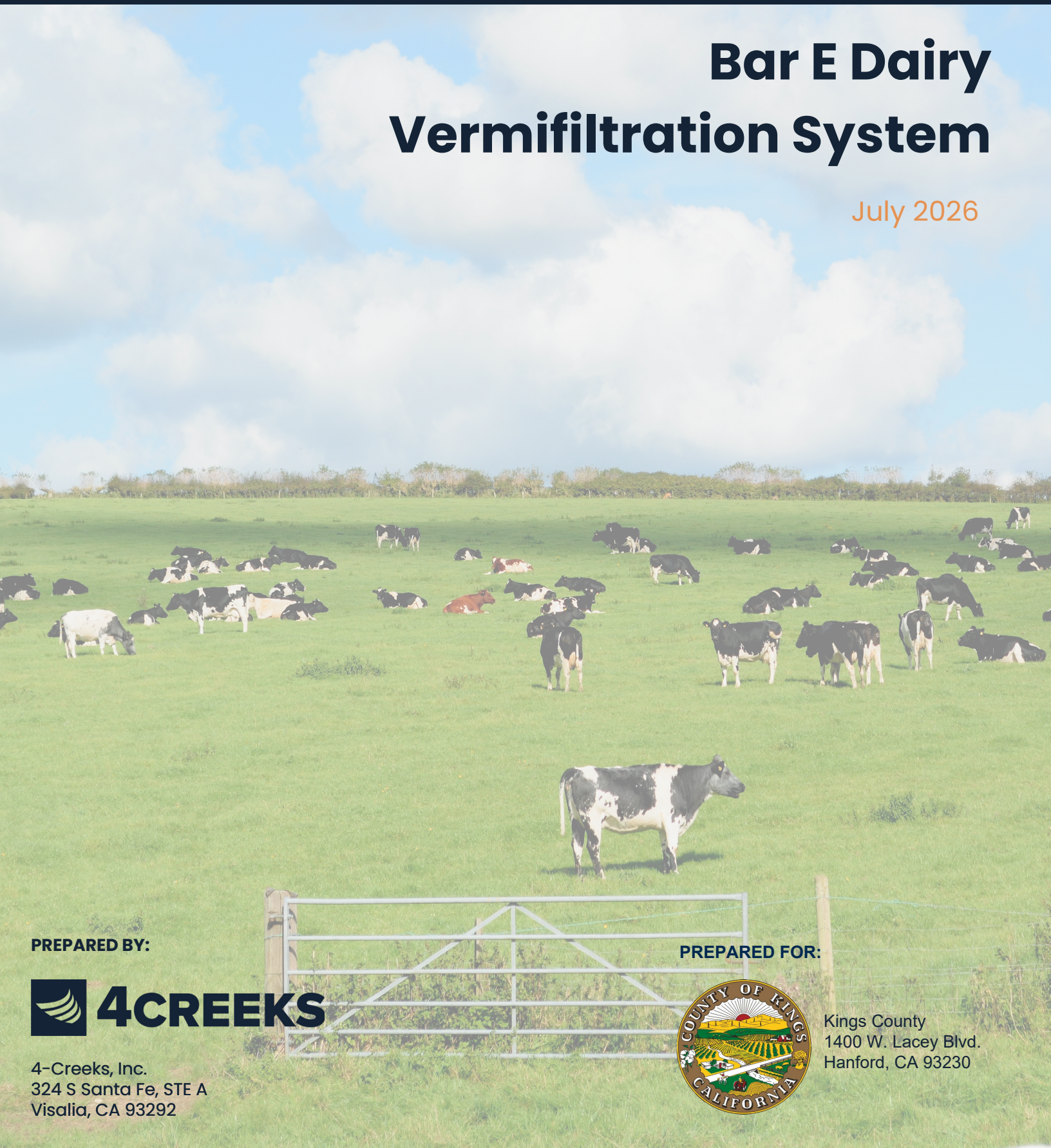
DRAFT INITIAL STUDY
MITIGATED NEGATIVE DECLARATION

Bar E Dairy Vermifiltration System

July 2026



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SECTION 1: CEQA REVIEW PROCESS

1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES

Section 15063(a) of the California Environmental Quality Act (CEQA) Guidelines require that the Lead Agency prepare an Initial Study; however, if the Lead Agency can determine that an EIR will clearly be required for the Project, an initial study is not required, but may still be desirable. All phases of the Project planning, implementation, and operation must be considered in the Initial Study. The purposes of an Initial Study, as listed under Section 15063(c) of the CEQA Guidelines, include:

(1) *Provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or negative declaration;*
(2) *Enable an applicant or lead agency to modify a Project, mitigating adverse impacts before an EIR is prepared, thereby enabling the Project to qualify for a negative declaration;*
(3) *Assist the preparation of an EIR, if one is required, by:*
   A. Focusing the EIR on the effects determined to be significant,
   B. Identifying the effects determined not to be significant,
   C. Explaining the reasons for determining that potentially significant effects would not be significant, and
   D. *Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the Project's environmental effects.*
(4) Facilitate environmental assessment early in the design of a Project;
(5) Provide documentation of the factual basis for the finding in a negative declaration that a Project will not have a significant effect on the environment
(6) Eliminate unnecessary EIRs;
(7) Determine whether a previously prepared EIR could be used with the Project.

1.2 INITIAL STUDY

The Initial Study provided herein covers the potential environmental effects of the proposed construction and operation of a dairy vermifiltration system in Kings County, CA. Kings County will act as the Lead Agency for processing the Initial Study/Negative Declaration pursuant to CEQA and the CEQA Guidelines.

1.3 ENVIRONMENTAL CHECKLIST

The Lead Agency may use the CEQA Environmental Checklist Form [CEQA Guidelines, Section 15063(d)(3) and (f)] in preparation of an Initial Study to provide information for determining if the Project will have significant effects on the environment. A copy of the completed Environmental Checklist is set forth in **Section Three**.

1.4 NOTICE OF DETERMINATION (NOD)

The Lead Agency shall file a Notice of Determination within five working days after deciding to approve the Project. The Notice of Determination (CEQA Guidelines, Section 15075) shall include the following:

(1) An identification of the Project including the Project title as identified on the proposed negative declaration, its location, and the State Clearinghouse identification number for the proposed negative declaration if the notice of determination is filed with the State Clearinghouse.

(2) A brief description of the Project.

(3) The agency's name, the applicant's name, if any, and the date on which the agency approved the Project.

(4) The determination of the agency that the Project will not have a significant effect on the environment.

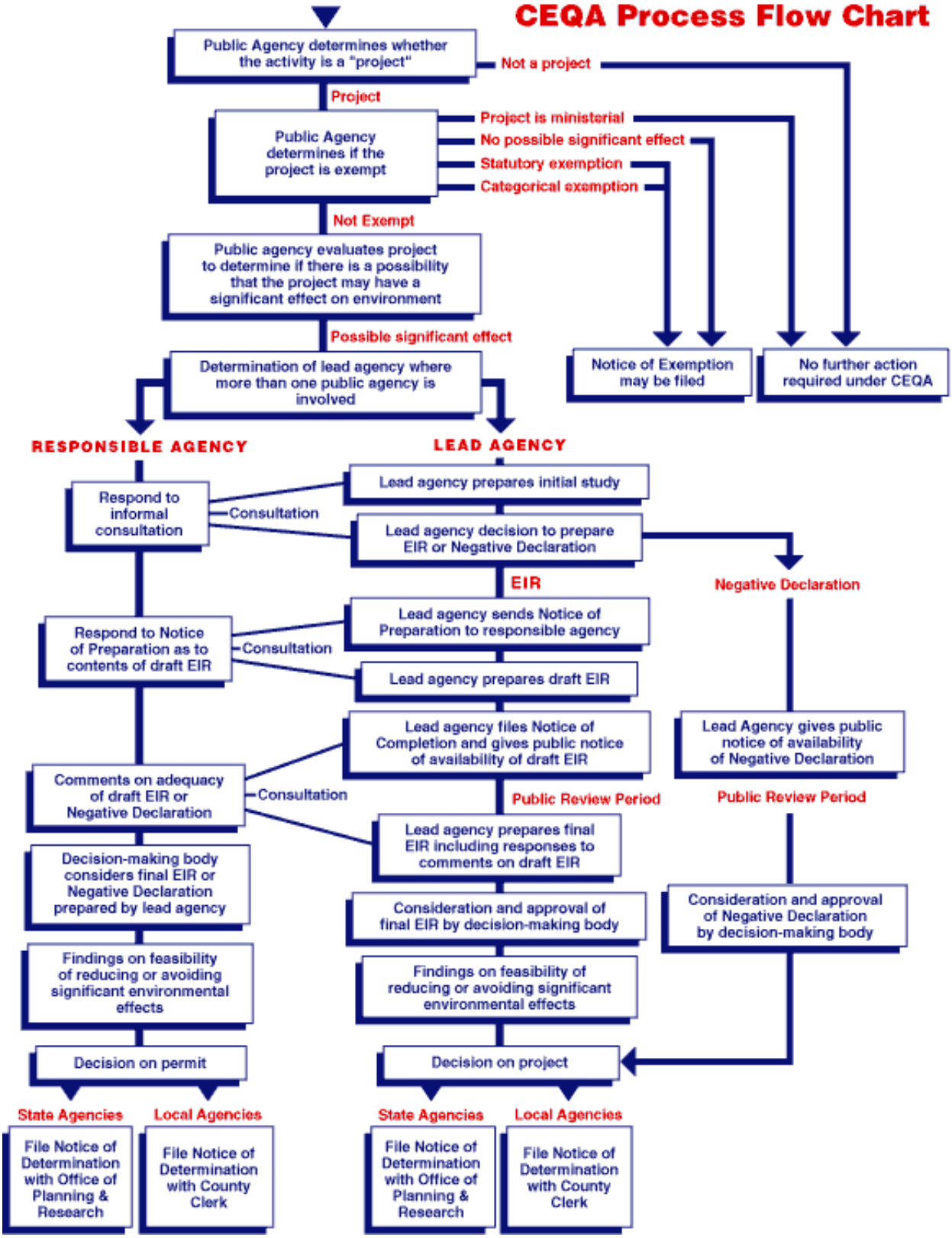
(5) A statement that a negative declaration or a mitigated negative declaration was adopted pursuant to the provisions of CEQA.

(6) A statement indicating whether mitigation measures were made a condition of the approval of the Project, and whether a mitigation monitoring plan/program was adopted.

(7) The address where a copy of the negative declaration or mitigated negative declaration may be examined.

(8) The identity of the person undertaking a Project which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies or the identity of the person receiving a lease, permit, license, certificate, or other entitlement for use from one or more public agencies.

1.5 CEQA PROCESS FLOW CHART



1.6 MITIGATION MEASURES INCLUDED IN THE PROJECT TO AVOID POTENTIALLY SIGNIFICANT EFFECT

The full description of each mitigation measure can be found in Section XXII, Mitigation Monitoring and Reporting Program.

Mitigation Measure AIR-1 (Dust Control During Construction). To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained and available upon request.

Mitigation Measure AIR-2 (Odor Management). To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and available upon request.

Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance). To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for review upon request.

Mitigation Measure AIR-4 (Feed Storage Dust Suppression). To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems or windbreaks, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained and available upon request**.**

Mitigation Measure AIR-5 (Agricultural Best Management Practices). To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices.

Mitigation Measure AIR-6 (Operational Controls for Vehicles and Equipment). To minimize emissions from expanded operational activities, the Applicant shall limit idling times for

vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas.

Mitigation Measure BIO-1a (Temporal Avoidance). In order to avoid any potential impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.

Mitigation Measure BIO-1b (Preconstruction Surveys). If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.

Mitigation Measure BIO-1c (Avoidance of Active Nests). Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

Mitigation Measure BIO-2a (Avoidance). In order to avoid impacts to native nesting birds and raptors, including the loggerhead shrike, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

Mitigation Measure BIO-2b (Preconstruction Surveys). If Project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) and surrounding lands within 250 feet for migratory birds, and out to 500 feet for raptors, where accessible. If no active nests are found within the survey area, no further mitigation is required.

Mitigation Measure BIO-2c (Establish Buffers). Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement. Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County.

Mitigation Measure CUL-2: Protection of Cultural Resources. In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources.
- Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found.
- Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA.
- Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than- significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken.
- Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.

- Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.

Mitigation Measure CUL-3: Protection of Buried Human Remains. In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission (NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."
- Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center.

Mitigation Measure HAZ-1: Hazardous Materials Business Plan. To ensure compliance with applicable safety regulations and minimize risks associated with the handling, storage, and use of hazardous materials at the Bar E Dairy facility, the applicant shall prepare and file a Hazardous Materials Business Plan (HMBP), prior to the initiation of any construction or operational activities involving hazardous materials. The HMBP shall include the following components:

- Inventory of Hazardous Materials: A detailed inventory of all hazardous materials to be used, stored, or disposed of on-site, including quantities, storage locations, and handling procedures.
- Emergency Response Plan: Procedures for responding to spills, leaks, or other incidents involving hazardous materials, including notification protocols, containment measures, and cleanup procedures.
- Employee Training: A training program for all employees handling hazardous materials, ensuring they are informed of proper handling, storage, and emergency response procedures in accordance with state and federal regulations.
- Site Map: A detailed site map indicating the locations of hazardous materials storage, handling areas, and emergency response equipment, such as spill kits and fire extinguishers.

The applicant shall submit the HMBP for review and approval by the Kings County Environmental Health Services Division prior to the issuance of any construction permits. The plan shall be updated annually or as required by regulatory authorities, and the applicant shall maintain records of compliance, including inspection reports and employee training logs, for review by the County upon request. Implementation of the HMBP will reduce potential impacts related to hazardous materials to a less than significant level by ensuring safe handling, storage, and emergency response procedures are in place.

Mitigation Measure HYD-1: A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events.

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SECTION 2: PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION & PURPOSE

Bar E Dairy is proposing the construction of a vermifiltration system at the existing dairy facility located at APN 002-070-068 and 002-070-091 in Kings County. The new system is proposed to produce higher quality process water for reuse, storage, and land application. The proposed system will include: one (1) earthen berm in an existing wastewater retention pond, two (2) wastewater lift stations, seven (7) wastewater processing beds with a total area of 151,480 sq. ft, a 30,296 sq. ft. material processing area, and a 111,400 sq. ft. manure storage area. The dairy facility is not proposing an increase in herd size as part of this Project.

The facility is also replacing existing equipment with the construction and installation of one (1) wastewater process pit, two (2) mechanical separators, three (3) concrete push walls, one (1) wastewater lift station, and a 21,645 sq. ft. concrete slab for manure handling.

The wastewater processing beds will operate as a Biodynamic Aerobic (BIDA) vermifiltration system. These BIDA beds will be 3-foot tall vermifiltration beds containing layers of HDPE liner, plastic pallets, shade mesh, wood chips, and earthworms with water irrigation and a treated wastewater collection system. The vermifiltration beds will treat dairy facility wastewater by filtering it through the beds using a linear irrigation system. Worms and microbes break down organic matter and reduce contaminants such as ammonia, pathogens, and suspended solids. The filtration media, combined with these biological processes, effectively improves the facility's wastewater quality and reduces air emissions from the facility's wastewater retention ponds. The treated effluent is then collected and can be safely land-applied or reused in dairy operations, minimizing environmental impact and enhancing nutrient utilization.

Semi-annually, the BIDA beds will be cleaned out requiring additional services to haul the harvested material from the BIDA beds to the facility's material processing area and land application. Bi-annually the BIDA beds will be cleaned out. This process requires two trucks per day for 14 days to move processed wood chips on site for land application. The wood chips will be moved to a drying area on site and then will be transported and land applied following processing.

Operation of the material processing area include the processing of nutrient-rich vermicompost produced from the vermifiltration beds, along with the processing the manure solids removed from the mechanical separators on-site. The manured material harvested from the BIDA system will be placed in large windrows, and earthworms will be introduced to

break down the manure solids into smaller particles, similar to that in the BIDA beds. As they digest the material, they release worm castings rich in nutrients, which enhance microbial activity. The worms' movement through the bed helps aerate the material, promoting the growth of beneficial microorganisms that further break down organic matter. This process improves the structure of the solids, reduces odors, stabilizes nutrients, and transforms the manure into a more environmentally sustainable product.

Unlike in the BIDA beds, wastewater will not be applied to the manure for treatment, only to maintain optimal moisture levels for the earthworm environment. Both the manure windrow and the vermifiltration beds will produce vermicompost, which will be dried in the material processing area. Once the vermicompost reaches its final state, it will be processed through a screening machine to create various particle sizes, which will be land applied to farmland associated with the dairy operation.

The proposed system is aerobic and will not emit hazardous or greenhouse gases. The only bioproduct will be vermicompost from the material processing, a valuable soil amendment. The Project will have ground disturbance from construction of lift stations, wastewater piping, electrical installations, and earthwork/grading of the project site to ensure all stormwater is retained onsite. The lift stations will be installed with a max depth of 16’ underground. The wastewater piping will be installed throughout the project site for wastewater conveyance. The earthwork/grading of the Site has been designed with minimum slopes to prevent standing water and to ensure all manured stormwater runoff is contained and delivered to the onsite wastewater retention ponds. The proposed ground disturbance would occur on previously disturbed land on the dairy facility and agricultural fields. However, the native earth of the Project Site has been previously impacted through agricultural use of the site prior to dairy development, ground disturbance during initial dairy construction, and dairy operations that have resulted in the deposition of dairy solid waste across much of the soil surface within the Site. As a result, the soils of the site no longer maintain their native soil characteristics and would not impact biological resources of the site.

Additional Elements:

- **Underground:** The site will have a network of 6"-24” wastewater lines, as well as electrical conduit installation. These will be buried at a minimum of 2’ underground.
- **Multiple Wastewater Processing (BIDA) Beds:** There will be seven wastewater processing beds with a total area of 151,480 sq. ft.
- **Control Unit:** The site will include a control unit for wastewater testing and equipment controls. This will be constructed utilizing a modular storage unit (sea train) with manifold and electrical. The control unit will be an unoccupied structure.
- **Two Lift Stations:** The Project includes lift stations for wastewater conveyance through the proposed system for wastewater operations and processing.
- **Proposed Earthen Berms:** One earthen berm is proposed to divide one existing wastewater retention pond into two for sustainable wastewater management of the facility.

2.2 PROJECT LOCATION

The proposed Bar E Dairy Vermifiltration Project (hereinafter referred to as the "Project Site") is located within Kings County, California, at APN 002-070-068 and 002-070-091. The site lies in a region currently used as agricultural cropland within the existing Bar E Dairy facility. The Project Site is situated in northern Kings County, approximately 3.25 miles east of State Route 43 and 5 miles west of State Route 99, at the northeast corner of 7th Avenue and Corona Avenue. The Project area is positioned within the Burris Park U.S. Geological Survey (USGS) 7.5-minute quadrangle, specifically in Section 15, Township 17 South, Range 22 East of the Mt. Diablo Base and Meridian.

2.3 OTHER PERMITS AND APPROVALS

The following permits and approvals are required from Kings County and outside agencies for the Bar E Dairy Project. It should be noted that this list is not exhaustive and additional permits and approvals may also be required.

Kings County Building and Encroachment Permits
County of Kings Code of Ordinances, Buildings and Structures, Section 5-7. No person shall erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, wire, or engage in plumbing, any building or structure in the unincorporated territory of the county without first obtaining a separate building, electric, plumbing, and mechanical permit for the work proposed on each such building or structure from the building.

Central Valley RWQCB – Dairy General Order / Waste Discharge Requirements
The proposed Project Site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) and is part of an existing dairy facility already regulated under the RWQCB's General Order for Existing Milk Cow Dairies (Dairy General Order) / Waste Discharge Requirements. Under the Dairy General Order, all process water and contaminated stormwater generated at the facility, including during construction of improvements, must be retained onsite within the existing wastewater storage ponds. No discharge to Waters of the United States is permitted. Because the Project consists of improvements to an existing dairy facility and all contaminated stormwater will continue to be fully contained onsite in accordance with the Dairy General Order's drainage and retention requirements, coverage under a separate National Pollutant Discharge Elimination System permit or Storm Water Pollution Prevention Plan pursuant to the statewide Construction General Permit is not required.

San Joaquin Valley Air Pollution Control District, Authority to Construct/Permit to Operate
Authority to Construct Permits are required prior to building or installing certain equipment. A Permit to Operate is required prior to operation of that equipment. An Authority to Construct/Permit to Operate will be required for the proposed wastewater processing system through a Modification of Liquid Manure Handling System.

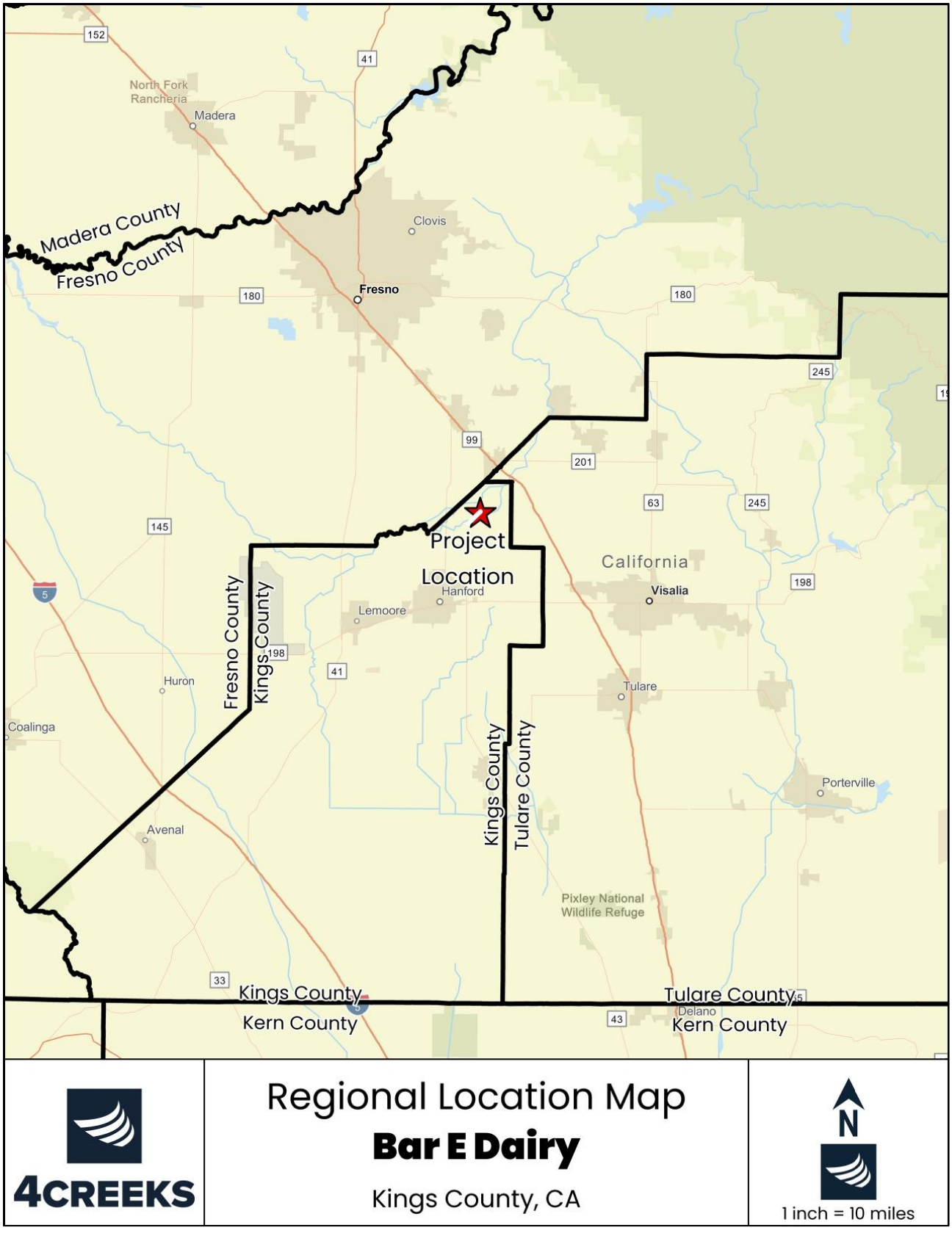


Figure 2-1. Regional Location Map

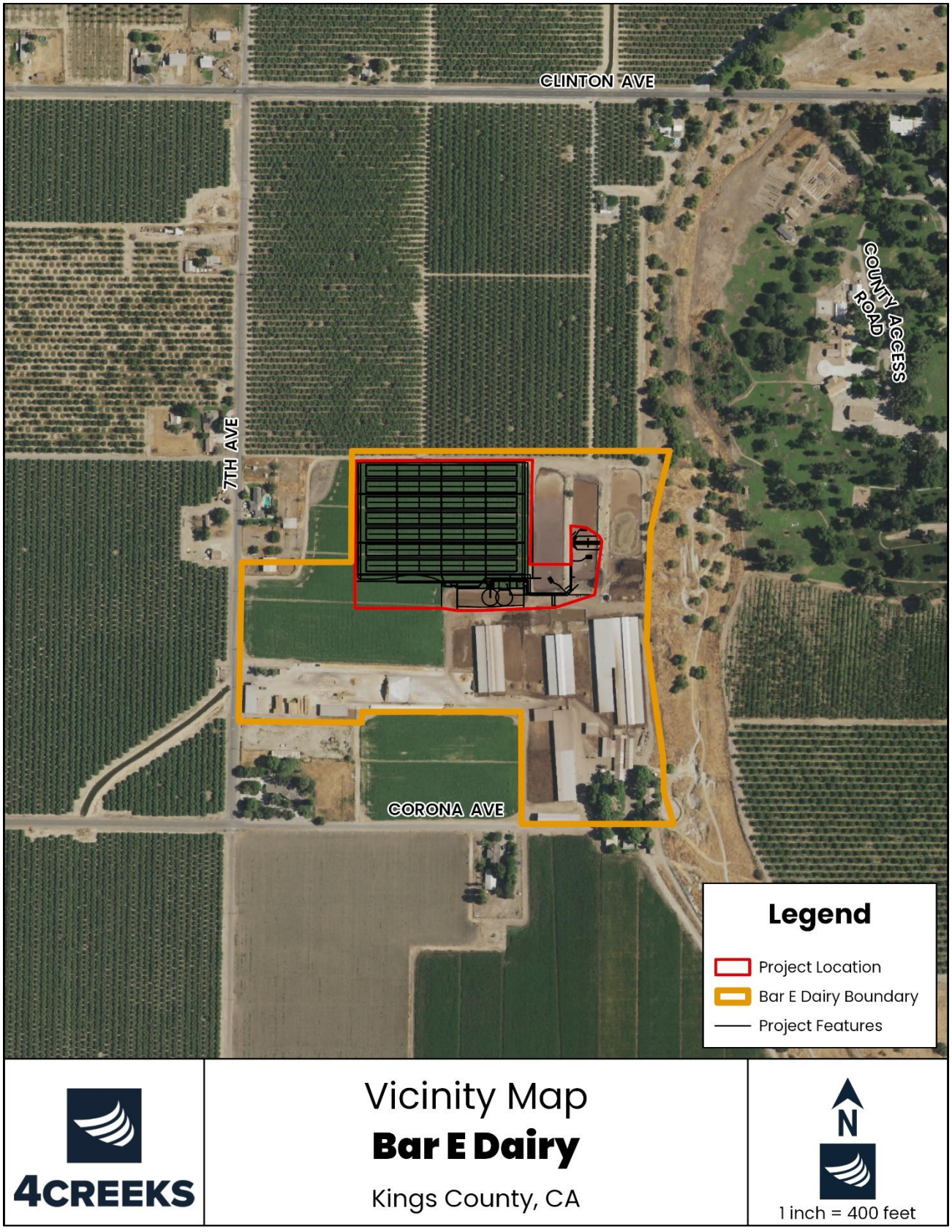


Figure 2-2. Vicinity Map

KINGS COUNTY

Community Development Agency
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Hanford, CA 93230

SECTION 3: EVALUATION OF ENVIRONMENTAL IMPACTS

This document is the Initial Study/Mitigated Negative Declaration for the proposed construction and operation of a Vermifiltration System and supporting improvements in Kings County, CA. Kings County will act as the Lead Agency for this Project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

3.1 PURPOSE

The purpose of this environmental document is to implement the California Environmental Quality Act (CEQA). Section 15002(a) of the CEQA Guidelines describes the basic purposes of CEQA as follows:

(1) Inform governmental decision-makers and the public about the potential significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the Project in the manner the agency chose if significant environmental effects are involved.

This Initial Study of environmental impacts has been prepared to conform to the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). According to Section 15070, a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a Project subject to CEQA when:

(5) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the Project may have a significant effect on the environment, or
(6) The initial study identifies potentially significant effects, but:
   a. Revisions in the Project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
   b. There is no substantial evidence, in light of the whole record before the agency, that the Project as revised may have a significant effect on the environment.

3.2 INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

1. **Project Title:** Bar E Dairy Vermifiltration System

2. **Lead Agency:** Kings County Community Development Agency

   - Contact: Victor Hernandez, Planner IV
   - 1400 W. Lacey Blvd., Bldg. 6
   - Hanford, CA 93230
   - Telephone: (559) 852-2685
   - Fax: (559) 584-8989

3. **Applicant:** 4Creeks, Inc.

   - Contact: Kay Semoes
   - 324 S. Santa Fe Street
   - Visalia, CA 93292
   - (559) 802-3052

4. **Project Location:** The proposed Bar E Dairy Vermifiltration Project (hereinafter referred to as the "Project Site") is located within Kings County, California, at APN 002-070-068 and 002-070-091. The site lies in a region currently used as agricultural cropland within the existing Bar E Dairy facility. The Project Site is situated in northern Kings County, approximately 3.25 miles east of State Route 43 and 5 miles west of State Route 99, at the northeast corner of 7th Avenue and Corona Avenue. The Project area is positioned within the Burris Park U.S. Geological Survey (USGS) 7.5-minute quadrangle, specifically in Section 15, Township 17 South, Range 22 East of the Mt. Diablo Base and Meridian.

5. **General Plan Designation:** The 2035 Kings County General Plan designates the parcels involved in the Project as General Agriculture (AG-20). The Site is within an unincorporated area of Kings County.

6. **Zoning Designation:** The Kings County Development Code designates the parcels involved in the Project as General Agricultural-20 District (AG-20)

7. **Surrounding Land Uses and Settings:** Current land use on the surrounding properties includes cultivated agriculture and livestock facilities. There is one rural office location approximately 1.5 miles west of the Project property. There is also one off-site rural residence located 303 feet west of the Project Site. The land to the north, south, and west are designated by Kings County as General Agriculture, 20 acres, under the General Plan and is zoned as AG-20 General Agricultural-20 District under the Kings County Development Code. The land east of the Project property is designated National Resource Conservation under the General Plan and Development Code.

8. **Project Description:** Bar E Dairy is proposing the construction of a vermifiltration system at the existing dairy facility located at APN 002-070-068 and 002-070-091 in Kings County. The new system is proposed to produce higher quality process water for reuse, storage, and land application. The proposed system will include: one (1) earthen berm in an existing

wastewater retention pond, two (2) wastewater lift stations, and seven (7) wastewater processing beds with a total area of 151,480 sq. ft, a 30,296 sq. ft. material processing area, and a 111,400 sq. ft. manure storage area. The dairy facility is not proposing an increase of herd as part of this Project.

The facility is also replacing existing equipment with the construction and installation of one (1) wastewater process pit, two (2) mechanical separators, three (3) concrete push walls, one (1) wastewater lift station, and a 21,645 sq. ft. concrete slab for manure handling.

The wastewater processing beds will operate as a Biodynamic Aerobic (BIDA) vermifiltration system. These BIDA beds will be 3-foot tall vermifiltration beds containing layers of HDPE liner, plastic pallets, shade mesh, wood chips, and earthworms with water irrigation and a treated wastewater collection system. The vermifiltration beds will treat dairy facility wastewater by filtering it through the beds using a linear irrigation system. Worms and microbes break down organic matter and reduce contaminants such as ammonia, pathogens, and suspended solids. The filtration media, combined with these biological processes, effectively improves the facility's wastewater quality and reduces air emissions from the facility's wastewater retention ponds. The treated effluent is then collected and can be safely land-applied or reused in dairy operations, minimizing environmental impact and enhancing nutrient utilization.

Semi-annually, the BIDA beds will be cleaned out requiring additional services to haul the harvested material from the BIDA beds to the facility's material processing area and land application. Bi-annually the BIDA beds will be cleaned out. This process requires two trucks per day for 14 days to move processed wood chips on site for land application. The wood chips will be moved to a drying area on site and then will be transported and land applied following processing.

Operation of the material processing area include the processing of nutrient-rich vermicompost produced from the vermifiltration beds, along with the processing the manure solids removed from the mechanical separators on-site. The manured material harvested from the BIDA system will be placed in large windrows, and earthworms will be introduced to break down the manure solids into smaller particles, similar to that in the BIDA beds. As they digest the material, they release worm castings rich in nutrients, which enhance microbial activity. The worms' movement through the bed helps aerate the material, promoting the growth of beneficial microorganisms that further break down organic matter. This process improves the structure of the solids, reduces odors, stabilizes nutrients, and transforms the manure into a more environmentally sustainable product.

Unlike in the BIDA beds, wastewater will not be applied to the manure for treatment, only to maintain optimal moisture levels for the earthworm environment. Both the manure windrow and the vermifiltration beds will produce vermicompost, which will be dried in the material processing area. Once the vermicompost reaches its final state, it will be processed through a screening machine to create various particle sizes, which will be land applied to farmland associated with the dairy operation.

The proposed system is aerobic and will not emit hazardous or greenhouse gases. The only bioproduct will be vermicompost from the material processing, a valuable soil amendment. The Project will have ground disturbance from construction of lift stations, wastewater piping, electrical installations, and earthwork/grading of the project site to ensure all stormwater is retained onsite. The lift stations will be installed with a max depth of 16' underground. The wastewater piping will be installed throughout the project site for wastewater conveyance. The earthwork/grading of the Site has been designed with minimum slopes to prevent standing water and to ensure all manured stormwater runoff is contained and delivered to the onsite wastewater retention ponds. The proposed ground disturbance would occur on previously disturbed land on the dairy facility and agricultural fields. However, the native earth of the Project Site has been previously impacted through agricultural use of the site prior to dairy development, ground disturbance during initial dairy construction, and dairy operations that have resulted in the deposition of dairy solid waste across much of the soil surface within the Site. As a result, the soils of the site no longer maintain their native soil characteristics and would not impact biological resources of the site.

Additional Elements:

- **Underground:** The site will have a network of 6"-24" wastewater lines, as well as electrical conduit installation. These will be buried at a minimum of 2' underground.
- **Multiple Wastewater Processing (BIDA) Beds:** There will be seven wastewater processing beds with a total area of 151,480 sq. ft.
- **Control Unit:** The site will include a control unit for wastewater testing and equipment controls. This will be constructed utilizing a modular storage unit (sea train) with manifold and electrical. The control unit will be an unoccupied structure.
- **Two Lift Stations:** The Project includes lift stations for wastewater conveyance through the proposed system for wastewater operations and processing.
- **Proposed Earthen Berms:** One earthen berm is proposed to divide one existing wastewater retention pond into two for sustainable wastewater management of the facility.

9. **Parking and access:** Vehicular access to the Project site will be available via 7th Avenue. The proposed Project includes surfacing of internal access roads, as applicable for dust control, which will provide full access to the entire Project site. During construction, workers will utilize temporary onsite construction staging areas for parking vehicles and equipment.
10. **Landscaping and Design:** No landscaping is proposed for this Project.
11. **Utilities and Electrical Services:** The Project includes a dairy wastewater management system that includes dairy wastewater lagoons and a BIDA system, which uses vermifiltration to treat effluent. This system reduces pollutants and pathogens, allowing treated water to be reused for irrigation. The Project also integrates stormwater management, directing surface runoff to on-site basins for treatment, thus minimizing environmental impacts. Water for the dairy is sourced primarily from on-site wells and

supplemented by recycled water from the BIDA system, ensuring sustainability and compliance with local and state regulations. Solid dairy waste, mainly manure, is managed on-site with additional waste handled by the Kings Waste and Recycling Authority. The Project includes electrical installation to power the mechanical operations of the proposed improvements.

12. **Other Permits and Approvals:** The following permits and approvals are required from Kings County and outside agencies for the Bar E Dairy Project. It should be noted that this list is not exhaustive and additional permits and approvals may also be required.

    i) Kings County Building and Encroachment Permits

    ii) Central Valley Regional Quality Control Board, NPDES Permit

    iii) San Joaquin Valley Air Pollution Control District, Authority to Construct/Permit to Operate

ACRONYMS

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
APN	Assessor's Parcel Number
BMP	Best Management Practices
BPS	Best Performance Standards
BIDA	Biodynamic Aerobic
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CBSC	California Building Standards Commission
CCAP	Climate Change Action Plan
CCR	California Code of Regulation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
CWA	California Water Act
DOC	California Department of Conservation
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
FCSSE	Five County Seismic Safety Element
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
EIA	Energy Information Administration
HSC	Health and Safety Code
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GSP	Groundwater Sustainability Plan

HMBP	Hazardous Materials Business Plan
ISMND	Initial Study Mitigated Negative Declaration
LCI	Governor's Office of Land Use and Climate Innovation
LOS	Level of Service
NAAQS	National Ambient Air Quality Standards
NOI	Notice of Intent
ND	Negative Declaration
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
NPDES	National Pollution Discharge System
PEIR	Program Environmental Impact Report
PRC	Public Resources Code
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SSJVIC	Southern San Joaquin Valley Information Center
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TAC	Toxic Air Contaminant
TCR	Tribal Cultural Resource
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
USDOT	United States Department of Transportation
VOC	Volatile Organic Compound

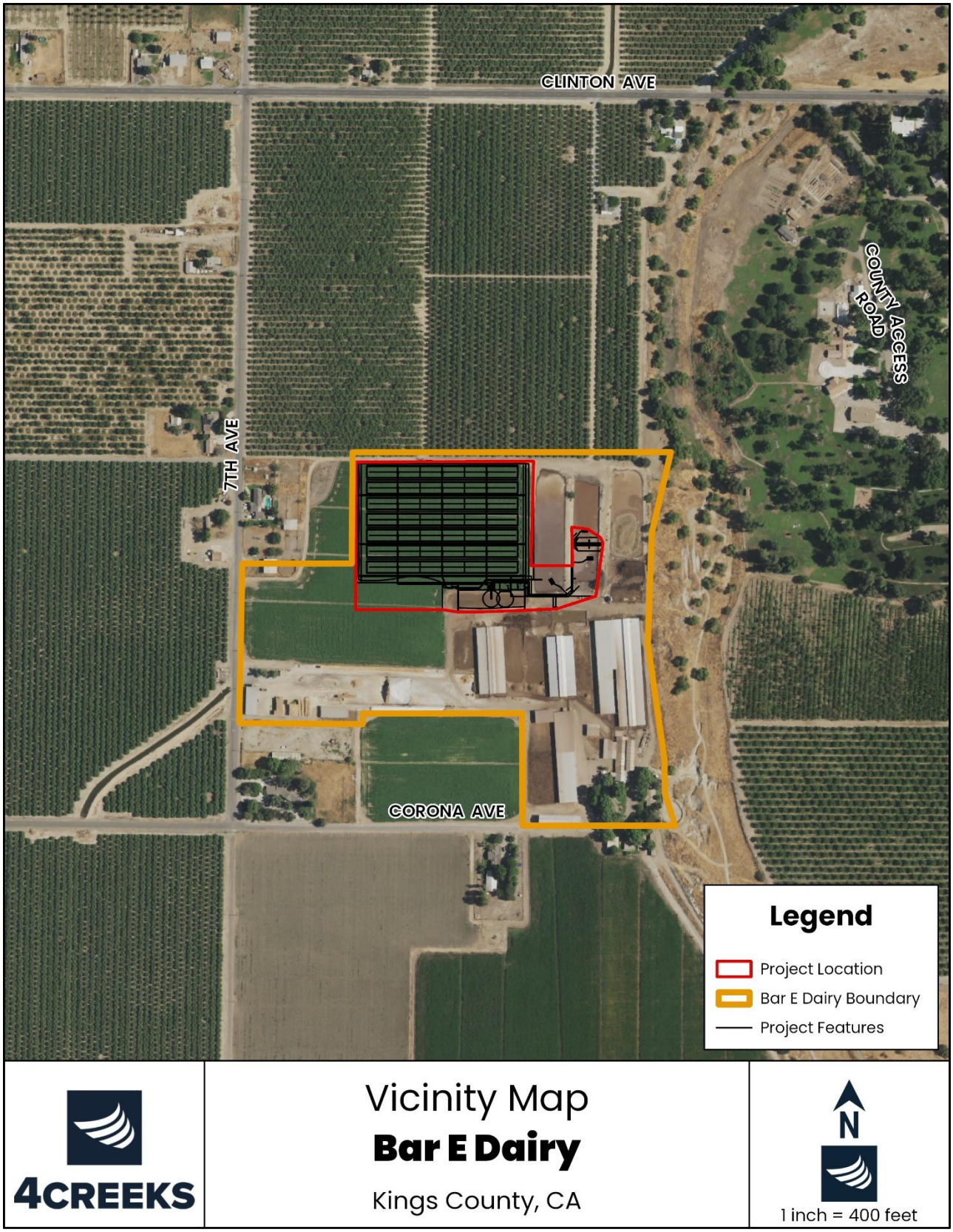


Figure 3-1. Vicinity Map

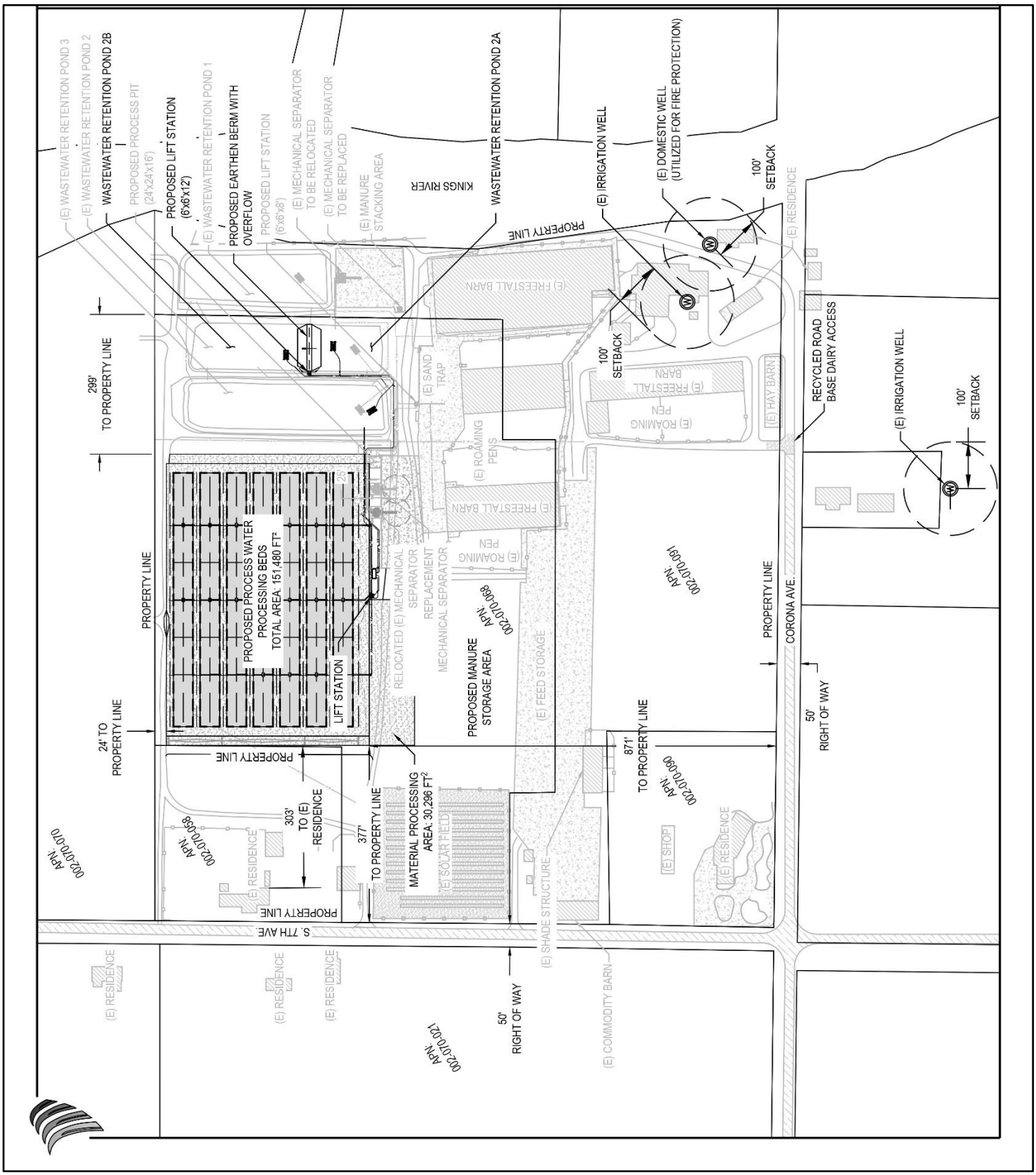


Figure 3-2. Project Site Plan

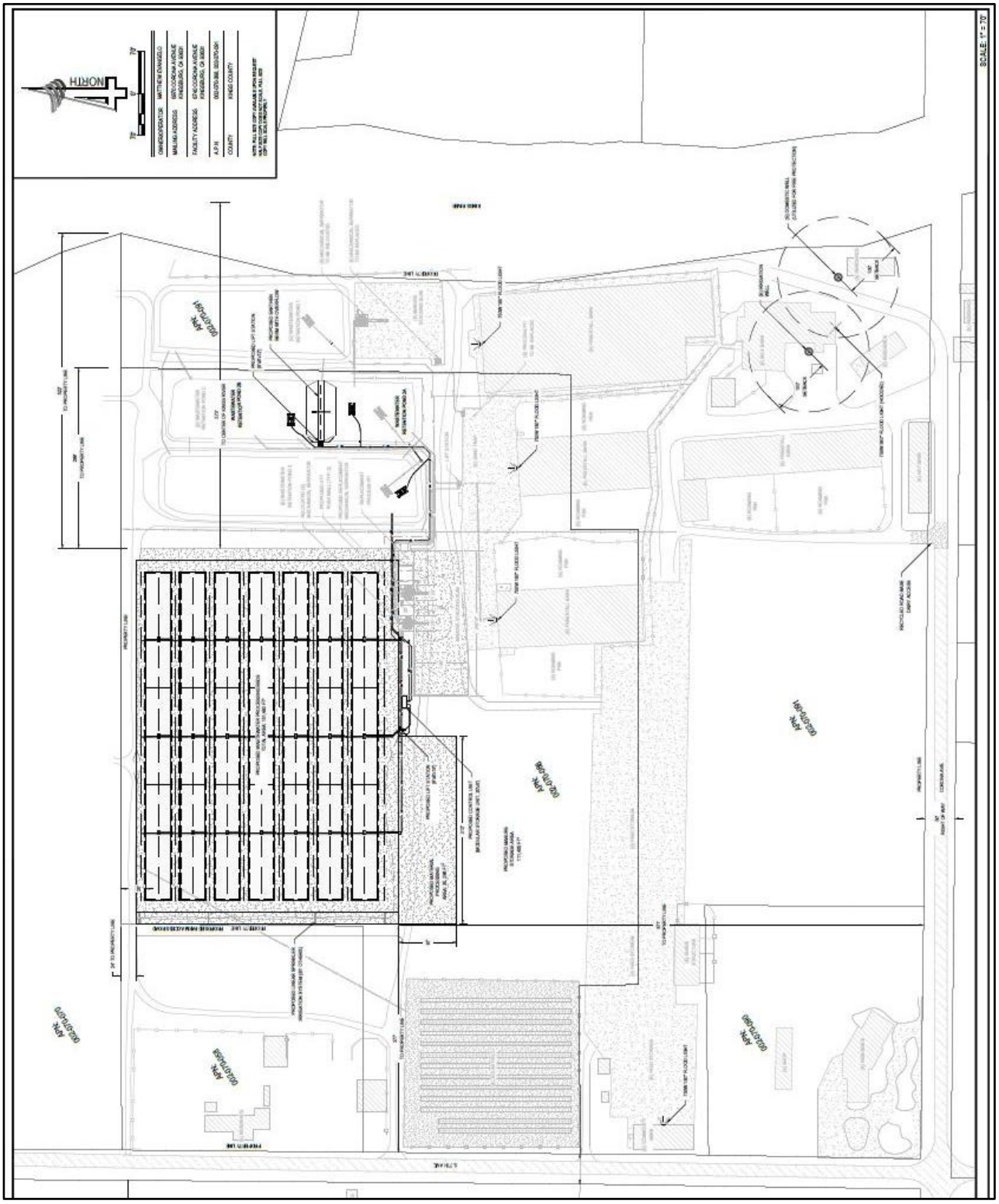


Figure 3-3. Overall Project Site

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

(1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis)

(2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.

(3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

(4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

   a. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequate analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

      i. Earlier Analysis Used. Identify and state where they are available for review.

      ii. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

      iii. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe any mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

(5) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

3.4 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forestry Resources	☑ Hazards and Hazardous Materials	☐ Recreation
☑ Air Quality	☑ Hydrology/Water Quality	☐ Transportation
☑ Biological Resources	☐ Land Use/Planning	☑ Tribal Cultural Resources
☑ Cultural Resources	☐ Mineral Resources	☐ Utilities/Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology/Soils	☐ Population/Housing	☑Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION WILL BE PREPARED.

☑ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A Negative Declaration is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed Project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is requested.

SIGNATURE	July 10, 2026 DATE
Victor Hernandez PRINTED NAME	Kings County Community Development Agency AGENCY

3.5 ENVIRONMENTAL ANALYSIS

The following section provides an evaluation of the impact categories and questions contained in the checklist and identify mitigation measures, if applicable.

I. AESTHETICS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☑	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?	☐	☐	☐	☑
c) In non-urbanized areas, substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☑	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Environmental Setting

The Open Space Element of the 2035 Kings County General Plan identifies a number of aesthetic resources within the County.

Kettleman Hills

The Kettleman Hills is a low mountain range within the California Interior Coastal Range. The hills reach an elevation of approximately 1,200 feet and divide the San Joaquin Valley from the much smaller Kettleman Plains to the west. The proposed Project is located approximately 40 miles north-east of Kettleman Hills.

The Kings River

The Kings River, approximately 125 miles in length, originates in the Sierra Nevada and flows westward, forming part of the boundary between Kings County and Fresno County. Its seasonal flows are primarily driven by snowmelt from the Sierra Nevada, supplemented by regulated releases from Pine Flat Reservoir to support irrigation and other downstream uses in Kings County and surrounding areas. The Kings River is considered to be one of the most identifiable features in the County and is the source of the County's namesake. The Kings River is approximately 300 feet east of the proposed Project site.

Cross Creek

Cross Creek is a natural waterway channel that flows through the northern half of the County. Cross Creek flows are very intermittent, as water is usually diverted for agricultural use upstream. Cross Creek is located approximately 9 miles southeast of the Project site.

Scenic Highways

There are no state designated scenic highways in Kings County. A portion of SR-41, from its intersection with SR-33 through to the San Luis Obispo County line, is an eligible state scenic highway. This portion of SR-41 is located in the south-west portion of the county and is approximately 46 miles south-west of the proposed Project Site.

The following photos demonstrate the aesthetic character of the Project area. As shown, the proposed Project Site is located in an area dominated by agricultural land uses.



Photo 1: Eastern portion of the Project Site (View West). Source: Taylored Archaeology, 2024



Photo 2: Southeastern portion of the Project Site (View North). Source: Taylored Archaeology, 2024



Photo 3: View South. Source: Taylored Archaeology, 2024

Regulatory Setting

State Scenic Highways: The State Scenic Highway Program was implemented by Caltrans and was developed to preserve the aesthetic quality of certain highway corridors. Highways included in this program are designated as scenic highways. A highway is designated as scenic based on how much of the natural landscape is visible to travelers, the quality of that landscape, and the extent to which development obstructs views of the landscape.

2035 Kings County General Plan: The 2035 Kings County General Plan includes the following objectives and policies pertaining to aesthetic resources:

❖ **OS GOAL B1: Maintain and protect the scenic beauty of Kings County.**

- OS OBJECTIVE B1.1: Protect and enhance views from roadways which cross scenic areas or serve as scenic entranceways to cities and communities.
  - *OS Policy B1.1.1*: Coordinate with the Kings County Association of Governments to explore designation of State Route 41, between State Route 33 and the Kern County line, as an Official State Scenic Highway through the Caltrans Transportation Enhancement program.
- OS OBJECTIVE B1.2: Preserve roadside landscapes which have high visual quality and contribute to the local environment.
  - *OS Policy B1.2.1*: Review new development and utility projects for compatibility and potential for impacting scenic view sheds along highly traveled scenic routes.
- OS OBJECTIVE B1.3: Protect the scenic qualities of human-made and natural landscapes and prominent view sheds.
  - *OS Policy B1.3.1*: Require new development to be designed so that it does not significantly impact or block views of Kings County's natural landscape or other important scenic features. Discretionary permit applications will be evaluated against this requirement as part of the development review process. New developments may be required, as appropriate to:
    - Minimize obstruction of views from public lands and rights-of-way.
    - Reduce visual prominence by keeping development and structures below ridgelines.
    - Limit the impact of new roadways and grading on natural settings. Such limits shall be within design safety guidelines.
  - *OS Policy B1.3.2*: Protect the visual access to Kings River and other prominent watercourses by locating and designing new development to minimize visual impacts and obstruction of views of scenic watercourses from public lands and rights-of-way.

Kings County Development Code

Kings County Development Code Section 418(E) states that Exterior lighting should be designed to be compatible with the architectural and landscape design of the Project and identifies the following exterior lighting requirements for agricultural zones:

1. *All new proposed uses shall preserve the existing nighttime environment by ensuring that the outdoor lighting for the use is so arranged and/or hooded as to reflect light away from adjoining properties.*

2. *New lighting that is part of residential, commercial, industrial, or recreational development shall be oriented away from sensitive uses, and shall be hooded, shielded, and located to direct light pools downward and prevent glare.*
3. *To achieve the desired lighting level for parking and pedestrian areas, the use of shorter, low intensity fixtures is encouraged over the use of a few tall fixtures that illuminate large areas.*

Discussion

a) Would the Project have a substantial adverse effect on a scenic vista?

Less than Significant Impact: A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. The Open Space Element of the 2035 Kings County General Plan identifies three scenic vistas in Kings County- the Coastal Ranges of Kettleman Hills, the Kings River, and Cross Creek.

Bar E Dairy is located approximately 40 miles north-east of Kettleman Hills, 300 feet west of the Kings River, and 9 miles northwest of Cross Creek. The low profile of the proposed facilities, in conjunction with the distance between the proposed facilities to the scenic resources, ensures the Project would not impact views of these features. Therefore, the Project would have a *Less than Significant Impact* on scenic vistas.

b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact: The site does not contain any rock outcroppings or historic buildings. Upon review of the state route "scenic highways" in Kings County, it was determined that there are no highways designated by State or local agencies as "Scenic highways" near the Project Site. Therefore, the proposed Project would have *No Impact* on any scenic resources.

c) In non-urbanized areas, would the Project substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact: The proposed Project Site is located in a non-urbanized area in northeast Kings County. The Vermifiltration System would be visible from a publicly accessible vantage point (7th Avenue). However, because the Project Site is currently used for dairy production and is previously disturbed, the County does not anticipate that the development of the proposed Project will create a visually degraded character or quality to the Project Site or to the properties near and around the Project Site. Additionally, all of the development will be required to comply with the design review and design limitations required by the General Plan and the County's Development Code which require setbacks, landscaping and designs to

limit the impact to neighboring properties. The proposed Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. *Impacts would be Less than Significant*.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact: The Project proposes minimal outdoor lighting and does not include any notable reflective materials that could result in impacts today or nighttime views. Additionally, the Project will comply with Article 1, Section 114.A.5 and Article 4, Section 418.E of the Kings County Development Code. These policies require sources of light and glare to be directed away from the sky and adjacent property lines. Consistent with these policies the Project applicant will ensure that any *impacts resulting from new light sources remains Less than Significant.*

II. AGRICULTURE AND FOREST RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☑

Environmental Setting

Central California is one of the world's premier growing regions. Agriculture is a vital economic resource for Kings County. According to the Kings County 2024 Crop Report, there are 749,100 acres of farmland within the County, resulting in it being the land use for 84.1 percent of the total 890,545 acres of land in the county. The primary commodities produced in Kings County, by total value, are milk, pistachios, cotton, cattle, and tomatoes. The Project is an unincorporated area of Kings County. The proposed Site contains land designated as Confined Animal Agriculture and Prime Farmland under the Important Farmland Mapping and Monitoring Program (FMMP).

