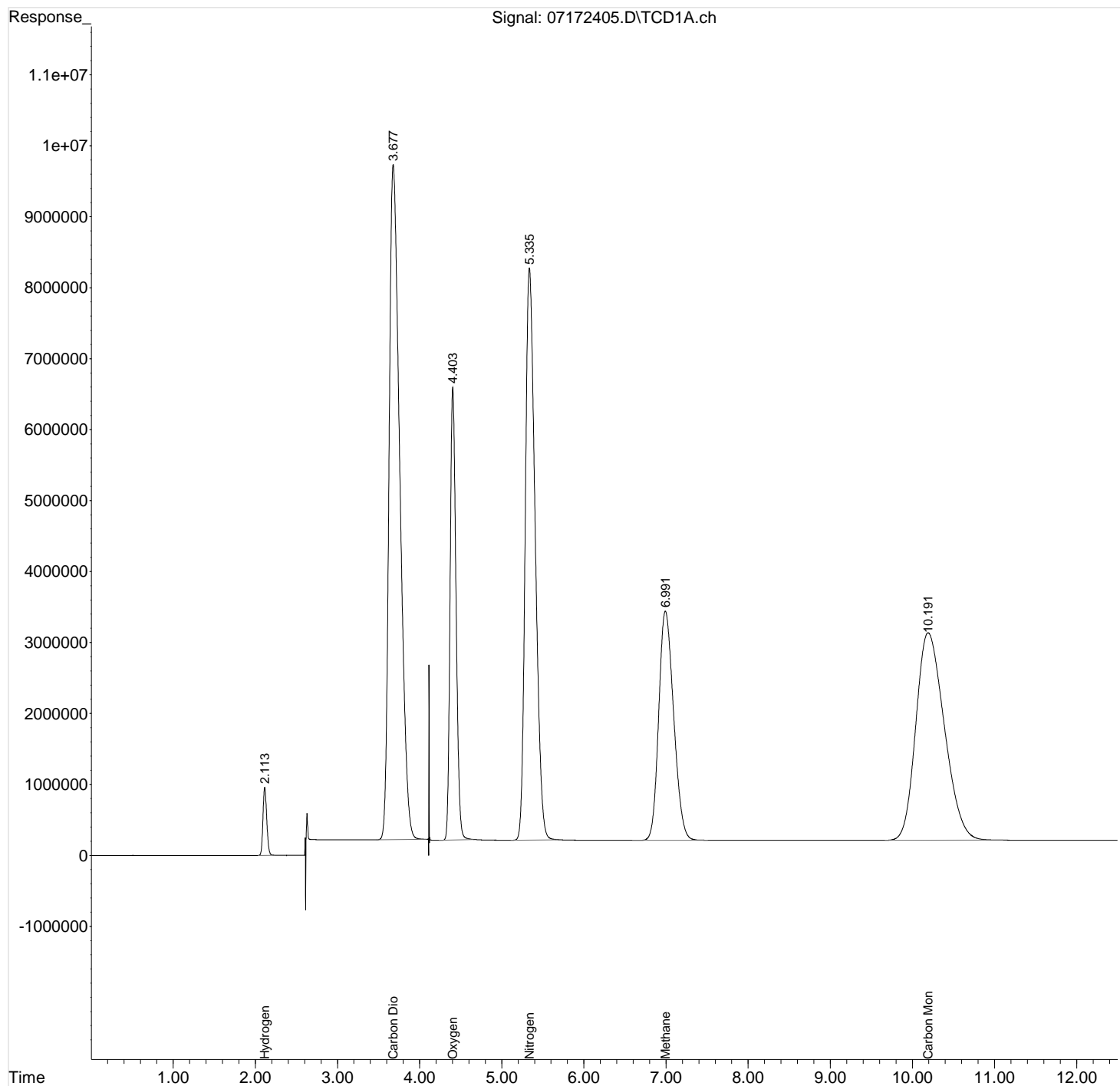
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172405.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:34:39
Operator : SR/BK
Sample : LCS S33-07272202
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 08:50:28 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172406.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:52:28
Operator : SR/BK
Sample : LCSD S33-07272202
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 09:05:45 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.113	31217228	43558.022 ppm
2) Oxygen	4.403	320779002	24013.555 ppm
3) Nitrogen	5.336	681902709	47488.029 ppm
4) Carbon Monoxide	10.190	713545679	50328.793 ppm
5) Methane	6.991	412363947	39670.695 ppm
6) Carbon Dioxide	3.677	880436329	54201.768 ppm

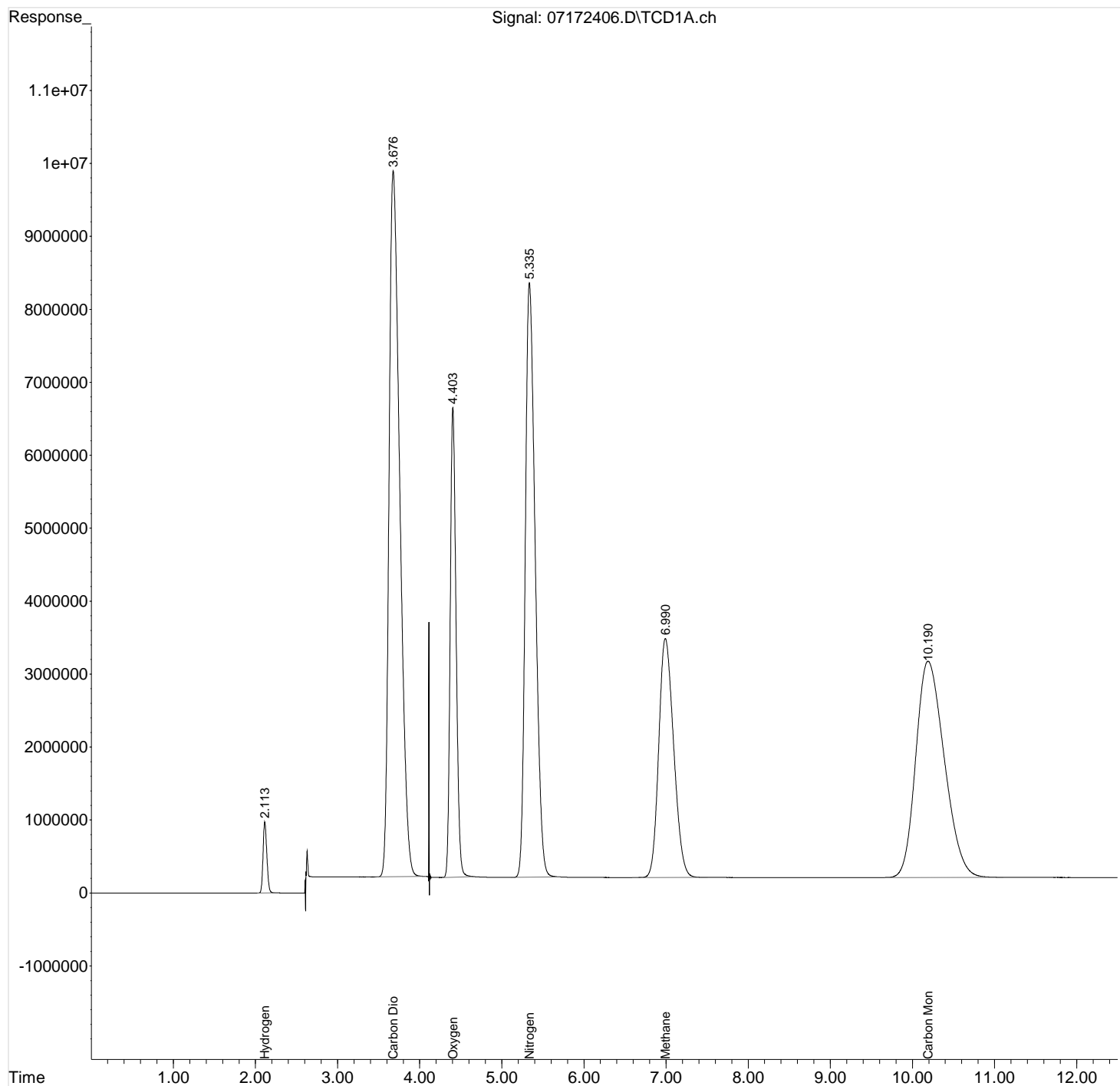
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172406.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 08:52:28
Operator : SR/BK
Sample : LCSD S33-07272202
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 09:05:45 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172410.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:49:54
Operator : SR/BK
Sample : P2402855-002dup
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 10:03:00 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	4.317	1987615158	150426.531 ppm
3) Nitrogen	5.071f	7459986055	545914.047 ppm
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	3.741	88739838	5463.037 ppm

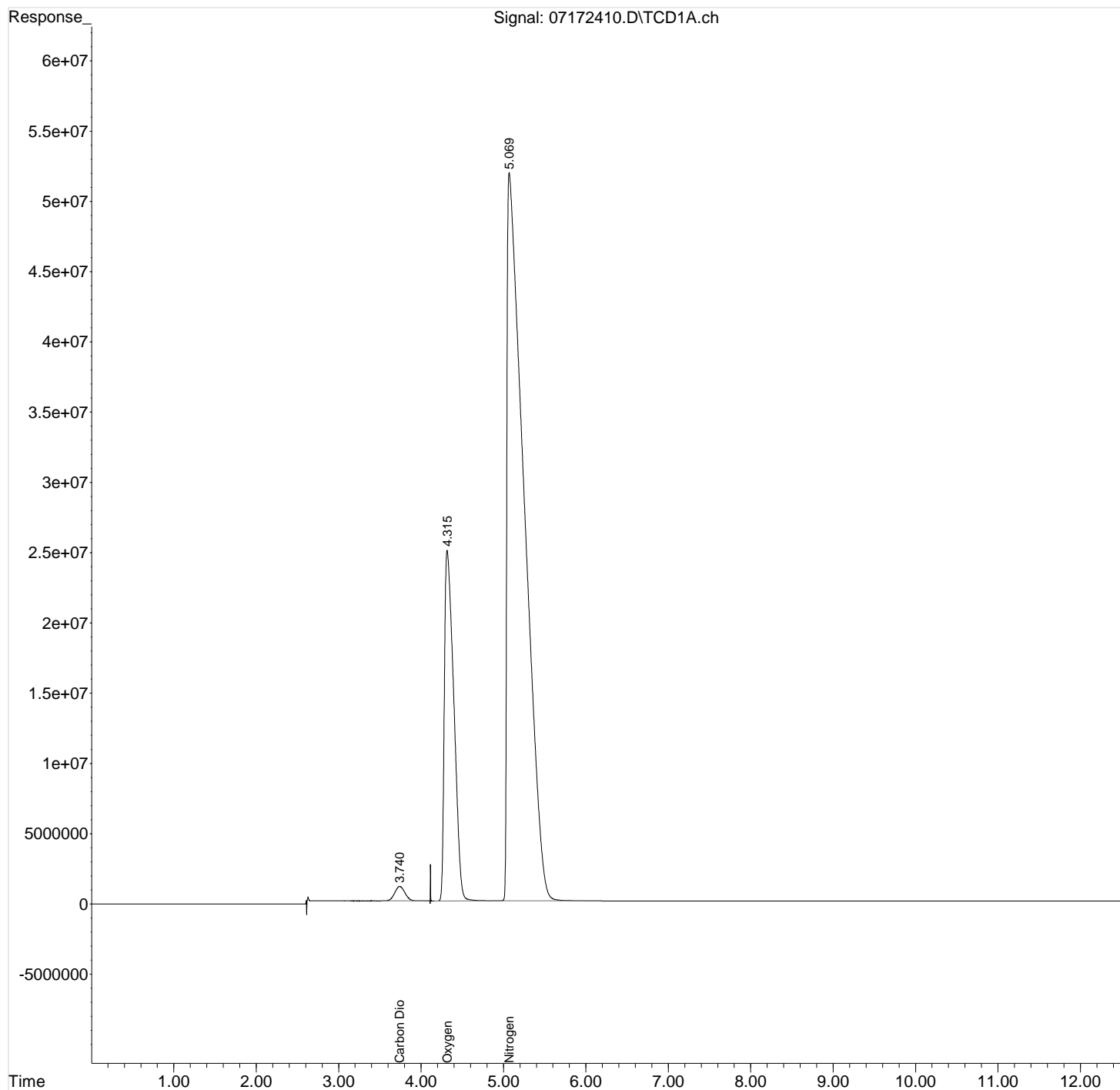
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172410.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 09:49:54
Operator : SR/BK
Sample : P2402855-002dup
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 10:03:00 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Method Path : I:\GC38\METHODS\
 Method File : C38021122.M
 Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 Last Update : Tue Mar 08 12:45:41 2022
 Response Via : Initial Calibration

Calibration Files

1	=02112202.D	2	=02112203.D	3	=02112204.D
4	=02112205.D	5	=02112206.D	6	=02112207.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Hydrogen	6.496	6.910	6.686	7.250	8.492		7.167 E6	11.05
2)	Oxygen	1.313	1.359	1.404	1.408		1.303	1.332 E8	4.84
3)	Nitrogen	1.623	1.579	1.617	1.546	1.368		1.481 E8	9.51
4)	Carbon Monoxide	1.348	1.440	1.385	1.462	1.453		1.418 E8	3.48
5)	Methane	1.025	1.082	1.054	1.110	0.982		1.039 E8	5.01
6)	Carbon Dioxide	1.551	1.643	1.644	1.736	1.637		1.624 E8	4.49

(#) = Out of Range ### Number of calibration levels exceeded format ###

C38021122.M Thu Jun 29 11:12:23 2023

Method Path : I:\GC38\METHODS\
 Method File : C38021122.M
 Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 Last Update : Tue Mar 08 12:45:41 2022
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	I:\GC38\DATA\2022_02\11\02112202.D
2	2	0	0	I:\GC38\DATA\2022_02\11\02112203.D
3	3	2	0	I:\GC38\DATA\2022_02\11\02112204.D
4	4	5	0	I:\GC38\DATA\2022_02\11\02112205.D
5	5	19	0	I:\GC38\DATA\2022_02\11\02112206.D
6	6	20	0	I:\GC38\DATA\2022_02\11\02112207.D
7	7	100	0	I:\GC38\DATA\2022_02\11\02112208.D
8	8	98	0	I:\GC38\DATA\2022_02\11\02112209.D
9	9	100	0	I:\GC38\DATA\2022_02\11\02112210.D
10	10	100	0	I:\GC38\DATA\2022_02\11\02112211.D
11	11	-1	0	I:\GC38\DATA\2022_02\11\02112214.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Feb 11 13:30 2022	Feb 11 13:21 2022	11-Feb-2022, 08:51
2	2	Feb 11 13:30 2022	Feb 11 13:21 2022	11-Feb-2022, 09:11
3	3	Feb 11 13:30 2022	Feb 11 13:21 2022	11-Feb-2022, 09:28
4	4	Feb 11 13:30 2022	Feb 11 13:21 2022	11-Feb-2022, 09:45
5	5	Feb 11 13:30 2022	Feb 11 13:27 2022	11-Feb-2022, 11:22
6	6	Feb 11 13:31 2022	Feb 11 13:28 2022	11-Feb-2022, 11:56
7	7	Feb 11 13:31 2022	Feb 11 13:28 2022	11-Feb-2022, 12:11
8	8	Feb 11 13:31 2022	Feb 11 13:29 2022	11-Feb-2022, 12:32
9	9	Feb 11 13:31 2022	Feb 11 13:29 2022	11-Feb-2022, 12:46
10	10	Feb 11 13:55 2022	Feb 11 13:54 2022	11-Feb-2022, 13:37
11	11	Feb 21 10:59 2022	Feb 11 15:40 2022	11-Feb-2022, 15:01

C38021122.M Thu Jun 29 11:10:52 2023

Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112202.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 08:51
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 1 S32-01312201
 Misc : 0.5 injection w/.5 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:21:49 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.119	649642	902.774 ppm
2) Oxygen	4.436	13134707	1079.513 ppm
3) Nitrogen	5.457	16324323	1238.227 ppm
4) Carbon Monoxide	10.832	13425735	934.901 ppm
5) Methane	7.071	10279096	984.329 ppm
6) Carbon Dioxide	3.588	15899990	968.282 ppm

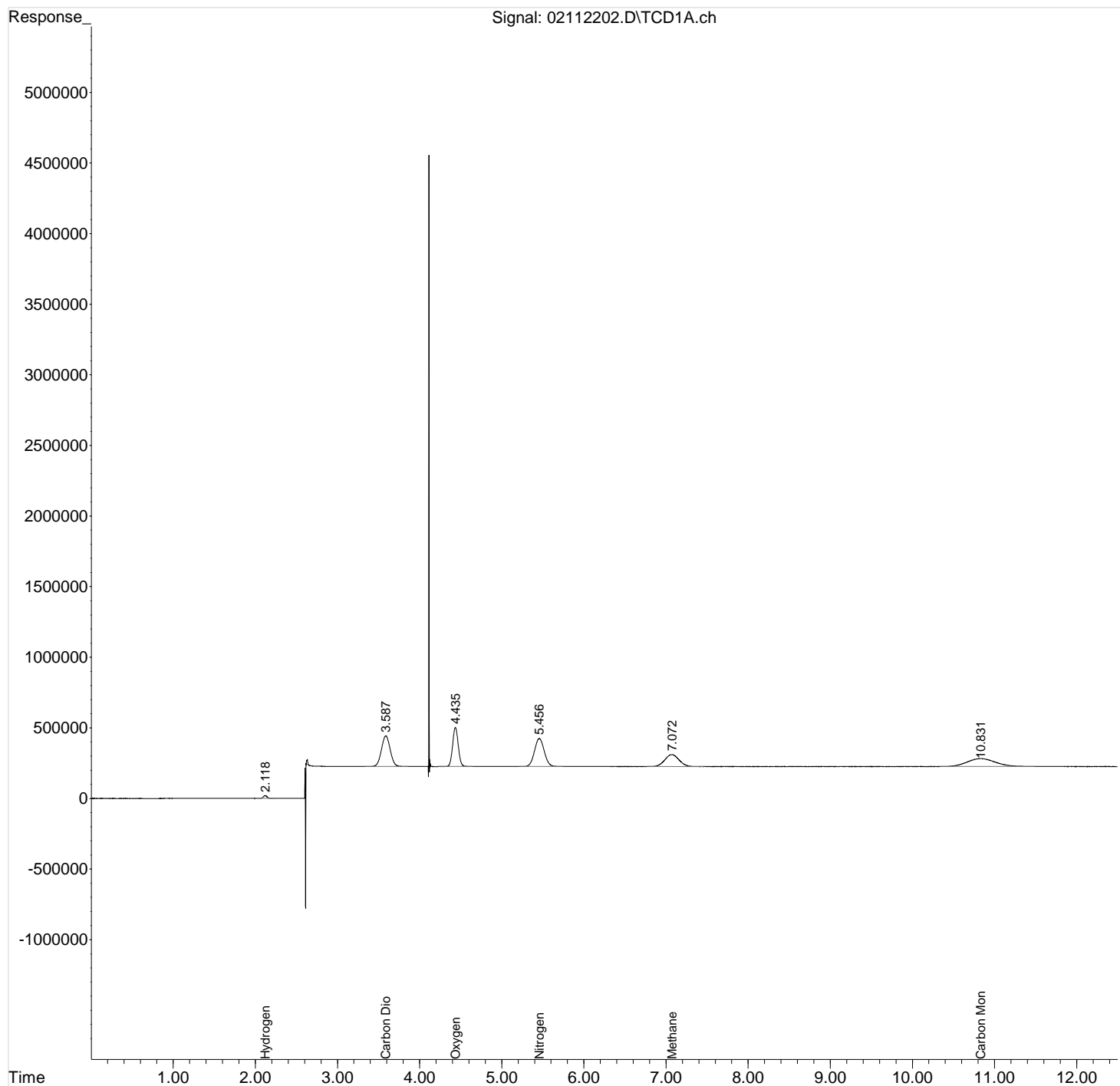
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112202.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 08:51
Operator : Chris Parnell
Sample : ICAL C38021122 Level 1 S32-01312201
Misc : 0.5 injection w/.5 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:21:49 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112203.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 09:11
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 2 S32-01312201
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:21:52 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.129	1381980	1920.467 ppm
2) Oxygen	4.444	27175857	2233.524 ppm
3) Nitrogen	5.466	31745981	2407.985 ppm
4) Carbon Monoxide	10.833	28678422	1997.022 ppm
5) Methane	7.079	21691822	2077.214 ppm
6) Carbon Dioxide	3.588	33673927	2050.685 ppm

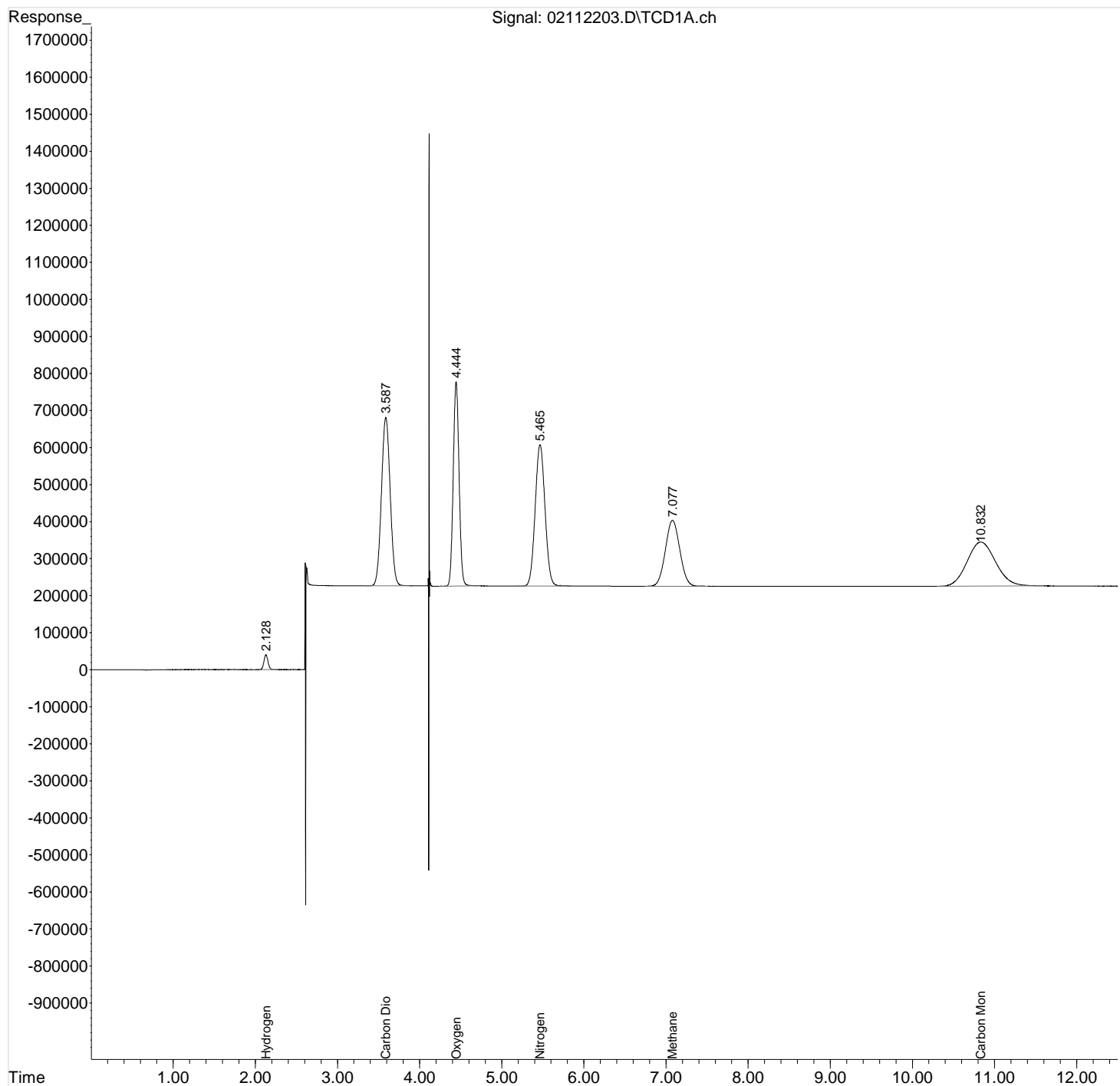
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112203.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 09:11
Operator : Chris Parnell
Sample : ICAL C38021122 Level 2 S32-01312201
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:21:52 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112204.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 09:28
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 3 S32-01312205
 Misc : 0.5 injection w/.5 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:21:55 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.113	13772382	19138.780 ppm
2) Oxygen	4.416	174858879	14371.269 ppm
3) Nitrogen	5.422	391291236	29680.083 ppm
4) Carbon Monoxide	10.747	356694512	24838.427 ppm
5) Methane	7.039	209160596	20029.272 ppm
6) Carbon Dioxide	3.542	394554277	24027.684 ppm

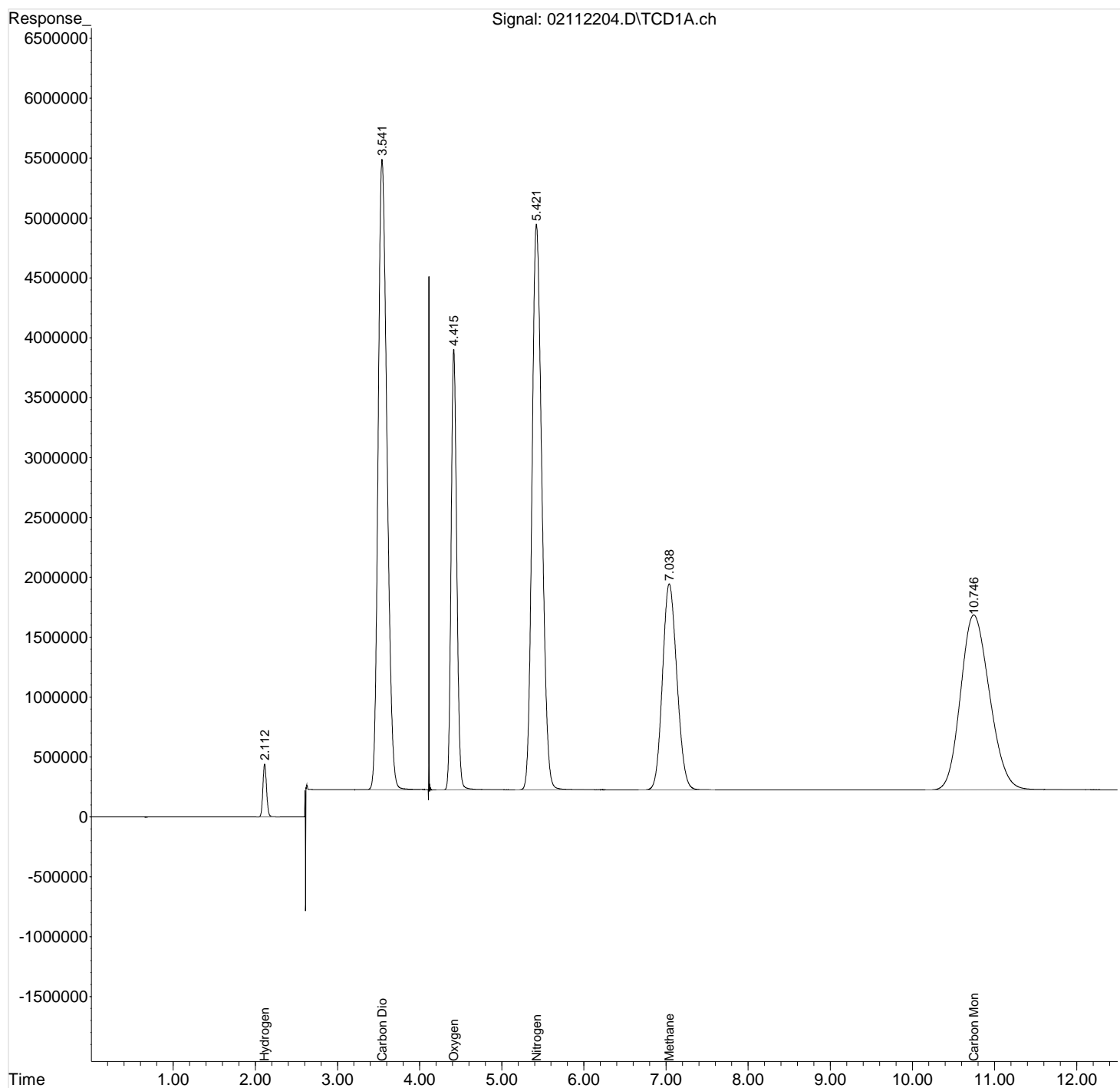
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112204.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 09:28
Operator : Chris Parnell
Sample : ICAL C38021122 Level 3 S32-01312205
Misc : 0.5 injection w/.5 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:21:55 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112205.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 09:45
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 4 S32-01312205
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:21:58 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.118	29898443	41548.347 ppm
2) Oxygen	4.411	350553853	28811.254 ppm
3) Nitrogen	5.404	748173325	56750.176 ppm
4) Carbon Monoxide	10.688	753331824	52458.270 ppm
5) Methane	7.019	440673278	42198.986 ppm
6) Carbon Dioxide	3.522	833023183	50729.694 ppm

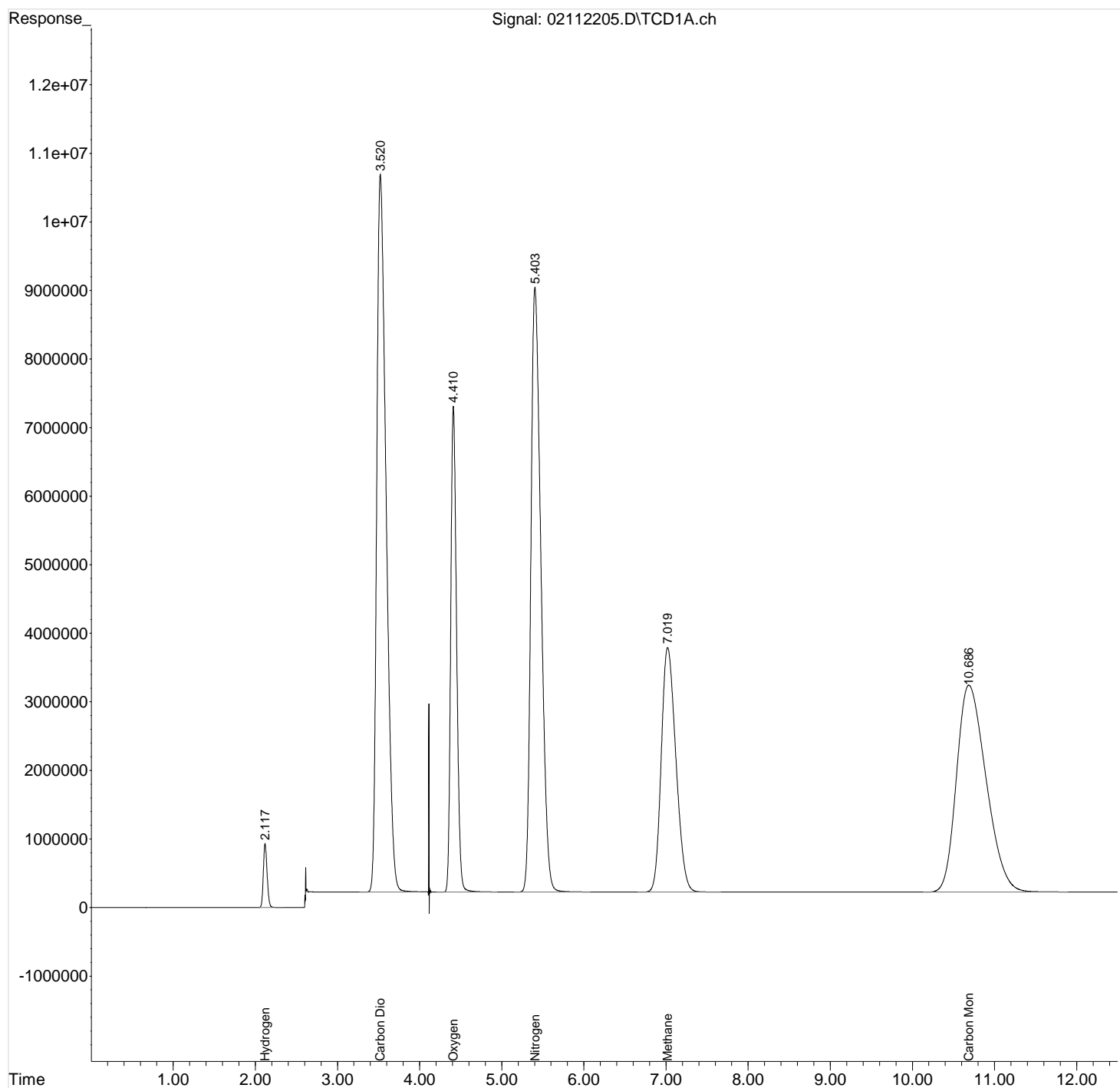
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112205.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 09:45
Operator : Chris Parnell
Sample : ICAL C38021122 Level 4 S32-01312205
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:21:58 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112206.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 11:22
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 5 S32-10262101
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:27:57 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.071	167552525	232839.234 ppm
2) Oxygen	0.000	0	N.D. ppm d
3) Nitrogen	5.256	2926946484	222013.701 ppm
4) Carbon Monoxide	10.382	2790323132	194304.184 ppm
5) Methane	6.837	2008199827	192305.730 ppm
6) Carbon Dioxide	3.394	3146306050	191604.685 ppm

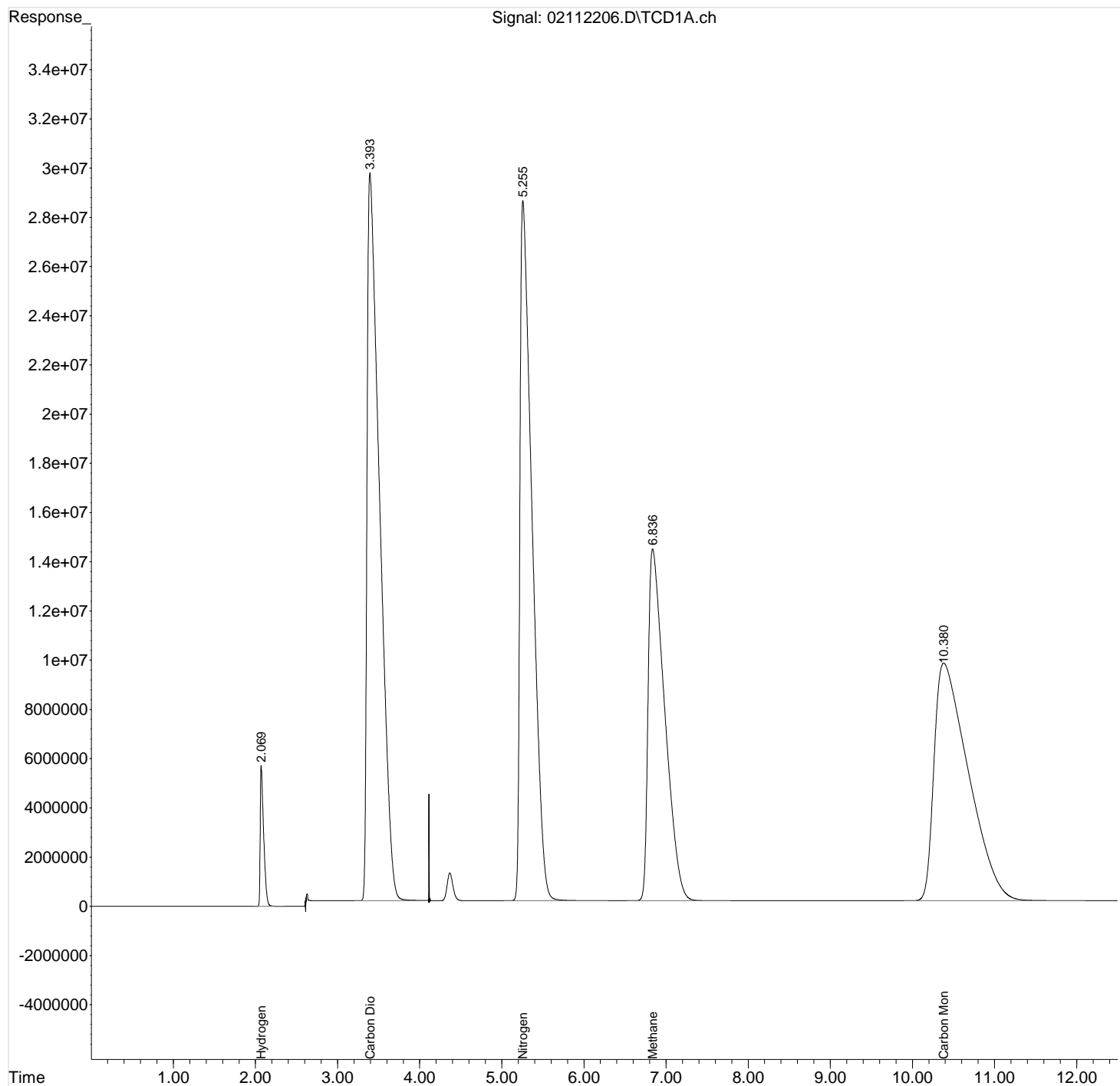
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112206.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 11:22
Operator : Chris Parnell
Sample : ICAL C38021122 Level 5 S32-10262101
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:27:57 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112207.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 11:56
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 6 S32-10192105
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:28:27 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	4.348	2583024173	212293.104 ppm
3) Nitrogen	0.000	0	N.D. ppm d
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	0.000	0	N.D. ppm d

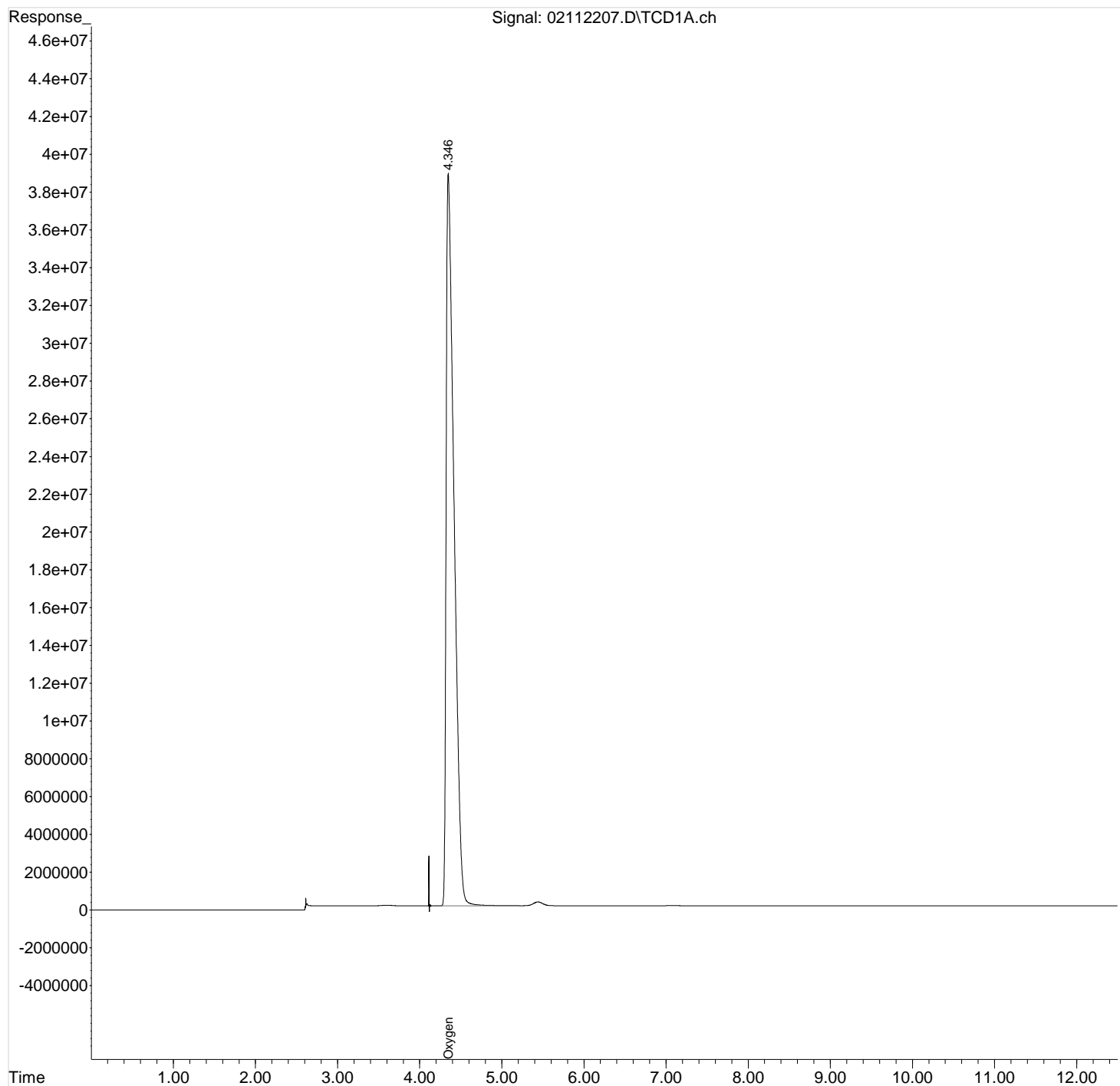
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112207.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 11:56
Operator : Chris Parnell
Sample : ICAL C38021122 Level 6 S32-10192105
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:28:27 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112208.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 12:11
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 7 S32-10202101
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:28:48 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Hydrogen	0.000	0	N.D.	ppm
2) Oxygen	0.000	0	N.D.	ppm d
3) Nitrogen	0.000	0	N.D.	ppm d
4) Carbon Monoxide	0.000	0	N.D.	ppm
5) Methane	6.439f	9749957526	933658.430	ppm
6) Carbon Dioxide	0.000	0	N.D.	ppm

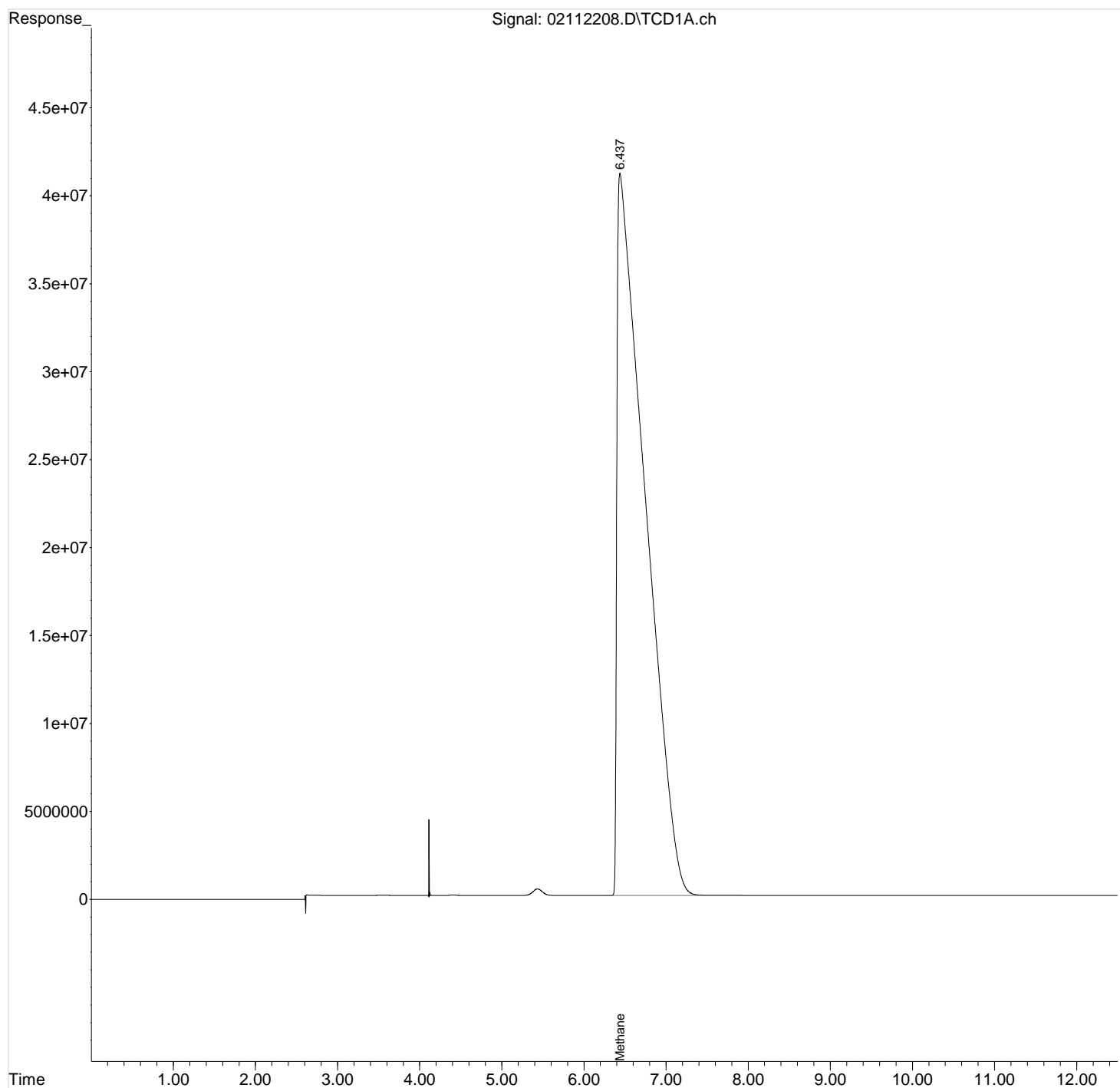
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112208.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 12:11
Operator : Chris Parnell
Sample : ICAL C38021122 Level 7 S32-10202101
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:28:48 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112209.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 12:32
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 8 S32-09292102
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:29:06 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Hydrogen	0.000	0	N.D.	ppm
2) Oxygen	0.000	0	N.D.	ppm d
3) Nitrogen	0.000	0	N.D.	ppm d
4) Carbon Monoxide	0.000	0	N.D.	ppm
5) Methane	0.000	0	N.D.	ppm
6) Carbon Dioxide	3.098	15048506984	916428.469	ppm

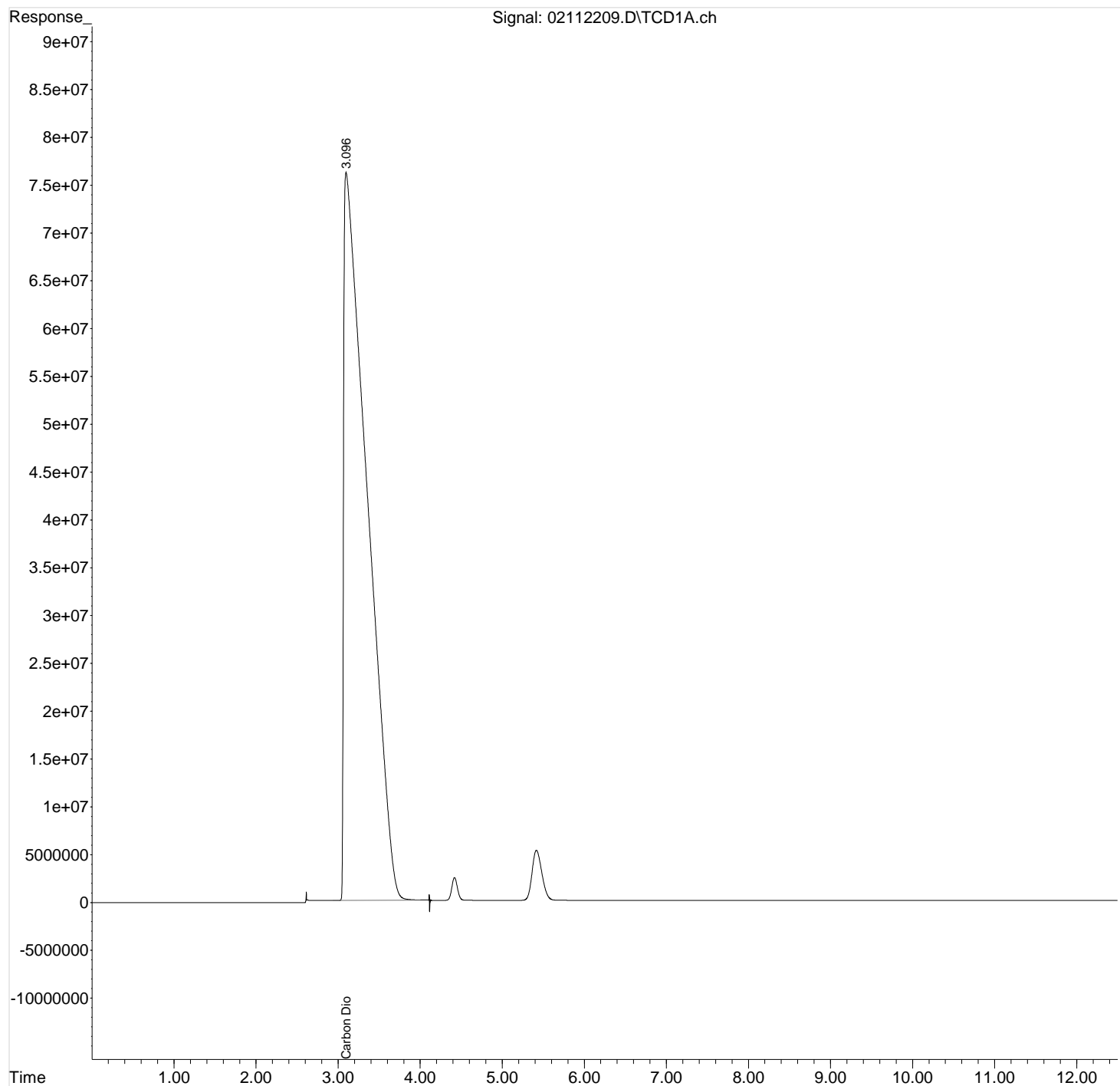
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112209.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 12:32
Operator : Chris Parnell
Sample : ICAL C38021122 Level 8 S32-09292102
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:29:06 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112210.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 12:46
 Operator : Chris Parnell
 Sample : ICAL C38021122 Level 9 N2
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Feb 11 14:29:29 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Thu Feb 10 15:39:25 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	0.000	0	N.D. ppm d
3) Nitrogen	5.022f	13129497105	995893.931 ppm
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	0.000	0	N.D. ppm

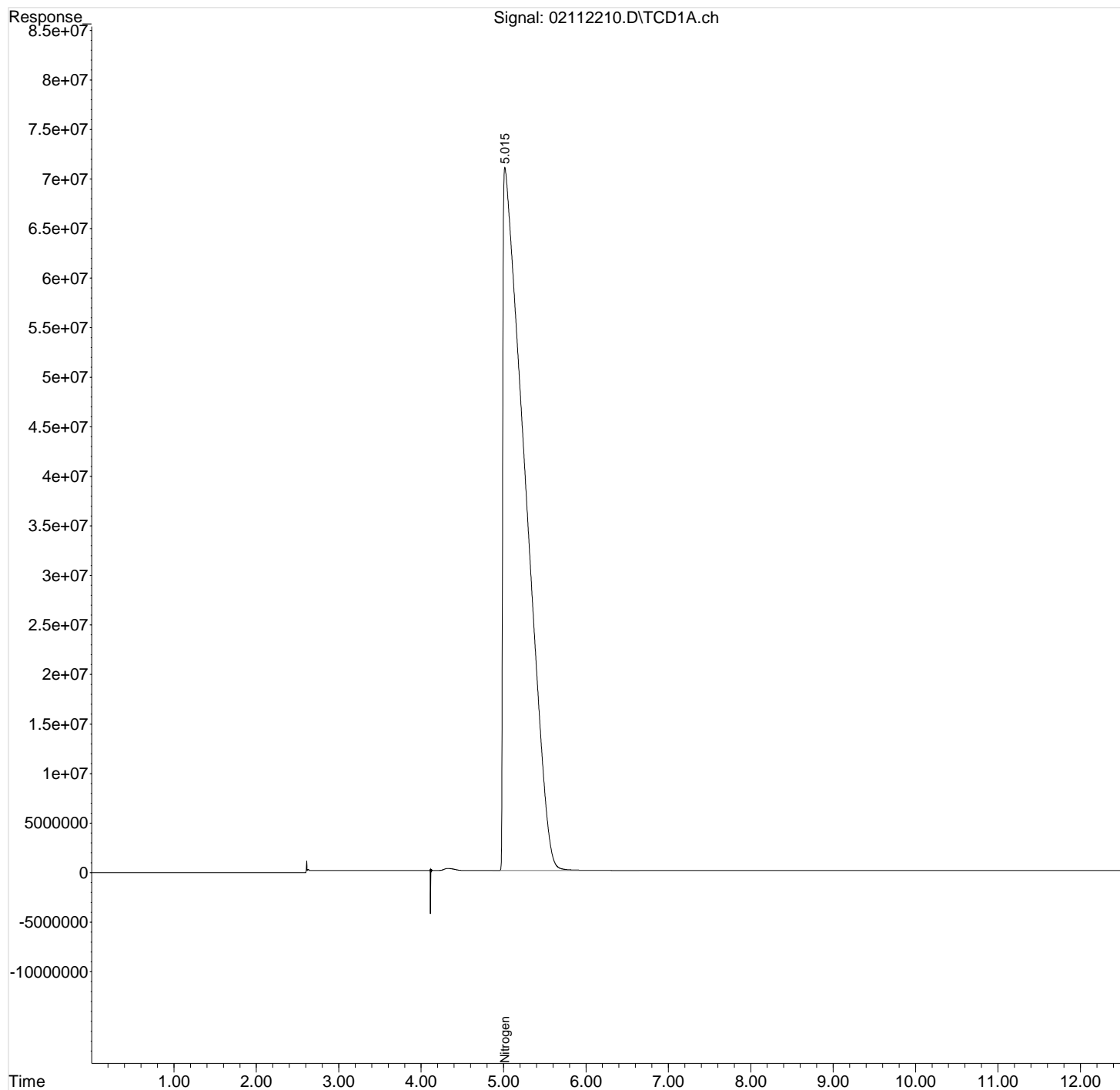
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112210.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 12:46
Operator : Chris Parnell
Sample : ICAL C38021122 Level 9 N2
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:29:29 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Thu Feb 10 15:39:25 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112211.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 13:37
Operator : Chris Parnell
Sample : ICAL C38021122 Level 10 O2
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:54:39 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Fri Feb 11 13:31:58 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	0.000	0	N.D. ppm
2) Oxygen	4.186f	12244414434	1007844.084 ppm
3) Nitrogen	0.000	0	N.D. ppm d
4) Carbon Monoxide	0.000	0	N.D. ppm
5) Methane	0.000	0	N.D. ppm
6) Carbon Dioxide	0.000	0	N.D. ppm d

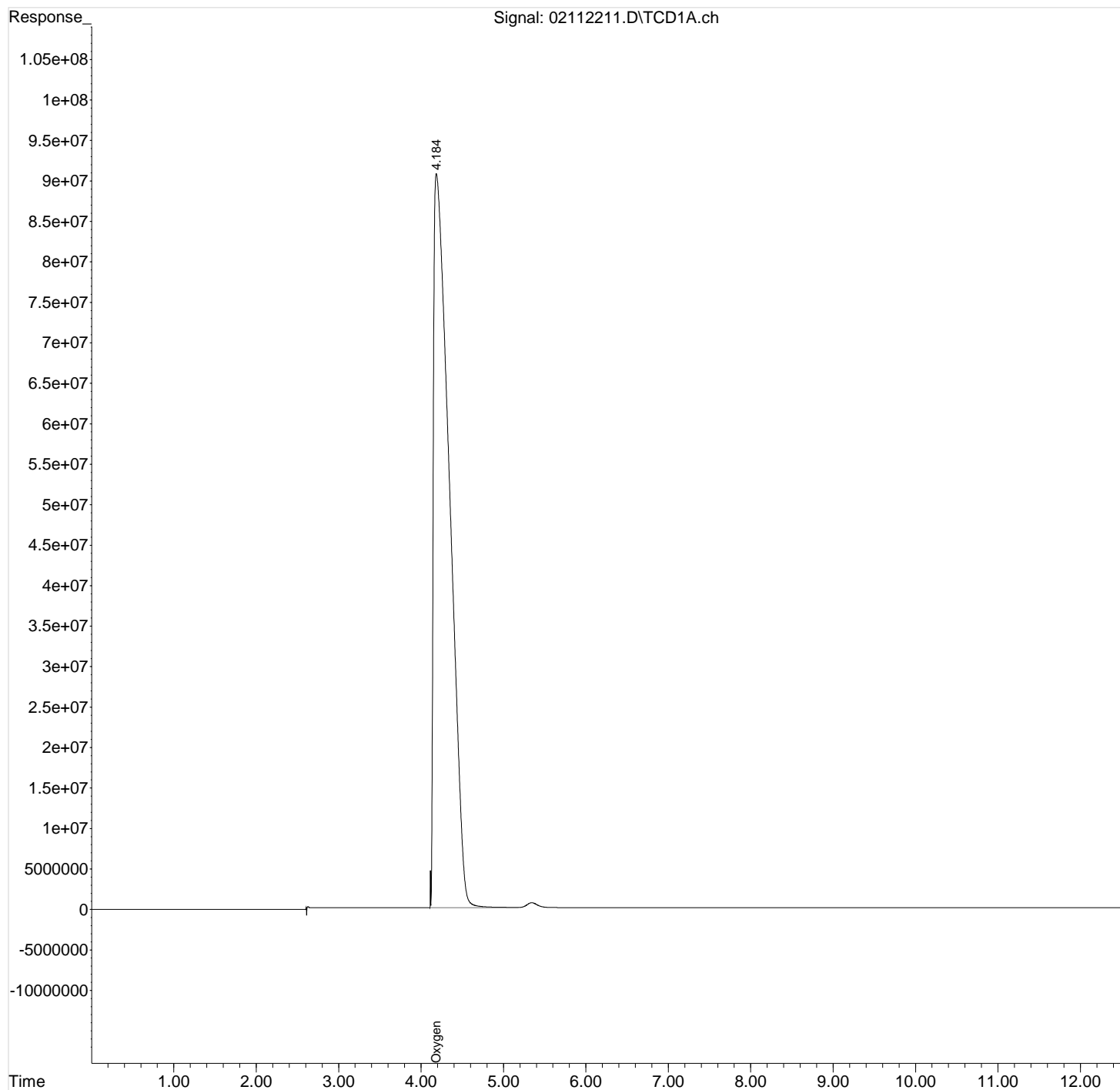
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112211.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 13:37
Operator : Chris Parnell
Sample : ICAL C38021122 Level 10 O2
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Feb 11 14:54:39 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Fri Feb 11 13:31:58 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112213.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 14:19
Operator : Chris Parnell
Sample : ICAL C38021122 ICV S32-01312206
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Mar 08 13:39:40 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Mar 02 15:08:17 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	Hydrogen	4.124	4.049	1.8	97	0.02
2	Oxygen	2.490	2.574	-3.4	98	0.07
3	Nitrogen	4.840	5.131	-6.0	98	0.44#
4	Carbon Monoxide	5.151	5.138	0.3	97	2.56#
5	Methane	3.970	4.101	-3.3	97	0.28
6	Carbon Dioxide	4.799	4.982	-3.8	97	-0.04

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

C38021122.M Thu Jun 29 11:21:47 2023

Data Path : I:\GC38\DATA\2022_02\11\
 Data File : 02112213.D
 Signal(s) : TCD1A.ch
 Acq On : 11-Feb-2022, 14:19
 Operator : Chris Parnell
 Sample : ICAL C38021122 ICV S32-01312206
 Misc : 1.0 injection w/1 loop
 ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
 Quant Time: Mar 08 13:39:40 2022
 Quant Method : I:\GC38\METHODS\C38021122.M
 Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
 QLast Update : Wed Mar 02 15:08:17 2022
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 100ul
 Signal Phase : CarboSieve Packed Column
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.117	29018544	40490.154 ppm
2) Oxygen	4.410	343782768	25739.435 ppm
3) Nitrogen	5.404	736463885	51306.703 ppm
4) Carbon Monoxide	10.691	728496749	51383.343 ppm
5) Methane	7.020	426325304	41013.821 ppm
6) Carbon Dioxide	3.531	809243552	49818.970 ppm

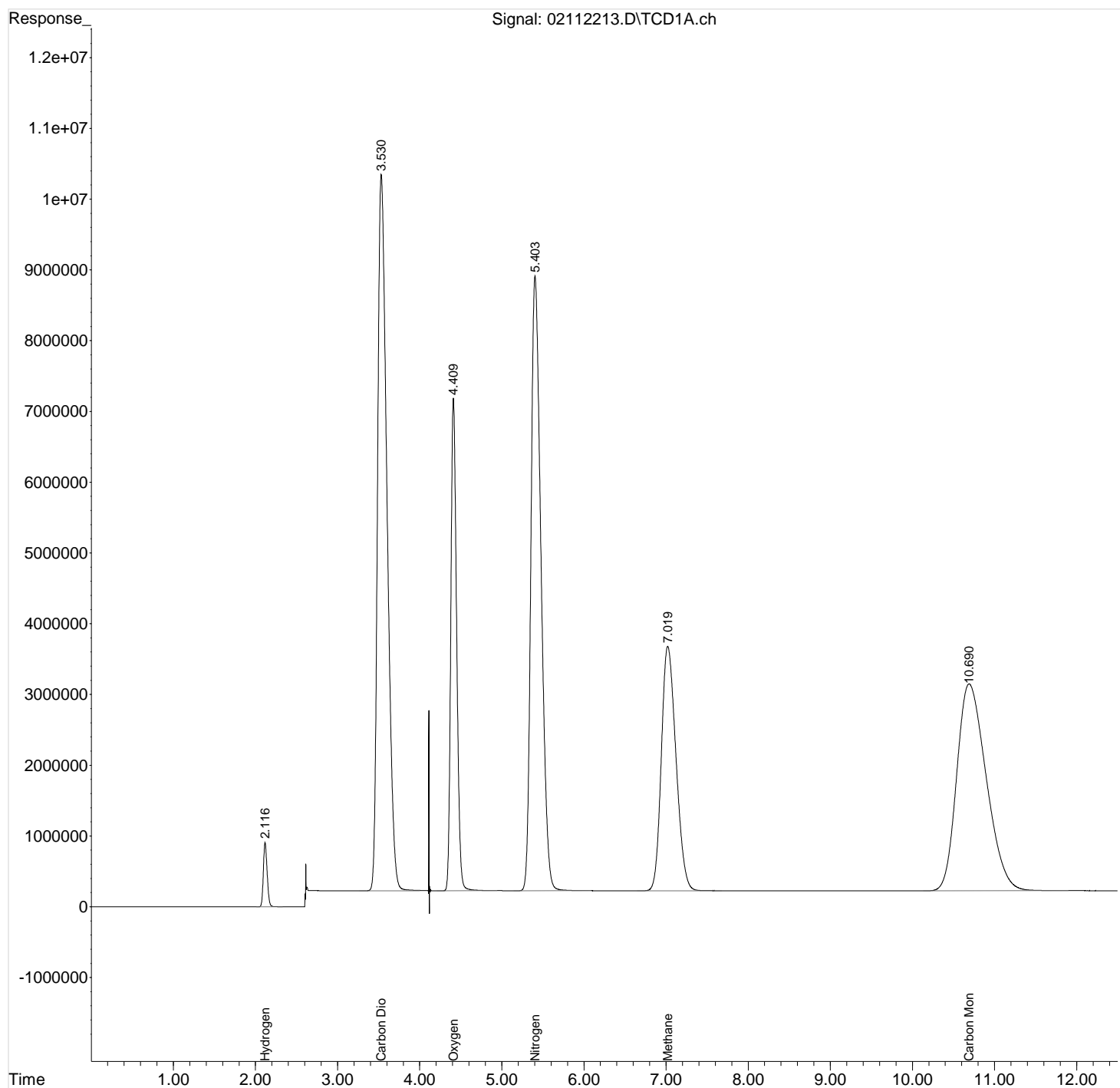
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2022_02\11\
Data File : 02112213.D
Signal(s) : TCD1A.ch
Acq On : 11-Feb-2022, 14:19
Operator : Chris Parnell
Sample : ICAL C38021122 ICV S32-01312206
Misc : 1.0 injection w/1 loop
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Mar 08 13:39:40 2022
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Mar 02 15:08:17 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Modified EPA Method 3C Daily QC Summary

Client : SQ Environmental, LLC
Analyst : SR/BK
Method Name : EPA 3C, ASTM D 1946-90, VOA-EPA3C

Instrument : GC38
Date Analyzed : 7/17/2024

RT Summaries and QC Check (minutes)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ICAL Mean RT	2.121	4.409	5.343	10.218	6.996	3.582		
RT Windows (+/- min)	0.330	0.330	0.330	0.330	0.330	0.330		
STD S33-05222401	2.114	4.403	5.334	10.190	6.993	3.688	07172402.D	07:45
+/- 0.33min of ICAL Mean RT	Pass	Pass	Pass	Pass	Pass	Pass		
MB STD00251		4.439 Pass	5.395 Pass			3.758 Pass	07172403.D	08:00
Lab Air		4.269 Pass	4.991 Fail			3.743 Pass	07172404.D	08:16
LCS S33-07272202	2.113 Pass	4.404 Pass	5.336 Pass	10.192 Pass	6.992 Pass	3.678 Pass	07172405.D	08:34
LCSD S33-07272202	2.113 Pass	4.403 Pass	5.336 Pass	10.190 Pass	6.991 Pass	3.677 Pass	07172406.D	08:52
P2402855-001		4.337 Pass	5.084 Pass			3.685 Pass	07172408.D	09:22
P2402855-002		4.317 Pass	5.071 Pass			3.741 Pass	07172409.D	09:36
P2402855-002dup		4.317 Pass	5.071 Pass			3.741 Pass	07172410.D	09:49
STD S33-05222401	2.113 Pass	4.402 Pass	5.332 Pass	10.186 Pass	6.989 Pass	3.675 Pass	07172417.D	12:16

Continuing Calibration Standards Summary (ppm)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ACTUAL	40300.0	24900.0	49700.0	50400.0	40300.0	50400.0		
CCV Criteria (+/- %D)	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%		
STD S33-05222401	43005.3 6.7%	25166.4 1.1%	49848.7 0.3%	50496.8 0.2%	39334.1 2.4%	51186.8 1.6%	07172402.D	07:45
STD S33-05222401	44601.7 10.7%	25591.2 2.8%	50673.6 2.0%	52052.1 3.3%	40754.2 1.1%	53845.6 6.8%	07172417.D	12:16

Lab Dup Summary (ppm, without DF correction and normalization)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
Duplicate Criteria % RPD	5%	5%	5%	5%	5%	5%		
P2402855-002		150940.3	546562.4			5597.8	07172409.D	09:36
P2402855-002dup		150426.5	545914.0			5463.0	07172410.D	09:49
Duplicate % RPD		0.3% Pass	0.1% Pass			2.4% Pass		

LCS / LCS Dup Summary (ppm, without DF correction)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
LCS Actual Conc. (ppm)	39700.0	25100.0	49800.0	49600.0	40000.0	49600.0		
LCS Criteria (% Range)	96%-117%	92%-112%	89%-113%	96%-113%	95%-111%	93%-112%		
LCS S33-07272202	42864.0	23757.2	46960.7	49630.8	39104.0	53182.6	07172405.D	08:34
LCS % Recovery	108% Pass	95% Pass	94% Pass	100% Pass	98% Pass	107% Pass		
LCSD S33-07272202	43558.0	24013.6	47488.0	50328.8	39670.7	54201.8	07172406.D	08:52
LCS % Recovery	110% Pass	96% Pass	95% Pass	101% Pass	99% Pass	109% Pass		
Duplicate % RPD	1.6%	1.1%	1.1%	1.4%	1.4%	1.9%		
Duplicate Criteria % RPD	5% Pass	7% Pass	7% Pass	5% Pass	5% Pass	6% Pass		

Lab Air QC Summary

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	Lab Air Criteria Total (90%-110%)
Lab Air		220869.6	779031.5			556.6	100.0% Pass
Lab Air Normalized (%)		22.07%	77.86%			0.06%	100.0%

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172402.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 07:45:17
Operator : SR/BK
Sample : STD S33-05222401
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 07:59:07 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.114	30821109	43005.309 ppm
2) Oxygen	4.403	336145731	25166.402 ppm
3) Nitrogen	5.334	715636629	49848.692 ppm
4) Carbon Monoxide	10.190	715928249	50496.844 ppm
5) Methane	6.993	408865333	39334.117 ppm
6) Carbon Dioxide	3.688	831462063	51186.795 ppm

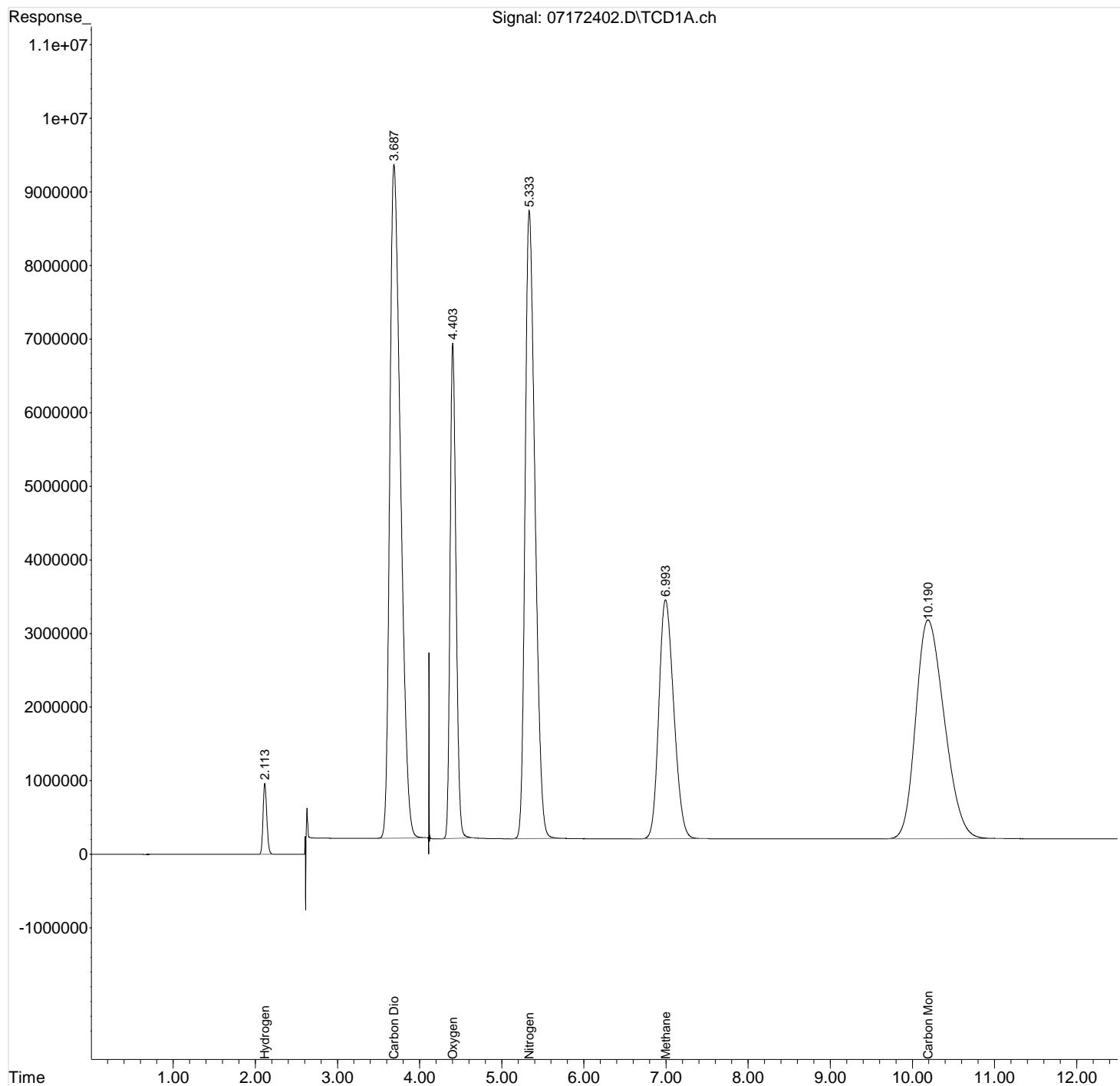
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172402.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 07:45:17
Operator : SR/BK
Sample : STD S33-05222401
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 07:59:07 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172417.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 12:16:17
Operator : SR/BK
Sample : STD S33-05222401
Misc :
ALS Vial : 1 Sample Multiplier: 10000

SR 07/17/24

Integration File: epa3c.e
Quant Time: Jul 17 12:49:52 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Hydrogen	2.113	31965231	44601.725 ppm
2) Oxygen	4.402	341806905	25591.174 ppm
3) Nitrogen	5.332	727420804	50673.591 ppm
4) Carbon Monoxide	10.186	737977569	52052.057 ppm
5) Methane	6.989	423626826	40754.219 ppm
6) Carbon Dioxide	3.675	874651158	53845.619 ppm

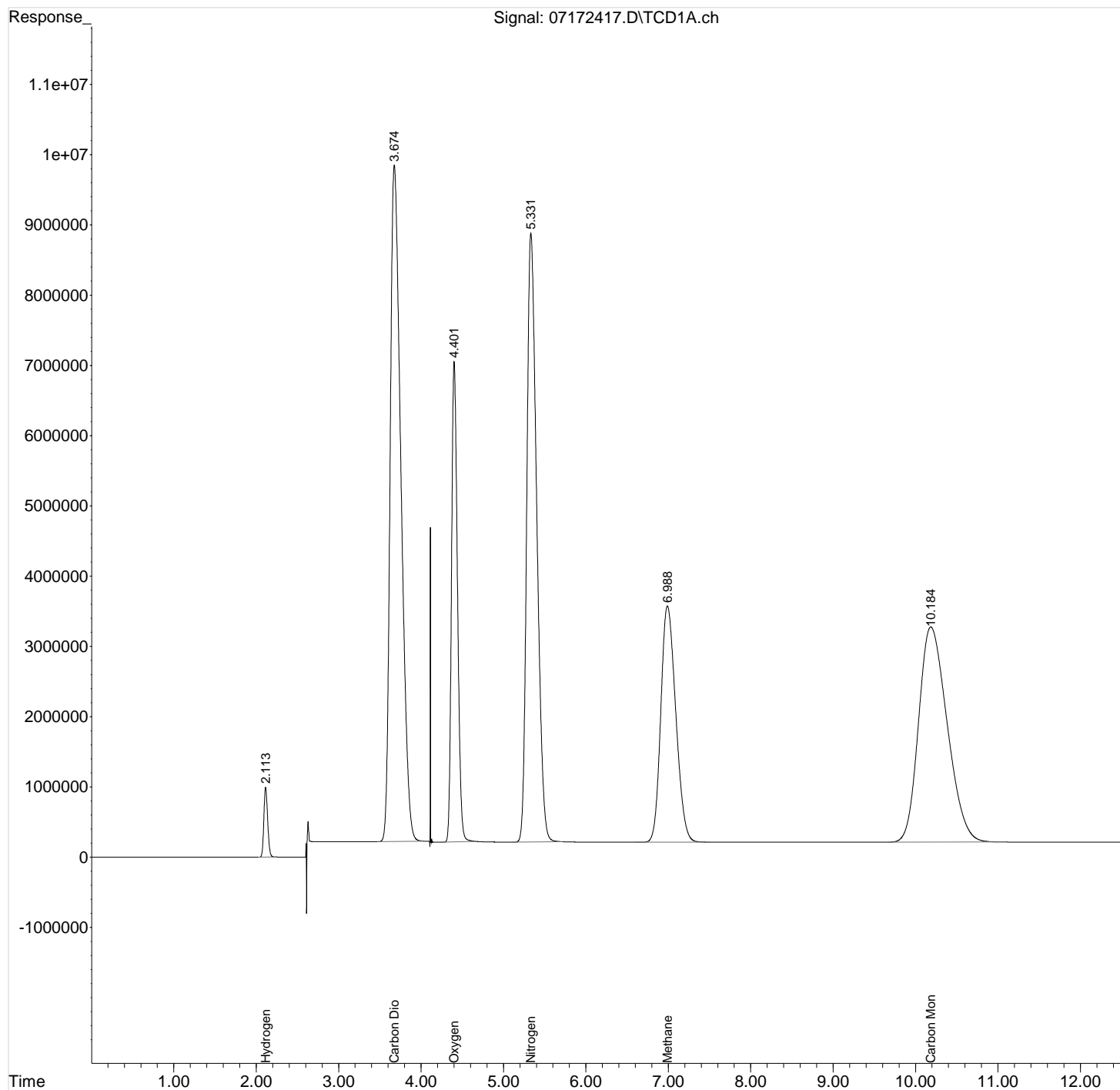
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC38\DATA\2024_07\17\
Data File : 07172417.D
Signal(s) : TCD1A.ch
Acq On : 17-Jul-2024, 12:16:17
Operator : SR/BK
Sample : STD S33-05222401
Misc :
ALS Vial : 1 Sample Multiplier: 10000

Integration File: epa3c.e
Quant Time: Jul 17 12:49:52 2024
Quant Method : I:\GC38\METHODS\C38021122.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Mar 08 12:45:41 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Injection Log

Directory: I:\GC38\DATA\2022_02\11\

[illegible]

Injection Log

Directory: I:\GC38\DATA\2024_07\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	17-Jul-2024, 07:45:17	07172402.D	STD S33-05222401		SR/BK	EPA Method 3C.M	Pass
2	17-Jul-2024, 08:00:43	07172403.D	MB STD00251		SR/BK	EPA Method 3C.M	Pass
3	17-Jul-2024, 08:16:50	07172404.D	Lab Air		SR/BK	EPA Method 3C.M	Pass
4	17-Jul-2024, 08:34:39	07172405.D	LCS S33-07272202		SR/BK	EPA Method 3C.M	Pass
5	17-Jul-2024, 08:52:28	07172406.D	LCSD S33-07272202		SR/BK	EPA Method 3C.M	Pass
6	17-Jul-2024, 09:08:47	07172407.D	P2402888-001		SR/BK	EPA Method 3C.M	
7	17-Jul-2024, 09:22:44	07172408.D	P2402855-001		SR/BK	EPA Method 3C.M	
8	17-Jul-2024, 09:36:53	07172409.D	P2402855-002		SR/BK	EPA Method 3C.M	
9	17-Jul-2024, 09:49:54	07172410.D	P2402855-002dup		SR/BK	EPA Method 3C.M	
10	17-Jul-2024, 10:05:07	07172411.D	P2402891-001		SR/BK	EPA Method 3C.M	
11	17-Jul-2024, 10:19:10	07172412.D	P2402857-001		SR/BK	EPA Method 3C.M	
12	17-Jul-2024, 11:04:44	07172413.D	P2402871-001		SR/BK	EPA Method 3C.M	
13	17-Jul-2024, 11:29:16	07172414.D	P2402871-002		SR/BK	EPA Method 3C.M	
14	17-Jul-2024, 11:44:54	07172415.D	P2402871-003		SR/BK	EPA Method 3C.M	
15	17-Jul-2024, 12:02:06	07172416.D	P2402878-001		SR/BK	EPA Method 3C.M	
16	17-Jul-2024, 12:16:17	07172417.D	STD S33-05222401		SR/BK	EPA Method 3C.M	Pass
17	17-Jul-2024, 12:55:20	07172418.D	P2402883-001		SR/BK	EPA Method 3C.M	
18	17-Jul-2024, 13:09:01	07172419.D	P2402883-002		SR/BK	EPA Method 3C.M	
19	17-Jul-2024, 13:21:51	07172420.D	P2402883-003		SR/BK	EPA Method 3C.M	
20	17-Jul-2024, 13:36:03	07172421.D	P2402883-004		SR/BK	EPA Method 3C.M	
21	17-Jul-2024, 13:49:34	07172422.D	P2402883-005		SR/BK	EPA Method 3C.M	
22	17-Jul-2024, 14:04:48	07172423.D	P2402883-006		SR/BK	EPA Method 3C.M	
23	17-Jul-2024, 14:18:15	07172424.D	P2402883-007		SR/BK	EPA Method 3C.M	
24	17-Jul-2024, 14:31:54	07172425.D	STD S33-05222401		SR/BK	EPA Method 3C.M	Pass

Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162407.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 9:42
 Operator : GG
 Sample : P2402855-001 1.0ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 17 08:42:57 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target	Compounds				
1) Z	Hydrogen_Sulfide	1.018	167234	3.492 ppb	m
2) W	Carbonyl_Sulfide	1.322	141956	2.573 ppb	m
3) T	Methyl_Mercaptan	0.000	0	N.D.	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	3.973	99669	1.101 ppb	m
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