Regulatory Setting

California Land Conservation Act of 1965: The California Land Conservation Act of 1965, commonly called the Williamson Act, allows local governments to enter into contracts with private landowners to restrict the activities on specific parcels of land to agricultural or open space uses. The landowners benefit from the contract by receiving significantly reduced property tax assessments. The California Department of Conservation (DOC) oversees the California Land Conservation Act; however, local governments are responsible for determining specific allowed uses and enforcing the contract.

California Farmland Mapping and Monitoring Program (FMMP)

The FMMP is implemented by the California Department of Conservation (DOC) to conserve and protect agricultural lands within the State. Land is included in this program based on soil type, annual crop yields, and other factors that influence the quality of farmland. The FMMP mapping categories for the most important statewide farmland are as follows:

- *Prime Farmland has the ideal physical and chemical composition for crop production. It has been used for irrigated production in the four years prior to classification and is capable of producing sustained yields.*
- *Farmland of Statewide Importance has also been used for irrigated production in the four years prior to classification and is only slightly poorer quality than Prime Farmland.*
- *Unique Farmland has been cropped in the four years prior to classification and does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has produced specific crops with high economic value.*
- *Farmland of Local Importance encompasses farmland that does not meet the criteria for the previous three categories. These may lack irrigation, produce major crops, be zoned as agricultural, and/or support dairy.*
- *Grazing Land has vegetation that is suitable for grazing livestock.*

2035 Kings County General Plan

The 2035 General Plan *Land Use Element* includes the following goals, objectives, and policies, which reduce impacts associated with agricultural land conversion and protect existing agricultural resources that relate to the proposed Project:

- **LU Goal B1: Protect agricultural lands throughout the County, and in particular along the edges of Community Districts and Urban Fringe by maintaining large parcel sizes and preventing the premature development of incompatible urban uses.**
  - LU Objective B1.1: Preserve the integrity of the County's agricultural land resources through agricultural land use designations and other long term preservation policies.
    - *LU Policy B1.1.1*: Designate all agricultural and grazing land outside of planned urban areas as Limited Agriculture, General Agriculture, Exclusive Agriculture, or Natural Resource Conservation.

- LU Objective B1.2: Maintain large parcel sizes of agricultural designated land within Urban Fringe areas and around Community Districts to retain viable agricultural production until such time as land is planned and ready for conversion to other uses.

❖ **LU Goal B2: Agricultural production continues to be supported and enhanced in areas designated for agriculture, while conflicts between agriculture and non-agricultural uses are minimized.**

- LU Objective B2.1: Recognize agriculture as the highest and best use of agricultural designated land and preserve the right of farmers and agricultural operations to continue customary and usual agricultural practices, and operate in the most efficient manner possible.
  - *LU Policy B2.1.1*: The primary use of land designated Limited Agriculture, General Agriculture, and Exclusive Agriculture shall remain devoted to agricultural uses and related support services.

The **2035 Kings County General Plan** *Open Space Element* contains the following objective to limit impacts to agricultural resources:

- OS Objective A1.1: Protect agricultural land as an important, sustainable component of the Kings County economy.

The **2035 Kings County General Plan** *Resource Conservation Element* contains the following objectives and policies to limit impacts to agricultural resources:

- RC Objective B1.1: Identify the County's highest priority agricultural lands that are critical to the County's agricultural economy, prime soils, and water availability, and emphasize higher preservation efforts for these areas.
  - *RC Policy B1.1.1*: Maintain the County's Priority Agricultural Land Model to serve as an information resource in evaluating urban growth and impacts related to the County's agricultural economy and redirect that growth where possible to the lowest priority agricultural land. This model is referenced in Kings County's 2008 Agricultural Land Conversion Study.
  - *RC Policy B1.1.2*: Use the Priority Agricultural Model as a reference for determining potential economic and resource impacts related to the loss of agricultural land resulting from conversion to urban uses.
- RC Objective B1.2: Establish feasible mitigation for the loss of agricultural land conversion that is not over burdensome to landowner and development interests yet enhances long term preservation efforts of the County's highest priority agricultural lands.
  - *RC Policy B1.2.1*: Require new development that results in the loss of agricultural lands to provide mitigation to offset the loss. The County's Farmland Preservation Mitigation Strategy shall require comparable acreage enrollment in the County's Farmland Security Zone.

- RC Objective C1.1: Conserve prime agricultural soils and avoid their conversion to non-agricultural uses.

Kings County Right-to-Farm Policy

The *Kings County Code of Ordinances* Section 14-38, the "Notice of Disclosure and Acknowledgment of Agricultural Land Use Protection and Right to Farm Policies of the County of Kings," (Right-to-Farm) requires the approvals of rezoning, land divisions, zoning permits, and residential building permits include a condition that notice and disclosure be provided, which is to be recorded with the property title, page that specifically acknowledges and notifies all future owners that they are in proximity to agricultural uses, and lists the types of operations and possible nuisances or inconveniences associated with farming such as equipment and animal noises; farming activities conducted on a 24-hour, 7-day a week basis; odors from manure, fertilizers, pesticides, chemicals, or other sources; the aerial and ground application of chemicals and seeds; dust; flies and other insects; and smoke. The ordinance states that the County does not consider normal farming operations involving these activities to be a nuisance, and that current owners and future purchasers should be prepared to accept such annoyances or discomfort from normal, usual, and customary agricultural operations, facilities, and practices. This Right-to-Farm disclosure policy establishes the primacy of agricultural operations over other land uses and reduces the potential for conflict with adjacent land uses.

Discussion

a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less than Significant Impact: The Project Site is an existing dairy facility surrounded by agricultural properties and rural residences. The Site includes land designated as Confined Animal Agriculture and Prime Farmland. Most of the proposed vermifiltration system, including the seven biodynamic aerobic (BIDA) wastewater processing beds (totaling approximately 151,480 square feet) and associated infrastructure such will be located on land designated as Prime Farmland. However, these improvements are integral to the dairy's ongoing operations and constitute agricultural use, as they support the treatment and reuse of wastewater and manure solids generated by the facility, enhancing nutrient management and operational efficiency without altering the site's primary agricultural function.

The Project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, as the proposed vermifiltration system maintains the Site's existing function as a dairy facility, consistent with the General Agriculture – 20 Acre Minimum designation under the 2035 Kings County General Plan. The BIDA system and related features, including the linear irrigation for wastewater distribution and vermicompost processing areas, are designed to improve environmental sustainability and align with best agricultural

practices for waste management. The Project will adhere to all applicable existing and proposed 2035 General Plan policies, including those in the Dairy Element, to minimize any potential impacts. As the proposed development remains an agricultural use and does not reduce agricultural activity or alter the Site's overall agricultural character, the Project will have a Less than Significant Impact. There is a *Less than Significant Impact.*

b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act Contract?

No Impact: The Bar E Dairy Vermifiltration System Project Site and surrounding properties are zoned as General Agriculture – 20 Acre Minimum (AG-20) under the Kings County Development Code, which permits agricultural activities, including dairy operations, as a primary use. The proposed improvements are integral components of the dairy's operations. These improvements are designed to enhance wastewater treatment through vermifiltration, improve nutrient recycling via vermicompost production, and support overall operational efficiency, all of which are consistent with the agricultural activities, allowed in the AG-20 District.

The proposed project plans to utilize a biodynamic aerobic (BIDA) system to treat on-site dairy wastewater, producing higher-quality effluent for reuse or land application, which supports the dairy's environmental sustainability and operational needs. Similarly, the manure processing area and wastewater conveyance infrastructure is directly related to the dairy's core functions of animal care, waste management, and nutrient utilization for land application. These improvements do not alter the Site's primary agricultural use but instead enhance its functionality as a dairy facility, aligning with the AG-20 zoning designation that explicitly permits such agricultural operations.

A portion of the Project Site is also under a Williamson Act Contract, which restricts land use to agricultural or compatible open-space activities in exchange for reduced property tax assessments, as governed by the California Land Conservation Act of 1965. Dairy operations, including the proposed improvements, are considered compatible with the Williamson Act, as they support and enhance agricultural production. The proposed modifications do not involve urban development or other non-agricultural uses that would conflict with the contract's restrictions.

Therefore, the proposed improvements are consistent with the existing AG-20 zoning and the Williamson Act Contract, as they are integral to the dairy's agricultural operations and do not introduce non-agricultural uses. There is No Impact on the zoning for agricultural use or the Williamson Act Contract. There is *No Impact*.

c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned timberland Production (as defined by Government Code section 51104(g))?

No Impact: The Project Site does not contain forest land, timberland or timberland zoned Timberland Production; the Project Site is not zoned for forest or timberland production; and there is no zone change proposed for the site. Therefore, *No Impacts* would occur.

d) Would the Project result in the loss of forestland or conversion of forest land to non-forest use?

No Impact: No loss of forest land or conversion of forestland, as defined under Public Resource Code or General Code, to non-forest use will occur as a result of the Project and there would be *No Impact*.

e) Would the Project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?

No Impact: As discussed in Impact Analysis II-a above, the proposed Project does not convert Prime Farmland, Unique Farmland, or Farmland of Statewide importance (Farmland) to non-agricultural use. As discussed in Impact Analysis II-c above, the Project Site is not located in the vicinity of forestland; therefore, the proposed Project would not convert forest land to non-forest use. Thus, *No Impact* would occur.

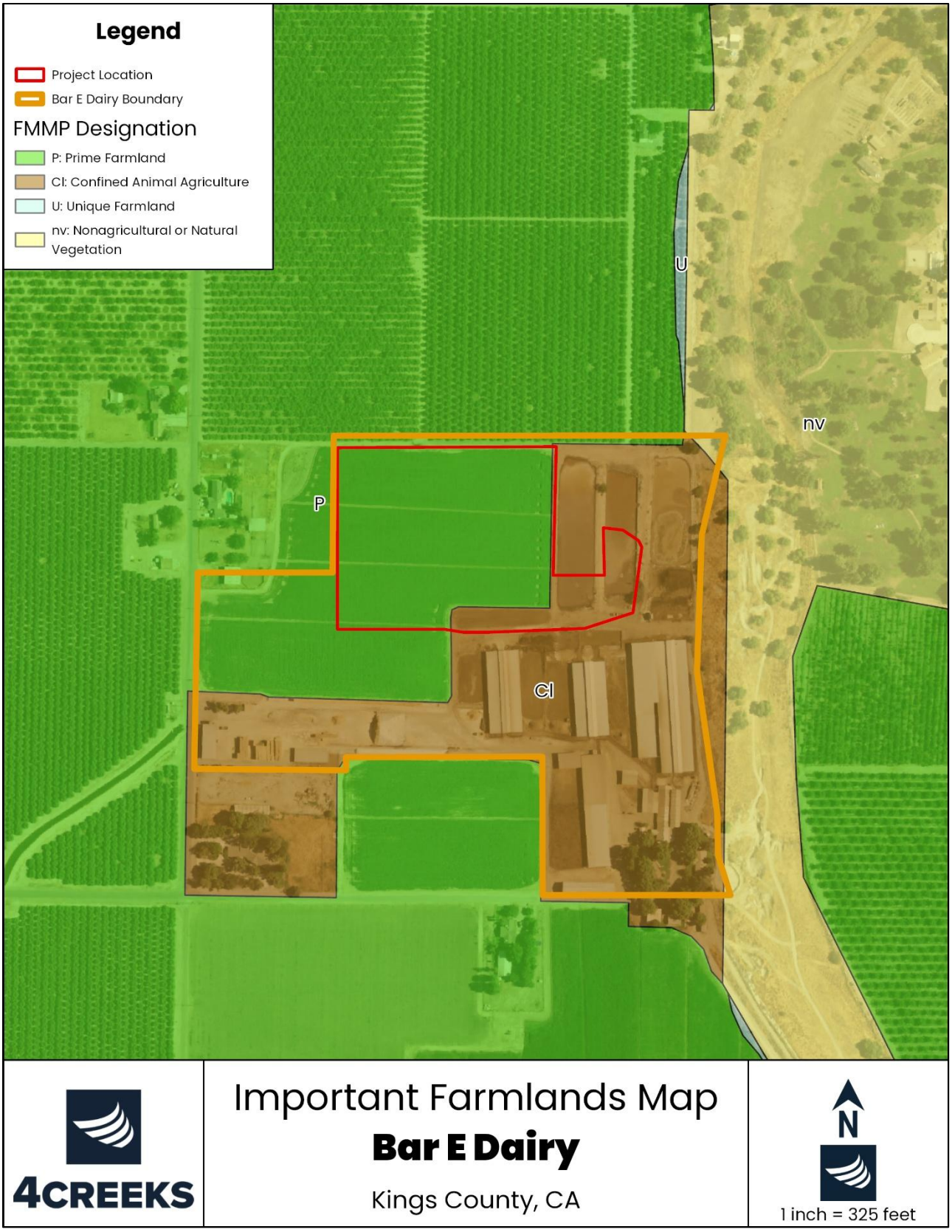


Figure 3-4. Important Farmlands Map

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district of air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☑	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☑	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☑	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

Environmental Setting

Air quality is primarily a function of local climate, local sources of air pollution, and regional pollution transport. The amount of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute the pollutant. The significant determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

A region's topographic features directly correlate with air pollution flow and therefore are used to determine the boundary of air basins. The proposed Project is in Kings County, within the jurisdiction of the SJVAPCD, which regulates air quality in the San Joaquin Valley Air Basin (SJVAB). The SJVAB comprises approximately 25,000 square miles and covers seven counties: Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. It also covers the western portion of an eighth county, Kern. The SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The SJVAB is topographically flat with a slight downward gradient to the northwest. The SJVAB opens to the sea at the Carquinez Straits, where the San Joaquin-Sacramento Delta empties into San Francisco Bay. An aerial view of the SJVAB would simulate a "bowl" opening only to the north. These topographic features restrict air movement through and out of the SJVAB.

The State of California (State) and the Federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table 3-1, these pollutants include ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter less than 10 microns in size (PM10), particulate matter less than 2.5 microns in size (PM2.5), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (03)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	20 µg/m³		--		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	--	Gravimetric or Beta Attenuation	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	12 µg/m³		9 µg/m³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	15 µg/m³	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		--	--	
Nitrogen Dioxide (NO2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	--	Gas Phase Annual Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		53 ppb (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for certain areas)[11]	--	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	--	--	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m3 (for certain areas)[13]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standard		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

1. California standards for O3, CO (except 8-hour Lake Tahoe), SO2 (1- and 24-hour), NO2, and PM (PM10, PM2.5, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than for O3 and PM and those based on the annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration measured at each Site in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m3 is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.
3. Concentration is expressed first in the units in which it was promulgated. Most measurements of air quality are to be corrected to a reference temperature of 25ºC and a reference pressure of 760 torrs; ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas. Equivalent units given in parentheses are based upon a reference temperature of 25ºC and a reference pressure of 760 torrs.
4. Any equivalent measurement method that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. The reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.
8. On October 1, 2015, the national 8-hour O3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On February 7, 2024, the national annual PM2.5 primary standard was lowered from 12.0 μg/m3 to 9.0 μg/m3 . The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 μg/m3 , as was the annual secondary standard of 15.0 μg/m3 . The existing 24-hour PM10 standards (primary and secondary) of 150 μg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years
10. To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each Site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each Site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated as Nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated as Nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
14. In 1989, CARB converted both the general statewide 10 mi visibility standard and the Lake Tahoe 30 mi visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

ºC = degrees Celsius	CO = carbon monoxide	PM2.5 = particulate matter less than 2.5 microns in size
mg/m3 = micrograms per cubic meter	mg/m3 = milligrams per cubic meter	PM10 = particulate matter less than 10 microns in size
AAQS = ambient air quality standards	mi = mile/miles	ppb = parts per billion
USEPA = United States Environmental Protection Agency	NO2 = nitrogen dioxide	ppm = parts per million
CARB = California Air Resources Board	O3 = ozone	SO2 = sulfur dioxide
	PM = particulate matter	

Table 3-1. Ambient Air Quality Standards; Source: California Air Resources Board (CARB). 2024.

Because the United States Environmental Protection Agency (USEPA) sets the concentration standards at a level that protects public health with an adequate margin of safety, these health effects would not occur unless the standards are exceeded by a large margin or prolonged period. Table 3-2 summarizes the most common health and environmental effects for each of the air pollutants for which there is a National AAQS (NAAQS) or California AAQS (CAAQS), as well as for toxic air contaminants (TACs). CAAQS are typically more stringent than NAAQS. Among the pollutants, O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) are considered pollutants with regional effects, while the others have more localized effects (CARB 2022a).

Pollutant	Effects on Health and the Environment
Ozone (O3)	• Respiratory symptoms • Worsening of lung disease leading to premature death • Damage to lung tissue • Crop, forest, and ecosystem damage • Damage to a variety of materials, including rubber, plastics, fabrics, paint, and metals.
Particulate matter less than 2.5 microns in size ($PM_{2.5}$)	• Premature death • Hospitalization for worsening of cardiovascular disease • Hospitalization for respiratory disease • Asthma-related emergency room visits • Increased symptoms, increased inhaler usage
Particulate matter less than 10 microns size (PM_{10})	• Premature death and hospitalization, primarily for worsening of respiratory disease • Reduced visibility and material soiling
Nitrogen oxides (NOX)	• Lung irritation • Enhanced allergic responses
Carbon monoxide (CO)	• Chest pain in patients with heart disease • Headache • Light-headedness • Reduced mental alertness
Sulfur oxides (SO_x)	• Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits
Lead	• Impaired mental functioning in children • Learning disabilities in children • Brain and kidney damage
Hydrogen sulfide (H_2S)	• Nuisance odor (rotten egg smell) • At high concentrations: headache & breathing difficulties
Sulfate	• Same as $PM_{2.5}$, particularly worsening of asthma and other lung diseases. • Reduces visibility
Vinyl chloride	• Central nervous system effects (e.g., dizziness, drowsiness, and headaches) • Long-term exposure (i.e., liver damage and liver cancer)
Visibility reducing particles	• Reduced airport safety, scenic enjoyment, road safety, and discourages tourism
Toxic air contaminants (TACs). About 200 chemicals have been listed as TACs.	• Cancer • Reproductive and developmental effects • Neurological effects

Table 3-2. Summary of Health and Environmental Effects of the Criteria Air Pollutants; Source: California Air Resources Board (CARB). n.d.-a. Common Air Pollutants

The California Clean Air Act (CCAA) allows SJVAPCD and other air districts to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, installation, or combination thereof that attracts or generates mobile-source emissions of any pollutant. In addition, area-source emissions that are generated when minor sources collectively emit a substantial amount of pollution are also managed by the local air districts. Examples would be the motor vehicles at an intersection, at a mall, and on highways. SJVAPCD also regulates stationary sources of pollution throughout its jurisdictional area. The California Air Resources Board (CARB) regulates direct emissions from motor vehicles.

Air Pollution Constituents and Attainment Status

The CARB coordinates and oversees both State and Federal air pollution control programs in the State. CARB oversees the activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the USEPA

and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical air pollution factors. The CARB and USEPA use data collected at these stations to classify air basins as Attainment, Nonattainment, Nonattainment-Transitional, or Unclassified, based on air quality data for the most recent three calendar years compared with the AAQS.

Attainment areas may be the following:

- **Attainment/Unclassified ("Unclassifiable" in Some Lists):** These basins have never violated the air quality standard of interest or do not have enough monitoring data to establish Attainment or Nonattainment status.
- **Attainment-Maintenance (National Ambient Air Quality Standards [NAAQS] Only):** These basins violated a NAAQS that is currently in use (were Nonattainment) in or after 1990 but now attain the standard and are officially redesignated as Attainment by the USEPA with a Maintenance State Implementation Plan (SIP).
- **Attainment (Usually Only for CAAQS, But Sometimes for NAAQS):** These basins have adequate monitoring data to show attainment, have never been Nonattainment, or, for NAAQS, have completed the official Maintenance period.
- **Nonattainment** areas are imposed with additional restrictions as required by the USEPA. The air quality data is also used to monitor progress in attaining air quality standards. Table 3-3 lists the attainment status for the criteria pollutants in the SJVAB.

Toxic Air Contaminants

The public's exposure to TACs is a significant environmental health issue in the State of California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." In addition, substances which have been listed as federal hazardous air pollutants (HAPs) pursuant to Title 42 United States Code (USC) Section 7412 are TACs under the State's air toxics program pursuant to Section 39657(b) of the California Health and Safety Code. The CARB formally made this identification on April 8, 1993 (Title 17, California Code of Regulations [CCR], Section 93001). Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act), AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987), and Senate Bill (SB) 25 (Children's Environmental Health Protection Act). The Tanner Air Toxics Act sets forth a formal procedure for the CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe

threshold for a substance for which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

Air toxins from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the designated Air Quality Management District (AQMD) or Air Pollution Control District (APCD). High-priority facilities are required to perform an HRA and, if specific thresholds are exceeded, are also required to communicate the results to the public in the form of notices and public meetings.

To date, the CARB has designated over 200 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel fueled engines (diesel particulate matter [DPM]).

Local Air Quality

The SJVAPCD and the CARB maintain ambient air quality monitoring stations. The air quality monitoring station that monitors air pollutant data closest to the Site is the Hanford-S Irwin Street Monitoring Station. The air quality trends from this station are used to represent the ambient air quality in the Project area. The ambient air quality data in Table 3-4 show that NO_2 levels are below the applicable State and Federal standards. However, annual average concentrations of PM_{10}, $PM_{2.5}$, and O_3 concentrations frequently exceed their respective standards. As CO ambient concentrations have become so low throughout the region, no station near the Project Site monitors CO.

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – One hour	Standard Revoked	Nonattainment/Severe
Ozone – Eight hour	Extreme Nonattainment	Nonattainment
PM 10	Attainment (Maintenance)	Nonattainment
PM 2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Lead	No Designation/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Sulfates	No Federal Regulation	Attainment
Hydrogen Sulfide	No Federal Regulation	Unclassified
Ozone (1-Hour)	Standard Revoked	Severe/Nonattainment
$PM_{2.5}$ = particulate matter less than 2.5 microns in size PM_{10} = particulate matter less than 10 microns in size		

Table 3-3. Air Quality Attainment Status for SJVAB; Source: SJVAPCD Ambient Air Quality Standards & Valley Attainment Status.

Pollutant	Standard	2022	2023	2024
O_3				
Maximum 1-Hour Concentration (ppm)	State: 0.09 ppm	0.091	0.091	0.099
	No. of days exceeded	*0*	*0*	*2*
Max 8-hour concentration (ppm)	State: 0.07 ppm	*0.082*	*0.084*	*0.088*
	Federal: 0.07 ppm			
No. of days exceeded	State:	*13*	*14*	*29*
	Federal:	*12*	*11*	*25*
PM_{10}				
Maximum 24-hour concentration (µg/m³)	State: 50 µg/m³	*251.6*	*159.3*	*169*
	Federal: 150 µg/m³			
No. of days exceeded	State:	*143*	*116.5*	*115.8*
	Federal:	*1*	*1*	*4*
	Annual avg. concentration (µg/m³)	*49.9*	*44.2*	*44.4*
Exceeds Standard?	State: 20 µg/m³	*Yes*	*ND*	*Yes*
$PM_{2.5}$				
Maximum 24-Hour concentration (µg/m³)	Federal: 35 µg/m³	*14.1*	*12.5*	*11.8*
	No. of days exceeded	*27*	*11*	*8*
Annual avg. concentration (µg/m³)	State: 12 µg/m³	*14.1*	*12.5*	*
	Federal: 12 µg/m³			
NO_2				
Maximum 1-hour concentration (ppb):	State: 180 ppb	*62.9*	*51.9*	*51.5*
	Federal: 100 ppb			
No. of days exceeded	State:	*0*	*0*	*0*
	Federal:	*0*	*0*	*0*
Annual avg. concentration (ppb):	State: 30 ppb	*8*	*8*	*8*
	Federal: 53 ppb			
Exceeds Standard?	State:	*No*	*No*	*No*
	Federal:	*No*	*No*	*No*
Note: Pollutant concentration data from the Hanford-S Irwin Street Monitoring Station in Hanford, California. * There was insufficient (or no) data available to determine the value.				
µg/m3 = micrograms per cubic meter *ND = No data available* *NO2 = nitrogen dioxide* *O3 = ozone*		*PM10 = particulate matter smaller than 10 microns in size* *ppb = parts per billion* *ppm = parts per million* *PM2.5 = particulate matter smaller than 2.5 microns in size*		

Table 3-4. Air Quality Concentrations in the Project Vicinity; Source: California Air Resource Board (CARB).

Sensitive Receptors and Land Uses in the Project Vicinity

Sensitive receptors include residences such as private homes, condominiums, apartments, living quarters, schools, preschools, daycare centers, in-home daycares, health facilities (e.g., hospitals, long-term care facilities, retirement, and nursing homes), community centers, places of worship, parks (excluding trails), prisons, and dormitories. The nearest sensitive receptors to the Project Site are the single-family residences located to the west and south of the Project.

Regulatory Setting

Federal Regulations

The 1970 Federal Clean Air Act (FCAA) authorized the establishment of national health-based air quality standards and set deadlines for their attainment. The FCAA Amendments of 1990 changed deadlines for attaining national standards and the remedial actions required for areas of the nation that exceed the standards. Under the FCAA, State and local agencies in

areas that exceed the national standards must develop SIPs to demonstrate how they will achieve the national standards by specified dates.

State Regulations

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain CAAQS for CO, O_3, SO_2, and NO_2 by the earliest practical date. The CCAA allows districts to regulate indirect sources and mandates that air quality districts focus on reducing emissions from transportation and area-wide emission sources. Each nonattainment district must adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

The CARB is the State's "clean air agency." The CARB's goals are to attain and maintain healthy air quality, protect the public from exposure to toxic air contaminants, and oversee compliance with air pollution rules and regulations.

Regional Regulations

San Joaquin Valley Air Pollution Control District

The SJVAPCD has specific air quality-related planning documents, rules, and regulations. This section summarizes the local planning documents and regulations that may apply to the proposed Project as administered by the SJVAPCD with California Air Resources Board (CARB) oversight.

- ***Regulation VIII - Fugitive PM10 Prohibitions.*** This covers rules for controlling particulate matter during construction and other earthmoving activities.
- ***Rule 2280—Portable Equipment Registration.*** Portable equipment used at Project Sites for less than six consecutive months must be registered with the SJVAPCD. The SJVAPCD will issue the registrations 30 days after receipt of the application.
- ***Rule 4201 and Rule 4204—Particulate Matter Concentration and Emission Rates.*** Rule 4201 and Rule 4202 apply to operations that emit or may emit dust, fumes, or total suspended particulate matter.
- ***Rule 4565 - Biosolids, Animal Manure, and Poultry Litter Operations.*** This could apply given the dairy's manure handling and processing activities.
- ***Rule 4570 - Confined Animal Facilities.*** Applicable due to the dairy's operations involving confined animal feeding.
- ***Rule 4622—Gasoline Transfer Into Motor Vehicle Fuel Tanks.*** Rule 4622 applies to any gasoline storage and dispensing operation or mobile fueler from which gasoline is transferred into motor vehicle fuel tanks. The purpose of this rule is to limit emissions of gasoline vapors from the transfer of gasoline escaping into the atmosphere; vapor

recovery systems would be implemented to reduce the release of volatile organic compounds.

- ***Rule 4566— Organic Material Composting Operations.*** Rule 4566 limits emissions of volatile organic compounds (VOCs) from composting operations.
- ***Rule 8011—General Requirements: Fugitive Dust Emission Sources.*** Fugitive dust regulations are applicable to outdoor fugitive dust sources. Operations, including construction operations, must control fugitive dust emissions in accordance with SJVAPCD Regulation VIII. According to Rule 8011, the SJVAPCD requires the implementation of control measures for fugitive dust emission sources. For Projects in which construction-related activities would disturb equal to or greater than 1 acre of surface area, the SJVAPCD recommends that demonstration of receipt of an SJVAPCD-approved Dust Control Plan or Construction Notification Form before issuance of the first grading permit be made a condition of approval.

Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). The SJVAPCD prepared GAMAQI to assist lead agencies and Project applicants in evaluating the potential air quality impacts of Projects in the SJVAB. The GAMAQI provides SJVAPCD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process. The GAMAQI guides evaluating short-term (construction) and long-term (operational) air emissions. The most recent version of the GAMAQI, adopted on March 19, 2015, was used in this evaluation. It contains guidance on the following:

- Criteria and thresholds for determining whether a Project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods to mitigate air quality impacts; and
- Information for air quality assessments and environmental documents, including air quality, regulatory setting, climate, and topography data.

2035 Kings County General Plan: The 2035 General Plan *Air Quality Element* includes the following goals, objectives, and policies, which reduce impacts associated with air quality that relate to the proposed Project:

- **AQ Goal C1: Use Air Quality Assessment and Mitigation programs and resources of the SJVAPCD and other agencies to minimize air pollution, related public health effects, and potential climate change impacts within the County.**
  - AQ Objective C1.1: Accurately assess and mitigate potentially significant local and regional air quality and climate change impacts from proposed projects within the County.
    - *AQ Policy C1.1.1*: Assess and mitigate project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD.

- *AQ Policy C1.1.3*: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.
- *AQ Policy C1.1.6*: Encourage and support the development of innovative and effective mitigation measures and programs to reduce air quality and climate change impacts through proactive coordination with the SJVAPCD, project applicants, and other knowledgeable and interested parties.

❖ **AQ Goal F1: Minimize exposure of the public to hazardous air pollutant emissions, particulates and noxious odors from freeways, major arterial roadways, industrial, manufacturing, and processing facilities.**

➢ AQ Objective F1.1: Locate adequate sites for industrial development and roadway projects away from existing and planned sensitive land uses which minimize or avoid potential health risks to people that might result from hazardous air pollutant emissions.

- *AQ Policy F2.1.1*: Coordinate with the SJVAPCD to ensure that construction, grading, excavation, and demolition activities within County's jurisdiction are regulated and controlled to reduce particulate emissions to the maximum extent feasible.
- *AQ Policy F2.1.2*: Require all access roads, driveways, and parking areas serving new commercial and industrial development are constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

Discussion

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact with Mitigation Incorporation: The Bar E Dairy Vermifiltration System Project involves the construction and operation of a vermifiltration system. The Project aims to enhance wastewater treatment, manure processing, and overall operational efficiency while reducing environmental impacts from dairy waste management. These improvements support ongoing dairy operations without expanding the facility's animal capacity or introducing new emission sources, while promoting aerobic biological processes that minimize odors and VOCs.

The Project lies within the SJVAB, designated as nonattainment for O_3, PM_{10}, and $PM_{2.5}$ under both Federal and California standards. The SJVAPCD has developed attainment plans, including the 2023 Plan for the Revoked 1-Hour Ozone Standard and the 2022 Plan for the 2015 8-Hour Ozone Standard, which emphasize emission reductions from agricultural sources such as dairy operations through improved waste management and fugitive dust controls. The Project is consistent with these plans, as its aerobic vermifiltration and composting processes

are projected to reduce VOCs, ammonia, and odor emissions without increasing operational emissions or vehicle trips.

BIDA Beds and Wastewater Treatment

The proposed project involves seven 3-foot-tall BIDA beds layered with HDPE liners, plastic pallets, shade mesh, wood chips, and earthworms, treated via linear irrigation. This vermifiltration system filters dairy wastewater through biological breakdown by worms and microbes, reducing ammonia, pathogens, suspended solids, and organic matter that contribute to VOC and odor emissions. The treated effluent is collected for land application or reuse, minimizing nutrient runoff and associated air quality degradation. Regular maintenance, including bi-weekly tilling for aeration and drainage channel cleaning, prevents anaerobic conditions that could generate odors. These measures comply with SJVAPCD Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) and Rule 4566 (Organic Material Composting Operations), which regulate VOC emissions from manure handling and composting. By relocating wastewater processing from open lagoons to covered, aerobic beds, the Project reduces potential methane and VOC releases, supporting attainment plan goals for O_3 and $PM_{2.5}$ precursors.

Manure Processing and Vermicompost Areas

The proposed project also proposes the processing of nutrient-rich vermicompost from the BIDA beds and solids from mechanical separators in a windrow-style within the material processing area, where worms aerate and stabilize manure into a soil amendment for off-site export. This aerobic process enhances microbial activity, reduces odors, and stabilizes nutrients without applying wastewater for treatment (only for moisture maintenance), producing no hazardous air pollutants or greenhouse gases beyond the beneficial vermicompost byproduct. Drying and screening occur in dedicated areas, further minimizing dust and odor generation compared to traditional manure storage. These operations align with SJVAPCD rules for composting and manure management, reducing VOC and PM emissions from on-site waste decomposition.

Construction Activities

Ground disturbance is limited to previously disturbed soils (grading for drainage with minimum slopes to direct stormwater to retention ponds, excavation for lift stations, trenching for underground piping). The Project incorporates BMPs under SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions), including water application for dust suppression, soil stabilization, and covering stockpiles during grading and trenching. These temporary measures will be implemented through Mitigation Measure AIR-1 (Dust Control During Construction), which requires the Applicant to prepare and implement a Dust Control Plan in accordance with SJVAPCD Regulation VIII. The plan shall include regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles throughout the construction phase, with documentation of implementation maintained and available upon request.

The Project's improvements to waste management through vermifiltration, aerobic composting, and efficient solids separation are designed to lower VOC, odor, ammonia, and

particulate emissions from dairy operations, contributing to SJVAPCD attainment efforts rather than obstructing them. No new stationary sources or capacity expansions are involved, and operational changes promote emission reductions. Therefore, the Project will have *a less than significant impact with mitigation incorporation*.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact with Mitigation Incorporation: The SJVAB, which encompasses Kings County, is currently classified as extreme non-attainment for the federal 8-hour ozone standard and non-attainment for the federal 24-hour and annual $PM_{2.5}$ standards, as well as non-attainment under applicable state ambient air quality standards for ozone and $PM_{2.5}$. The SJVAB has achieved attainment for the federal PM_{10} standard (maintenance status), although state PM_{10} standards remain applicable in agricultural settings.

The Project consists of the installation and operation of a Biodynamic Aerobic (BIDA) vermifiltration system and associated infrastructure improvements at an existing dairy facility. A primary purpose and documented environmental benefit of the vermifiltration technology is the reduction of air emissions relative to conventional dairy wastewater treatment methods (anaerobic lagoons and land application). The system employs an aerobic process in which earthworms and microbial communities break down organic matter within layered biofilter beds, substantially lowering ammonia volatilization and VOC emissions from wastewater compared with baseline anaerobic conditions. Referenced studies indicate ammonia reductions of up to 90 percent (Mitloehner, 2015) and methane reductions of 97–99 percent (Dore, Deverel, Christen, 2022) relative to anaerobic systems, with concurrent reductions in chemical oxygen demand and volatile solids that further limit odor-related VOC releases.

Site-specific air emissions testing of a comparable Biofiltro vermifiltration system at a dairy facility near Turlock, California, provides quantified flux data confirming low emission rates from the biofilter surfaces (Air Emissions Report, July 2024. Attached as Appendix A). The average flux for the primary total VOC parameter measured 0.61 mg/m²-min, while the speciated ethanol flux (a principal dairy VOC) averaged only 0.0125 mg/m²-min. When scaled to the 123.5 m² test area, daily ethanol emissions were minimal at approximately 0.0049 lb./day. Flux rates from the inlet and outlet water surfaces were similarly low. These measurements demonstrate that the biofilter surfaces themselves contribute negligibly to regional criteria pollutant or precursors.

The Project does not increase herd size or expand dairy production capacity. Infrastructure improvements including two (2) wastewater lift stations, seven (7) wastewater processing beds with a total area of 151,480 sq. ft, a 30,296 sq. ft. material processing area, and a 111,400 sq. ft. manure storage area. Operation of these features reduce open-air exposure of manure and wastewater, thereby decreasing fugitive dust (PM_{10}/$PM_{2.5}$), ammonia, and VOC emissions relative to existing operations.

Construction-phase emissions from grading, excavation, and equipment use will be temporary and localized. Implementation of Mitigation Measure AIR-1 (Dust Control During Construction) will control fugitive dust through regular watering of exposed soils, stabilization of unpaved surfaces, speed limits, and covering of stockpiles in accordance with SJVAPCD Regulation VIII. Operational activities such as periodic tilling of BIDA beds and windrows are addressed by Mitigation Measure AIR-2 (Odor Management), which requires routine tilling and maintenance of drainage channels, containment berms, and lift stations to prevent stagnation and odor release, and by Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance), which requires regular maintenance of the BIDA beds to prevent stagnation and minimize VOC emissions. Additional measures address other sources: Mitigation Measure AIR-4 (Feed Storage Dust Suppression) requires enclosed or covered structures and dust suppression techniques during material handling; Mitigation Measure AIR-5 (Agricultural Best Management Practices) requires adherence to SJVAPCD-recommended practices for silage and feed storage to mitigate odors, VOCs, and particulate matter; and Mitigation Measure AIR-6 (Operational Controls for Vehicles and Equipment) requires limiting idling times, use of low-emission machinery where feasible, and dust suppression in expanded areas. With these mitigation measures incorporated, the impact is less than significant.

Because the Project replaces higher-emitting conventional wastewater treatment infrastructure with a lower-emitting aerobic vermifiltration system, the net change in criteria pollutant precursors (VOCs and ammonia) and direct particulate emissions constitutes a reduction compared with baseline conditions. In the context of the SJVAB's non-attainment status, the Project therefore does not result in a cumulatively considerable net increase of any criteria pollutant. With the identified mitigation measures incorporated, the impact is less than significant. No further project-specific emissions inventory or air dispersion modeling is required, as the process design, supporting infrastructure, and site-specific flux data adequately demonstrate the net air quality benefit.

c) Would the Project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact with Mitigation Incorporation: The nearest sensitive receptor to the Project Site is a single-family residence located approximately 303 feet to the west from the Project site boundary. However, the residence is located 344 feet from the proposed wastewater processing beds, which are the primary source of potential emissions. Additionally, there is a County park located 1,000 feet to the northeast of the Project Site.

During construction, the Project will generate temporary emissions from activities such as grading the BIDA beds areas to ensure proper stormwater drainage with minimum slopes to prevent standing water, installation of underground wastewater lines (6"-24" diameter, buried at least 2 feet deep), and installation of lift stations (up to 16 feet deep). These activities could produce fugitive dust and exhaust from equipment operation and vehicle traffic, but emissions are expected to be minimal and well-controlled through implementation of a Dust Control Plan that adheres to the SJVAPCD Regulation VIII (Mitigation Measure AIR-1). This plan includes

measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. These controls are expected to effectively minimize dust and exhaust emissions, ensuring that construction-related air quality impacts remain *less than significant with mitigation incorporation.*

Operational emissions from the Project, including the seven BIDA beds, vermicompost processing areas, control unit for wastewater testing, lift stations, and proposed earthen berm in the existing wastewater retention pond, are expected to be minimal due to the aerobic design and function of the vermifiltration system. The BIDA beds treat wastewater through biological filtration with worms and microbes, reducing contaminants like ammonia and organics while improving effluent quality for reuse or land application. These aerobic processes limit anaerobic conditions that produce methane, with studies showing 97–99% reductions in methane emissions relative to anaerobic lagoons, alongside 87% removal of volatile solids that minimizes potential odor-related volatile organic compound (VOC) releases (Dore, Deverel, Christen). Additionally, ammonia emissions are reduced by 90% through adsorption and nitrification in the vermifilter, with nitrous oxide emissions remaining minor and most nitrogen transformed to benign N_2 gas rather than atmospheric losses (Mitloehner). The manure windrows and vermicompost drying areas further stabilize nutrients aerobically, reducing odors and VOCs without applying wastewater for treatment (only for moisture maintenance), while the underground pipes and berms direct contaminated runoff to retention ponds without open-air exposure. Equipment in the control unit and lift stations will produce negligible exhaust, and regular maintenance of beds prevents stagnation and odor release.

Given the distance between the sensitive receptors and the primary sources of emissions, combined with the inherent emission reductions from aerobic vermifiltration and implementation of effective dust controls during construction and grading, the Bar E Dairy Project is not expected to expose sensitive receptors to substantial pollutant concentrations. The impact is therefore considered *Less Than Significant with Mitigation Incorporation.*

d) Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact with Mitigation Incorporation: The Project involves the construction and operation of a biodynamic aerobic vermifiltration system designed to treat dairy wastewater and process manure solids, which directly addresses potential odor emissions through aerobic biological treatment.

The Project will implement seven BIDA beds utilizing vermifiltration to treat wastewater flushed from animal housing and other sources, filtering it through layers of wood chips, earthworms, and microbes to break down organic matter and reduce contaminants like ammonia and suspended solids that contribute to odors.

The installation of approximately 151,480 square feet of BIDA beds for wastewater processing represents a substantial upgrade to the facility's wastewater management, significantly improving effluent quality prior to discharge into existing retention ponds and thereby reducing

odor generation at the source. Regular tilling within designated zones of the beds and maintenance of associated drainage channels and containment berms, as required under Mitigation Measure AIR-2, will prevent stagnant water accumulation and anaerobic conditions that foster odor-producing volatile organic compounds.

In addition to wastewater treatment, the Project includes a dedicated 30,296 sq. ft. material processing area, and a 111,400 sq. ft. manure storage area, transforming them into stabilized vermicompost through worm digestion and aeration. This aerobic processing enhances material structure, stabilizes nutrients, and notably reduces odors compared to traditional anaerobic manure storage, with the final product exported off-site for land application in a low-odor, nutrient-rich form.

Supporting infrastructure enhancements, including buried wastewater lines (6-24 inches in diameter), lift stations (up to 16 feet deep) and grading with minimum slopes of the BIDA beds, ensure efficient drainage and direct contaminated stormwater back to retention ponds, avoiding ponding that could lead to odors. An earthen berm with overflow line in the existing retention pond and a relocated irrigation pump will optimize water reuse, further limiting untreated discharges. These features collectively promote aerobic conditions across the system, with no emissions of hazardous air pollutants or greenhouse gases anticipated beyond the beneficial byproduct of vermicompost.

The Project may involve short-term, intermittent increases in construction-related vehicle traffic for equipment delivery and site grading, but operational truck trips are projected to remain stable due to on-site processing efficiencies, resulting in negligible contributions to fugitive dust or exhaust odors. A control unit for wastewater testing and equipment monitoring will support ongoing optimization of these processes to maintain low-emission performance.

The Project site is located in a rural agricultural area along Corona Avenue, with the nearest sensitive receptors approximately 303 feet west of the Project Site. Although this distance represents a relatively close receptor in an agricultural setting, the Project is not expected to result in significant odor impacts at this location. The prevailing winds and the aerobic design ensure that any residual odors will be diluted well below nuisance thresholds at off-site locations. The aerobic BIDA vermifiltration system substantially reduces the generation of odor-causing compounds relative to conventional anaerobic wastewater treatment. Site-specific air emissions testing of a comparable system confirmed very low surface flux rates of total VOCs and ethanol from the biofilter beds (Appendix A).

These measures will be implemented through Mitigation Measure AIR-2 (Odor Management), which requires the Applicant to implement an odor management plan including routine tilling of the BIDA beds and vermicompost processing areas, as well as regular maintenance of drainage channels, containment berms, and lift stations to prevent stagnation and material accumulation. Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance) requires regular maintenance of the BIDA beds to prevent stagnation and reduce VOC emissions, with a documented maintenance protocol and records available for review. Additional measures further reduce emissions: Mitigation Measure AIR-4 (Feed Storage Dust Suppression) and

Mitigation Measure AIR-5 (Agricultural Best Management Practices) address dust and odors from feed and silage storage areas, while Mitigation Measure AIR-6 (Operational Controls for Vehicles and Equipment) limits idling and requires dust suppression during operational activities.

Overall, the Project incorporates proactive air quality improvements through vermifiltration and enhanced solids management, which are expected to reduce baseline odor emissions from the existing dairy operations rather than increase them. These measures, along with the distance to sensitive receptors, indicate no adverse effects on a substantial number of people. Therefore, the impact is considered *Less than Significant with Mitigation Incorporation.*

Mitigation Measures for Impacts on Air Quality Resources

Mitigation Measure AIR-1 (Dust Control During Construction). To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained and available upon request.

Mitigation Measure AIR-2 (Odor Management). To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and available upon request.

Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance). To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for review upon request.

Mitigation Measure AIR-4 (Feed Storage Dust Suppression). To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained and available upon request.

Mitigation Measure AIR-5 (Agricultural Best Management Practices). To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-

recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices.

Mitigation Measure AIR-6 (Operational Controls for Vehicles and Equipment). To minimize emissions from expanded operational activities, the Applicant shall limit idling times for vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas.

IV. BIOLOGICAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Discussion for this section originates from the Biological Evaluation that was prepared for this Project by Live Oak Associates, Inc. The full document can be found in Appendix B.

Environmental Setting

The Project Site is situated in northern Kings County, California, approximately 3.25 miles east of State Route 43 and 5 miles west of State Route 99, at the northeast corner of the intersection of South 7th Avenue and Corona Avenue. The Site lies within the Burris Park U.S. Geological Survey 7.5-minute quadrangle, in Section 15, Township 17 South, Range 22 East, Mount Diablo Base and Meridian. The proposed improvements are located entirely within the existing Bar E Dairy facility and encompass a collective footprint of approximately 5 acres on previously disturbed land.

The Project Site consists entirely of ruderal (disturbed) land resulting from more than a decade of agricultural use prior to dairy development, initial dairy construction activities, and ongoing dairy operations, including the deposition of dairy solid waste across much of the soil surface. Immediately surrounding lands consist of agricultural land to the north, wastewater retention ponds and dairy infrastructure to the east and south, and existing dairy infrastructure with a residential area to the west. Topographically, the site is relatively level at an average elevation of approximately 277 feet National Geodetic Vertical Datum.

The site experiences a Mediterranean climate characterized by warm, dry summers and cool, moist winters. Summer temperatures commonly exceed 100 degrees Fahrenheit with low relative humidity, while winter daytime highs are often below 60 degrees Fahrenheit. Annual precipitation averages approximately 9 inches, with nearly 85 percent falling between October and March, predominantly as rain. Stormwater readily infiltrates the soils.

Natural biotic habitats are absent from the Project Site. The land use is best characterized as ruderal. A reconnaissance-level field survey conducted by a qualified biologist, showed vegetation was restricted to the berms of the wastewater ponds, a cultivated wheat field, and the edges of the cultivated wheat field. Vegetation outside the wheat field consisted primarily of weedy grasses and forbs, including cheeseweed (*Malva parviflora*), bluegrass (*Poa annua*), bulbous canary grass (*Phalaris aquatica*), dwarf nettle (*Urtica urens*), common sowthistle (*Sonchus oleraceus*), oat (*Avena fatua*), pineapple weed (*Matricaria discoidea*), London rocket (*Sisymbrium irio*), and others. One large blue elderberry shrub (*Sambucus mexicana*) is present on the northwest side of the middle wastewater pond.

The Site offers little to no habitat value for many wildlife species. Amphibians are unlikely to occur due to the low habitat value and disturbed conditions. Observed resident and wintering birds include red-winged blackbirds (*Agelaius phoeniceus*), killdeer (*Charadrius vociferus*), mourning doves (*Zenaida macroura*), Brewer's blackbirds (Euphagus cyanocephalus), American pipits (*Anthus rubescens*), white-crowned sparrows (*Zonotrichia leucophrys*), and savannah sparrows (*Passerella sandwichensis*). Several California ground squirrel (*Otospermophilus beecheyi*) burrows were observed on the berms of the wastewater ponds.

Federal Endangered Species Act (FESA)

The Federal ESA protects plants and animals listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs "removing, possessing, maliciously damaging, or destroying any listed plant on Federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-Federal land in knowing violation of state law" (16 U.S. Code [USC] 1538). Under Section 7 of ESA, Federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its Critical Habitat (see definition of Critical Habitat below). Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other Federal actions are necessary provided a habitat conservation plan (HCP) is developed.

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712)

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in §§ 3800, 3513, and 3503.5 of the California Fish and Game Code.

Birds of Prey (CA Fish and Game Code Section 3503.5)

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California, that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 prohibits explicitly the take or possession of any migratory nongame bird as designated in the MBTA. Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the Federal MBTA, serve to protect nesting raptors.

Clean Water Act

Section 404 of the Clean Water Act of (1972) is to maintain, restore, and enhance the physical, chemical, and biological integrity of the nation's waters. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers (USACE) regulates discharges of dredged and filled materials into "waters of the United States" (jurisdictional waters). Waters of the US, including navigable waters of the United States, interstate waters, tidally influenced waters, and all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

California Endangered Species Act (CESA)

The California ESA (California Fish and Game Code §§ 2050- 2116) generally parallels the main provisions of ESA, but unlike its Federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." the California ESA allows for take incidental to otherwise lawful development Projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened, or candidate species or result in the destruction or adverse modification of essential habitat.

2035 Kings County General Plan

The 2035 General Plan *Resource Conservation Element* contains the following goals, objectives, and action plans relating to biological resources:

- **RC Goal D1: *Preserve land that contains important natural plant and animal habitats.***
  - RC OBJECTIVE D1.1: Require that development in or adjacent to important natural plant and animal habitats minimize the disruption of such habitats.
    - *RC Policy D1.1.1:* Evaluate all discretionary land use applications in accordance with the screening procedures contained in the Biological Resources Survey located in Appendix C. If the results of the Project screening indicate the potential for important biological resources to exist on the site a biological evaluation (consistent with Appendix C) shall be performed by a qualified biologist. If the evaluation indicates that the project could have a significant adverse impact, mitigation shall be required or the project will be redesigned to avoid such impacts. Mitigation shall be provided consistent with the California Environmental Quality Act (CEQA), and applicable state and federal guidelines as appropriate. Mitigation may include habitat improvement or protection, acquisition of other habitat, or payment to an appropriate agency to purchase, improve, or protect such habitat.

- **RC GOAL E1:** ***Balance the protection of the County's diverse plant and animal communities with the County's economic needs.***
  - RC OBJECTIVE E1.1: Require mitigation measures to protect important plant and wildlife habitats.
    - *RC Policy E1.1.1*: Complete the inquiry process outlined in Appendix C in the initial project review for development permits to determine whether the project is likely to have a significant adverse impact on any threatened or endangered species habitat locations, and to assure appropriate consideration of habitat preservation by development. Maintain current copies of California Department of Fish and Game and United States Fish and Wildlife Service maps showing locations of known threatened and endangered species habitat. If shown to be necessary, require the developer to consult with the California Department of Fish and Game, the United States Fish and Wildlife Service, and the United States Army Corps of Engineers as to potential impacts, appropriate mitigation measures, and required permits.
    - *RC Policy E1.1.2*: Require as a primary objective in the review of development projects the preservation of healthy native oaks and other healthy native trees.
    - *RC Policy E1.1.3*: Maintain to the maximum extent practical the natural plant communities utilized as habitat by threatened and endangered species (see Appendix C for a listing and map of these plant communities).

Discussion

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation Incorporated: The Project Site, classified as ruderal land, has been heavily disturbed due to years of agricultural and dairy operations and offers little to no habitat value for many wildlife species. The Site's soils have been altered, vegetation is dominated by weedy species, and the surrounding area includes agricultural land and dairy infrastructure. Though the Site is immediately west of the Kings River, amphibians are unlikely to be found due to the low habitat value and disturbed nature of the Site.

A review of the California Natural Diversity Database (CNDDB) identified no special status plant species occurrences on or in the near vicinity of the Project site, and the Project site provides no habitat for special status plant species due to disturbance of the site from more than a decade of dairy activity and former farming of the site.

Several special status species have been documented in the Project vicinity, including Swainson's hawk, loggerhead shrike, burrowing owl, western mastiff bat, and San Joaquin kit

fox. However, due to the absence of critical habitat elements on the Site, many of these species are considered absent or unlikely to be impacted. Below is a summary of special status species that will not be impacted and those potentially impacted by the Project.

Special Status Species in Vicinity Not Impacted

- Special Status Plants: The Project Site lacks suitable habitat for special status plant species due to long-term disturbances. The CNDDB review confirmed no occurrences of special status plants on or near the Site. As a result, these plants are not present and will not be impacted.
- California Tiger Salamander (*Ambystoma californiense*): This species requires vernal pools and burrows for breeding and aestivation, which are absent from the Site. The disturbances caused by agriculture and dairy activities have eliminated any potential habitat, and the species is considered absent.
- Burrowing Owl (*Athene cunicularia*): Although some ground squirrel burrows were observed, the lack of suitable foraging habitat, dense wheat crops, and frequent disturbances render the Site unsuitable. CNDDB records identified occurrences within 10 miles, but no evidence of burrowing owls was found on the Site during surveys.
- Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*): Although the Site is near the Kings River riparian corridor, the fragmented and limited nature of the riparian habitat makes it unsuitable. The species, last documented in 1898, is considered extirpated from the area, and no impacts are expected.
- Western Mastiff Bat (*Eumops perotis californicus*): The Site lacks suitable roosting structures such as cliffs or tall buildings. While the species could occasionally forage over the Site, it is highly mobile and would avoid disturbances. Therefore, no impacts are anticipated.
- San Joaquin Kit Fox (*Vulpes macrotis mutica*): The CNDDB indicates that historical occurrences of kit fox have been recorded within the region, but the Site offers extremely marginal habitat due to human activity, lack of suitable denning habitat, and poor foraging conditions. Surveys found no evidence of kit foxes, and they are unlikely to be present.

Special Status Species in Vicinity Potentially Impacted

Swainson's Hawk (*Buteo swainsoni*): While the Site lacks nesting trees, mature trees within 0.25 miles along the Kings River provide suitable nesting habitat. The Project will result in the loss of less than 5 acres of marginal foraging habitat, which is not significant given the extensive regional availability of foraging land. However, to ensure that potential impacts to nesting Swainson's hawks remain less than significant, Mitigation Measures BIO-1a (Temporal Avoidance), BIO-1b (Preconstruction Surveys), and BIO-1c (Avoidance of Active Nests) will be implemented. These measures include conducting construction activities outside the nesting season where feasible (typically March 1–September 15), performing preconstruction nest surveys within 10 days prior to construction if activities must occur during the nesting season,

and establishing appropriate disturbance-free buffers around any active nests until the young have fledged.

Nesting Birds and Raptors: The Project Site provides limited nesting opportunities due to the absence of trees and the presence of only one elderberry shrub. Disturbance-tolerant ground-nesting species, such as killdeer, may nest in hard-packed earth areas, while migratory birds could utilize the elderberry shrub or vegetation within 250 feet of the site. Although no nesting habitat for raptors exists on site, mature trees within 500 feet along the Kings River corridor provide suitable nesting habitat for certain raptor species. Construction activities during the nesting season could potentially disturb active nests or cause nest abandonment. To reduce these potential impacts to less than significant levels, Mitigation Measures BIO-2a (Avoidance), BIO-2b (Preconstruction Surveys), and BIO-2c (Establish Buffers) will be implemented. These measures include scheduling construction outside the nesting season where feasible (September 1–January 31), conducting preconstruction surveys for active nests within 15 days prior to activities if work must occur during the nesting season (February 1–August 31), and establishing species-appropriate construction-free buffers around any discovered active nests until the young have fledged. These protections also address the loggerhead shrike, which could potentially nest on or within 250 feet of the site.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

No Impact: Sensitive natural communities, including riparian habitats and wetlands, are designated based on their limited distribution, biological diversity, and ecological importance. The Project Site consists of ruderal land that has been highly disturbed due to agricultural and dairy operations. The Site does not support any sensitive natural communities as identified in local or regional plans or by the California Department of Fish & Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS). There is no riparian habitat on-site, and *No Impact* will occur.

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact: Jurisdictional waters, such as rivers, lakes, and wetlands, are regulated by the USACE, CDFW, and the RWQCB. The Project Site contains no features meeting the criteria for jurisdictional waters or wetlands, as confirmed by field surveys. The nearest natural drainage, the Kings River, is located approximately 300 feet east of the Site and will not be impacted by Project activities. Therefore, there will be *No Impact* on protected wetlands.

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Impact: The Project Site lacks significant topographic or natural features that could serve as wildlife corridors. It is primarily characterized by ruderal land and agricultural fields that do not provide pathways for the regular movement of wildlife. The Site is not connected to any known migratory routes or wildlife nursery areas. Therefore, the Project will not interfere with wildlife movement or migration, and No Impact will occur.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact: The Resource Conservation Element lists policies protecting biological resources. The *2035 Kings County General Plan* includes policies to protect biological resources (pages RC-47 through RC-50), such as RC Policy D1.1.1 and RC Policy E1.1.1, which require biological evaluations and consultation with regulatory agencies to minimize impacts on sensitive habitats and species. A comprehensive biological evaluation was completed for the Project, confirming that it is consistent with all relevant policies. The Project does not conflict with any local policies or ordinances protecting biological resources. Therefore, no impact will occur. There is No Impact.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact: There are no adopted Habitat Conservation Plans (HCPs), Natural Community Conservation Plans (NCCPs), or other regional or local conservation plans applicable to the Project Site. The Project is consistent with the goals and policies of the *2035 Kings County General Plan* and does not conflict with any habitat conservation initiatives. There is *No Impact*.

Mitigation Measures for Swainson's Hawk

Mitigation Measure BIO-1a (Temporal Avoidance): In order to avoid impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.

Mitigation Measure BIO-1b (Preconstruction Surveys): If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.

Mitigation Measure BIO-1c (Avoidance of Active Nests): Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

Mitigation Measures for Nesting Birds and Raptors

Nesting Birds and Raptors: Disturbance-tolerant species such as loggerhead shrike may nest on or near the Site, while raptors could nest in nearby trees within 500 feet of the Site. Without mitigation, construction could disturb nesting birds or cause nest abandonment, violating federal and state regulations.

Mitigation Measure BIO-2a (Avoidance): In order to avoid impacts to native nesting birds and raptors, including the loggerhead shrike, the Project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

Mitigation Measure BIO-2b (Preconstruction Surveys): If Project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) and surrounding lands within 250 feet for migratory birds, and out to 500 feet for raptors, where accessible. If no active nests are found within the survey area, no further mitigation is required.

Mitigation Measure BIO-2c (Establish Buffers): Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

To prevent potential impacts to the Swainson's hawk nesting birds and raptors, the Project will implement Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2a, BIO-2b, and BIO-2c to ensure that impacts to species identified as a candidate, sensitive, or special status would be *Less than Significant with Mitigation Incorporated.*

V. CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☑	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☑	☐	☐

Environmental Setting

Records Search

Taylored Archaeology performed a Phase I cultural resource assessment for the Bar E Dairy Vermifiltration System Project in Kings County, California. The full report can be found in Appendix C. The cultural resource assessment included a records search with the Southern San Joaquin Valley Information Center, conducting an archaeological pedestrian survey, and preparing an archaeological survey report. The Project is located approximately 0.15 miles northeast of the intersection of South 7th Avenue and Corona Avenue, adjacent to the Kings River, approximately 9 miles northeast of the City of Hanford in Kings County, California. The Site lies within the U.S. Geological Survey (USGS) 7.5-minute Burris Park, California, topographic quadrangle in Section 15 of Township 17 South, Range 22 East, Mount Diablo Base and Meridian.

The Project proposes to construct a vermifiltration system consisting of 1-foot-high containment walls containing layers of HDPE liner, shade mesh, wood chips, and earthworms, along with a linear irrigation and treated wastewater collection system. The vermifilter will treat liquid manure by removing solids and nutrients before the wastewater is land-applied and/or reused throughout the facility for flushing. The proposed Project will also install 12-inch-diameter wastewater lines and lift stations. The Area of Potential Effects (APE) of an undertaking is defined in 36 CFR 800.16(d) as the "geographic area or areas within which an undertaking may directly or indirectly cause changes" in dimension (depth, length, width) and includes all areas directly and indirectly affected by the proposed construction. The total horizontal APE is estimated to be 6.1 acres and encompasses the construction footprint. The vertical APE is anticipated to be up to 16 feet below ground surface for the lift station and 2.5 feet below ground surface for the wastewater pipelines.

Cultural Resources Record Search and Native American Consultation: On August 22, 2024, Taylored Archaeology requested a cultural resource records search from the SSJVIC of the

CHRIS at California State University in Bakersfield, California. The purpose of this request was to identify and review prior cultural resource studies and previously recorded cultural resources on or near the APE. The records search included prior cultural resources investigation reports conducted, previously recorded resources within the APE and the 1.0-mile radius around the APE. Also included in research were cultural resource records (DPR forms) as well as the Historic Properties Directory of the Office of Historic Preservation list, General Land Office Maps, Archaeological Determinations of Eligibility list, and the California Inventory of Historic Resources list.

Regulatory Setting

This report defines "cultural resources" as prehistoric or historical archaeological sites and historical objects, buildings, or structures. Following 36 Code of Federal Regulations (CFR) §60.4, "historical" in this report applies to cultural resources at least 50 years old. The significance or importance of a cultural resource is dependent upon whether the resource qualifies for inclusion at the local level in a local register of historical resources, at the state level in the California Register of Historical Resources (CRHR), or the Federal level in the National Register of Historic Places (NRHP). Cultural resources that are determined to be eligible for inclusion in the CRHR are called "historical resources" (California Code of Regulations [CCR] 15064.5[a]). Under this statute, the determination of eligibility is partially based on the consideration of the criteria of significance as defined in 14 CCR 15064.5(a)(3). Cultural resources eligible for the NRHP are deemed "historic properties."

National Historic Preservation Act

The National Historic Preservation Act was adopted in 1966 to preserve historical and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

California Environmental Quality Act

Under CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the CRHR. Historical resources may include, but are not limited to, "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant" (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identified as significant in a local survey conducted per the state guidelines is also considered a historic resource under California Public Resources Code (PRC) Section 5020.1.

CEQA details appropriate measures for the evaluation and protection of cultural resources in §15064.5 of the CEQA Guidelines. According to CEQA guidelines §15064.5 (a)(3), the criteria for listing on the CRHR includes the following:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

According to CEQA guidelines §21074:

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Protection of cultural resources within California is additionally regulated by PRC §5097.5, which prohibits the destruction, defacing, or removal of any historic or prehistoric cultural features on land under the jurisdiction of State or local authorities.

Health and Safety Code, Section 7050.5

Section 7050.5 of the California Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC. CEQA Guidelines (Public Resources Code Section 5097) specify the procedures to be followed when discovering human remains on non-Federal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

2035 Kings County General Plan

Kings County identified sixteen Historical Sites throughout the county. The nearest Historic Site to the Project is Kings River Cemetery, approximately 4.3 miles to the southwest. The *2035 Kings County General Plan Resource Conservation Element* includes the following goals, objectives, and policies that are potentially applicable to the proposed Project:

- **RC GOAL I1:** ***Preserve significant historical and archaeological sites and structures that represent the ethnic, cultural, and economic groups that have lived and worked in Kings County.***

  - RC OBJECTIVE I1.1: Promote the rehabilitation or adaptation to new uses of historic sites and structures.

    - *RC Policy I1.1.2*: Direct proposed developments that may affect proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or other similarly purposed advisory body under the Kings County Parks and Recreation Advisory Commission for review and comment.
    - *RC Policy I1.1.3*: Encourage the protection of cultural and archaeological sites with potential for placement on the National Register of Historic Places and/or inclusion in the California Inventory of Historic Resources.
    - *RC Policy I1.1.4*: Refer applications that involve the removal, destruction, or alteration of proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or its successor for recommended mitigation measures.

  - RC OBJECTIVE I1.2: Identify potential archaeological and historical resources and, where appropriate, protect such resources.

    - *RC Policy I1.2.1*: Participate in and support efforts to identify significant cultural and archaeological resources and protect those resources in accordance to Public Resources Code 5097.9 and 5097.993.
    - *RC Policy I1.2.2*: Continue to solicit input from local Native American communities in cases where development may result in disturbance to sites containing evidence of Native American Activity and/or to sites of cultural importance.
    - *RC Policy I1.2.3*: Address archaeological and cultural resources in accordance with the California Environmental Quality Act (CEQA) for discretionary land use applications.
    - *RC Policy I1.2.4*: The County will respectfully comply with Government Code §65352.3 (SB18) by conducting formal consultations with tribes as identified by the Native American Heritage Commission on all general plan and specific plan amendments.
    - *RC Policy I1.2.5*: The County will respectfully comply with Government Code §6254.(r) and 6254.10 by protecting confidential information concerning Native American cultural resources. For example, adopting internal procedures such as keeping confidential archaeological reports away from public view or discussion in public meetings.
    - *RC Policy I1.2.1.6*: The County shall work in good faith with the Santa Rosa Rancheria Tachi Yokut Tribe ("Tribe"), the developer and other parties if the Tribe

requests return of certain Native American artifacts from private development projects (e.g., for interpretive or educational value). The developer is expected to act in good faith when considering the Tribe's request for artifacts. Artifacts not desired by the Tribe shall be placed in a qualified repository as established by the California State Historical Resources Commission (see Guidelines for the Curation of Archaeological Collections, May 1993). If no facility is available, then all artifacts shall be donated to the Tribe.

Discussion

a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less Than Significant Impact with Mitigation Incorporation: The SSJVIC conducted a records search to determine if historical or archaeological sites had previously been recorded within the study area. The records search results indicate no cultural resources were previously recorded within the Project boundary or within a 1-mile search radius that would be affected by the Project. According to the information within the CHRIS' database, there are no recorded resources within the project area. There are three recorded resources within the one-mile radius: P-16-000247 (Riverside Canal, approximately 0.61 miles south of the Project area); and two additional cultural resources, a prehistoric mound that was destroyed, and a burial site. Due to the sensitive nature of these resources and in accordance with state confidentiality laws, its specific type and location are withheld from public disclosure. None of these three sites overlap the Project area nor will they be impacted by the proposed Project. There are no recorded cultural resources within the Project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

An intensive pedestrian survey of the 6.1-acre Area of Potential Effect (APE) was also conducted, during which no evidence of prehistoric or historic cultural resources was observed on the ground surface. The Project's construction will include ground disturbance associated with lift stations (up to 16 feet underground), wastewater pipes buried at a minimum of 2 feet underground, and grading for stormwater drainage in the BIDA bed areas. Although no cultural resources have been identified, the presence of buried or unanticipated cultural resources under the ground surface is possible due to the Project site's proximity to the Kings River and high potential for buried sites. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 will ensure that impacts on this checklist item will be *Less than Significant with Mitigation Incorporation.*

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact with Mitigation: No known archaeological resources were identified within the Project's APE, as confirmed by the cultural records search, archival research, and pedestrian survey. However, the presence of archaeological resources below the ground surface is highly possible given the Site's location within the Kings River alluvial fan, a region identified as having high sensitivity for buried archaeological resources. Additionally, prehistoric sites have been documented within proximity to the APE, including a habitation mound and burial site. Therefore, to address any unanticipated discoveries during construction, Mitigation Measures CUL-1 and CUL-2 will be implemented. There is a *Less than Significant Impact with Mitigation Incorporation.*

c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact with Mitigation: Although there are no known human remains within the Project area; previous records show that a prehistoric burial site existed within a mile of the APE. The potential for uncovering human remains during construction exists due to the sensitivity of the site for buried cultural resources. If human remains are encountered, construction activities will be immediately halted, and the Kings County Coroner will be notified to determine their origin and appropriate treatment, following California Health and Safety Code Section 7050.5 and Public Resources Code 5097.98. Additionally, if the remains are determined to be Native American, the Native American Heritage Commission (NAHC) will be contacted to identify the Most Likely Descendant. Implementation of Mitigation Measure CUL-2 and CUL-3 will ensure that any impacts are *Less than Significant with Mitigation Incorporation.*

Mitigation Measures

Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement. Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County.

Mitigation Measure CUL-2: Protection of Cultural Resources. In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources.
- Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction

staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found.

- Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA.
- Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than- significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken.
- Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.
- Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.

Mitigation Measure CUL-3: Protection of Buried Human Remains. In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during

on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission (NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

- Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center.

VI. ENERGY

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☑

Environmental Setting

Pacific Gas and Electric (PG&E) provides natural gas and electricity services to the region. PG&E is a subsidiary of the PG&E Corporation and serves approximately 16 million people throughout a 70,000-square-mile service area in northern and central California. PG&E supplies power to its customers from a variety of renewable and nonrenewable sources. Table 3-6 below shows the proportion of each energy resource sold to California consumers by PG&E in 2022 as compared to the statewide average.

Fuel Type		SCE Power Mix	California Power Mix
Coal		0%	2.1%
Large Hydroelectric		3.4%	9.2%
Natural Gas		24.7%	36.4%
Nuclear		8.3%	9.2%
Other (Oil/Petroleum Coke/Waste Heat)		0.1%	0.1%
Unspecified Sources of Power[1]		30.3%	7.1%
Eligible Renewables	*Biomass*	0.1%	2.1%
	Geothermal	5.7%	4.7%
	Small Hydro	0.5%	1.1%
	Solar	17.0%	17.0%
	Wind	9.8%	10.8%
	Total Eligible Renewable	**33.2%**	**35.8%**
1. "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.			

Table 3-6. PG&E and State average power resources; Source: California Energy Commission, Pacific Gas & Electric

Regulatory Setting

California Code of Regulations, Title 20

Title 20 of the California Code of Regulations establishes standards and requirements for appliance energy efficiency. The standards apply to a broad range of appliances sold in California.

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations is a broad set of standards designed to address the energy efficiency of new and altered homes and commercial buildings. These standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting.

California Green Building Standards Code (CALGreen)

The purpose of the CALGreen Code is to "improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality." The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program not established and adopted by the California Building Standards Commission (CBSC).

SB 100

SB 100, passed in 2018, set a deadline in 2045 for 100% of energy to be renewable. Additionally, by 2030, 60% of all energy must be renewable. California is targeting this goal through solar and other renewable sources.

AB 178

For California to meet its renewable goals, AB 178 was passed in 2018. AB 178 states that starting in 2020, all new low-rise residential buildings must be built with solar power.

Executive Order B-55-18

In 2018, Governor Brown signed EO B-55-18 to achieve carbon neutrality by moving California to 100 percent clean energy by 2045. This Executive Order also includes specific measures to reduce GHG emissions via clean transportation, energy-efficient buildings, directing cap-and-trade funds to disadvantaged communities, and better management of the state's forest land.

2035 Kings County General Plan

The *Resource Conservation Element* of the Kings County General Plan contains the following goals, objectives, and policies related to energy conservation:

- **RC GOAL G1: Encourage the development of oil and gas energy sources provided that they do not degrade environmental quality.**
  - RC OBJECTIVE G1.3: Conserve energy to lower energy costs and improve air quality.

- *RC Policy G1.3.1*: Encourage developers to be innovative in providing landscaping that modifies microclimates, thus reducing energy consumption.
- *RC Policy G1.3.2*: Require new urban development to provide and maintain shade trees and other landscaping along streets and within parking areas to reduce radiation heating. However, solar access for solar panels shall not be blocked.
- *RC Policy G1.3.3*: Participate, to the extent feasible, in local and State programs that strive to reduce the consumption of energy.
- *RC Policy G1.3.4*: Coordinate with local utility providers to provide public education on energy conservation programs.

The *Air Quality Element* of the Kings County General Plan contains the following goals, objectives, and policies related to energy conservation:

- **AQ GOAL D1: Invest in more efficient and effective transportation infrastructure, fleet management and support for trip reduction programs to reduce traffic congestion, vehicle trips and the need for costly new or expanded roadways.**
- **AQ GOAL E1: Minimize air emissions and potential climate change impacts related to energy consumption in the County.**
  - AQ OBJECTIVE E1.1 Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development Projects within the County.
    - *AQ Policy E1.1.1*: Initiate and sustain ongoing efforts with local water and energy utilities and developers to establish and implement voluntary incentive-based programs to encourage the use of energy efficient designs and equipment in new and existing development projects within the County.
    - *AQ Policy E1.1.2*: Initiate and sustain ongoing efforts with agriculture, the building industry, water, and energy utilities and the SJVAPCD to promote enhanced energy conservation and sustainable building standards for new construction.
    - *AQ Policy E1.1.3*: Work with local water and energy utilities and the building industry to develop or revise County design standards relating to solar orientation of building occupancies, water use, landscaping, reduction in impervious surfaces, parking lot shading and such other measures oriented towards reducing energy demand.
    - *AQ Policy E1.1.4*: Actively promote the more efficient location of industries within the County which are labor intensive, utilize cogeneration or renewable sources of energy, support and enhance agricultural activities, and are consistent with other policies of the General Plan.
    - *AQ Policy E1.1.5*: County staff will proactively work with the Cooperative Agricultural Extension office, California Energy Commission, local water and

energy utilities, the agricultural industry, and other potential partners to seek funding sources and implement programs which reduce water and energy use, reduce air emissions, and reduce the creation of greenhouse gases.

Discussion

a) Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact: The Bar E Dairy Project would require limited incremental energy consumption during both the construction and operational phases. However, this consumption would be minimal relative to the facility's existing dairy operations, would not involve wasteful, inefficient, or unnecessary use of energy resources, and would not result in a potentially significant environmental impact. The Project does not propose any increase in herd size. The additional energy demands are confined to a few extra pumps, a linear irrigation system for the BIDA vermifiltration beds, and an unoccupied modular control unit (sea train) for wastewater testing and equipment monitoring.

During the construction phase, energy consumption will primarily involve fuel use by construction vehicles and heavy equipment, as well as electricity for site preparation activities and installation of related infrastructure. These activities are temporary. Standard construction best management practices, including efficient equipment utilization and scheduling to avoid unnecessary idling, would be followed. Given the limited scope of work on an already developed dairy site and the temporary nature of construction, energy use during this phase would not be wasteful or inefficient.

In the operational phase, energy would be required to operate the BIDA vermifiltration system, including pumps serving the irrigation and collection infrastructure, and the control unit. The vermicompost processing area would also use screening equipment to prepare material for land application. The core treatment process, however, relies on biological processes involving earthworms and microbes to break down organic matter, reducing contaminants. These processes are inherently energy-efficient and operate under aerobic conditions, avoiding the higher energy demands associated with conventional mechanical or chemical treatment systems. The vermifiltration system improves wastewater quality for reuse while reducing air emissions from the existing retention ponds, further supporting overall operational efficiency.

The incremental energy demands of the Project are minor and directly tied to the components described. No substantial new energy-intensive equipment or processes are introduced beyond what is necessary to support the vermifiltration and vermicompost systems. The Project's design aligns with applicable California Energy Code requirements and best management practices for agricultural facilities. Because the scale of additional energy use is limited and the biological treatment approach is efficient by nature, no further detailed energy use assessment is required to determine that impacts would be less than significant.

The Project would therefore not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Impacts would be less than significant, and no mitigation measures are required. There is a *Less Than Significant Impact.*

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact: The Project will comply with all applicable state and local plans related to renewable energy and energy efficiency. The Project is designed to align with California's goals for energy conservation and efficiency, including adherence to the California Green Building Standards Code (CALGreen) and Title 24, which mandate energy-efficient construction practices.

The Project's design incorporates energy-efficient systems, including the installation of BIDA vermifiltration beds that utilize natural biological processes involving earthworms and microbes to treat dairy wastewater. These biological processes reduce the need for energy-intensive chemical treatments, thus supporting energy efficiency. The vermifiltration process operates under aerobic conditions, which not only reduces energy consumption but also avoids the emission of hazardous or greenhouse gases.

Additionally, the integrated wastewater and stormwater management systems further support energy efficiency by minimizing the need for additional treatment processes. The vermicompost processing system also follows an energy-conscious approach, relying on natural decomposition processes that require minimal energy inputs.

Given that the Project's energy requirements align with state regulations and best management practices for energy conservation, and that the systems proposed do not conflict with or obstruct any state or local renewable energy plans, there will be no impact on energy-related policies. The Project remains consistent with policies promoting energy conservation and renewable energy use, ensuring full compliance with California's renewable energy and energy efficiency goals. There is *No Impact.*

VII. GEOLOGY AND SOILS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☑	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐

Environmental Setting

The proposed Project is located on two soil types. The properties of these soils are described briefly below:

Grangeville fine sandy loam

The Grangeville series consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. Grangeville soils are on alluvial fans and floodplains and have slopes ranging from 0 to 2 percent.

Nord fine sandy loam

The Nord series consists of very deep, well drained soils that formed in mixed alluvium dominantly from granitic and sedimentary rocks. Nord soils occur on alluvial fans and flood plains. Slopes are 0 to 2 percent.

Regulatory Setting

California Building Code

The California Building Code contains general building design and construction requirements relating to fire and life safety, structural safety, and access compliance. CBC provisions provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures and certain equipment.

2035 Kings County General Plan

The *Health and Safety Element* of the 2035 Kings County General Plan includes the following objectives pertaining to soils and geology:

- *Health and Safety Objective A1.3 - Limit growth and development in hazard areas to minimize new areas susceptible to higher risk of natural hazards.*
- *Health and Safety Objective A1.4 - Maintain County building and construction standards and regulations to remain current with State and Federal requirements that serve to protect residents from natural hazards.*
- *Health and Safety Objective A1.5 - Increase communication regarding hazard mitigation among communities in the County and improve organizational capabilities to address health and safety issues in mitigation and response.*
- *Health and Safety Objective A2.1 - Regulate new construction to achieve acceptable levels of risk posed by geologic hazards.*

According to Figure HS-2 and Table HS-2 in the *Health and Safety Element* of the Kings County General Plan, the County has been divided into six seismic zones, V1-V4, C1 and C2. Seismic zones are categorized based on the intensity of ground motion that could be reasonably anticipated if an earthquake occurred in Kings County. V1-V4 indicate Valley Zones, which are areas along the valley floor, with the highest near-surface amplification in the west and the lowest towards the east. C1 and C2 indicate Coast Ranges Zones, which are areas closest to the San Andreas fault and are expected to experience moderately high ground shaking levels. V1 indicates the area of least expected seismic shaking, and C2 regions are areas expected to have the highest shaking characteristics due to its proximity to the San Andreas Fault.

Definitions

Paleontological Resources. For the purposes of this section, "paleontological resources" refers to the fossilized plant and animal remains of prehistoric species. Paleontological Resources are a limited scientific and educational resource and are valued for the information they yield about the history of the earth and its ecology. Fossilized remains, such as bones, teeth, shells, and leaves, are found in geologic deposits (i.e., rock formations). Paleontological resources generally include the geologic formations and localities in which the fossils are collected.

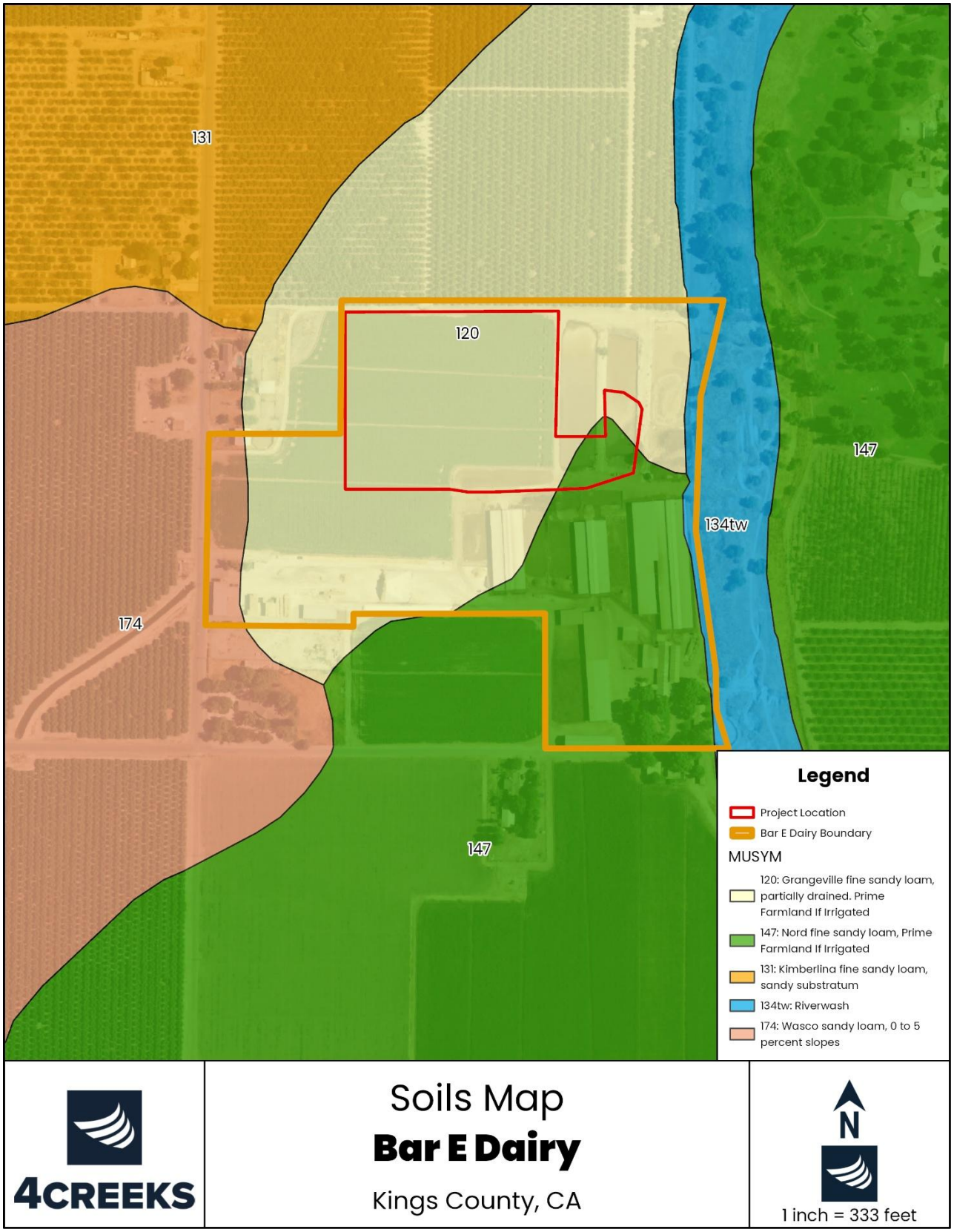


Figure 3-5. Soils Map. Source: Web Soil Survey, USDA Natural Resources Conservation Service

Discussion

a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a-i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact: According to the 2035 Kings County General Plan, no active faults systems are located within Kings County. The potential for strong seismic ground shaking on the Project Site is not a significant environmental concern due to the infrequent seismic activity of the area and distance to the faults. The Project is not located within the Alquist-Priolo Earthquake Fault Zone and the nearest fault is the Nunez fault, which lies in the Alcalde Hills 7.5-minute quadrangle, located northwest of Coalinga in Fresno County, approximately 50 miles southwest of the Project Site. Furthermore, according to the 2035 Kings County General Plan, there are no known major fault systems within Kings County. The greatest potential for geologic disaster in Kings County is posed by the San Andreas Fault, which is located approximately four miles west of the Kings County boundary line with Monterey County. The distance from the nearest active faults precludes the possibility of fault rupture on the Project Site. Therefore, there would be *No Impact*.

a-ii) Strong seismic ground shaking?

Less than Significant Impact: The proposed Project would not expose people to seismic ground shaking beyond the conditions that currently exist throughout the Project area. The Project Site is located within an area designated as Zone V_1 or Valley Zone 1, which is identified as the area of moderate seismic shaking by the Kings County Seismic Zone Description in Table HS-2 of the 2035 Kings County General Plan. Valley Zone 1 shaking could affect low to medium-rise, but the distance to either of the fault systems that are expected sources of the shaking is sufficiently great that the effect should be minimal. The Project Site's percent probability of exceeding peak ground acceleration (% g) in the next 50 years is between 20-30%, which is the lowest within the county. Although the Project area could potentially experience ground shaking, the magnitude of the hazard would not be severe as indicated by the 2035 Kings County General Plan. The Project would be constructed to the standards of the most recent seismic Uniform Building and Safety Code (UBSC) and a *Less than Significant impact* would occur.

a-iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact: Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake

shaking results in temporary, fluid-like behavior of the soil. According to the 2035 Kings County General Plan, the proposed Project is not located in an area suitable for liquefaction. Additionally, the General Plan classifies the Project Site as Seismic Zone V1, meaning that the distance to fault systems is sufficiently great that the effect should be minimal. Therefore, the impacts are *Less Than Significant.*

a-iv) Landslides?

No Impact: The Project Site is generally flat. There are no hill slopes in the area and no potential for landslides. No geologic landforms exist on or near the site that would result in a landslide event. There would be *No Impact.*

b) Would the Project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact: Because the Project Site is generally flat, minimal grading would be required to accommodate the proposed development. Although construction activities may result in a loss of topsoil, the Project consists of improvements within the footprint of an existing dairy facility that is already regulated under the Central Valley Regional Water Quality Control Board's General Order for Existing Milk Cow Dairies (Dairy General Order). Under the Dairy General Order, all contaminated stormwater runoff from the facility—including areas subject to construction disturbance—must be retained onsite within the existing wastewater storage ponds. The Dairy General Order also establishes requirements for drainage management and erosion control within the facility footprint to prevent offsite discharges and minimize soil erosion and topsoil loss.

These regulatory requirements, together with standard construction practices (such as limiting the area of disturbance, promptly stabilizing exposed soils, and directing all runoff to the onsite retention system), would ensure that any potential erosion or topsoil loss impacts remain temporary and localized. Operational activities would not introduce new sources of erosion or topsoil loss, as drainage from the vermifiltration beds, material processing area, and related improvements would continue to be contained and managed in accordance with the Dairy General Order. Accordingly, the impact would be *Less than Significant.*

c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact: The soils associated with the Project Site are considered to be stable and have a low capacity for landslides, lateral spreading, subsidence, liquefaction or collapse. Additionally, the 2035 Kings County General Plan identifies the Project site not within an area suitable for liquefaction. The Project site's distance to fault systems is sufficiently great that the effect should be minimal. Because the Project area is considered to be stable, and this Project would not require extensive grading or other activities that would increase the risk of

landslides, lateral spreading, subsidence, liquefaction or collapse, the impact is considered *Less than Significant*.

d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact: Expansive soils contain high levels of particular clay minerals, such as smectite and vermiculite, which allow them to absorb water and exhibit shrink/swell features. These soil types expand as water is absorbed and shrink as water evaporates, which may damage building foundations and create potential risks to life or property. None of the soils associated with the Project site contain high levels of shrink-swell clay types, and the site is not located within an area of expansive soils as defined by the 2035 Kings County General Plan. There is *No Impact.*

e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact: The Bar E Dairy Vermifiltration System Project is designed with an on-site wastewater treatment system (BIDA system) and vermicompost processing area specifically engineered for dairy operations. The Project will not rely on septic tanks or alternative wastewater disposal systems. The BIDA system is designed to handle the wastewater generated by the dairy, and the geotechnical conditions of the Site, including soil composition and stability, are suitable for this type of system. Therefore, the Project will not result in any impacts related to soils being incapable of supporting septic tanks or alternative wastewater disposal systems. The impact is considered *No Impact.*

f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporation: The Project Site has been heavily disturbed by ongoing agricultural and dairy operations, and no unique paleontological resources or geologic features have been identified at the Site. However, there is always a possibility that undiscovered paleontological resources could be encountered during construction activities, particularly during ground-disturbing activities such as excavation.

To mitigate this potential impact, the Project will implement mitigation measures that include the requirement to halt work in the area if paleontological resources are discovered. A qualified paleontologist will be consulted to assess the find and recommend appropriate actions to preserve the resource. Implementing Mitigation Measures CUL-1, CUL-2, and CUL-3 will ensure that any impacts resulting from Project implementation remain *Less than Significant with Mitigation Incorporation.*

VIII. GREENHOUSE GAS EMISSIONS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	☐	☐	☑	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Environmental Setting

Natural processes and human activities emit greenhouse gases. The presence of GHGs in the atmosphere affects the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 34°C cooler. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The effect of greenhouse gases on earth's temperature is equivalent to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxide, fluorocarbons, sulfur, and hexafluoride. Some gases are more effective than others. The Global ozone, chlorofluorocarbons, hydro chlorofluorocarbons, hydro fluorocarbons, per Global Warming Potential (GWP) have been calculated for each greenhouse gas to reflect how long it remains in the atmosphere, on average, and how strongly it absorbs energy. Gases with a higher GWP absorb more energy, per pound, than gases with a lower GWP, and thus contribute more to global warming. For example, one pound of methane is equivalent to twenty-one pounds of carbon dioxide.

GHGs as defined by AB 32 include the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs as defined by AB 32 are summarized in Table 3-9. Each gas' effect on climate change depends on three main factors. The first being the quantity of these gases are in the atmosphere, followed by how long they stay in the atmosphere and finally how strongly they impact global temperatures.

GHGs are present in the atmosphere naturally and are released by natural sources or formed from secondary reactions taking place in the atmosphere. The gases that are seen as the principal contributors to human-induced climate change are the following:

- *Carbon dioxide (CO_2)*
- *Methane (CH_4)*

- *Nitrous oxide (N_2O)*
- *Hydrofluorocarbons (HFCs)*
- *Perfluorocarbons (PFCs)*
- *Sulfur hexafluoride (SF_6)*

A description of several different GHGs is shown below in Table 3-6.

Greenhouse Gas	Description and Physical Properties	Lifetime	GWP	Sources
Methane (CH4)	Is a flammable gas and is the main component of natural gas.	12 years	21	Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal solid waste landfills.
Carbon dioxide (CO2)	An odorless, colorless, natural greenhouse gas.	30-95 years	1	Enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees, and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
Chloro-fluorocarbons	Gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are non-toxic nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	55-140 years	3,800 to 8,100	Were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone.
Hydrofluorocarbons	A man-made greenhouse gasses. It was developed to replace ozone-depleting gases found in a variety of appliances. Composed of a group of greenhouse gases containing carbon, chlorine an at least one hydrogen atom.	14 years	140 to 11,700	Powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases.
Nitrous oxide (N2O)	Commonly known as laughing gas, is a chemical compound with the formula N2O. It is an oxide of nitrogen. At room temperature, it is a colorless, non-flammable gas, with a slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effects.	120 years	310	Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
Pre-fluorocarbons	Has a stable molecular structure and only breaks down by ultraviolet rays about 60 kilometers above Earth's surface.	50,000 years	6,500 to 9,200	Two main sources of pre-fluorocarbons are primary aluminum production and semiconductor manufacturing.

Greenhouse Gas	Description and Physical Properties	Lifetime	GWP	Sources
Sulfur hexafluoride	An inorganic, odorless, colorless, and nontoxic nonflammable gas.	3,200 years	23,900	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing and as a tracer gas.

Table 3-9. Greenhouse Gases; Source: EPA, Intergovernmental Panel on Climate Change

In regard to the quantity of these gases that are in the atmosphere, we first must establish the amount of particular gas in the air, known as Concentration, or abundance, which are measured in parts per million, parts per billion and even parts per trillion. To put this measurement in more relatable terms, one part per million is equivalent to one drop of water diluted into about 13 gallons of water, roughly a full tank of gas in a compact car. Therefore, it can be assumed larger emissions of greenhouse gases lead to a higher concentration in the atmosphere.

Each of the designated gases described above can reside in the atmosphere for different amounts of time, ranging from a few years to thousands of years. All of these gases remain in the atmosphere long enough to become well mixed, meaning that the amount that is measured in the atmosphere is roughly the same all over the world regardless of the source of the emission.

Regulatory Setting

Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions; however, on April 2, 2007, the United States Supreme Court ruled that the USEPA has the authority to regulate CO_2 emissions under the CAA. The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and that the USEPA did not have a valid rationale for not regulating GHGs. In December 2009, the USEPA issued an endangerment finding for GHGs under the CAA.

On December 7, 2009, the USEPA Administrator signed a final action under the CAA, finding that six GHGs (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare and that the combined emissions from motor vehicles cause and contribute to global climate change.

On September 15, 2011, the USEPA and the United States Department of Transportation (USDOT)

issued the final rule for the first national standards to improve the fuel efficiency of medium- and heavy-duty trucks and buses from 2014 to 2018. For combination tractors, the agencies proposed engine and vehicle standards that would achieve up to a 20 percent reduction in fuel consumption from the model year 2014 by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which would achieve up to a 10 percent reduction from the model year 2014 for gasoline vehicles and a 15 percent reduction for diesel vehicles (12 and 17 percent, respectively, if accounting for air

conditioning leakage). Lastly, the engine and vehicle standards would achieve up to a 10 percent reduction from the model year 2014 fuel consumption for vocational vehicles. On October 25, 2016, the USEPA and USDOT issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 to 2027 to achieve vehicle fuel savings high as 25 percent, depending on the vehicle category.

The current administration finalized updated Corporate Average Fuel Economy (CAFE) standards for model years 2024 through 2026. The final rule establishes standards that would require an industrywide fleet average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks in 2026 by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent annually for model years 2026. The agency projects that the final standards will save consumers nearly $1,400 in total fuel expenses over the lifetimes of vehicles produced in these model years and avoid the consumption of about 234 billion gallons of gas between 2030 to 2050. The National Highway Traffic Safety Administration also projects that the standards will cut GHGs from the atmosphere, reduce air pollution, and reduce the country's dependence on oil.

State Agencies

California Air Resources Board (CARB)

In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (i.e., the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board) to establish CARB. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to the State's air pollution problems. California adopted the CCAA in 1988. CARB administers the CAAQS for the ten air pollutants designated in the CCAA. These 10 State air pollutants are the six criteria designated by the Federal CAA and four others: visibility-reducing particulates, H_2S, sulfates, and vinyl chloride.

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32, requires CARB to develop and enforce regulations for reporting and verifying statewide GHG emissions. CARB was directed to set a statewide GHG emissions limit and a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

In 2016, the Legislature passed, and Governor Jerry Brown signed, Senate Bill (SB) 32 and AB 197. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 Executive Order (EO) B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an IPCC analysis of the emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million (ppm) CO_2e and reduce the likelihood of catastrophic impacts from climate change. The companion bill to SB 32 (i.e., AB 197) provides additional direction to CARB related to adopting strategies to reduce GHG emissions.

CARB adopted the 2022 Scoping Plan Update on December 15, 2022. The 2022 Scoping Plan Update assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

SB 97 and State CEQA Guidelines

In August 2007, the Legislature adopted SB 97, requiring the Governor's Office of Planning and Research (OPR) to prepare and transmit new CEQA guidelines for mitigating GHG emissions or the effects of GHG emissions to the California Natural Resources Agency. The OPR submitted its proposed guidelines to the Secretary for Natural Resources on April 13, 2009, and the *State CEQA Guidelines* amendments became effective on March 18, 2010.

The *State CEQA Guidelines* amendments do not specify a threshold of significance for GHG emissions or prescribe assessment methodologies or specific mitigation measures. Instead, the amendments encourage lead agencies to consider many factors in performing a CEQA analysis but rely on the lead agencies in making their significance determinations based upon substantial evidence. The State CEQA Guidelines amendments also encourage public agencies to use programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

The State CEQA Guidelines amendments require a lead agency to make a good-faith effort based on the extent possible on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions resulting from a project. The State CEQA Guidelines amendments give discretion to the lead agency whether to: (1) use a model or methodology to quantify GHG emissions resulting from a project and which model or methodology to use; and/or (2) rely on a qualitative analysis or performance-based standards. The California Natural Resources Agency is required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to AB 32.

California Green Building Standards

The California Green Building Standards Code, Part 11 of the California Code of Regulations, is commonly called the CALGreen Code. The first edition of the CALGreen Code was released in 2008 and contained only voluntary standards. The 2022 CALGreen Code was updated in 2022, became effective on January 1, 2023, and applies to non-residential and residential developments. The CALGreen Code contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The CALGreen Code provides design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The CALGreen Code also requires building commissioning, which is a process for the verification that all building systems (e.g., heating and cooling equipment and lighting systems) function at their maximum efficiency.

San Joaquin Valley Air Pollution Control District (SJVAPCD) Climate Change Action Plan

In August 2008, the SJVAPCD adopted the Climate Change Action Plan (CCAP) (SJVAPCD 2008). The CCAP directed the SJVAPCD to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change.

In December 2009, the SJVAPCD adopted the guidance: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009a) and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD 2009b). The guidance and policy rely on performance-based standards, otherwise known as Best Performance Standards (BPS) (SJVAPCD 2009c), to assess the significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA. Projects implementing BPS in accordance with SJVAPCD's guidance would be determined to have a less than the significant individual and cumulative impact on GHG emissions and would not require project-specific quantification of GHG emissions.

2035 Kings County General Plan

The Kings County General Plan *Air Quality Element* includes the following Goals, Objectives, and Action Plans regarding greenhouse gas emissions:

- ***AQ GOAL C1: Use Air Quality Assessment and Mitigation programs and resources of the SJVAPCD and other agencies to minimize air pollution, related public health effects, and potential climate change impacts within the County.***
  - AQ OBJECTIVE C1.1: Accurately assess and mitigate potentially significant local and regional air quality and climate change impacts from proposed projects within the County.
    - *AQ Policy C1.1.1*: Assess and mitigate project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD.
    - *AQ Policy C1.1.2*: Assess and mitigate project greenhouse gas/climate change impacts using analysis methods and significance thresholds as defined or recommended by the SJVAPCD, KCAG or California Air Resources Board (ARB) depending on the type of project involved.
    - *AQ Policy C1.1.3*: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.
- ***AQ GOAL G1: Reduce Kings County's proportionate contribution of greenhouse gas emissions and the potential impact that may result on climate change from internal governmental operations and land use activities within its authority.***
  - AQ OBJECTIVE G1.1: Identify and achieve greenhouse gas emission reduction targets consistent with the County's proportionate fair share as may be allocated by ARB and KCAG.

- *AQ Policy G1.1.1*: As recommended in ARB's Climate Change Adopted Scoping Plan (December 2008), the County establishes an initial goal of reducing greenhouse gas emissions from its internal governmental operations and land use activities within its authority to be consistent with ARB's adopted reduction targets for the year 2020. The County will also work with KCAG to ensure that it achieves its proportionate fair share reduction in greenhouse gas emissions as may be identified under the provisions of SB 375 (2008 Chapter 728) for any projects or activities requiring approval from KCAG.

Discussion

Thresholds of Significance

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a Project may have a significant effect on the environment calls for a careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

Appendix G of the *State CEQA Guidelines* includes significance thresholds for GHG emissions. A Project would normally have a significant effect on the environment if it did either of the following:

- *Generate GHG emissions, either directly or indirectly that may have a significant impact on the environment; or*
- *Conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs.*

Currently, no Statewide GHG emissions threshold has been used to determine a Project's potential GHG emissions impacts. Threshold methodology and thresholds are still being developed and revised by air districts in California.

Neither Kings County nor SJVAPCD has developed or adopted numeric GHG significance thresholds. Therefore, this analysis evaluates the GHG emissions based on the Project's consistency with the SJVAPCD CCAP and other applicable State GHG reduction goals.

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact: The Bar E Dairy Vermifiltration System Project would generate minor GHG emissions during its construction phase from the use of heavy equipment, vehicles, and machinery for site grading, installation of lift stations, process pits, wastewater lines, and BIDA beds. These emissions would primarily consist of CO_2, CH_4, and nitrous oxide N_2O from diesel combustion, but they would be temporary and localized, lasting only during the short construction period. Operational GHG emissions from the vermifiltration processes would be negligible, as the proposed Project includes fully aerobic systems that do not produce

hazardous air emissions or GHGs, with the only byproduct being nutrient-rich vermicompost for off-site export. The aerobic nature of vermifiltration prevents anaerobic conditions that typically generate methane in dairy wastewater lagoons, resulting in 95–100% reductions in CH_4 emissions and 58–82% reductions in CO_2 compared to conventional anaerobic systems (Miito, 2022; Dore, 2022). Minor indirect operational emissions could arise from energy use for pumps and controls in the lift stations, but these are expected to be low given the system's efficiency and potential for renewable energy integration.

The Project does not propose an increase to the overall herd size or baseline dairy operations, and the vermifiltration system is specifically designed to mitigate manure and wastewater related GHGs, which account for a significant portion (up to 50%) of on-farm dairy emissions. Studies confirm that vermifiltration can reduce total dairy GHG emissions by up to 97–99% relative to anaerobic lagoons through enhanced organic matter breakdown and nutrient stabilization, while also lowering ammonia (NH_3) emissions by 84–100% (Dore, 2022; Miito, 2022). This aligns with California's dairy sector goals under Senate Bill 1383 to cut methane emissions by 40% from 2013 levels by 2030, as the Project supports aerobic manure management practices that avoid extended anaerobic decay (California Air Resources Board, 2022).

Under CEQA Guidelines Section 15064(b), GHG significance is evaluated based on available data and consistency with state and regional plans, as neither Kings County nor the SJVAPCD has adopted numeric thresholds. The Project is consistent with the SJVAPCD's 2009 CCAP, which emphasizes mitigation through best available control technology for agricultural sources, and California's GHG reduction targets under Assembly Bill 32 and Senate Bill 32 (SJVAPCD, 2009). Given the temporary construction emissions, absence of operational process-related GHGs, and net reduction in manure-derived emissions, the Project would not make a cumulatively considerable contribution to global climate change or conflict with applicable plans. There is a *Less than Significant Impact.*

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact: As discussed above, the SJVAPCD has adopted a CCAP, which includes suggested BPS for proposed development Projects. Appendix J of the SJVAPCD Final Staff Report for the CCAP contains GHG reduction measures; however, these measures are intended for commercial, residential, and mixed-use Projects and would not apply to the Bar E Dairy Project. The only applicable measure is the following:

- *To minimize greenhouse gas emissions and optimize equipment efficiency, all equipment shall be operated following manufacturers' specifications and approved design specifications.*

The Bar E Dairy Vermifiltration System Project has been designed to be consistent with key state and regional plans, policies, and regulations aimed at reducing GHG emissions, including AB 32 and the 2022 Scoping Plan. These plans provide a framework for reducing GHG emissions

across California, with specific focus areas including agriculture and dairy operations, due to their substantial contributions to methane emissions.

The Project's compliance with the SJVAPCD CCAP, which includes performance standards for reducing GHG emissions, further ensures that the Project will not conflict with GHG reduction efforts. Additionally, the Project's design includes measures to optimize energy efficiency, manage waste, and reduce emissions from transportation and other operational activities, all of which are consistent with state GHG reduction goals.

Since the Project aligns with and supports these established plans and regulations, there is no expected conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, the impact is considered *No Impact.*

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☑	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Environmental Setting

The proposed Project Site is located approximately 9.1 miles north of the nearest public airport (Hanford Municipal Airport), 9.8 miles north of the nearest private airfield (Quinn Airport), and

4.4 miles south of the nearest school (Reagan Elementary School). The Department of Toxic Substances Control's (DTSC's) Envirostor was used to identify any sites known to be associated with releases of hazardous materials or wastes within the Project area. This research confirmed that the Project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Regulatory Setting

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S. Code [U.S.C.] §9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or the Superfund Act) authorizes the President to respond to releases or threatened releases of hazardous substances into the environment.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) sets and enforces Occupational Safety and Health Standards to assure safe working conditions. OSHA provides training, outreach, education, and compliance assistance to promote safe workplaces. The Project would be subject to OSHA requirements during construction, operation, and maintenance.

Toxic Substances Control Act of 1976 (15 U.S.C. §2601 et seq.)

The Toxic Substance Control Act was enacted by Congress in 1976 and authorizes the EPA to regulate any chemical substances determined to cause an unreasonable risk to public health or the environment.

Hazardous Waste Control Law, Title 26

The Hazardous Waste Control Law creates hazardous waste management program requirements. The law is implemented by regulations contained in Title 26 of the California Code of Regulations (CCR), which contains requirements for the following aspects of hazardous waste management:

- *Identification and classification;*
- *Generation and transportation;*
- *Design and permitting of recycling, treatment, storage, and disposal facilities;*
- *Treatment standards;*
- *Operation of facilities and staff training; and*
- *Closure of facilities and liability requirements.*

California Code of Regulations, Title 22, Chapter 11

Title 22 of the California Code of Regulations contains regulations for the identification and classification of hazardous wastes. The CCR defines a waste as hazardous if it has any of the following characteristics: ignitability, corrosively, reactivity, and/or toxicity.

California Emergency Services Act

The California Emergency Services Act created a multi-agency emergency response plan for the state of California. The Act coordinates various agencies, including CalEPA, Caltrans, the

California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

Kings County Department of Public Health

The Kings County Department of Public Health implements the Hazardous Waste Program and the Hazardous Waste Treatment/Tiered Permit Program throughout Kings County. These programs aim to ensure that all hazardous waste generated in Kings County businesses is appropriately handled, recycled, treated, stored, and disposed. Environmental Health staff inspects facilities that generate hazardous waste, investigates reports of illegal hazardous waste disposal, and responds to emergency spills of hazardous chemicals. Environmental Health staff also participates in public education programs to inform industries and residents about the laws and regulations relating to the safe disposal of hazardous waste.

2035 Kings County General Plan

The Kings County 2035 General Plan *Safety Element* includes the following goals, objectives, and policies on hazards and hazardous materials and have been relevant to this analysis:

- ***HS GOAL A1: Preventative measures reduce the potential impacts of natural hazards upon people's lives, property, and the environment.***
  - *HS OBJECTIVE A1.3: Limit growth and development in hazard areas to minimize new areas susceptible to higher risk of natural hazards.*
    - *HS Policy A1.3.1: Implement natural hazards review criteria for new development that is based upon information provided in the Natural Hazards Section of the Health and Safety Element to improve long term loss prevention.*
- ***HS GOAL B1: Promote the health and well-being of County residents, and support healthy living environments, physical activity opportunities, medical services, and readily available nutritious food sources.***
  - *HS OBJECTIVE B1.5: Ensure adequate protection of County residents from new generations of toxic or hazardous waste substances.*
    - *HS Policy B1.5.1: Evaluate development applications to determine the potential for hazardous waste generation and be required to provide sufficient financial assurance that is available to the County to cover waste cleanup and/or Site restoration in instances where the Site has been abandoned or the business operator is unable to remove hazardous materials from the Site.*

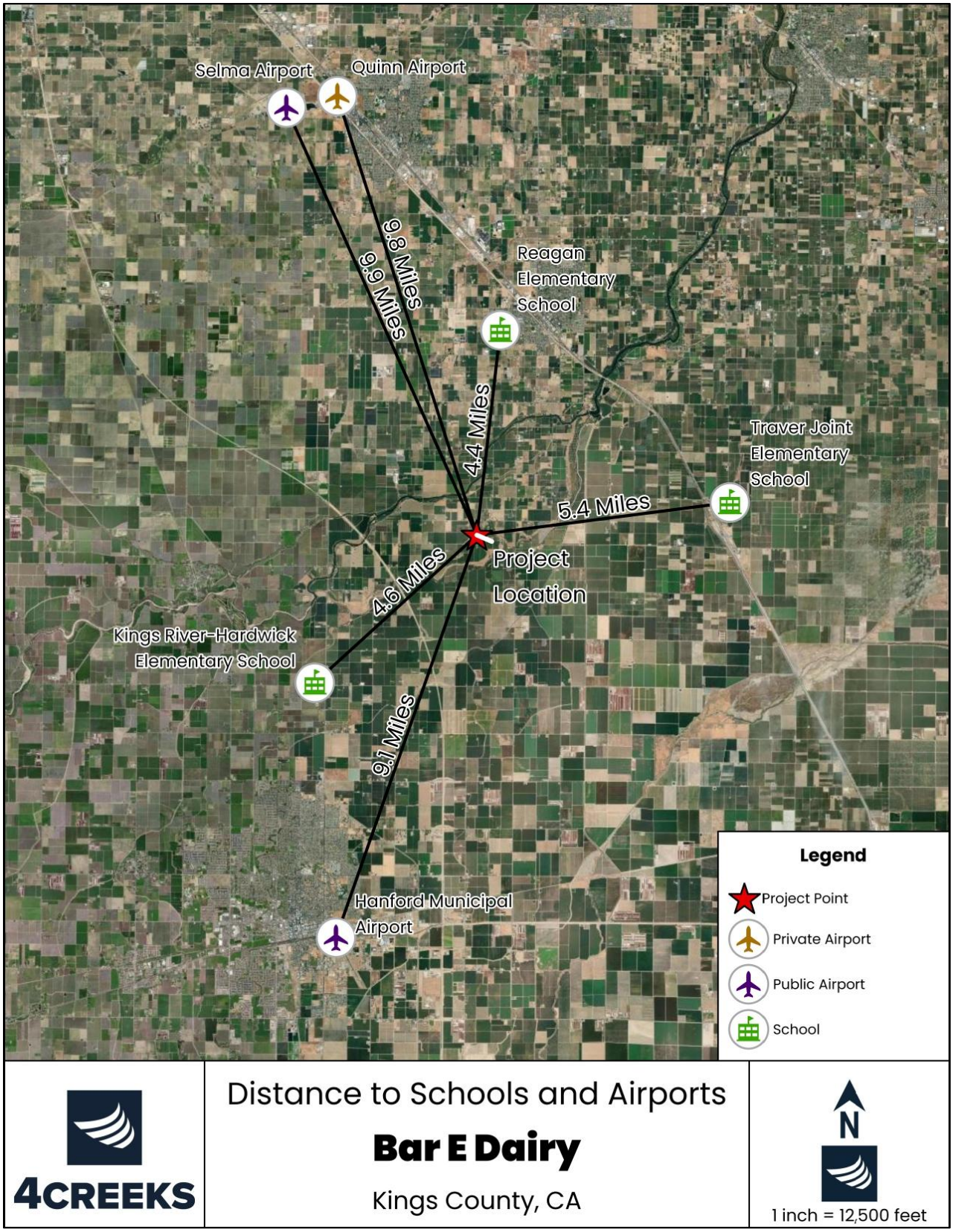


Figure 3-6. Distance to Schools and Airports.

Discussion

a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact with Mitigation Incorporation: The Bar E Dairy Vermifiltration System Project will involve the use of hazardous materials typical of agricultural, dairy, and construction operations, such as fuels, oils, and cleaning agents. During construction, materials like diesel fuel and lubricants will be used to operate machinery for installing vermifiltration beds, lift stations, process pits, wastewater pipes, and grading activities. Operation of the vermifiltration system and dairy facilities will involve the storage and use of materials such as diesel fuel, hydraulic oil, motor oil, and propane for equipment like pumps, mechanical separators, and control units. The Project will not involve large-scale transport or disposal of hazardous materials, and it will not generate hazardous waste in quantities that would pose a significant risk.

To ensure compliance with safety regulations and minimize potential hazards, Mitigation Measure HAZ-1 requires the preparation and implementation of a Hazardous Materials Business Plan (HMBP). The HMBP will outline procedures for the safe handling, storage, and disposal of hazardous materials, as well as emergency response protocols, in accordance with the California Health and Safety Code, Chapter 6.95, the Hazardous Materials Transportation Act, and CCR, Title 8 and Title 22. Additionally, BMPs will be implemented during construction and operation to further reduce risks associated with hazardous materials.

With the incorporation of Mitigation Measure HAZ-1 and adherence to applicable regulations, the Project's impacts related to the routine transport, use, or disposal of hazardous materials are expected to be *Less Than Significant with Mitigation Incorporation.*

b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact: While the use of hazardous materials during construction and operation poses some risk, the Project includes BMPs to prevent and manage accidental releases. These measures include proper storage, handling, and disposal of hazardous materials, as well as immediate response protocols in the event of a spill.

Additionally, the Project's use of a reinforced composite polyethylene (RCPE) liner in waste management systems will minimize the risk of hazardous materials contaminating groundwater or surface waters. Given these precautions, any accidental release of hazardous materials is not reasonably foreseeable to result in significant environmental harm. Therefore, the impact is considered *Less Than Significant*.

c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact: The Project is not located within ¼ mile of an existing or proposed school, as the nearest school site is Reagan Elementary School which is approximately 4.4 miles north of the Project Site. There is no reasonably foreseeable condition or incident involving the emission, handling, or disposal of hazardous materials, substances, or waste that would affect areas within ¼ miles of existing or proposed school sites. There is *No Impact*.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact: The Project Site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. There would be *No Impact*.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

No Impact: The proposed Project is located approximately 9.1 miles north of the nearest public airport (Hanford Municipal Airport), and 9.8 miles north of the nearest private airfield (Quinn Airport). The site is not located in an airport land use plan and there is *No Impact*.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact: The Project will not interfere with any existing emergency response or evacuation plans. The Project design and site plan will be reviewed by local authorities, including the Fire Department, to ensure compliance with all relevant emergency planning requirements. Therefore, the impact is considered *No Impact.*

g) Would the Project expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?