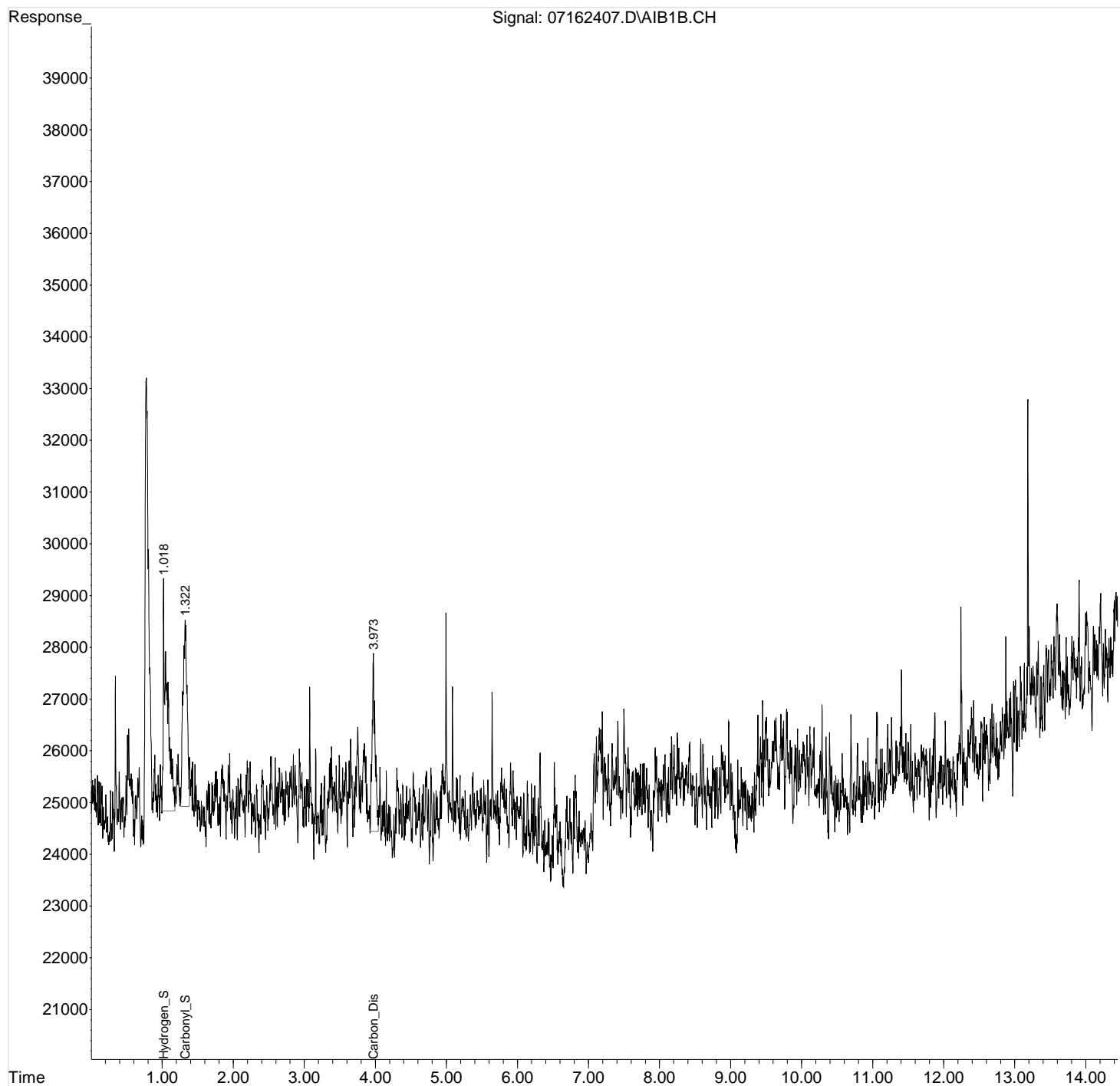
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 08:42:57 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

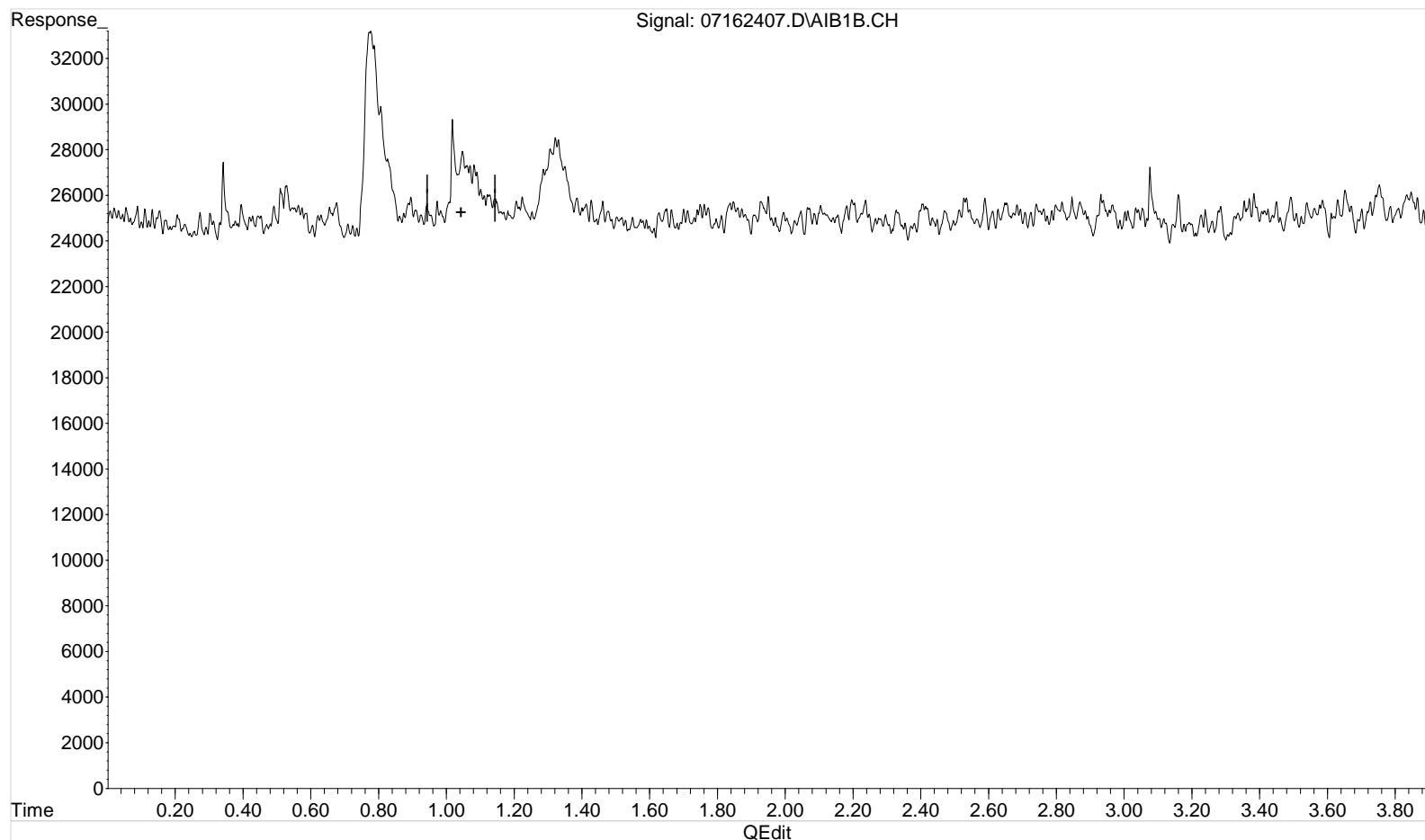
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen_Sulfide (Z)

1.043min 0.000 ppb

response 0

Manual Integration:

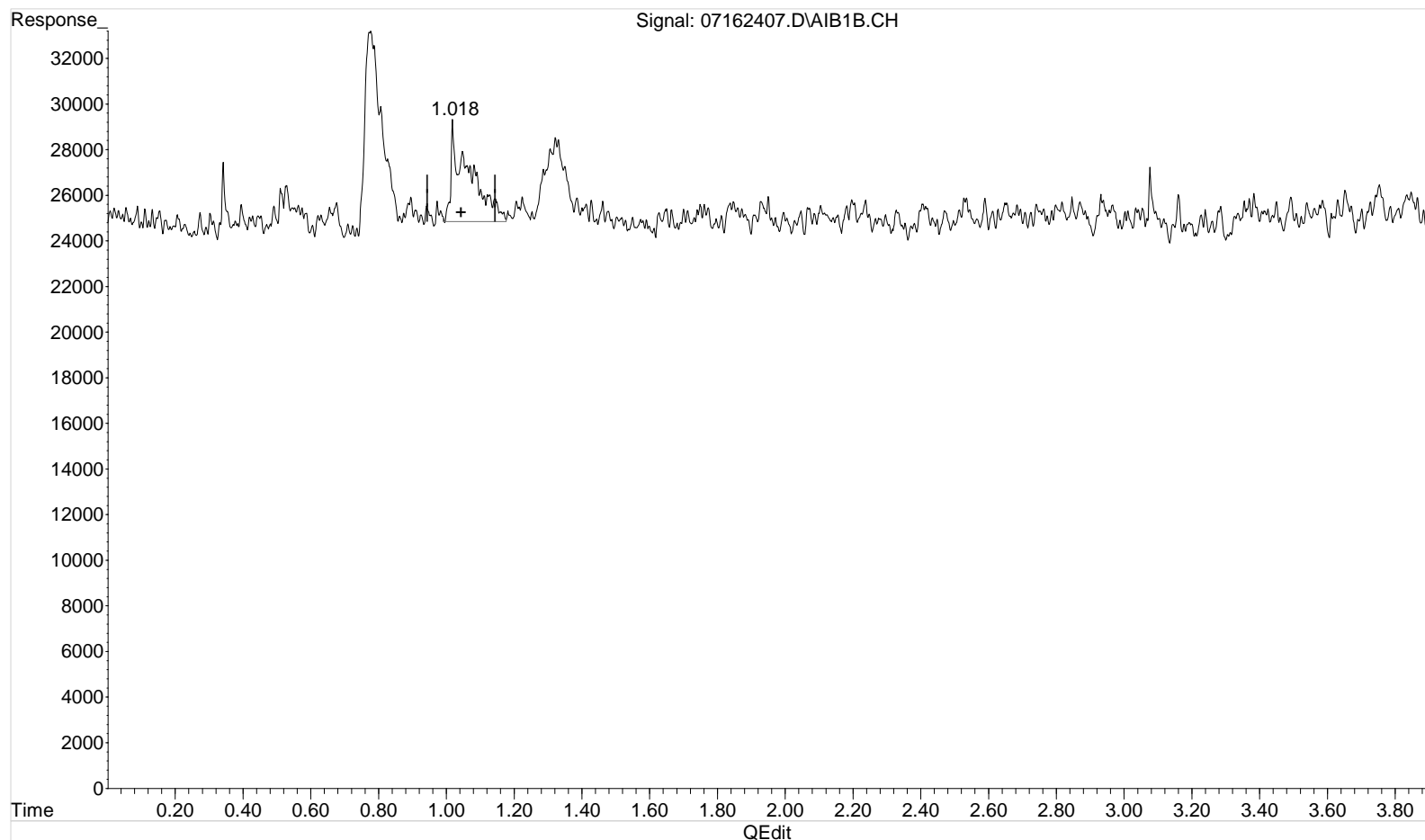
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen_Sulfide (Z)

1.018min 3.492 ppb m

response 167234

Manual Integration:

After

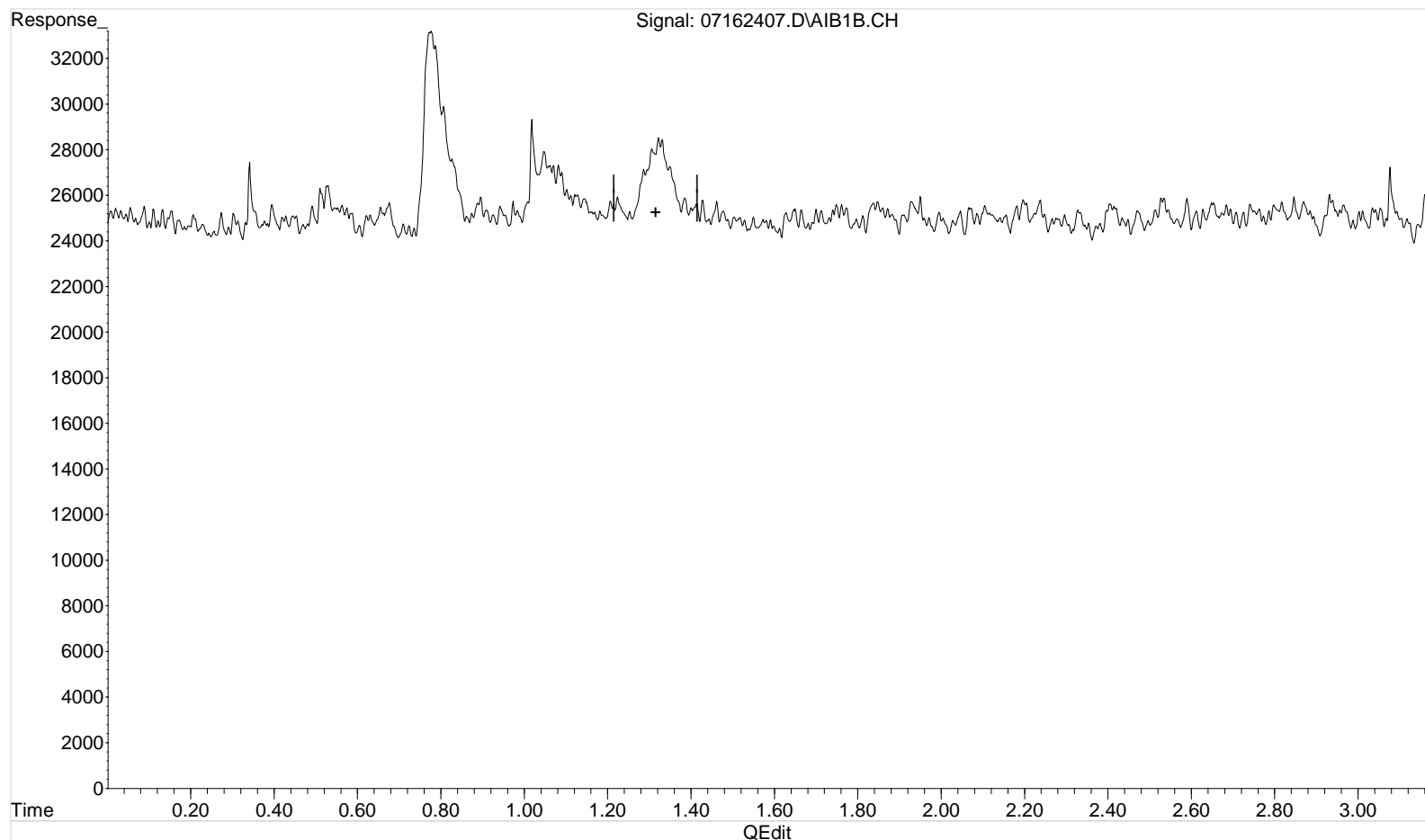
MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.315min 0.000 ppb

response 0

Manual Integration:

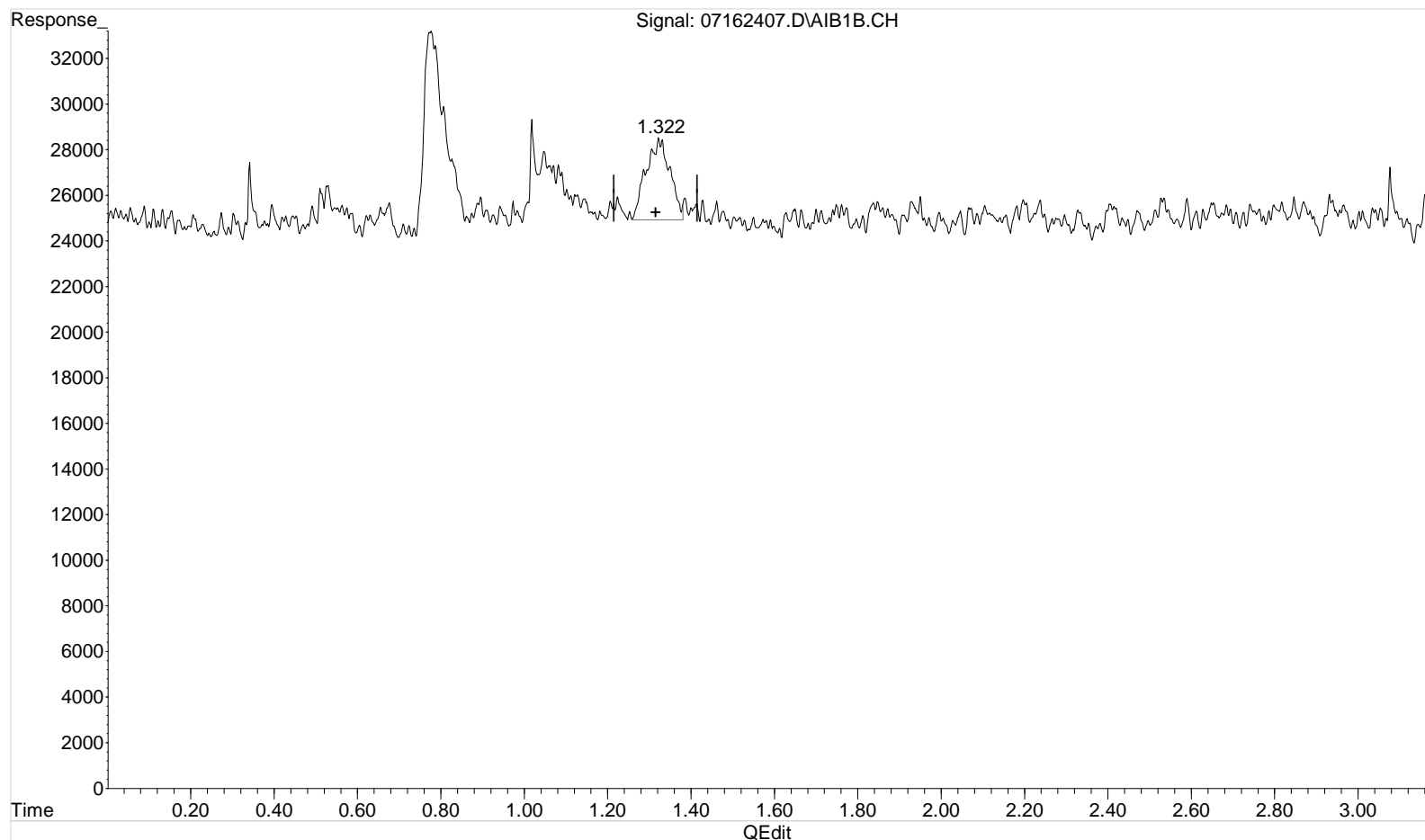
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.322min 2.573 ppb m

response 141956

Manual Integration:

After

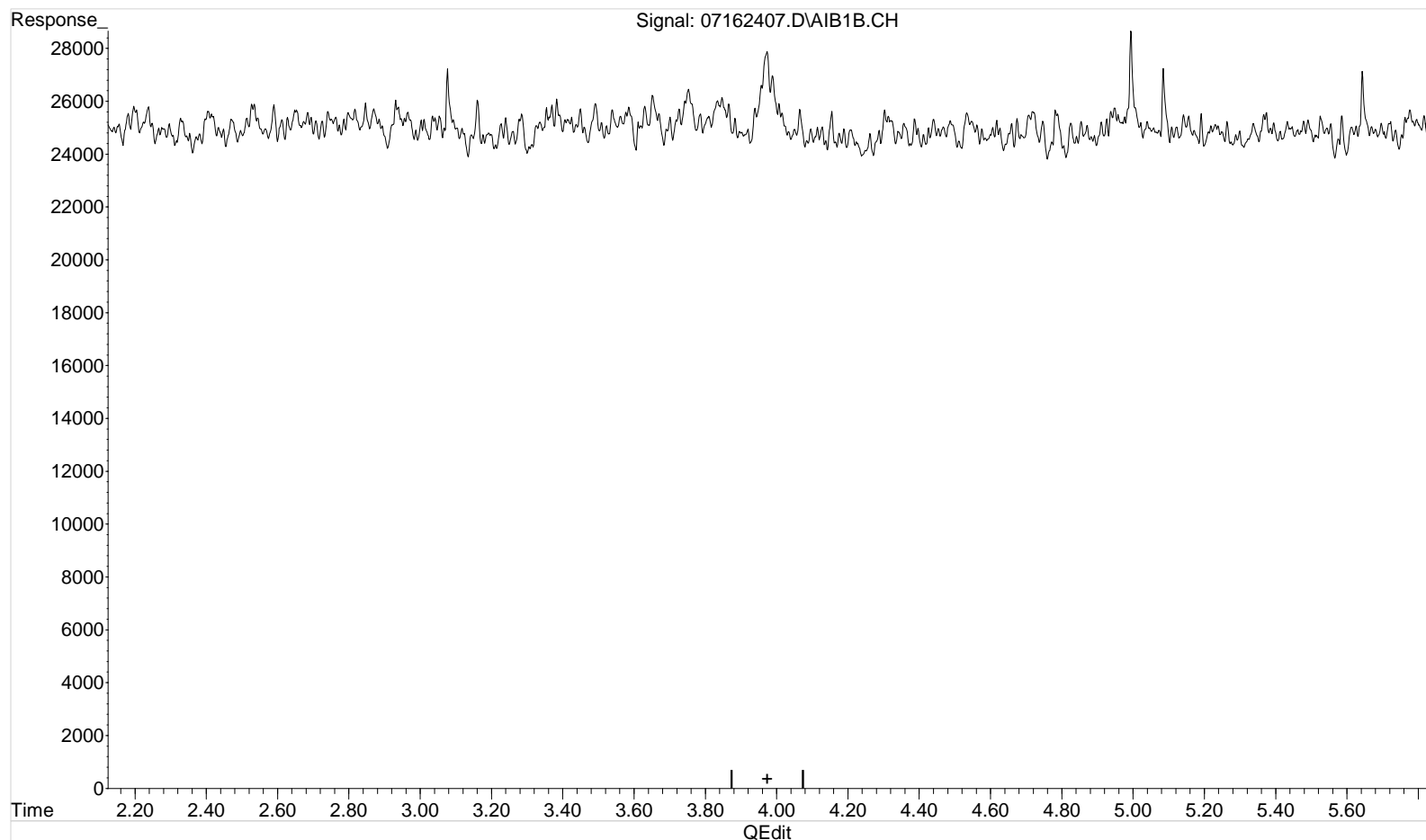
MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)

3.974min 0.000 ppb

response 0

Manual Integration:

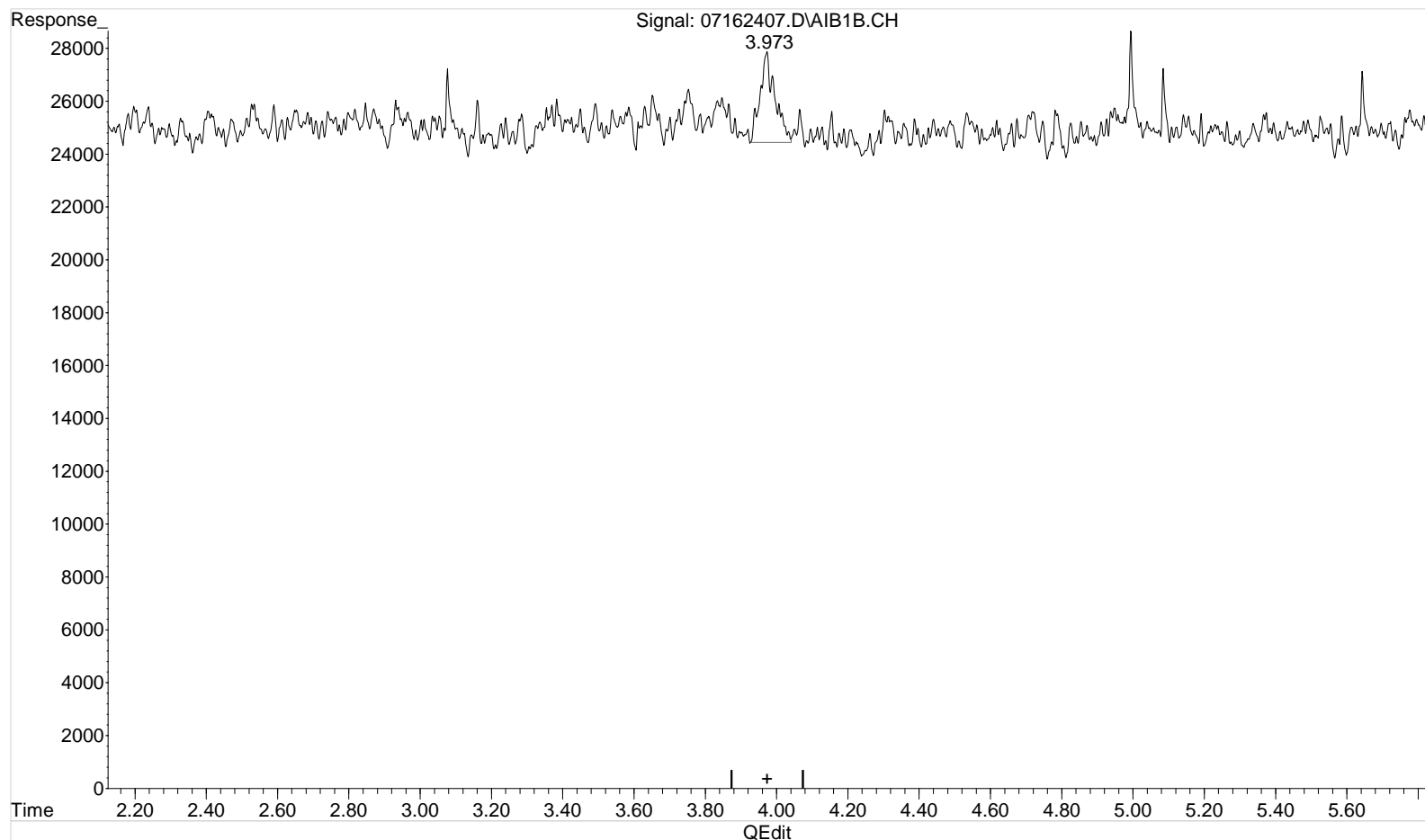
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162407.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:42
Operator : GG
Sample : P2402855-001 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:57:31 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)

3.973min 1.101 ppb m

response 99669

Manual Integration:

After

MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162408.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 10:01
 Operator : GG
 Sample : P2402855-002 1.0ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 17 09:11:38 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Z Hydrogen_Sulfide	0.000	0	N.D.	ppb
2) W Carbonyl_Sulfide	1.306	143921	2.608	ppb m
3) T Methyl_Mercaptan	0.000	0	N.D.	ppb
4) T Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T Carbon_Disulfide	3.972	172683	1.907	ppb m
7) T 2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T Thiophene	0.000	0	N.D.	ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T Methyltrisulfide	0.000	0	N.D.	ppb

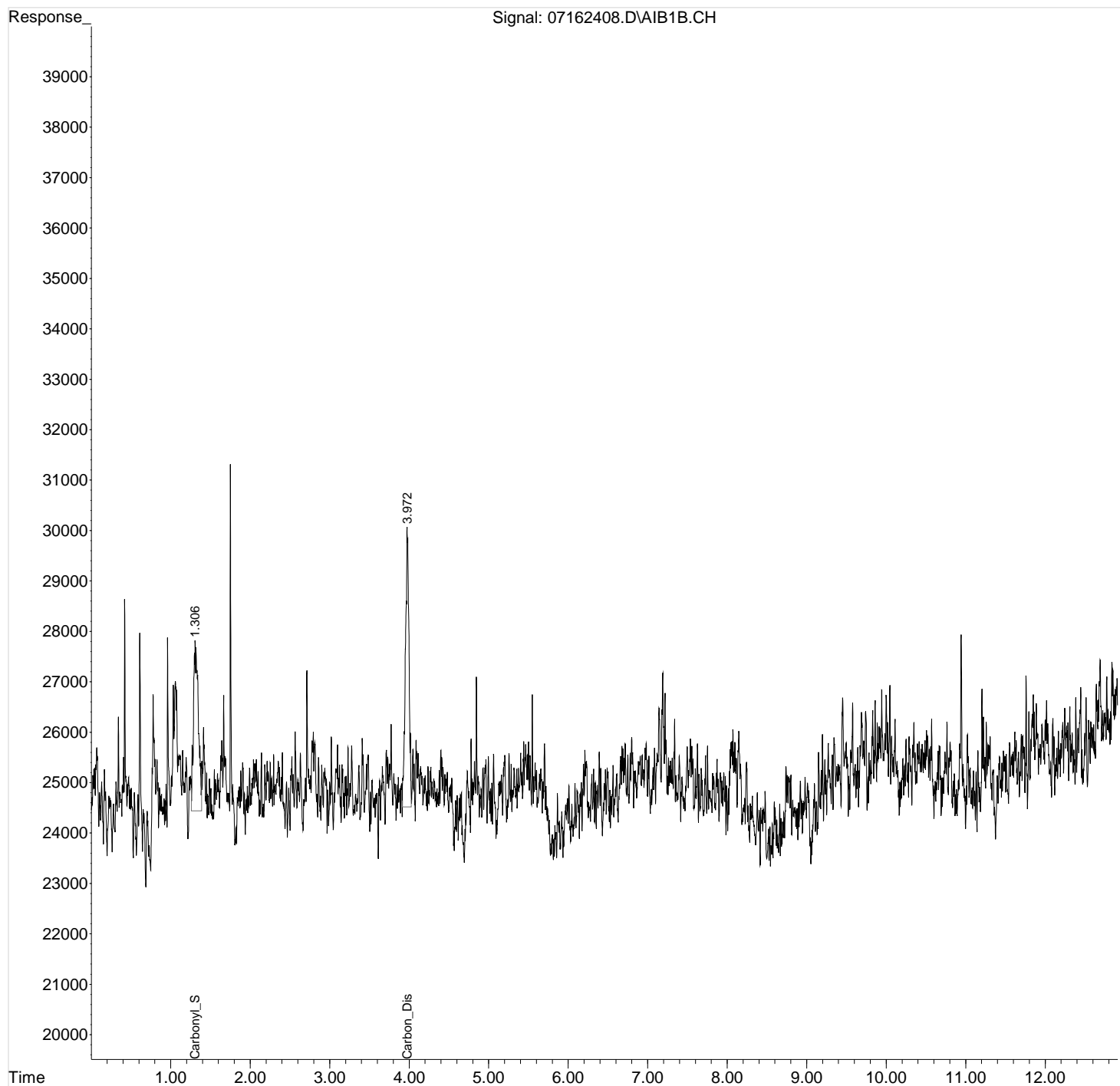
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162408.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:01
Operator : GG
Sample : P2402855-002 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:11:38 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

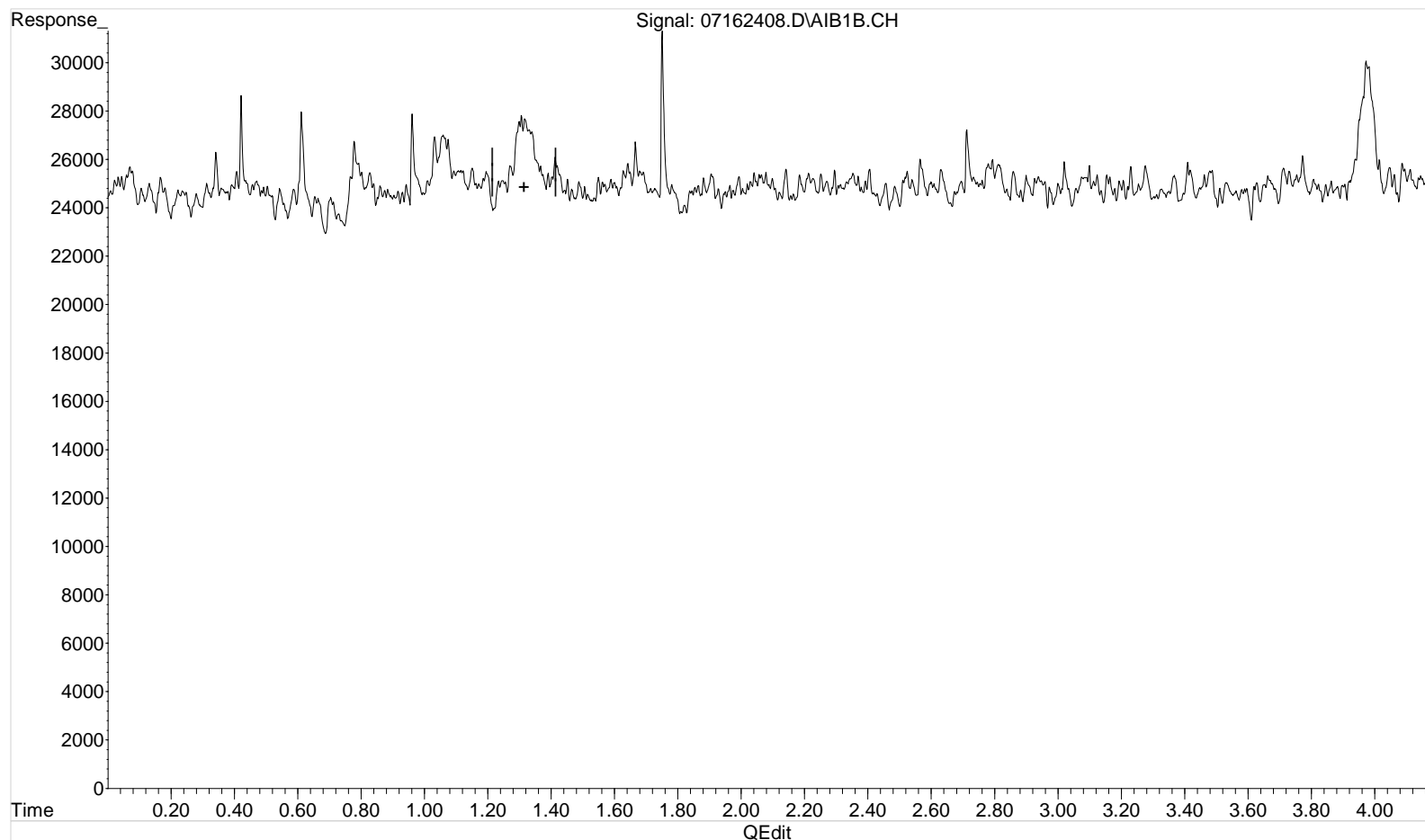
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162408.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:01
Operator : GG
Sample : P2402855-002 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 10:19:55 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.315min 0.000 ppb

response 0

Manual Integration:

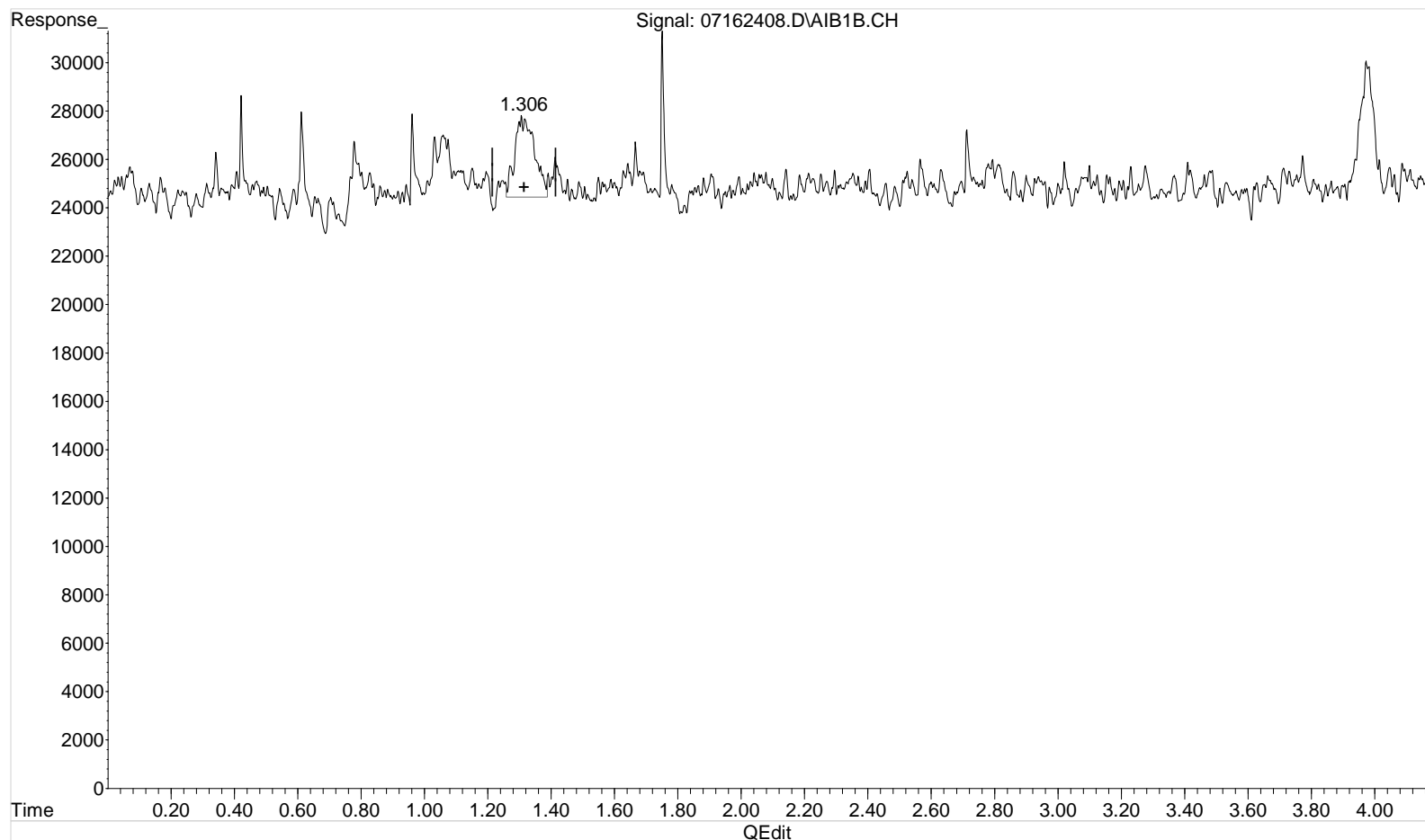
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162408.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:01
Operator : GG
Sample : P2402855-002 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 10:19:55 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.306min 2.608 ppb m

response 143921

Manual Integration:

After

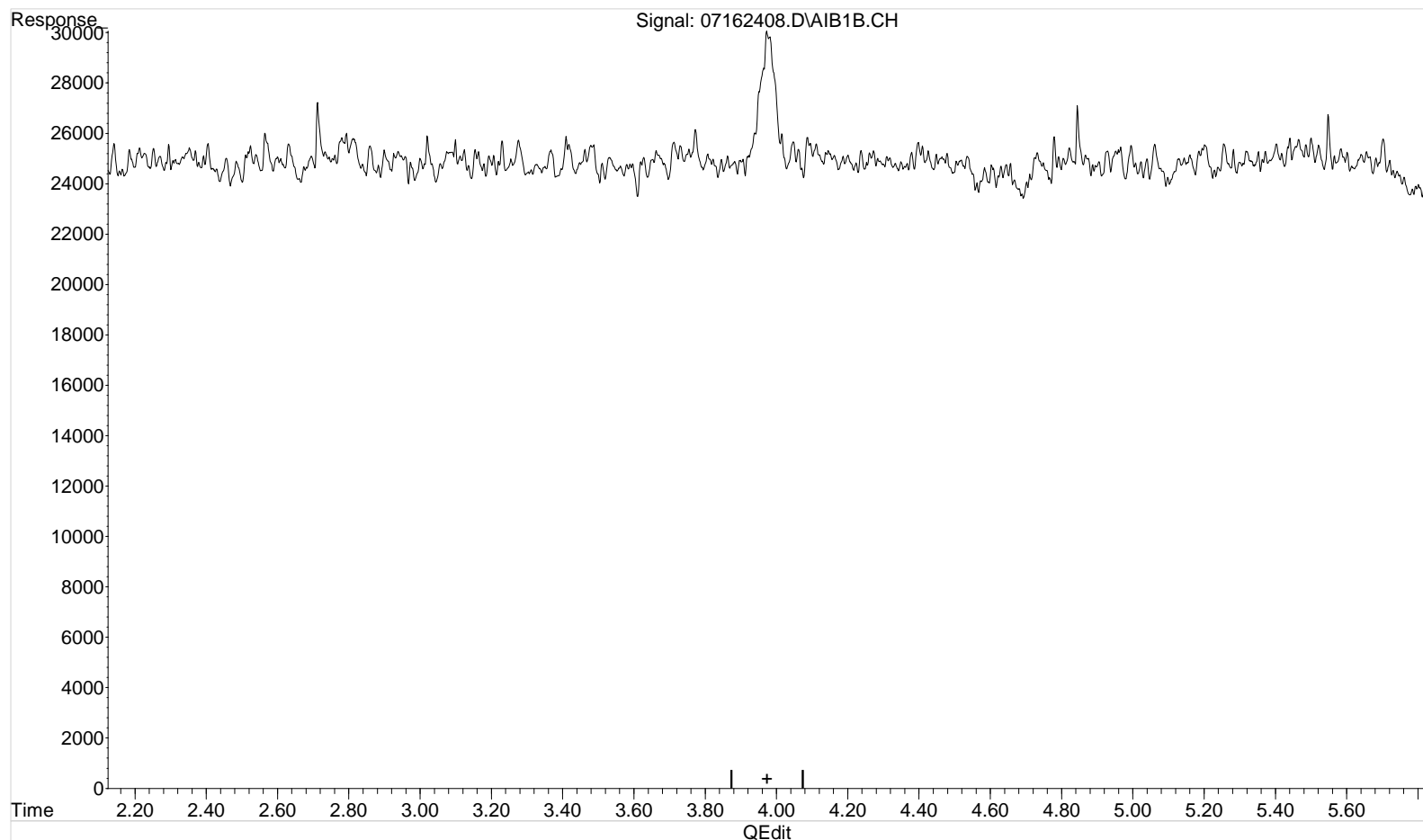
MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162408.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:01
Operator : GG
Sample : P2402855-002 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 10:19:55 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)
3.974min 0.000 ppb
response 0