No Impact: The Project Site is located in an agricultural area that is not prone to wildland fires. The surrounding land is primarily farmland with low vegetation density, reducing the risk of wildland fires. Additionally, the Kings County General Plan indicates that the fire hazard in the Project area is moderate. Therefore, the Project will not expose people or structures to significant risks from wildland fires, and the impact is considered *No Impact*.

Mitigation Measures for Impacts on Hazard and Hazardous Materials

Mitigation Measure HAZ-1: Hazardous Materials Business Plan. To ensure compliance with applicable safety regulations and minimize risks associated with the handling, storage, and use of hazardous materials at the Bar E Dairy facility, the applicant shall prepare and file a Hazardous Materials Business Plan (HMBP), prior to the initiation of any construction or operational activities involving hazardous materials. The HMBP shall include the following components:

- Inventory of Hazardous Materials: A detailed inventory of all hazardous materials to be used, stored, or disposed of on-site, including quantities, storage locations, and handling procedures.
- Emergency Response Plan: Procedures for responding to spills, leaks, or other incidents involving hazardous materials, including notification protocols, containment measures, and cleanup procedures.
- Employee Training: A training program for all employees handling hazardous materials, ensuring they are informed of proper handling, storage, and emergency response procedures in accordance with state and federal regulations.
- Site Map: A detailed site map indicating the locations of hazardous materials storage, handling areas, and emergency response equipment, such as spill kits and fire extinguishers.

The applicant shall submit the HMBP for review and approval by the Kings County Environmental Health Services Division prior to the issuance of any construction permits. The plan shall be updated annually or as required by regulatory authorities, and the applicant shall maintain records of compliance, including inspection reports and employee training logs, for review by the County upon request. Implementation of the HMBP will reduce potential impacts related to hazardous materials to a less than significant level by ensuring safe handling, storage, and emergency response procedures are in place.

X. HYDROLOGY AND WATER QUALITY

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☑	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☑	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☑	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or?	☐	☐	☑	☐
iv) impede or redirect flood flows?	☐	☐	☑	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☑

Environmental Setting

Groundwater

The proposed Project Site is located in the Tulare Lake Hydrologic Region, which covers 10.9 million acres south of the San Joaquin River. The Tulare Lake Hydrologic Region is composed of 12 groundwater basins. The proposed Project Site lies within the San Joaquin Valley Groundwater Basin. The San Joaquin Valley Groundwater Basin is divided into fifteen sub-basins. The proposed Project is located within the Kings Sub-basin.

The area near the project site is managed by the Central Kings Groundwater Sustainability Agency (GSA). GSA's are formed on a basin-wide scale to sustainably manage water at a local level. Each GSA is required to prepare a Groundwater Sustainability Plan (GSP) pursuant to the Sustainable Groundwater Management Act (SGMA). The purpose of the GSP is to plan and implement actions to sustainably manage groundwater without causing undesirable results.

Surface Waters

The proposed Project Site is within the Tulare-Buena Vista Lakes Watershed which covers portions of Kern and Kings County. The most prominent rivers and streams within the Watershed are the Kings River and the Kaweah River. The alluvial fans of the Kings River and Kaweah River dominate the landscape within the Kings County Water District. Other surface waters include the Saint Johns River and Cross Creek.

Flood Risk

The Federal Emergency Management Agency (FEMA) defines the predominant flood prone areas through their Flood Insurance Rate Maps (FIRM). Floods have historically been the major cause of disaster within Kings County. The main reason is that drainage patterns direct all flows towards the Tulare Lake Basin in southern Kings County. Data from the Flood Insurance Rate Map system has been gathered to create Figure 3-7, which shows the flood zones occurring within the Project area. All ground disturbance associated with the proposed Project is within an area defined as having moderate to minimal hazards from flooding, but the nearest flood zone is approximately 0.25 miles away (1% Annual Chance no BFE's). The flood risk categories have been defined by the FEMA glossary, with additional information adapted from the Health and Safety Element of the 2035 Kings County General Plan.

- ***A; 1% Annual Chance no BFE's:*** *Areas starting with the letter 'A' are considered 'high risk' flood zones. 'A' zones indicate a 100-year flood zone, or areas with a 1% chance of flooding each year, there are no base flood elevations (BFE) included on the FIRM map.*
- ***AE; 1% Annual Chance with BFE's:*** *100-year flood zone, or a 1% chance of flooding annually, with base flood elevations included on FIRM map.*
- ***AH; 1% Annual Chance Shallow Flooding (Depths 1-3 feet):*** *100-year flood zone with shallow flooding depths of 1 to 3 feet.*
- ***D; Undetermined Flood Hazard:*** *Floods are possible, but flood hazard is undetermined or unstudied.*
- ***X; Moderate or Minimal Flood Hazard:*** *Non-Special Flood Hazard area with a moderate to minimal flood hazard risk. Flood hazards are reduced, but not completely removed.*

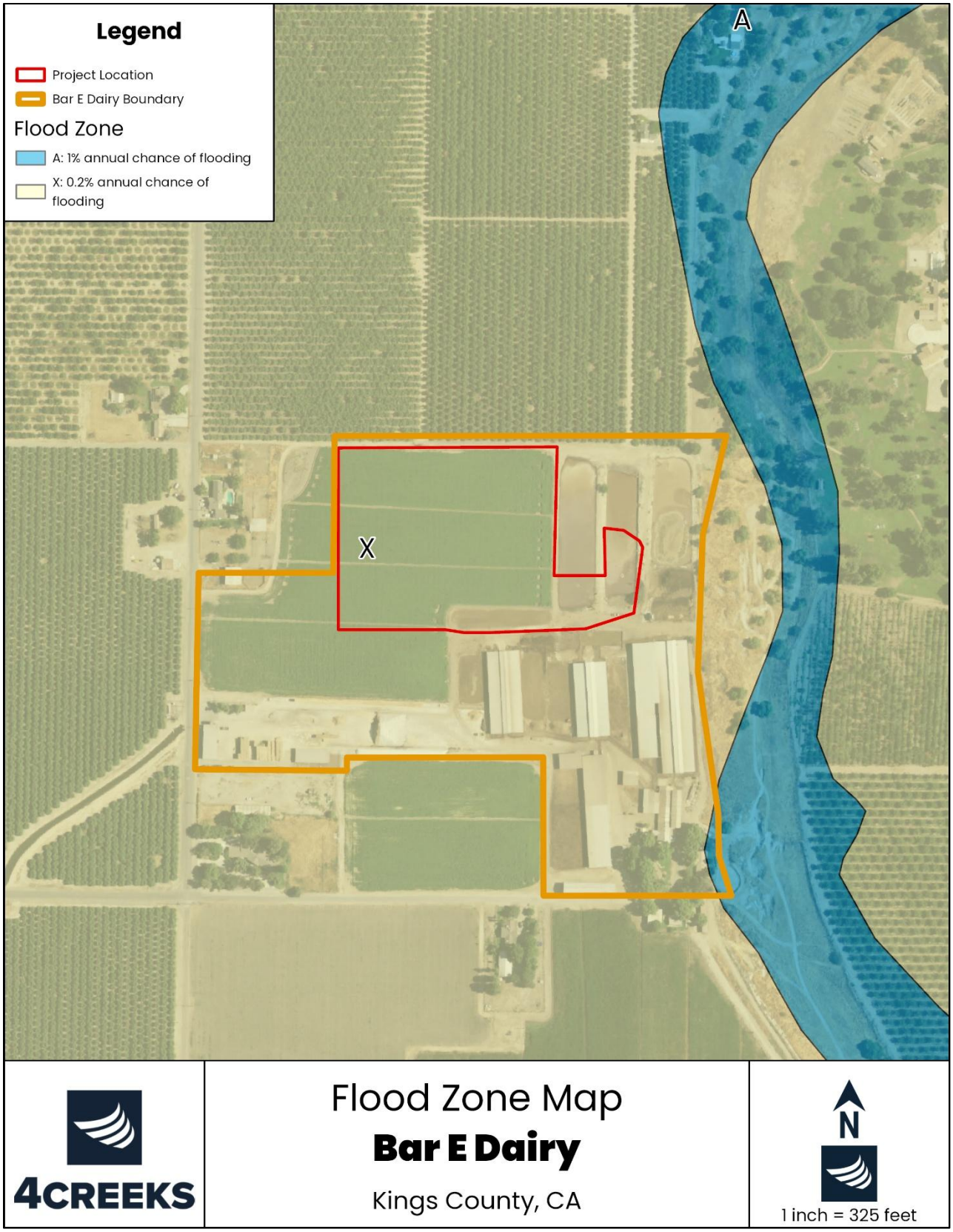


Figure 3-7. Flood Zone Map

Regulatory Setting

Clean Water Act

The Clean Water Act (CWA) is enforced by the U.S. EPA and was developed in 1972 to regulate discharges of pollutants into the waters of the United States. The Act made it unlawful to discharge any pollutant from a point source into navigable waters unless a National Pollution Discharge Elimination System (NPDES) Permit is obtained.

Central Valley RWQCB – Dairy General Order / Waste Discharge Requirements

The proposed Project Site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) and is part of an existing dairy facility already regulated under the RWQCB's General Order for Existing Milk Cow Dairies (Dairy General Order) / Waste Discharge Requirements. Under the Dairy General Order, all process water and contaminated stormwater generated at the facility, including during construction of improvements, must be retained onsite within the existing wastewater storage ponds. No discharge to Waters of the United States is permitted. The Project consists of improvements to an existing dairy facility and all contaminated stormwater will continue to be fully contained onsite in accordance with the Dairy General Order's drainage and retention requirements.

California Water Quality Porter-Cologne Act

California's primary statute leading water quality and water pollution concerns with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resource Control Board (SWRCB) and each of the nine Regional Water Quality Boards (RWQCB) power to protect water quality and further develop the Clean Water Act within California. The applicable RWQCB for the proposed Project is the Central Valley RWQCB.

Central Kings Groundwater Sustainability Agency

The Central Kings Groundwater Sustainability Agency is responsible for the implementation of California's Sustainable Groundwater Management Act (SGMA) compliance within the GSA's boundary of the Kings Subbasin.

2035 Kings County General Plan

The Kings County General Plan *Resource Conservation Element and Health and Safety Element* contains the following Goals, Objectives, and Action Plans on flood control and water use that are potentially applicable to the proposed Project:

- ***HS GOAL A4: Prevent unnecessary exposure of people and property to flood damage.***
  - HS OBJECTIVE A4.1: Direct new growth away from designated flood hazard risk areas and regulate new development to reduce the risk of flood damage to an acceptable level.
    - *HS Policy A4.1.1*: Review new development proposals against current Federal Emergency Management Agency (FEMA) digital flood insurance rate maps and

California Department of Water Resource special flood hazard maps to determine project site susceptibility to flood hazard.

- *HS Policy A4.1.2*: Reserve FEMA designated flood hazard areas for agricultural and natural resource conservation uses along the floodway channels and Tulare Lake Basin.
- *HS Policy A4.1.3*: Determine base flood elevations for new development proposals within or adjacent to 100-year flood zone areas as identified in latest FEMA Digital Flood Insurance Rate Map, to definitively assess the extent of property potentially subject to onsite flood hazards and risks.
- *HS Policy A4.1.4*: Direct new urban growth to existing cities and community districts, or away from New Community Discouragement Areas to avoid flood hazard areas and increased risk to people and property.
- *HS Policy A4.1.5*: Regulate development, water diversion, vegetation removal, and grading to minimize any increase in flood damage to people and property.
- *HS Policy A4.1.6*: New development shall provide onsite drainage or contribute towards their fair share cost of off-site drainage facilities to handle surface runoff.
- *HS Policy A4.1.7*: Consider and identify all areas subject to flooding in the review of all land divisions and development Projects.
- *HS Policy A4.1.8*: Enforce the "Kings County Flood Damage Prevention Ordinance," Chapter 5A of the Kings County Code of Ordinances.

❖ ***RC GOAL A1: Beneficially use, efficiently manage, and protect water resources while developing strategies to capture additional water sources that may become available to ensure long term sustainable water supplies for the region.***

➢ RC OBJECTIVE A1.4: Protect the quality of surface water and groundwater resources in accordance with applicable Federal, state, and regional requirements and regulations.

- *RC Policy A1.4.1*: Evaluate proposed land uses and development projects for their potential to create surface and groundwater contamination from point and non-point sources. Confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products or waste; floating debris; and runoff from the site.
- *RC Policy A1.4.2*: Monitor and enforce provisions to control water pollution contained in the U.S. EPA National Pollutant Discharge Elimination System (NPDES) program as implemented by the California Water Quality Control Board, Central Valley Region.
- *RC Policy A1.4.3*: Require the use of feasible and cost-effective Best Management Practices (BMPs) and other measures designed to protect surface water and groundwater from the adverse effects of construction activities and urban and

agricultural runoff in coordination with the California Water Quality Control Board, Central Valley Region.

- *RC Policy A1.4.4*: Encourage and support the identification of degraded surface water and groundwater resources and promote restoration where appropriate.

- RC OBJECTIVE A1.6: Protect groundwater quality by applying development standards which seek to prevent pollution of surface or groundwater and net loss of natural water features.
  - *RC Policy A1.6.2*: Support measures to ensure that water users do not unreasonably use groundwater resources.
- RC OBJECTIVE C2.2: Ensure that land use decisions are compatible with the control of soil erosion and the maintenance of soil quality.
  - *RC Policy C2.2.1*: Require erosion control measures for any development involving construction or grading near waterways, or on land with slopes over ten percent. Require that improvements such as roads and driveways be designed to retain natural vegetation and topography to the extent feasible.
  - *RC Policy C2.2.2*: Continue to require the application of construction related erosion control measures, including Stormwater Pollution Protection Plans (SWPPP) for all new construction.

Discussion

a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact with Mitigation Incorporated: The Bar E Dairy Project consists of improvements to an existing dairy facility and does not propose any increase in herd size or additional water use beyond current operational levels. The vermifiltration system (BIDA beds) is an upgrade to the facility's existing wastewater management system. The BIDA beds use layered aerobic biological treatment to filter process water, reduce concentrations of ammonia, pathogens, and suspended solids, and produce treated effluent suitable for reuse in irrigation, storage, or recirculation. This represents an improvement over existing conditions and supports nutrient recovery.

The proposed wastewater management improvements include earthen berms for process water separation within existing retention ponds, and lift stations with underground plumbing for proper water conveyance. Stormwater infrastructure is integrated with the wastewater system, featuring grading with minimum slopes in the BIDA bed areas to direct contaminated runoff to on-site retention ponds (Ponds 1, 2A, 2B, and 3) for treatment prior to any reuse or discharge, along with containment berms, drain inlets, and dual inlet drainage boxes. The Project's ground disturbance, including excavation for lift stations (up to 16 feet deep), and wastewater lines (buried at least 2 feet underground), occurs entirely on previously disturbed

agricultural and dairy operational lands where soils have been substantially altered by prior plowing, construction, and manure deposition, reducing risks to native soil structure and vertical contaminant migration. The Project does not propose any new discharge to surface water or groundwater.

Stormwater infrastructure is integrated with the existing system. Grading with minimum slopes will direct all runoff from the BIDA beds and material processing areas to the onsite retention ponds. The Project includes one earthen berm within an existing pond, lift stations, and underground conveyance lines installed on previously disturbed agricultural and dairy lands. Excavation is limited (lift stations to a maximum of approximately 16 feet; lines buried at least 2 feet). Because the soils have already been substantially altered by prior agricultural and dairy use, the risk of new contaminant migration pathways is low.

The depth to groundwater has not been precisely documented in available evaluations. However, the limited excavation depths, previously disturbed soil conditions, and design for full onsite containment provide adequate protection against impacts to groundwater.

Regular maintenance of the BIDA beds and retention ponds is required to maintain treatment performance and prevent solids accumulation or overflows. To ensure this occurs, mitigation measure HYD-1 will be implemented.

With implementation of the project design features and Mitigation Measure HYD-1, the Project will not violate water quality standards or waste discharge requirements and will not substantially degrade surface or groundwater quality. Impacts are *Less Than Significant with Mitigation Incorporated.*

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

Less than Significant Impact: The Bar E Dairy Project is located within the Kings Subbasin and is managed by the Mid-Kings River Groundwater Sustainability Agency. The Project includes water recycling processes via vermifiltration that reduce the demand for groundwater and incorporates existing wastewater retention ponds (Ponds 1, 2A, 2B, and 3) along with integrated stormwater management features, such as grading with minimum slopes and containment berms, that help maintain groundwater recharge by directing runoff to on-site treatment prior to any potential infiltration. The system is designed to prevent significant impacts on groundwater supplies or recharge rates, ensuring that the Project does not interfere with sustainable groundwater management of the basin.

The BIDA beds only treat processed water generated from existing dairy operations, and no freshwater is added to the system. As a result, the Project will not cause any increase in groundwater usage. The Project will not increase groundwater pumping, and all process water treated by the BIDA beds is recycled from existing operations for irrigation, storage, or recirculation. There is no proposed increase in herd size.

By ensuring proper stormwater management and wastewater treatment, the impact on groundwater resources is considered *Less Than Significant.*

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:

i. result in substantial erosion or siltation on- or off-site?

Less than Significant Impact: Construction will involve limited grading and excavation on previously disturbed dairy and agricultural land. All disturbed areas and runoff will be contained within the existing facility and directed to onsite retention ponds. No offsite discharge of sediment or runoff will occur. Standard construction practices and adherence to the Dairy General Order's drainage requirements are sufficient to prevent substantial erosion or siltation. Impacts are *Less Than Significant.*

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less than Significant Impact: The Project's grading and drainage design directs all stormwater and process water to the existing onsite retention ponds, which have sufficient capacity. There is no increase in impervious surface that would generate new runoff volumes beyond what the existing system is designed to handle. Impacts are *Less Than Significant.*

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact: All runoff is retained onsite in the existing ponds. The Project does not create new sources of polluted runoff that would leave the site. The vermifiltration system improves the quality of process water before it enters the ponds. Impacts are *Less Than Significant.*

iv. impede or redirect flood flows?

Less than Significant Impact: The Project is not located in a designated flood zone, as confirmed by the FEMA Flood Insurance Rate Map (Community Panel No. 06031C0100C, June 2009), which indicates that the Site is in an area where no special flood hazards exist.

The Project's grading and retention pond system maintain existing drainage patterns within the facility. Impacts are *Less Than Significant.*

d) In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to Project inundation?

No Impact: The Project Site is inland and not located near any oceanic or large water bodies, eliminating the risk of tsunamis or seiche events. Furthermore, FEMA flood zone data confirms that the Site is not within a 100-year flood hazard zone. The Site's flat topography and engineered stormwater drainage system further reduce the likelihood of flooding or inundation. Since the Project does not face risks from flood hazards, tsunamis, or seiches, there is no potential for pollutant release due to inundation, and the impact is therefore *No Impact.*

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact: The Project complies with all applicable water management regulations, including the Mid-Kings River GSP and RWQCB guidelines. The BIDA and vermifiltration systems are specifically designed to improve wastewater treatment efficiency, reducing the potential for contamination and ensuring compliance with sustainable groundwater management practices.

Furthermore, the Project's operations align with the objectives of the Central Kings GSA, which seeks to protect groundwater resources through enhanced wastewater treatment and stormwater management. Since the Project does not conflict with any existing water quality or groundwater management plans, the impact is considered *No Impact.*

Mitigation Measures

- **Mitigation Measure HYD-1:** A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events.

XI. LAND USE AND PLANNING

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Environmental Setting

The Bar E Dairy Project is located in an unincorporated area of Kings County, California, at 6740 Corona Avenue, Kingsburg, CA 93631. The Project Site is approximately 5 miles southwest of the City of Kingsburg and 6 miles northeast of Hanford. The surrounding land primarily consists of agricultural cropland, dairy operations, and open space, with existing dairy infrastructure to the south, farmland to the north, an existing residence to the west, and the Kings River to the east.

The Kings County General Plan designates the land north, south, and west of the Project Site as General Agriculture (AG-20), which requires a minimum parcel size of 20 acres. Under the Kings County Development Code, this land is zoned AG-20 (General Agricultural-20 District), supporting agricultural activities, including dairy operations and wastewater treatment improvements.

To the east of the Project Site, the land is designated as Natural Resource Conservation (NRC) under the Kings County General Plan and is zoned NRC under the Kings County Development Code. This designation reflects conservation efforts along the Kings River corridor and surrounding natural areas. The Project will not alter existing land use or zoning designations, as it is designed to improve wastewater management at an existing dairy facility while maintaining agricultural land use compatibility.

Regulatory Setting

Kings County Development Code

As shown in Figure 3-9, Kings County has zoned the Project Site and surrounding properties as General Agricultural, 20 acres minimum. This district is intended primarily for application to rural areas of the county which are generally characterized by extensive or intensive agricultural uses of land north of Kansas Avenue where farm sizes have historically been smaller than in other areas of the county. These areas should be reserved for commercial

agricultural uses because of their high-quality soil, existing or potential irrigation works, exclusive agricultural character of the area, or the need to reserve areas for intensive agricultural uses, which by their nature may be incompatible with nonagricultural or quasi-agricultural uses. The minimum parcel size in the AG-20 zoning district is 20 acres in size.

2035 Kings County General Plan

The 2035 Kings County General Plan *Land Use Element* contains the following Goals, Objectives, and Action Plan on flood control and water use that are potentially applicable to the proposed Project:

- **LU GOAL B1: Protect agricultural lands throughout the County, and in particular along the edges of community districts and Urban Fringe by maintaining large parcel sizes and preventing the premature development of incompatible urban uses.**
  - LU OBJECTIVE B1.1: Preserve the integrity of the County's agricultural land resources through agricultural land use designations and other long term preservation policies.
    - *LU Policy B1.1.1*: Designate all agricultural and grazing land outside of planned urban areas as Limited Agriculture, General Agriculture, Exclusive Agriculture, or Natural Resource Conservation.
    - *LU Policy B1.1.2*: Continue to use Williamson Act and Farmland Security Zone contracts on all priority agricultural lands outside the Primary Sphere of Influence of City and Community District boundaries as defined by LAFCO, so long as State "Open Space Subvention Act" funds remain available.
  - LU OBJECTIVE B1.2: Maintain large parcel sizes of agricultural designated land within Urban Fringe areas and around Community Districts to retain viable agricultural production until such time as land is planned and ready for conversion to other uses.
- **LU GOAL B2: Agricultural production continues to be supported and enhanced in areas designated for agriculture, while conflicts between agriculture and non-agricultural uses are minimized.**
  - LU OBJECTIVE B2.1: Recognize agriculture as the highest and best use of agricultural designated land and preserve the right of farmers and agricultural operations to continue customary and usual agricultural practices and operate in the most efficient manner possible.
    - *LU Policy B2.1.1*: The primary use of land designated Limited Agriculture, General Agriculture, and Exclusive Agriculture shall remain devoted to agricultural uses and related support services.
    - *LU Policy B2.1.3*: Maintain implementation of the County's "Right to Farm Ordinance" adopted in 1996 to continue placing landowners on notice that they live within an agricultural County and may be subject to agriculture related inconveniences or discomforts.
  - LU OBJECTIVE B2.2: Minimize and reduce the potential for conflicts between agriculture and non-agricultural urban uses.

- LU OBJECTIVE B2.3: Increase diversified business opportunities within agricultural areas when they are compatible with agricultural operations.
  - *LU Policy B2.3.1*: Value added agriculturally related businesses may be allowed when the business operation is primarily associated with the commercial farming operation. Additional employees may be allowed to work at the business.

❖ **LU GOAL B3: Allow agricultural support services within areas designated General Agriculture.**

- LU OBJECTIVE B3.1: Direct agricultural support services to General Agriculture land use designated areas, while ensuring that services are not harmful to the long-term agricultural use of the land or potential future urban growth if within the Blueprint Urban Growth Boundary.
  - *LU Policy B3.1.1*: Allow permanent agricultural service and processing facilities in areas designated General Agriculture, while restricting these types of services in Limited Agriculture and Exclusive Agriculture designated areas.
  - *LU Policy B3.1.2*: Review of agricultural service establishments under Site Plan Review shall consider the compatibility of such establishments with the potential future urban growth accommodation when proposed within the Blueprint Urban Growth Boundary.

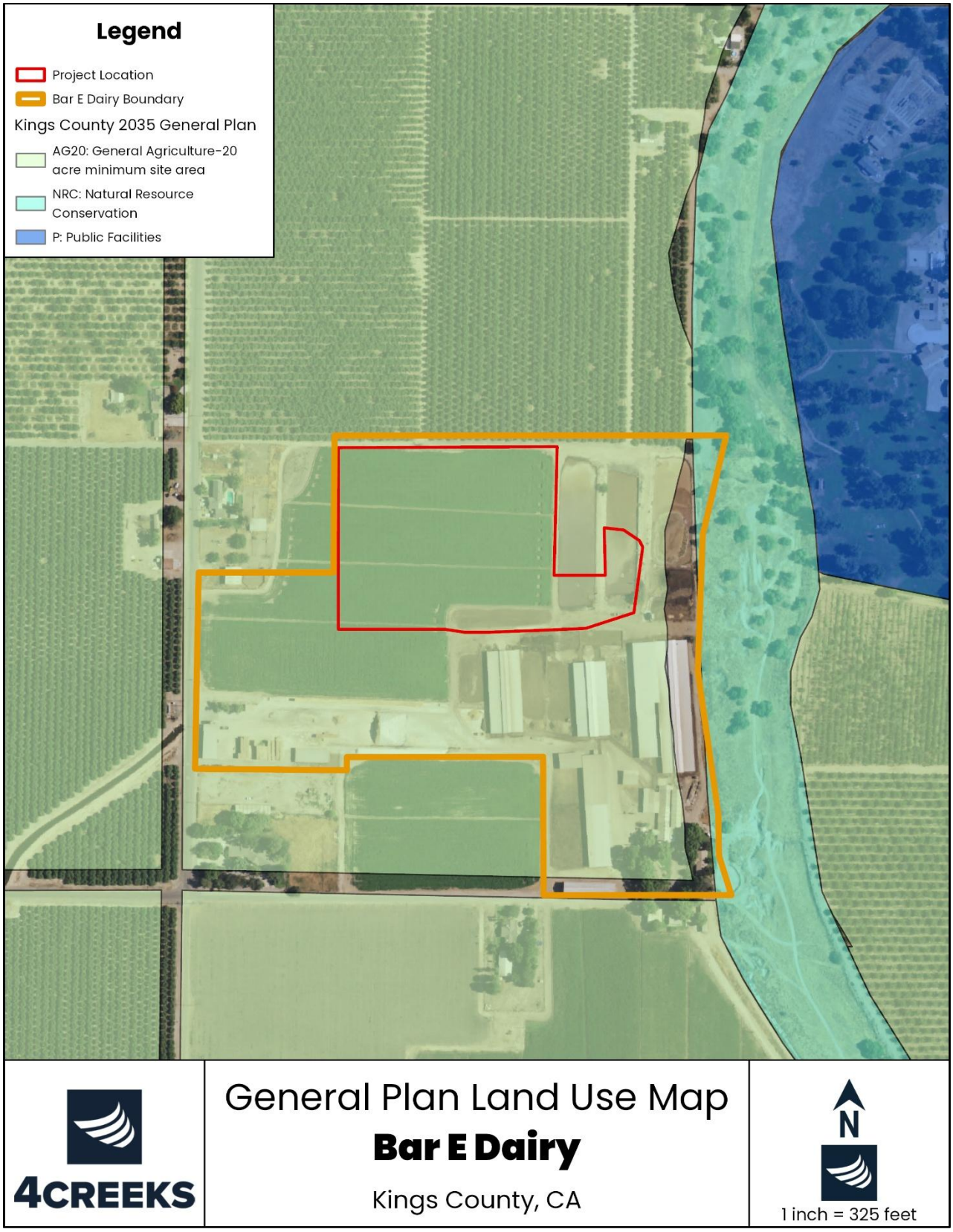


Figure 3-8. Land Use Map

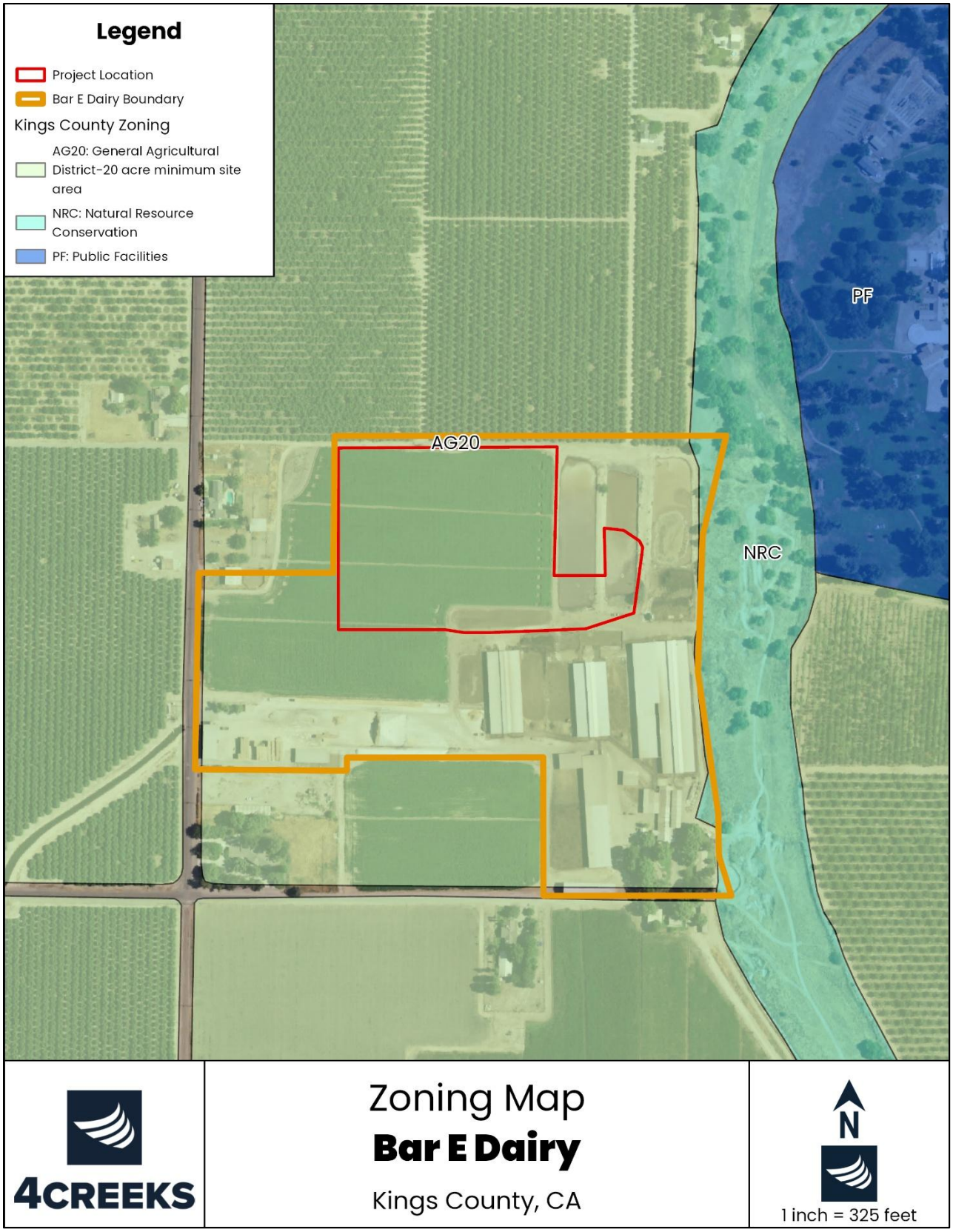


Figure 3-9. Zoning Map

Discussion

a) Would the Project physically divide an established community?

No Impact: The proposed Project will not physically divide an established community. No established communities are nearby, and it does not expand onto any land outside the Site. The proposed Project Site is designated General Agriculture – 20 Acre minimum under the County's General Plan and would operate as agricultural-related uses following Project implementation. There is *No Impact.*

b) Would the Project Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact: The Project Site is located on land designated for agricultural uses. The proposed Project does not conflict with this land use or any other policy or regulation adopted to avoid or mitigate an environmental effect. There is *No Impact.*

XII. MINERAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally - important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Environmental Setting

There are no mineral resource zones in Kings County, and there is no mineral extraction occurring on or adjacent to the proposed Project Site. According to the *Resource Conservation Element* of the Kings County General Plan, Historical mines within the County include an open pit gypsum mine and a mercury mine; however, these mines are now closed.

Regulatory Setting

California State Surface Mining and Reclamation Act

The California State Surface Mining and Reclamation Act was adopted in 1975 to regulate surface mining to prevent adverse environmental impacts and to preserve the state's mineral resources. The Act is enforced by the California Department of Conservation's Division of Mine Reclamation. Under the California State Surface Mining and Reclamation Act of 1975, Mineral Resource Zones (MRZs) are used by the State Geologist to classify land according to its level of significance as a mineral resource. MRZs are used to help identify and protect state mineral resources from urban expansion or other irreversible land uses that might preclude mineral extraction.

The State Geologist has not yet mapped and classified mineral resources in Kings County (CDC 2013). No Mineral Resource Zone (MRZ) designations have been identified within the county. Only limited commercial mining and mineral extraction takes place in Kings County and such activities are currently limited to excavation of sand, gravel, and some hydrocarbon drilling. Historical mining of gypsum, mercury, and hydrocarbons indicated that there may be deposits of these minerals within Kings County (Kings County CDA 2010).

Discussion

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact: The Project Site has no known mineral resources that would be of value to the region and the state's residents. The Project Site is not designated as an important mineral resource recovery Site under the County's General Plan. Therefore, the proposed Project would not result in the loss or impede the mining of regionally or locally important mineral resources. There is *No Impact.*

b) Would the Project result in the loss of availability of a locally - important mineral resource recovery site delineated on a local general plan, specific plan or other lands use plan?

No Impact: No known mineral resources are important to the region, and the Project Site is not designated under the County's General Plan as an important mineral resource recovery Site. Therefore, the proposed Project would not result in the loss of availability of known regionally or locally important mineral resources. There is *No Impact.*

XIII. NOISE

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity or the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive ground-borne vibration or groundborne noise levels?	☐	☐	☑	☐
c) For a Project located within the vicinity of a private airstrip or airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☑

Environmental Setting

Noise is often described as an unwanted sound, while Sound is the variation in air pressure that the human ear can detect. If the pressure variations occur at least 20 times per second, they can be detected by the human ear. The number of pressure variations per second is called the frequency of sound. The frequency is expressed as cycles per second, called Hertz (Hz).

Ambient noise is the "background" noise of an environment. Ambient noise levels on the proposed Project Site are primarily due to agricultural activities and traffic. Construction activities usually result in an increase in sound above ambient noise levels.

Vibration is sound radiated through the ground. Vibration can result from a source (e.g., train operations, motor vehicles, machinery equipment, etc.), causing the adjacent ground to move, creating vibration waves that propagate through the soil to the foundations of nearby buildings. This effect is a ground-borne vibration.

Sensitive Receptors

Noise level allowances for different land types reflect the varying noise sensitivities associated with those uses. Residences, hotels/motels, hospitals, schools, and libraries are some of the most sensitive types of noise intrusion. Therefore, these have more stringent noise level allowances than most commercial or agricultural uses that are not subject to impacts such as

sleep disturbance. The nearest sensitive receptor to the Project Site is a single-family residence located approximately 303 feet from the Project boundary.

Regulatory Setting

2035 Kings County General Plan

The Kings County General Plan, particularly its Noise Element, establishes specific noise level standards for various land uses associated with agricultural operations. Rather than setting a specific maximum exterior noise level for agricultural zones, the Plan emphasizes that agricultural uses are the principal and protected land uses in designated agricultural areas. Under the County's Right-to-Farm Ordinance, typical agricultural activities, including equipment and animal noise, are recognized as occurring 24 hours a day, seven days a week, and are not generally considered nuisances. The Noise Element explicitly states that elevated sound levels from normal agricultural operations are expected and accepted, and due to the variability and seasonal intensity of such activities, quantifying noise impacts using standard thresholds is not considered feasible.

Right-To-Farm Ordinance

The Kings County Right-To-Farm Ordinance acknowledges that agricultural activities, including those at dairy farms, often generate noise from equipment, animals, and other operations. This ordinance provides protections for farmers by ensuring that typical farming noise is not deemed a nuisance, provided it falls within the acceptable noise levels established by the County's General Plan. The ordinance emphasizes that agricultural operations are a vital part of the County's economy and landscape, and therefore, noise generated from these activities is expected and tolerated.

Discussion

a) Would the Project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact: The Bar E Dairy Project is expected to result in only minimal increases in noise levels compared to the existing operations, which already include typical agricultural noise sources such as tractors, trucks, pumps, and livestock. The proposed modifications, including the installation of BIDA beds and vermifiltration systems, will not introduce any new significant noise sources beyond what is typically associated with dairy operations.

According to the Kings County General Plan, noise levels of up to 70 dB (Ldn) are permissible in agricultural areas. The noise levels generated by the Project's operations are expected to remain within this acceptable range. Additionally, the Kings County Right-To-Farm Ordinance recognizes that elevated noise levels from agricultural activities, such as those generated by the Project, are a normal part of farming operations and are not generally considered a nuisance. Since the Project's anticipated noise levels will not exceed the 70 dB (Ldn) threshold,

it will remain in compliance with the General Plan's Noise Element and the Right-To-Farm Ordinance. Therefore, the impact of noise from the Project is considered *Less Than Significant.*

b) Would the Project result in the generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact: The Project does not include activities that would generate significant ground-borne vibration or noise levels during its operational phase. Construction activities associated with the Project, including the use of heavy machinery for the installation of wastewater processing beds and grading of the Site, may produce some temporary vibrations. However, these vibrations will be minor, intermittent, and typical of agricultural construction activities. Sources that may produce perceptible vibrations are provided in Table 3-8.

Equipment	Peak Particle Velocity (PPV) (inches/second) at 25 feet	Approximate Vibration Level (VdB) at 25 feet
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Table 3-8. Vibration Levels Generated by Construction Equipment. Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, September 2018.

Based on published data from the Transit Noise and Vibration Impact Assessment (Federal Transit Administration, 2018), construction equipment such as a large bulldozer would generate 0.089 inches per second Peak Particle Velocity (PPV) at 25 feet, corresponding to an approximate vibration level of 87 VdB. Other equipment, such as loaded trucks and jackhammers, would produce even lower levels of vibration. The most susceptible buildings to vibration damage would require vibration levels exceeding 0.12 inches per second PPV at 25 feet. Since no buildings are located within 25 feet of the Project Site and the maximum vibration levels during construction are below the 0.12 inches per second threshold, the impact is considered *Less Than Significant*.

c) For a Project located within the vicinity or a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

No Impact: The Bar E Dairy Project site is located approximately 9.1 miles northeast of Hanford Municipal Airport. The Project is not situated within an airport land use plan area. Given this distance and the agricultural nature of the dairy operations, the Project will not expose

residents or workers to excessive noise levels associated with dairy operations. Therefore, there is *No Impact*.

XIV. POPULATION AND HOUSING

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Environmental Setting

The United States Census Bureau estimated the population in Kings County to be 152,981 as of July 2022. This is a slight decrease from the 2010 census, which estimated the population in Kings County to be 152,982. The population in Kings County is projected to grow by 15% between 2020 and 2030. Factors that influence population growth include job availability, housing availability, and the capacity of existing infrastructure.

Regulatory Setting

The Kings County population size is regulated by the Kings County Development Code and Land Use Element of the General Plan. These documents regulate the number of dwelling units per acre allowed on residential land uses and establish minimum and maximum lot sizes. These factors have a direct impact on the County's population size.

The Land Use Element of the 2035 Kings County General Plan highlights the importance of preserving agricultural lands from premature urbanization. Policies and goals of the 2035 General Plan include those that encourage growth in more urbanized areas of the County, as well as those that encourage preservation of agricultural uses and industries.

The Housing Element of the 2035 Kings County General Plan includes policies that address housing, employment, and growth management, as well as the adequate provision of resources, facilities, and services. The Housing Element contains a number of goals and policies intended to encourage continuous analysis and evaluation of population trends and housing needs to allow for the development of sites and facilities that sustain population growth in the county; encourage development in existing communities; and acknowledge the governmental, environmental, infrastructure, and land use constraints.

Discussion

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact: The construction and operation of the Project will not result in any substantial unplanned growth or population displacement in Kings County. The Project will not construct or remove any homes. The employees of the dairy are likely to live in Kings County currently and would not directly or indirectly impact population growth. There is *No Impact.*

b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact: The construction and operation of the proposed Project would not result in existing residences being removed, and no individuals would be displaced because of the Project. There is *No Impact.*

XV. PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times of other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☑	☐
ii. Police protection?	☐	☐	☑	☐
iii. Schools?	☐	☐	☐	☑
iv. Parks?	☐	☐	☐	☑
v. Other public facilities?	☐	☐	☑	☐

Environmental Setting

Fire: The Project Site is served by the Kings County Fire Department (KCFD), which operates 10 fire stations within the unincorporated areas of the County and is headquartered in Hanford (2035 Kings County General Plan, Health and Safety Element). The KCFD has 88 full-time employees and responds to over 5,100 calls annually. The KCFD responds to a variety of calls, including structure, vehicle, wildland and grass fires, medical aids, traffic accidents, hazardous materials incidents, and various public assistance calls.

Police: Law enforcement services are provided to the Project Site via the Kings County Sheriff's Department, which is headquartered in the City of Hanford. As noted in the Health and Safety Element of the 2035 Kings County General Plan, the County is currently divided into six beat districts with five Sheriff Sub-stations throughout Kings County. Each beat district has at least one deputy sheriff on duty at all times to serve the unincorporated communities and surrounding County areas. The California Highway Patrol provides traffic enforcement on State Highways and County roads. Kings County is within the California Highway Patrol's Central Division. The nearest CHP office to the Project Site is located in Hanford.

Schools: The proposed Project Site is located within the Kingsburg Joint Union School District. The nearest elementary school within this school district, Kings River-Hardwick Elementary School, is located approximately 4.5 miles southwest of the Project Site.

Regulatory Setting

The Kingsburg Joint Union School District is regulated by the California Department of Education and the Kings County Sheriff's Department is regulated by the California Department of Justice. Objectives and Policies relating to Fire Protection are included in the Health and Safety Element of the 2035 Kings County General Plan.

2035 Kings County General Plan

Objectives and Policies related to Public Services are included in the *Health and Safety Element* of the 2035 Kings County General Plan. These Objectives and Policies are as follows:

- **HS GOAL B1: Promote the health and well being of County residents, and support healthy living environments, physical activity opportunities, medical services, and readily available nutritious food sources.**
  - HS OBJECTIVE B1.4: Provide local health services and emergency medical services in the County's Community Districts to meet the needs of a growing population.
    - *HS Policy B1.4.3*: Ensure that County Fire Department personnel remain trained and equipped to provide emergency medical services to those in need of such services within the unincorporated areas of the County.
- **HS GOAL C2: Support Countywide safety through adequate law enforcement, quality fire protection, emergency preparedness, and accessibility in times of emergency.**
  - HS OBJECTIVE C2.1: Provide sufficient law enforcement presence within each community district and other unincorporated areas of the County to protect residents, businesses, and visitors from personal and property crimes.
  - HS OBJECTIVE C2.2: Provide quality fire protection services throughout the County by the Kings County Fire Department, and Fire safety preventative measures to prevent unnecessary exposure of people and property to fire hazards in both County Local Responsibility Areas and State Responsibility Area.
    - *HS Policy C2.2.1*: Community planning efforts should evaluate the projected need for Fire Department personnel and equipment and necessary funding support to maintain current levels of service as community growth occurs.
    - *HS Policy C2.2.2*: Development proposals and code revisions shall be referred to the County Fire Department for review and comment.
    - *HS Policy C2.2.3*: Use the 1997 Uniform Code for the abatement of Dangerous Buildings. All new structures to be occupied shall be built to current Fire Code Standards.
    - *HS Policy C2.2.4*: Review development proposals according to California Department of Forestry and Fire Protection "Fire Hazard Severity Zone Maps" to determine whether a Site is located within a Very High Fire Hazard Severity Zone and subject to

Wildland-Urban Interface Fire Area Building Standards and defensible space requirements as adopted under Senate Bill 1595 and effective January 1, 2009.

- *HS Policy C2.2.5*: Forward for review and comment on all proposed structures within the State Responsibility Area to the California Department of Forestry and Fire Protection within all State Responsibility Areas.

Discussion

a) Would the Project result in substantial adverse physical impacts associated with the provision or need of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times or other performance objectives for any of the public services:

i. Fire protection?

Less than Significant Impact: The KCFD will provide fire protection services to the Project Site. The Project will not result in the need for new facilities for the KCFD because the Project will not contribute to increased population size within the Kings County Fire Department service area, nor will it extend the boundaries of the Service Area. The impact is *Less than Significant.*

ii. Police protection?

Less than Significant Impact: Kings County will provide police protection services to the Project Site. The Project will not result in the need for new facilities for the KCSD because the Project will not contribute to increased population size within the service area, nor will it extend to the boundaries of the Kings County Sheriff Department Service Area. The impact is *Less than Significant.*

iii. Schools?

No Impact: The Project will not result in additional residents to Kings County and will not increase the number of students in the school district. Therefore, there is *No Impact.*

iv. Parks?

No Impact: Because the Project will not result in additional residents, the Project will not create a need for additional parkland. Therefore, there is *No Impact.*

v. Other Public Facilities?

Less than Significant Impact: Additional development fees may be required to offset the increased demand for public services related to transportation, water, wastewater, groundwater recharge, storm drainage, recreation, and general governmental services. Fees for transportation, water, wastewater, and general government are based on building square

footage and will be calculated before the issuance of building permits. Fees for groundwater recharge and storm drainage are based on Site acreage.

While the payment of development fees could result in the construction of new or altered public service facilities, no specific projects have been identified. As new or expanded public service facilities become necessary, construction or expansion projects would be subject to their own separate CEQA review to identify and mitigate potential environmental impacts. Therefore, the impact is *Less than Significant*.

XVI. RECREATION

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Environmental Setting

Burris Park is the closest park/recreational area to the Project Site and is located approximately 0.2 miles northeast of the Project site. Kings County presently owns and maintains two additional parks (Hickey and Kingston) which are located in the northern portions of the County and surrounded by agricultural areas.

Regulatory Setting

2035 Kings County General Plan

The *Open Space Elemen*t of the 2035 Kings County General Plan contains the following objectives and policies relating to parks and recreation.

- OS OBJECTIVE D1.1: Maintain and enhance the existing County Park system within available funding constraints.
  - *OS Policy D1.1.1*: Apply the "Public/Quasi-Public" land use designation to County parks.
  - *OS Policy D1.1.2*: Community Plans should facilitate the development and maintenance of community park(s) within Community District areas to expand recreational resources available to residents.
  - *OS Policy D1.1.3*: Support community involvement that builds capacity for the long-term maintenance and upkeep of open space and community park space within Community Districts.
- OS OBJECTIVE D1.2: Encourage the development of private recreational facilities compatible with the rural character of Kings County.

- *OS Policy D1.2.1*: Support the establishment of new commercial recreational development, provided it is compatible with surrounding land uses and the intensity of such development does not exceed the ability of the natural environment of the Site and the surrounding area to accommodate it. Such facilities may include, but are not limited to campgrounds, recreational camps, hotels and destination resorts, ball courts and ball fields, skeet clubs and facilities, hunting and fishing clubs, and equestrian facilities.

Discussion

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact: The Project will not result in additional residents, so the Project will not increase the use of existing parkland or create need for additional parkland. Therefore, there is *No Impact*.

b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact: There are no parkland or recreational facilities associated with the Project. The Project will not result in additional residents, and the Project will not create a need for additional parkland. Therefore, there is *No Impact.*

XVII. TRANSPORTATION

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☐	☑

Environmental Setting

Vehicular Access

Vehicular access to the vermifiltration system Project is available via 7th Avenue. This access point provides direct entry to the dairy facility and is used for the transportation of goods, materials, and livestock to and from the Site. The access is designed to accommodate large agricultural vehicles and ensures efficient movement of traffic associated with dairy operations.

Transportation Facilities

Transportation facilities near the proposed Project area include Clinton Avenue and 6th Avenue, which connects to other significant local roads. These roads are designed to support the heavy machinery and transportation vehicles typically used in dairy and agricultural operations. The Site is also relatively close to larger transportation routes (Highways 99 and 43) that connect the agricultural area to the broader region, supporting logistics and supply chain activities vital to the dairy industry. The Kings County Association of Governments (KCAG) is the County's Regional Transportation Planning Agency and Metropolitan Planning Organization.

Regulatory Setting

CEQA Guidelines Section 15064.3, Subdivision (b): Criteria for Analyzing Transportation Impacts

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

(2) Transportation projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.

(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a Project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

Kings County Improvement Standards

The Kings County Improvement Standards are developed and enforced by the Kings County Public Works Department to guide the development and maintenance of County Roads. The cross-section drawings in the County Improvement Standards dictate the development of roads within the county.

2035 Kings County General Pla

The 2035 Kings County General Plan *Circulation Element* establishes policies relating to transportation:

- C OBJECTIVE A1.3: Maintain an adequate Level of Service operation for County roadways and ensure proper maintenance occurs along critical routes for emergency response vehicles.

- *C Policy A1.3.1: Maintain and manage County roadway systems to maintain a minimum Level of Service Standard "D" or better on all major roadways and arterial intersections.*

- *C Policy A1.3.2: Require proposed developments that have the potential to generate 100 peak hour trips or more to conduct a traffic impact study that follows the most recent methodology outlined in Caltrans Guide to the Preparation of Traffic Impact Studies.*

Discussion

a) Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less Than Significant Impact: The Bar E Dairy Project is situated in a rural, unincorporated area of Kings County, where the existing transportation infrastructure primarily supports agricultural traffic. The Project's operations will generate minimal additional truck trips associated with the installation, operation, and routine maintenance activities of the vermifiltration system. These added trips have very little potential to affect the Level of Service (LOS) on local rural roads and nearby intersections.

The proposed modifications to the facility, including the installation of BIDA beds and vermicompost processing areas, are likely to cause periodic minimal increases in truck traffic. For example, servicing the BIDA beds will require two trucks per day over a 14-day period to transport processed wood chips for off-site land application. These impacts are temporary and will not contribute to long-term congestion on local roads. Additionally, operational upgrades such as the relocation of feed storage areas are expected to reduce some truck trips.

A Traffic Analysis (Appendix D) letter was submitted and reviewed by the Kings County Association of Governments (KCAG), indicating that the Project is not expected to degrade the current LOS on county roads of regional significance. There is a *Less Than Significant Impact.*

b) Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

Less than Significant Impact: Section 15064.3(b) establishes criteria for analyzing the transportation impacts of proposed projects, as required under AB 734. Among the changes to the guidelines was the removal of vehicle delay and LOS as the sole basis of determining CEQA impacts. With the implementation of the adopted guidelines, transportation impacts will be evaluated based on a project's effect on VMT. This section states that "vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact."

A Technical Advisory was issued by the Governor's OPR in 2018 to guide the implementation of AB 734. The OPR TA states that small projects generating less than 110 daily trips are estimated to have minimal effect on VMT and are eligible to be screened out from a detailed VMT analysis. The TA letter confirms that the Bar E Dairy Project is not expected to increase the number of trips per day, keeping the VMT consistent with current levels. The Project does not exceed the thresholds that would require a detailed VMT analysis. Therefore, the Project is anticipated to have a *Less Than Significant VMT impact* and could be screened out from a detailed VMT analysis.

c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact: The Project does not introduce new roadways or design features that could create traffic hazards. The existing access points and roadways, including 7th Avenue, are designed to handle the type of agricultural traffic generated by the dairy operations. The Project's design does not include any incompatible uses that would increase traffic hazards. Therefore, there is *No Impact*.

d) Would the Project result in inadequate emergency access?

No Impact: The primary vehicular access to the Project is via 7th Avenue, which is adequately sized and designed to accommodate emergency vehicles. The Project will comply with all relevant public works and fire code standards to ensure that emergency access remains unobstructed and fully functional. As a result, the Project will have *No Impact* on emergency access.

XVIII. TRIBAL CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☑	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐

Environmental Setting

Records Search

Taylored Archaeology performed a Phase I cultural resource assessment for the Bar E Dairy Vermifiltration System Project in Kings County, California. The full report can be found in Appendix C. The cultural resource assessment included a records search with the Southern San Joaquin Valley Information Center, conducting an archaeological pedestrian survey, and preparing an archaeological survey report. The Project is located approximately 0.15 miles northeast of the intersection of South 7th Avenue and Corona Avenue, adjacent to the Kings River, approximately 9 miles northeast of the City of Hanford in Kings County, California. The

Site lies within the U.S. Geological Survey (USGS) 7.5-minute Burris Park, California, topographic quadrangle in Section 15 of Township 17 South, Range 22 East, Mount Diablo Base and Meridian.

The Project proposes to construct a vermifiltration system consisting of 1-foot-high containment walls containing layers of HDPE liner, shade mesh, wood chips, and earthworms, along with a water irrigation and treated wastewater collection system. The vermifilter will treat liquid manure by removing solids and nutrients before the wastewater is land-applied and/or reused throughout the facility for flushing. The proposed Project will also install 12-inch-diameter wastewater lines and lift stations. The Area of Potential Effects (APE) of an undertaking is defined in 36 CFR 800.16(d) as the "geographic area or areas within which an undertaking may directly or indirectly cause changes" in dimension (depth, length, width) and includes all areas directly and indirectly affected by the proposed construction. The total horizontal APE is estimated to be 6.1 acres and encompasses the construction footprint. The vertical APE is anticipated to be up to 16 feet below ground surface for the lift station and 2.5 feet below ground surface for the wastewater pipelines.

Cultural Resources Record Search and Native American Consultation

On August 22, 2024, Taylored Archaeology requested a cultural resource records search from the SSJVIC of the CHRIS at California State University in Bakersfield, California. The purpose of this request was to identify and review prior cultural resource studies and previously recorded cultural resources on or near the APE. The records search included prior cultural resources investigation reports conducted, previously recorded resources within the APE and the 1.0-mile radius around the APE. Also included in research were cultural resource records (DPR forms) as well as the Historic Properties Directory of the Office of Historic Preservation list, General Land Office Maps, Archaeological Determinations of Eligibility list, and the California Inventory of Historic Resources list.

Regulatory Setting

Archaeological Resources

As stated above, archaeological resources may be considered historical resources. If they do not meet the qualifications under the California Public Resources Code 21084.1 or California Code of Regulations Section 15064.5, they are instead determined to be "unique" as defined by the CEQA Statute Section 21083.2. A unique archaeological resource is an artifact, object, or site that: (1) contains information (for which there is a demonstrable public interest) needed to answer important scientific research questions; (2) has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resource (TCR)

Tribal Cultural Resources can include site features, places, cultural landscapes, sacred places, or objects, which are of cultural value to a Tribe. It is either listed on or eligible for the CA Historic Register or a local historic register or determined by the lead agency to be treated as TCR.

Paleontological Resources

For the purposes of this section, "paleontological resources" refers to the fossilized plant and animal remains of prehistoric species. Paleontological Resources are a limited scientific and educational resource and are valued for the information they yield about the history of the earth and its ecology. Fossilized remains, such as bones, teeth, shells, and leaves, are found in geologic deposits (i.e., rock formations). Paleontological resources generally include the geologic formations and localities in which the fossils are collected.

Native American Reserve (NAR)

This designation recognizes tribal trust and reservation lands managed by a Native American Tribe under the United States Department of the Interior's Bureau of Indian Affairs over which the County has no land use jurisdiction. The County encourages adoption of tribal management plans for these areas that consider compatibility and impacts upon adjacent area facilities and plans.

National Historic Preservation Act

The National Historic Preservation Act was adopted in 1966 to preserve historic and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

California Health and Safety Code Sections 7050.5, 7051, And 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5(e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a Project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

Assembly Bill 52

Assembly Bill (AB) 52 establishes a formal consultation process for California tribes as part of CEQA and equates significant impacts on tribal cultural resources with significant environmental impacts. AB 52 defines a "California Native American Tribe" as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission. AB 52 requires formal consultation with California Native American Tribes prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects. AB 52 also requires that consultation address Project alternatives, mitigation measures, for significant effects, if requested by the California Native American Tribe, and that consultation be considered

concluded when either the parties agree to measures to mitigate or avoid a significant effect, or the agency concludes that mutual agreement cannot be reached. Under AB 52, such measures shall be recommended for inclusion in the environmental document and adopted mitigation monitoring program if determined to avoid or lessen a significant impact on a tribal cultural resource.

California Historic Register

The California Historic Register was developed as a program to identify, evaluate, register, and protect Historical Resources in California. California Historical Landmarks are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific, religious, experimental, or other value. For a resource to be designated as a historical landmark, it must meet the following criteria:

- *Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.*
- *Is associated with the lives of persons important in our past.*
- *Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.*
- *Has yielded, or may be likely to yield, information important in prehistory or history.*

Kings County General Plan

- **RC GOAL I1: *Preserve significant historical and archaeological sites and structures that represent the ethnic, cultural, and economic groups that have lived and worked in Kings County.***
  - RC OBJECTIVE I1.1: Promote the rehabilitation or adaptation to new uses of historic sites and structures.
    - *RC Policy I1.1.2*: Direct proposed developments that may affect proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or other similarly purposed advisory body under the Kings County Parks and Recreation Advisory Commission for review and comment.
    - *RC Policy I1.1.3*: Encourage the protection of cultural and archaeological sites with potential for placement on the National Register of Historic Places and/or inclusion in the California Inventory of Historic Resources.
    - *RC Policy I1.1.4*: Refer applications that involve the removal, destruction, or alteration of proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or its successor for recommended mitigation measures.
  - RC OBJECTIVE I1.2: Identify potential archaeological and historical resources and, where appropriate, protect such resources.

- *RC Policy I1.2.1*: Participate in and support efforts to identify significant cultural and archaeological resources and protect those resources in accordance to Public Resources Code 5097.9 and 5097.993.
- *RC Policy I1.2.2*: Continue to solicit input from local Native American communities in cases where development may result in disturbance to sites containing evidence of Native American Activity and/or to sites of cultural importance.
- *RC Policy I1.2.3*: Address archaeological and cultural resources in accordance with the California Environmental Quality Act (CEQA) for discretionary land use applications.
- *RC Policy I1.2.4*: The County will respectfully comply with Government Code §65352.3 (SB18) by conducting formal consultations with tribes as identified by the Native American Heritage Commission on all general plan and specific plan amendments.
- *RC Policy I1.2.5*: The County will respectfully comply with Government Code §6254.(r) and 6254.10 by protecting confidential information concerning Native American cultural resources. For example, adopting internal procedures such as keeping confidential archaeological reports away from public view or discussion in public meetings.
- *RC Policy I1.2.1.6*: The County shall work in good faith with the Santa Rosa Rancheria Tachi Yokut Tribe ("Tribe"), the developer and other parties if the Tribe requests return of certain Native American artifacts from private development projects (e.g., for interpretive or educational value). The developer is expected to act in good faith when considering the Tribe's request for artifacts. Artifacts not desired by the Tribe shall be placed in a qualified repository as established by the California State Historical Resources Commission (see Guidelines for the Curation of Archaeological Collections, May 1993). If no facility is available, then all artifacts shall be donated to the Tribe.

Discussion

a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less Than Significant Impact with Mitigation Incorporation: The Project Site has been reviewed through a cultural resources records search conducted by the Southern San Joaquin

Valley Information Center. The search indicated that there are no previously recorded tribal cultural resources listed or eligible for listing in the California Register of Historical Resources within the Project area or within a half-mile radius.

Additionally, a Sacred Lands File (SLF) search by the NAHC returned negative results, indicating no known sacred sites within the Project area. However, the absence of documented resources does not preclude the possibility of encountering undocumented resources during ground-disturbing activities.

To ensure that any potential tribal cultural resources are protected, Mitigation Measures CUL-1 and CUL-2 will be implemented, requiring that construction activities cease if any unknown resources are encountered. A qualified historical resources specialist will assess the significance of the find and recommend appropriate measures. These steps will ensure that any impacts on tribal cultural resources are mitigated to a *Less Than Significant Impact with Mitigation Incorporation.*

> ***ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less Than Significant Impact with Mitigation Incorporation: Although no tribal cultural resources have been identified within the Project Site, there is a possibility that unanticipated resources could be discovered during construction. To address this, Mitigation Measures CUL-2 and CUL-3 will be implemented, requiring that if human remains are discovered, all work must halt until the County Coroner and, if applicable, the NAHC are notified to ensure proper handling of the remains according to state law.

Furthermore, Mitigation Measure CUL-3 will require a pre-construction cultural survey by a qualified professional to identify any potential resources before any ground disturbance. These measures will ensure that any impacts on significant tribal cultural resources are mitigated to a *Less than Significant Level with Mitigation Incorporation.*

XIX. UTILITIES AND SERVICE SYSTEMS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☑	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☑	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☑

Environmental Setting

Wastewater

The Project is in an unincorporated area of Kings County. Sewer services are not provided in rural areas outside of the service districts.

The Bar E Dairy Vermifiltration System Project will treat dairy facility wastewater by filtering it through the BIDA beds using a linear irrigation system. Worms and microbes break down organic matter and reduce contaminants such as ammonia, pathogens, and suspended solids. The filtration media, combined with these biological processes, effectively improves the wastewater's quality. The treated effluent is then collected and can be safely land-applied or reused in dairy operations, minimizing environmental impact and enhancing nutrient utilization.

The wastewater pipes will be throughout the Site. The grading to ensure proper drainage will occur in the manure handling areas and BIDA beds area based on a grading design with

minimum slopes to prevent standing water and to ensure all stormwater runoff that is contaminated is sent back to the onsite wastewater retention ponds.

The entire system is designed to comply with stringent local and state regulations, including those set by the RWQCB and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Through these comprehensive measures, the Bar E Dairy wastewater management practices are both environmentally responsible and aligned with regulatory standards.

Solid Waste

The Kings Waste and Recycling Authority (KWRA) receives solid waste from 13 service providers who perform solid waste collection and disposal services, including recyclable materials, for all County unincorporated areas, and the cities of Corcoran, Hanford, and Lemoore. Municipal waste generated in these areas is first directed to the KWRA Material Recovery Facility and Transfer Station at 7803 Hanford Armona Road to recycle and reuse materials and divert waste from the landfills. The Materials Recovery and Transfer station facility includes a small but complete Household Hazardous Waste collection station. As of 2006, the KWRA reported that a 48 percent recycling rate above the base year was accomplished countywide (California Integrated Waste Management Board, 2009). The remaining waste is then transferred to the Chemical Waste Management, Inc/Kettleman Hills Facility (CWMI/KHF), which operates both municipal waste and hazardous waste landfills at their Site located east of Interstate 5 along State Route 41. CWMI/KHF opened a new municipal solid waste landfill called B-17 in 2009. This landfill has a design capacity of 18.4 million cubic yards and is scheduled to serve Kings County through 2030. Its permitted daily capacity is 2,000 tons/day. In addition to B-17, the Kings County Waste Management Authority has planned to open another landfill in Kettleman City, which is expected to serve the County through 2047.

Water

The Site's water system is designed to support various needs, including livestock hydration, cleaning, irrigation, and wastewater management. Water is sourced primarily from on-site wells, ensuring a consistent and reliable supply to meet the demands of dairy operations.

The dairy's water management strategy includes the use of recycled water. Treated wastewater from the Biodynamic Aerobic (BIDA) system is reused for irrigation, reducing the need for fresh water and promoting water conservation. This recycled water is carefully monitored to ensure it meets quality standards before being applied to crops or other uses on-site.

Additionally, the stormwater management system is integrated with the water facilities, allowing rainwater to be collected, treated, and reused where possible. This not only helps conserve water but also minimizes runoff that could impact surrounding agricultural lands.

The overall water facilities are designed to comply with local and state regulations, ensuring that water use is efficient and environmentally responsible. This approach aligns with broader sustainability goals and supports the long-term viability of the Bar E Dairy operations.

Stormwater

The stormwater facilities at Bar E Dairy are designed to efficiently manage runoff while minimizing potential environmental impacts. The Project will have ground disturbance from lift stations, process pit, wastewater pipes, and grading to ensure proper stormwater runoff drainage. The Site's topography has been engineered to direct surface water away from structures, channeling it toward designated collection areas to prevent water from pooling around operational zones. This design helps protect the site from erosion, particularly during heavy rainfall. The entire drainage system complies with local and state regulations, including those set by DWR and the SJVAPCD, ensuring that the dairy's operations do not negatively impact the surrounding environment.

Electric Power and Natural Gas

The proposed Project will not require new electrical or natural gas services.

Regulatory Setting

CalRecycle

California Code of Regulations, Title 14, Natural Resources – Division 7 contains all current CalRecycle regulations regarding nonhazardous waste management in the state. These regulations include standards for the handling of solid waste, standards for the handling of compostable materials, design standards for disposal facilities, and disposal standards for specific types of waste.

Central Valley RWQCB – Dairy General Order / Waste Discharge Requirements

The proposed Project Site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) and is part of an existing dairy facility already regulated under the RWQCB's General Order for Existing Milk Cow Dairies (Dairy General Order) / Waste Discharge Requirements. Under the Dairy General Order, all process water and contaminated stormwater generated at the facility, including during construction of improvements, must be retained onsite within the existing wastewater storage ponds. No discharge to Waters of the United States is permitted. Because the Project consists of improvements to an existing dairy facility and all contaminated stormwater will continue to be fully contained onsite in accordance with the Dairy General Order's drainage and retention requirements.

2035 Kings County General Plan

The 2035 General Plan *Resource Conservation Element* includes the following goals, objectives, and policies which would reduce potential impacts on water supply and utility infrastructure:

- **RC GOAL A1: Beneficially use, efficiently manage, and protect water resources while developing strategies to capture additional water sources that may become available to ensure long term sustainable water supplies for the region.**
  - RC OBJECTIVE A1.1: Maintain and Protect Existing Water Supplies
    - *RC Policy A1.1.2*: Review new discretionary development proposals, including new or expanded uses within agricultural zone districts, to ensure that there are adequate

water supplies to accommodate such uses. Projects should provide evidence of adequate and sustainable water availability prior to approval of a tentative map or other land use approval.

- RC OBJECTIVE A1.2: Conserve and reuse water to provide for the efficient use of water resources.
  - *RC Policy A1.2.2*: Require the use of low water consuming, drought-tolerant and native landscaping and other water conserving techniques, such as mulching, drip irrigation and moisture sensors, for new development.
  - *RC Policy A1.2.3*: Continue to support efforts and educational programs intended to reduce water consumption on agricultural lands and enhance groundwater recharge.
  - *RC Policy A1.2.4*: Encourage and support the development of recycled water systems in Kings County.
  - *RC Policy A1.2.5*: Encourage and support the safe use of gray water for landscaping, agriculture, recreation and open space areas.

- **RC GOAL C1: Encourage the conservation of soil resources that are critical to the long-term protection and sustainability of the County's agricultural productivity and economy.**
- **RC GOAL C2: Encourage soil conservation and management practices that maintain the productivity of prime soils throughout the County.**
  - RC OBJECTIVE C2.2: Ensure that land use decisions are compatible with the control of soil erosion and the maintenance of soil quality.
    - RC Policy C2.2.2: Continue to require the application of construction related erosion control measures, including Stormwater Pollution Protection Plans (SWPPP) for all new construction.

Discussion

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or expansion of which could cause significant environmental effects?

Less than Significant Impact: The Bar E Dairy Vermifiltration System Project is situated in an unincorporated area of Kings County, where sewer services are not available in rural areas. The Project includes a comprehensive wastewater management system through a Biodynamic Aerobic (BIDA) system. The BIDA system uses vermifiltration to treat wastewater, significantly reducing pollutants and pathogens, and allowing the treated water to be reused for irrigation on-site. The stormwater management system is also integrated with the wastewater facilities, ensuring that runoff is treated alongside dairy effluent, minimizing environmental impacts.

Given that all wastewater and stormwater will be managed on-site without requiring new or expanded off-site facilities, and the Project does not require new electrical or natural gas

services, the potential environmental effects from construction or relocation of utilities are minimal. Therefore, the impact is considered *Less Than Significant.*

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant Impact: The Project sources water from private on-site wells, which provide a reliable and sufficient supply to support livestock hydration, cleaning, irrigation, and wastewater treatment needs.

A component of the Project's water conservation strategy is the reuse of treated wastewater from the BIDA vermifiltration beds and existing retention ponds (Ponds 1, 2A, 2B, and 3) for irrigation and facility operations, reducing reliance on groundwater extraction. This recycling process ensures that water use is efficient and sustainable, aligning with state water conservation goals under the Sustainable Groundwater Management Act and agronomic best practices for dairies in the San Joaquin Valley.

The Project's water use is relatively low compared to other agricultural operations in the area, and existing water supplies are sufficient to meet demand, even under dry and multiple dry year scenarios over the next 20 years.

Current water usage at the facility is primarily driven by livestock needs (drinking and cooling), facility cleaning and flushing, and irrigation of on-site feed crops, sourced from on-site wells. While specific metered data for the facility is unknown, the BIDA beds are designed to treat operational wastewater and do not generate additional water. By harnessing the digestive activity of worms and microbes, the BIDA beds treat operational wastewater generated from cleaning and animal operations, removing up to 99% of contaminants within four hours and producing high-quality effluent for reuse. This treated water can then be reused for agricultural irrigation, facility operations, or safely applied over fewer acres, helping to meet or exceed nutrient management goals. As a result, the Project supports cleaner water usage onsite, reduces overall water demand, and aligns with SIGMA goals by enabling increased water reuse and more efficient irrigation practices.

In comparison to other agricultural operations in Kings County and the San Joaquin Valley, the dairy's water demand is moderate. For example, almond orchards, a prevalent crop in the region, require approximately 3.5-4 acre-feet of water per acre annually (about 1.1-1.3 million gallons per acre), according to data from the California Water Impact Network (CWIN, 2024). Dairy operations like Bar E Dairy, focused on animal housing, manure management, and limited on-site cropping rather than extensive field irrigation, typically consume less direct water per acre than nut or row crops.

The Project is anticipated to result in a net decrease in water usage, due to the BIDA system's efficient wastewater treatment and reuse capabilities without adding new water inputs or expanding herd size. The BIDA beds and vermicompost processing area handle existing wastewater volumes (from flushing, cleaning, and manure separation) and manure solids,

offsetting any minor increases from relocated mechanical separators, relocated process pit, new lift stations, or grading adjustments, leading to overall lower groundwater extraction compared to baseline conditions. Industry-wide, California dairies recycle water up to four times before final application to crops, further minimizing net demand (U.S. Dairy, 2024).

Existing water supplies are deemed sufficient based on several factors: the BIDA system's reuse minimizes net demand, enhancing sustainability during dry and multiple dry years when groundwater reliance increases across the Valley; the Project's modifications do not expand herd size, introduce water-intensive activities, or alter cropland extent; and on-site wells can meet demands without straining regional resources. These elements ensure that the Project's impact on water supply availability is a *Less than Significant Impact.*

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact: The Project manages all wastewater on-site through a dedicated vermifiltration system, eliminating reliance on external treatment providers. The facility generates wastewater primarily from existing dairy operations, with no additional process wastewater from proposed modifications. The BIDA beds treat this operational water, while extra wastewater arises only from rainfall on the beds, contaminated by manure, and is redirected to the facility's retention ponds. Calculations confirm the ponds' capacity suffices for the non-irrigation period (November 1 to February 28, 120 days), accommodating typical precipitation multiplied by a factor of 1.5, plus runoff from the largest 25-year, 24-hour storm event. This ensures all wastewater is effectively handled without off-site treatment needs. Since the Project does not require municipal or third-party wastewater treatment services, there is *No Impact.*

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact: The proposed Project will include the processing of nutrient-rich vermicompost produced from the vermifiltration beds, along with the processing the manure solids removed from the mechanical separators on-site. The manure solids will undergo a process where they will be placed in a vermicompost material processing area (30,296 SF). Worms will be introduced to break down the manure solids into smaller particles. As they digest the material, they release worm castings rich in nutrients, which enhance microbial activity. The worms' movement through the bed helps aerate the material, promoting the growth of beneficial microorganisms that further break down the organic matter. This process improves the structure of the solids, reduces odor, stabilizes nutrients, and transforms the manure into a more environmentally friendly product.

The manure processing and the vermifiltration beds will produce vermicompost, which will be dried in windrows in the vermicompost processing area. Once the vermicompost reaches its

final state, it will be processed through a screening machine to create various particle sizes, which will be exported off-site for land application.

The Kings Waste and Recycling Authority (KWRA) will handle any additional solid waste, which is minimal and within the capacity of the local waste management infrastructure. The Project will comply with all state and local solid waste management and reduction regulations, ensuring that the impact on local infrastructure is *Less Than Significant.*

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact: The Bar E Dairy Vermifiltration System Project will fully comply with all relevant federal, state, and local regulations related to solid waste management, including the California Integrated Waste Management Act of 1989 (AB 939) and the Kings County Integrated Waste Management Plan. Solid waste management practices at the dairy are designed to meet or exceed these regulatory requirements, ensuring that there is *No Impact.*

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☑	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

Environmental Setting

There are no State Responsibility Areas (SRAs) within the vicinity of the Project Site, and the Project Site is not categorized as a "Moderate," "High," or "Very High" Fire Hazard Severity Zone (FHSZ) by CalFire. This CEQA topic only applies to areas within an SRA or a Very High FHSZ.

Regulatory Setting

Definition

Fire Hazard Severity Zones: Geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189.

Kings County Emergency Operations Plan (2015)

The Kings County Emergency Operations Plan establishes goals, priorities, and strategies in the event of an emergency. The goals and priorities are outlined below.

2.1 Goals, Priorities and Strategies: During the response phase, emergency managers set goals, prioritize actions and outline operational strategies. This plan provides a broad overview of those goals, priorities and strategies, and describes what should occur during each step, when, and at whose direction.

2.1.1 Operational Goals: During the response phase, the agencies that are charged with responsibilities in this plan should focus on the following five goals:

- Mitigate hazards.
- Meet basic human needs.
- Address the needs of people with disabilities and others with access and functional needs.
- Restore essential services.
- Support community and economic recovery.

2.1.2 Operational Priorities: Operational priorities govern resource allocation and the response strategies for the County of Kings and its political subdivisions during an emergency. Below are operational priorities addressed in this plan.

- Save Lives – The preservation of life is the top priority of emergency managers and first responders and takes precedence over all other considerations.
- Protect Health and Safety – Measures should be taken to mitigate the impact of the emergency on public health and safety.
- Protect Property – All feasible efforts must be made to protect public and private property and resources, including critical infrastructure, from damage during and after an emergency.
- Preserve the Environment – All possible efforts must be made to preserve California's environment and protect it from damage during an emergency.

2035 Kings County General Plan

The 2035 General Plan *Health and Safety Element* includes the following policies which would reduce potential impacts from wildfires:

- *HS Policy C2.2.2*: Development proposals and code revisions shall be referred to the County Fire Department for review and comment.

Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact: The Project would not substantially impair an adopted emergency response or evacuation plan. The Project will be reviewed by the Kings County Fire Department to ensure that Project does not impair emergency response or emergency evacuation. The Site is also not located within an SRA or a Very High FHSZ. There is *No Impact.*

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?

No Impact: The Kings County Multi-Jurisdictional Local Hazard Mitigation Plan describes Kings County as mostly flat with a gentle sloping towards a topographic low point in the Tulare Lake Basin. Thus, the topography of Kings County reduces fire hazard throughout most of the County. The Project would not exacerbate wildfire risks and expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. There is *No Impact.*

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than Significant Impact: The Project's construction involves the construction of wastewater processing beds and the necessary infrastructure for wastewater management. All improvements would be subject to County standards and Fire Chief approval. The proposed Project would not exacerbate fire risk and the impact would be *Less than Significant.*

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact: The Project Site is not located in an area designated as a Fire Hazard Severity Zone and the lands associated with the Project Site are relatively flat. Therefore, the Project would not be susceptible to downslope or downstream flooding or landslides because of post-fire instability or drainage changes. There is *No Impact.*

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☑	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation Incorporation: This Initial Study found the Project could significantly impact Air Quality, Biological Resources, Cultural Resources, Hazards & Hazardous Materials, Tribal Cultural Resources, and Hydrology & Water Quality Resources. However, implementing the identified mitigation measures for each respective section would help reduce the impacts to less than significant. There is a *less than significant impact with mitigation incorporated.*

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact: CEQA Guidelines Section 15064(h) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., an increase in population could lead to an increased need for housing, an increase in traffic, air pollutants, etc.). Impacts would be *Less Than Significant.*

c) Does the Project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact with Mitigation Incorporation: The Initial Study identified multiple environmental resource areas where the Project could result in potentially significant impacts on human beings unless specific mitigation measures are implemented.

Based on the above findings, the Project has the potential to cause substantial adverse effects on human beings in the absence of mitigation. However, with implementation of the identified mitigation measures across the affected environmental categories, these impacts can be reduced to less-than-significant levels. Therefore, this checklist item is appropriately categorized as *less than significant with mitigation incorporation*.

XXII. MITIGATION MONITORING AND REPORTING PROGRAM

As required by Public Resources Code Section 21081.6, subd. (a)(1), a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Project in order to monitor the implementation of the mitigation measures that have been adopted for the Project. This Mitigation Monitoring and Reporting Program (MMRP) has been created based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Bar E Dairy Project, LLC in Kings County.

The first column of the table identifies the mitigation measure. The second column names the party responsible for carrying out the required action. The third column, "Timing of Mitigation Measure" identifies the time the mitigation measure should be initiated. The fourth column, "Responsible Party for Monitoring," names the party ensuring that the mitigation measure is implemented. The last column will be used by the County to ensure that the individual mitigation measures have been monitored.

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
Mitigation Measure AIR-1 (Dust Control During Construction). To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained and available upon request.	Project Applicant	Prior to the Start of Project Construction	Kings County	
Mitigation Measure AIR-2 (Odor Management). To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and upon request.	Project Applicant	During Project Operation	Kings County	

Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance). To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for review upon request.	Project Applicant	During Project Operation	Kings County	
Mitigation Measure AIR-4 (Feed Storage Dust Suppression). To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems or windbreaks, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained and available upon request.	Project Applicant	During Project Operation	Kings County	
Mitigation Measure AIR-5 (Agricultural Best Management Practices). To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices.	Project Applicant	During Project Operation	Kings County	
Mitigation Measure AIR-6 (Operational Controls for Vehicles and Equipment). To minimize emissions from expanded operational activities, the Applicant shall limit idling times for vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas.	Project Applicant	During Project Operation	Kings County	
Mitigation Measure BIO-1a (Temporal Avoidance): In order to avoid impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.	Project Sponsor	Ongoing during Construction	Kings County	
Mitigation Measure BIO-1b (Preconstruction Surveys): If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.	Project Sponsor	Within ten Days Prior to the Start of Construction. Only required if construction occurs between March 1 and September 15th	Kings County	

Mitigation Measure BIO-1c (Avoidance of Active Nests): Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.	Project Sponsor	Ongoing during Construction. Only required if construction occurs between March 1 and September 15th	Kings County	
Mitigation Measure BIO-2a (Avoidance): In order to avoid impacts to native nesting birds and raptors, including the loggerhead shrike, the Project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.	Project Sponsor	Prior to the Start of Construction. Only required if construction occurs between February 1 and August 31st	Kings County	
Mitigation Measure BIO-2b (Preconstruction Surveys): If Project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) and surrounding lands within 250 feet for migratory birds, and out to 500 feet for raptors, where accessible. If no active nests are found within the survey area, no further mitigation is required.	Project Sponsor	Prior to the Start of Construction. Only required if Project construction occurs between February 1st and August 31st.	Kings County	
Mitigation Measure BIO-2c (Establish Buffers): Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.	Project Sponsor	Ongoing during Construction. Only required if construction occurs between February 1 and August 31st	Kings County	

Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement. Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County.	Project Sponsor	Prior to the start of construction and ongoing during construction	Kings County	

Mitigation Measure CUL-2: Protection of Cultural Resources. In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project: • Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources. • Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found. • Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA. • Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than- significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken. • Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.				

• Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.				
Mitigation Measure CUL-3: Protection of Buried Human Remains. In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project: • Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission (NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance." • Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center.	Project Sponsor	Prior to the start of construction and ongoing during construction	Kings County	

Mitigation Measure HYD-1: A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events.	Project Sponsor	Prior to the Start of Construction	Kings County	

3.6 SUPPORTING INFORMATION AND SOURCES

1. **2035 Kings County General Plan EIR. Available at: https://www.countyofkings.com/home/showpublisheddocument/5897/635342995809030000**
2. **2035 Kings County General Plan. Available at: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan**
3. **Kings County Development Code. Available at: https://www.countyofkingsca.gov/departments/community-development-agency/information/zoning-ordinance**
4. **2024 CEQA Statute & Guidelines. Available at: https://www.califaep.org/docs/2024_CEQA_Statute_and_Guidelines_Handbook.pdf**

Aesthetics

5. **Caltrans State Scenic Highways. Available at: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa**

Agriculture and Forest Resources

6. **California Department of Conservation Farmland Mapping and Monitoring Program. Available at: https://www.conservation.ca.gov/dlrp/fmmp**
7. **Kings County 2024 Crop Report. Available at: https://www.countyofkingsca.gov/home/showpublisheddocument/38884/638966317394330000**

Air Quality

8. **California Air Resources Board (CARB), 2024. Ambient Air Quality Standards / Air Quality Data Statistics. Available at: https://www.arb.ca.gov/adam/topfour/topfour1.php**
9. **CARB. Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target. Available at: https://ww2.arb.ca.gov/resources/documents/dairy-livestock-sb1383-analysis**
10. **CARB, 2017. California's 2017 Climate Change Scoping Plan. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf**
11. **CARB 2022a. Scoping Plan for Achieving Carbon Neutrality. Available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents**
12. **CARB 2022b. State and Federal Area Designations. Available at: https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations**
13. **CARB. Common Air Pollutants. Available at: https://ww2.arb.ca.gov/resources/common-air-pollutants?corr**
14. **CARB. Air Quality Data Statistics. Available at: https://www.arb.ca.gov/adam/topfour/topfour1.php**
15. **California Clean Air Act. Available at: https://oag.ca.gov/environment/clean-air**

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17. **Miito et al., 2022. Vermifiltration as a Technology for Lowering Dairy Wastewater's Nutritional and Organic-Strength. Available at: https://lpelc.org/vermifiltration-as-a-technology-for-lowering-dairy-wastewaters-nutritional-and-organic-strength/**
18. **Mitloehner et al., 2015. The effect of vermifiltration on gaseous emissions from dairy wastewater. Available at: https://biofiltro.com/wp-content/uploads/2020/04/Effect-of-Vermifiltration-on-Gaseous-Emissions-from-Dairy-Wastewater.pdf**
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20. **SJVAPCD, 2008. Climate Change Action Plan. Available at: https://www.valleyair.org/permitting/climate-change-action-plan/**
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22. **SJVAPCD Ambient Air Quality Standards & Valley Attainment Status. Available at: https://www.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainmnet-status/**
23. **SJVAPCD, 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Available at: https://www.valleyair.org/media/g4nl3p0g/gamaqi.pdf**

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Appendix A:

BioFiltro Vermiculture Wastewater Treatment Air Emissions Report

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TO: John Kenley, Biofiltro General Counsel

FROM: Tom Card, Chuck Schmidt

DATE: July 29, 2024

SUBJECT: BioFiltro Vermiculture Wastewater Treatment
Air Emissions from BioFiltro Biofilter

Background

BioFiltro has developed and implemented a vermiculture based wastewater treatment system that uses porous bed vermiculture filter to treat wastewater. The intention of this project was to quantify the air emissions from the biofilter.

All testing was completed at a dairy located near Turlock, CA. The dairy has a biofilter test facility that has multiple biofilter medias/configurations undergoing evaluation. All samples were taken from the "control" part of the test facility where the biofilter has both conventional construction and conventional operation. Sampling took place on May 29, 2024.

Table 1 presents a summary of the results and emissions calculations for the ethanol emissions. All data and methods are presented in the accompanying Data Validation Technical Memorandum.

Table 1. Air Emissions and Emission Factors for BioFiltro Biofilter.

						Top 5 TO-15 Compounds				
Position	**Units**	**Methane**	**VOC**	**NH3**	**N2O**	**Acetaldehyde**	**Ethanol**	**Acetone**	**Methanol**	**2-Butanone (MEK)**
Biofilter										
1	mg/m2-min	0.40	0.32	1.53	0.71	0.0368	0.0192	0.0052	ND	0.0007
2	mg/m2-min	0.64	0.31	0.85	0.95	0.0216	0.0144	0.0039	ND	0.0010
3	mg/m2-min	0.48	0.27	2.22	0.62	0.0268	0.0109	0.0096	0.0025	0.0015
4	mg/m2-min	0.91	0.37	3.46	1.09	0.0351	0.0053	0.0106	0.0032	ND
Avg	mg/m2-min	0.61	0.32	2.01	0.84	0.0301	0.0125	0.0073	0.0029	0.0011
Area	m2	123.5								
Emissions	**mg/min**	**74.92**	**39.40**	**249**	**104**	**3.72**	**1.54**	**0.90**	**0.35**	**0.13**
	lb/day	0.24	0.13	0.79	0.33	0.0118	0.0049	0.0029	0.0011	0.0004
Inlet Water Surface										
1	mg/m2-min	0.75	0.07	1.55	0.01	0.0038	0.0003	0.0032	0.0010	0.0009
2	mg/m2-min	0.88	0.11	1.51	0.01	0.0101	0.0007	0.0053	0.0005	0.0026
Avg	**mg/m2-min**	**0.81**	**0.090**	**1.53**	**0.01**	**0.0069**	**0.0005**	**0.0043**	**0.0008**	**0.0018**
Outlet Water Surface										
1	mg/m2-min	0.04	0.06	0.11	0.01	0.0057	0.0123	0.0013	0.0008	ND
2	mg/m2-min	0.04	0.04	0.22	0.01	0.0057	0.0081	0.0016	0.0010	0.0003
Avg	**mg/m2-min**	**0.04**	**0.050**	**0.16**	**0.01**	**0.0057**	**0.0102**	**0.0015**	**0.0009**	**0.0003**

CE Schmidt, Ph.D.
Environmental Consultant

AIR EMISSION TESTING OF THE BIOFILTRO WITH DIARY LAGOON WASTEWATER FOR POC, AMMONIA, TACs, TNMHC, AND NITROUS OXIDE

DATA VALIDATION TECHNICAL MEMORANDUM



Prepared for:

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Attachments

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B- Chain of Custody
C- Lab Reports

References

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EXECUTIVE SUMMARY

This Technical Memorandum reports an air emission assessment program intended to generate representative site emissions data for an air emission assessment program to generate representative site emissions data/emission factors from the BIOFILTRO Vermifiltration technology. The project compound list includes total non-methane non-ethane organic carbon (TNMNEOC) by SCAQMD Method 25.3, total non-methane hydrocarbon compounds (TNMHC) by Method TO-12, USEPA Method TO-15 for ethanol and speciated VOCs, ammonia by SCAQMD Method 207.1, greenhouse gases or fixed gases (CO_2, CH_4, O_2 and trace gas helium) also by SCAQMD Method 25,.3, and nitrous oxide by USEPA Method TO-3. The site where the treatment process was installed includes an inlet lagoon receiving flush lane diary waste, a Vermifiltration biofilter unit, and an effluent lagoon. These sources were tested as the target sources as available on site and under typical operating conditions.

The goal of the air emission assessment is intended to provide the SJVAPCD with the data needed to provide data regarding air emissions from this technology. As such, a study was conducted for a variety of project study compounds testing these fugitive air emission sources on a working dairy near Turlock, California.

The technical approach for the assessment is provided in the table below. The test protocol (TP, April 2024) describes the methodology and sampling procedures for area source testing for one area sources using the U.S. Environmental Protection Agency (EPA) surface emission isolation flux chamber (flux chamber). The test program outlined in this protocol is designed to demonstrate compliance with the source testing conditions provided by the SJVAPCD from similar projects conducted by this team.

The primary test objectives are:

1. Sample the area source process surfaces, including the inlet lagoon, the Vermifiltration unit, and the effluent lagoon using the EPA flux chamber technology for:
    a. TNMNEOC
    b. TNMHC
    c. Ammonia
    d. Speciated volatile organic compounds (VOC) including ethanol
    e. Greenhouse gases and trace gas helium
    f. Nitrous oxide
2. Determine the volumetric flow rate at the emission surface for subsequent mass emission rate calculations,
3. Determine the mass emission rates for the project study compounds.

The scope of work for the air emission assessment is given below:

Unit Process	**Flux Testing for Target Compounds**	**Analytes**	**Comment**
Influent Lagoon	2 Total	207.1, 25.3, TO-15, TO-12 TO-3	Two representative test locations; on at inlet and one at outlet
Vermifiltration Biofilter	4 Total	Same	Random selection of grid cell on unit, spatial locations tested on grid
Effluent Lagoon	2 Total	Same	Two representative test locations; on at inlet and one at outlet
Quality Control			
Blank Samples	1	Same	5% minimum or 1 per day
Replicate Samples	1	Same	5% minimum or 1 per day
TOTAL	10	10	

Note the two effluent samples were retested because of a laboratory instrument malfunction.

Target compounds will be analyzed using:

- EPA Method TO-12
- EPA Method TO-15
- SCAQMD Method 207.1
- SCAQMD Method 25.3
- EPA Method TO-3

The project included assessing fugitive air emissions of target compounds from this technology including:

- Two (2) samples on the inlet lagoon receiving from the flush lanes; inlet and outlet of the lagoon as could be accessed (collected in buckets and tested in a wash tub)
- Four (4) samples on a randomly selected grid on the Vermifiltration unit, four locations spatially located with the selected grid (note testing was conducted with the unit in operation
- Two (2) samples on the effluent waste water (collected in buckets and tested in a wash tub)
- Two (2) QC samples; one media blank and one field replicate sample

Methods TO-12, TO-3, and TO-15 laboratory analyses were conducted by Environmental Analytical Services (EAS). Methods 25.3 and Method 207.1 laboratory analyses were conducted by Atmospheric Analysis and Consulting (AAC).

In addition to the flux chamber testing, the lagoon and effluent were screened for pH and total dissolved solids.

A summary of the sources tested is found below:

SOURCE	LOCATION	DESCRIPTION	FLUX
			SAMPLES
Biofilter	1	Wood chip BF	1
Biofilter	2	Wood chip BF	1
Biofilter	3	Wood chip BF	1
Biofilter	4	Wood chip BF	1
Inlet	1	Lagoon, location 1	1
Inlet		Lagoon, location2	1
Effluent	1	Process effluent	1
Effluent	2	Process effluent	1
QC		Replicate and Blank	2
TOTAL			**10**

Note: the effluent flux measurements were repeated given that a lab malfunction for TO-15 (only) was detected for these samples.

This Technical Memorandum describes the methodology and sampling procedures for area source testing using the U.S. Environmental Protection Agency (EPA) surface emission isolation flux chamber (flux chamber) and regulatory approved analytical methods.

A description of the history, background, and operation of the USEPA recommended, dynamic flux chamber flux chamber area source testing technology modified for advective sources is provided in this document, along with sampling strategy, quality control data reporting, and qualified flux data.

Sampling was conducted according to the EPA guidance document for flux chamber testing using a dynamic flux chamber, and all analytical methods were conducted following the regulatory methods needed for the assessment.

The flux data can be used to estimate air emissions of study compounds from these sources. The evaluation of these flux data and emission factors generated from these data are reported elsewhere.

CE Schmidt, Ph.D.
Environmental Consultant

. I. INTRODUCTION

An air emission assessment of project compounds as fugitive air emissions was conducted at a flushed-lane dairy located near Turlock, CA on May 29, 2024. The testing was conducted by Mr. Dr. CE Schmidt, Mr. Josh Abbey, and Ms. April Miskella. Repeat flux measurements were performed on the biofilter effluent samples on July 9, 2024 by CE Scmidt and analyzed only for TO-15 compounds as the original samples were found to have a laboratory malfunction. The purpose of this testing effort was to provide emission data from the significant sources associated with the treatment process which included the lagoon wastewater, the biofilter, and effluent from the biofilter. This Technical Memorandum reports the work conducted and the results of the field testing. These data reported are 'flux' data expressed in mass per time/surface area. Emission results using these data are reported elsewhere.

II. TEST METHODOLOGY

Testing for surface flux was conducted using the SCAQMD modified USEPA recommended Surface Isolation Flux Chamber (USEPA. Radian Corporation, February 1986).

The operation of the surface flux chamber is given below. Note that the standard USEPA flux chamber was used for the influent and effluent sampling and the SCAQMD modified USEPA flux chamber with a 2" stack was used for the biofilter sampling.

1) Flux chamber, sweep air, sample collection equipment, and field documents were located on-site. .
2) The site information, location information, equipment information, date, and proposed time of testing were documented on the Emissions Measurement Field Data Sheet.

3) The exact test location was selected on the stockpiles and the flux chamber was placed on the test surface; the chamber was 'sealed' by forcing the chamber into the waste material and/or pushing up material around the base of the camber to seal the chamber.

4) The sweep air flow rate (ultra high purity air with a trace gas as additive- 10% helium) was initiated and the rotometer, which stabilizes the flow rate, was set at 5.0 liters per minute. A constant sweep air flow rate was maintained throughout the measurement for each sampling location.

5) Flux chamber data were recorded every residence interval (6 minutes) for five intervals, or 30 minutes.

6) At steady-state (assumed to be greater than 5 residence intervals), the screening by colorimetric tube and real-time instrument was performed. After screening, sample

collection was performed by interfacing the sample container (impinger and canister) to the purged, sample line and filling the container with sample gas following sample collection protocols as per the work plan.

7) After sample collection (TNMHC, TNMNEOC, Fixed Gases, NH3, hydrocarbon species, N2O) the sample collection information was documented on the data sheet.

8) After sampling, the flux measurement was discontinued by shutting off the sweep air, removing the chamber, and securing the equipment. The chamber was cleaned by dry wipe with a clean paper towel and the sample lines were purged with UHP air.

9) Sampling locations were recorded on the field data sheet. The equipment was then relocated to the next test location and steps 1) through 8) were repeated.

Photo 1 shows the testing using the flux chamber on the irrigated biofilter surface. Photo 2 shows testing the lagoon water in wash tubs using the flux chamber after the wastewater was collected from the lagoon and placed in the washtubs. The biofilter effluent was tested the same way by collecting the effluent in a bucket as it was produced from the biofilter then transferring the effluent to the wash tubs.

Photo 1. Flux Chamber Testing on the Biofilter.



Photo 2. Flux Chamber Testing on Collected Lagoon Wastewater; Same Approach Was Used with Testing the Collected Biofilter Effluent .



III. QUALITY CONTROL

Control procedures that were used to ensure compliance to the data quality specifications as stated in test protocol are listed and described below. The application and frequency of these procedures were developed to meet the program data quality objectives and were executed without exception.

Field Documentation -- A field notebook containing data forms was maintained for the testing program. Attachment A contains the Emission Measurement Data Sheets.

Chain-of-Custody -- COC forms were used for field data collection; all samples were logged daily. Field data were recorded on the COC forms provided in Attachment B along with field QC data.

Ammonia Analysis by SCAQMD Method 207.1

Laboratory QC Samples- laboratory method blank samples, precision samples (lab spike replicates), and spike recovery samples met the method QC criteria. These data indicate acceptable laboratory method performance. These data are included along with sample results in the laboratory report. The lab ran one (1) continuing sample calibration standard set (opening CV, continuous CV, closing CV, secondary source CV)- all were recovered within the QC limit of ±15%. One (1) method blank sample ran showed non-detect. And the LCS and LCD set along with the matrix spike and matrix spike duplicate were all within method QC standards. These data indicate acceptable laboratory method performance.

Field System Blank – One media (field) blank sample (A-710) was analyzed as a field sample (blind quality control sample). The ammonia media blank sample showed detection near the method detection limit 0.0857 ppmV. These data demonstrate acceptable method performance.

Field Method Precision – One field sample (A-708) was collected in replicate (A-709) and analyzed as a field sample. The sample/replicate pair showed relative percent difference (RPD) value of 9.0 (criteria is 50 RPD). These precision data indicate acceptable method performance.

Total Non-Methane and Non-Ethane Organic Compound Analysis by SCAQMD Method 25.3

Method Quality Control –The method quality control for 25.3 focused on the components of the analysis for the method: canister thermal conductivity detector (TCD) analysis- opening continuing curve validation (CVC), method blank, laboratory control standard/laboratory control duplicate (LCS/LCD), sample duplicate analysis, matrix spile and matrix spike duplicate (MS/MSD) and bracketed CCV); canister flame ionization detector (FID) analysis- opening CCV, method blank, matrix MS/MSD, backflush standard, bracketed standards, and sample/duplicate analysis); vial analysis total organic carbon (TOC) analyzer- opening CCV, method blank, bracketed CCV, second source confirmation; and the helium analysis TCD- opening CCV, method blank, LCS/LCD, sample duplicate, matrix MS/MD, and closing CCV. The number of each analysis component QC functions, minimum per type and number of tests, were met or exceeded depending on the number of samples per batch and the number of days required for the analysis of

the sample batch. According to the laboratory method, all method QC testing was completed in accordance with method specifications and these data indicate acceptable, laboratory method performance.

Field System Blank – One media (field) blank sample (G-710) was analyzed as a field sample (blind quality control sample). The TNMNEOC media blank samples showed non-detection at <1.10 ppmvC. These data demonstrate acceptable method performance.

Field Method Precision – One field sample (G-708) was collected in replicate (G-709) and analyzed as a field sample. The sample/replicate pair showed relative percent difference (RPD) value of 45 (criteria is 50 RPD). These precision data indicate acceptable method performance.

Overall the field QC data indicated acceptable method performance and no data qualification was recommended or used in the reporting of these data.

25.3 Fixed Gas Analysis/TCD- Canister

Opening or Continuing Calibration Verification (CCV)- Two CVC analyses were performed for the single sample batch. All analyses were within QC limits (85%-115%). These data indicate acceptable method performance.

Method Blank Analysis- A total of two method blank analyses were performed for the single sample batch. The analysis were within QC limits (ND). These data indicate acceptable method performance.

Laboratory Control Spike (LCS) and Duplicate (LCD) Analyses- A total of two LCS/LCD analysis were performed for the single sample batch. All LCS analyses were within QC limits (75%-125%), and all LCD analyses were within QC limits (RPD <25). These data indicate acceptable method performance.

Sample and Duplicate Sample Analysis- A total of two sample/duplicate sample analysis were performed for the single sample batches. All sample/duplicate sample analyses were within QC limits (RPD <25). These data indicate acceptable method performance.

Matrix Spike (MS) and Duplicate (MSD) Analysis- A total of two MS and MSD analyses were performed for the single sample batch. All MS analyses were within QC limits (75%-125%), and all MSD analyses were within QC limits (RPD <25). These data indicate acceptable method performance.

Bracketed CCV Analysis- A total of two bracketed CCV analyses were performed for the single sample batch. All analyses were within QC limits (85%-115%). These data indicate acceptable method performance.

25.3 NMNEOC Analysis/FID- Canister

Opening or Continuing Calibration Verification (CCV)- A total of two CCV analyses were performed for the single sample batch. The analysis was within QC limits (90%-110%). These data indicate acceptable method performance.

Method Blank Analysis- A total of two method blank analyses were performed for the single sample batch. The analysis was within QC limits (ND). These data indicate acceptable method performance.

Matrix Spike & Duplicate (MS/MSD) Analyses- A total of two MS/MSD analyses were performed for the single sample batch. All MS analyses were within QC limits (75%-125%), and all MSD analyses were within QC limits (RPD <25). These data indicate acceptable method performance.

Backflush Standards- A total of two backflush standard (3 standards in total) were performed for the single sample batch. All backflush standards were within the QC limits (80%-120). These data indicate acceptable method performance.

Bracketed CCV Analysis- A total of two CCV analyses were performed for the single sample batch. All analyses were within QC limits (90%-110%). These data indicate acceptable method performance.

Sample and Sample Duplicate Analysis- A total of two sample and sample duplicate analysis were performed for the single sample batch. All standard duplicate analyses were within QC limits RPD <25). These data indicate acceptable method performance.

25.3 NMNEOC Analysis/TOC-Vial

Opening or Continuing Calibration Verification (CCV)- One CCV analyses was performed for the single sample batches. All analyses were within QC limits (90%-110%). These data indicate acceptable method performance.

Method Blank Analysis- One method blank analysis was performed for the single sample batch. All analyses were within QC limits (ND). These data indicate acceptable method performance.

Bracketed CCV Analysis- One CCV analysis was performed for the single sample batch. All analyses were within QC limits (90%-110%). These data indicate acceptable method performance.

Second Source Confirmation- One standard second source confirmation analyses was performed for the single sample batches. The second source confirmation analysis was within QC limits (90%-110%). These data indicate acceptable method performance.

Field System Blank – One field media blank sample (G-710) was analyzed as a blind QC sample. TNMNEOC value was <1.10 ppmvC. The method detection limit is 1.0 ppmv carbon as methane

(MDL 1.0 ppmvC) indicating acceptable method performance.

Method Precision – One field sample was collected in replicate (G-708/-709) and analyzed; the RPD value for TNMNEOC showed RPD value of 45 (criteria 50). These data indicate acceptable method performance.

Helium Analysis by SCAQMD Method 25.3

Method Quality Control – All method QC testing was completed in accordance with method specifications and these data indicate acceptable method performance.

Opening or Continuing Calibration Verification (CCV)- One opening CCV analysis was performed for the single batch of sample analyses. All analyses were within QC limits (85%-115%). These data indicate acceptable method performance.

Method Blank Analysis- One method blank analysis was performed for the single batch of sample analyses. The analysis was within QC limits (ND). These data indicate acceptable method performance.

Laboratory Control Spike (LCS) and Duplicate (LCD) Analyses- One LCS/LCD analysis was performed for the single batch of sample analyses. The LCS analysis was within QC limits (85%-115%), and the LCD analysis was within QC limits (RPD <25). These data indicate acceptable method performance.

Sample and Sample Duplicate Analysis- One sample and sample duplicate analysis was performed for the single batch of sample analysis. All standard duplicate analyses were within QC limits (RPD <25). These data indicate acceptable method performance.

Matrix Spike & Duplicate (MS/MSD) Analyses- One MS/MSD analysis was performed for the single batch of sample analyses. The MS analysis was within QC limits (75%-125%), and the MSD analysis was within QC limits (RPD <25). These data indicate acceptable method performance.

Bracketed or Closing CCV Analysis- One CCV analysis was performed for the single batch of sample analysis. The analysis was within QC limits (85%-115%). These data indicate acceptable method performance.

Field System Blank/Recovery Data – One media (field) blank sample (G-710) was analyzed as blind QC samples. Helium recovery values was 98%. These data indicate acceptable method performance.

Method Precision – One field sample (G-708) was collected in duplicate (G-709) and analyzed as a blind QC sample. The RPD values for helium precision was 4.3(criteria 50 RPD). These data

indicate acceptable method performance.

VOC Analysis by USEPA Method TO-15 (focus on ethanol)

Method QC Requirements- Method QC procedures were completed as per method requirements including recovery of surrogate compounds. These data are reported in the method specific lab reports.

Laboratory Method Blank- Two (2) laboratory method blank samples were performed by the laboratory for the list of study compounds. None of the project target compounds were detected in the blank samples. These data indicate acceptable method performance.

Laboratory Precision- Two laboratory LCD sample including 18 compounds were performed by the laboratory. All LCD samples were reported within the criteria of 25 RPD. These data indicate acceptable method performance.

Laboratory Accuracy- Two laboratory LCS sample including 18 compounds were performed by the laboratory. All LCS samples were reported within the criteria of 70-to-130 percent recovery. These data indicate acceptable method performance.

Field System Blank – One media (field) blank sample was prepared in the field (T-710) and analyzed as a field sample (blind QC sample). Ethanol was not detected above the method detection limit at 1.75 ppbv or 3.3 ug/m3. These data demonstrate acceptable method performance.

Field System Precision- One replicate sample pair (T-708/-709) was analyzed for field precision. However sample T-709 had an instrument malfunction. As a result, sample T-708 was replicated and the precision or RPD of the sample analysis was 48 (criteria 50). These data indicate acceptable method performance.

TNMHC Analysis by USEPA Method TO-12 (C1)

Method QC Requirements- Method QC procedures were completed as per method requirements including recovery of surrogate compounds. These data are reported in the method specific lab reports.

Laboratory Method Blank- One laboratory method blank sample wase performed by the laboratory for the list of study compounds. No compounds were detected at a method detection limit of 0.100 ppmv or 0.0656 mg/m3. These data indicate acceptable method performance.

Laboratory Precision- One laboratory LCD sample including 9 compounds was performed by the laboratory. All LCD samples were reported within the criteria of 25 RPD. These data indicate acceptable method performance.

Laboratory Accuracy- One laboratory LCS sample including 9 compounds was performed by the laboratory. All LCS samples were reported within the criteria of 70-to-130 percent recovery. These data indicate acceptable method performance.

Field System Blank – One media (field) blank sample was prepared in the field (T-710) and analyzed as a field sample (blind QC sample). TNMHC as C1 was not detected above the method detection limit at 0.100 ppmv or 0.0656 mg/m3. These data demonstrate acceptable method performance.

Field System Precision- One replicate sample pair (T-708/-709) was analyzed for field precision. The replicate pair showed an RPD of 11 (criteria 50). These data indicate acceptable method performance.

Nitrous Oxide Analysis by USEPA Method TO-3

Method QC Requirements- Method QC procedures were completed as per method requirements including recovery of surrogate compounds. These data are reported in the method specific lab reports.

Laboratory Method Blank- One laboratory method blank samples was performed by the laboratory for nitrous oxide. Nitrous oxide was not detected in the method blank sample at a method detection limit of 0.10 ppmv or 0.19 mg/m3. These data indicate acceptable method performance.

Laboratory Precision- One laboratory LCD sample including 18 compounds was performed for TO-3 by the laboratory. All LCD samples were reported within the criteria of 25 RPD. These data indicate acceptable method performance.

Laboratory Accuracy- One laboratory LCS sample including 18 compounds was performed by the laboratory for TO-3. All LCS samples were reported within the criteria of 70-to-130 percent recovery. These data indicate acceptable method performance.

Field System Blank – One media (field) blank sample was prepared in the field (T-710) and analyzed as a field sample (blind QC sample). Nitrous oxide was not detected above the method detection limit at 0.1 ppmv or 0.19 mg/m3. These data demonstrate acceptable method performance.

Field System Precision- One replicate sample pair (T-708/-709) was analyzed for field precision. However sample T-709 had an instrument malfunction. As a result, sample T-708 was replicated and the precision or RPD of the sample analysis was 48 (criteria 50). These data indicate acceptable method performance.

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Overall the laboratory and field QC data indicated acceptable method performance and no data qualification was recommended or used in the reporting of these data with the exception of sample T-709 for TO-15 analysis.

IV. RESULTS AND DISCUSSIONS

A field program was conducted where air emissions of study compounds were measured from representative and significant air emission sources at the Biofiltro wastewater treatment site near Turlock, CA. Field data sheets for the flux measurements are provided in Attachment A. Four flux tests were performed on the biofilter surface, and two tests were performed each on lagoon water and filter effluent wastewater collected in buckets and testing in wash tubs.

A summary of the field sample collection data and information for the testing conducted during this source test was summarized and is provided in Table 1. All field data for the on-site surface flux chamber testing (screening) for sample date, time, chamber temperature, ammonia, trace gas helium levels, and advective flow from the chamber, along with sample identification and sample ID data are presented in Table 1. The real time concentration data are presented in concentration units (parts per million volume- ppmv or percent).

Reduced surface flux chamber data for SCAQMD Method 25.3 data for TNMNEOC and fixed gases including methane, carbon dioxide, and trace gas helium (for advective flow determination on the biofilter), SCAQMD Method 207.1 data for ammonia, EPA Method TO-12 for TMHC, and EPA Method TO-3 for nitrous oxide are reported in Table 2. Data for the speciated hydrocarbons tested are reported in Table 3. These flux data include measured advective flow rates and these flows are used in the calculation of flux for all study compounds as sampled on the biofilter. Surface flux data are reported are given in flux units of mass per meter squared, minute (ug or mg/m2,min).

Surface flux data for surface area sources are calculated using measured target compound concentrations and flux chamber operating parameter data (i.e., sweep air flow rate of 5.0 liters per minute, advective flow determined from the helium recovery testing as appropriate, and surface area of 0.13 square meters [m^2]). The site emissions can be calculated by multiplying the flux by the surface area of the source. The flux is calculated from the sweep air flow rate Q (cubic meters per minute [m^3/min]), the species concentration Yi (milligrams per cubic meter [mg/m^3)], and exposure to the chamber surface area A (square meters [m^2]), as follows:

$$Fi = (Q)\ (Yi) / (A)$$

Quality control information including sample Chain of Custody sheets and calibration data are reported in Attachment B. Lab reports are reported in Attachment C.

Note that the recommended SCAQMD method bias factor correction of 1.086 for Method 25.3 was applied to these data.

Due to a laboratory malfunction, the biofilter effluent samples were retaken and analyzed for ethanol and other hydrocarbon compounds by Method TO-15. After investigation, the laboratory

determined that the effluent samples originally taken were collected in canisters that were not properly cleaned. As such, the effluent source was resampled and replacement samples were analyzed for the program. These data are reported in Table 2 and replace the TO-15 samples formerly T-708 and T-709 (taken and labeled as SB-101 and SB-102).

V. SUMMARY

An air emission assessment was performed on the Biofiltro Vermifiltration wastewater treatment technology at a dairy located near Turlock, CA. Testing was conducted for the purpose of determining the air emissions of ammonia, TNMNEOC, THC, ammonia, fixed gases, hydrocarbon species with emphasis on ethanol, and nitrous oxide. The following is a summary of activities and results associated with this objective:

- Surface flux measurements of study compounds were measured from the lagoon (inlet to the biofilter), the biofilter surface, and the biofilter effluent wastewater. The testing approach used in the assessment is the USEPA flux chamber technology and approved regulatory analytical methods that quantitatively measures flux at the test surfaces for the project study compounds. A trace gas (helium) was used to measure the advective flow from the biofilter surface. All test procedures followed the protocols provided in the Test Protocol (TP, April 2024).

- Field and laboratory quality control data indicate acceptable data quality for SCAQMD Method 207.1 (ammonia), SCAQMD Method 25.3 (TNMNEOC/fixed gases), and EPA Method TO-15 (hydrocarbon speciation), and EPA Method TO-3 (nitrous oxide). System blank levels were acceptable for all methods and precision between replicate analyses and replicate samples were within the RPD criteria for all methods. Laboratory QC objectives were achieved for all methods, field QC objectives were achieved for all methods. Field precision for SCAQMD Methods 25.3 and 207.1, TO-15, TO-12, and TO-3 analysis showed acceptable field blank and precision. Sample T-708 was replicated for field precision as a result of an instrument malfunction. In addition, the two biofilter effluent samples were recollected and analyzed. These data are reported for TO-15 compounds representing the effluent waste water from the filter.

- The recommended SCAQMD method bias factor correction of 1.086 was applied to the Method 25.3 data as per method.

- The flux data can be used to estimate the emissions of study compounds from the unit process at this facility.

REFERENCES

USEPA. 1986***. "Measurement of Gaseous Emission Rates from Land Surfaces Using an Emission Isolation Flux Chamber, Users Guide."*** EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada, EPA Contract No. 68-02-3889, Work Assignment No. 18, Radian Corporation, February 1986. NTIS # PB 86-223161.

Card, TR, and CE Schmidt, Test Protocol, ***"Vermifiltration Air Emission Assessment", Test Protocol***, Biofiltro, Davis, CA, April 2024.

Table 1. Summary of Sample Collection Information and Field Data, Bifiltro, May 29, 2024.