Manual Integration:

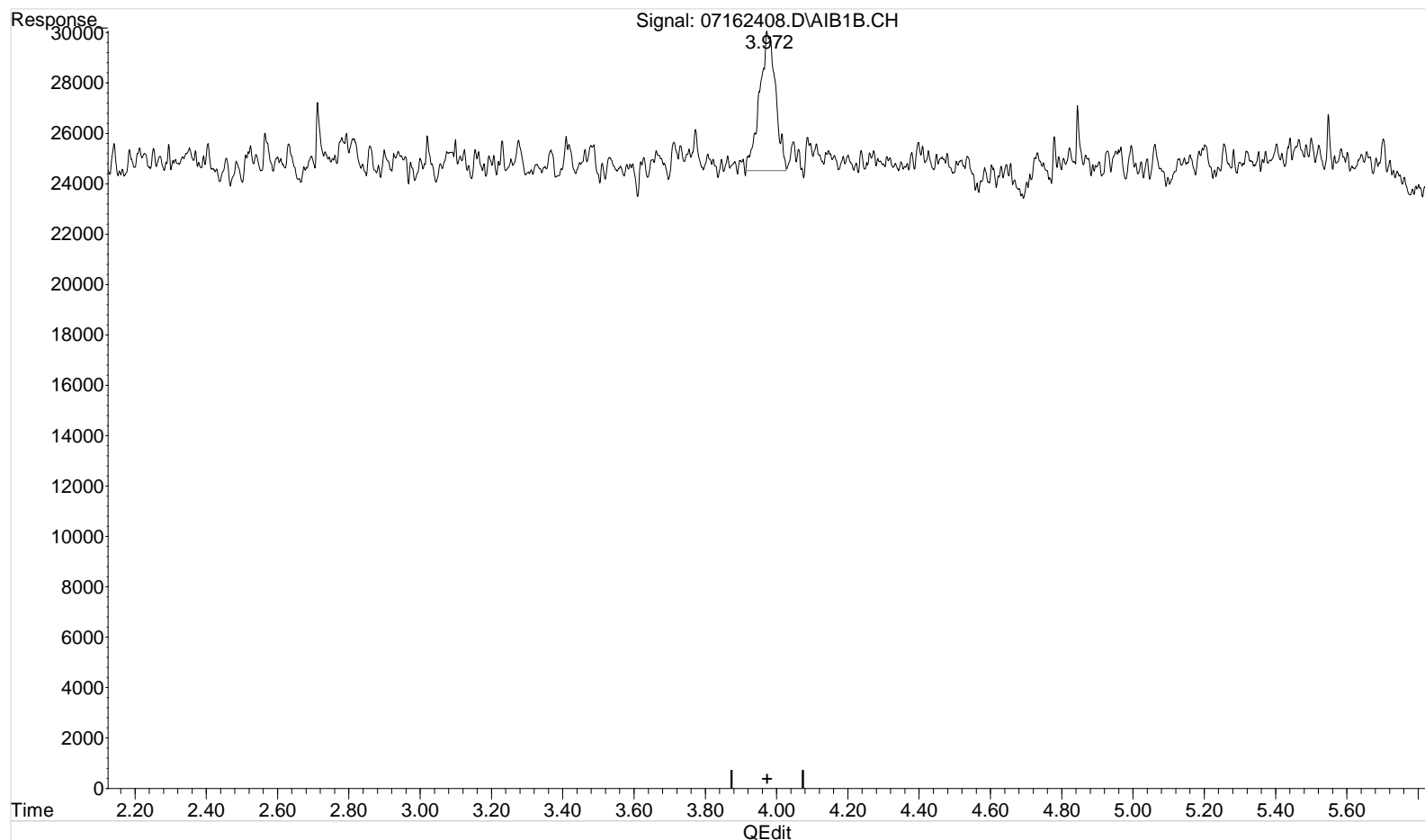
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162408.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:01
Operator : GG
Sample : P2402855-002 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 10:19:55 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)

3.972min 1.907 ppb m

response 172683

Manual Integration:

After

MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162406.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 9:14
 Operator : GG
 Sample : MB 1.0ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 16 09:38:38 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Z Hydrogen_Sulfide	0.000	0	N.D.	ppb
2) W Carbonyl_Sulfide	0.000	0	N.D.	ppb
3) T Methyl_Mercaptan	0.000	0	N.D.	ppb
4) T Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T Carbon_Disulfide	0.000	0	N.D.	ppb
7) T 2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T Thiophene	0.000	0	N.D.	ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T Methyltrisulfide	0.000	0	N.D.	ppb

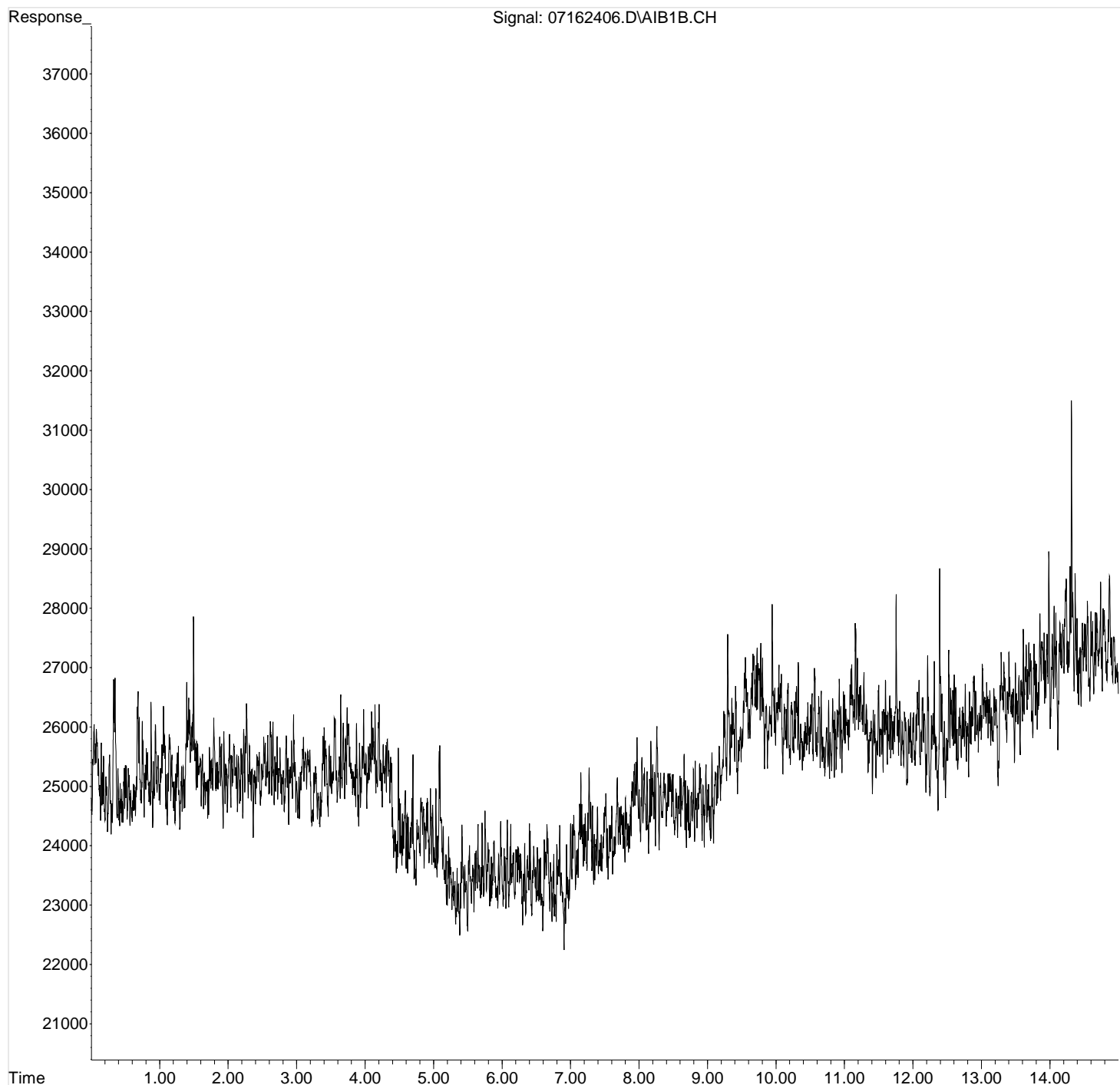
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162406.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 9:14
Operator : GG
Sample : MB 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 09:38:38 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162403.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 8:30
 Operator : GG
 Sample : LCS S33-06212402
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 16 08:38:54 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Z Hydrogen_Sulfide	1.035	36919151	770.993 ppb
2) W Carbonyl_Sulfide	1.306	45252655	820.175 ppb
3) T Methyl_Mercaptan	2.515	47754232	1054.805 ppb
4) T Ethyl_Mercaptan	0.000	0	N.D. ppb
5) T Dimethyl_Sulfide	0.000	0	N.D. ppb
6) T Carbon_Disulfide	0.000	0	N.D. ppb d
7) T 2-Propyl_Mercaptan	0.000	0	N.D. ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D. ppb
9) T Propyl_Mercaptan	0.000	0	N.D. ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D. ppb
11) T Thiophene	0.000	0	N.D. ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D. ppb
13) T Diethyl_Sulfide	0.000	0	N.D. ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D. ppb
15) t Dimethyl_Disulfide	0.000	0	N.D. ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D. ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D. ppb
18) T Tetrahydrothiophene	0.000	0	N.D. ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D. ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D. ppb
21) T Diethyl_Disulfide	0.000	0	N.D. ppb
22) T Methyltrisulfide	0.000	0	N.D. ppb

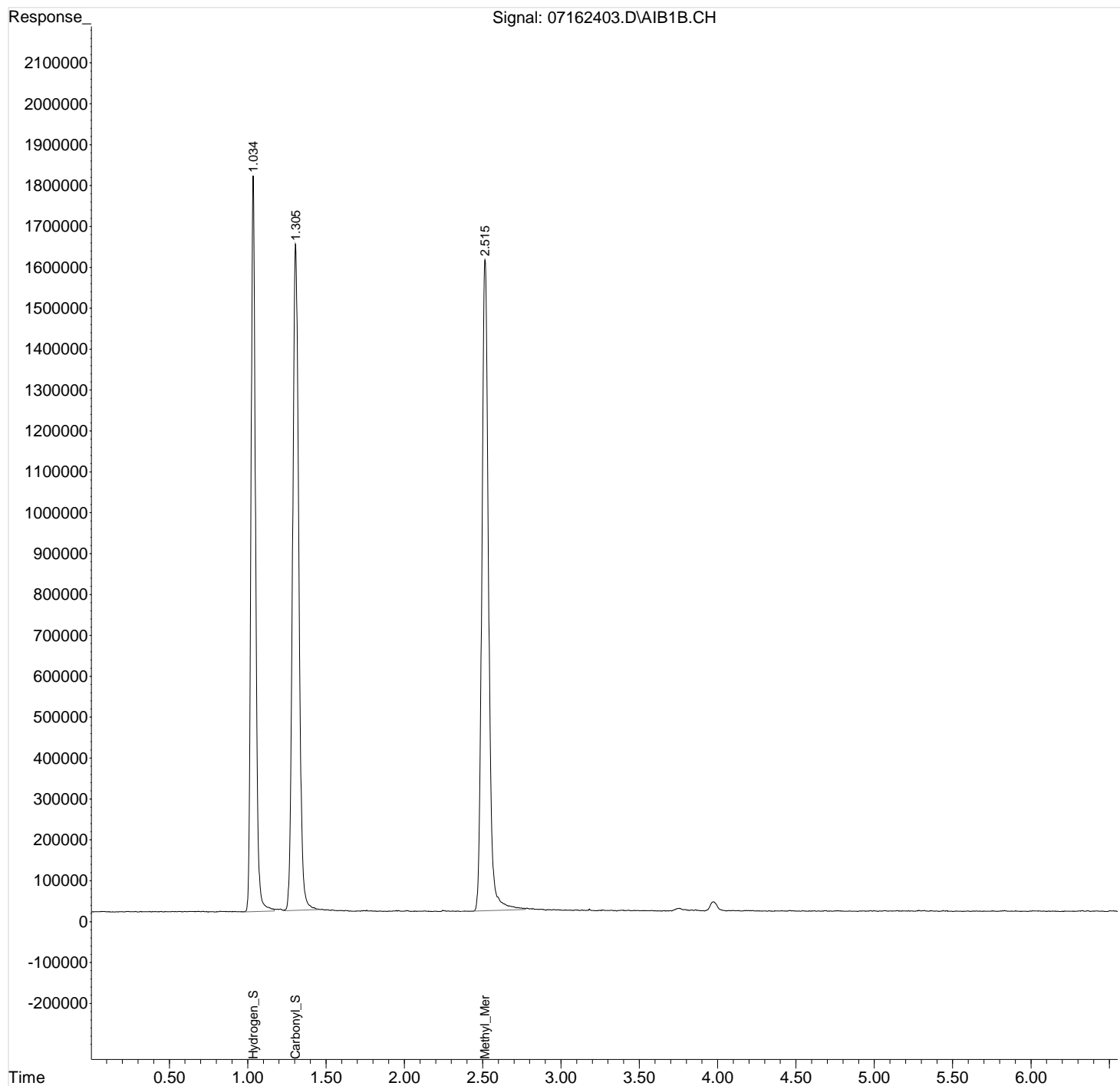
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162403.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 8:30
Operator : GG
Sample : LCS S33-06212402
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 08:38:54 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162404.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 8:41
 Operator : GG
 Sample : LCSD S33-06212402
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 16 08:49:38 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Z Hydrogen_Sulfide	1.034	41003178	856.281	ppb
2) W Carbonyl_Sulfide	1.306	46193730	837.231	ppb
3) T Methyl_Mercaptan	2.514	50848332	1123.148	ppb
4) T Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T Dimethyl_Sulfide	0.000	0	N.D.	ppb d
6) T Carbon_Disulfide	0.000	0	N.D.	ppb d
7) T 2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T Thiophene	0.000	0	N.D.	ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T Methyltrisulfide	0.000	0	N.D.	ppb

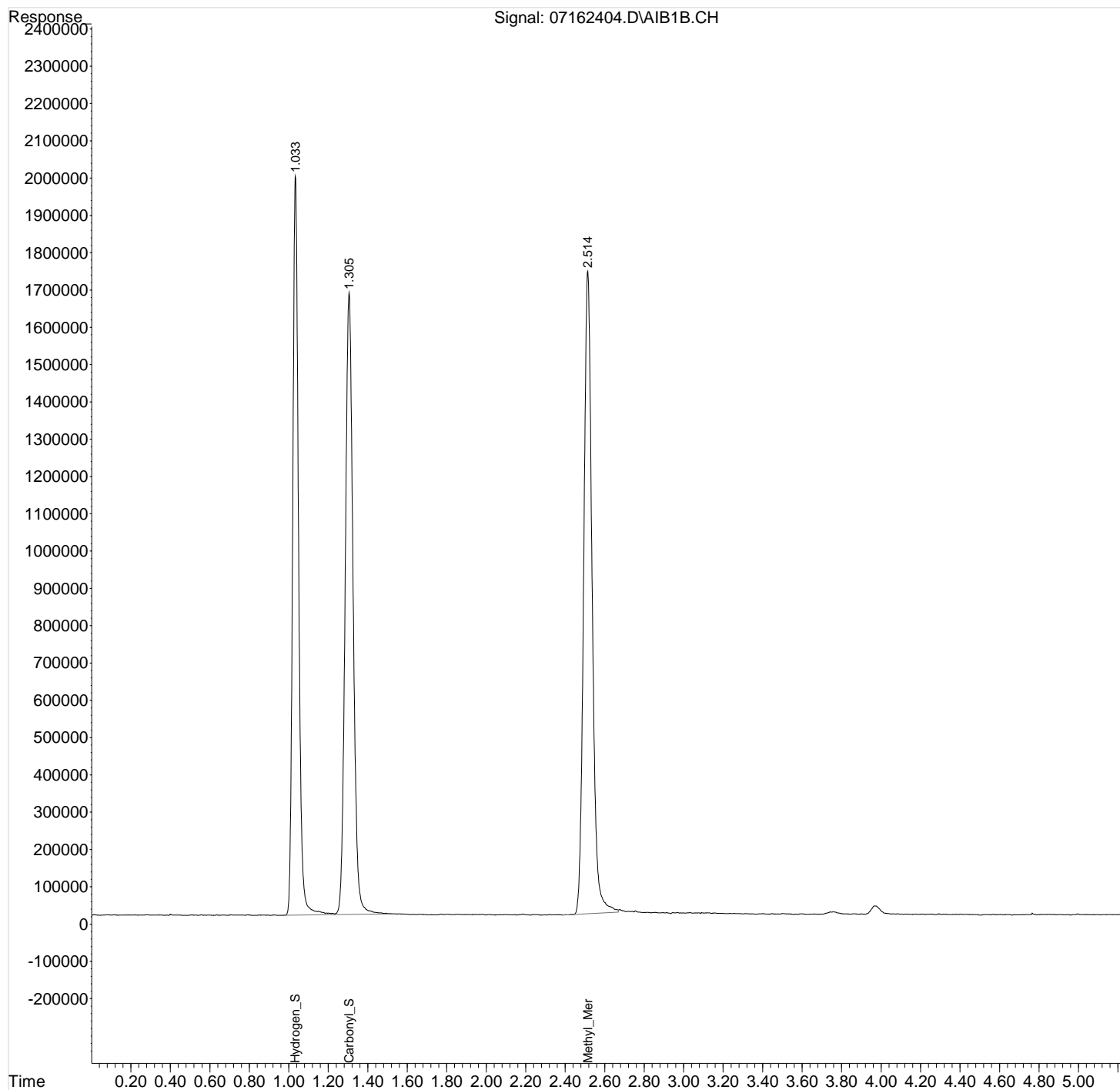
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162404.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 8:41
Operator : GG
Sample : LCSD S33-06212402
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 08:49:38 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162409.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 10:21
 Operator : GG
 Sample : P2402855-002Dup 1.0ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 17 09:32:02 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Z Hydrogen_Sulfide	0.000	0	N.D.	ppb
2) W Carbonyl_Sulfide	1.324	125080	2.267	ppb m
3) T Methyl_Mercaptan	0.000	0	N.D.	ppb
4) T Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T Carbon_Disulfide	3.976	124344	1.373	ppb m
7) T 2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T Thiophene	0.000	0	N.D.	ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T Methyltrisulfide	0.000	0	N.D.	ppb

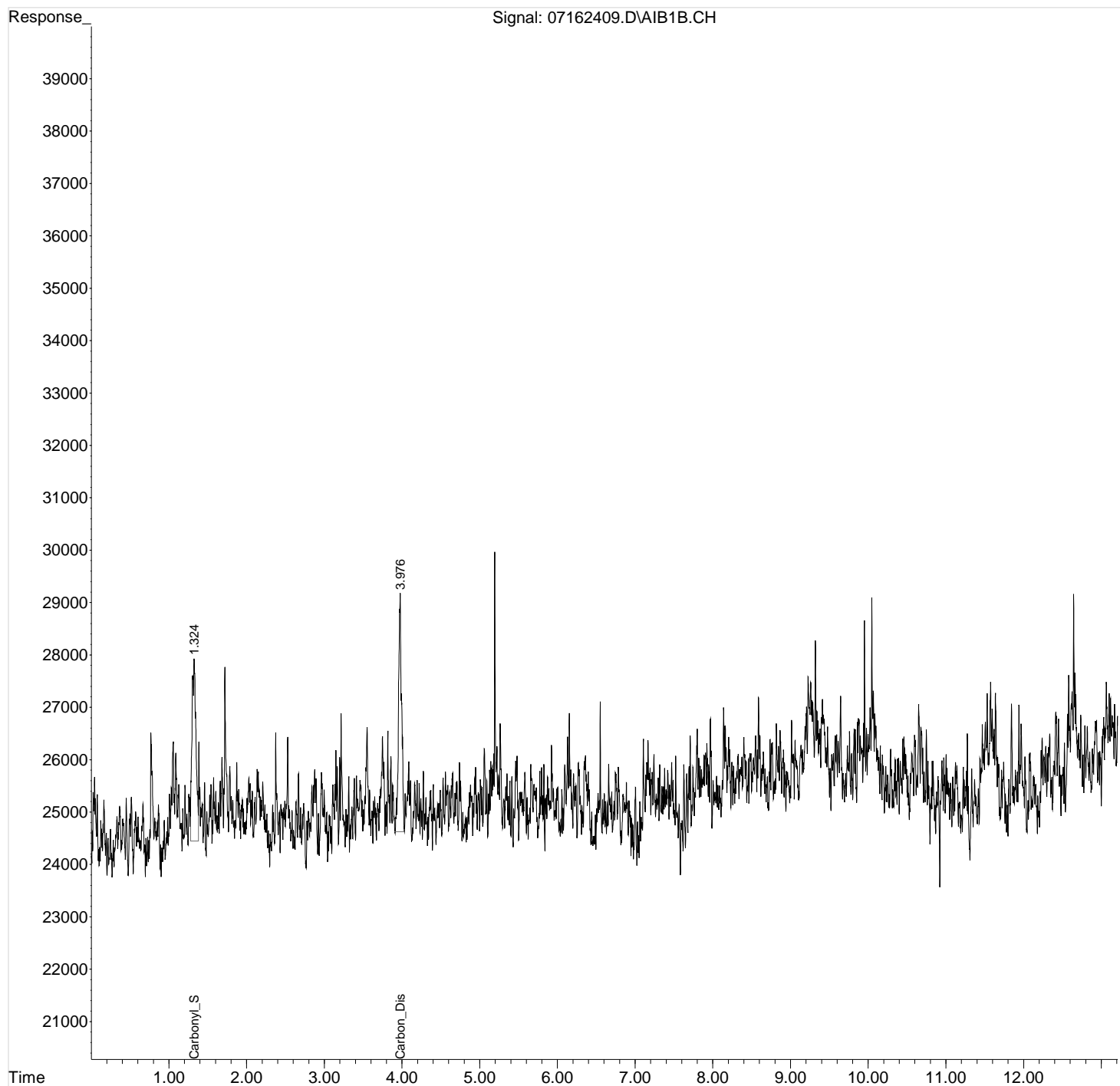
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162409.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:21
Operator : GG
Sample : P2402855-002Dup 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:32:02 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

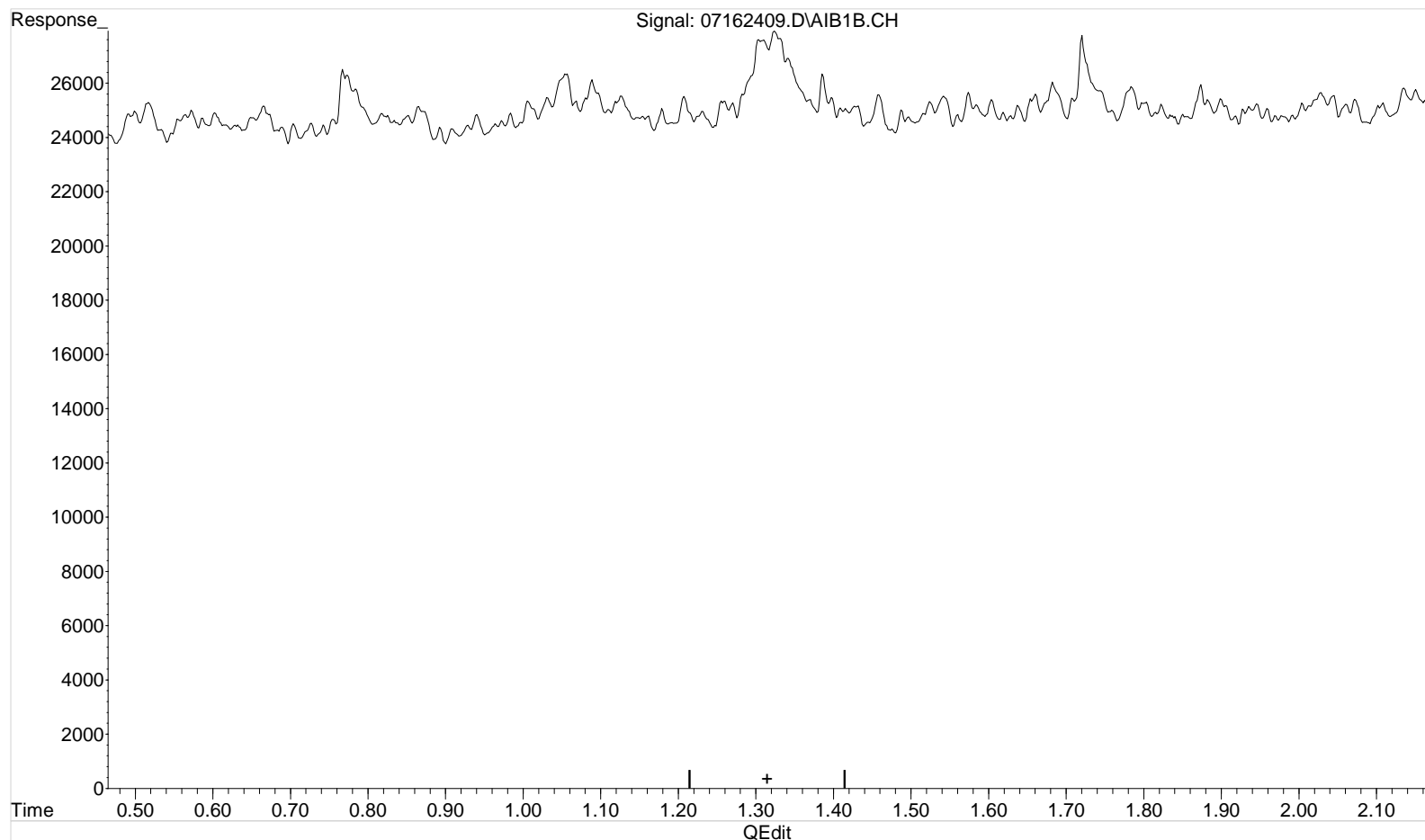
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162409.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:21
Operator : GG
Sample : P2402855-002Dup 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:29:59 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.315min 0.000 ppb

response 0

Manual Integration:

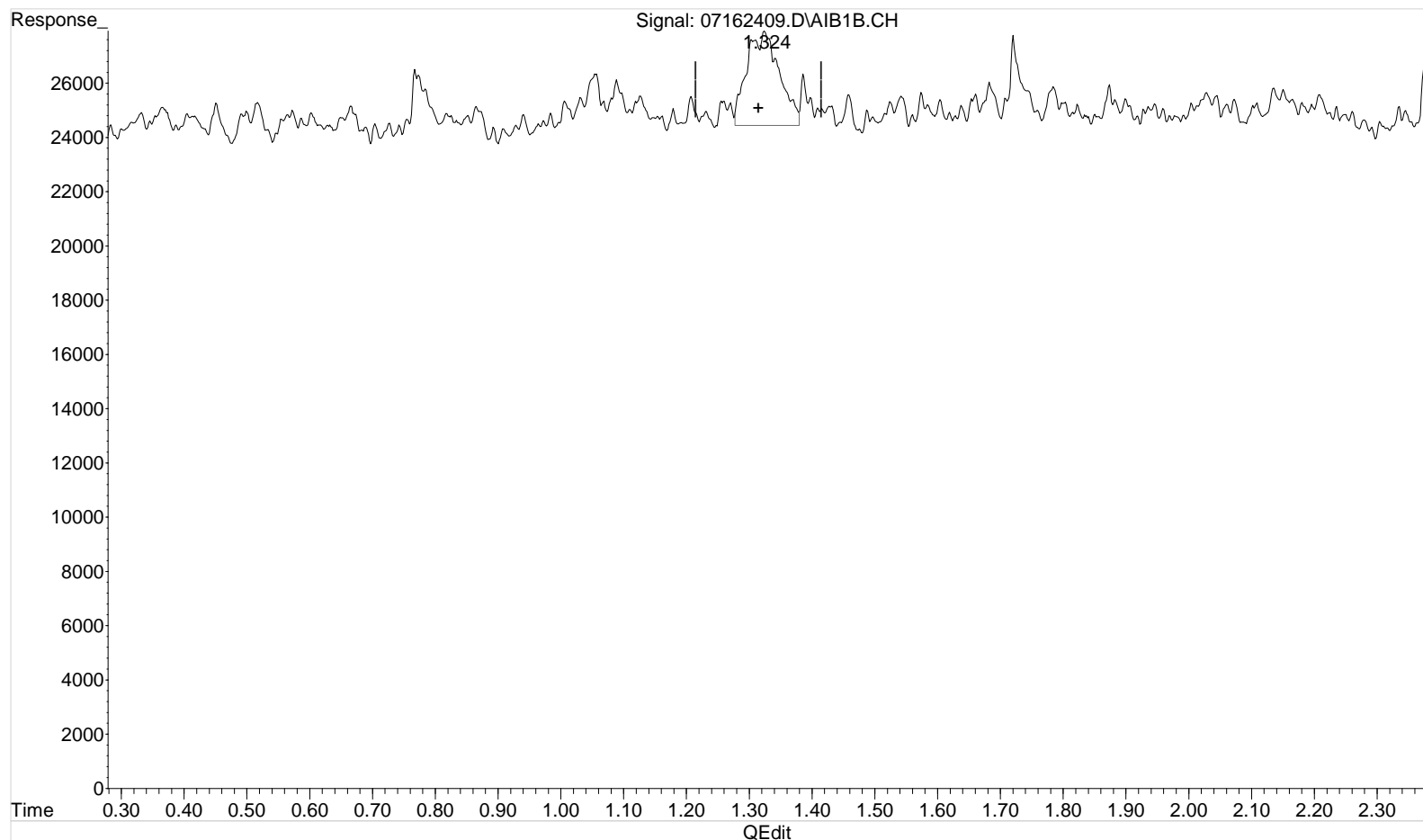
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162409.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:21
Operator : GG
Sample : P2402855-002Dup 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:32:02 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(2) Carbonyl_Sulfide (W)

1.324min 2.267 ppb m

response 125080

Manual Integration:

After

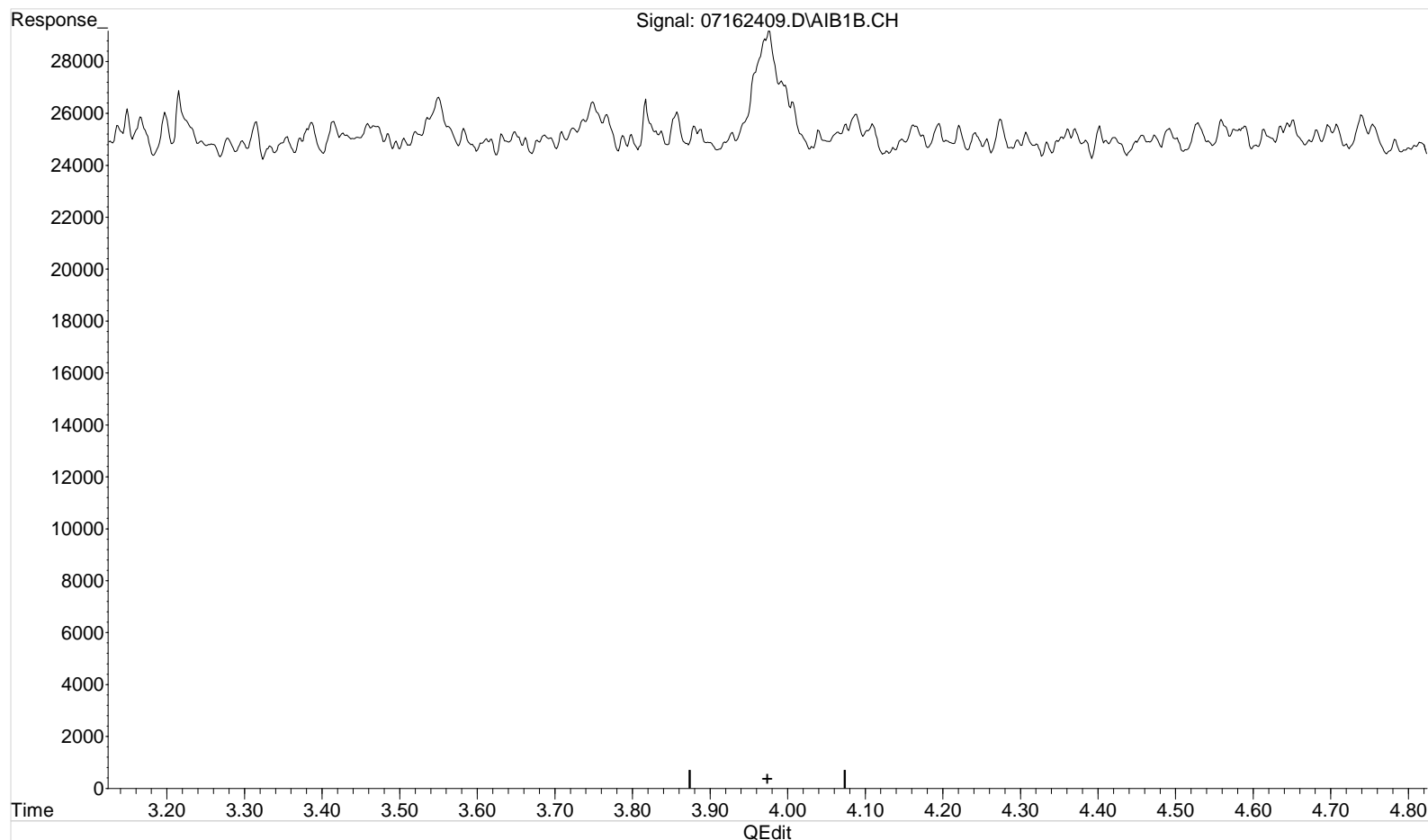
MP

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162409.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:21
Operator : GG
Sample : P2402855-002Dup 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:29:59 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)

3.974min 0.000 ppb

response 0

Manual Integration:

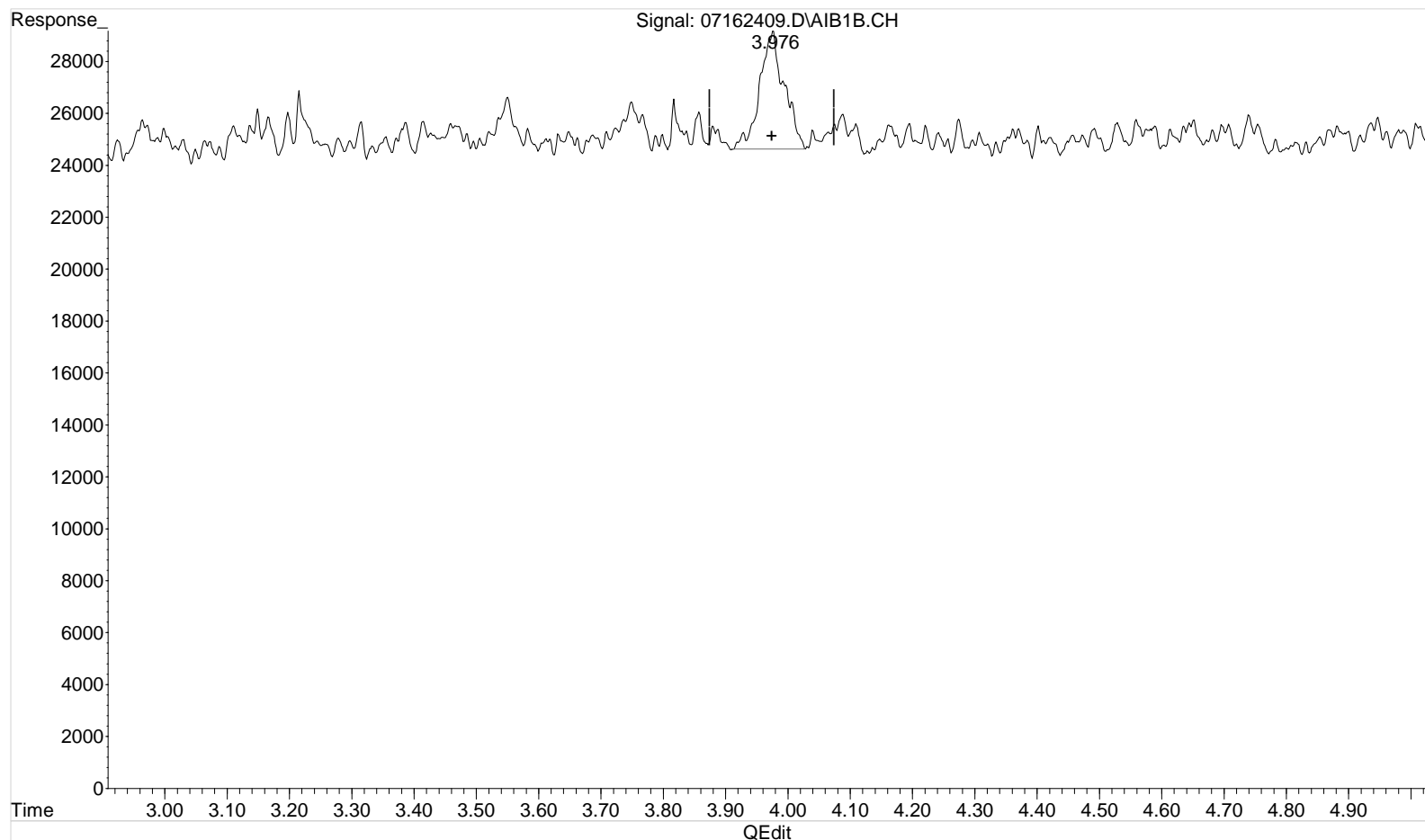
Before

07/17/24

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162409.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 10:21
Operator : GG
Sample : P2402855-002Dup 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 17 09:32:02 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(6) Carbon_Disulfide (T)

3.976min 1.373 ppb m

response 124344

Manual Integration:

After

MP

07/17/24

Method Path : J:\GC13\METHODS\
 Method File : GC13_080720.M
 Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 Last Update : Fri Aug 07 13:29:15 2020
 Response Via : Initial Calibration

Calibration Files

5ppb =08072014.D 20 =08072015.D 100 =08072016.D
 1000 =08072017.D 5000 =08072018.D 10k =08072019.D

	Compound	5ppb	20	100	1000	5000	10k	Avg		%RSD
1)	Z Hydrogen_Sulfide	5.450	4.957	3.955	4.248	4.690	4.644	4.789	E4	12.37
2)	W Carbonyl_Sulfide	5.773	5.970	5.144	5.055	5.434	5.395	5.517	E4	6.43
3)	T Methyl_Mercaptan	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
4)	T Ethyl_Mercaptan	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
5)	T Dimethyl_Sulfide	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
6)	T Carbon_Disulfide	0.839	0.793	0.746	0.889	0.980	0.984	0.905	E5	13.90
7)	T 2-Propyl_Merc...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
8)	T t-Butyl_Merca...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
9)	T Propyl_Mercaptan	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
10)	T Ethyl_Methyl_...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
11)	T Thiophene	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
12)	T i-Butyl_Merca...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
13)	T Diethyl_Sulfide	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
14)	t n-Butyl_Merca...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
15)	t Dimethyl_Disu...	0.839	0.793	0.746	0.889	0.980	0.984	0.905	E5	13.90
16)	T 2-Methyl_Thio...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
17)	t 3-Methyl_Thio...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
18)	T Tetrahydrothi...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
19)	t 2,5-Dimethyl_...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
20)	T 2-Ethyl_Thiop...	4.196	3.965	3.729	4.447	4.900	4.920	4.527	E4	13.90
21)	T Diethyl_Disul...	0.839	0.793	0.746	0.889	0.980	0.984	0.905	E5	13.90
22)	T Methyltrisulfide	1.258	1.191	1.119	1.334	1.470	1.476	1.358	E5	13.88

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method Path : J:\GC13\METHODS\

Method File : GC13_080720.M

Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD

Last Update : Fri Aug 07 13:29:15 2020

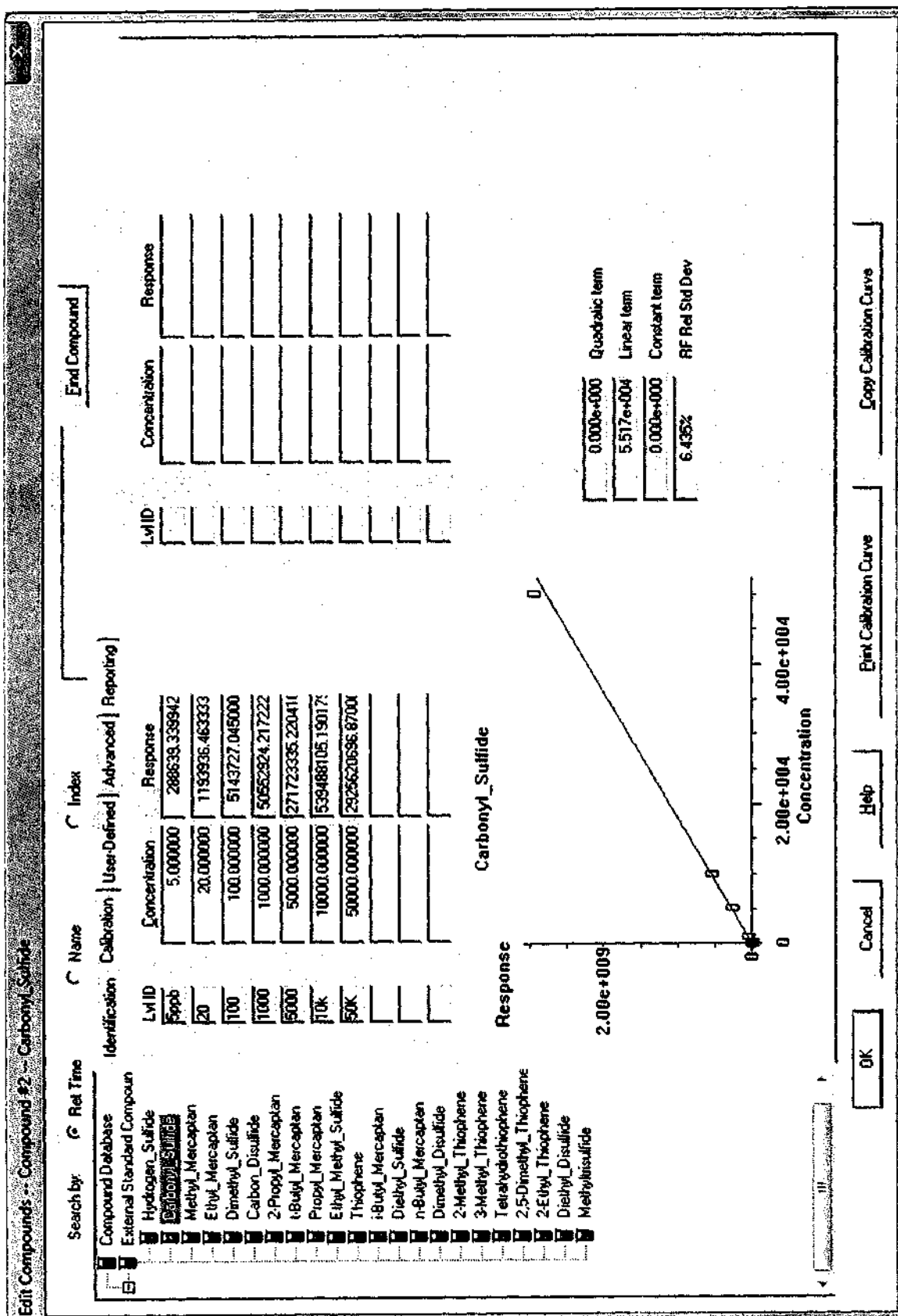
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	5ppb	2	0	I:\GC13\DATA\SCD\2020_08\07\08072014.D
2	20	7	0	I:\GC13\DATA\SCD\2020_08\07\08072015.D
3	100	33	0	I:\GC13\DATA\SCD\2020_08\07\08072016.D
4	1000	333	0	I:\GC13\DATA\SCD\2020_08\07\08072017.D
5	5000	1667	0	I:\GC13\DATA\SCD\2020_08\07\08072018.D
6	10k	3333	0	I:\GC13\DATA\SCD\2020_08\07\08072019.D
7	50K	16667	0	I:\GC13\DATA\SCD\2020_08\07\08072020.D

#	ID	Update Time	Quant Time	Acquisition Time
1	5ppb	Aug 07 12:54 2020	Aug 07 12:53 2020	07 Aug 2020 10:43 am
2	20	Aug 07 12:55 2020	Aug 07 12:54 2020	07 Aug 2020 11:09 am
3	100	Aug 07 12:55 2020	Aug 07 12:55 2020	07 Aug 2020 11:34 am
4	1000	Aug 07 12:56 2020	Aug 07 12:56 2020	07 Aug 2020 11:50 am
5	5000	Aug 07 12:56 2020	Aug 07 12:56 2020	07 Aug 2020 12:12 pm
6	10k	Aug 07 12:57 2020	Aug 07 12:57 2020	07 Aug 2020 12:22 pm
7	50K	Aug 07 12:59 2020	Aug 07 12:59 2020	07 Aug 2020 12:38 pm

GC13_080720.M Mon Aug 31 10:57:20 2020

[illegible]



Copy Calibration Curve

Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072014.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 10:43 am
 Operator : GG
 Sample : 5ppb
 Misc : 50ul of S32-08072001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:53:14 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Z Hydrogen_Sulfide	1.227	272502	NoCal	ppb m
2) W Carbonyl_Sulfide	1.525	288639	NoCal	ppb
3) T Methyl_Mercaptan	2.791	209790	NoCal	ppb
4) T Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T Carbon_Disulfide	0.000	0	N.D.	ppb
7) T 2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T Thiophene	0.000	0	N.D.	ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T 2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T Methyltrisulfide	0.000	0	N.D.	ppb

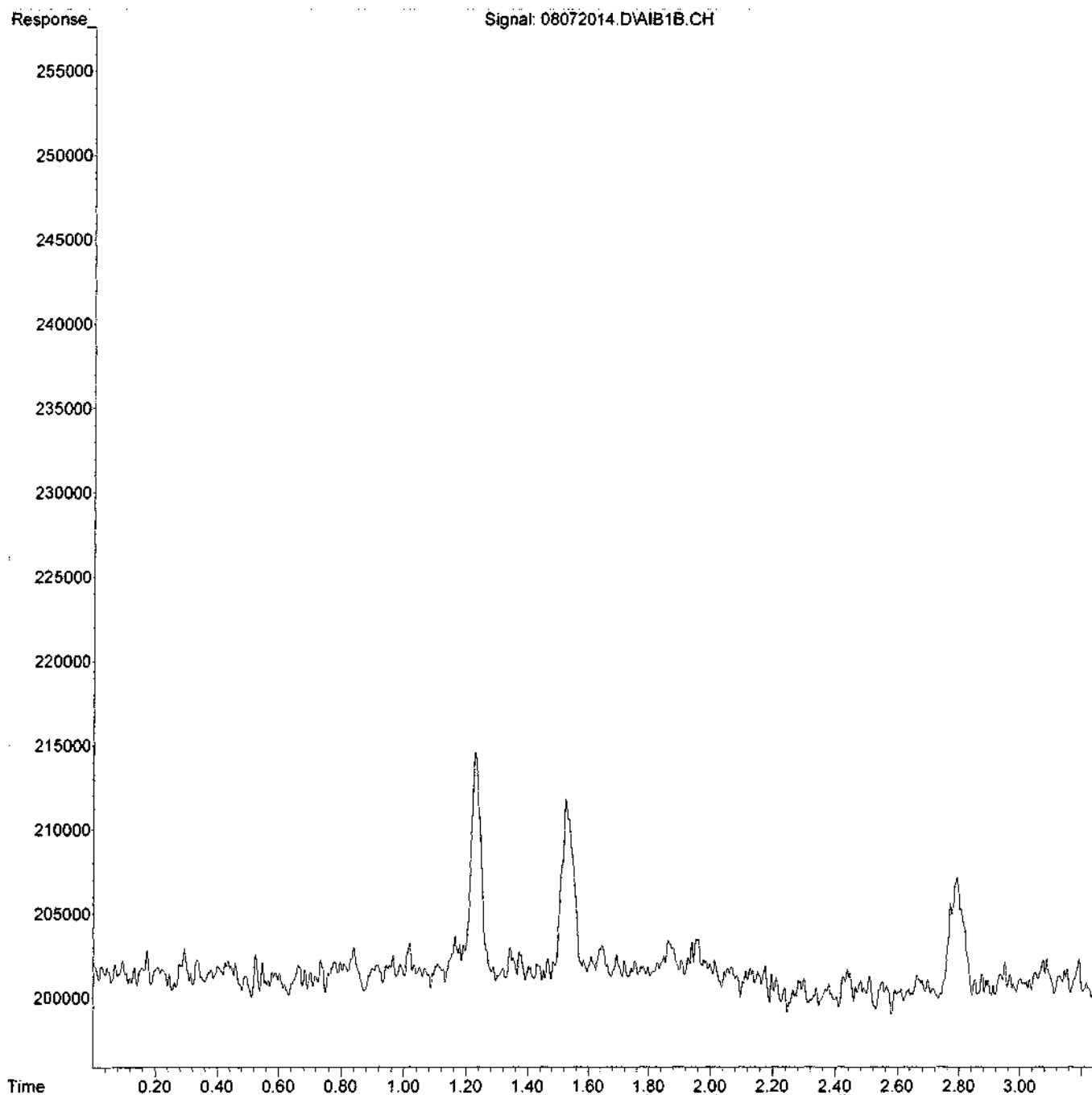
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072014.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 10:43 am
Operator : GG
Sample : 5ppb
Misc : 50ul of S32-08072001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:53:14 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

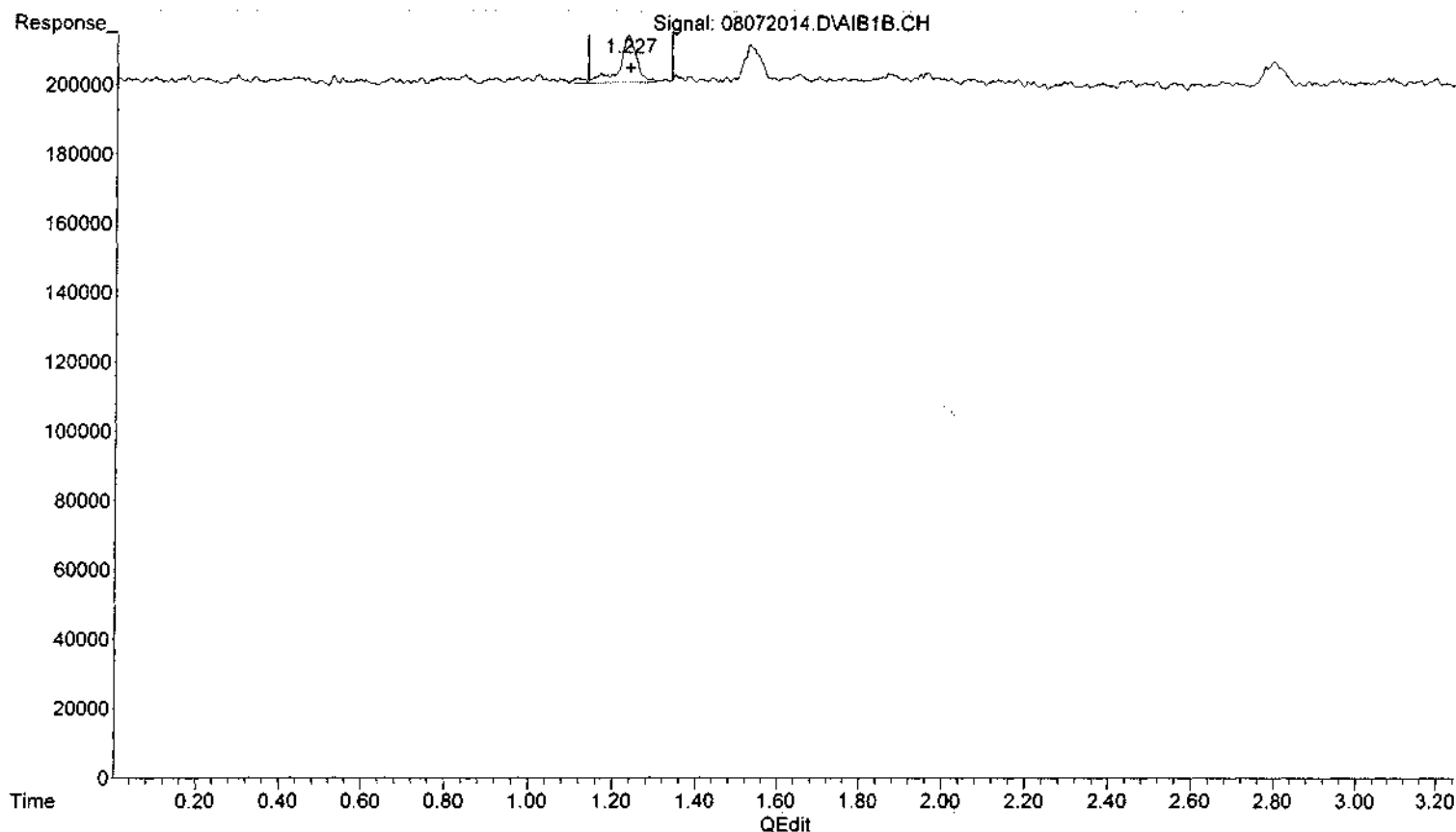
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2020_08\07\
Data File : 08072014.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 10:43 am
Operator : GG
Sample : 5ppb
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:53:14 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen_Sulfide (Z)

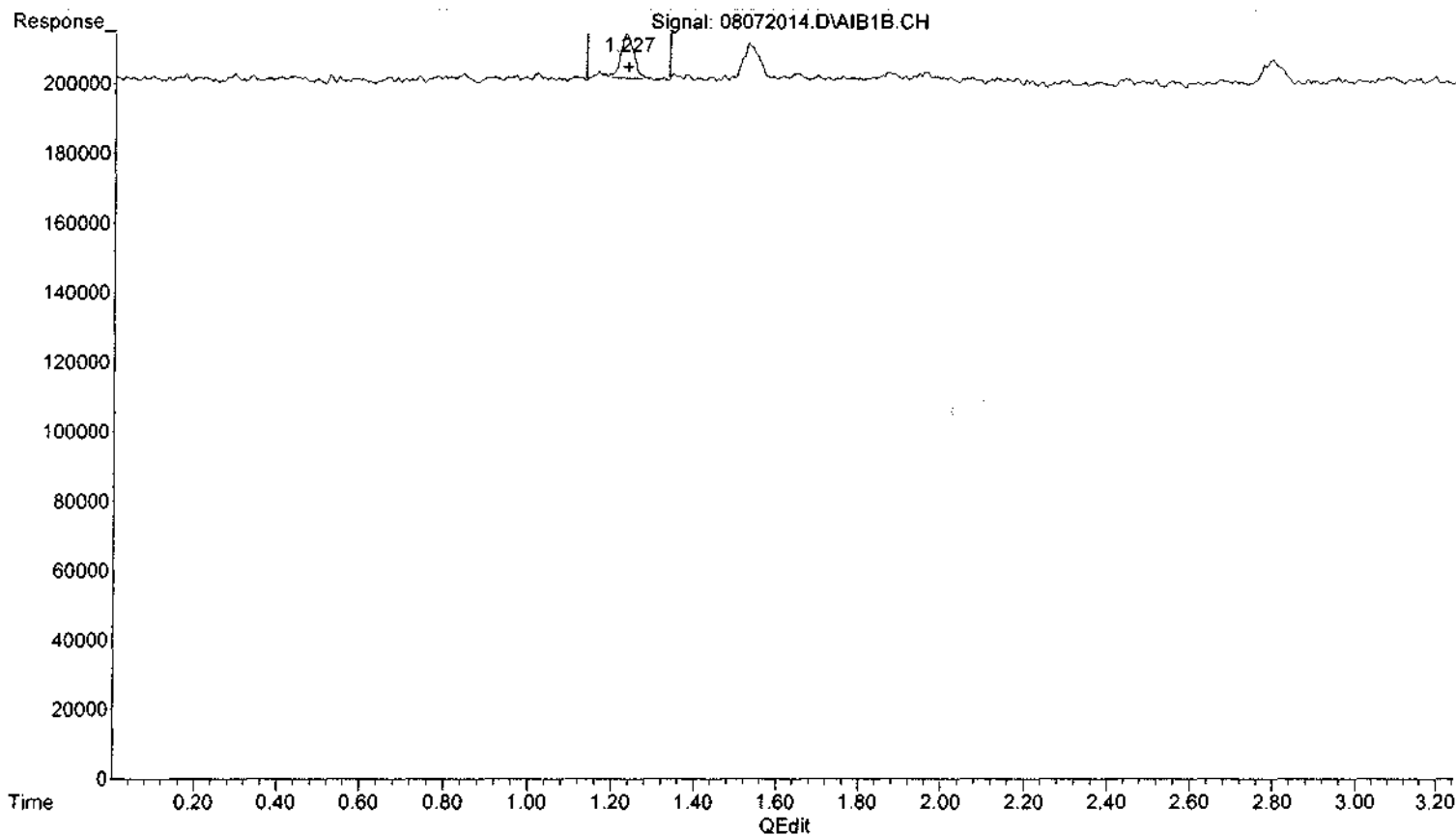
1.228min 0.000 ppb

response 408322

Data Path : I:\GC13\DATA\SCD\2020_08\07\
Data File : 08072014.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 10:43 am
Operator : GG
Sample : 5ppb
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:53:14 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen_Sulfide (Z)
1.227min 0.000 ppb m
response 272502

BLC
8/17/20
R

W 8/10/20

Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072015.D
 Signal(s) : AIE1B.CH
 Acq On : 07 Aug 2020 11:09 am
 Operator : GG
 Sample : 20ppb
 Misc : 200ul of S32-08072001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:54:56 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc Units

Target Compounds				
1) Z	Hydrogen_Sulfide	1.234	991368	18.190 ppb
2) W	Carbonyl_Sulfide	1.531	1193936	20.682 ppb
3) T	Methyl_Mercaptan	2.782	793064	18.901 ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D. ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D. ppb
6) T	Carbon_Disulfide	0.000	0	N.D. ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D. ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D. ppb
9) T	Propyl_Mercaptan	0.000	0	N.D. ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D. ppb
11) T	Thiophene	0.000	0	N.D. ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D. ppb
13) T	Diethyl_Sulfide	0.000	0	N.D. ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D. ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D. ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D. ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D. ppb
18) T	Tetrahydrothiophene	0.000	0	N.D. ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D. ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D. ppb
21) T	Diethyl_Disulfide	0.000	0	N.D. ppb
22) T	Methyltrisulfide	0.000	0	N.D. ppb

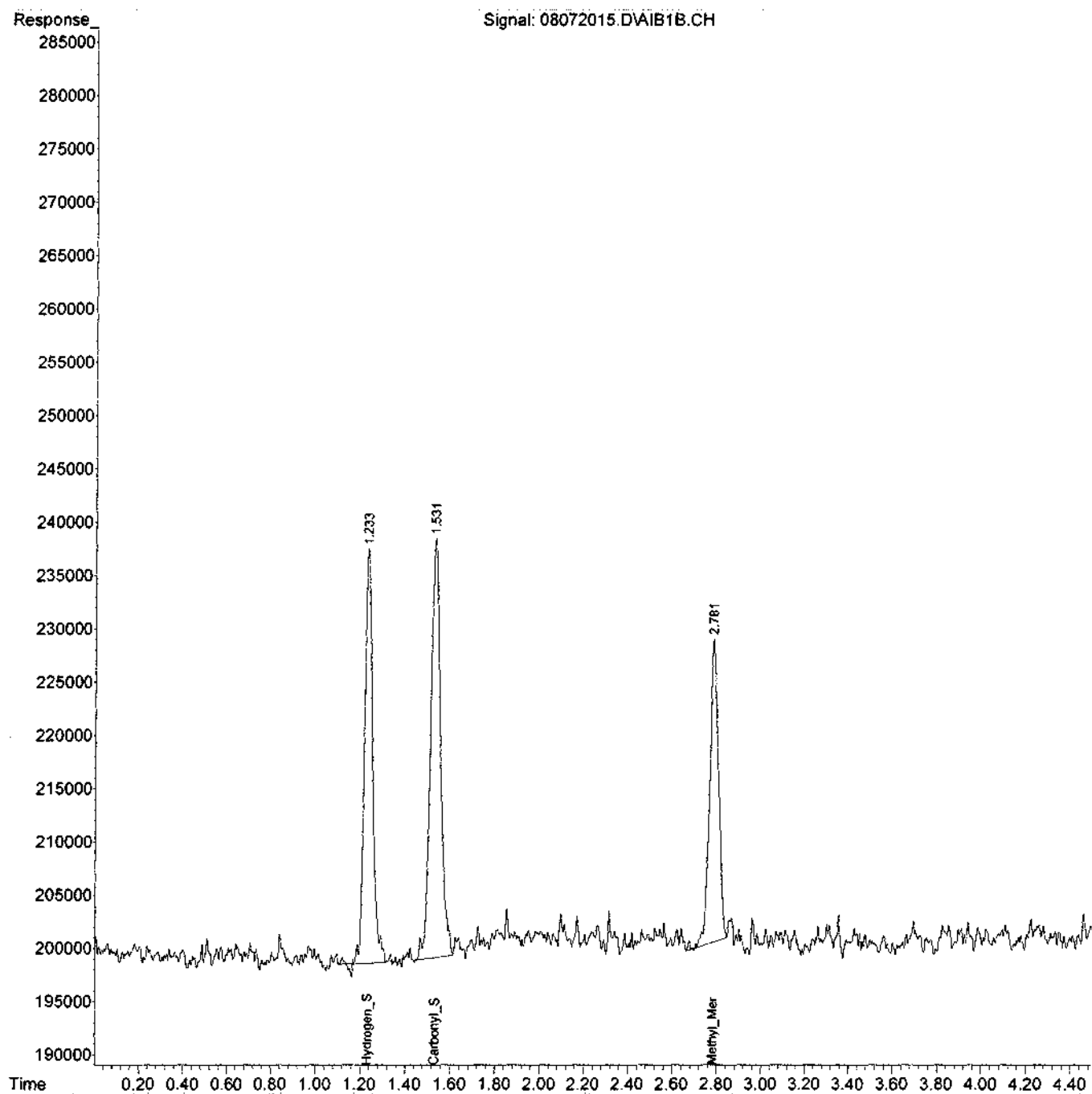
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072015.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 11:09 am
Operator : GG
Sample : 20ppb
Misc : 200ul of S32-08072001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:54:56 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072016.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 11:34 am
 Operator : GG
 Sample : 100ppb
 Misc : 1ml of S32-08072001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:55:32 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target Compounds					
1) Z	Hydrogen_Sulfide	1.236	3954994	76.007	ppb
2) W	Carbonyl_Sulfide	1.538	5143727	87.609	ppb
3) T	Methyl_Mercaptan	2.790	3729363	91.393	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

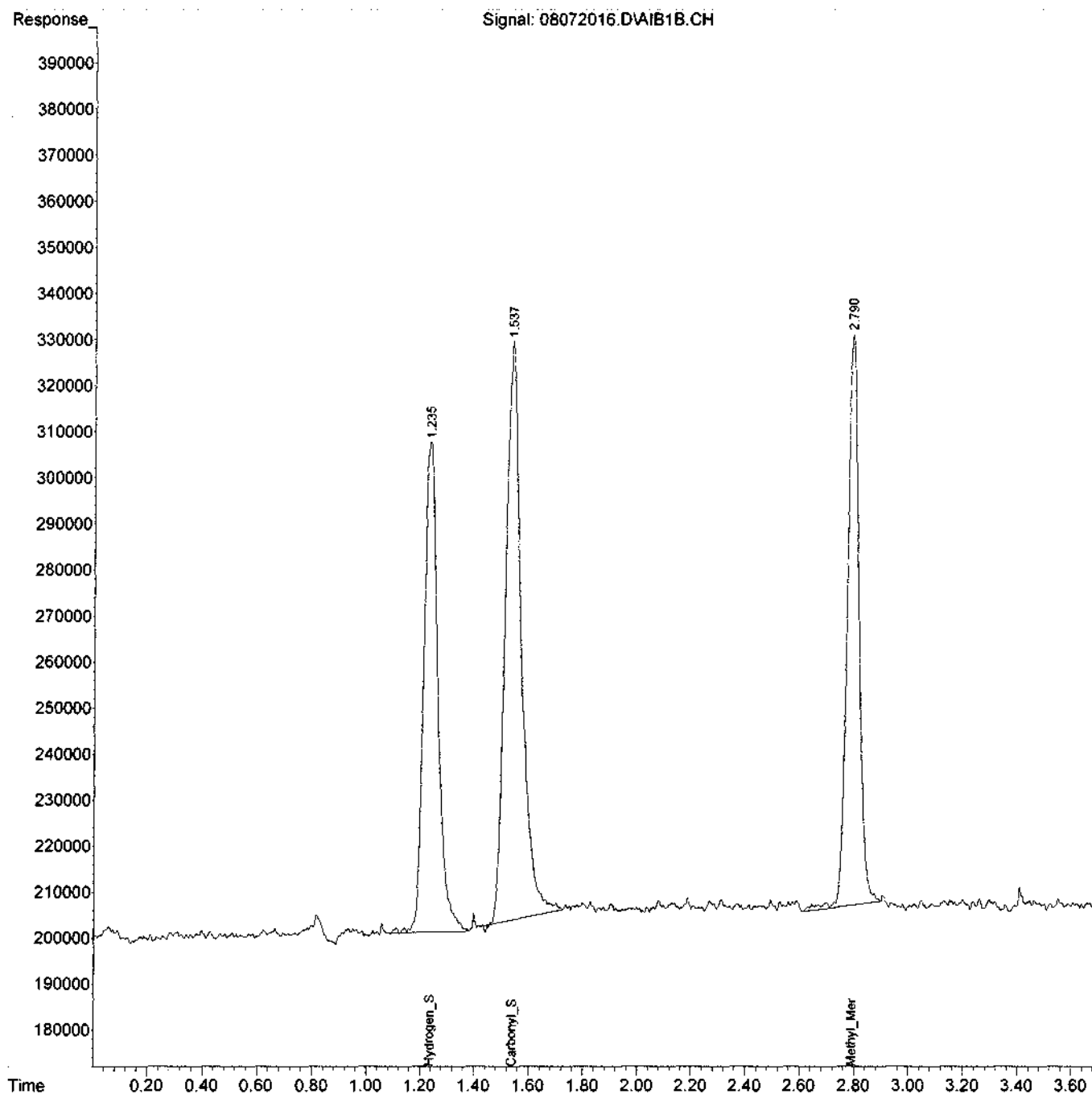
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072016.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 11:34 am
Operator : GG
Sample : 100ppb
Misc : 1ml of S32-08072001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:55:32 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072017.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 11:50 am
 Operator : GG
 Sample : 1000ppb
 Misc : 100ul of S32-07212001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:56:10 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target	Compounds				
1) Z	Hydrogen_Sulfide	1.234	42477488	887.297	ppb
2) W	Carbonyl_Sulfide	1.531	50552924	898.123	ppb
3) T	Methyl_Mercaptan	2.786	44470554	1122.003	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

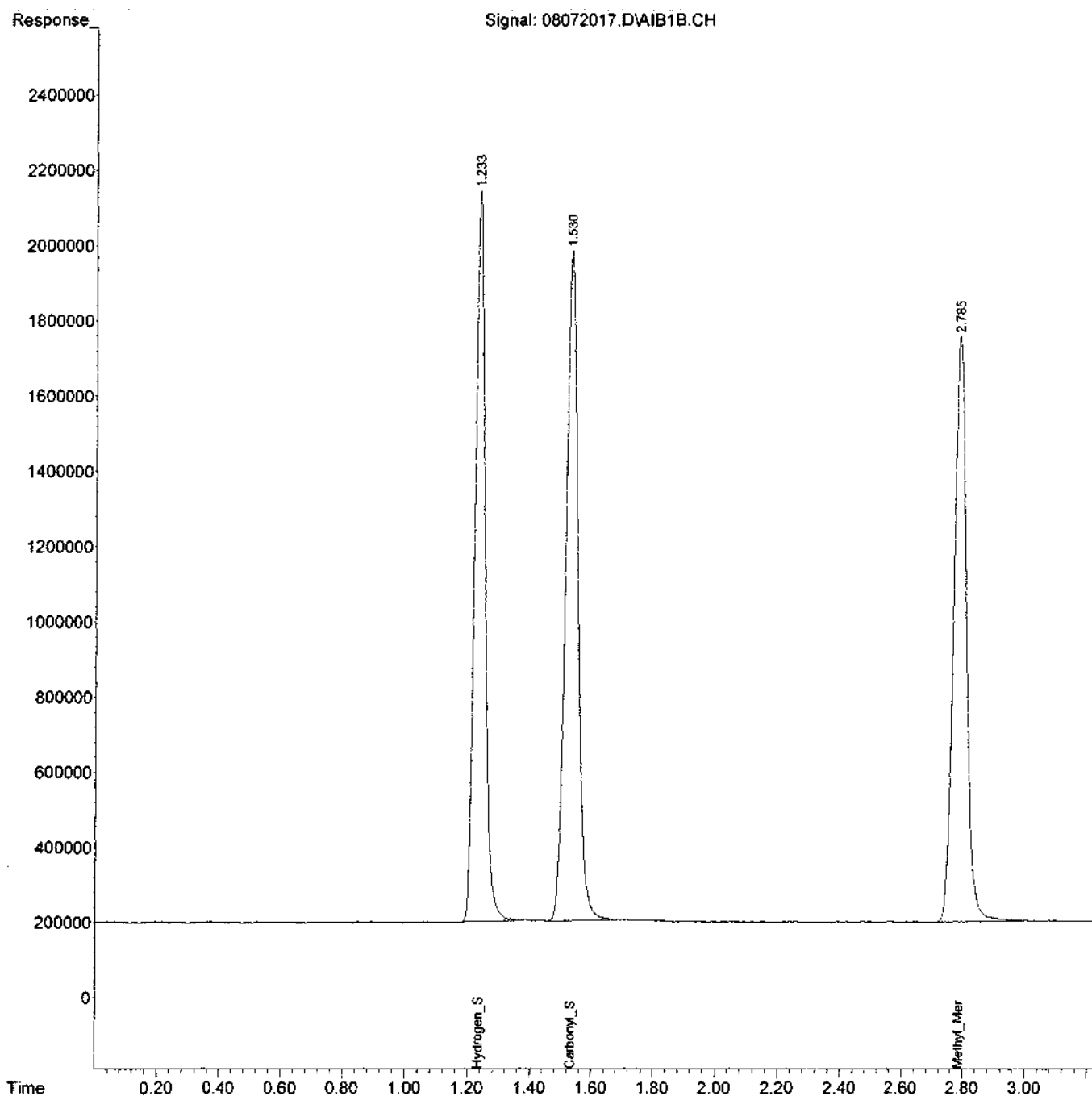
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072017.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 11:50 am
Operator : GG
Sample : 1000ppb
Misc : 100ul of S32-07212001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:56:10 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072018.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 12:12 pm
 Operator : GG
 Sample : 5000ppb
 Misc : 500ul of S32-07212001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:56:40 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target Compounds					
1) Z	Hydrogen_Sulfide	1.235	234491306	5040.216	ppb
2) W	Carbonyl_Sulfide	1.534	271723335	4953.599	ppb
3) T	Methyl_Mercaptan	2.789	244984607	5998.078	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

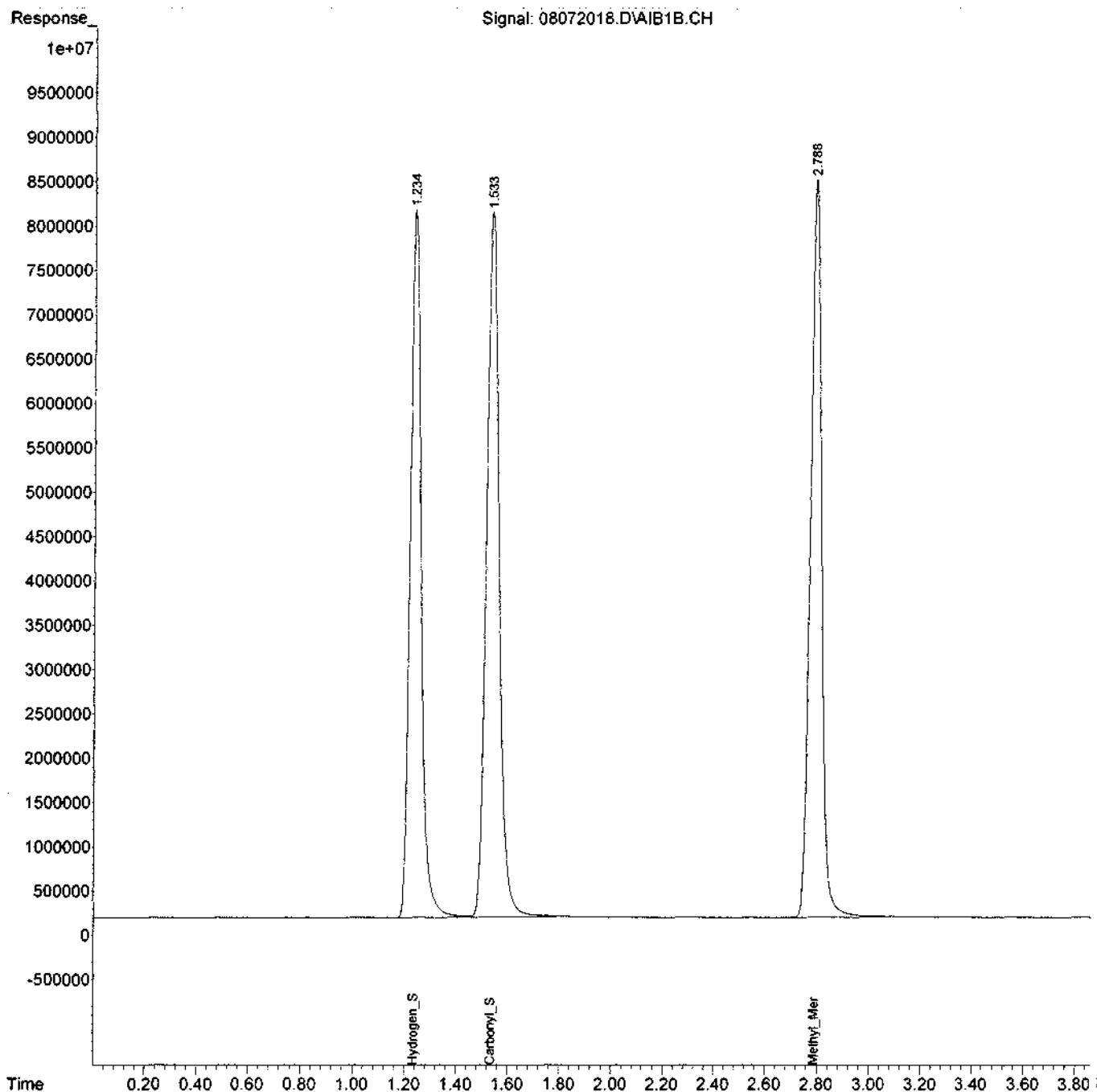
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072018.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 12:12 pm
Operator : GG
Sample : 5000ppb
Misc : 500ul of S32-07212001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:56:40 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072019.D
 Signal(s) : AIE1B.CH
 Acq On : 07 Aug 2020 12:22 pm
 Operator : GG
 Sample : 10000ppb
 Misc : 1ml of S32-07212001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:57:10 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 12:52:45 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target Compounds					
1) Z	Hydrogen_Sulfide	1.234	464358044	9965.000	ppb
2) W	Carbonyl_Sulfide	1.534	539488105	9853.320	ppb
3) T	Methyl_Mercaptan	2.791	491982467	11583.017	ppb
4) T	Ethyl_Mercaptan	3.754f	3765451	NoCal	ppb
5) T	Dimethyl_Sulfide	4.068	242677	NoCal	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	5.286f	3894902	NoCal	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

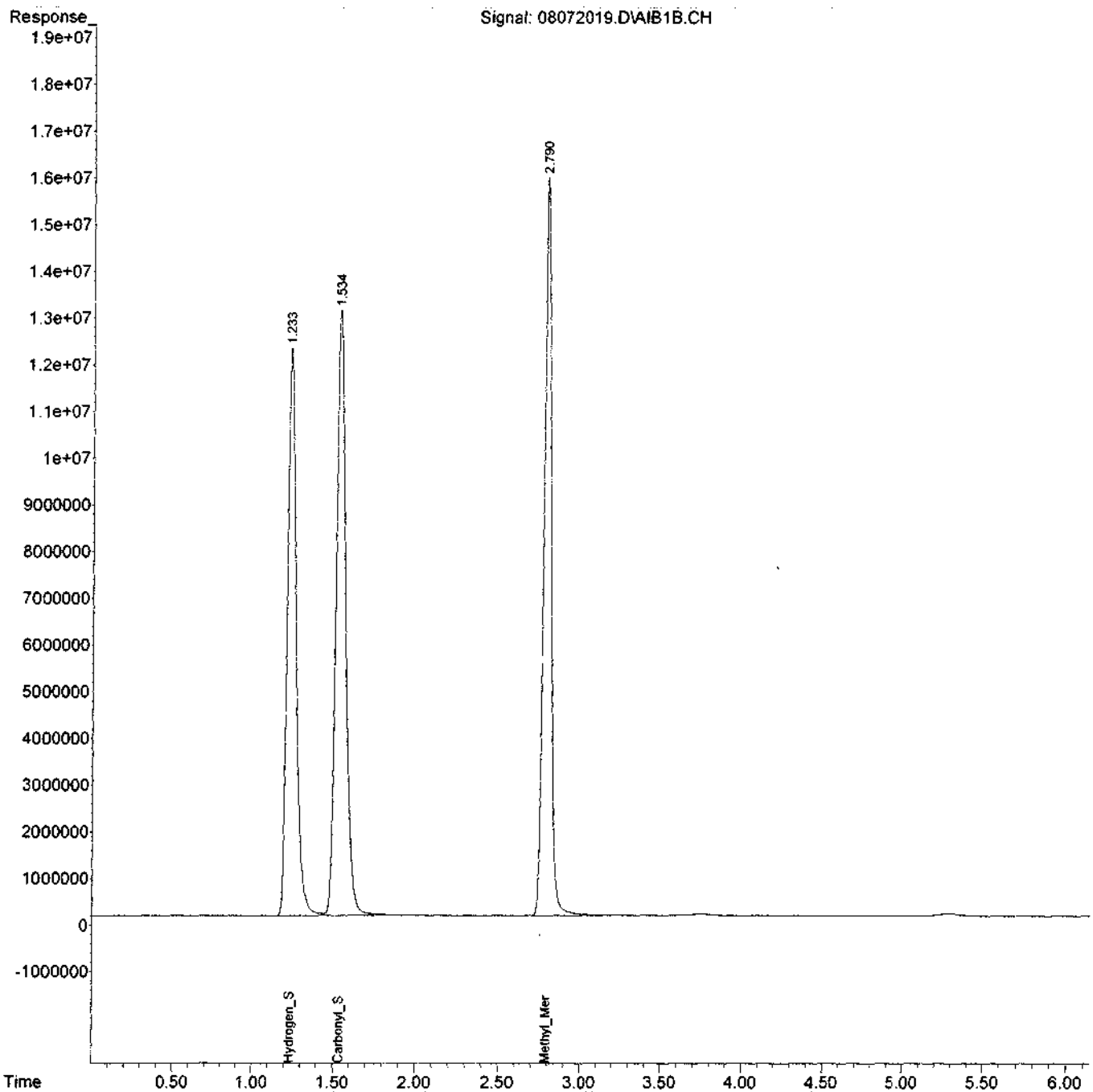
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072019.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 12:22 pm
Operator : GG
Sample : 10000ppb
Misc : 1ml of S32-07212001
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:57:10 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 12:52:45 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072020.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 12:38 pm
 Operator : GG
 Sample : 50000ppb
 Misc : 50ul of S32-10161804
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 12:58:51 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 12:58:37 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units	