				TVA Screen														
DATE	**TIME**	**SOURCE**	**LOC**	**THC**	**CH4**	**25.3**	**207.1**	**TO-15**	**TO-12**	**TO-12**	**NH3**	**RH**	**He**	**IN SURF**	**IN AIR**	**OUT SURF**	**OUT AIR**	**COMMENT**
				(ppmv)	**(ppmv)**	**ID**	**ID**	**ID**	**ID**	**ID**	**(ppmv)**	**(%)**	**(%)**	**Deg F**	**Deg F**	**Deg F**	**Deg F**	
5/29/2024	818	Biofilter	1	1.1	1.1	G-701	A-701	T-701	T-701	T-701	20	100	2.9	74	73	68	72	One minute irrigation every 30 minutes
5/29/2024	818	Biofilter	2	2.9	3.1	G-702	A-702	T-702	T-702	T-702	50	100	3.0	72	75	65	68	One minute irrigation every 30 minutes
5/29/2024	818	Biofilter	3	1.6	1.9	G-703	A-703	T-703	T-703	T-703	30	100	2.4	71	74	73	68	One minute irrigation every 30 minutes
5/29/2024	818	Biofilter	4	1.9	2.2	G-704	A-704	T-704	T-704	T-704	40	100	2.2	72	72	66	66	One minute irrigation every 30 minutes
5/29/2024	1057	Inlet Water	1	27	28	G-705	A-705	T-705	T-705	T-705	70	100	8.2	76	80	81	76	Inlet water from lagoon prior biofilter, Tub #1
5/29/2024	1057	Inlet Water	2	30	31	G-706	A-706	T-706	T-706	T-706	60	100	7.4	79	78	76	66	Inlet water from lagoon prior biofilter,Tub #2
5/29/2024	1245	Effluent	1	2.1	2.4	G-707	A-707	T-707	T-707	T-707	20	57	6.6	80	85	82	83	Effluent draining from biofilter,Tub #1
5/29/2024	1245	Effluent	2	1.8	2.2	G-708	A-708	T-708	T-708	T-708	10	86	8.2	80	82	81	75	Effluent draining from biofilter, Tub #2
5/29/2024	1245	Replicate	2	1.8	2.2	G-709	A-709	T-709	T-709	T-709	10	86	8.2	80	82	81	75	Replicate Sample
5/29/2024	1400	Media Blank	NA	NA	NA	G-710	A-710	T-710	T-710	T-710	NA	NA	NA	NA	NA	NA	NA	Media Blank

Table 2. Summary of Sample Concentration Data (mg/m3) and Flux Data (mg/m2,min).

DATE	SOURCE	LOC	25.3	207.1	TO-15	TO-12	TO-3	NH3	NH3	Ethanol		N2O		TNMHC C1		Methane		TNMNEO		TNMNEO		NMNEO Trap		NMN Tan
			ID	ID	ID	ID	ID	(ppmv)	(mg/m3)	(mg/m3)		(mg/m3)		(mg/m3)		(ppmvC)		(ppmvC)		(mg/m3)		(ppmv)		(ppm
5/29/2024	Biofilter	1	G-701	A-701	T-701	T-701	T-701	9.96	6.92	0.0870		3.23		0.1008	J	2.74		**2.23**		**1.46**		2.05		1.30
5/29/2024	Biofilter	2	G-702	A-702	T-702	T-702	T-702	4.85	3.37	0.0572		3.79		0.0656	U	3.89		**1.91**		**1.25**		1.76		1.22
5/29/2024	Biofilter	3	G-703	A-703	T-703	T-703	T-703	11.70	8.13	0.0399		2.26		0.1289	J	2.71		**1.52**		**0.993**		1.40		1.25
5/29/2024	Biofilter	4	G-704	A-704	T-704	T-704	T-704	11.50	7.99	0.0123		2.51		0.1254	J	3.22		**1.31**		**0.855**		1.21		1.25
5/29/2024	Inlet Water	1	G-705	A-705	T-705	T-705	T-705	58.00	40.31	0.0069	J	0.36	J	0.0776	J	29.9		**2.80**		**1.83**		2.58		1.49
5/29/2024	Inlet Water	2	G-706	A-706	T-706	T-706	T-706	56.40	39.20	0.0175		0.24	U	0.6493		35.0		**4.39**		**2.87**		4.00		1.34
5/29/2024	Effluent	1	G-707	A-707	T-707	T-707	T-707	4.20	2.92	0.3187		0.33	J	0.2204		1.6	ND	**2.45**		**1.60**		2.26		1.34
5/29/2024	Effluent	2	G-708	A-708	T-708	T-708	T-708	8.10	5.63	0.2107		0.28	J	0.0684	J	1.7	ND	**1.52**		**0.993**		1.40		1.37
5/29/2024	Replicate	2	G-709	A-709	T-708R	T-709	T-708R	7.40	5.14	NA		0.32	J	0.0879	J	1.5	ND	**2.40**		**1.57**		2.21		1.25
5/29/2024	Media Blank	NA	G-710	A-710	T-710	T-710	T-710	0.09	0.06	0.00330	U	0.22	U	0.0656	U	1.2	ND	**1.10**	ND	**0.718**	ND	0.13	ND	0.97

25.3- total non methane non ethane organic (TNMNEO) carbon

TNMNEO- Total non-methane hydrocarbon reported as methane (carbon # = 1)

Flux = (concentration, mg/m3)(total flow, m3/min)/(surface area, 0.13 m2) = mg/m2,min-1

NA- not applicable

ND- not detected

T-709 out

T-208 new T-208R

SB-101 Retest

Effluent SB-102 Retest

Table 2. Summary of Sample Concentration Data (mg/m3) and Flux Data (mg/m2,min).

DATE	SOURCE	LOC	EO k	CO2	O2	He	Total Flow	Total Flow	TNMNEO		NH3		TNMHC C1		Methane		N2O		Ethanol	
			nv)	(ppmv)	(%)	(%)	(lpm)	(m3/min)	Flux		Flux		Flux		Flux		Flux		Flux	
5/29/2024	Biofilter	1	ND	2,260	21.2	1.74	28.7	0.0287	**0.32**		**1.53**		**0.022**	J	**0.40**		**0.71**		**0.019**	
5/29/2024	Biofilter	2	ND	3570	20.9	1.53	32.7	0.0327	**0.31**		**0.85**		**0.016**	U	**0.64**		**0.95**		**0.014**	
5/29/2024	Biofilter	3	ND	1510	21.2	1.41	35.5	0.0355	**0.27**		**2.22**		**0.035**	J	**0.48**		**0.62**		**0.011**	
5/29/2024	Biofilter	4	ND	1324	21.1	0.889	56.2	0.0562	**0.37**		**3.46**		**0.054**	J	**0.91**		**1.09**		**0.005**	
5/29/2024	Inlet Water	1	ND	524	22.7	NA	5.0	0.005	**0.070**		**1.55**		**0.003**	J	**0.75**		**0.014**	J	**0.0003**	
5/29/2024	Inlet Water	2	ND	508	22.3	NA	5.0	0.005	**0.11**		**1.51**		**0.025**		**0.88**		**0.009**	U	**0.0007**	
5/29/2024	Effluent	1	ND	195	22.2	NA	5.0	0.005	**0.062**		**0.11**		**0.008**		**0.04**	ND	**0.013**	J	**0.012**	
5/29/2024	Effluent	2	ND	159	22.6	NA	5.0	0.005	**0.038**		**0.22**		**0.003**	J	**0.04**	ND	**0.011**	J	**0.008**	
5/29/2024	Replicate	2	ND	164	22.6	NA	5.0	0.005	**0.060**		**0.20**		**0.003**	J	**0.04**	ND	**0.012**	J	**NA**	
5/29/2024	Media Blank	NA	ND	1.2	22.9	NA	NA	0.005	**0.028**	ND	**0.00**		**0.003**	U	**0.03**	ND	**0.008**	U	**0.000**	

25.3- total non methane non
TNMNEO- Total non-methan
Flux = (concentration, mg/m3
NA- not applicable
ND- not detected

Table 3
Biofiltro TO-15 Dats
Detected Compounds Only

	Acetaldehyde	Ethanol	Acetone	Methanol	2-Butanone (MEK)	Toluene	Chloromethane	Vinyl acetate	Benzene	Carbon disulfide	Naphthalene	Propylene	Isopropyltoluene
	75-07-0	64-17-5	67-64-1	67-56-1	78-93-3	108-88-3	74-87-3	108-05-4	71-43-2	75-15-0	91-20-3	115-07-1	99-87-6
Detected Compounds (ug/m3)													
T-701	166.66	86.97	23.47	ND	3.25	ND	7.41	ND	3.46	ND	3.26	2.02	ND
T-702	86.01	57.24	15.44	ND	3.83	ND	8.3	ND	3.35	2.76	1.45	ND	ND
T-703	98.16	39.92	35.12	9.09	5.5	ND	6.65	ND	3.72	ND	1.77	ND	3.58
T-704	81.18	12.31	24.5	7.45	ND	ND	6.04	ND	2.65	ND	1.41	ND	ND
T-705	97.88	6.88	84.3	25.73	24.35	6.83	ND	ND	5.06	21.76	4.01	3.24	ND
T-706	261.85	17.54	138.8	14.22	66.91	8.51	18.05	ND	5.51	ND	2.72	4.79	7.49
T-707	336.47	16.94	69.47	35.08	13.44	ND	ND	ND	4.47	ND	3.05	3.18	ND
S-101	148.53	318.68	34.92	20.39	ND	ND	ND	ND	3.23	2.08	ND	ND	ND
S-102	147.12	210.66	42.17	25.12	7.16	46.87	ND	39.55	3.43	ND	ND	3.39	ND
T-708	89.95	205.53	53.65	ND	10.23	ND	ND	ND	3.18	ND	ND	ND	ND
T-708R	101.24	125.42	43.06	ND	6.32	ND	ND	ND	4.4	ND	ND	2.37	ND
T-710	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Flux (mg/m2-min)													
T-701	0.0368	0.0192	0.0052	ND	0.0007	ND	0.0016	ND	0.0008	ND	0.0007	0.0004	ND
T-702	0.0216	0.0144	0.0039	ND	0.0010	ND	0.0021	ND	0.0008	0.0007	0.0004	ND	ND
T-703	0.0268	0.0109	0.0096	0.0025	0.0015	ND	0.0018	ND	0.0010	ND	0.0005	ND	0.0010
T-704	0.0351	0.0053	0.0106	0.0032	ND	ND	0.0026	ND	0.0011	ND	0.0006	ND	ND
T-705	0.0038	0.0003	0.0032	0.0010	0.0009	0.0003	ND	ND	0.0002	0.0008	0.0002	0.0001	ND
T-706	0.0101	0.0007	0.0053	0.0005	0.0026	0.0003	0.0007	ND	0.0002	ND	0.0001	0.0002	0.0003
T-707	0.0129	0.0007	0.0027	0.0013	0.0005	ND	ND	ND	0.0002	ND	0.0001	0.0001	ND
S-101	0.0057	0.0123	0.0013	0.0008	ND	ND	ND	ND	0.0001	0.0001	ND	ND	ND
S-102	0.0057	0.0081	0.0016	0.0010	0.0003	0.0018	ND	0.0015	0.0001	ND	ND	0.0001	ND

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ATTACHMENT A

EMISSION MEASUREMENT DATA SHEETS

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS HS

LOCATION BIOFILTRO - Fanelli

SURFACE DESCRIPTION BIOFILTER LOCATION #1

CURRENT ACTIVITY

INSTRUMENT TYPE DYNA 1000 I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. _____ PHOTO TAKEN: Yes ☒ No ☐ _____

CHAMBER SEAL Y CONDENSATION: Yes ☒ No ☐ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', ____ mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment IRRIGATION @ DAIRY WW/FRESH LAGOON

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐ _____

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR UAP the CC EB 0 H9305 SUPPLIER OXARC PSIG START 800 PSIG STOP _____

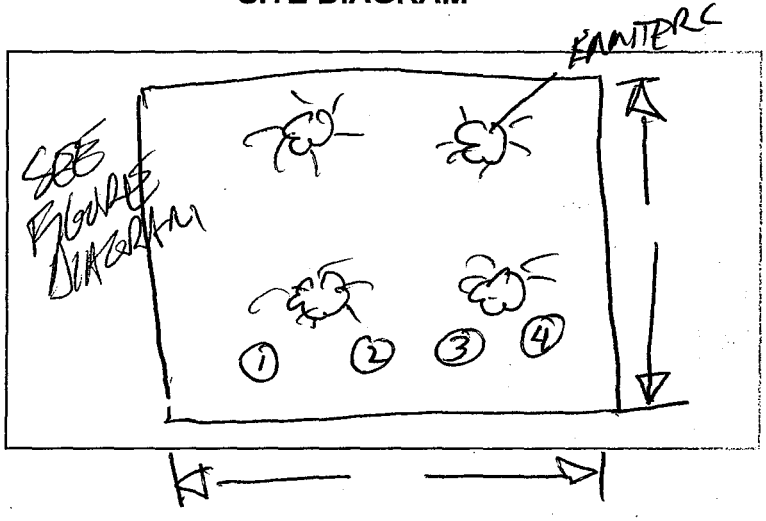
Time	99.5% He Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter ppmv	NH_3 ppmv	He %		
			Surf	Air	Surf	Air					
0748	5	0									
0754	5	1								G701	#001927
0800	5	2					NF F			T701	#650
0806	5	3	74	73	68	72	1.1/1.1	20	2.9	Δt	~~for~~ 0910
0812	5	4								A701	0916
0818	5	5									

COMMENTS:

CO_2 500
RH 100%

IRRIGATION CYCLE
CHAMBERS DOWN
CYCLE "ON"
IRRIGATION MINUTES
CYCLE LENGTH

SITE DIAGRAM



SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CES

LOCATION *BIOFILTRO - Fanelli*

SURFACE DESCRIPTION BIO FILTER LOCATION #2

CURRENT ACTIVITY

INSTRUMENT TYPE TVA 1000 I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. _____ PHOTO TAKEN: Yes ☒ No ☐ _____

CHAMBER SEAL Y CONDENSATION: Yes ☒ No ☐ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☐ P.Sun ☐ Cloudy ☐ Wind at 5', ____ mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment IRRIGATION

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐ _____

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR UAP+He CC EB 0149305 SUPPLIER OXARC PSIG START 800 PSIG STOP _____

Time	9.95% He Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	He%		
			Surf	Air	Surf	Air					
0748	5	0									
0754	5	1								G702	# ~~779~~ 001847
0800	5	2					NF F			T702	#779
0808	5	3	72	75	65	68	2.9/3.1	50	3.0	Δt	0918
0812	5	4								A702	0925
0818	5	5									

COMMENTS:

CO2 504
R.H.% 100

0758 1ST CYCLE SOAKED

1min / every 30 mins

0829-0830 Irrigation on
0858-0859 " "

WIND INCREASED FROM 0-5MPH TO 5-12 MPH AT 0825
• 15-20 AT 0840

SITE DIAGRAM

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CES

LOCATION BIOFILTRO - Fanelli

SURFACE DESCRIPTION BIOFILTER LOCATION #3

CURRENT ACTIVITY

INSTRUMENT TYPE MA 1000 I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. _____ PHOTO TAKEN: Yes ☒ No ☐ _____

CHAMBER SEAL _____ CONDENSATION: Yes ☒ No ☐ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☐ P.Sun ☐ Cloudy ☐ Wind at 5', ____ mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment IRRIGATION

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐ _____

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR UAP+Ae CC EB 0131680 SUPPLIER OXARC PSIG START 700 PSIG STOP _____

Time	10.04% Ae Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	Ae%		
			Surf	Air	Surf	Air					
0748	5	0									
0754	5	1								G703	001845
0800	5	2					NF F			T703	#654
0806	5	3	71	74	73	68	1.6/1.9	30	2.4	At	0920
0812	5	4								A703	0924
0818	5	5									

COMMENTS:

CO2 512
RH% 100%

SITE DIAGRAM

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CES

LOCATION *BIOFILTRO - Fanelli*

SURFACE DESCRIPTION BIOFILTER LOCATION #4

CURRENT ACTIVITY

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. _____ PHOTO TAKEN: Yes ☒ No ☐ _____

CHAMBER SEAL _____ CONDENSATION: Yes ☒ No ☐ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☐ P.Sun ☐ Cloudy ☐ Wind at 5', ____ mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment IRRIGATION

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐ _____

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR UAP+He CC EB 0131680 SUPPLIER OXARC PSIG START 700 PSIG STOP _____

Time	10.04% He Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	He%		
			Surf	Air	Surf	Air					
0748	5	0									
0754	5	1								G704	#001810
0800	5	2					NF F			T704	#897
0806	5	3	72	72	66	66	1.9/2.2	40	2.2	At	0927
0812	5	4								A704	0931
0818	5	5									

COMMENTS:

CO2 522
RH% 100

SITE DIAGRAM

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CBS

LOCATION BIOFILTRO - Fanelli L#1

SURFACE DESCRIPTION INLET WASTE WATER

CURRENT ACTIVITY

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. F PHOTO TAKEN: Yes ☒ No ☐

CHAMBER SEAL Y CONDENSATION: Yes ☐ No ☒ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', 15-20 mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment

PRIOR CHAMBER CLEANING: Full Wash ☒ Wet Wipe ☐ Dry Wipe ☐ None ☐

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR 10.4% HE cc EB. 0131680 SUPPLIER OXARC PSIG START _____ PSIG STOP _____

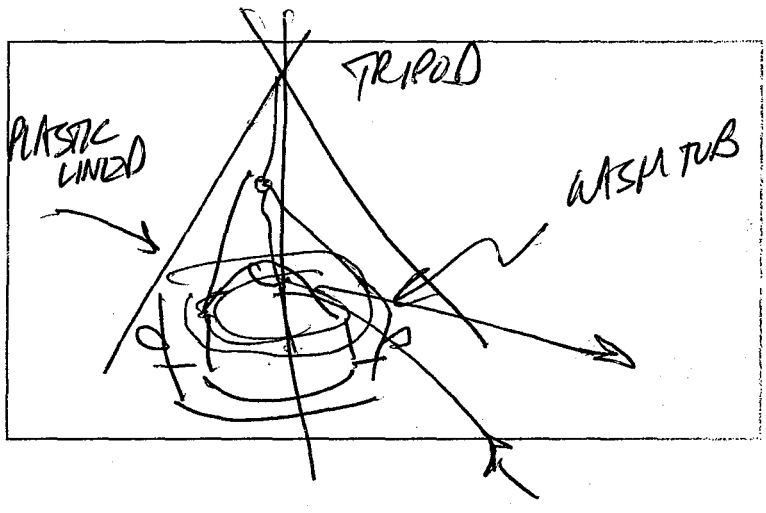
Time	Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	HE%		
			Surf	Air	Surf	Air					
1027	5	0								T-705	001866
1033	5	1								T-705	792
1039	5	2								~~DFAT~~	~~1140 1150~~
1045	5	3	76	80	81	76	27/28	~~140~~ 70	8.2%	A-705	1200 - 1204
1051	5	4									
1057	5	5									

CO2 482 RH% 100

COMMENTS:

1024 Water in Bucket (Inlet water)
1015 Bucket out

SITE DIAGRAM



SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CBS

LOCATION BIOFILTRO - Fanelli L#2

SURFACE DESCRIPTION INLET WASTE WATER

CURRENT ACTIVITY

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. D PHOTO TAKEN: Yes ☒ No ☐

CHAMBER SEAL Y CONDENSATION: Yes ☐ No ☒ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', 15-20 mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR _____ CC _____ SUPPLIER ONARC PSIG START _____ PSIG STOP _____
9.95% HE EB 0149305

Time	Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	HE%		
			Surf	Air	Surf	Air					
1027	5	0								G-706	DD2071
1033	5	1								T-706	6600
1039	5	2								A+	1146 1158
1045	5	3	79	78	76	66	30/31	60	7.4	A-706	
1051	5	4									
1057	5	5									

COMMENTS: Co2 482 RH% 100

SITE DIAGRAM

TRAP TUB

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS CBS

LOCATION BIOFILTRO - Fanelli Loc #1

SURFACE DESCRIPTION BF OUTLET WATER

CURRENT ACTIVITY

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. F PHOTO TAKEN: Yes ☒ No ☐

CHAMBER SEAL Y CONDENSATION: Yes ☐ No ☒ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', 15-20 mph Wind at Seal, ___ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment NO

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☐ New ☐ Used ☐

SWEEP AIR _____ CC _____ SUPPLIER OXARC PSIG START _____ PSIG STOP _____
HE 9.92% 6B U0041675

Time	Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	HE %		
			Surf	Air	Surf	Air					
1215	5	0								G-707	001853
1221	5	1								T-707	505
1227	5	2								A+	1334 - 1340
1233	5	3	80	85	82	83	21/2.4	20	6.6	A-707	
1239	5	4									
1245	5	5									

COMMENTS:

CO2 473
RH % 57

1213 EFFluent H2O added to tubs

SITE DIAGRAM

SURFACE FLUX MEASUREMENT DATA FORM

DATE 5/29/24 SAMPLERS AES

LOCATION *BIOFILTRO - Fanelli*

SURFACE DESCRIPTION SF OUTLET WATER Loc #2

CURRENT ACTIVITY

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☒ REPLICATE MEASUREMENTS ☒
AMBIENT CONCENTRATIONS

CHAMBER I.D. D PHOTO TAKEN: Yes ☒ No ☐

CHAMBER SEAL Y CONDENSATION: Yes ☐ No ☒ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', 5-20 mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐

SAMPLE LINE: BACK FLUSHED PRIOR TO START ☐ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☒

SWEEP AIR _____ @ _____ SUPPLIER OXARC PSIG START _____ PSIG STOP _____

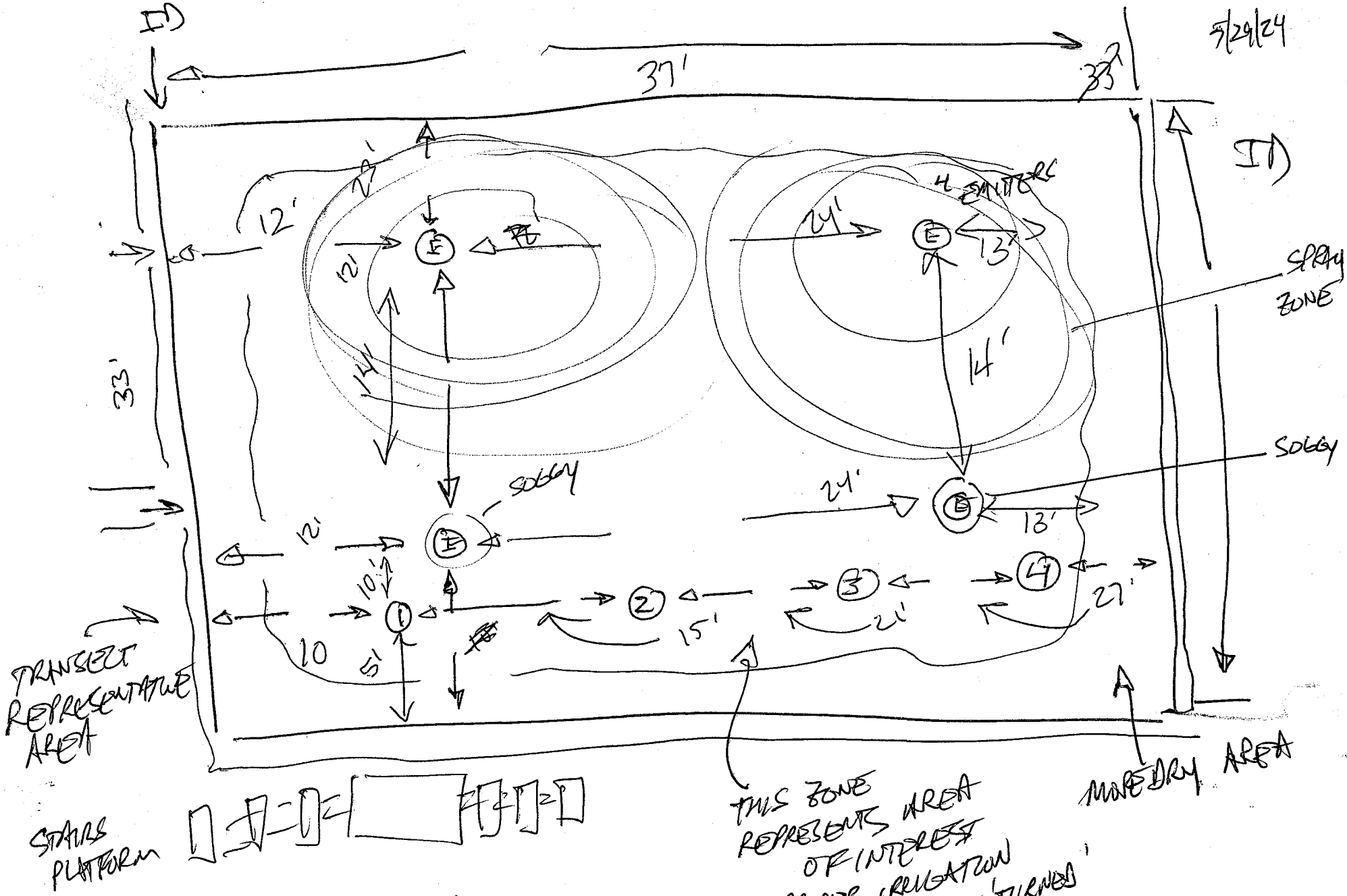
HE% 9.92% HE 1100416075

Time	Sweep Air (L/min)	Res. Number	Temperature (°F)				Real-Time (ppmv)			Sample Number	Comments
			Chamber		Ambient		FID No Filter/ Filter	NH_3	HE %		
			Surf	Air	Surf	Air					
1216	5	0								G-708	002120
1222	5	1								T-708	885
1227	5	2								A-708	
1233	5	3	80	82	81	75	1.8/2.2	10	8.7	A+	1339 - 1344
1239	5	4								~~T709~~	~~631~~
1245	5	5								~~708~~	~~885~~
										G709	#001853
										T709	# 505
										A709	

COMMENTS:

CO2 473
R.H% 86%

SITE DIAGRAM


5/29/24
37'
33'
33'
12'
12'
12'
12'
4 EMITTERS
24'
13'
SPRAY ZONE
14'
SOGGY
24'
18'
12'
10'
10
5'
15'
21'
27'
TRANSECT REPRESENTATIVE AREA
THIS ZONE REPRESENTS AREA OF INTEREST PROPER IRRIGATION AND SURFACE TURNED
MORE DRY AREA
STAIRS PLATFORM
TEST BED CELL-
PINE WOOD CHIPS

SURFACE FLUX MEASUREMENT DATA FORM

DATE 7/9/24 **SAMPLERS** CBS

LOCATION BIO FILTRO BUCKET #2

SURFACE DESCRIPTION/CONDITIONS EFFLUENT

CURRENT ACTIVITY _____

INSTRUMENT TYPE _____ **I.D. NO.** _____ **TYPE** _____ **ID NO.** _____

INSTRUMENT BASELINE _____

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☐ REPLICATE MEASUREMENTS ☐
AMBIENT CONCENTRATIONS _____

CHAMBER I.D. F **PHOTO TAKEN:** Yes ☒ No ☐ _____
CHAMBER SEAL V **CONDENSATION:** Yes ☐ No ☒ ☐ B. PRESS _____

AMBIENT CONDITIONS: Sun ☐ P.Sun ☐ Cloudy ☐ Wind at 5', __ mph Wind at Seal,__ mph
TEMP _____ **RAIN:** Yes ☐ No ☐ Comment _____

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☐ Dry Wipe ☐ None ☐ _____
SAMPLE LINE: Back Flushed Prior to Start ☐ Purged Prior to Sampling ☐ New Line ☐ Used Line ☐

SWEEP AIR VND/He **CC** L60971 **SUPPLIER** PAX/LINDE **PSIG START** __ **PSIG STOP** _____

TIME	SWEEP AIR (L/min) 10.06 To	RESIDENCE NUMBER	TEMPERATURE (°F)				REAL-TIME		SAMPLE ID	COMMENTS
			Chamber		Ambient		He % ppmv	CO_2 ppmv %		
			Surf	Air	Surf	Air				
1313	5.0	0						Flow		
1319		1								
1325		2								NH_3
1331		3								10 PPMV
1337		4	103	109	96	101	9.7	500	566	
1343		5							SB-102	767
									1347	1357

COMMENTS:

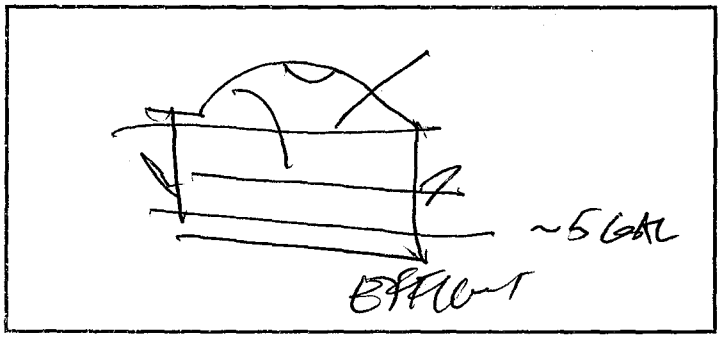
Thickness of ISS Soil cover _____

Surface Conditions _____

Photo Showing AAM Station _____

Other _____

SITE DIAGRAM:



SURFACE FLUX MEASUREMENT DATA FORM

DATE 7/9/24 SAMPLERS CES

LOCATION SVO FILTRO

SURFACE DESCRIPTION FILTER EFFLUENT

CURRENT ACTIVITY NA

INSTRUMENT TYPE _____ I.D. NO. _____ TYPE _____ ID NO. _____

INSTRUMENT BASELINE _____

PROJECT QC: BACKGROUND MEASUREMENTS ☐ BLANK MEASUREMENTS ☐ REPLICATE MEASUREMENTS ☐
AMBIENT CONCENTRATIONS _____

CHAMBER I.D. F PHOTO TAKEN: Yes ☒ No ☐ _____

CHAMBER SEAL Y CONDENSATION: Yes ☐ No ☑ BARM PRESS _____

AMBIENT CONDITIONS: Sun ☒ P.Sun ☐ Cloudy ☐ Wind at 5', ____ mph Wind at Seal, ____ mph

TEMP _____ RAIN: Yes ☐ No ☒ Comment _____

PRIOR CHAMBER CLEANING: Full Wash ☐ Wet Wipe ☒ Dry Wipe ☐ None ☐ _____

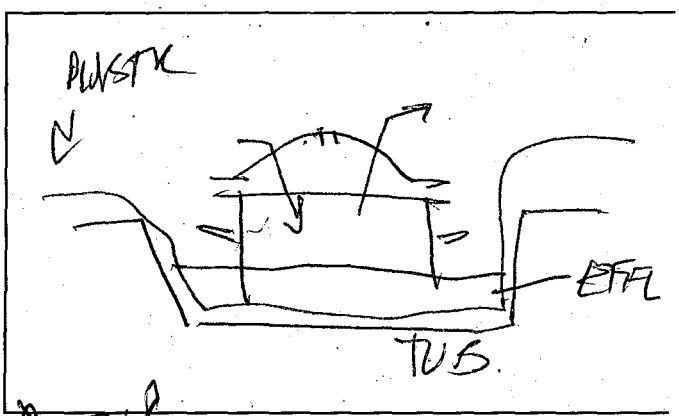
SAMPLE LINE: BACK FLUSHED PRIOR TO START ☒ PURGED PRIOR TO SAMPLING ☒ New ☐ Used ☐

SWEEP AIR UHP He CC 160974 SUPPLIER OXILINE PSIG START 1300 PSIG STOP _____

Time	Sweep Air (L/min) 10.06 %	Residence Number	Temperature (°F)				Real-Time (ppmv)		Sample Number	Comments
			Chamber		Ambient					
			Surf	Air	Surf	Air	He	%	002	
1235	5.0	0							DW	
1241	↓	1								
1247	↓	2								
1253		3					9,19	73%	500	
1259		4	90	105	92	94				(1305
1305		5							SB-10	1
										#783

COMMENTS: ~1220 START COLLECTING

SITE DIAGRAM



Media Checklist

Method	Media	Sample ID	Times Start	Times Stop
25.3	Can/Trap	G-		
TO-15	Can	T15-		
TO-11	DNPH	T11-		
TO-17	Sorbent	T17-		
TPV	Bag	TPV-		

1305 TEST #2 IN TUBS

CE Schmidt, Ph.D.
Environmental Consultant

ATTACHMENT B

CHAIN OF CUSTODY

241230

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

SCAQMD 25.3 Day 1

Form Serial Number: **CES F1-02106**	For Information Regarding These Samples Please Contact: **Dr. Charles E. Schmidt**, 19200 Live Oak Road, Red Bluff, CA 96080, 530-529-4256 Mobile: 530-200-2473, E-Mail: SCHMIDTCE@aol.com	Client Address and Phone Number: ***1949 5th Street, Suite 101, Davis, CA 95616 (530) 564 4260***
Client Name: ***BIOFILTRO, Fanelli Dairy***		Laboratory Name: ***Atmospheric Analysis and Consulting***
Project Manager: ***Patrick Beckett***		Laboratory Address: ***2225 Sperry Avenue, Ventura, CA 93003***
Requested Completion Date		Laboratory Phone: ***805-650-1642***
		Laboratory Contact: ***John Yokoyama*** jyokoyama@aaclab.com

Station Number/ID	Date	Time	COMP	GRAB	Can Label	Can ID Number	Vial Label	# OF CONTAINERS	Sample Container: Vial	Can	Tube	Analysis Requested: SCAQMD 25.3	Helium Tracer			Can Pressure In (inches HG)	Can Pressure Out (inches HG)	Remarks
59057	5/29/2024	0919		x	G- 701	1927	V- 701	2	x	x		x	x			-29"	-7"	
59058	5/29/2024	0820		x	G- 702	1847	V- 702	2	x	x		x	x			-29"	-7"	
59059	5/29/2024	0820		x	G- 703	1845	V- 703	2	x	x		x	x			-29"	-5.5"	
59060	5/29/2024	0821		x	G- 704	1810	V- 704	2	x	x		x	x			-29"	-7"	
59061	5/29/2024	1056		x	G- 705	1866	V- 705	2	x	x		x	x			-29"	-8"	
59062	5/29/2024	0819		x	G- 706	2071	V- 706	2	x	x		x	x			-29"	-8"	
59063	5/29/2024	1245		x	G- 707	1853	V- 707	2	x	x		x	x			-29"	-8"	
59064	5/29/2024	1245		x	G- 708	2120	V- 708	2	x	x		x	x			-29"	-7.5"	
59065	5/29/2024	1245		x	G- 709	2100	V- 709	2	x	x		x	x			-29"	-6"	
59066	5/29/2024	1306		x	G- 710	2060	V- 710	2	x	x		x	x			-29"	0"	BLK V-710 10/5

Sampler: CE SCHMIDT	Date/Time: 5/29/24 1413	Relinquished by: CE SCHMIDT	Date/Time: 5/29/24 1413	HAZWRAP/NEESA Y N
Recieved by: AAC 1413	Date/Time: 1413 5/29/24	Relinquished by:	Date/Time: 5/30/24 0919	QC Level 1 2 3
Recieved by	Date/Time	Relinquished by	Date/Time	COC / Ana Req / Cust Seal / Sample Condition
Recieved by Laboratory	Date/Time	Sample Shipped Via: UPS FEDEX BUS Other		
Remarks				**Do Not Pressurize With Helium**

File: BIOFILTRO Forms 25.3 Form: 25.3 COC D1

D/O - 12+ cans - 0.1° C T14 (24 unused)

241230

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

Ammonia D1

| | | |

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

17849 224231 5/29

TO-15 Day 1

Form Serial Number CES F1-02106	For Information Regarding These Samples Please Contact:	Client Address and Phone Number *1949 5th Street, Suite 101* *Davis, CA 95616 (530) 564 4260*
Client Name *BIOFILTRO* *Fanelli Dairy*	**Dr. Charles E. Schmidt** 19200 Live Oak Road, Red Bluff, CA 96080 530-529-4256 Mobile: 530-200-2473 E-Mail: SCHMIDTCE@aol.com	Laboratory Name *EAS*
Project Manager *Patrick Beckett*		Laboratory Address *173 Cross Street* *San Luis Obispo, CA 93401*
Requested Completion Date		Laboratory Phone *805-781-3585*
		Laboratory Contact *Dr. Steve Hoyt* stevehoyt@easlab.com

Station Number	Date	Time	COMP	GRAB	Sample ID Number	Can ID Number	# OF CONTAINERS	Sample Container: Vial	Sample Container: Can	Sample Container: Tube	Analysis Requested: TO-12 FID (TNMHC)	TO-14 FID (Target List/Groups)	TO-15 (See List on Back)	ASTM D-1945 (O2, CO2, He)	USEPA Method 15 (H2S Only)	Can Pressure In (Inches Hg)	Can Pressure Out (Inches	Remarks
	5/29/2024	0910		x	T - 701	650	1		x		x		x			-29"	0"	01
	5/29/2024	0918		x	T - 702	779	1		x		x		x			-29"		02
1146	5/29/2024	0920		x	T - 703	654	1		x		x		x			-29"		03
	5/29/2024	0927		x	T - 704	897	1		x		x		x			-29"		04
1200	5/29/2024	~~1054~~ 1057		x	T - 705	792	1		x		x		x			-29"		05
	5/29/2024	1146		x	T - 706	660	1		x		x		x			-29"		06
	5/29/2024	1334		x	T - 707	505	1		x		x		x			-29"		07
	5/29/2024	1339		x	T - 708	~~708~~ 885	1		x		x		x			-29"		08
	5/29/2024	1339		x	T - 709	631	1		x		x		x			-29"		09
	5/29/2024	1300		x	T - 710	728	1		x		x		x			-29"		10
					A " OR DD -													

Page 6 of 58

Sampler CE SCHMIDT	Date/Time 5/29/24 1413	Relinquished by CE SCHMIDT	Date/Time 5/29/24 1413
Recieved by EAS 1413	Date/Time 5/29/24 1413	Relinquished by	Date/Time
Recieved by	Date/Time	Relinquished by	Date/Time
Recieved by Laboratory	Date/Time 5/29/24 18:00	Sample Shipped Via UPS FEDEX BUS Other	
Remarks			

HAZWRAP/NEESA Y N
QC Level 1 2 3
COC
Ana Req
Cust Seal
Sample Condition

File: BIOFILTRO Forms TO-15 Form, COC TO-15 D1

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

224274 17849

| | | |

CE Schmidt, Ph.D.
Environmental Consultant

ATTACHMENT C

LABORATORY REPORTS

Atmospheric Analysis & Consulting, Inc

CLIENT : Environmental Management Consulting
PROJECT NAME : BIOFILTRO Fanelli Dairy
AAC PROJECT NO. : 241230
REPORT DATE : 06/13/2024

On May 30th 2024, Atmospheric Analysis & Consulting, Inc. received ten (10) Six-Liter Summa Canisters and ten (10) Impinger vials for TNMNEOC analysis by SCAQMD 25.3, Fixed Gases analysis by EPA 3C/SCAQMD 10.1, and Helium analysis by ASTM D-1946. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Return Pressure (mmHg)	Client ID	Lab No.	Return Pressure (mmHg)
G- 701	241230-59057	572.5	G- 706	241230-59062	553.0
G- 702	241230-59058	614.5	G- 707	241230-59063	554.5
G- 703	241230-59059	595.5	G- 708	241230-59064	543.0
G- 704	241230-59060	593.0	G- 709	241230-59065	594.0
G- 705	241230-59061	501.0	G- 710	241230-59066	763.0

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 125 pages.

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com (805) 650-1642

Atmospheric Analysis & Consulting, Inc.

SAMPLE RECEIPT / LOG-IN REPORT

Client Name: EMC

Project Name: BIOFILTRO Fanelli Dairy

AAC Project No.: 241230

Sampled By: Client
Received By: G. Ruelas

Turn Around Time: Normal (10days)
Lab Due Date: 06/06/2024
Final Due Date: 06/13/2024

Sample Receipt Date Time	Clients ID	Sampling Date/Time	Sample #	Matrix	Analysis Requested
05/30/2024 0919	G-701	05/29/2024 0819	59057	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-702	05/29/2024 0820	59058	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-703	05/29/2024 0820	59059	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-704	05/29/2024 0821	59060	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-705	05/29/2024 1057	59061	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-706	05/29/2024 1058	59062	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-707	05/29/2024 1245	59063	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-708	05/29/2024 1245	59064	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-709	05/29/2024 1245	59065	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	G-710	05/29/2024 1016	59066	Canister & Impinger	SCAQMD 25.3 HELIUM
05/30/2024 0919	A-701	05/29/2024 0819	59067	Liquid	SCAQMD 207.1

SAMPLE RECEIPT / LOG-IN REPORT

Client Name: EMC

Project Name: BIOFILTRO Fanelli Dairy

AAC Project No.: 241230

Sampled By: Client
Received By: G. Ruelas

Turn Around Time: Normal (10days)
Lab Due Date: 06/06/2024
Final Due Date: 06/13/2024

Sample Receipt Date Time	Clients ID	Sampling Date/Time	Sample #	Matrix	Analysis Requested
05/30/2024 0919	A-702	05/29/2024 0820	59068	Liquid	SCAQMD 207.1
05/30/2024 0919	A-703	05/29/2024 0820	59069	Liquid	SCAQMD 207.1
05/30/2024 0919	A-704	05/29/2024 0821	59070	Liquid	SCAQMD 207.1
05/30/2024 0919	A-705	05/29/2024 1056	59071	Liquid	SCAQMD 207.1
05/30/2024 0919	A-706	05/29/2024 0819	59072	Liquid	SCAQMD 207.1
05/30/2024 0919	A-707	05/29/2024 1245	59073	Liquid	SCAQMD 207.1
05/30/2024 0919	A-708	05/29/2024 1245	59074	Liquid	SCAQMD 207.1
05/30/2024 0919	A-709	05/29/2024 1245	59075	Liquid	SCAQMD 207.1
05/30/2024 0919	A-710	05/29/2024 1306	59076	Liquid	SCAQMD 207.1

REMARKS:
Client returned 12x cans. -0.1°C.

Total Samples: 20

CANISTER PRESSURE LOG

Client: EMC

Project No.: 241230

Date: 05/30/2024

Canister #	Sample #	Initial Pressure mmHg	Final Pressure mmHg
1927	59057	572.5	903.0
1847	59058	614.5	912.5
1845	59059	595.5	900.5
1810	59060	593.0	900.0
1866	59061	501.0	905.0
2071	59062	553.0	902.0
1853	59063	554.5	902.5
2120	59064	543.0	901.5
2100	59065	594.0	903.0
2060	59066	763.0	901.5

1

241230

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

SCAQMD 25.3 Day 1

Form Serial Number: **CES F1-02106**	For Information Regarding These Samples Please Contact: **Dr. Charles E. Schmidt**, 19200 Live Oak Road, Red Bluff, CA 96080, 530-529-4256 Mobile: 530-200-2473, E-Mail: SCHMIDTCE@aol.com	Client Address and Phone Number: ***1949 5th Street, Suite 101, Davis, CA 95616 (530) 564 4260***
Client Name: ***BIOFILTRO, Fanelli Dairy***		Laboratory Name: ***Atmospheric Analysis and Consulting***
Project Manager: ***Patrick Beckett***		Laboratory Address: ***2225 Sperry Avenue, Ventura, CA 93003***
Requested Completion Date		Laboratory Phone: ***805-650-1642***
		Laboratory Contact: ***John Yokoyama*** jyokoyama@aaclab.com

Station Number/ID	Date	Time	COMP	GRAB	Can Label	Can ID Number	Vial Label	# OF CONTAINERS	Sample Container: Vial	Can	Tube	Analysis Requested: SCAQMD 25.3	Helium Tracer			Can Pressure In (inches HG)	Can Pressure Out (inches HG)	Remarks
59057	5/29/2024	0919		x	G- 701	1927	V- 701	2	x	x		x	x			-29"	-7"	
59058	5/29/2024	0820		x	G- 702	1847	V- 702	2	x	x		x	x			-29"	-7"	
59059	5/29/2024	0820		x	G- 703	1845	V- 703	2	x	x		x	x			-29"	-5.5"	
59060	5/29/2024	0821		x	G- 704	1810	V- 704	2	x	x		x	x			-29"	-7"	
59061	5/29/2024	1056		x	G- 705	1866	V- 705	2	x	x		x	x			-29"	-8"	
59062	5/29/2024	0819		x	G- 706	2071	V- 706	2	x	x		x	x			-29"	-8"	
59063	5/29/2024	1245		x	G- 707	1853	V- 707	2	x	x		x	x			-29"	-8"	
59064	5/29/2024	1245		x	G- 708	2120	V- 708	2	x	x		x	x			-29"	-7.5"	
59065	5/29/2024	1245		x	G- 709	2100	V- 709	2	x	x		x	x			-29"	-6"	
59066	5/29/2024	1306		x	G- 710	2060	V- 710	2	x	x		x	x			-29"	0"	BLK V-710 10/5

Sampler: CE SCHMIDT	Date/Time: 5/29/24 1413	Relinquished by: CE SCHMIDT	Date/Time: 5/29/24 1413	HAZWRAP/NEESA Y N
Recieved by: AAC 1413	Date/Time: 1413 5/29/24	Relinquished by:	Date/Time: 5/30/24 0919	QC Level 1 2 3
Recieved by	Date/Time	Relinquished by	Date/Time	COC / Ana Req / Cust Seal / Sample Condition
Recieved by Laboratory	Date/Time	Sample Shipped Via: UPS FEDEX BUS Other		
Remarks				**Do Not Pressurize With Helium**

File: BIOFILTRO Forms 25.3 Form: 25.3 COC D1

D/O - 12+ cans - 0.1° C T14 (24 unused)

241230

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

Ammonia D1

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Equipment Prep Sheets

Atmospheric Analysis & Consulting, Inc

Equipment Preparation Data Sheet
SCAQMD 25.3

Analyst: RW Date: 05/20/2024

Client: Environmental Management C Project Name: BIOFILTRO Fanelli Dairy

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	1
Can #	1927
Can Cleaning Date	5/16/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-701
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

SAMPLE	2
Can #	1847
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	10.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-702
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

Atmospheric Analysis & Consulting, Inc

Sample Receiving Data Sheet
SCAQMD 25.3

Analyst: RW Project # : 241230 Courier:

Sample Receiving Date and Time: 05/30/2024 9:19

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	1
Sample ID	59057
Can #	1927
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	572.5
Vial #	V-701
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	11:11 AM
Purge End Time	11:21 AM
Post Purge Pres (mmHg)	624.0
Final Pressure (mmHg)	903.0
Dilution Factor	1.58

Comments:

SAMPLE	2
Sample ID	59058
Can #	1847
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	10.0
Return Pressure (mmHg)	614.5
Vial #	V-702
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	11:27 AM
Purge End Time	11:37 AM
Post Purge Pres (mmHg)	665.5
Final Pressure (mmHg)	912.5
Dilution Factor	1.48

Comments:

Atmospheric Analysis & Consulting, Inc

Equipment Preparation Data Sheet
SCAQMD 25.3

Analyst: RW Date: 05/20/2024

Client: Environmental Management C Project Name: BIOFILTRO Fanelli Dairy

Thermometer ID: #5 Gauge ID: Ashcroft Box #: 000NA

SAMPLE	3
Can #	1845
Can Cleaning Date	5/13/2024
Initial Pressure (mmHg)	6.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-703
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

SAMPLE	4
Can #	1810
Can Cleaning Date	5/16/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-704
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

Atmospheric Analysis & Consulting, Inc

Sample Receiving Data Sheet
SCAQMD 25.3

Analyst: RW Project # : 241230 Courier:

Sample Receiving Date and Time: 05/30/2024 9:19

Thermometer ID: #5 Gauge ID: Ashcroft Box #: 000NA

SAMPLE	3
Sample ID	59059
Can #	1845
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	6.0
Return Pressure (mmHg)	595.5
Vial #	V-703
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	12:11 PM
Purge End Time	12:21 PM
Post Purge Pres (mmHg)	652.0
Final Pressure (mmHg)	900.5
Dilution Factor	1.51

Comments:

SAMPLE	4
Sample ID	59060
Can #	1810
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	593.0
Vial #	V-704
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	12:27 PM
Purge End Time	12:37 PM
Post Purge Pres (mmHg)	642.0
Final Pressure (mmHg)	900.0
Dilution Factor	1.52

Comments:

Atmospheric Analysis & Consulting, Inc

Equipment Preparation Data Sheet
SCAQMD 25.3

Analyst: RW Date: 05/20/2024

Client: Environmental Management C Project Name: BIOFILTRO Fanelli Dairy

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	5
Can #	1866
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	10.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-705
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

SAMPLE	6
Can #	2071
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-706
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

Atmospheric Analysis & Consulting, Inc

Sample Receiving Data Sheet
SCAQMD 25.3

Analyst: RW Project # : 241230 Courier:

Sample Receiving Date and Time: 05/30/2024 9:19

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	5
Sample ID	59061
Can #	1866
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	10.0
Return Pressure (mmHg)	501.0
Vial #	V-705
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	12:42 PM
Purge End Time	12:52 PM
Post Purge Pres (mmHg)	552.5
Final Pressure (mmHg)	905.0
Dilution Factor	1.81

Comments:

SAMPLE	6
Sample ID	59062
Can #	2071
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	553.0
Vial #	V-706
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	12:59 PM
Purge End Time	1:09 PM
Post Purge Pres (mmHg)	603.5
Final Pressure (mmHg)	902.0
Dilution Factor	1.63

Comments:

Atmospheric Analysis & Consulting, Inc

Equipment Preparation Data Sheet
SCAQMD 25.3

Analyst: RW Date: 05/20/2024

Client: Environmental Management C Project Name: BIOFILTRO Fanelli Dairy

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	7
Can #	1853
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-707
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

SAMPLE	8
Can #	2120
Can Cleaning Date	5/13/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-708
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

Atmospheric Analysis & Consulting, Inc

Sample Receiving Data Sheet
SCAQMD 25.3

Analyst: RW Project # : 241230 Courier:

Sample Receiving Date and Time: 05/30/2024 9:19

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	7
Sample ID	59063
Can #	1853
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	554.5
Vial #	V-707
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	1:23 PM
Purge End Time	1:33 PM
Post Purge Pres (mmHg)	605.5
Final Pressure (mmHg)	902.5
Dilution Factor	1.63

Comments:

SAMPLE	8
Sample ID	59064
Can #	2120
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	543.0
Vial #	V-708
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	2:53 PM
Purge End Time	3:03 PM
Post Purge Pres (mmHg)	594.0
Final Pressure (mmHg)	901.5
Dilution Factor	1.66

Comments:

Atmospheric Analysis & Consulting, Inc

Equipment Preparation Data Sheet
SCAQMD 25.3

Analyst: RW Date: 05/20/2024

Client: Environmental Management C Project Name: BIOFILTRO Fanelli Dairy

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	9
Can #	2100
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-709
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

SAMPLE	10
Can #	2060
Can Cleaning Date	5/8/2024
Initial Pressure (mmHg)	2.0
Flow #	NA
Flow Cleaning Date	05/20/2024
Impinger #	NA
Impinger Cleaning Date	05/20/2024
Vial #	V-710
HPLC Water Lot #	012524-6
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:

Atmospheric Analysis & Consulting, Inc

Sample Receiving Data Sheet
SCAQMD 25.3

Analyst: RW Project # : 241230 Courier:

Sample Receiving Date and Time: 05/30/2024 9:19

Thermometer ID: #5 Gauge ID: Ashcroft

SAMPLE	9
Sample ID	59065
Can #	2100
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	594.0
Vial #	V-709
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	3:08 PM
Purge End Time	3:18 PM
Post Purge Pres (mmHg)	645.0
Final Pressure (mmHg)	903.0
Dilution Factor	1.52

Comments:

SAMPLE	10
Sample ID	59066
Can #	2060
Flow #	NA
Tank vol	6L
InitialPressure (mmHg)	2.0
Return Pressure (mmHg)	763.0
Vial #	V-710
Imp #	NA
Return Volume (mL)	10
Temperature	8 C
Purged Date	05/30/2024
Purge Start Time	3:11 PM
Purge End Time	3:21 PM
Post Purge Pres (mmHg)	763.0
Final Pressure (mmHg)	901.5
Dilution Factor	1.18

Comments:

Results

LABORATORY ANALYSIS REPORT

CLIENT : Environmental Management Consulting
PROJECT NO. : 241230
MATRIX : Air
UNITS : ppmC

SAMPLING DATE : 05/29/2024
RECEIVING DATE : 05/30/2024
ANALYSIS DATE : 06/07-12/2024
REPORT DATE : 06/13/2024

ANALYSIS METHOD: SCAQMD 25.3

Client ID	Lab ID #	Tank Vol Liters (V_{Tank})	Initial Pressure mmHg (P_i)	Return Pressure mmHg (P_r)	Final Pressure mmHg (P_f)	Sample Vol. (L) (V_{Sample})	Tank Dil Factor (DF_{Tank})	NMNEOC Tank (C_{Tank})	NMNEOC Trap (C_{Trap})	TNMNEOC (Total VOC ppmC)
G-701	241230-59057	6.00	2.0	572.5	903.0	4.50	1.58	<1.30	2.05	2.23
G-702	241230-59058	6.00	10.0	614.5	912.5	4.77	1.48	<1.22	1.76	1.91
G-703	241230-59059	6.00	6.0	595.5	900.5	4.65	1.51	<1.25	1.40	1.52
G-704	241230-59060	6.00	2.0	593.0	900.0	4.67	1.52	<1.25	1.21	1.31
G-705	241230-59061	6.00	10.0	501.0	905.0	3.88	1.81	<1.49	2.58	2.80
G-706	241230-59062	6.00	2.0	553.0	902.0	4.35	1.63	<1.34	4.0	4.39
G-707	241230-59063	6.00	2.0	554.5	902.5	4.36	1.63	<1.34	2.26	2.45
G-708	241230-59064	6.00	2.0	543.0	901.5	4.27	1.66	<1.37	1.40	1.52
G-709	241230-59065	6.00	2.0	594.0	903.0	4.67	1.52	<1.25	2.21	2.40
G-710	241230-59066	6.00	2.0	763.0	901.5	6.01	1.18	<0.97	<0.13	<1.10

*** TNMNEOC Includes Bias Correction=1.086, as per method**

NMNEOC Tank PQL = 0.253 ppm x DF x 3, NMNEOC Trap RL = 0.1 ppmC

EPA 3C/SCAQMD 10.1

Reporting Limit: 0.1 %		Analyte				
Client ID	Lab ID #	O_2	CO	CH_4	CO_2	He
G-701	241230-59057	21.2 %	<1.6 ppm	2.74 ppm	0.226 %	1.74 %
G-702	241230-59058	20.9 %	<1.5 ppm	3.89 ppm	0.357 %	1.53 %
G-703	241230-59059	21.2 %	<1.5 ppm	2.71 ppm	0.151 %	1.41 %
G-704	241230-59060	21.1 %	<1.5 ppm	3.22 ppm	1324 ppm	0.889 %
G-705	241230-59061	22.7 %	<1.8 ppm	29.9 ppm	524 ppm	6.44 %
G-706	241230-59062	22.3 %	<1.6 ppm	35.0 ppm	508 ppm	6.82 %
G-707	241230-59063	22.2 %	<1.6 ppm	<1.6 ppm	195 ppm	5.78 %
G-708	241230-59064	22.6 %	<1.7 ppm	<1.7 ppm	159 ppm	6.85 %
G-709	241230-59065	22.6 %	<1.5 ppm	<1.5 ppm	164 ppm	7.15 %
G-710	241230-59066	22.9 %	<1.2 ppm	<1.2 ppm	<1.2 ppm	9.78 %

Fixed Gases have been normalized to 100% on a dry basis

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Method 25.3 Calculation Summary Sheet

TOC Calculations (Trap):

$$C_{Trap} = \frac{(C_{Toc} \times V_{Trap})}{(V_{Sample})} \times \frac{V_{id}}{MW_c}$$

Where:

C_{Trap} = Gaseous concentration of TOC in condensate trap water, ppmv (as Carbon)
C_{Toc} = TOC concentration in ug/ml of condensate trap water (*from Raw Data printout*)
V_{Trap} = Volume of condensate trap water in ml (*from Sample Receiving Data Sheet*)
V_{id} = Volume of ideal gas per mole at 25°C (24.4652 liters/mole)
MW_c = Atomic weight of carbon (12.01 g/mol)
V_{Sample} = Volume sampled in collection tank in Liters (V_{Tank} x ($P_r - P_i$)/ P_a)

Where:

VTank = Volume of the sampling tank in liters (*from Sample Receiving Data Sheet*)
Pr = Return canister pressure of the sampling tank (*from Sample Receiving Data Sheet*)
Pi = Initial canister pressure of the sampling tank (*from Sample Receiving Data Sheet*)
Pa = atmospheric pressure (760 mmHg)

TCA Calculations (Tank):

$$C_{Tank} = C_{TCA} \times DF_{Tank} \times 3.0$$

Where:

C_{Tank} = Gaseous concentration of tank, ppmv (as Carbon)
C_{TCA} = Average of analysis results from chromatograms, ppmv (as Propane)
DF_{Tank} = Dilution factor resulting from tank pressurization upon receipt (Pf/Pr)
3.0 = Conversion of result (as Propane) to (as Carbon)

Where:

Pf = Final canister pressure after pressurization for analysis (*from Sample Receiving Data Sheet*)
Pr = Return canister pressure upon sample receipt (*from Sample Receiving Data Sheet*)

Final Calculation (Tank and Trap):

$$\text{Total VOC (ppmC)} = (C_{Trap} + C_{Tank}) \times 1.086$$

Per method section 4.11, the final concentration includes a 1.086 bias correction factor.