Target Compounds						
1) Z	Hydrogen_Sulfide	1.233	2788295360	59871.000	ppb	
2) W	Carbonyl_Sulfide	1.530	2925620697	53565.078	ppb	
3) T	Methyl_Mercaptan	2.787	2767032458	63471.184	ppb	
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	d
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	d
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8) T	t-Butyl_Mercaptan	5.087f	7375603	NoCal	ppb	
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11) T	Thiophene	0.000	0	N.D.	ppb	
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22) T	Methyltrisulfide	0.000	0	N.D.	ppb	

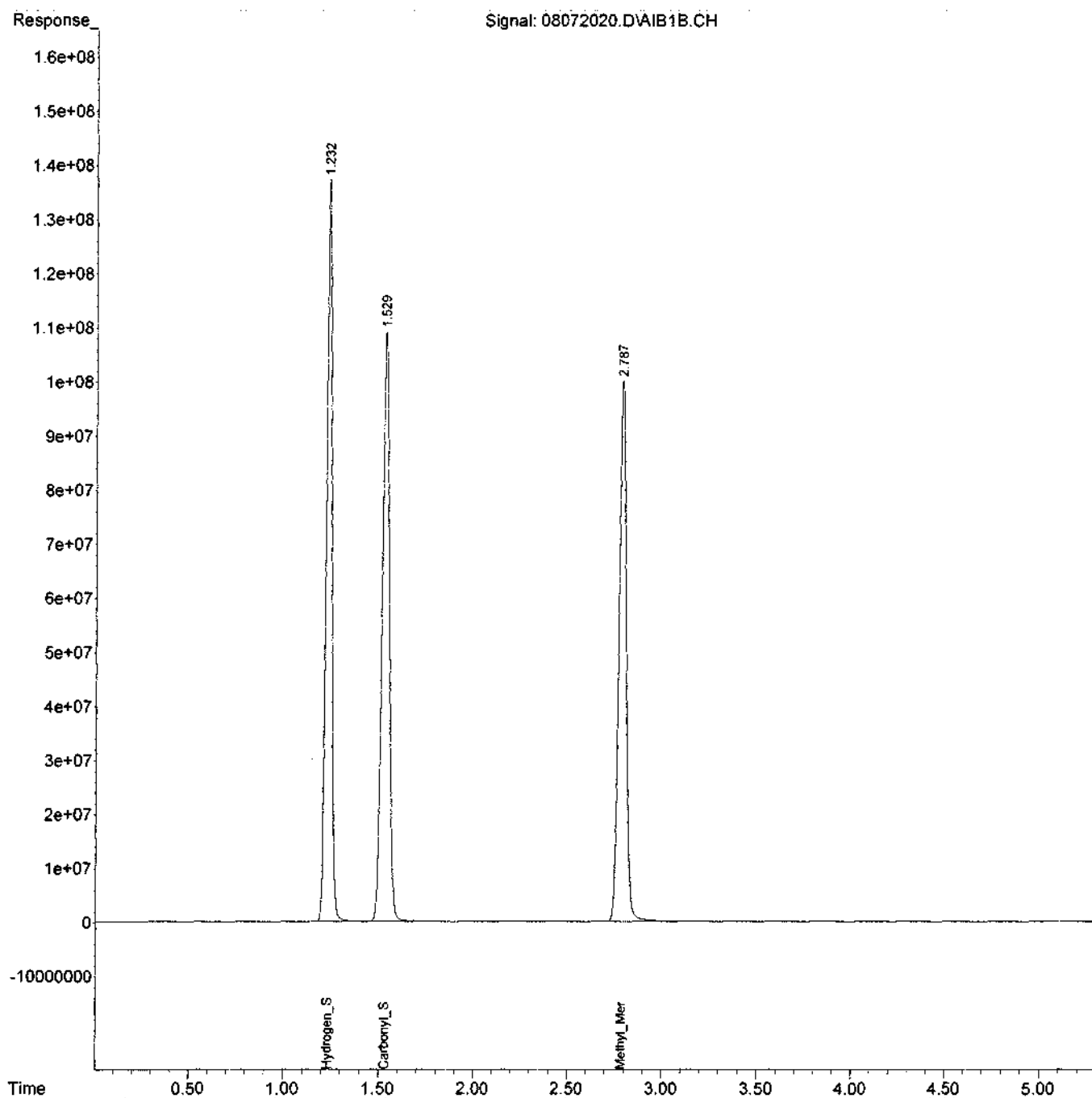
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072020.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 12:38 pm
Operator : GG
Sample : 50000ppb
Misc : 50ul of S32-10161804
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 12:58:51 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 12:58:37 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072022.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 1:48 pm
 Operator : GG
 Sample : ICV
 Misc : 100ul of S32-07212002
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 13:51:55 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units	Actual	Recover

Target Compounds					
1) Z Hydrogen_Sulfide	1.237	41694734	870.723 ppb	989	88.07 %
2) W Carbonyl_Sulfide	1.534	47374904	858.639 ppb	1050	81.78 %
3) T Methyl_Mercaptan	2.790	41162699	909.210 ppb	1050	86.59 %
4) T Ethyl_Mercaptan	0.000	0	N.D. ppb		
5) T Dimethyl_Sulfide	0.000	0	N.D. ppb		
6) T Carbon_Disulfide	0.000	0	N.D. ppb		
7) T 2-Propyl_Mercaptan	0.000	0	N.D. ppb		
8) T t-Butyl_Mercaptan	0.000	0	N.D. ppb		
9) T Propyl_Mercaptan	0.000	0	N.D. ppb		
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D. ppb		
11) T Thiophene	0.000	0	N.D. ppb		
12) T i-Butyl_Mercaptan	0.000	0	N.D. ppb		
13) T Diethyl_Sulfide	0.000	0	N.D. ppb		
14) t n-Butyl_Mercaptan	0.000	0	N.D. ppb		
15) t Dimethyl_Disulfide	0.000	0	N.D. ppb		
16) T 2-Methyl_Thiophene	0.000	0	N.D. ppb		
17) t 3-Methyl_Thiophene	0.000	0	N.D. ppb		
18) T Tetrahydrothiophene	0.000	0	N.D. ppb		
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D. ppb		
20) T 2-Ethyl_Thiophene	0.000	0	N.D. ppb		
21) T Diethyl_Disulfide	0.000	0	N.D. ppb		
22) T Methyltrisulfide	0.000	0	N.D. ppb		

(f)=RT Delta > 1/2 Window

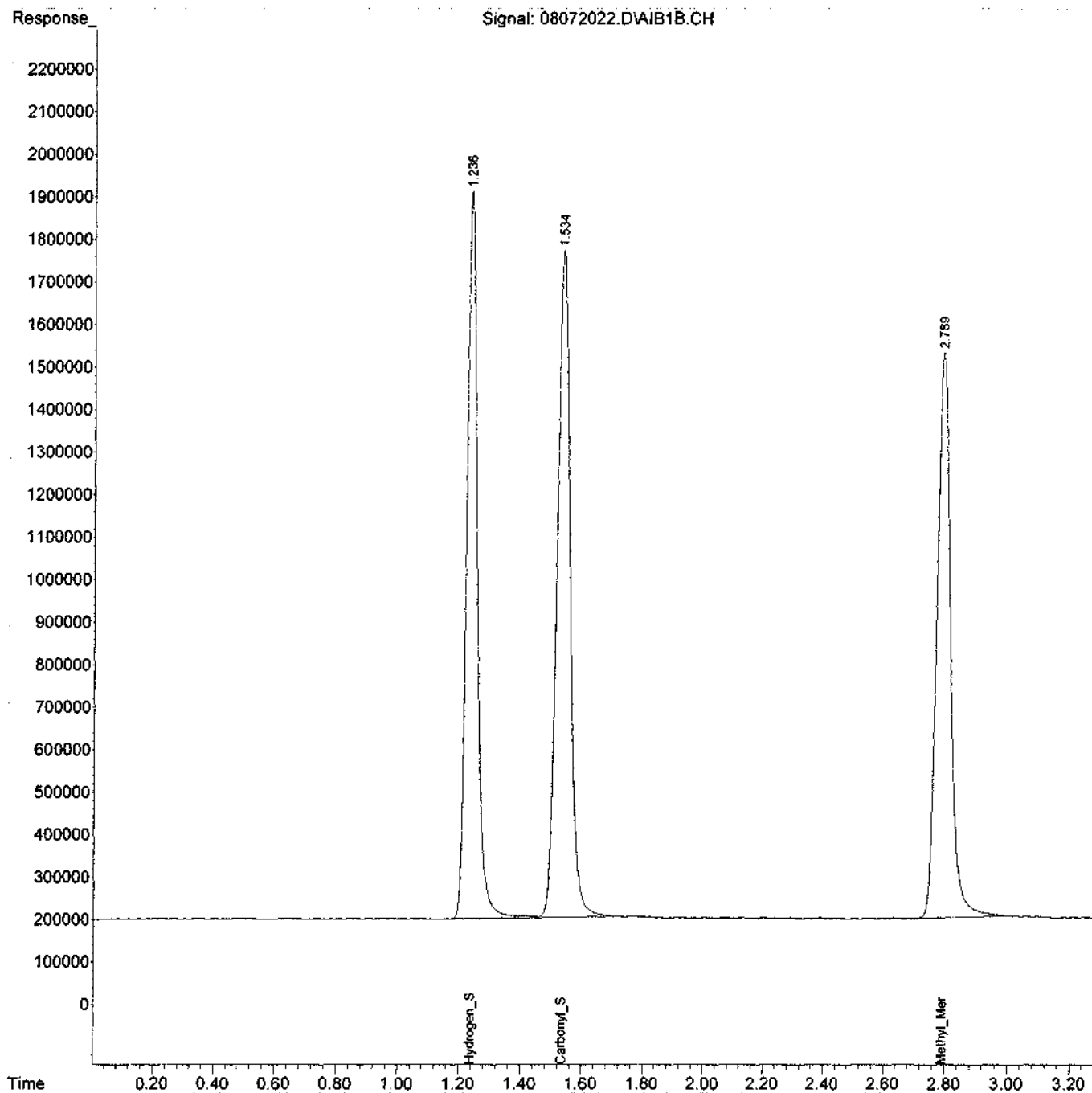
(m)=manual int.

W* 8/31/20

Data Path : J:\GC13\DATA\SCD\2020_08\07\
Data File : 08072022.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 1:48 pm
Operator : GG
Sample : ICV
Misc : 100ul of S32-07212002
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 13:51:55 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2020_08\07\
 Data File : 08072023.D
 Signal(s) : AIB1B.CH
 Acq On : 07 Aug 2020 2:06 pm
 Operator : GG
 Sample : MB 1.0ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Aug 07 17:36:39 2020
 Quant Method : J:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH20_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target Compounds					
1) Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb
2) W	Carbonyl_Sulfide	0.000	0	N.D.	ppb
3) T	Methyl_Mercaptan	0.000	0	N.D.	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

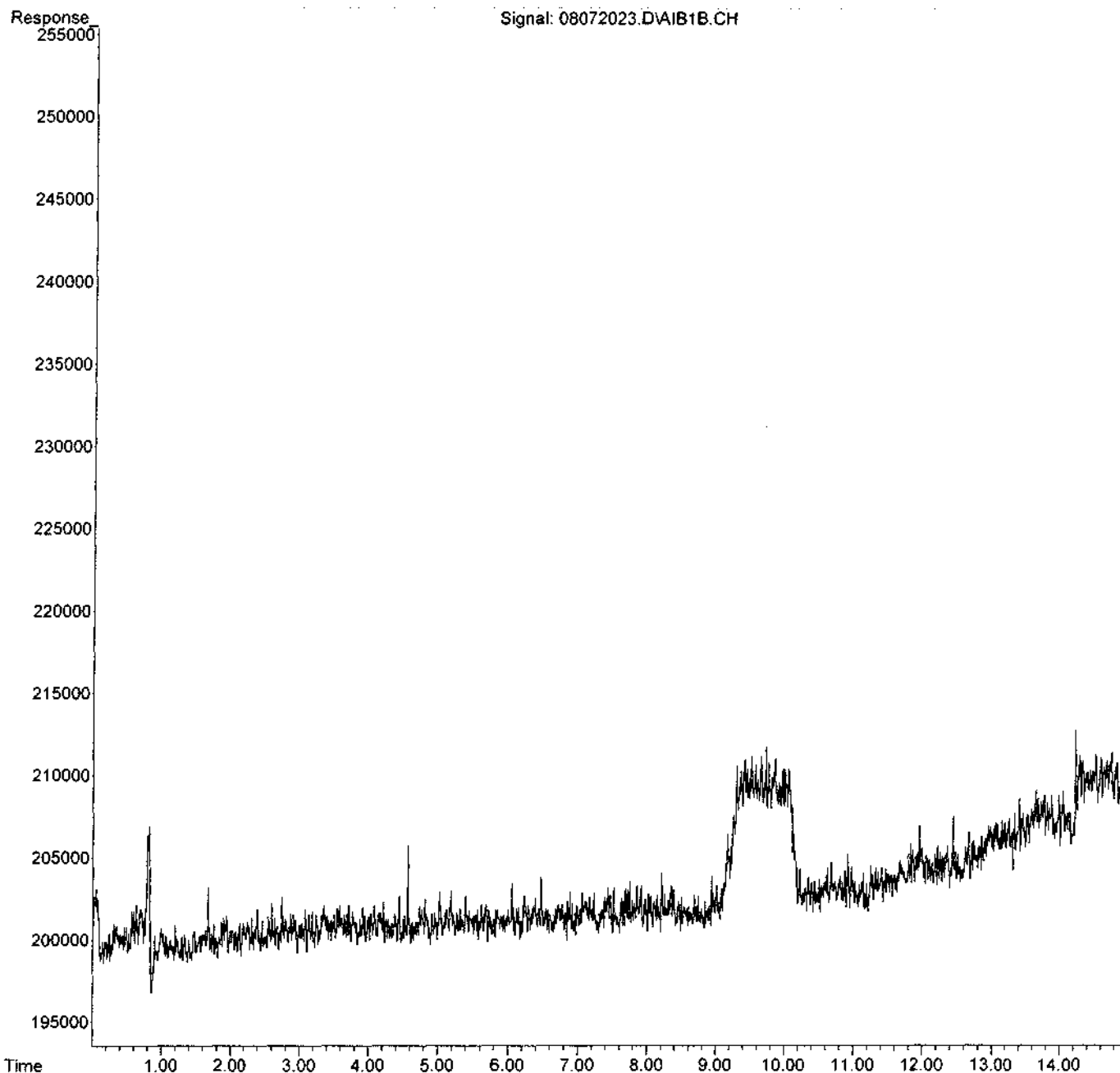
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2020_08\07\
Data File : 08072023.D
Signal(s) : AIB1B.CH
Acq On : 07 Aug 2020 2:06 pm
Operator : GG
Sample : MB 1.0ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Aug 07 17:36:39 2020
Quant Method : J:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



ALS Environmental

REPORT SUMMARY

Method : GC13SCD2.M

Client : SQ Environmental, LLC

Analyst : GG

Service Request : P2402855

Instrument : GC13

Date Acquired : 7/16/24

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup		Continuing Calibration Standards Summary (ppbv)											
			MB				dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	MB 1.0ml						STD S33-06212401		STD S33-06212401									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0			0.10		0.10		0.10		0.10		0.10		0.10	
Dilution	1.0	1.0	1.00		1.0	1.0														
Pi:	1.0	1.0	1.0		1.0	1.0														
Pi:	1.0	1.0	1.0		1.0	1.0														
PiPf DF:	1.0	1.0	1.0		1.0	1.0														
Hydrogen_Sulfide	1.900	5.000	ND	P					949.80	5.1%	996.622	0.4%								
Carbonyl_Sulfide	1.700	5.000	ND	P					1074.83	5.1%	1119.052	9.4%								
Methyl_Mercaptan	1.200	5.000	ND	P					1051.57	4.0%	1075.403	6.4%								
Ethyl_Mercaptan	1.200	5.000	ND	P																
Dimethyl_Sulfide	1.200	5.000	ND	P					8:17 AM		1:42 PM									
Carbon_Disulfide	0.600	2.500	ND	P					07162402.D		07162417.D									
2-Propyl_Mercaptan	1.200	5.000	ND	P					LCS / LCS Dup Summary (ppbv)											
t-Butyl_Mercaptan	1.200	5.000	ND	P																
Propyl_Mercaptan	1.200	5.000	ND	P																
Ethyl_Methyl_Sulfide	1.200	5.000	ND	P																
Thiophene	1.200	5.000	ND	P																
i-Butyl_Mercaptan	1.200	5.000	ND	P																
Diethyl_Sulfide	1.200	5.000	ND	P																
n-Butyl_Mercaptan	1.200	5.000	ND	P																
Dimethyl_Disulfide	0.600	2.500	ND	P																
2-Methylthiophene	1.200	5.000	ND	P																
3-Methylthiophene	1.200	5.000	ND	P																
Tetrahydrothiophene	1.200	5.000	ND	P																
2,5-Dimethylthiophene	1.200	5.000	ND	P																
2-Ethylthiophene	1.200	5.000	ND	P																
Diethyl_Disulfide	0.600	2.500	ND	P																
Methyltrisulfide	0.600	2.500	ND	P																
Acqisition Time			9:14 AM																	
DataFile			07162406.D																	

Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162402.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 8:17
 Operator : GG
 Sample : STD S33-06212401
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 16 08:27:11 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

	Compound	R.T.	Response	Conc	Units

Target	Compounds				
1) Z	Hydrogen_Sulfide	1.038	45481366	949.801	ppb
2) W	Carbonyl_Sulfide	1.310	59303073	1074.830	ppb
3) T	Methyl_Mercaptan	2.518	47607714	1051.569	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb d
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

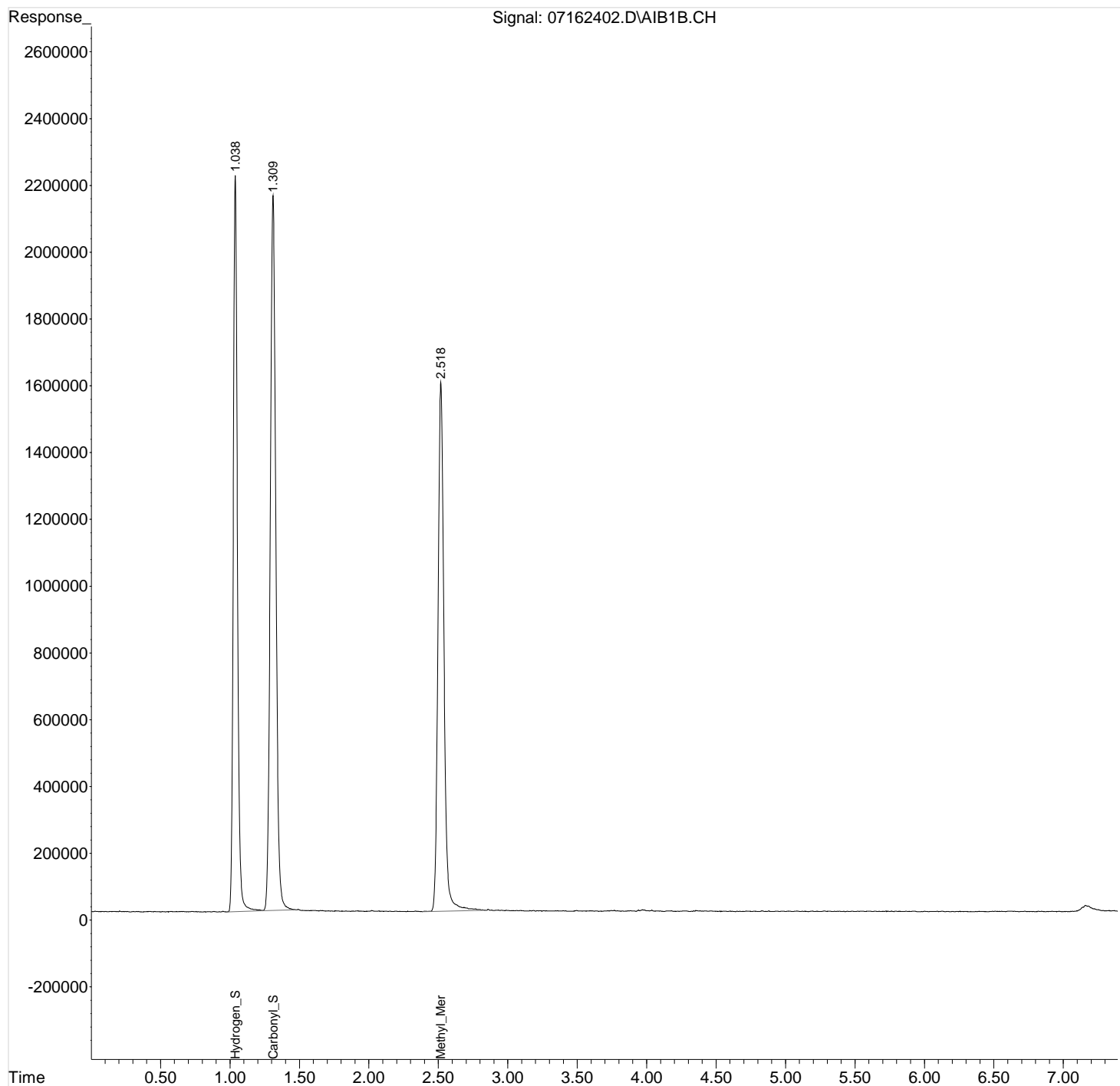
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162402.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 8:17
Operator : GG
Sample : STD S33-06212401
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 08:27:11 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC13\DATA\SCD\2024_07\16\
 Data File : 07162417.D
 Signal(s) : AIB1B.CH
 Acq On : 16 Jul 2024 13:42
 Operator : GG
 Sample : STD S33-06212401
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
 Quant Time: Jul 16 14:01:48 2024
 Quant Method : I:\GC13\METHODS\GC13_080720.M
 Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
 QLast Update : Fri Aug 07 13:29:15 2020
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Z Hydrogen_Sulfide	1.037	47723406	996.622 ppb
2) W Carbonyl_Sulfide	1.309	61743042	1119.052 ppb
3) T Methyl_Mercaptan	2.516	48686743	1075.403 ppb
4) T Ethyl_Mercaptan	0.000	0	N.D. ppb
5) T Dimethyl_Sulfide	0.000	0	N.D. ppb
6) T Carbon_Disulfide	0.000	0	N.D. ppb
7) T 2-Propyl_Mercaptan	0.000	0	N.D. ppb
8) T t-Butyl_Mercaptan	0.000	0	N.D. ppb
9) T Propyl_Mercaptan	0.000	0	N.D. ppb
10) T Ethyl_Methyl_Sulfide	0.000	0	N.D. ppb
11) T Thiophene	0.000	0	N.D. ppb
12) T i-Butyl_Mercaptan	0.000	0	N.D. ppb
13) T Diethyl_Sulfide	0.000	0	N.D. ppb
14) t n-Butyl_Mercaptan	0.000	0	N.D. ppb
15) t Dimethyl_Disulfide	0.000	0	N.D. ppb d
16) T 2-Methyl_Thiophene	0.000	0	N.D. ppb
17) t 3-Methyl_Thiophene	0.000	0	N.D. ppb
18) T Tetrahydrothiophene	0.000	0	N.D. ppb
19) t 2,5-Dimethyl_Thiophene	0.000	0	N.D. ppb
20) T 2-Ethyl_Thiophene	0.000	0	N.D. ppb
21) T Diethyl_Disulfide	0.000	0	N.D. ppb
22) T Methyltrisulfide	0.000	0	N.D. ppb

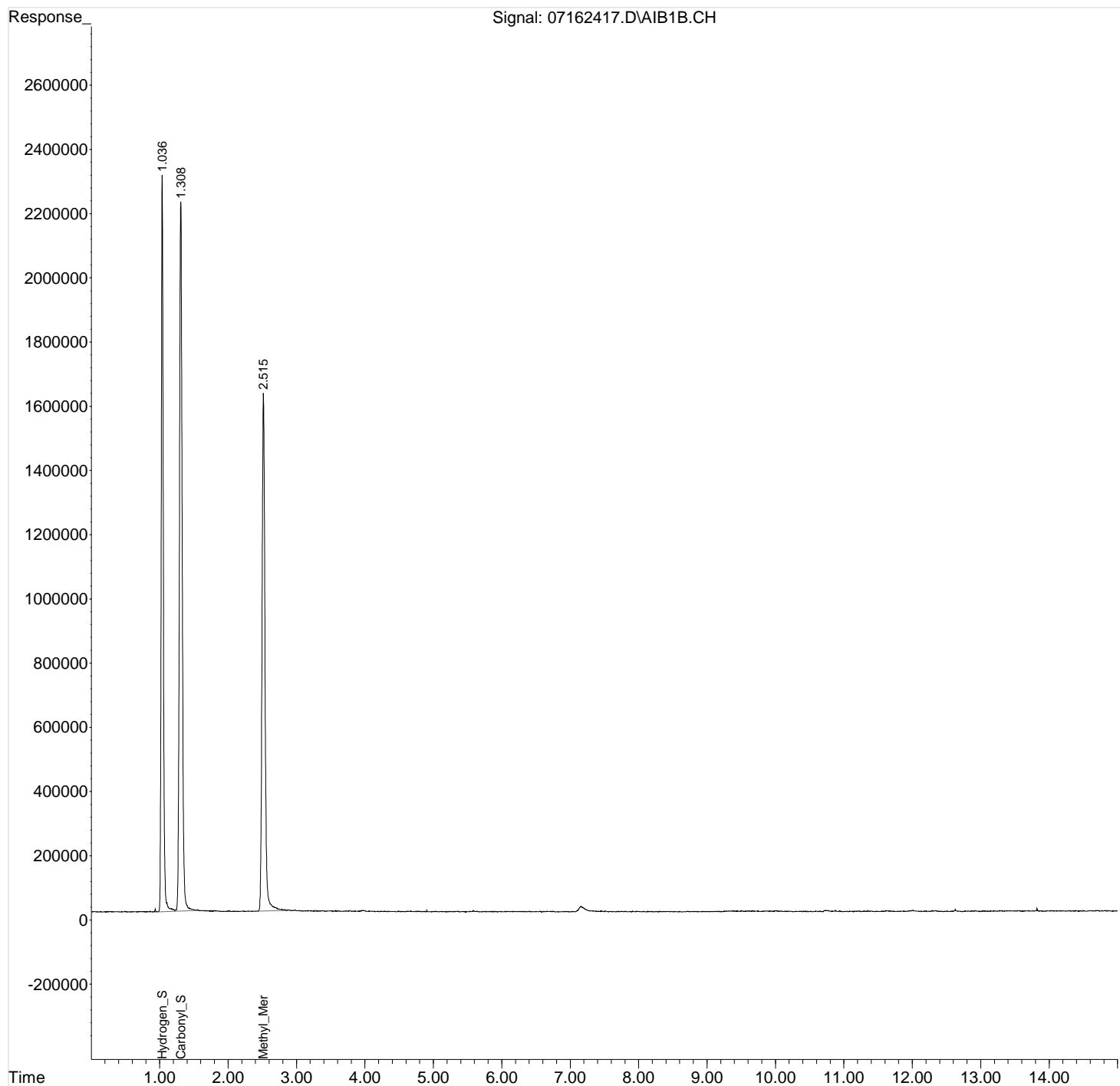
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC13\DATA\SCD\2024_07\16\
Data File : 07162417.D
Signal(s) : AIB1B.CH
Acq On : 16 Jul 2024 13:42
Operator : GG
Sample : STD S33-06212401
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jul 16 14:01:48 2024
Quant Method : I:\GC13\METHODS\GC13_080720.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Fri Aug 07 13:29:15 2020
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Line	Vial	FileName	Multplier	SampleName	Misc Info	Injected
1	1	08072001.d	1.	IB		07 Aug 2020 05:52
2	1	08072002.d	1.	MB		07 Aug 2020 06:12
3	1	08072003.d	1.	100000ppb		07 Aug 2020 06:36
4	1	08072004.d	1.	50000ppb		07 Aug 2020 07:00
5	1	08072005.d	1.	RT HL		07 Aug 2020 07:25
6	1	08072006.d	1.	RT ML		07 Aug 2020 07:44
7	1	08072007.d	1.	RT		07 Aug 2020 08:03
8	1	08072008.d	1.	IB		07 Aug 2020 08:29
9	1	08072009.d	1.	MB		07 Aug 2020 08:49
10	1	08072010.d	1.	IB		07 Aug 2020 09:42
11	1	08072011.d	1.	1000ppb		07 Aug 2020 10:12
12	1	08072012.d	1.	5ppb		07 Aug 2020 10:25
13	1	08072013.d	1.	5ppb		07 Aug 2020 10:30
14	1	08072014.d	1.	5ppb	50ul of S32-08072001	07 Aug 2020 10:43
15	1	08072015.d	1.	20ppb	200ul of S32-0807...	07 Aug 2020 11:09
16	1	08072016.d	1.	100ppb	1ml of S32-08072001	07 Aug 2020 11:34
17	1	08072017.d	1.	1000ppb	100ul of S32-0721...	07 Aug 2020 11:50
18	1	08072018.d	1.	5000ppb	500ul of S32-0721...	07 Aug 2020 12:12
19	1	08072019.d	1.	10000ppb	1ml of S32-07212001	07 Aug 2020 12:22
20	1	08072020.d	1.	50000ppb	50ul of S32-10161804	07 Aug 2020 12:38
21	1	08072021.d	1.	ICV		07 Aug 2020 13:41
22	1	08072022.d	1.	ICV	100ul of S32-0721...	07 Aug 2020 13:48
23	1	08072023.d	1.	MB 1.0ml		07 Aug 2020 14:06

Injection Log

Directory: I:\GC13\DATA\SCD\2024_07\16\

[illegible]



ANALYTICAL REPORT

Report Date: July 16, 2024

Sam Enis
SQ Environmental, LLC
P.O. Box 1991
Austin, TX 78767

Phone: (512) 656-9445

E-mail: [REDACTED]

Workorder: **34-2419717**

Client Project ID: TX Star, Enless

Purchase Order: NA

Project Manager: Lisa Reid

Analytical Results

Sample ID: SV-10R (1756703788)			Collected: 07/12/2024	
Lab ID: 2419717001		Sampling Location: TX Star, Enless		Received: 07/15/2024
Method: NIOSH 6015 Mod.		Media: SKC 226-10-06, Silica gel tube (Sulfuric acid) (100/200mg)		Instrument: WET01
Dilution: 1		Sampling Parameter: Air Volume 12 L		Analyzed: 07/15/2024 (319186)
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Ammonia	2.6	0.22	0.31	1.2

Sample ID: SV-11R (1756703793)			Collected: 07/12/2024	
Lab ID: 2419717002		Sampling Location: TX Star, Enless		Received: 07/15/2024
Method: NIOSH 6015 Mod.		Media: SKC 226-10-06, Silica gel tube (Sulfuric acid) (100/200mg)		Instrument: WET01
Dilution: 1		Sampling Parameter: Air Volume 12 L		Analyzed: 07/15/2024 (319186)
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Ammonia	1.4	0.11	0.16	1.2

Sample ID: 2364200117		Collected: 07/12/2024		
Lab ID: 2419717003		Received: 07/15/2024		
Method: NIOSH 6015 Mod.		Instrument: WET01		
Media: SKC 226-10-06, Silica gel tube (Sulfuric acid) (100/200mg)		Analyzed: 07/15/2024 (319186)		
Dilution: 1		Sampling Parameter: Air Volume Not Provided		
Sampling Location: TX Star, Enless				
Analyte	Result (ug/sample)	Result (mg/m³)	Result (ppm)	RL (ug/sample)
Ammonia	1.2	NA	NA	1.2

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method (Analysis Batch)	Analyst	Peer Review
NIOSH 6015 Mod. (319186)	/S/ Brian S. Stites 07/15/2024 22:11	/S/ Kristie F. Bitner 07/16/2024 08:51



ANALYTICAL REPORT

Workorder: **34-2419717**

Client Project ID: TX Star, Enless

Purchase Order: NA

Project Manager: Lisa Reid

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: [REDACTED]
Web: www.alsglobal.com/slt

General Lab Comments

The results provided in this report relate only to the items tested.

Samples were received in acceptable condition unless otherwise noted.

The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter. Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.

Samples have not been blank corrected unless otherwise noted.

This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L24-29	http://www.pjllabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.

LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.

ND = Not Detected, Testing result not detected above the LOD or LOQ.

NA = Not Applicable.

** No result could be reported, see sample comments for details.

< Means this testing result is less than the numerical value.

() This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

13 ADJACENT LANDOWNER MAP & LANDOWNER LIST

A map that identifies the properties owned by adjacent landowners that share a property line with the subject property, as well as those properties across a public right-of-way, is provided in **Attachment 13**.

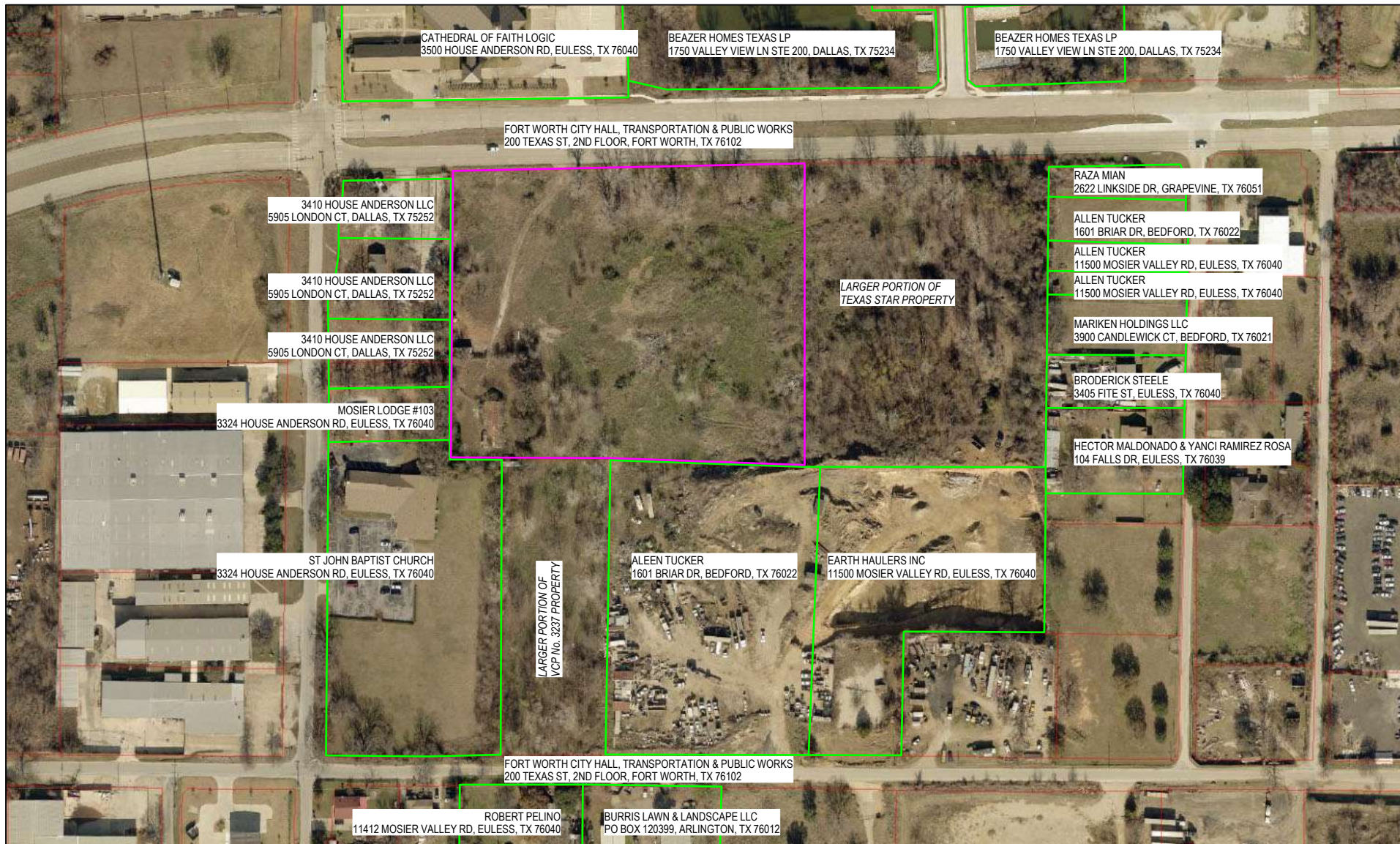
Also in **Attachment 13** is an electronic mailing list for the adjacent landowners map that contains each property owner's name, mailing address, city, state, and zip code.

ATTACHMENT 13

ADJACENT LANDOWNER MAP & LIST

ATTACHMENT 13
ADJACENT LANDOWNERS MAILING ADDRESS LIST
 TEXAS STAR PROPERTY - WEST
 11450 TRINITY BLVD, EULESS, TEXAS

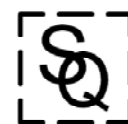
OWNER NAME	MAILING ADDRESS	CITY	STATE	ZIP
CATHEDRAL OF FAITH COGIC	3500 HOUSE ANDERSON RD	EULESS	TX	76040
BEAZER HOMES TEXAS LP	1750 VALLEY VIEW LN STE 200	DALLAS	TX	75234
RAZA MIAN	2622 LINKSIDE DR	GRAPEVINE	TX	76051
ALLEN TUCKER	1601 BRIAR DR	BEDFORD	TX	76022
ALLEN TUCKER	11500 MOSIER VALLEY RD	EULESS	TX	76040
MARIKEN HOLDINGS LLC	3900 CANDLEWICK CT	BEDFORD	TX	76021
BRODERICK STEELE	3405 FITE ST	EULESS	TX	76040
HECTOR MALDONADO & YANCI RAMIREZ ROSA	104 FALLS DR	EULESS	TX	76039
EARTH HAULERS INC	11500 MOSIER VALLEY RD	EULESS	TX	76040
BURRIS LAWN & LANDSCAPE LLC	PO BOX 120399	ARLINGTON	TX	76012
ROBERT PELINO	11412 MOSIER VALLEY RD	EULESS	TX	76040
ST JOHN BAPTIST CHURCH	3324 HOUSE ANDERSON RD	EULESS	TX	76040
MOSIER LODGE #103	3324 HOUSE ANDERSON RD	EULESS	TX	76040
3410 HOUSE ANDERSON LLC	5905 LONDON CT	DALLAS	TX	75252
FORT WORTH CITY HALL, TRANSPORTATION & PUBLIC WORKS	200 TEXAS ST, 2ND FLOOR	FORT WORTH	TX	76102



LEGEND

- SUBJECT PROPERTY BOUNDARY, APPROXIMATE
- ADJACENT TAD PARCEL BOUNDARIES, APPROXIMATE

SOURCE: TAD, ACCESSED DECEMBER 2023



SQ Environmental, LLC

SCALE: 1 IN = 250 FT

ATTACHMENT 13

ADJACENT LANDOWNERS MAP

TEXAS STAR PROPERTY - WEST
11450 TRINITY BLVD
EULESS, TEXAS 76040

DATE: DEC 2023

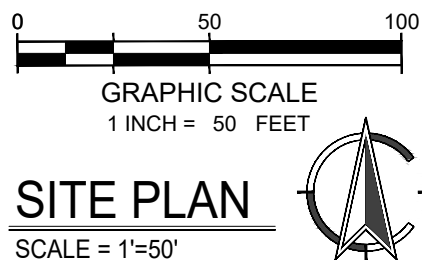
PN: 1098.015.003

14 SITE LAYOUT PLAN

Site Plans that present the subject property boundaries, proposed enclosed and non-enclosed structures, and drainage easement on the east-adjacent property are provided as **Attachment 14**.

ATTACHMENT 14

SITE PLANS



UNIT TABULATION		# UNITS	S.F.	TOTAL SQ. FT.
A1	ONE BEDROOM, ONE BATH	71	650 S.F.	46,150 S.F.
A2	ONE BEDROOM, ONE BATH	24	740 S.F.	17,760 S.F.
A3	ONE BEDROOM, ONE BATH	47	760 S.F.	35,720 S.F.
A4	ONE BEDROOM, ONE BATH	28	880 S.F.	23,800 S.F.
A5	ONE BEDROOM, ONE BATH	8	850 S.F.	6,800 S.F.
A6	ONE BEDROOM, ONE BATH	16	930 S.F.	14,880 S.F.
B1	TWO BEDROOM, TWO BATH	66	1,150 S.F.	75,900 S.F.
B2	TWO BEDROOM, TWO BATH	42	1,250 S.F.	52,500 S.F.
C1	THREE BEDROOM, TWO BATH	8	1,333 S.F.	10,664 S.F.
T/A1	ONE BEDROOM, ONE BATH	4	854 S.F.	3,416 S.F.
T/B1	TWO BEDROOM, TWO BATH	8	1,271 S.F.	10,168 S.F.
T/B2	TWO BEDROOM, TWO BATH	8	1,414 S.F.	11,312 S.F.
T/B3	TWO BEDROOM, TWO BATH	4	1,506 S.F.	6,024 S.F.
TOTAL		334		315,226 S.F.

BUILDING TABULATION					
TYPE	#BLDGS	UNITS/BLDG.	UNIT TYPES	BLDG. S.F.	TOTAL S.F.
A (4 STORY)	1	238	A1-T1, A3-35, A4-28, A5-8, A6-16, B1-66, B2-6, C1-8	212,294 SF	212,294 SF
B (2 STORY)	2	12	T/A, B1-B4, T1/B2-4, T/B3-2	15,526 SF	31,052 SF
C (3 STORY)	2	24	A2-12, B2-12	23,880 SF	47,760 SF
D (3 STORY)	1	24	A3-12, B2-12	24,120 SF	24,120 SF
TOTAL	6				315,226 SF

ARCHITECT:
CROSS ARCHITECTS, PLLC
879 JUNCTION DRIVE
ALLEN, TEXAS 75013
P: 972.398.6644
WWW.CROSSARCHITECTS.COM

TEXAS STAR
FORT WORTH, TEXAS

DATE: 04.30.2024

PROJECT NUMBER:
23067

REVISIONS

[illegible]

ISSUED FOR:

95% SET

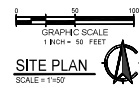
SHEET NUMBER

A1.0

SITE PLAN

TEXAS STAR
FORT WORTH, TEXAS

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ARCHITECT:
CROSS ARCHITECTS, PLLC
1879 JUNCTION DRIVE
ALLEN, TEXAS 75013
P: 972.398.6644
WWW.CROSSARCHITECTS.COM

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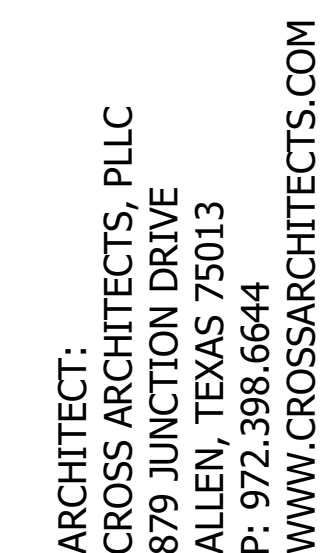
A circular professional seal for Bryan Ramsey, a Registered Architect in the State of Texas. The seal features a five-pointed star in the center, with the name "BRYAN RAMSEY" written in a circle around it. The outer ring of the seal contains the text "REGISTERED ARCHITECT" and "STATE OF TEXAS". The number "184154" is visible on the right side of the seal.

ARCHITECT:
CROSS ARCHITECTS, PLLC
879 JUNCTION DRIVE
ALLEN, TEXAS 75013
P: 972.398.6644
WWW.CROSSARCHITECTS.COM

BLDG. 'A'
EXTERIOR
ELEVATIONS
COPYRIGHT © 2021

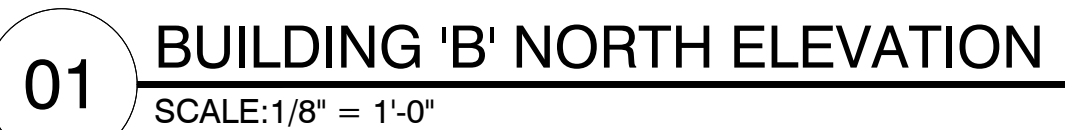
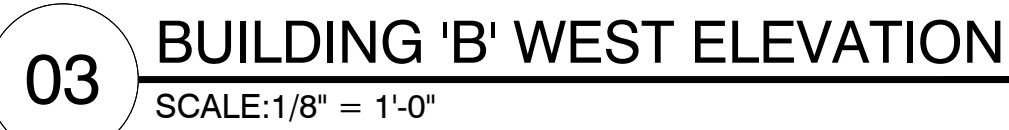
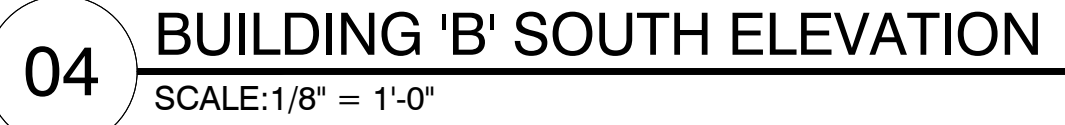


A circular professional seal for Bryan Ramsey, a Registered Architect in the State of Texas. The seal features a five-pointed star in the center, with the name "BRYAN RAMSEY" written in a circle around it. The outer ring of the seal contains the text "REGISTERED ARCHITECT" and "STATE OF TEXAS". The number "184154" is visible on the right side of the seal.



A4.1





ARCHITECT:
CROSS ARCHITECTS, PLLC
879 JUNCTION DRIVE
ALLEN, TEXAS 75013
P: 972.398.6644
WWW.CROSSARCHITECTS.COM

BLDG. 'D'
BUILDING
ELEVATIONS
COPYRIGHT © 2021

04 BUILDING 'D' NORTH ELEVATION
SCALE: 1/8" = 1'-0"

03 BUILDING 'D' WEST ELEVATION
SCALE: 1/8" = 1'-0"

02 BUILDING 'D' EAST ELEVATION
SCALE: 1/8" = 1'-0"

01 BUILDING 'D' SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

15 PROPERTY LEGAL DESCRIPTION

A legal description of the Texas Star Property, which includes the subject property, is provided as **Attachment 15**.

ATTACHMENT 15

PROPERTY LEGAL DESCRIPTION



VICINITY MAP
NOT TO SCALE

PROPERTY DESCRIPTION

TRACT I

BEING a tract of land situated in the Kitty House Survey, Abstract No. 678, Tarrant County, Texas, and being all of that certain tract of land described by deed to HMH Family Partnership, LP, as recorded in County Clerk's Document Number D205366054, Official Public Records of Tarrant County, Texas (O.P.R.T.C.T.), said tract of land being more particularly described by metes and bounds as follows:

BEGINNING at a found 1/2-inch iron rod with cap stamped "PRISM SURVEYING" for corner in the southerly right-of-way line of Trinity Boulevard (variable width right-of-way) as recorded in Deed to the City of Fort Worth, as recorded in Volume 4170, Page 676, Deed Records of Tarrant County, Texas (D.R.T.C.T.), being the northeast corner of a right-of-way acquisition described as "Parcel 23" in Deed to the State of Texas as recorded in County Clerk's Document Number D201011982, O.P.R.T.C.T.;

THENCE North 88°03'47" East, with the southerly right-of-way line of said Trinity Boulevard, a distance of 1,017.03 feet to a set 5/8-inch iron rod with cap stamped "DUNAWAY ASSOC." (herein referred to as "with cap") for the northwest corner of a right-of-way acquisition described as "Parcel 28" in Deed to the State of Texas as recorded in County Clerk's Document Number D200216935, O.P.R.T.C.T.;

THENCE South 00°00'36" East, departing the southerly right-of-way line of said Trinity Boulevard with the east line of said HMH Family Partnership tract, a distance of 538.61 feet to a set 5/8-inch iron rod with cap for the southeast corner of said HMH Family Partnership tract, being the northeast corner of a tract of land described in Warranty Deed with Vendor's Lien to Earth Haulers, Inc., as recorded in County Clerk's Document Number D214001960, O.P.R.T.C.T., and being on the west line of a tract of land described as "Tract II" in Warranty Deed with Vendor's Lien to Hector A. Maldonado and Yanci L. Rosa, as recorded in County Clerk's Document Number D217123025, O.P.R.T.C.T.;

THENCE North 89°50'40" West, with the south line of said HMH Family Partnership tract, a distance of 1,019.73 feet to a found 5/8-inch iron rod for the southwest corner of said HMH Family Partnership tract, being a corner in the north line of Lot 1, Block 1, Mosier Valley Addition, an addition to the City of Fort Worth, as recorded in Cabinet B, Slide 692, Plat Records of Tarrant County, Texas (P.R.T.C.T.);

THENCE North 00°21'49" East, with the west line of said HMH Family Partnership tract, a distance of 501.48 feet to the POINT OF BEGINNING and containing 529,421 square feet or 12.153 acres of land.

PROPERTY DESCRIPTION

TRACT II

BEING a tract of land situated in the Kitty House Survey, Abstract No. 678, Tarrant County, Texas, and being all of that certain tract of land described as "Tract II" by deed to HMH Family Partnership, LP, as recorded in County Clerk's Document Number D205366054, Official Public Records of Tarrant County, Texas (O.P.R.T.C.T.), said tract of land being more particularly described by metes and bounds as follows:

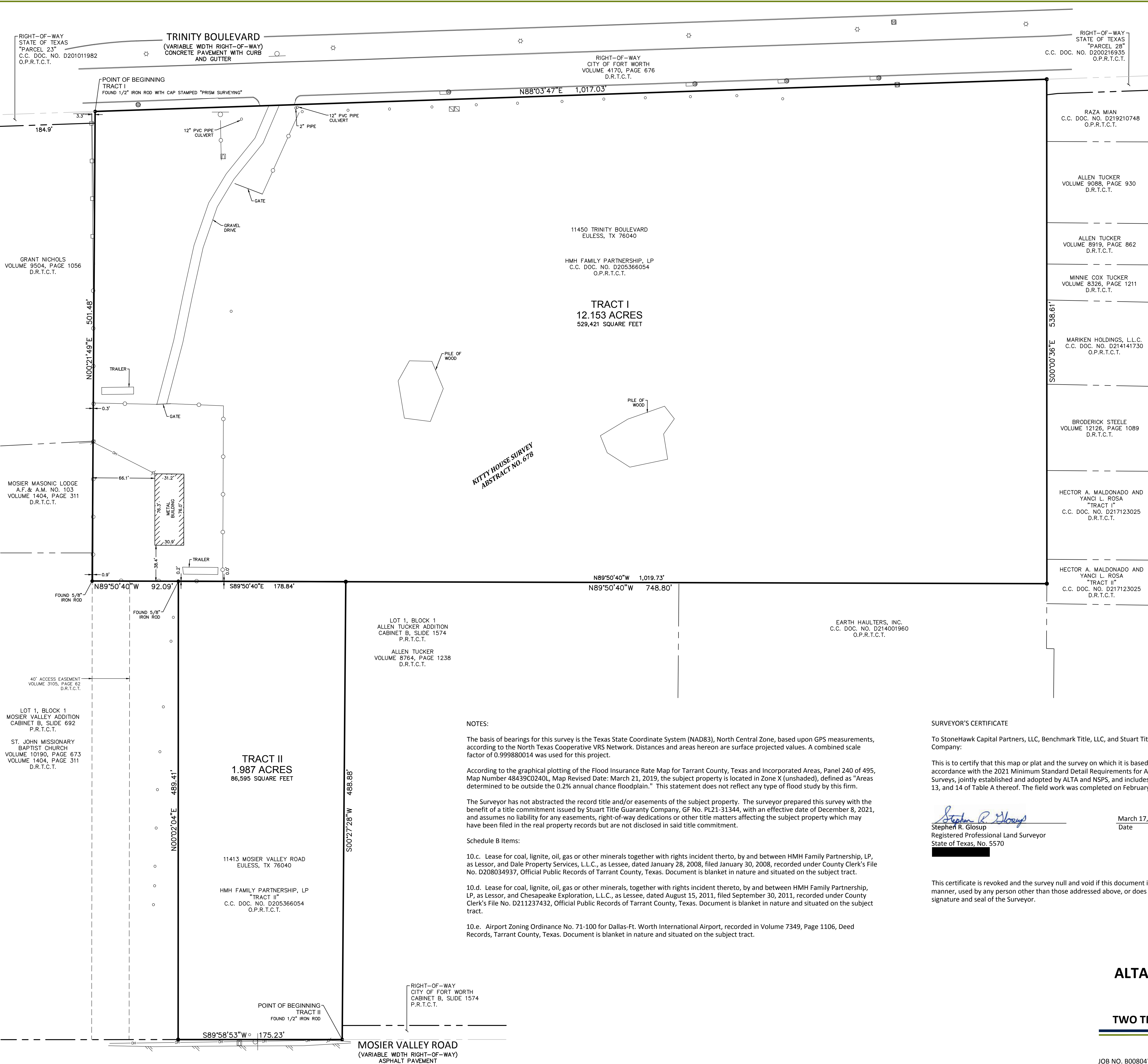
BEGINNING at a found 1/2-inch iron rod in the northerly right-of-way line of Mosier Valley Road (variable width), being the southeast corner of said "Tract II" and the southwest corner of a right-of-way dedication by Lot 1, Block 1, Allen Tucker Addition, an addition to the City of Fort Worth, as recorded in Cabinet B, Slide 1574, Plat Records of Tarrant County, Texas (P.R.T.C.T.);

THENCE South 89°58'53" West, with the northerly right-of-way line of said Mosier Valley Road, a distance of 175.23 feet to a set 5/8-inch iron rod with cap stamped "DUNAWAY ASSOC." (herein referred to as "with cap") for the southwest corner of said "Tract II" and the southeast corner of Lot 1, Block 1, Mosier Valley Addition, an addition to the City of Fort Worth, as recorded in Cabinet B, Slide 692, P.R.T.C.T.;

THENCE North 00°02'04" East, departing the northerly right-of-way line of said Mosier Valley Road with the west line of said "Tract II", a distance of 489.41 feet to a found 5/8-inch iron rod for the northwest corner of said "Tract II", the northeast corner of said Lot 1, Block 1, Mosier Valley Addition, and being in the south line of a tract of land described in said Special Warranty Deed to HMH Family Partnership, and from which a found 5/8-inch iron rod for the southwest corner of said HMH Family Partnership tract and a corner on the north line of said Lot 1, Block 1, Mosier Valley Addition, bears North 89°50'40" West, a distance of 92.09 feet;

THENCE South 89°50'40" East, with the common north line of said "Tract II" and the south line of said HMH Family Partnership tract, a distance of 178.84 feet to a set 5/8-inch iron rod with cap for the northeast corner of said "Tract II" and the northwest corner of said Lot 1, Block 1, Allen Tucker Addition;

THENCE South 00°27'28" West, with the east line of said "Tract II", a distance of 488.88 feet to the POINT OF BEGINNING and containing 86,595 square feet or 1.987 acres of land.



NOTES:

The basis of bearings for this survey is the Texas State Coordinate System (NAD83), North Central Zone, based upon GPS measurements, according to the North Texas Cooperative VRS Network. Distances and areas hereon are surface projected values. A combined scale factor of 0.999880014 was used for this project.

According to the graphical plotting of the Flood Insurance Rate Map for Tarrant County, Texas and Incorporated Areas, Panel 240 of 495, Map Number 48439C0240L, Map Revised Date: March 21, 2019, the subject property is located in Zone X (unshaded), defined as "Areas determined to be outside the 0.2% annual chance floodplain." This statement does not reflect any type of flood study by this firm.

The Surveyor has not abstracted the record title and/or easements of the subject property. The surveyor prepared this survey with the benefit of a title commitment issued by Stuart Title Guaranty Company, GF No. PL21-31344, with an effective date of December 8, 2021, and assumes no liability for any easements, right-of-way dedications or other title matters affecting the subject property which may have been filed in the real property records but are not disclosed in said title commitment.

Schedule B Items:

10.c. Lease for coal, lignite, oil, gas or other minerals together with rights incident thereto, by and between HMH Family Partnership, LP, as Lessor, and Dale Property Services, L.L.C., as Lessee, dated January 28, 2008, filed January 30, 2008, recorded under County Clerk's File No. D208034937, Official Public Records of Tarrant County, Texas. Document is blanket in nature and situated on the subject tract.

10.d. Lease for coal, lignite, oil, gas or other minerals, together with rights incident thereto, by and between HMH Family Partnership, LP, as Lessor, and Chesapeake Exploration, L.L.C., as Lessee, dated August 15, 2011, filed September 30, 2011, recorded under County Clerk's File No. D211237432, Official Public Records of Tarrant County, Texas. Document is blanket in nature and situated on the subject tract.

10.e. Airport Zoning Ordinance No. 71-100 for Dallas-Ft. Worth International Airport, recorded in Volume 7349, Page 1106, Deed Records, Tarrant County, Texas. Document is blanket in nature and situated on the subject tract.

SURVEYOR'S CERTIFICATE

To StoneHawk Capital Partners, LLC, Benchmark Title, LLC, and Stuart Title Guaranty Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1-4, 7(a), 8, 13, and 14 of Table A thereof. The field work was completed on February, 2022.

Stephen R. Glosup
Stephen R. Glosup
Registered Professional Land Surveyor
State of Texas, No. 5570

March 17, 2022
Date



This certificate is revoked and the survey null and void if this document is altered in any manner, used by any person other than those addressed above, or does not bear an original signature and seal of the Surveyor.

ALTA/NSPS LAND TITLE SURVEY
OF
TEXAS STAR
TWO TRACTS OF LAND BEING 14.140 ACRES

Situated in the Kitty House Survey, Abstract No. 678
City of Euless, Tarrant County, Texas

JOB NO. 8008047.001

PAGE 1 OF 1



550 Bailey Avenue • Suite 400 • Fort Worth, Texas 76107
Tel: 817.335.1121
TEXAS REGISTERED SURVEYING FIRM NO. 10098100

16 NOTICE OF LANDFILL DETERMINATION & TO REAL PROPERTY RECORDS

Notices of Landfill Determination for the area where incidental debris has been observed on the subject property have been sent by Certified Mail® by the United States Postal Service (USPS) to:

- The current owner of the subject property, HMM Family Partnership LP.
- The TCEQ Executive Director.
- The City of Fort Worth Development Services.
- The North Central Texas Council of Governments.

Documentation of the notices is provided in **Attachment 16A**.

Attachment 16B is the Deed Notice filed in the real estate records of the County Clerk in the Tarrant County Records Filing Office (and proof of filing) for the subject property (western portion of TAD Account No. 03924394), where the "landfill" area is located.

ATTACHMENT 16A

NOTICES OF LANDFILL DETERMINATION



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

18 April 2024

**CERTIFIED LETTER
RETURN RECEIPT REQUESTED
92148901324734002010295534**

Attn: Development Services
The City of Fort Worth
City Hall, Lower Level
200 Texas St
Fort Worth, Texas 76102

**RE: Notification Regarding Confirmation of Landfill, Texas Star Property – West
11450 Trinity Boulevard
Euless, Tarrant County, Texas 76040
VCP No. 3237 | CN604539007 | RN100729763
SQE PN: 1098.015.003**

Dear Sir/Madame:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.953(d)(1)-(4).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960, Contents of Authorization Request to Disturb Final Cover Over a Closed Municipal Solid Waste Landfill for Non-enclosed Structures, of Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills).

You are not required to respond to this letter; however, if you have any questions regarding this notice, please contact the TCEQ Municipal Solid Waste (MSW) Permits Section at 512-239-2335. Any requests for information may be sent to the above TCEQ MSW Permits Section by regular mail to the TCEQ, MC 124, P.O. Box 13087, Austin, Texas 78711-3087 or by express mail at 12100 Park 35 Circle, Building D, Austin, Texas 78753. Please reference RN102493806 in any correspondence or when contacting TCEQ.

Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, SQ Environmental LLC

Tracking Number:

92148901324734002010295534

Copy

Add to Informed Delivery (https://informedelivery.usps.com/)

Remove X

Latest Update

Your package will arrive later than expected, but is still on its way. It is currently in transit to the next facility.

Get More Out of USPS Tracking:

USPS Tracking Plus®

Delivered

Out for Delivery

Preparing for Delivery

Moving Through Network

In Transit to Next Facility, Arriving Late

April 26, 2024

Departed USPS Regional Facility

FORT WORTH TX DISTRIBUTION CENTER

April 22, 2024, 10:10 pm

Arrived at USPS Regional Destination Facility

FORT WORTH TX DISTRIBUTION CENTER

April 20, 2024, 6:22 pm

Arrived at USPS Regional Origin Facility

PONTIAC MI DISTRIBUTION CENTER

April 18, 2024, 11:25 pm

Accepted at USPS Origin Facility

FLINT, MI 48502

April 18, 2024, 10:10 pm

Shipment Received, Package Acceptance Pending

FLINT, MI 48502

April 18, 2024, 5:43 pm

Pre-Shipment, USPS Awaiting Item

April 18, 2024

Hide Tracking History

Feedback



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

18 April 2024

**CERTIFIED LETTER
RETURN RECEIPT REQUESTED
92148901324734002010295541**

Attn: Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

**RE: Notification Regarding Confirmation of Landfill, Texas Star Property – West
11450 Trinity Boulevard
Euless, Tarrant County, Texas 76040
VCP No. 3237 | CN604539007 | RN100729763
SQE PN: 1098.015.003**

Executive Director:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.953(d)(1)-(4).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960, Contents of Authorization Request to Disturb Final Cover Over a Closed Municipal Solid Waste Landfill for Non-enclosed Structures, of Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills).

You are not required to respond to this letter; however, if you have any questions regarding this notice, please contact the TCEQ Municipal Solid Waste (MSW) Permits Section at 512-239-2335. Any requests for information may be sent to the above TCEQ MSW Permits Section by regular mail to the TCEQ, MC 124, P.O. Box 13087, Austin, Texas 78711-3087 or by express mail at 12100 Park 35 Circle, Building D, Austin, Texas 78753. Please reference RN102493806 in any correspondence or when contacting TCEQ.

Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, SQ Environmental LLC



April 26, 2024

Dear Clint Weaver:

The following is in response to your request for proof of delivery on your item with the tracking number:
9214 8901 3247 3400 2010 2955 41.

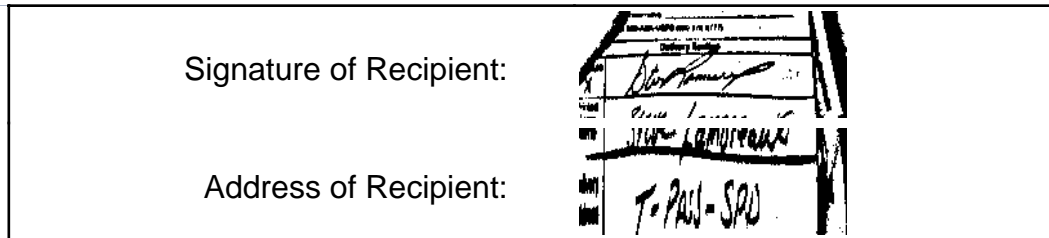
Item Details

Status:	Delivered, PO Box
Status Date / Time:	April 23, 2024, 6:01 am
Location:	AUSTIN, TX 78711
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	Executive Director TCEQ

Destination Delivery Address

Street Address:	PO BOX 13087
City, State ZIP Code:	AUSTIN, TX 78711-3087

Recipient Signature



Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

18 April 2024

**CERTIFIED LETTER
RETURN RECEIPT REQUESTED
92148901324734002010295558**

HMH Family Partnership LP
1104 Dayton Dr
Lantana, Texas 76226

**RE: Notification Regarding Confirmation of Landfill, Texas Star Property – West
11450 Trinity Boulevard
Euless, Tarrant County, Texas 76040
VCP No. 3237 | CN604539007 | RN100729763
SQE PN: 1098.015.003**

Dear Sir/Madame:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.953(d)(1)-(4).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960, Contents of Authorization Request to Disturb Final Cover Over a Closed Municipal Solid Waste Landfill for Non-enclosed Structures, of Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills).

You are not required to respond to this letter; however, if you have any questions regarding this notice, please contact the TCEQ Municipal Solid Waste (MSW) Permits Section at 512-239-2335. Any requests for information may be sent to the above TCEQ MSW Permits Section by regular mail to the TCEQ, MC 124, P.O. Box 13087, Austin, Texas 78711-3087 or by express mail at 12100 Park 35 Circle, Building D, Austin, Texas 78753. Please reference RN102493806 in any correspondence or when contacting TCEQ.

Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, SQ Environmental LLC



April 26, 2024

Dear Clint Weaver:

The following is in response to your request for proof of delivery on your item with the tracking number:
9214 8901 3247 3400 2010 2955 58.

Item Details

Status:	Delivered, Left with Individual
Status Date / Time:	April 22, 2024, 1:15 pm
Location:	ARGYLE, TX 76226
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	HMH Family Partnership LP

Destination Delivery Address

Street Address:	1104 DAYTON DR
City, State ZIP Code:	LANTANA, TX 76226-6561

Recipient Signature

Signature of Recipient:

Address of Recipient:

1104 DAYTON DR, LANTANA,
TX 76226

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United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



SQ Environmental, LLC

P.O. Box 1991
Austin, TX 78767-1991
(512) 900-7731
www.SQEnv.com

18 April 2024

**CERTIFIED LETTER
RETURN RECEIPT REQUESTED
92148901324734002010295565**

North Central Texas Council of Governments
Centerpoint II
616 Six Flags Dr
Arlington, Texas 76011

**RE: Notification Regarding Confirmation of Landfill, Texas Star Property – West
11450 Trinity Boulevard
Euless, Tarrant County, Texas 76040
VCP No. 3237 | CN604539007 | RN100729763
SQE PN: 1098.015.003**

Dear Sir/Madame:

SQ Environmental, LLC (SQE) prepared this letter on behalf of Stonehawk Capital Partners LLC (Stonehawk) and in accordance with Texas Commission on Environmental Quality (TCEQ) requirements as outlined in Title 30 of the Texas Administrative Code (TAC) Chapter 330 Rule 330.953(d)(1)-(4).

A former Dumping Area, as the term is defined in the Rule, located at 11450 Trinity Boulevard in Euless, Texas, has been confirmed by soil borings and test pits conducted as part of real estate due diligence activities. The site is currently undergoing application and authorization under §330.960, Contents of Authorization Request to Disturb Final Cover Over a Closed Municipal Solid Waste Landfill for Non-enclosed Structures, of Subchapter T (Use of Land Over Closed Municipal Solid Waste Landfills).

You are not required to respond to this letter; however, if you have any questions regarding this notice, please contact the TCEQ Municipal Solid Waste (MSW) Permits Section at 512-239-2335. Any requests for information may be sent to the above TCEQ MSW Permits Section by regular mail to the TCEQ, MC 124, P.O. Box 13087, Austin, Texas 78711-3087 or by express mail at 12100 Park 35 Circle, Building D, Austin, Texas 78753. Please reference RN102493806 in any correspondence or when contacting TCEQ.

Please let me know if you have any questions or comments regarding this application or need any additional information. I may be reached at 512-574-1199 or [REDACTED]

Sincerely,
SQ Environmental, LLC

Sam Enis, P.G.
Principal Project Manager

cc: Brandon Hopkins, Stonehawk Capital Partners LLC
Susan T. Litherland, SQ Environmental LLC



April 26, 2024

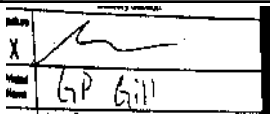

Dear Clint Weaver:

The following is in response to your request for proof of delivery on your item with the tracking number:
9214 8901 3247 3400 2010 2955 65.

Item Details

Status:	Delivered, Individual Picked Up at Postal Facility
Status Date / Time:	April 23, 2024, 10:22 am
Location:	ARLINGTON, TX 76006
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	North Central Texas Council of Governmen

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

ATTACHMENT 16B

DEED NOTICE & PROOF OF FILING

Deed Notice

14.14 Acres: HMM Family Partnership LP
11413 Mosier Valley Road, Euless, Tarrant County, Texas;
1.987 Acres: HOUSE, KITTY SURVEY Abstract 678 Tract 4P;
and
11450 Trinity Boulevard, Euless, Tarrant County, Texas;
12.153 Acres: HOUSE, KITTY SURVEY Abstract 678 Tract 4N

STATE OF TEXAS

§
§
§

COUNTY OF TARRANT

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Municipal Solid Waste (MSW) Rule found at 30 Texas Administrative Code (TAC) Chapter 330 Subchapter T, and Texas Health and Safety Code (THSC) Chapter 361 Subchapter R, and affects the real property (Property) described as follows:

A legal description for the Property is provided as Exhibit A, which is attached hereto and incorporated herein by reference.

Historical documentation and site assessment results indicate that between the late 1960s and mid-1980s, the Property was used for gravel pit operations. Following cessation of the gravel pit operations and between the late 1980s and late 2000s, soil containing incidental waste materials was brought to the Property. Portions of the Property overlay the waste materials causing those portions of the Property to be considered a Dumping Area as the term is defined in the Rule. The portion of the Property which is the Dumping Area is described as follows:

A legal description for the Dumping Area is provided as Exhibit B, which is attached hereto and incorporated herein by reference.

Notice is hereby provided to any future owner or user of the Property that restrictions on the development or lease of the land exist in 30 TAC Chapter 330 Subchapter T and THSC Chapter 361 Subchapter R. Further, prior to the planning or initiating any activity involving the disturbance of the Dumping Area, the future owner or user of the site shall consult with TCEQ.

As of the date of this Notice, the Record Owner of fee title of the Property is HMM Family Partnership LP with an address of 1104 Dayton Dr, Lantana, Denton County, Texas 76226.

For additional information, contact:

TCEQ
MSW Permits Section
Building D
12100 Park 35 Circle
Austin, Texas 78753

Mail:
MSW Permits Section, MC 124
TCEQ
PO Box 13087
Austin, Texas 78711-3087

TCEQ Identifier No.: RN100729763



D224075321

05/01/2024 01:22 PM

Page: 1 of 8

Fees: \$44.00

NOTICE

SUBMITTER: JACOB SULLIVAN

Mary Louise Nicholson
MARY LOUISE NICHOLSON
COUNTY CLERK

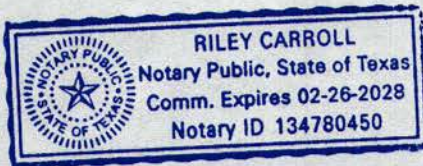
EXECUTED on the dates set forth in the acknowledgments below, to be effective as of the date of the last such signature below.

OWNER:
Julie Moore, acting as a representative
of HMH Family Partnership LP

Signature: Julie Moore
Printed Name: Julie Moore
Title: Vice President

THE STATE OF TEXAS §
 §
COUNTY OF TARRANT §

This instrument was acknowledged before me on this the 25th day of April, 2024, personally appeared Julie Moore, on behalf of the COMPANY, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and in the capacity herein expressed.

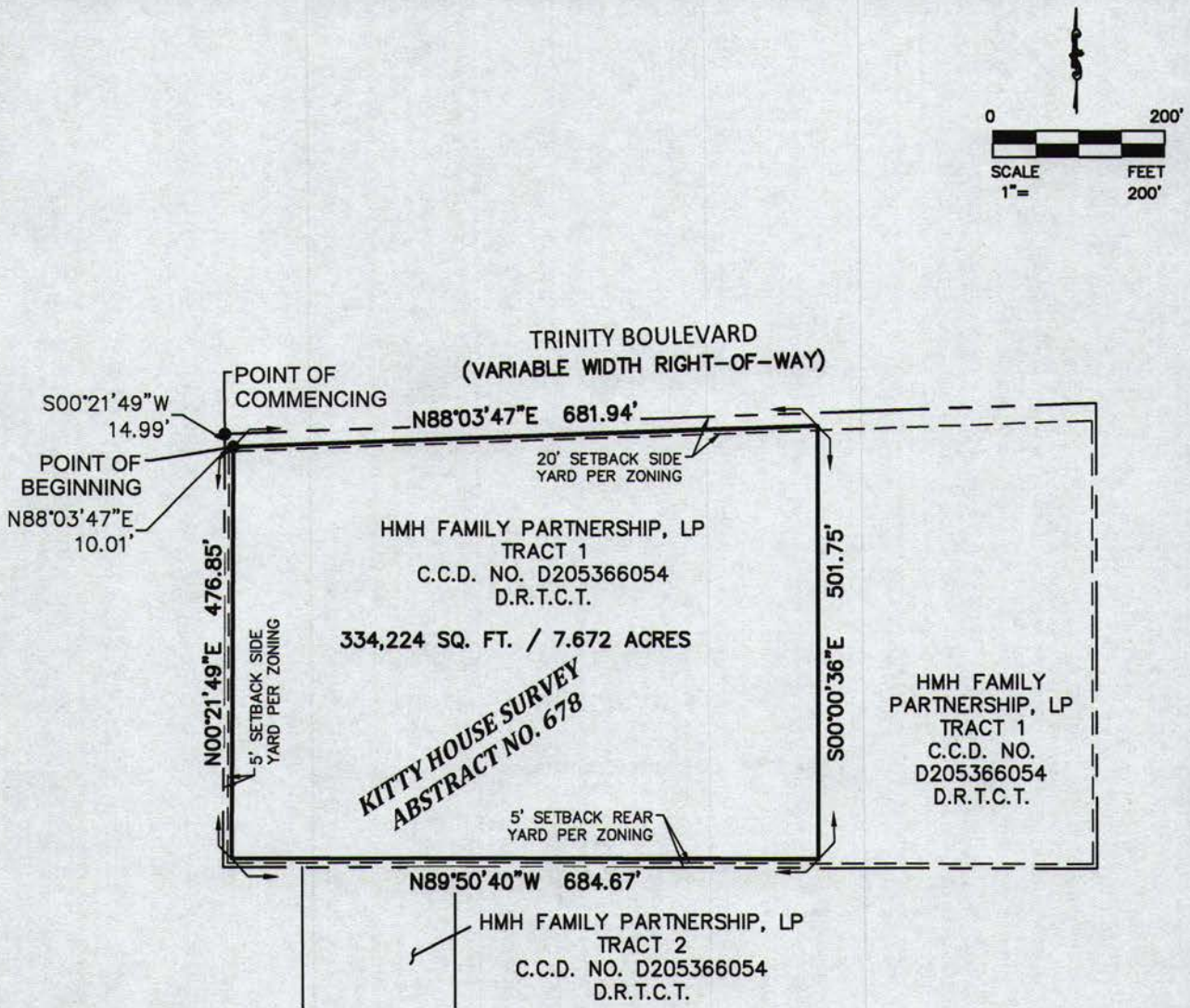


Riley Carroll
Notary Public in and for the State of Texas
Riley Carroll
Printed Name of Notary Public
My Commission Expires: 2-26-28

EXHIBIT A

EXHIBIT B

PLOTTED BY: Steve Glosup ON: Thursday, April 18, 2024 AT: 4:01 PM FILEPATH: G:\Production8000\011509\011509\01 -WEST BOUNDARY.dwg



C.C.D. NO. = COUNTY CLERK'S DOCUMENT NUMBER

D.R.T.C.T. = DEED RECORDS, TARRANT COUNTY, TEXAS

A metes and bounds description of even date accompanies this drawing.

BOUNDARY EXHIBIT OF 7.672 ACRES TRACT OF LAND



550 Bailey Avenue • Suite 400 • Fort Worth, Texas 76107
 Tel: 817.335.1121
 TEXAS REGISTERED SURVEYING FIRM NO. 10098100

PAGE 1 OF 2

Situated in the Kitty House Survey, Abstract No. 678
 City of Fort Worth, Tarrant County, Texas

DATE: APRIL 18, 2024

JOB NO: B011509.001

PROPERTY DESCRIPTION

BEING a tract of land situated in the Kitty House Survey, Abstract No. 678, City of Fort Worth, Tarrant County, Texas and being a part of that certain tract of land described as Tract 1 by deed to HMH Family Partnership, LP, recorded in County Clerk's Document Number D205366054, Deed Records, Tarrant County, Texas, said tract of land being more particularly described by metes and bounds as follows:

COMMENCING at a point in the south right-of-way line of Trinity Boulevard (a variable width right-of-way), the northwest corner of said Tract 1, said HMH Family Partnership, LP tract;

South 00°21'49" West, with the west line of said Tract 1, said HMH Family Partnership, LP tract, a distance of 14.99 feet to a point;

North 88°03'47" East, departing the west line of said Tract 1, said HMH Family Partnership, LP tract, crossing into said Tract 1, said HMH Family Partnership, LP tract, a distance of 10.01 feet to the POINT OF BEGINNING of herein described tract of land;

THENCE continuing across said Tract 1, said HMH Family Partnership, LP tract, the following courses and distances:

North 88°03'47" East, a distance of 681.94 feet to a point;

South 00°00'36" East, a distance of 501.75 feet to a point;

North 89°50'40" West, a distance of 684.67 feet to a point;

North 00°21'49" East, a distance of 476.85 feet to the POINT OF BEGINNING and containing a calculated area of 334,224 square feet or 7.672 acres of land.

NOTES: The basis of bearings for this Exhibit is the Texas Coordinate System of 1983, North Central Zone, 4202, based upon GPS measurements, according to the GPS Reference Network.

A drawing of even date accompanies this metes and bounds description.

The metes and bounds description contained herein was compiled from information contained in recorded documents and does not reflect the results of an on the ground survey.

BOUNDARY EXHIBIT OF 7.672 ACRES TRACT OF LAND



550 Bailey Avenue • Suite 400 • Fort Worth, Texas 76107
Tel: 817.335.1121
TEXAS REGISTERED SURVEYING FIRM NO. 10098100

PAGE 2 OF 2

Situated in the Kitty House Survey, Abstract No. 678
City of Fort Worth, Tarrant County, Texas

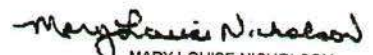
DATE: APRIL 18, 2024

JOB NO: B011509.001



D224075321
NOTICE
Pages: 8
Fees: \$44.00

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS OF
TARRANT COUNTY, TEXAS
05/01/2024 01:22 PM


MARY LOUISE NICHOLSON
COUNTY CLERK



Mary Louise Nicholson
Tarrant County Clerk

100 W. Weatherford
Fort Worth, TX 76196
(817) 884 - 1195
wm-countyclerk@tarrantcounty.com

OFFICIAL RECEIPT

RECEIPT NUMBER	DATE
6237444	05/01/2024 01:22:13 PM

Issued to: JACOB SULLIVAN
3201 26TH STREET
LUBBOCK, TX 79410

For Payment of:

Type	Pages	Reference #	Fees
1 NOTICE	7	D224075321	\$44.00
Total:			\$44.00

Amount Paid: \$44.00
Change: \$0.00

Method of Payment:	Reference Number:	Amount:
Credit Card	[REDACTED]	\$44.00

THANK YOU
Mary Louise Nicholson
County Clerk
Recording life's events since 2011

Clerk: Veronica G



Your feedback is important to us.
Scan the QR Code and let us know how our service was today.

17 NOTICE TO LESSEES & OCCUPANTS OF THE STRUCTURE

A draft notice that will be given to all prospective lessees and occupants of the proposed structures upon the structures' completion is provided as **Attachment 17**. The notice informs future residents of the presence of debris, subsurface methane, and VMS. This notice will be provided to lessees and occupants upon signing a lease agreement on the subject property.

ATTACHMENT 17

DRAFT NOTICE TO LESSEES & OCCUPANTS OF THE STRUCTURE

DRAFT

Date

Future Lessee and/or Occupant Name

Address

City, State Zip

RE: Notice to Potential Lessee and/or Occupant
Texas Star Property – West
11450 Trinity Boulevard, Euless, Tarrant County, Texas 76040
HOUSE, KITTY SURVEY Abstract 678 Tract 4N

Dear Lessee and/or Occupant:

This letter is intended to inform you that the property you are considering leasing or occupying, located at 11450 Trinity Boulevard in Euless, Texas, was historically operated as a gravel mine. The mined areas were backfilled with soil containing some incidental debris (glass, bricks, concrete, rebar, and asphalt). TCEQ has determined that this is considered a former Dumping Area as the term is defined in 30 Texas Administrative Code (TAC) Chapter 330. Prior to any development taking place, the necessary permits were acquired through TCEQ and others for all current development. Necessary precautions were taken when designing and constructing the buildings to minimize safety hazards. A vapor mitigation system has been designed, installed, and operated and monitored to minimize the potential for methane or any other soil vapors from entering the buildings. The vapor mitigation system was designed by an engineering firm licensed in the State of Texas, in good standing in accordance with State statutes, and with experience in the design and construction of vapor mitigation systems and monitoring. Additional information regarding the vapor mitigation system and/or the monitoring results are available on request.

Sincerely,

Property Owner

18 TCEQ CORE DATA FORMS

Attachment 18 includes the Core Data Forms for the property owner and MSW applicant.