Fixed Gases Calculations (Tank):

$$FG\ (\text{i.e. } O_2) = C_{fg} \times DF_{Tank} / NF$$

Where:

C_{fg} = Average of analysis results from chromatograms, %
DF_{Tank} = Dilution factor resulting from tank pressurization upon receipt (Pf/Pr)
NF = Normalization Factor = sum of averages of all Fixed Gases x DF_{Tank} / 100%

QA/QC Summary

Quality Control/Quality Assurance Report

Date Analyzed	**: 06/04/2024**	**Instrument ID**	**: GC-TCA #5**
Analyst	**: NR**	**Calb Date**	**: 09/27/2023**
Units	**: %**	**Reporting Limit**	**: 0.1%**

I - Opening Continuing Calibration Verification - ASTMD-1946

AAC ID	Analyte	He
CCV	Spike Conc	2.00
	Result	2.12
	% Rec *	106.1

II - Method Blank - ASTM-1946

AAC ID	Analyte	He
MB	Concentration	ND

III - Laboratory Control Spike & Duplicate - ASTMD-1946

AAC ID	Analyte	He
Lab Control Standards	Sample Conc	0.00
	Spike Conc	2.00
	LCS Result	2.03
	LCSD Result	2.08
	LCS % Rec *	101.4
	LCSD % Rec *	104.0
	% RPD ***	2.58

IV -Sample & Sample Duplicate - ASTMD-1946

AAC ID	Analyte	He
241230-59057	Sample	1.10
	Sample Dup	1.11
	Mean	1.10
	% RPD ***	0.27

V - Matrix Spike & Duplicate- ASTMD-1946

AAC ID	Analyte	He
241230-59057	Sample Conc	0.55
	Spike Conc	1.00
	MS Result	1.57
	MSD Result	1.62
	MS % Rec **	101.5
	MSD % Rec **	107.1
	% RPD ***	5.37

VI - Closing Continuing Calibration Verification - ASTMD-1946

AAC ID	Analyte	He
CCV	Spike Conc	2.00
	Result	2.15
	% Rec *	108

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

ND = Not Detected

<RL = less than Reporting Limit

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Quality Control/Quality Assurance Report

Date Analyzed	**: 06/11/2024**	**Instrument ID**	**: TCD #1**
Analyst	**: DM/NR**	**Calb Date**	**: 09/26/23**
Units	**: %**	**Reporting Limit**	**: 0.1%**

I - Opening Continuing Calibration Verification - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	9.9	19.9	10.0	10.0	10.0
	Result	9.8	22.6	10.1	9.3	10.0
	% Rec *	98.3	113.3	101.1	93.3	100.7

II - Method Blank - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
MB	Concentration	ND	ND	ND	ND	ND

III - Laboratory Control Spike & Duplicate - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0
	Spike Conc	9.9	19.9	10.0	10.0	10.0
	LCS Result	10.4	22.8	10.2	9.5	9.9
	LCSD Result	10.8	22.8	9.9	9.2	9.5
	LCS % Rec *	104.4	114.4	102.6	94.6	99.2
	LCSD % Rec *	108.4	114.6	99.5	91.7	95.9
	% RPD ***	3.8	0.2	3.1	3.0	3.4

IV -Sample & Sample Duplicate - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
241323-59468	Sample	0.3	4.8	18.7	0.0	12.9
	Sample Dup	0.2	4.5	18.9	0.0	12.9
	Mean	0.3	4.6	18.8	0.0	12.9
	% RPD ***	12.1	5.0	0.9	0.0	0.1

V - Matrix Spike & Duplicate- SCAQMD 25.1,25.3

AAC ID	Analyte	N_2	CH_4	CO	CO_2
241323-59468	Sample Conc	2.3	9.4	0.0	6.4
	Spike Conc	10.0	10.0	10.0	10.0
	MS Result	14.2	19.4	9.5	16.3
	MSD Result	12.6	19.8	9.6	16.6
	MS % Rec **	119.3	100.7	95.3	99.3
	MSD % Rec **	103.3	104.2	96.2	102.3
	% RPD ***	14.4	3.4	1.0	3.0

VI - Closing Continuing Calibration Verification - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	9.9	19.9	10.0	10.0	10.0
	Result	10.2	22.7	10.6	9.8	10.2
	% Rec *	102.9	114.2	106.1	97.8	102.6

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

ND = Not Detected

<RL = less than Reporting Limit

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Quality Control/Quality Assurance Report

Date Analyzed : 06/12/2024
Analyst : DM/NR
Units : %

Instrument ID : TCD #1
Calb Date : 09/26/23
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	9.9	19.9	10.0	10.0	10.0
	Result	11.2	22.5	9.5	8.8	9.2
	% Rec *	113.0	112.9	95.1	87.5	92.7

II - Method Blank - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
MB	Concentration	ND	ND	ND	ND	ND

III - Laboratory Control Spike & Duplicate - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0
	Spike Conc	9.9	19.9	10.0	10.0	10.0
	LCS Result	10.4	22.7	10.3	9.5	10.0
	LCSD Result	10.4	22.8	10.0	9.2	9.7
	LCS % Rec *	104.9	113.8	103.4	95.2	100.7
	LCSD % Rec *	104.9	114.4	100.3	92.3	97.0
	% RPD ***	0.0	0.5	3.0	3.1	3.7

IV -Sample & Sample Duplicate - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
241347-59589	Sample	11.3	52.5	0.0	0.0	0.5
	Sample Dup	11.3	52.5	0.0	0.0	0.5
	Mean	11.3	52.5	0.0	0.0	0.5
	% RPD ***	0.0	0.1	0.0	0.0	5.2

V - Matrix Spike & Duplicate- SCAQMD 25.1,25.3

AAC ID	Analyte	N_2	CH_4	CO	CO_2
241347-59589	Sample Conc	26.3	0.0	0.0	0.2
	Spike Conc	10.0	10.0	10.0	10.0
	MS Result	38.2	10.2	9.4	10.1
	MSD Result	37.4	10.4	9.6	10.3
	MS % Rec **	120.0	102.6	94.4	99.5
	MSD % Rec **	111.6	104.5	96.2	101.6
	% RPD ***	7.2	1.9	2.0	2.1

VI - Closing Continuing Calibration Verification - SCAQMD 25.1,25.3

AAC ID	Analyte	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	9.9	19.9	10.0	10.0	10.0
	Result	10.1	22.7	10.6	9.8	10.3
	% Rec *	101.5	113.8	106.6	98.0	103.5

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

ND = Not Detected

<RL = less than Reporting Limit

SCAQMD 25.1,3 Quality Control/Quality Assurance Report

Date Analyzed : 06/07/2024
Analyst : NR

Instrument ID : GCTCA#5-FID
Calb Date : 01/29/2024
Units : ppmV

I - Opening Calibration Verification Standard

AAC ID	Analyte	Concentration	Result	% Recovery *
O-CV	NMNEOC	52.10	54.3	104.3
O-CV dp	NMNEOC	52.10	57.1	109.6
O-CV tp	NMNEOC	52.10	55.5	106.5

II - Method Blank

AAC ID	Analyte	Result
MB	NMNEOC	ND

III - Matrix Spike & Duplicate

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec ***	MSD % Rec ***	% RPD****
241230-59057	NMNEOC	0.0	52.1	48.87	47.85	93.8	91.8	2.1

IV - 1 ppm Backflush Standards

AAC ID	Analyte	Result	% Recovery **
Backflush 1	NMNEOC	1.224	117.5
Backflush 2	NMNEOC	1.156	110.9
Backflush 3	NMNEOC	1.066	102.3

V - Bracketed Closing Calibration Verification Standards

AAC ID	Analyte	Concentration	Result	% Recovery *
C-CV Low	NMNEOC	10.4	10.56	101.3
C-CV High	NMNEOC	52.1	47.26	90.7

** Must be 90-110%*
*** Must be 80-120%*
**** Must be 75-125%*
***** Must be < 25%*

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SCAQMD 25.1,3 Quality Control/Quality Assurance Report

Date Analyzed : 06/07/2024
Analyst: : NR

Instrument ID : GCTCA#5-FID
Calb Date : 01/29/2024
Units : ppmV

Sample Duplicate analysis RPD's

AAC ID	Result	Result Dup	%RPD
241230-59057	<PQL	<PQL	NA
241230-59058	<PQL	<PQL	NA
241230-59059	<PQL	<PQL	NA
241230-59060	<PQL	<PQL	NA
241230-59061	<PQL	<PQL	NA
241230-59062	<PQL	<PQL	NA

Quality Assurance Criteria	
Conc. (ppmv)	%RPD
0.253-3	≤20
4-6	≤15
7-12	≤12
13-30	≤10
31-50	≤ 5

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SCAQMD 25.1,3 Quality Control/Quality Assurance Report

Date Analyzed : 06/11/2024
Analyst : NR

Instrument ID : GCTCA#5-FID
Calb Date : 01/29/2024
Units : ppmV

I - Opening Calibration Verification Standard

AAC ID	Analyte	Concentration	Result	% Recovery *
O-CV	NMNEOC	52.10	48.6	93.4
O-CV dp	NMNEOC	52.10	51.2	98.4
O-CV tp	NMNEOC	52.10	49.6	95.3

II - Method Blank

AAC ID	Analyte	Result
MB	NMNEOC	ND

III - Matrix Spike & Duplicate

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec ***	MSD % Rec ***	% RPD****
241230-59063	NMNEOC	0.0	52.1	52.46	51.71	100.7	99.2	1.5

IV - 1 ppm Backflush Standards

AAC ID	Analyte	Result	% Recovery **
Backflush 1	NMNEOC	1.161	111.4
Backflush 2	NMNEOC	1.172	112.5
Backflush 3	NMNEOC	1.060	101.7

V - Bracketed Closing Calibration Verification Standards

AAC ID	Analyte	Concentration	Result	% Recovery *
C-CV Low	NMNEOC	10.4	10.81	103.8
C-CV High	NMNEOC	52.1	48.94	93.9

** Must be 90-110%*
*** Must be 80-120%*
**** Must be 75-125%*
***** Must be < 25%*

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SCAQMD 25.1,3 Quality Control/Quality Assurance Report

Date Analyzed : 06/11/2024
Analyst: : NR

Instrument ID : GCTCA#5-FID
Calb Date : 01/29/2024
Units : ppmV

Sample Duplicate analysis RPD's

AAC ID	Result	Result Dup	%RPD
241230-59063	<PQL	<PQL	NA
241230-59064	<PQL	<PQL	NA
241230-59065	<PQL	<PQL	NA
241230-59066	<PQL	<PQL	NA
241310-59390	1.5	1.5	1.7
241310-59391	0.7	0.7	1.7

Quality Assurance Criteria	
Conc. (ppmv)	%RPD
0.253-3	≤20
4-6	≤15
7-12	≤12
13-30	≤10
31-50	≤ 5

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Quality Control/Quality Assurance Report

TOC Analysis by SCAQMD Method 25.3

Date Analyzed	: 06/07/2024	Instrument ID	: TOC-V
Analyst	: RW	Units	: µg/mL
PQL	: 0.1 µg/ml	Calibration Date	: 02/01/2024

I - Opening Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery*	Qualifier
TOC	2.50	2.59	**104**	NA

II - Method Blank

AAC ID	Analyte	MB	Qualifier
Method Blank	TOC	<PQL	NA

III - Bracketed Quality Control Standards

Analyte	Std. Conc.	Result	%Recovery*	Qualifier
TOC (Low)	0.500	0.49	**97**	NA
TOC (High)	5.00	5.17	**103**	NA

IV - Second Source Confirmation

Analyte	Std. Conc.	Result	%Recovery**	Qualifier
TOC	2.50	2.54	**102**	NA

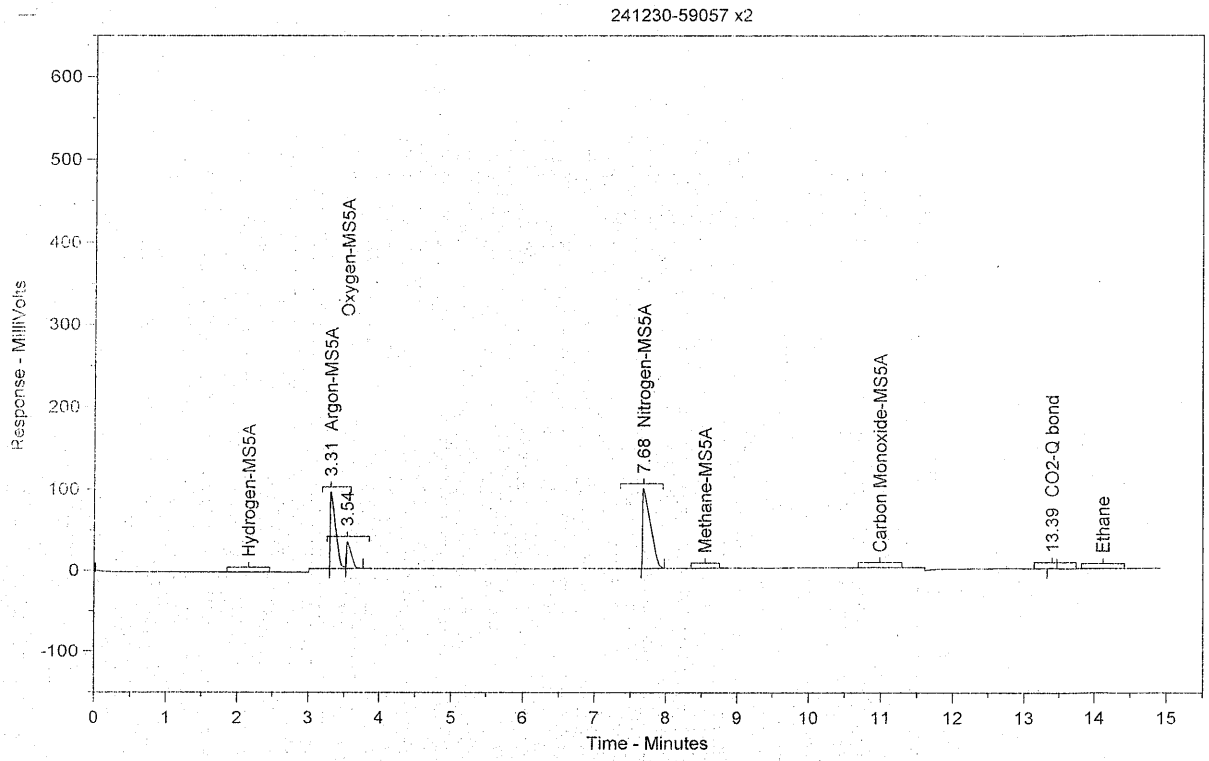
MB must be < PQL

**Must be 90-110%*

*** Must be 85-115%*

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Raw Data



Sample Name = **241230-59057 x2**

Instrument = Instrument 1

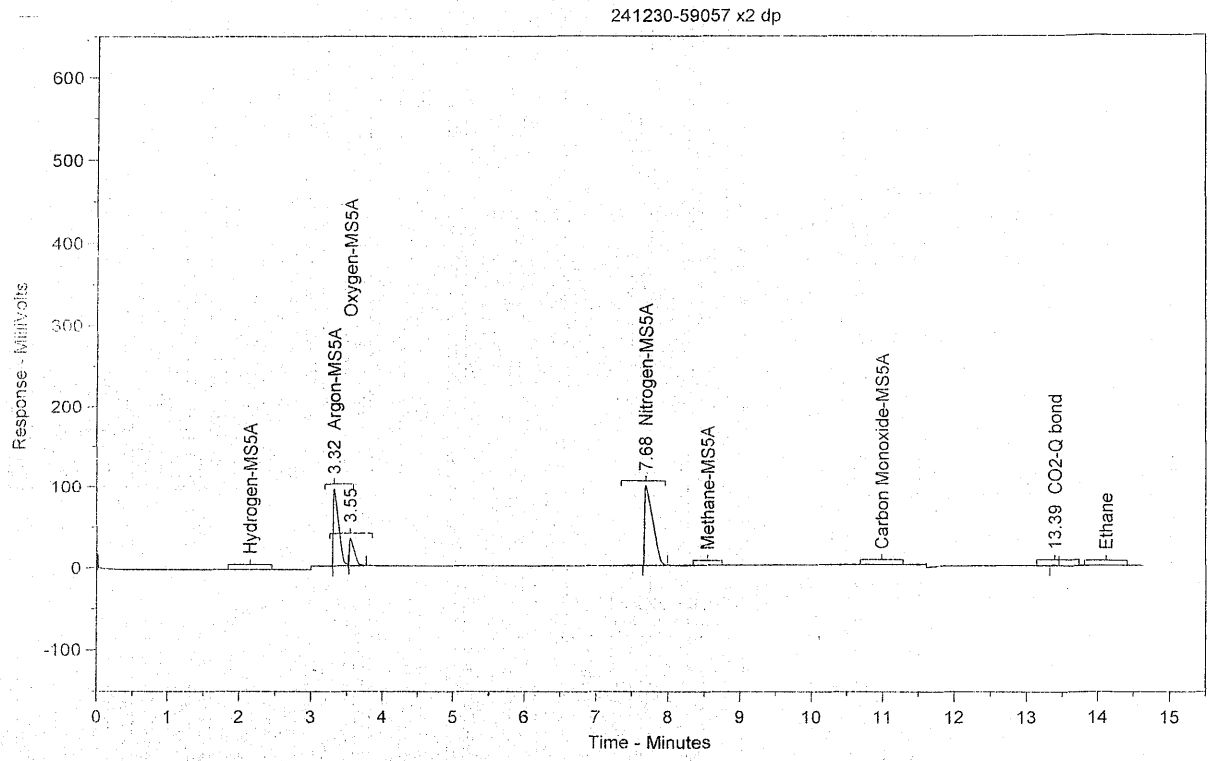
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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.31~~	~~Argon-MS5A~~	~~38.400~~	~~38.100~~	~~482067~~	~~34.676~~	~~DV~~	~~0.08~~
2	3.54	Oxygen-MS5A	13.229	13.125	156679	11.270	VB	0.08
3	7.68	Nitrogen-MS5A	49.016	48.633	747555	53.772	BB	0.12
4	13.39	CO2-Q bond	0.142	0.141	3923	0.282	BB	0.05

CRL4

Total Area = 1390224 Total Height = 226896.2 Total Amount = 100.7869

DM
6/11/24



Sample Name = **241230-59057 x2 dp**

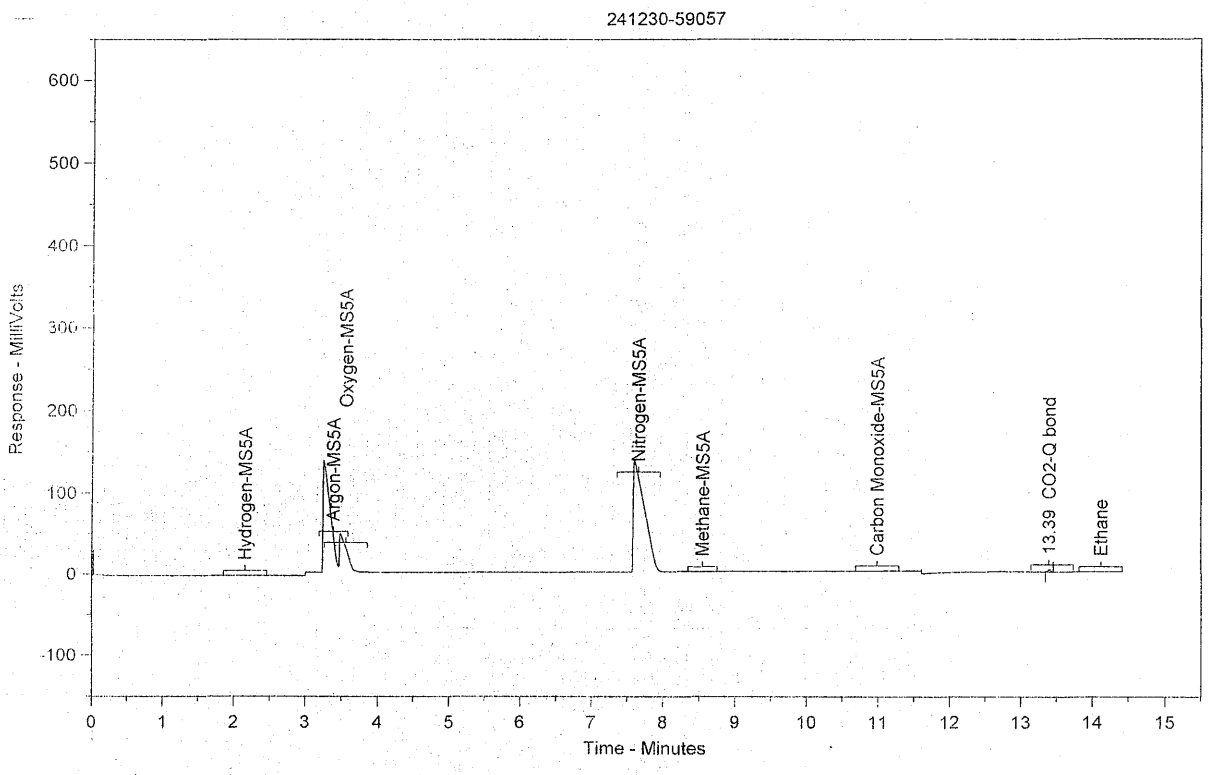
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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.32~~	~~Argon-MS5A~~	~~38.943~~	~~38.047~~	~~488894~~	~~34.622~~	~~BV~~	~~0.08~~
2	3.55	Oxygen-MS5A	13.408	13.099	158801	11.246	VB	0.08
3	7.68	Nitrogen-MS5A	49.858	48.711	760391	53.848	BB	0.13
4	13.39	CO2-Q bond	0.146	0.143	4019	0.285	BB	0.05

Total Area = 1412106 Total Height = 228204.2 Total Amount = 102.355

DM
6/11/24



Sample Name = **241230-59057**

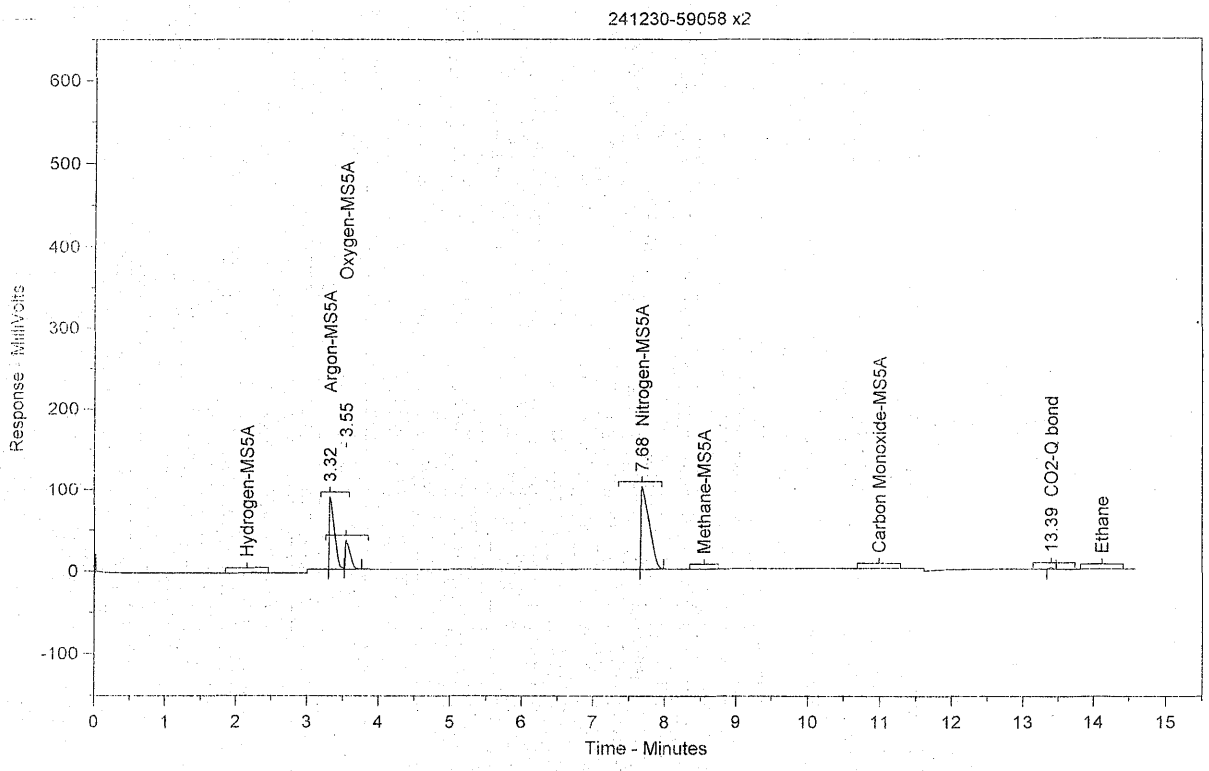
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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	13.39	CO2-Q bond	0.142	100.000	7827	100.000	BB	0.05

Total Area = 7827.305 Total Height = 2551.422 Total Amount = 0.1421094

DM
6/11/24



Sample Name = **241230-59058 x2**

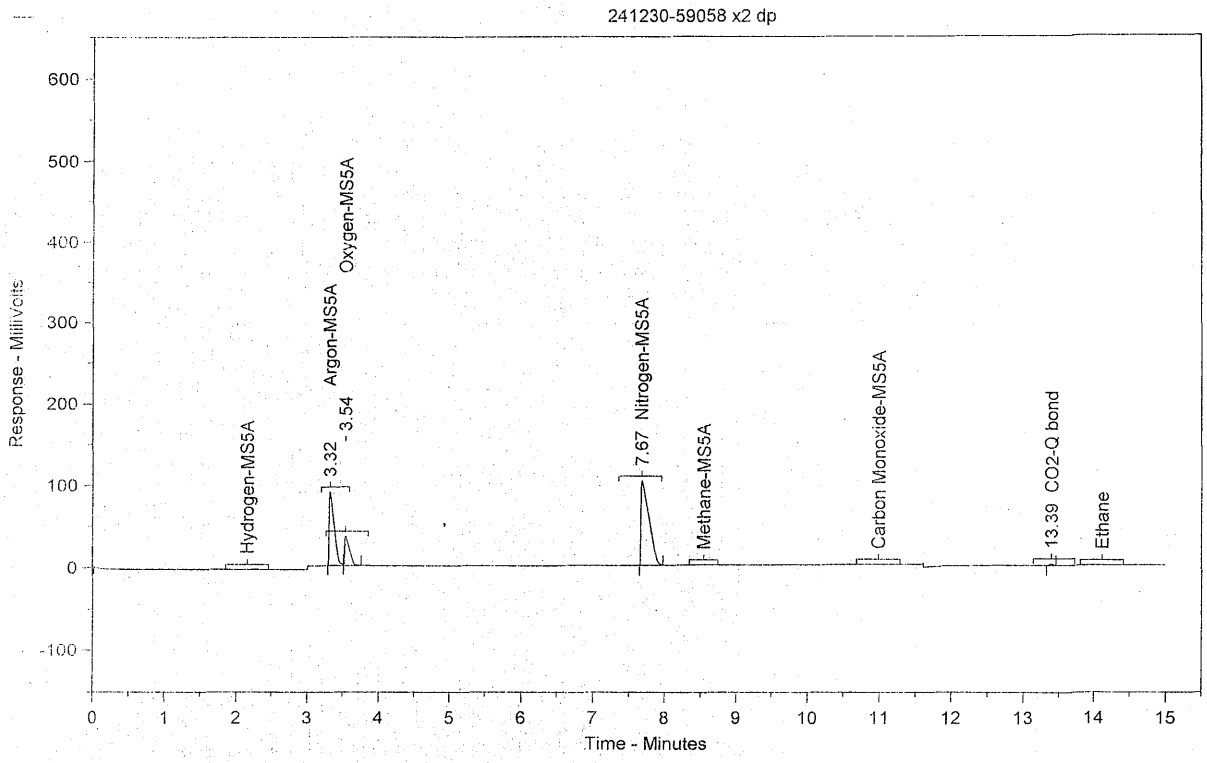
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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.32	Argon-MS5A	34.689	34.181	435485	30.895	BV	0.08
2	3.55	Oxygen-MS5A	13.967	13.763	165428	11.736	VB	0.08
3	7.68	Nitrogen-MS5A	52.593	51.822	802100	56.904	BB	0.13
4	13.39	CO2-Q bond	0.238	0.234	6547	0.464	BB	0.05

Total Area = 1409561 Total Height = 227685 Total Amount = 101.4868

DM
6/11/24



Sample Name = **241230-59058 x2 dp**

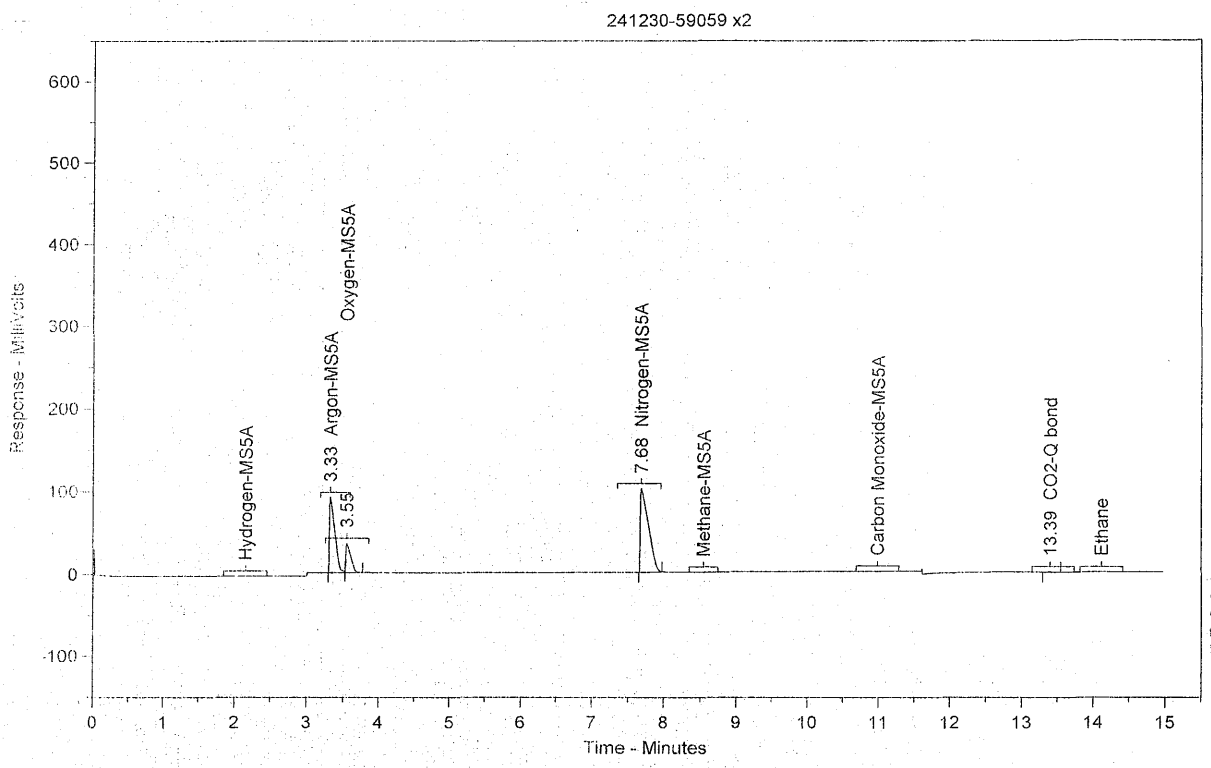
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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.32	Argon-MS5A	35.269	34.213	442769	30.928	BV	0.08
2	3.54	Oxygen-MS5A	14.216	13.790	168375	11.761	VB	0.08
3	7.67	Nitrogen-MS5A	53.361	51.762	813817	56.846	BB	0.13
4	13.39	CO2-Q bond	0.242	0.235	6667	0.466	BB	0.05

Total Area = 1431627 Total Height = 229789.8 Total Amount = 103.0884

DM
6/11/24



Sample Name = **241230-59059 x2**

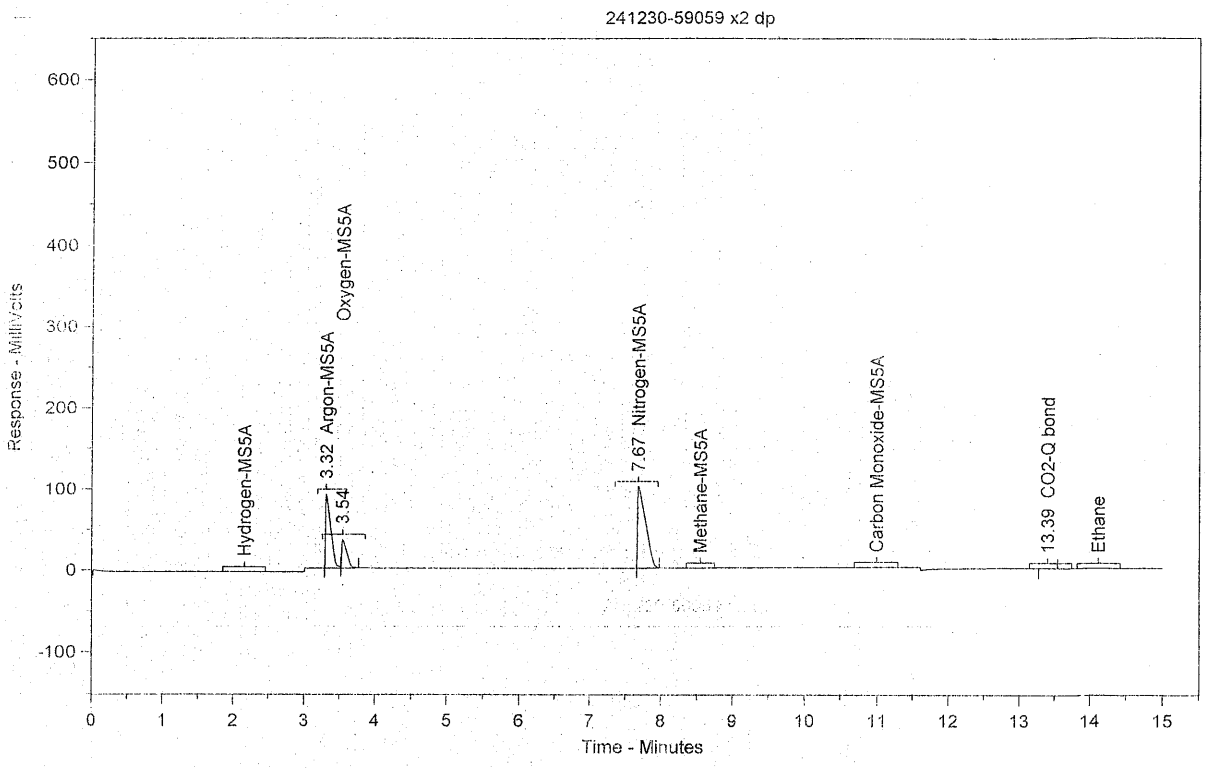
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0012.raw** Date Taken (end) = 6/12/2024 10:40:26 AM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945COMET Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~36.198~~	~~35.360~~	~~454430~~	~~32.069~~	~~BV~~	~~0.08~~
2	3.55	Oxygen-MS5A	14.031	13.706	166176	11.727	VB	0.08
3	7.68	Nitrogen-MS5A	52.040	50.836	793673	56.009	BB	0.13
<RL 4	13.39	CO2-Q bond	0.100	0.098	2761	0.195	BB	0.06

Total Area = 1417040 Total Height = 228348.2 Total Amount = 102.369

DM
6/12/24



Sample Name = **241230-59059 x2 dp**

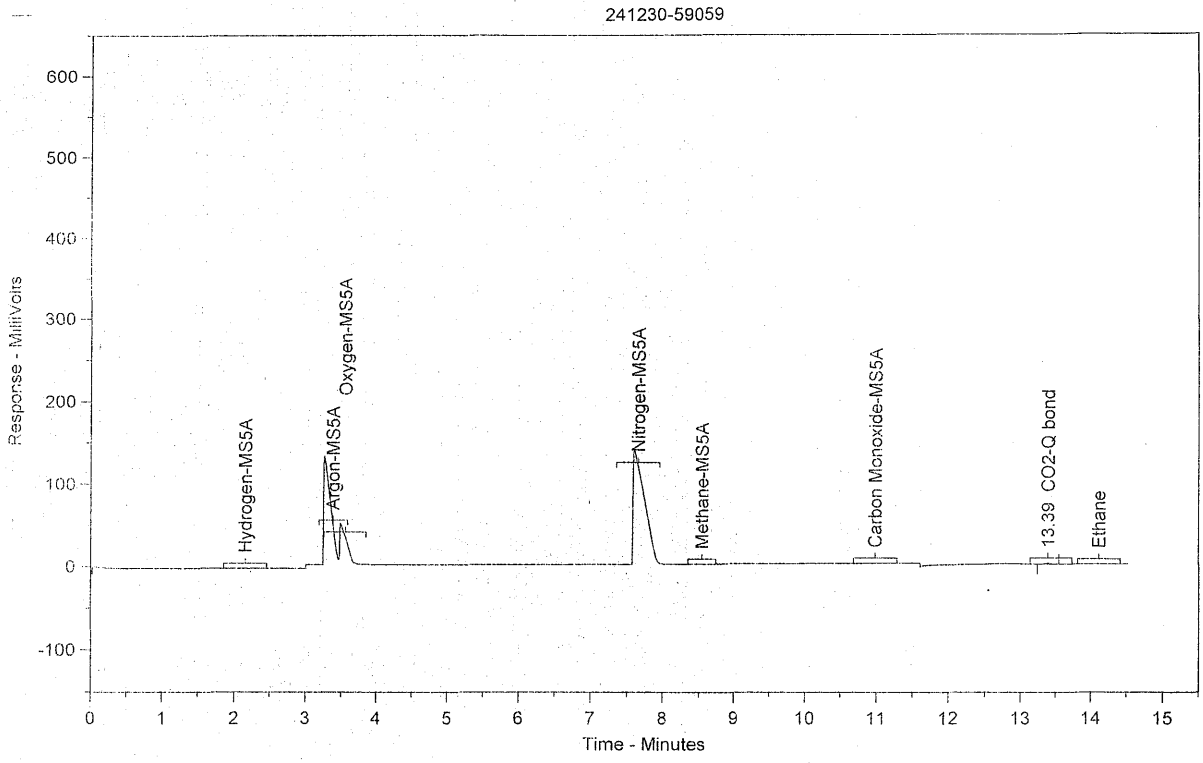
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0013.raw** Date Taken (end) = 6/12/2024 11:02:23 AM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945.CMET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.32~~	~~Argon-MS5A~~	~~36.272~~	~~35.439~~	~~455362~~	~~32.141~~	~~BV~~	~~0.08~~
2	3.54	Oxygen-MS5A	14.006	13.684	165888	11.709	VB	0.08
3	7.67	Nitrogen-MS5A	51.963	50.769	792497	55.936	BB	0.13
<RL 4	13.39	CO2-Q bond	0.110	0.108	3037	0.214	BB	0.06

Total Area = 1416783 Total Height = 227921.3 Total Amount = 102.3518

DM
6/12/24



Sample Name = **241230-59059**

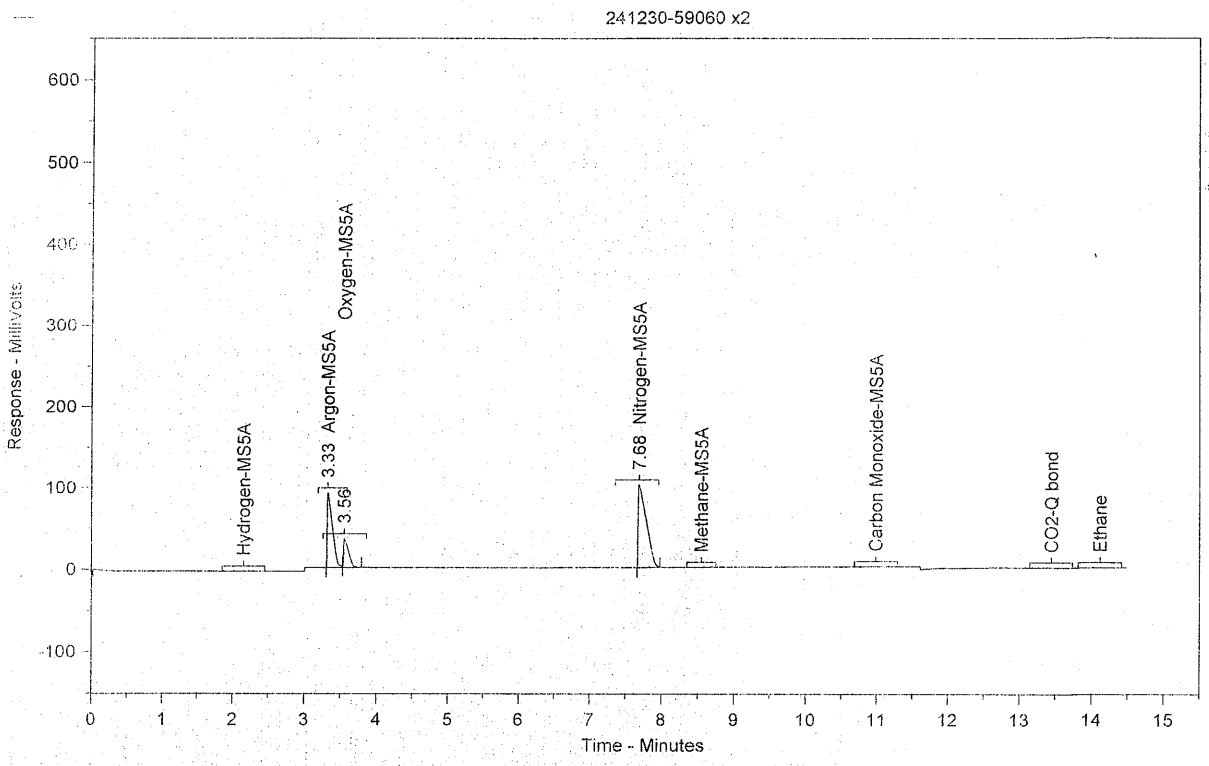
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0014.raw** Date Taken (end) = 6/12/2024 11:25:05 AM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946-D1947 ME.cmf Dilution Factor = 1
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	13.39	CO2-Q bond	0.100	100.000	5519	100.000	BB	0.05

Total Area = 5519.178 Total Height = 1318.67 Total Amount = 0.100204

DM
6/12/24



Sample Name = **241230-59060 x2**

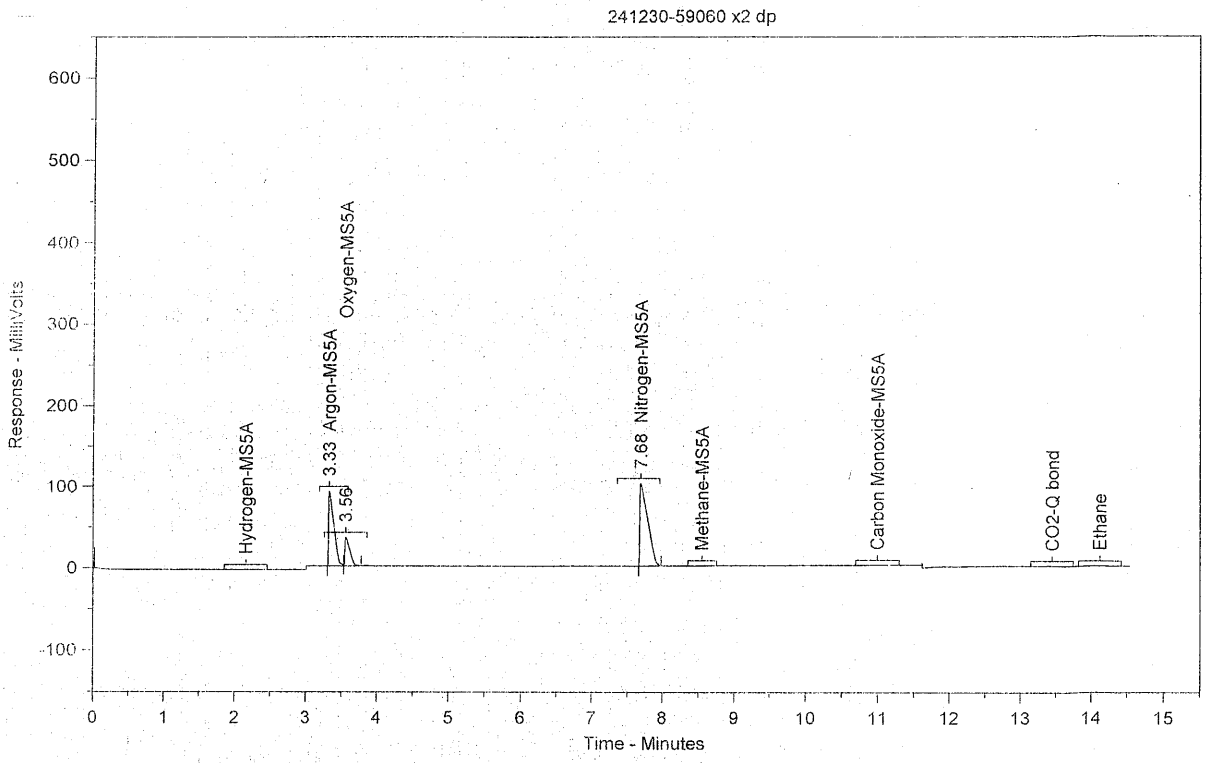
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0015.raw** Date Taken (end) = 6/12/2024 11:46:22 AM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946-GC.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~36.414~~	~~35.598~~	~~457141~~	~~32.323~~	~~BV~~	~~0.08~~
2	3.56	Oxygen-MS5A	13.969	13.656	165447	11.698	VB	0.08
3	7.68	Nitrogen-MS5A	51.910	50.746	791692	55.978	BB	0.13

Total Area = 1414280 Total Height = 227333.5 Total Amount = 102.2932

DM
6/12/24



Sample Name = **241230-59060 x2 dp**

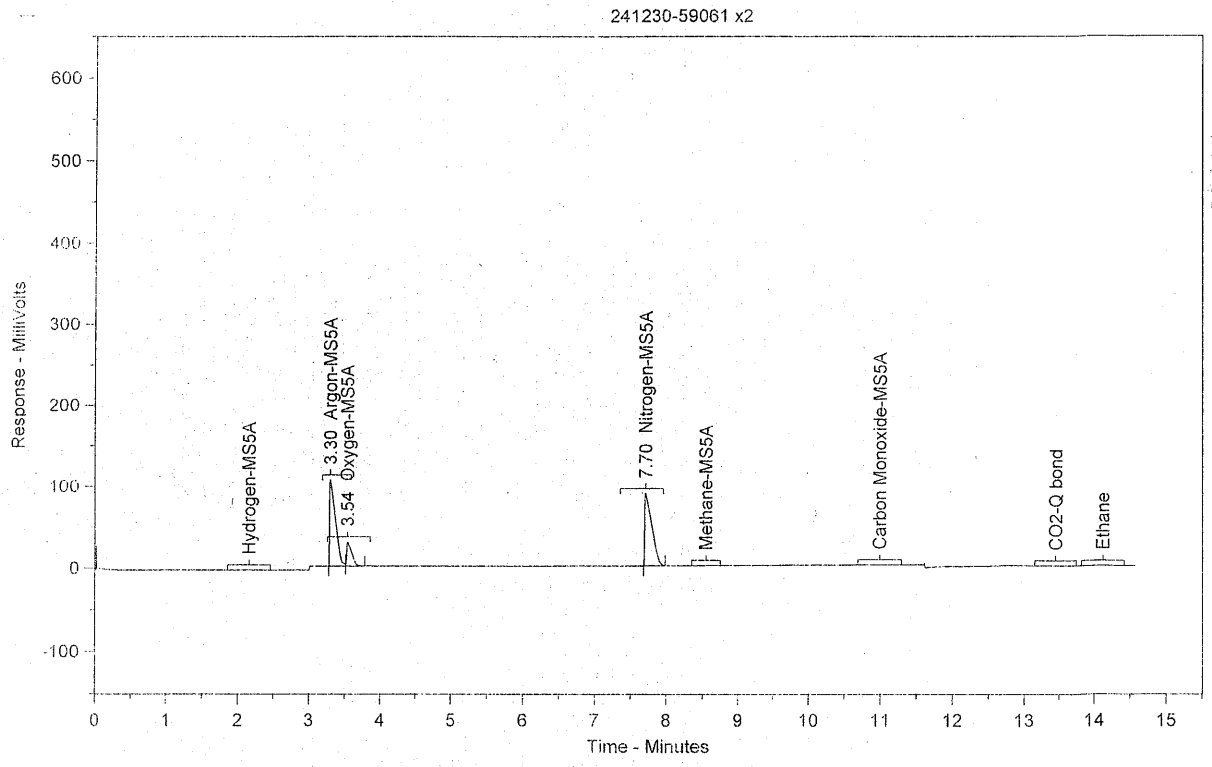
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0016.raw** Date Taken (end) = 6/12/2024 12:07:45 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945M.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~36.720~~	~~35.629~~	~~460988~~	~~32.351~~	~~BV~~	~~0.08~~
2	3.56	Oxygen-MS5A	14.029	13.612	166152	11.660	VB	0.08
3	7.68	Nitrogen-MS5A	52.313	50.759	797840	55.990	BB	0.13

Total Area = 1424980 Total Height = 228493.7 Total Amount = 103.0623

DM
6112/24



Sample Name = **241230-59061 x2**

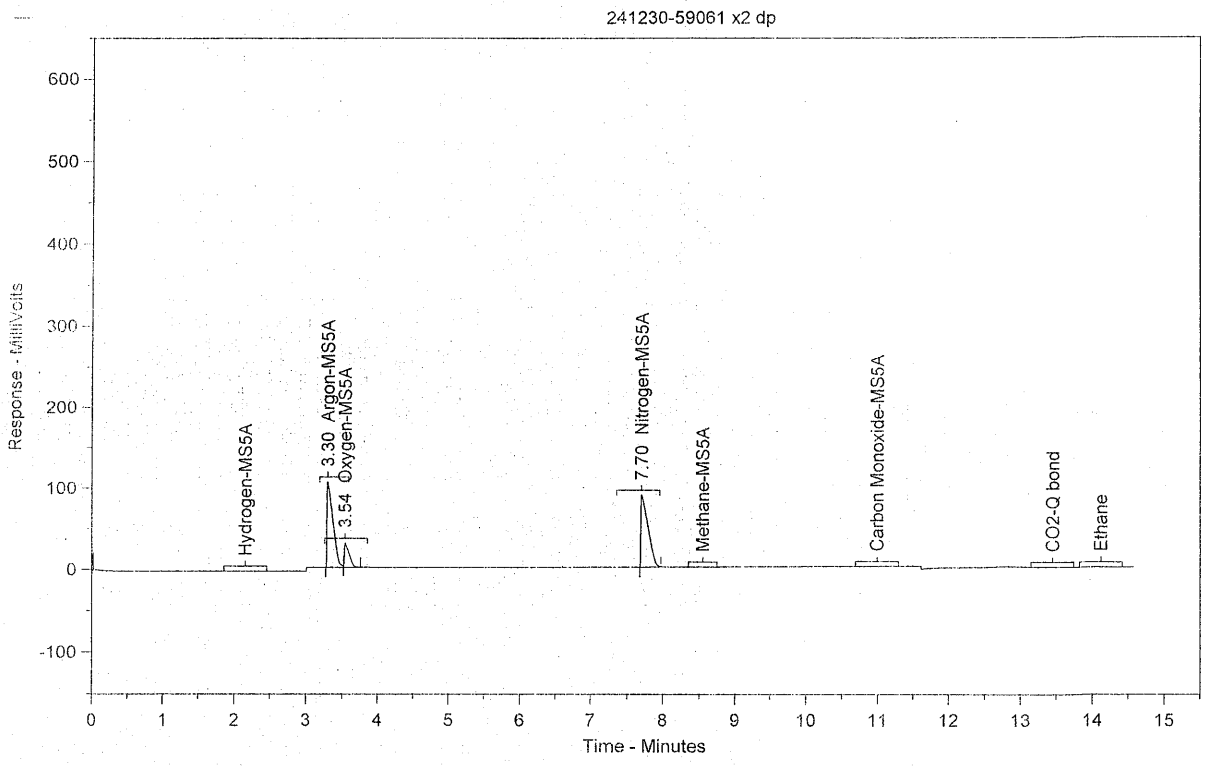
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0017.raw** Date Taken (end) = 6/12/2024 12:29:04 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.30~~	~~Argon-MS5A~~	~~46.913~~	~~47.322~~	~~589841~~	~~43.789~~	~~BV~~	~~0.09~~
2	3.54	Oxygen-MS5A	11.863	11.966	140502	10.447	VB	0.08
3	7.70	Nitrogen-MS5A	40.359	40.711	615523	45.765	BB	0.11

Total Area = 1344967 Total Height = 223358.5 Total Amount = 99.13463

NR 6-12-24



Sample Name = **241230-59061 x2 dp**

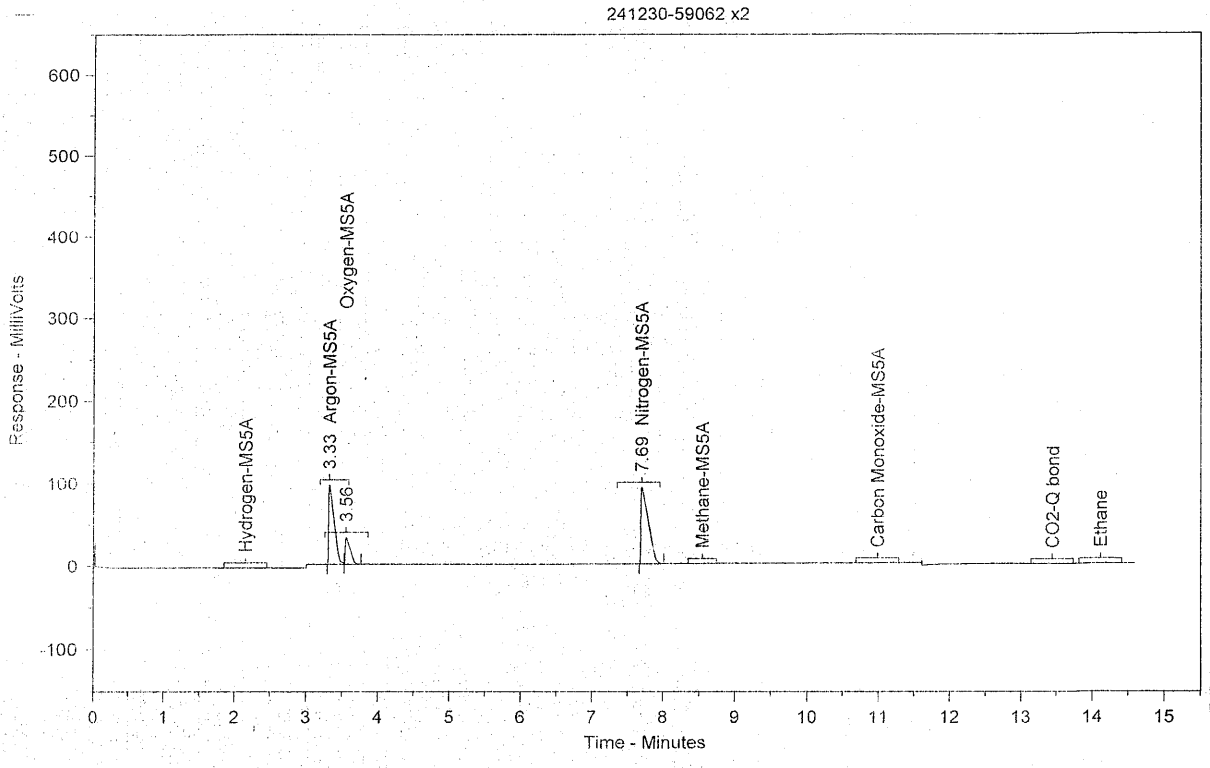
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0018.raw** Date Taken (end) = 6/12/2024 12:50:22 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946 Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.30	Argon-MS5A	46.910	47.343	588909	43.804	BV	0.09
2	3.54	Oxygen-MS5A	11.806	11.914	139823	10.400	VB	0.08
3	7.70	Nitrogen-MS5A	40.370	40.742	615685	45.796	BB	0.11