ATTACHMENT 18

CORE DATA FORMS



TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 606223402		RN 100729763

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		2/28/2024	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
HMH Family Partnership LP					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0800501503		32035391856		260601680	
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input checked="" type="checkbox"/> Other: Property Owner					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:		1104 Dayton Drive			
City		Lantana	State	TX	ZIP
					76226
ZIP + 4					
16. Country Mailing Information (if outside USA)			17. E-Mail Address (if applicable)		
			(if applicable)		

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected, a new permit application is also required.)								
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information								
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Texas Star Property West								
23. Street Address of the Regulated Entity: (No PO Boxes)	11450 Trinity Boulevard							
	City	Euless	State	TX	ZIP	76040	ZIP + 4	6926
24. County	Tarrant							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	The subject property is comprised of two Tarrant Appraisal District (TAD) parcels including parcel Nos. 03924394 and 03924408							
26. Nearest City					State	Nearest ZIP Code		
Fort Worth					TX	76040		
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>								
27. Latitude (N) In Decimal:		32.809790			28. Longitude (W) In Decimal:		-97.120480	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
32	48	35.244	-97	07	13.728			
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)		
1522		6513		236116		531110		
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Property Redevelopment								
34. Mailing Address:	4550 Travis Street							
	Suite 565							
	City	Dallas	State	TX	ZIP	75205	ZIP + 4	
35. E-Mail Address:		[REDACTED]						
36. Telephone Number			37. Extension or Code			38. Fax Number (if applicable)		
(714) 679-2919						() -		

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

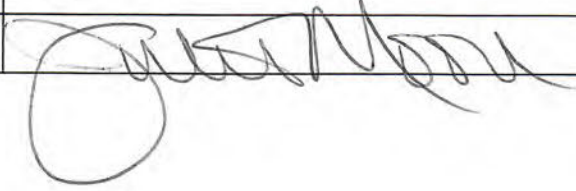
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input checked="" type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input checked="" type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
Pending			67148	
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input checked="" type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
3237				

SECTION IV: Preparer Information

40. Name:	Sam Enis	41. Title:	Principal Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 574-1199		() -	s.enis@sqenv.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	HMH Family Partnership LP	Job Title:	Vice President
Name (In Print):	Julie Moore	Phone:	(972) 672- 2053
Signature:		Date:	5/30/24



TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 604539007		RN 100729763

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		2/28/2024	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
StoneHawk Capital Partners LLC					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
801757516		32050573594		464272973	
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input type="checkbox"/> Other:					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:	4550 Travis Street				
	Suite 565				
	City	Dallas	State	TX	ZIP 75205 ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				[REDACTED]	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	

(714) 679-2919

() -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected, a new permit application is also required.)								
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information								
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Texas Star Property West								
23. Street Address of the Regulated Entity: (No PO Boxes)	11450 Trinity Boulevard							
	City	Euelss	State	TX	ZIP	76040	ZIP + 4	6926
24. County	Tarrant							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	The subject property is comprised of two Tarrant Appraisal District (TAD) parcels including parcel Nos. 03924394 and 03924408.							
26. Nearest City					State	Nearest ZIP Code		
Fort Worth					TX		76040	
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>								
27. Latitude (N) In Decimal:		32.809790			28. Longitude (W) In Decimal:		-97.120480	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
32	48	35.244	-97	07	13.728			
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)		
1522		6513		236116		531110		
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Property Redevelopment								
34. Mailing Address:	4550 Travis Street							
	Suite 565							
	City	Dallas	State	TX	ZIP	75205	ZIP + 4	
35. E-Mail Address:		[REDACTED]						
36. Telephone Number			37. Extension or Code			38. Fax Number (if applicable)		
(714) 679-2919						() -		

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input checked="" type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input checked="" type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
Pending			67148	
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input checked="" type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
3237				

SECTION IV: Preparer Information

40. Name:	Sam Enis	41. Title:	Principal Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 574-1199		() -	s.enis@sqenv.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

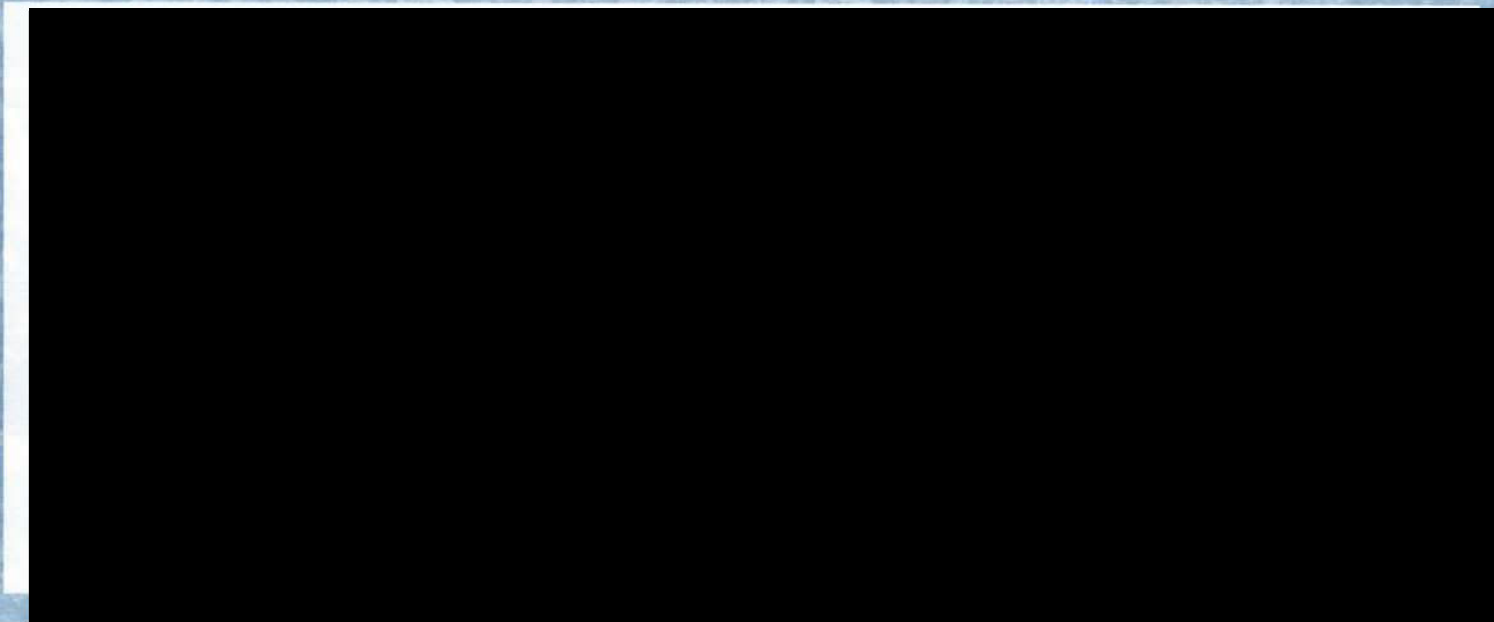
Company:	Stonehawk Capital Partners LLC	Job Title:	Principal
Name (In Print):	Brian Woidneck	Phone:	(714) 686- 7242
Signature:		Date:	6/3/24

19 FEE PAYMENT RECEIPT

The application fee for a development permit of \$2,500 has been paid by check and a photocopy is provided as **Attachment 19**.

ATTACHMENT 19

FEE PAYMENT



20 OTHER PLANS

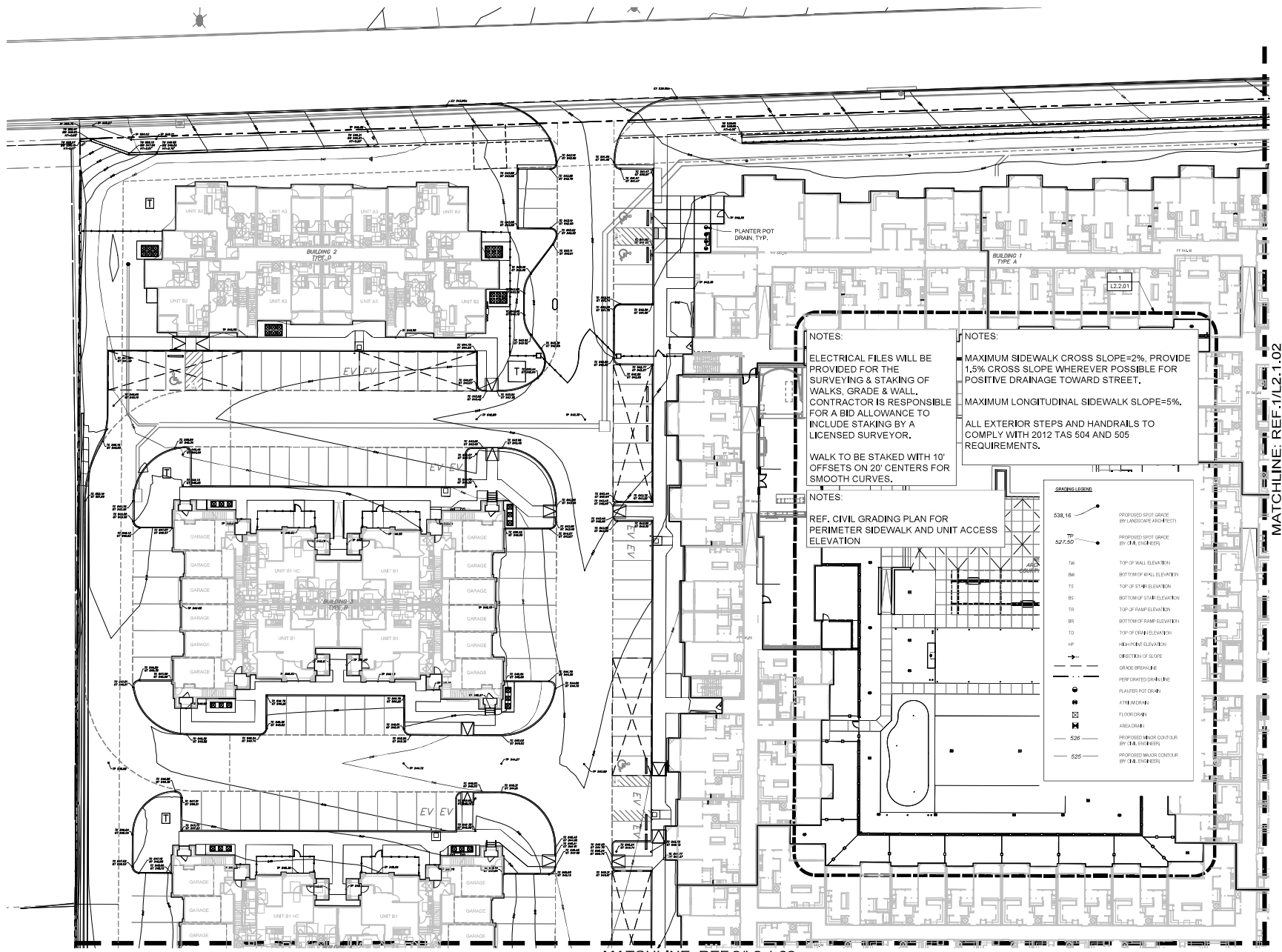
Grading and drainage plans are provided as **Attachment 20**. There are no irrigation plans for the property.

ATTACHMENT 20

OTHER PLANS

www.jendprint.de

Drainage Material Schedule					
KEY	DESCRIPTION/MODEL #	COLOR	FINISH	CONTACT	REMARK
DRAIN					
D 1	4" ATTRIUM DRAIN GRATE MODEL #78	BLACK	STANDARD	NDS 800.726.1994	REF. LANDSCAPE GRADING PLANS REF. CIVIL PLANS FOR PIPE LAYOUT AND SIZING TO STORM
D 2	2" AREA DRAIN VIBRASS GRATE NDS #918B WITH SREEDY BASIN	GRASS	SATIN	NDS 800.726.1995	LOCATE PER PLAN. GRATES TO BE CENTERED ON SCORE JOINTS WHERE APPLICABLE AND CAST IN CONCRETE COLLAR
D 3	4" NDS EZ FLOW	BLACK	STANDARD	NDS 800.726.1995	LOCATE PER PLAN. GRATES TO BE CENTERED ON SCORE JOINTS WHERE APPLICABLE AND CAST IN CONCRETE COLLAR
D 4	12" NDS GATCH BASIN AREA DRAIN WITH GREEN GRATE	GREEN	STANDARD	NDS 800.726.1995	LOCATE PER PLAN. GRATES TO BE CENTERED ON SCORE JOINTS WHERE APPLICABLE AND CAST IN CONCRETE COLLAR



1 GRADING
PLAN

MATCHLINE: REF.2/L2.1.03

MATCHLINE: REF.1/L2.1.02

Landprint.

Landscape Architecture & Urban Design

7827 Mason Dallas Drive
Dallas, Texas 75226
469.987.3100

www.landprint.io



Project

Texas Star
Multifamily

Fort Worth, Texas

Stonehawk Capital Partners

Project Number SCP-003

Drawn By CC, JJ

Checked By CC, JJ

Issue Date 05-29-2024

Revisions

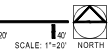
PERMIT 2024-05-29

Sheet Title

Grading Plan

Sheet Number

L2.1.01



NOTES:

ELECTRICAL FILES WILL BE PROVIDED FOR THE SURVEYING & STAKING OF WALKS, GRADE & WALL. CONTRACTOR IS RESPONSIBLE FOR A BID ALLOWANCE TO INCLUDE STAKING BY A LICENSED SURVEYOR.

WALK TO BE STAKED WITH 10' OFFSETS ON 20' CENTERS FOR SMOOTH CURVES.

NOTES:

MAXIMUM SIDEWALK CROSS SLOPE=2%, PROVIDE 1.5% CROSS SLOPE WHEREVER POSSIBLE FOR POSITIVE DRAINAGE TOWARD STREET.

MAXIMUM LONGITUDINAL SIDEWALK SLOPE=5%.

ALL EXTERIOR STEPS AND HANDRAILS TO COMPLY WITH 2012 TAS 504 AND 505 REQUIREMENTS.

NOTES:

REF. CIVIL GRADING PLAN FOR PERIMETER SIDEWALK AND UNIT ACCESS ELEVATION

MATCHLINE: REF.1/L2.1.01

MATCHLINE: REF.1/L2.1.03

DRAWING LEGEND	
	PROPOSED SPOT GRADE (BY LANDSCAPE ARCHITECT)
	PROPOSED SPOT GRADE (BY CIVIL ENGINEER)
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION
	TOP OF STEP ELEVATION
	BOTTOM OF STEP ELEVATION
	TOP OF RAMP ELEVATION
	BOTTOM OF RAMP ELEVATION
	TOP OF DRAIN ELEVATION
	HIGH POINT ELEVATION
	DIRECTION OF SLOPE
	GRADE BREAK LINE
	PERFORATED DRAIN LINE
	PLANTER POT DRAIN
	AT-RISK DRAIN
	FLOOR DRAIN
	AREA DRAIN
	PROPOSED MINOR CONTOUR (BY LANDSCAPE ARCHITECT)
	PROPOSED MAJOR CONTOUR (BY CIVIL ENGINEER)

1 GRADING
PLAN

Landprint.

Landscape Architecture & Urban Design

7827 Mason Delta Drive
Dallas, Texas 75226
469.987.3100

www.landprint.io



Project

Texas Star
Multifamily

Fort Worth, Texas

Stonehawk Capital Partners

Project Number SCP-003

Drawn By CC, JJ

Checked By CC, JJ

Issue Date 05-29-2024

Revisions

PERMIT 2024.05.29

1 FENCE REVISION 2024-01-11

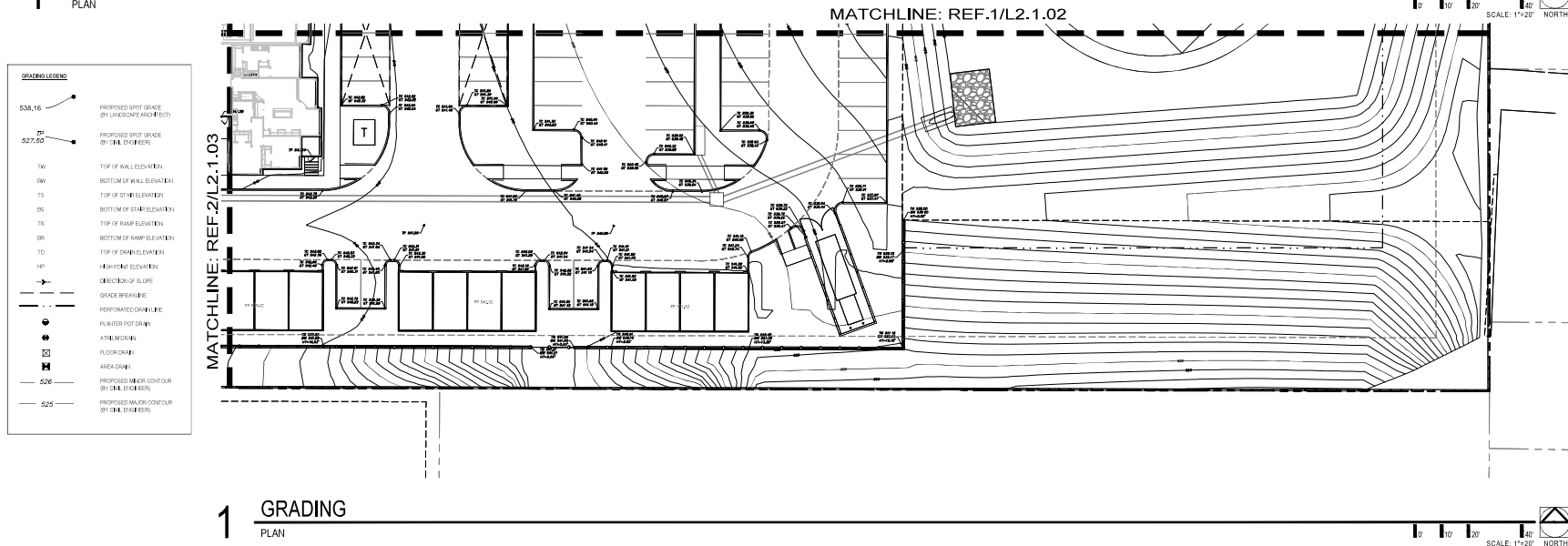
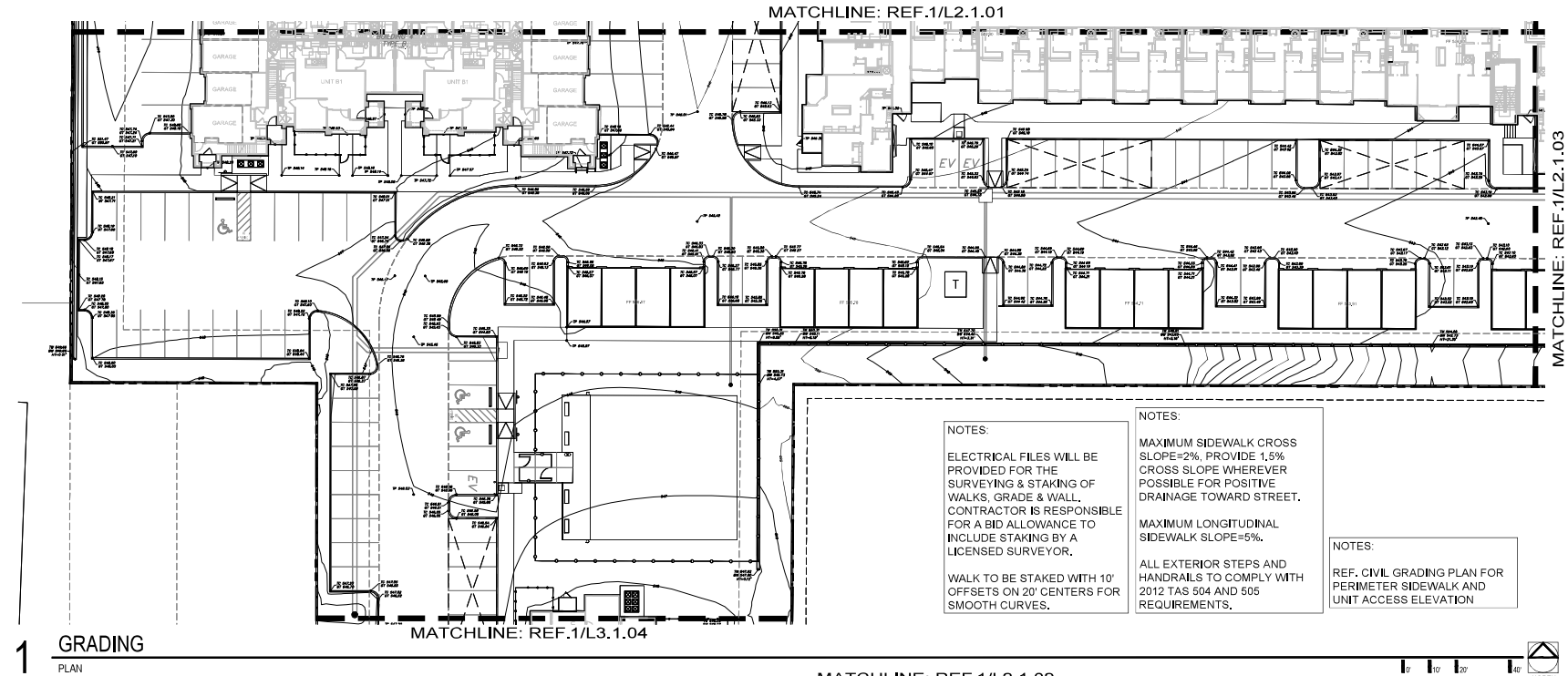
Sheet Title

Grading Plan

Sheet Number

L2.1.02

SCALE: 1"=20'
NORTH



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Project

Texas Star
Multifamily

Fort Worth, Texas

Stonehawk Capital Partners

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Grading Plan

Sheet Number

L2.1.03

NOTES:

ELECTRICAL FILES WILL BE PROVIDED FOR THE SURVEYING & STAKING OF WALKS, GRADE & WALL. CONTRACTOR IS RESPONSIBLE FOR A BID ALLOWANCE TO INCLUDE STAKING BY A LICENSED SURVEYOR.

WALK TO BE STAKED WITH 10' OFFSETS ON 20' CENTERS FOR SMOOTH CURVES.

NOTES:

MAXIMUM SIDEWALK CROSS SLOPE=2%, PROVIDE 1.5% CROSS SLOPE WHEREVER POSSIBLE FOR POSITIVE DRAINAGE TOWARD STREET.

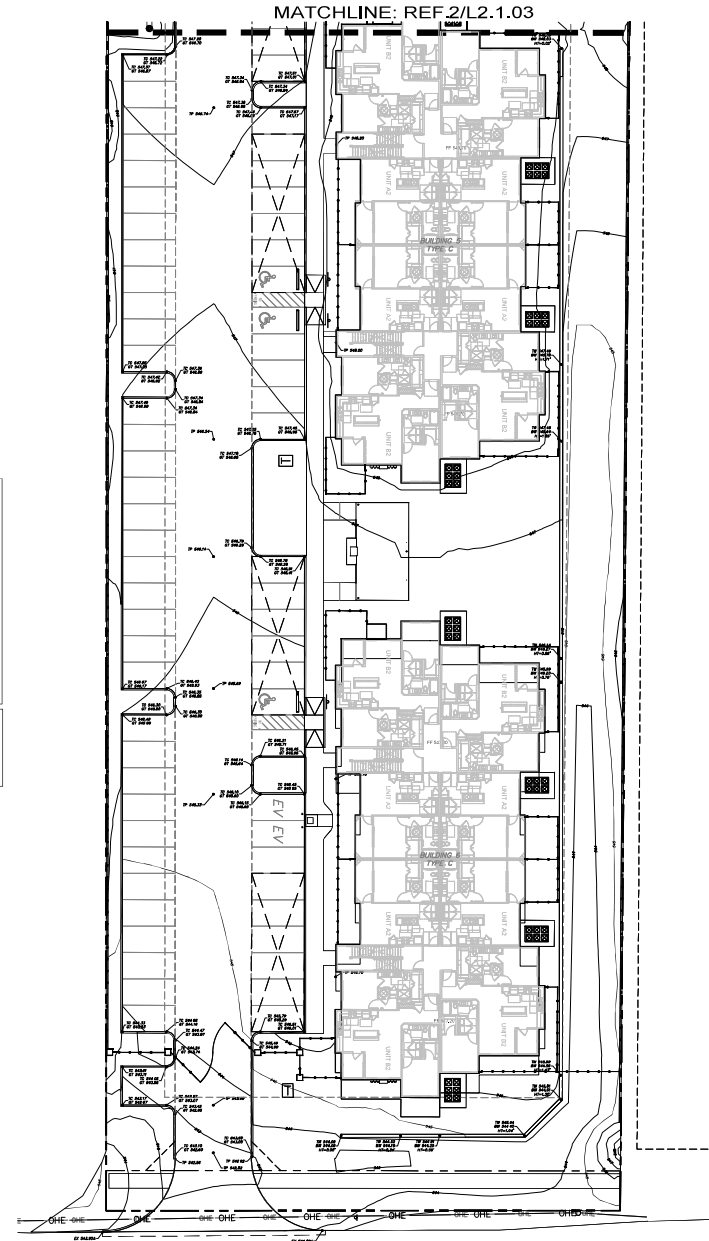
MAXIMUM LONGITUDINAL SIDEWALK SLOPE=5%.

ALL EXTERIOR STEPS AND HANDRAILS TO COMPLY WITH 2012 TAS 504 AND 505 REQUIREMENTS.

NOTES:

REF. CIVIL GRADING PLAN FOR PERIMETER SIDEWALK AND UNIT ACCESS ELEVATION

GRADING LEGEND	
	PROPOSED SPOT GRADE (BY LANDSCAPER REQUESTED)
	PROPOSED SPOT GRADE (BY CIVIL ENGINEER)
TR	TOP OF WALL ELEVATION
BR	BOTTOM OF WALL ELEVATION
TS	TOP OF STAIR ELEVATION
BS	BOTTOM OF STAIR ELEVATION
TR	TOP OF RAMP ELEVATION
BR	BOTTOM OF RAMP ELEVATION
TD	TOP OF DRIVE ELEVATION
HP	HIGH POINT ELEVATION
	DIRECTION OF SLOPE
	GRADE BREAKLINE
	PERFORATED DRAIN LINE
	PLANTER POT DRAIN
	ATRIUM DRAIN
	FLOOR DRAIN
	AREA DRAIN
	PROPOSED MINOR CONTOUR (BY CIVIL ENGINEER)
	PROPOSED MAJOR CONTOUR (BY CIVIL ENGINEER)



1

GRADING
PLAN

SCALE: 1"=20' NORTH

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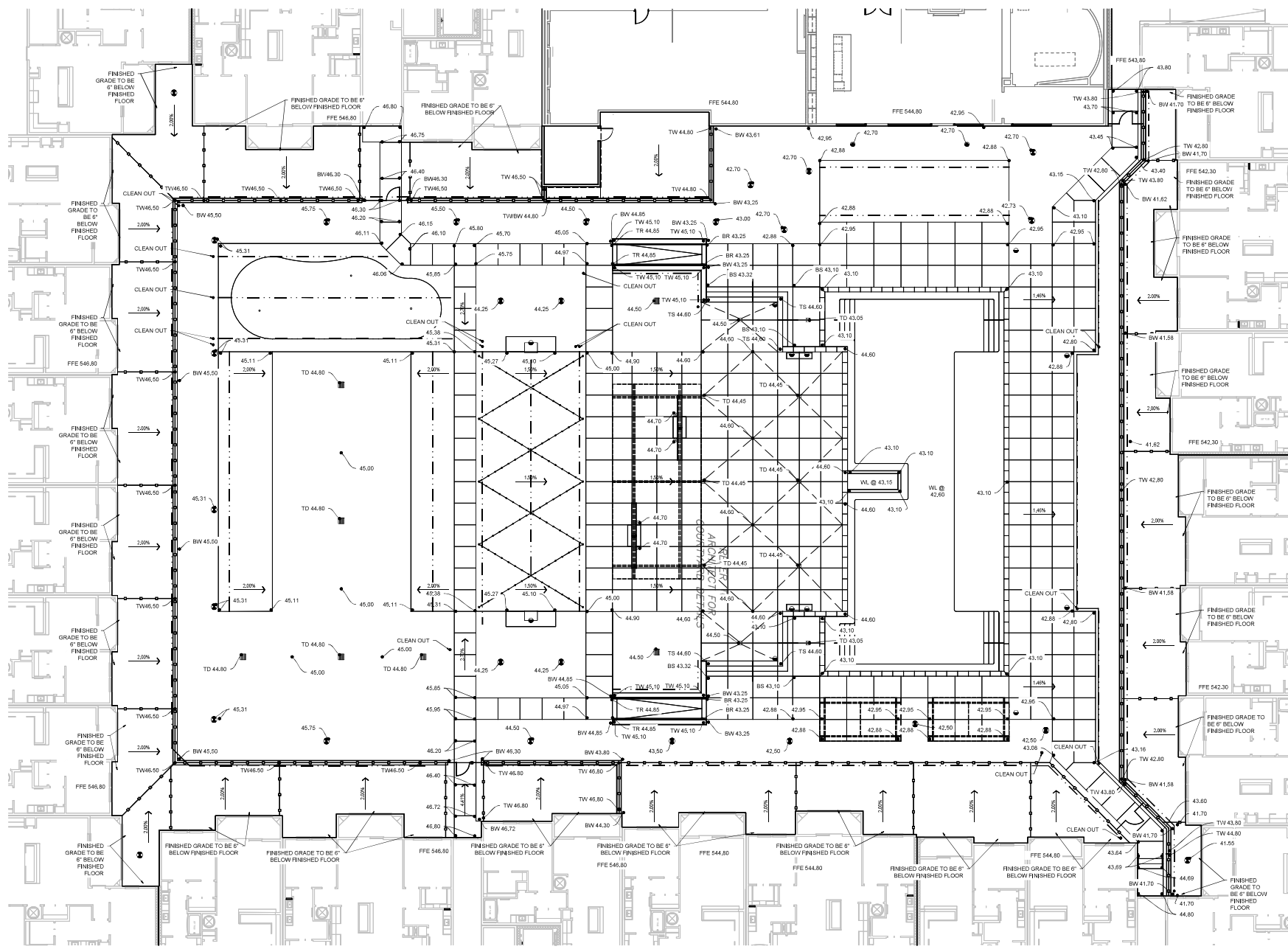
1 FENCE REVISION 2024-01-11

Sheet Title

Grading Plan

Sheet Number

L2.1.04



1 GRADING
PLAN



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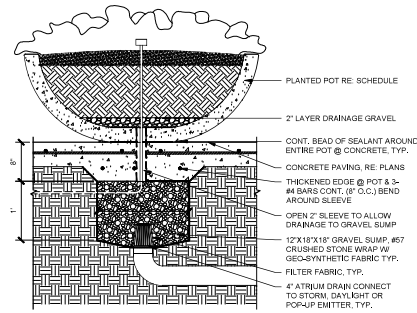
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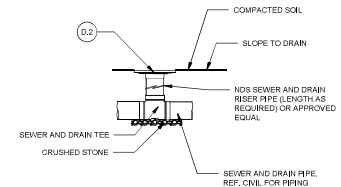
Pool Courtyard
Grading
Enlargement Plan

Sheet Number

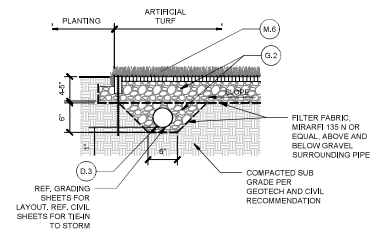
L2.2.01



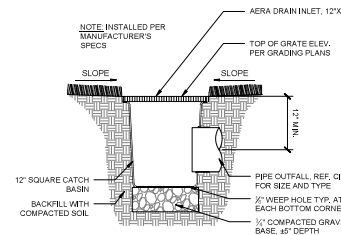
6 PLANTE RPOT DRAINAGE
SECTION
SCALE: 1"=1'-0"



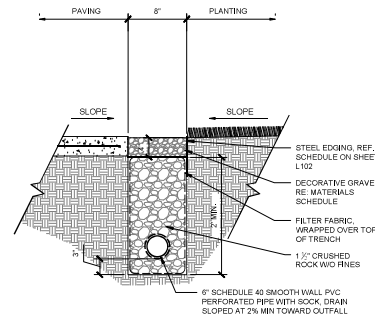
3 FLOOR DRAIN
SECTION
SCALE: 1"=1'-0"



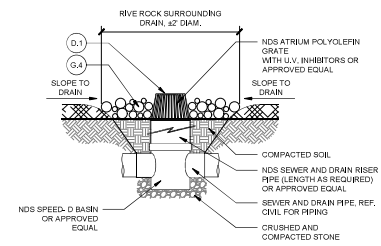
5 FRENCH DRAIN AT TURF
SECTION
SCALE: 1"=1'-0"



2 AREA DRAIN
SECTION
SCALE: 1"=1'-0"



4 GRAVEL TRENCH DRAIN
SECTION
SCALE: 1"=1'-0"



1 ATRIUM DRAIN
SECTION
SCALE: 1"=1'-0"

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Sheet Title

Drainage Details

Sheet Number

L2.3.01

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Sheet Title

Sitework
Materials
Schedule

Sheet Number

L3.0.01

POOL				
PL.1 WATERLINE TILE JOSA 204MYZV PORCELAIN SIZE: 20x4	MID WARM GREY	STANDARD	KNOX TILE DONNA MCLENDON 214.781.5659	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.2 WATERLINE DEPTH MARKERS CUSTOM MOSAIC 1X1 SERIES: FRESH	FIELD COLOR: WHITE GLOSSY 1X1 SCRIPT COLOR: BLACK GLOSSY	STANDARD	KNOX TILE DONNA MCLENDON 214.781.5670	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.3 DELINEATOR/ BENCH LINE FRESH BLACK SIZE: 1X1	BLACK	ANTI-SLIP	KNOX TILE DONNA MCLENDON 214.781.5671	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO SUBMIT SAMPLE TO L.A. FOR APPROVAL.
PL.4 SWIMMING POOL EXPOSED AGGREGATE POOL FINISH	FRENCH GREAY	STANDARD	SCM 804.641.9247	EXPOSED AGGREGATE POOL FINISH
PL.5 JEDDERS LIMESTONE POOL COPING, 2" THICK	CHARCOAL	SAWN TOP & BOTTOM & 4 SIDES	CONTRACTOR'S CHOICE	CONTRACTOR TO PROVIDE SAMPLES OF COLOR TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO PURCHASING.
PL.6 POOL HANDRAIL, 1 1/2" DIA.	STAINLESS STEEL	BRUSHED #4	CONTRACTOR'S CHOICE	CONTRACTOR TO PROVIDE QUANTITY TO INSURE FULL COVERAGE AS SHOWN ON PLANS. CONTRACTOR TO OR APPROVED EQUAL, INSTALL PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL BY OWNER AND LANDSCAPE ARCHITECT
PL.8 7" DIAMETER CANNON SCUPPER, ROUND ESSUTCHECK PLATE	STAINLESS STEEL	POLISHED	BOBE WATER & FIRE TEXTURE, BOBEWATERANDFIRE.COM	
RAILING				
R.1 STEPS HANDRAIL, 1 1/2" DIA.	TO MATCH ARCHITECTURAL RAILING	PAINTED	CONTRACTOR'S CHOICE	REF. PLANS FOR LAYOUT, REF. DETAILS ON SHEET L3.3.02
SITE FURNITURE				
SF.1 TRASH RECEPTACLE, DUMOR MODEL# 272-32-50	TEXTURED CHARCOAL	POWDERCOATED	OLMOR 804.598.4018	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.2 BIKE RACK DUMOR MODEL F.350-0051	TEXTURED CHARCOAL	POWDERCOATED	OLMOR 804.598.4019	SURFACE MOUNTED, LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.3 "ET" STATION MODEL# 1003-L	GREEN	POWDERCOATED	DOGPOOT PRODUCTS 800.354.7691	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.4 TABLE 299-001S, FREE-STANDING, 2 BENCHES	TEXTURED CHARCOAL	POWDERCOATED	OLMOR 804.598.4019	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.5 CONCRETE CORN HOLE BOARDS	GREY	SMOOTH	STONE AGE CONCRETE TABLE TENNIS 541.671.6218	LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.6 JOG WATERING STATION	SATIN FINISH	STAINLESS STEEL	DOG-ON-IT-PARKS.COM	OR APPROVED EQUAL, LOCATE PER PLAN, INSTALL PER MANUFACTURER'S SPECIFICATIONS
SF.7 WOOD ARK HAMMOCK STAND - JERSEY LARCH	WOOD	STANDARD	CRIBBEANHAMMOCKS.COM	OR APPROVED EQUAL, LOCATE PER PLAN
SF.8 72" X 18" V X 24" H METAL BOX PLANTER, KS_3211924	FLAT DARK BRONZE MATTE	POWDERCOATED	FORMANDFIBER.COM	OR APPROVED EQUAL, LOCATE PER PLAN, REF. TO DETAIL ON SHEET L3.3.01
STONE				
S.1 ELDER LIMESTONE COUNTER TOP 1 1/4" MIN. THICKNESS	CHARCOAL	SAWN WITH EASED EDGES ON ALL SIDES	CONTRACTOR'S CHOICE	
S.2 ELDER LIMESTONE BLOCK 60" X 18" X 14"	CHARCOAL	REF. DETAIL ON SHEET L3.3.01	CONTRACTOR'S CHOICE	LIMESTONE BLOCK, LOCATE PER PLAN, PROVIDE PHOTOS OF ACTUAL SLABS FOR APPROVAL PRIOR TO PURCHASING. EXPOSED WEDGE HOLES ON PERIMETER EDGES.

Hardscape Material Schedule					
KEY	DESCRIPTION	MODEL #	COLOR	FINISH	CONTACT
CONCRETE					
C.1	STANDARD GREY CONCRETE 1		GREY	LIGHT BROOM	CONTRACTOR'S CHOICE
C.2	STANDARD GREY CONCRETE 2		GREY	MEDIUM SANDBLAST	CONTRACTOR'S CHOICE
C.3	CAST-IN-PLACE CONCRETE WALL		GREY	RUBBED CONCRETE	CONTRACTOR'S CHOICE
C.4	BURNISHED BLOCK WALL, VARIOUS SIZES AND SHAPES, STACKED BOND PATTERN		CONAL	STANDARD	TEXASBUILDINGPRODUCTS.COM
EDGING					
E.1	3/8" X 4" STEEL EDGING		BLACK	POWERCOATED	JD RUSSELL CO. 800.888.8672
FENCE & GATE					
F.1	POOL FENCE 48" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.2	PRIVATE YARD FENCE, BEER GARDEN FENCE, DOG PARK FENCE & GUARDRAIL 42" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.3	PERIMETER FENCE 72" HEIGHT		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
F.4	WOOD FENCE AT SOUTHERN PROPERTY LINE - 72" HEIGHT, HORIZONTAL BOARD-ON-BOARD, STAINED CEDAR		BENJAMIN MOORE CORDOVAN BROWN	PAINTED	CONTRACTOR'S CHOICE
GRAVEL					
G.1	DECOMPOSED GRANITE		NATURAL	NATURAL	CONTRACTOR'S CHOICE
G.2	#37 STONE, 1 3/4" AGGREGATE WASHED, GENERAL DRAINAGE GRAVEL		NATURAL	NATURAL	CONTRACTOR'S CHOICE
G.3	MEDIUM LAVA ROCK FIRE PIT ROCK		STANDARD	NATURAL	WOODLAND DIRECT 844.279.0543
G.4	TEXAS BLACK STAR, 2" TO 3" DIA.		NATURAL	NATURAL	OUTDOOR WAREHOUSE 972.423.4001
MISCELLANEOUS					
M.1	OUTDOOR GRILL A&I CORPORATION POS T SERIES MODEL # 827T1P WITH EMERGENCY STOP		STAINLESS STEEL	STAINLESS STEEL	A&I CORPORATION LORI HEM GHAIUS 948.474.3070
M.2	OUTDOOR GRILL DOUBLE DOOR CABINET		STAINLESS STEEL	STAINLESS STEEL	A&I CORPORATION LORI HEM GHAIUS 948.474.3071
M.3	FIREPLACE BURNER, 31" CROSSFIRE H SYSTEM BY WARMING TRENDS, (1) PER FIRE PIT		STANDARD	STANDARD	WOODLAND DIRECT 844.279.0543
M.5	BIG ASS FAN IN BLACK 80 DB		BLACK	POWERCOATED	BIG ASS FANS 877.244.3287
M.6	ARTIFICIAL TURF - NAT'VE GRASS		STANDARD	STANDARD	SYNTHETIC GRASS PROS MARCO GORTANA 214.577.3680
M.7	PUTTING GREEN TURF - SHORT GAME ELITE		STANDARD	STANDARD	SYNTHETIC GRASS PROS MARCO GORTANA 214.577.3680
M.8	STEEL FIREPLACE BASE BOX		BRONZE OR BLACK (TO MATCH ARCHITECTURE)	PAINTED	CONTRACTOR'S CHOICE
M.9	WOOF FIBER ENGINEERED WOOD FIBER MULCH		NATURAL	NATURAL	DOG-ON-IT-PARKS.COM