Total Area = 1344417 Total Height = 223293 Total Amount = 99.08533

DM
6/12/24



Sample Name = **241230-59062 x2**

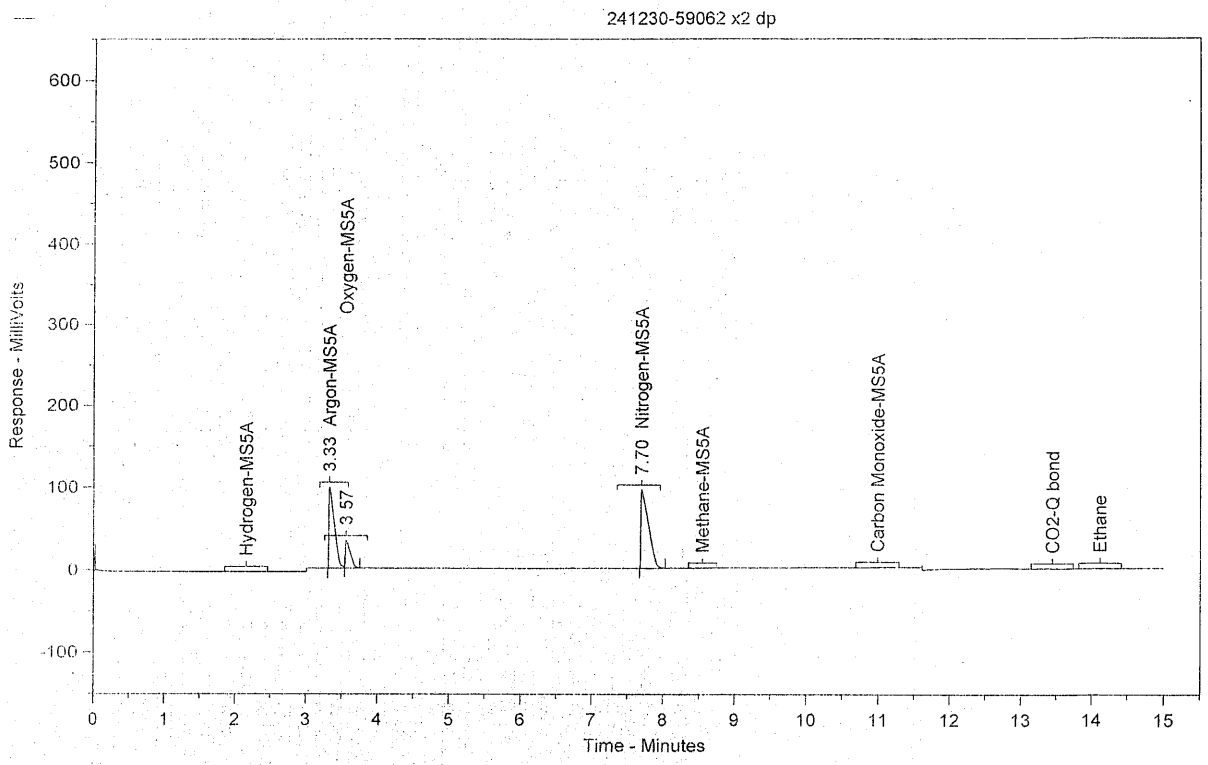
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0019.raw** Date Taken (end) = 6/12/2024 1:11:56 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~46.259~~	~~41.180~~	~~505936~~	~~37.762~~	~~BV~~	~~0.08~~
2	3.56	Oxygen-MS5A	12.918	13.215	152995	11.433	VB	0.08
3	7.69	Nitrogen-MS5A	44.577	45.605	679859	50.805	BB	0.12

Total Area = 1338183 Total Height = 222585.3 Total Amount = 97.74763

NR
6-12-24



Sample Name = **241230-59062 x2 dp**

Instrument = Instrument 1

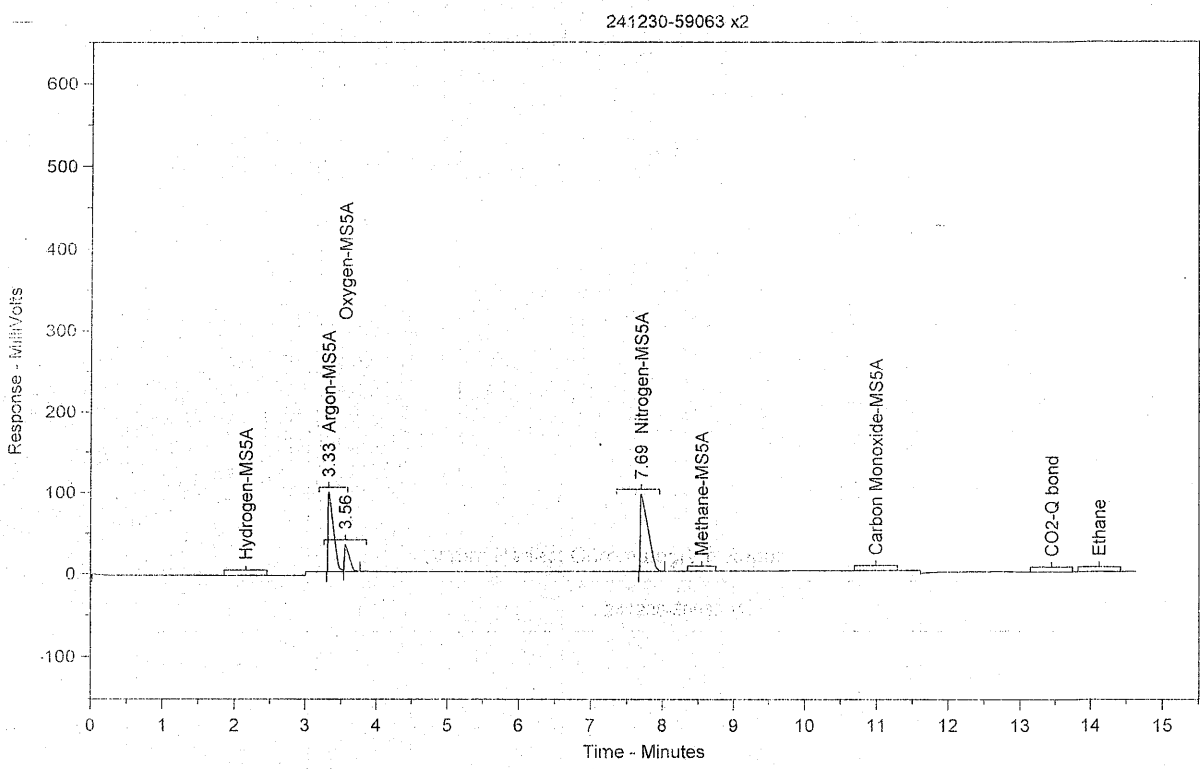
Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0020.raw** Date Taken (end) = 6/12/2024 1:34:10 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945C.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~41.183~~	~~41.277~~	~~517005~~	~~37.839~~	~~BV~~	~~0.09~~
2	3.57	Oxygen-MS5A	12.976	13.006	153684	11.248	VB	0.08
3	7.70	Nitrogen-MS5A	45.613	45.717	695647	50.913	BB	0.12

Total Area = 1366336 Total Height = 225193.6 Total Amount = 99.77105

Printed on 6/12/2024 1:38:37 PM

NR
6-12-24



Sample Name = **241230-59063 x2**

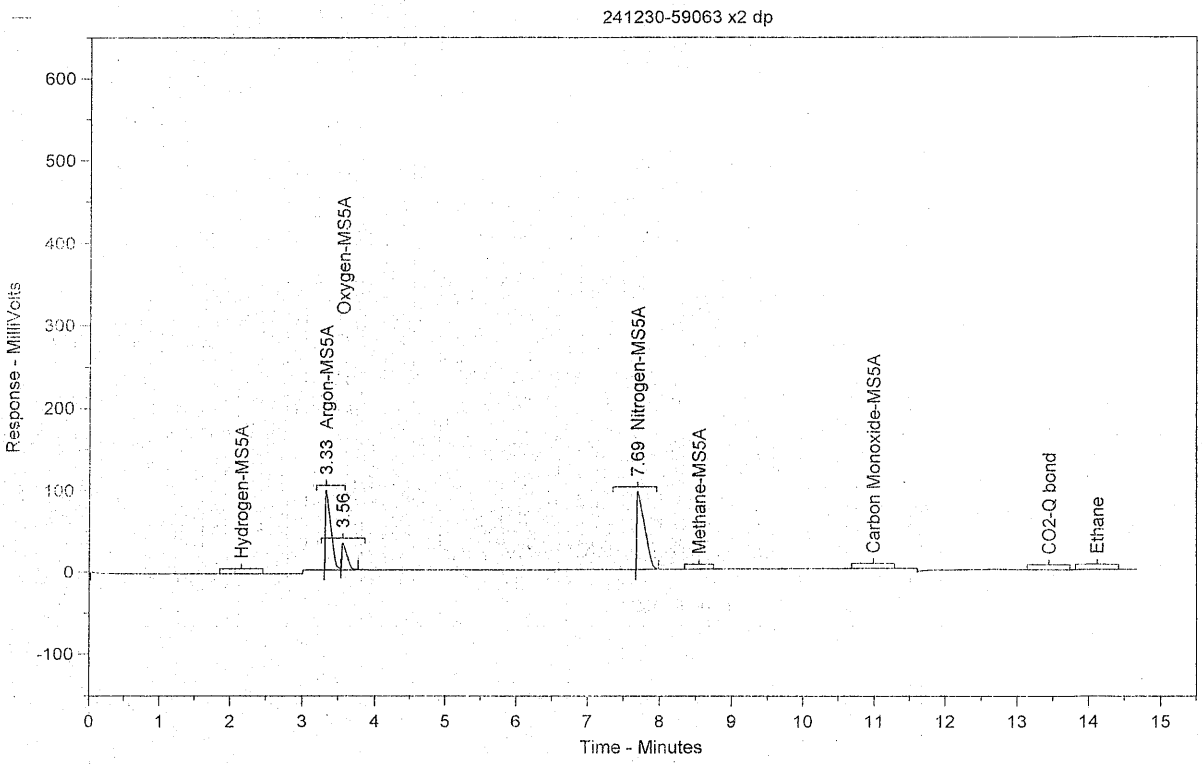
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0021.raw** Date Taken (end) = 6/12/2024 1:57:59 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945-30.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~41.063~~	~~40.823~~	~~515499~~	~~37.400~~	~~BV~~	~~0.09~~
2	3.56	Oxygen-MS5A	13.203	13.126	156376	11.345	VB	0.08
3	7.69	Nitrogen-MS5A	46.322	46.052	706471	51.255	BB	0.12

Total Area = 1378345 Total Height = 225772.8 Total Amount = 100.588

NR
6-12-24



Sample Name = **241230-59063 x2 dp**

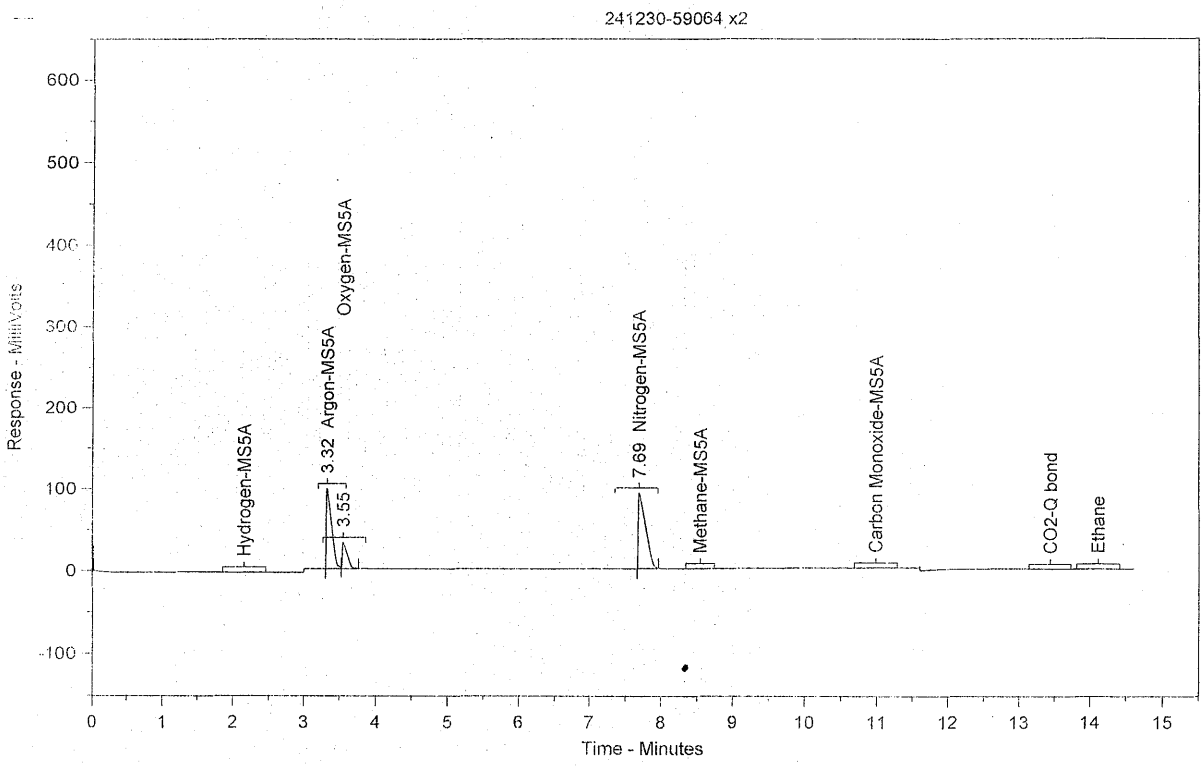
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0022.raw** Date Taken (end) = 6/12/2024 2:20:12 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945M.CMET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.33~~	~~Argon-MS5A~~	~~41.294~~	~~46.859~~	~~517652~~	~~37.431~~	~~BV~~	~~0.09~~
2	3.56	Oxygen-MS5A	13.253	13.131	156972	11.350	VB	0.08
3	7.69	Nitrogen-MS5A	46.445	46.016	708342	51.219	BB	0.12

Total Area = 1382966 Total Height = 226351.7 Total Amount = 100.9326

DM
6/12/24



Sample Name = **241230-59064 x2**

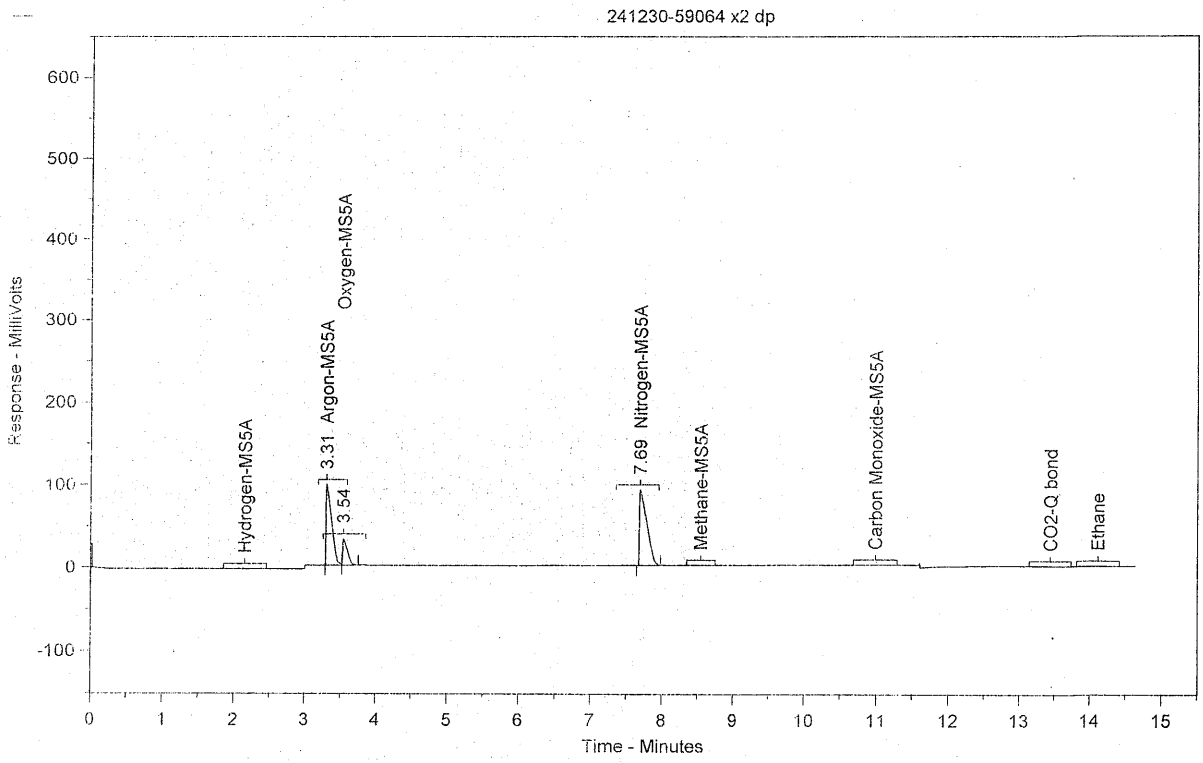
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0023.raw** Date Taken (end) = 6/12/2024 2:42:01 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945HC.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.32~~	~~Argon-MS5A~~	~~41.473~~	~~42.342~~	~~516885~~	~~38.896~~	~~BV~~	~~0.09~~
2	3.55	Oxygen-MS5A	12.663	13.022	149973	11.286	VB	0.08
3	7.69	Nitrogen-MS5A	43.403	44.636	661947	49.815	BB	0.12

Total Area = 1328805 Total Height = 222335.2 Total Amount = 97.23849

S.S 6/12/24



Sample Name = **241230-59064 x2 dp**

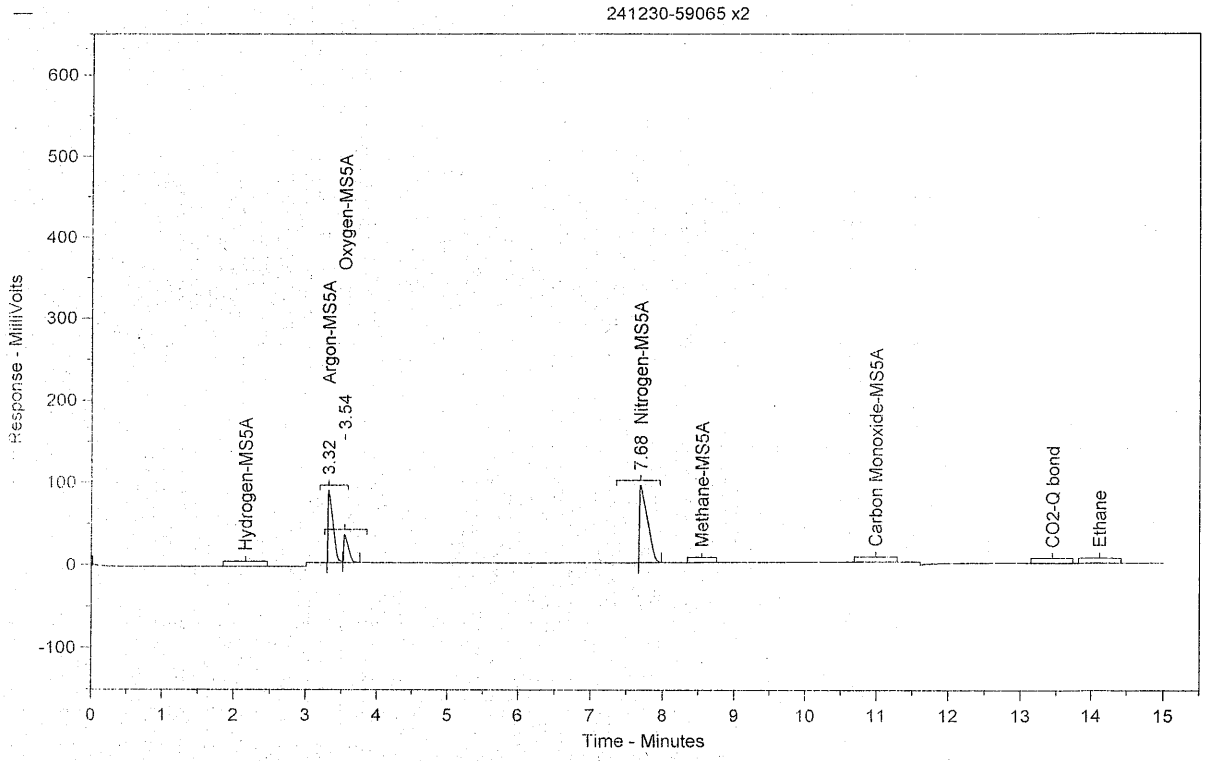
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0024.raw** Date Taken (end) = 6/12/2024 3:06:03 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945-30.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.31~~	~~Argon-MS5A~~	~~40.919~~	~~42.300~~	~~513694~~	~~38.857~~	~~BV~~	~~0.08~~
2	3.54	Oxygen-MS5A	12.598	13.023	149209	11.287	VB	0.08
3	7.69	Nitrogen-MS5A	43.217	44.676	659110	49.857	BB	0.12

Total Area = 1322013 Total Height = 221590.5 Total Amount = 96.73377

S.S 6/12/24



Sample Name = **241230-59065 x2**

Instrument = Instrument 1

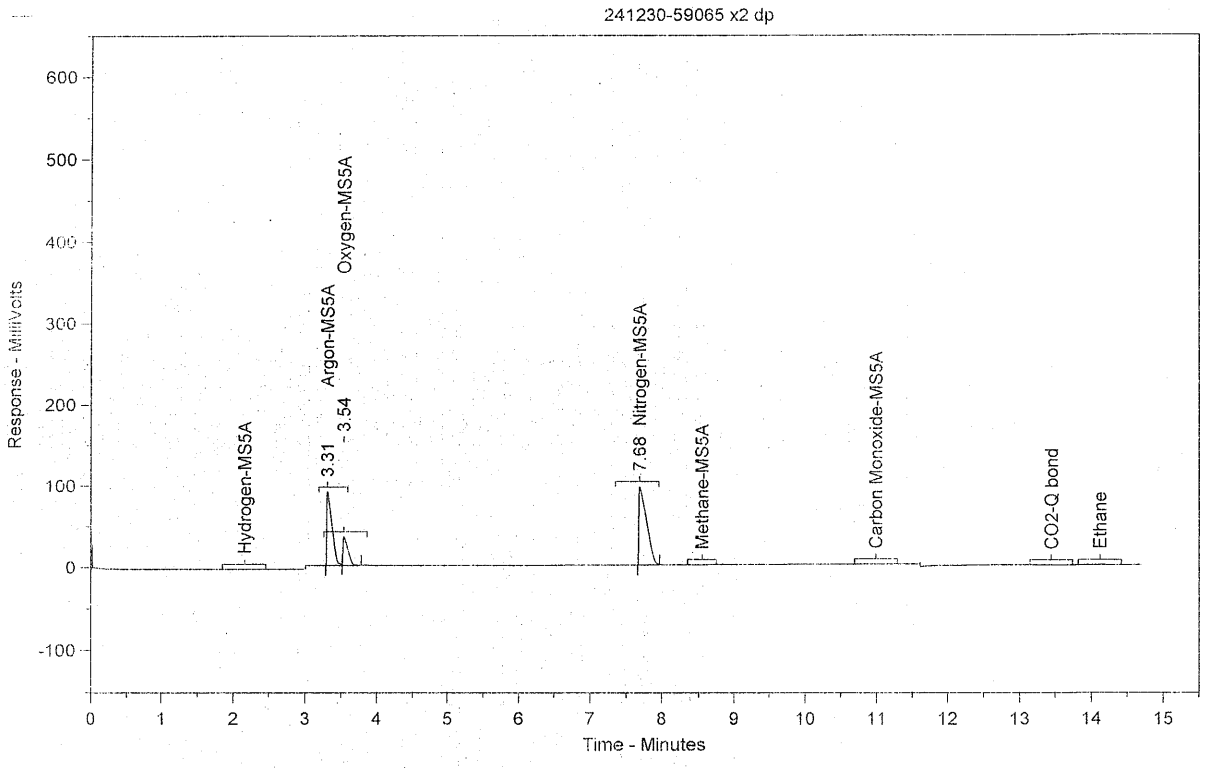
Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0025.raw** Date Taken (end) = 6/12/2024 3:28:09 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946GC.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.32~~	~~Argon-MS5A~~	~~34.360~~	~~36.865~~	~~430603~~	~~33.605~~	~~BV~~	~~0.09~~
2	3.54	Oxygen-MS5A	13.237	14.227	156774	12.235	VB	0.07
3	7.68	Nitrogen-MS5A	45.504	48.908	693996	54.160	BB	0.12

Total Area = 1281373 Total Height = 216702 Total Amount = 93.04122

Printed on 6/12/2024 3:28:54 PM

DM
6/12/24



Sample Name = **241230-59065 x2 dp**

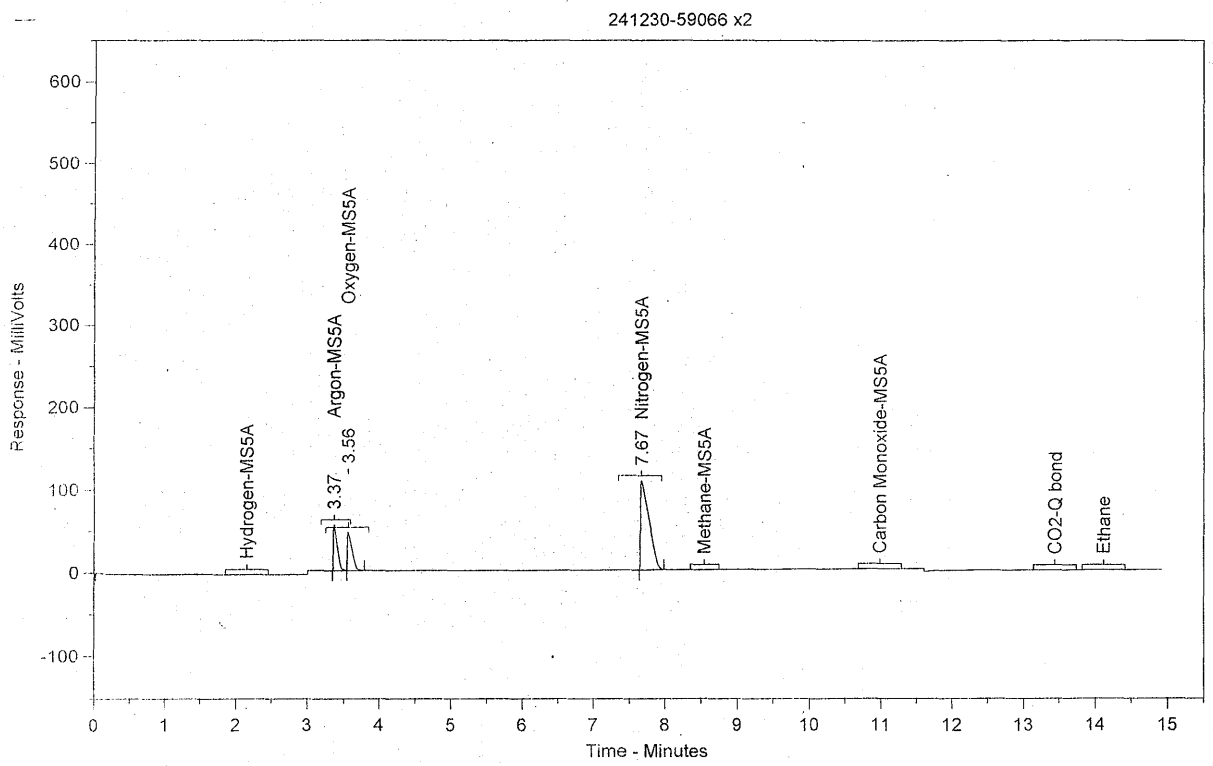
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0026.raw** Date Taken (end) = 6/12/2024 3:49:56 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946-GC.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.31~~	~~Argon-MS5A~~	~~35.558~~	~~36.829~~	~~446391~~	~~33.577~~	~~BV~~	~~0.08~~
2	3.54	Oxygen-MS5A	13.821	14.316	163699	12.313	VB	0.08
3	7.68	Nitrogen-MS5A	47.169	48.855	719376	54.110	BB	0.12

Total Area = 1329466 Total Height = 221495.8 Total Amount = 96.5477

DM
6/12/24



Sample Name = **241230-59066 x2**

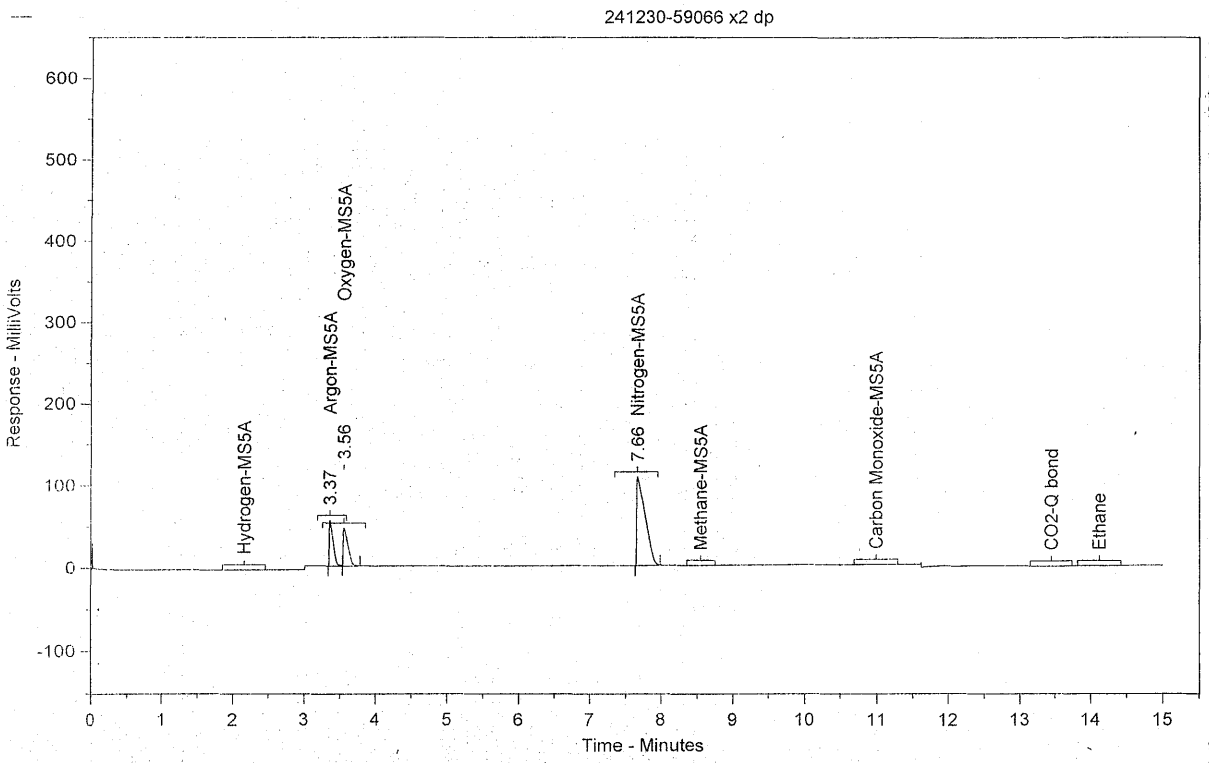
Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0027.raw** Date Taken (end) = 6/12/2024 4:12:09 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1945-01.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.37~~	~~Argon-MS5A~~	~~16.135~~	~~17.366~~	~~202556~~	~~15.421~~	~~BV~~	~~0.06~~
2	3.56	Oxygen-MS5A	17.611	18.955	208586	15.880	VB	0.07
3	7.67	Nitrogen-MS5A	59.166	63.679	902347	68.698	BB	0.14

Total Area = 1313489 Total Height = 209746 Total Amount = 92.9118

DM
6112124



Sample Name = **241230-59066 x2 dp**

Instrument = Instrument 1

Raw File Name = **C:\Chromperfect 1\CPDATA\1\2022\061224.0028.raw** Date Taken (end) = 6/12/2024 4:34:26 PM
Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1946-GC.MET Dilution Factor = 2
Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092623 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
~~1~~	~~3.37~~	~~Argon-MS5A~~	~~18.174~~	~~17.404~~	~~228852~~	~~15.455~~	~~BV~~	~~0.06~~
2	3.56	Oxygen-MS5A	17.601	18.939	208462	15.867	VB	0.07
3	7.66	Nitrogen-MS5A	59.161	63.658	902279	68.677	BB	0.14

Total Area = 1313793 Total Height = 209822 Total Amount = 92.93639

DM
6112124

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 08.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 8:34
Operator :
Sample : 241230-59057
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 08:48:38 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	2.487	3277319	1.719	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	d
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

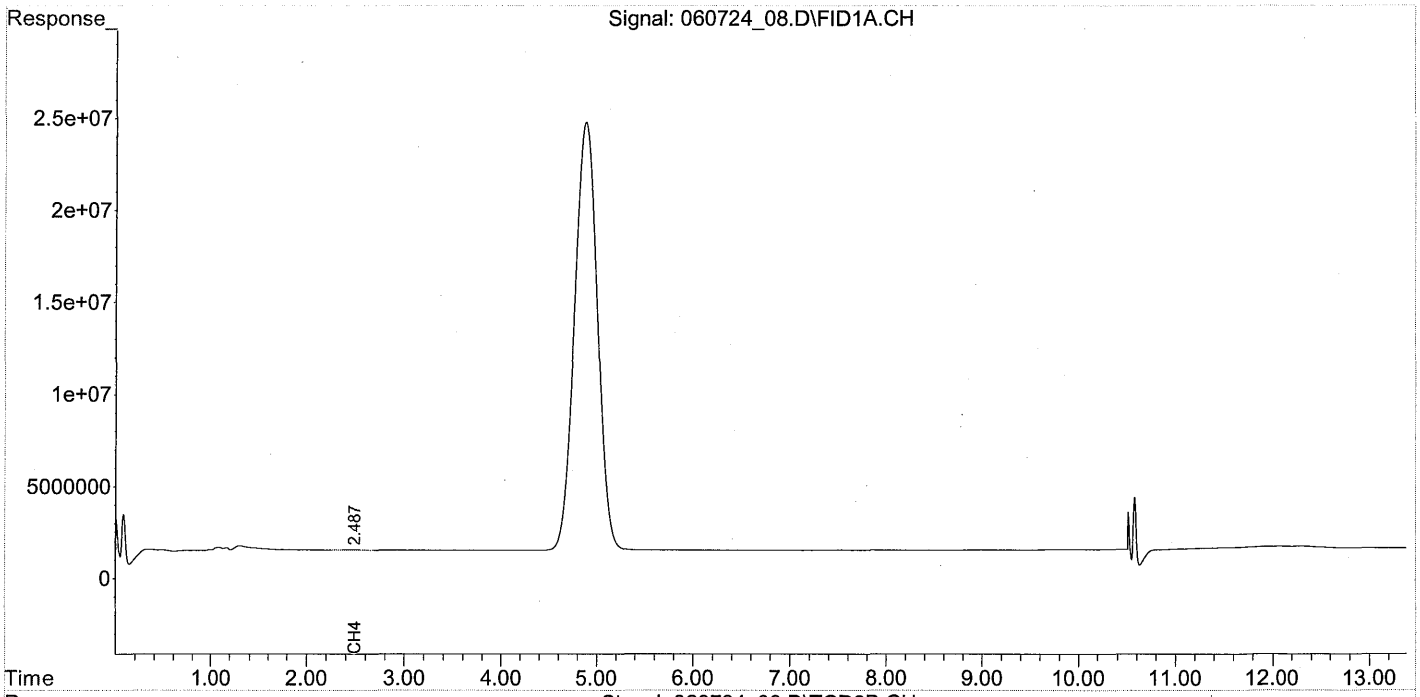
(f)=RT Delta > 1/2 Window (m)=manual int.

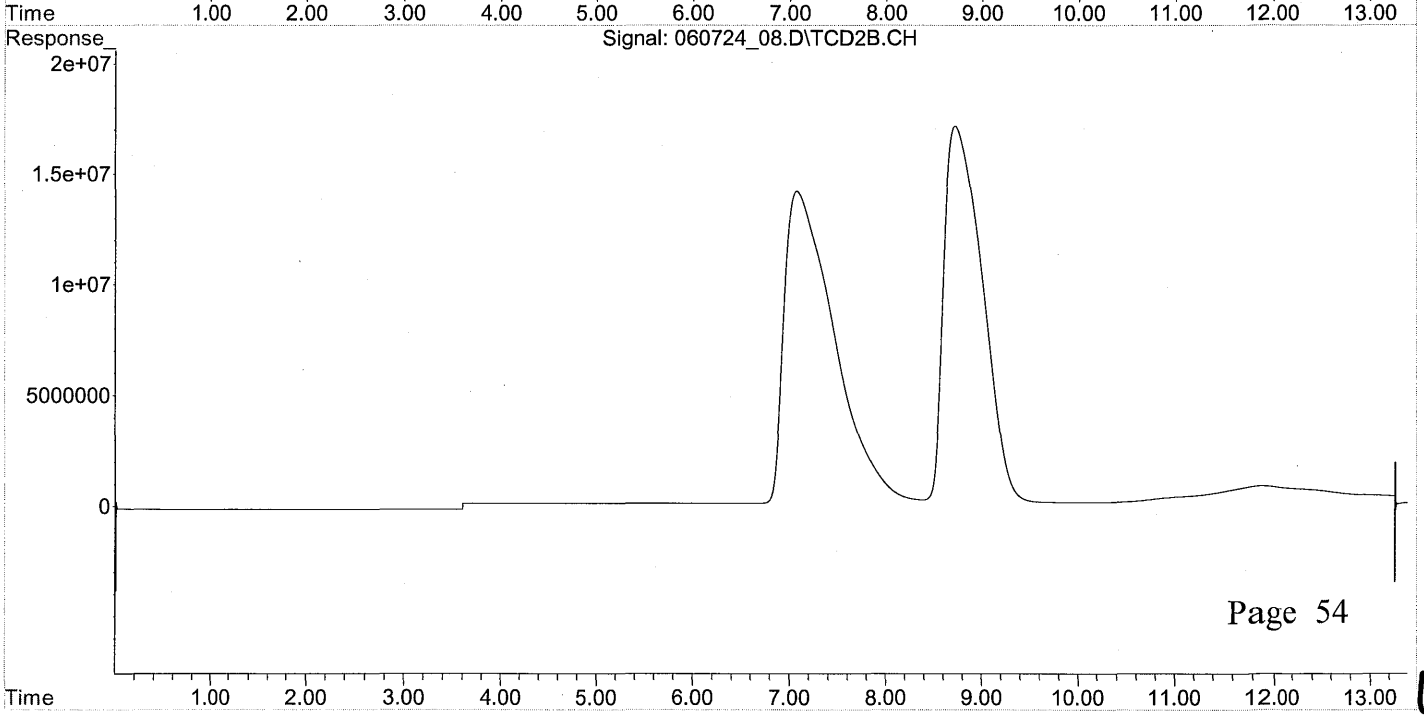
NR
6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 08.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 8:34
Operator :
Sample : 241230-59057
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 08:48:38 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-7-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 09.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 8:52
Operator :
Sample : 241230-59057 dp
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 09:06:13 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.485	3293091	1.728	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

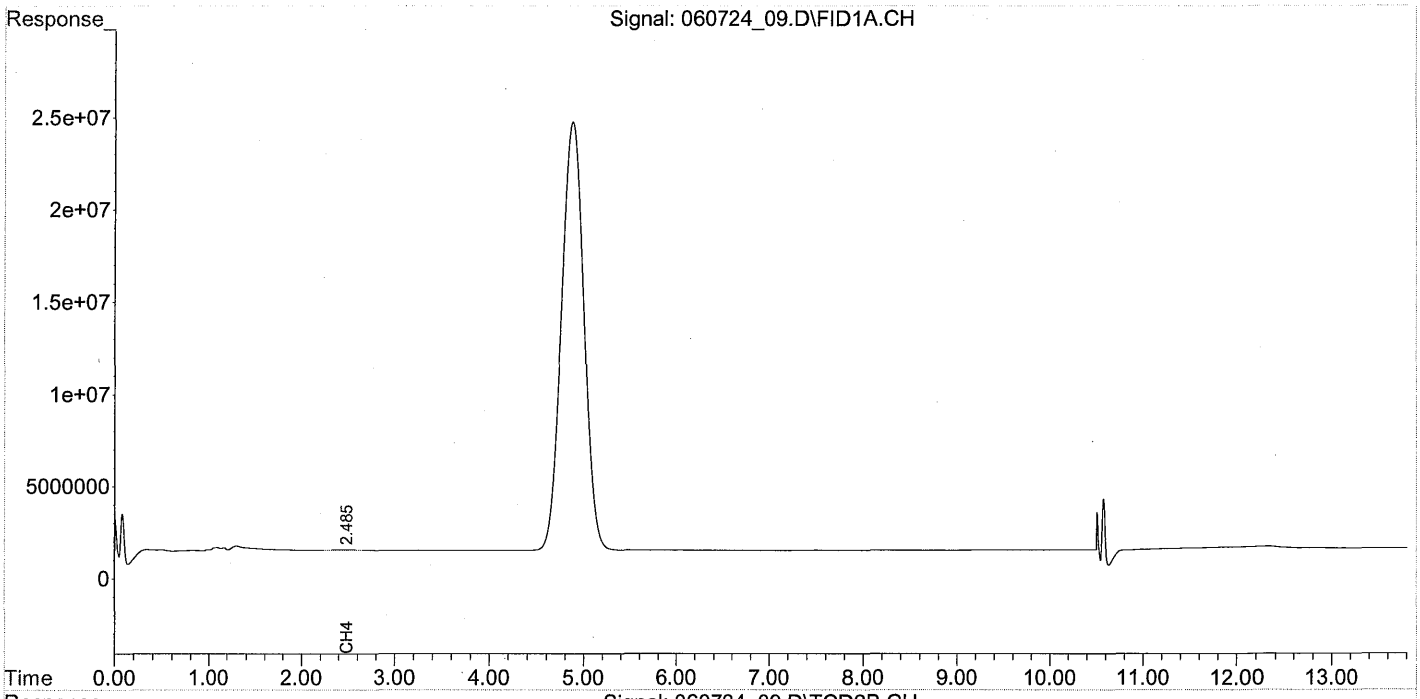
(f)=RT Delta > 1/2 Window (m)=manual int.

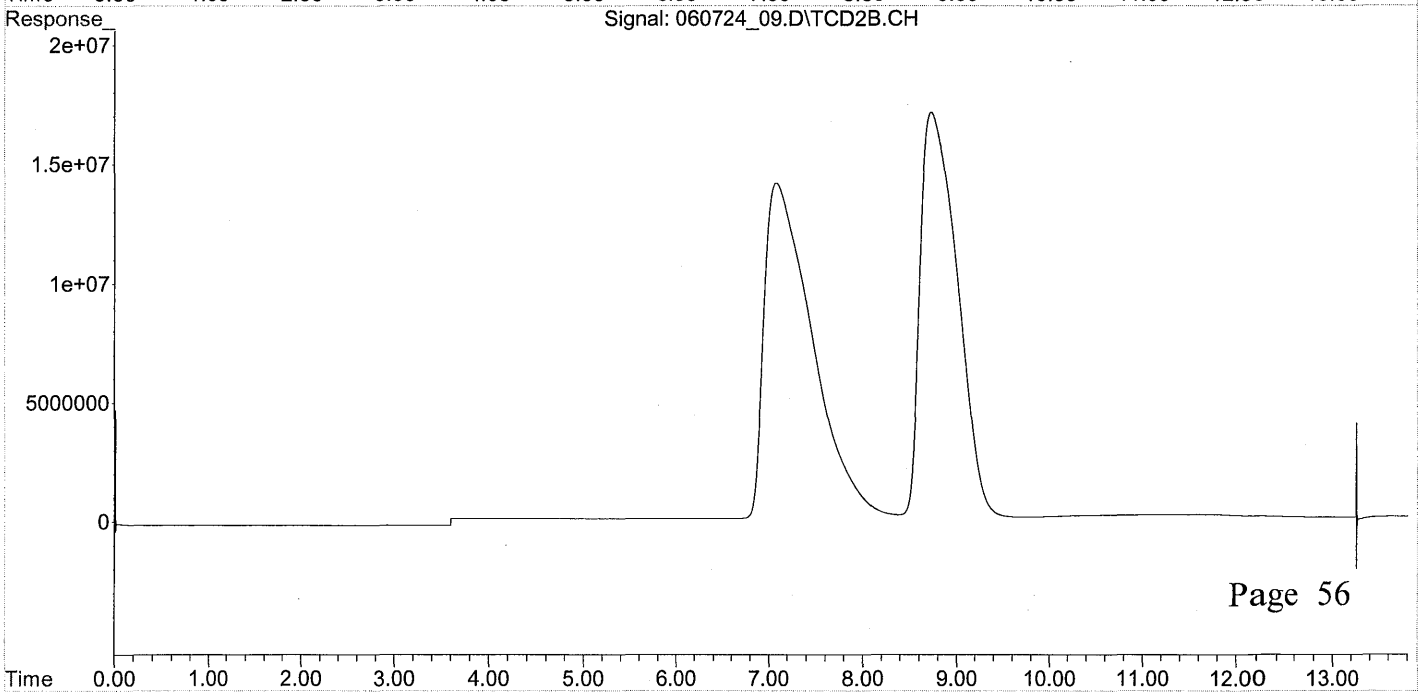
NR 6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 09.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 8:52
Operator :
Sample : 241230-59057 dp
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 09:06:13 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-7-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 13.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:04
Operator :
Sample : 241230-59058
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:19:35 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	2.467	4997927	2.622	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

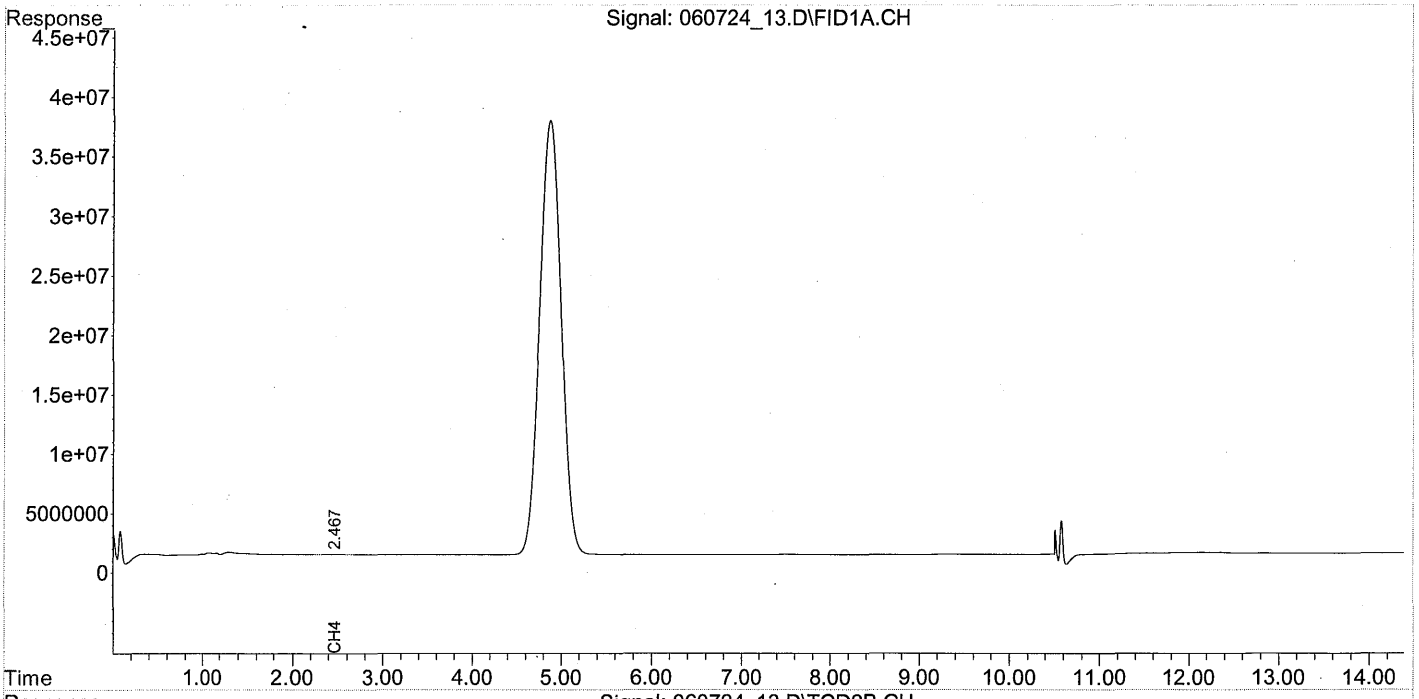
NR 6-7-24

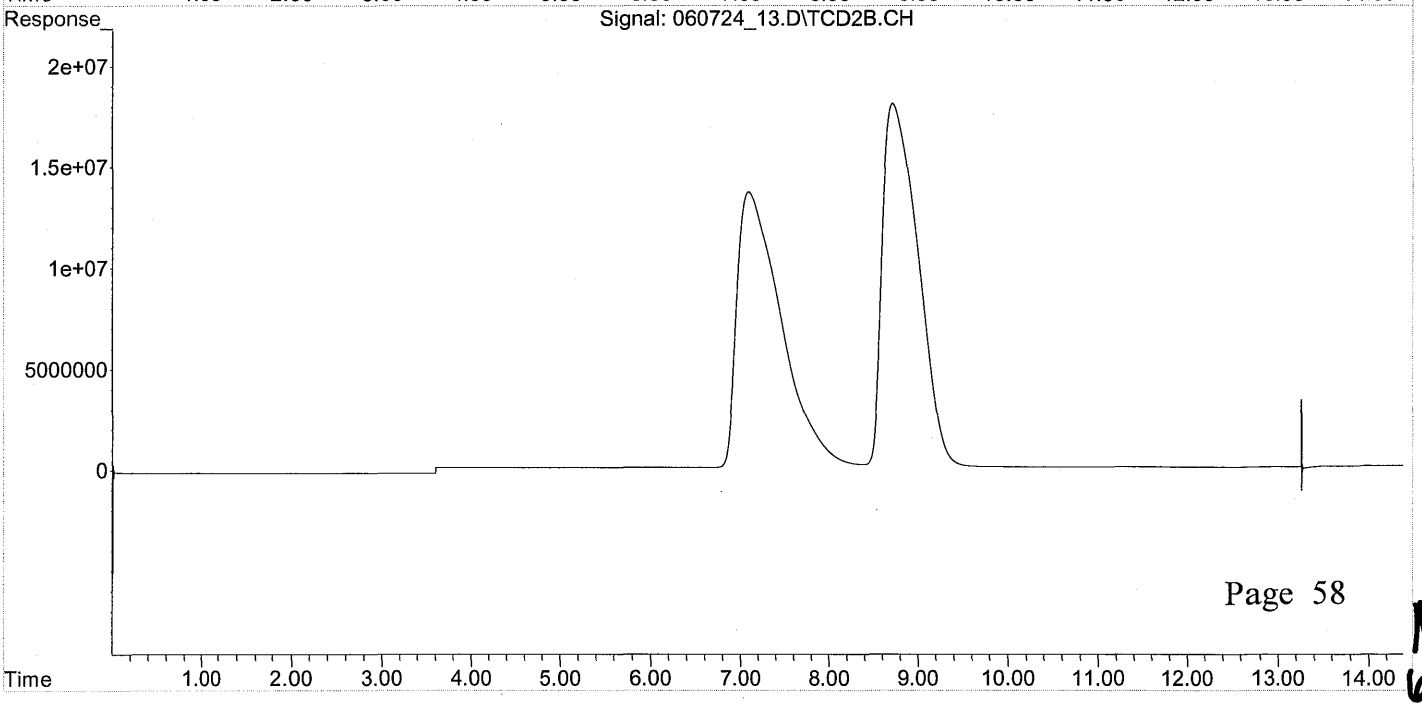
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 13.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:04
Operator :
Sample : 241230-59058
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:19:35 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-7-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 14.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:23
Operator :
Sample : 241230-59058 dp
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:37:26 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.467	4977272	2.611	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

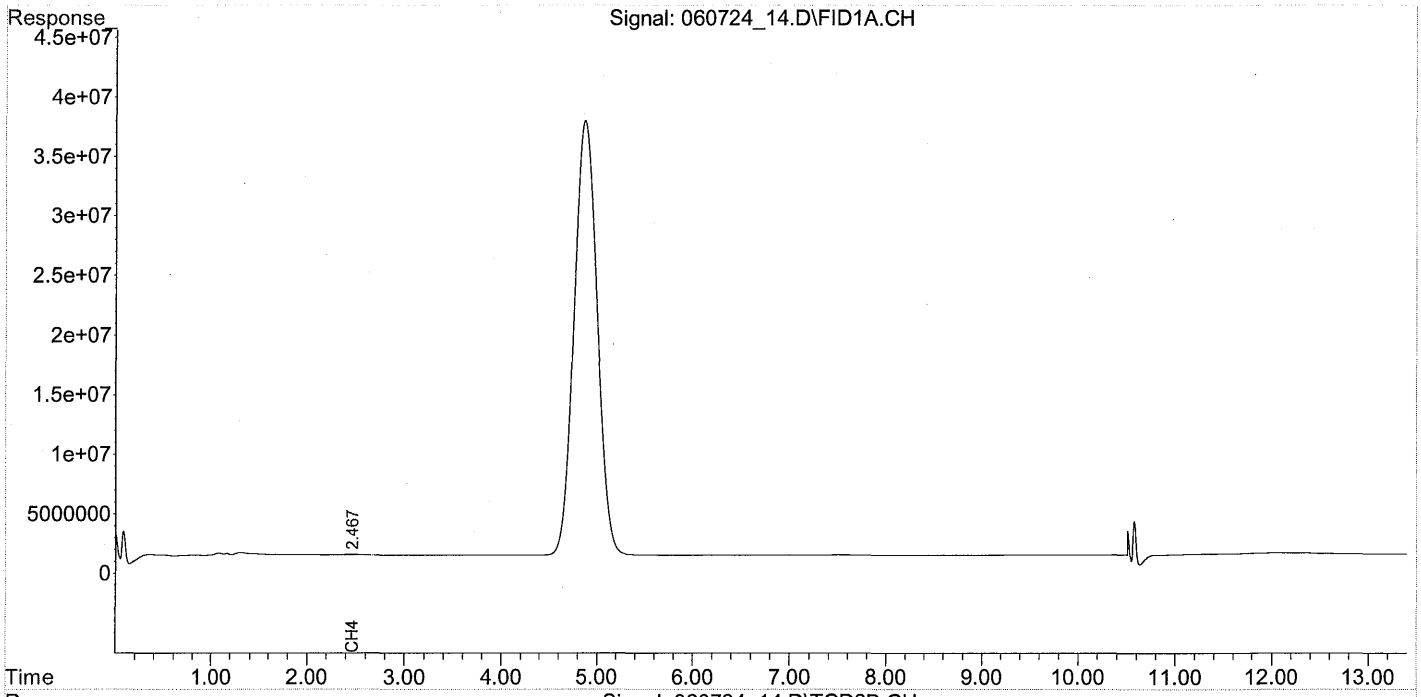
(f)=RT Delta > 1/2 Window (m)=manual int.

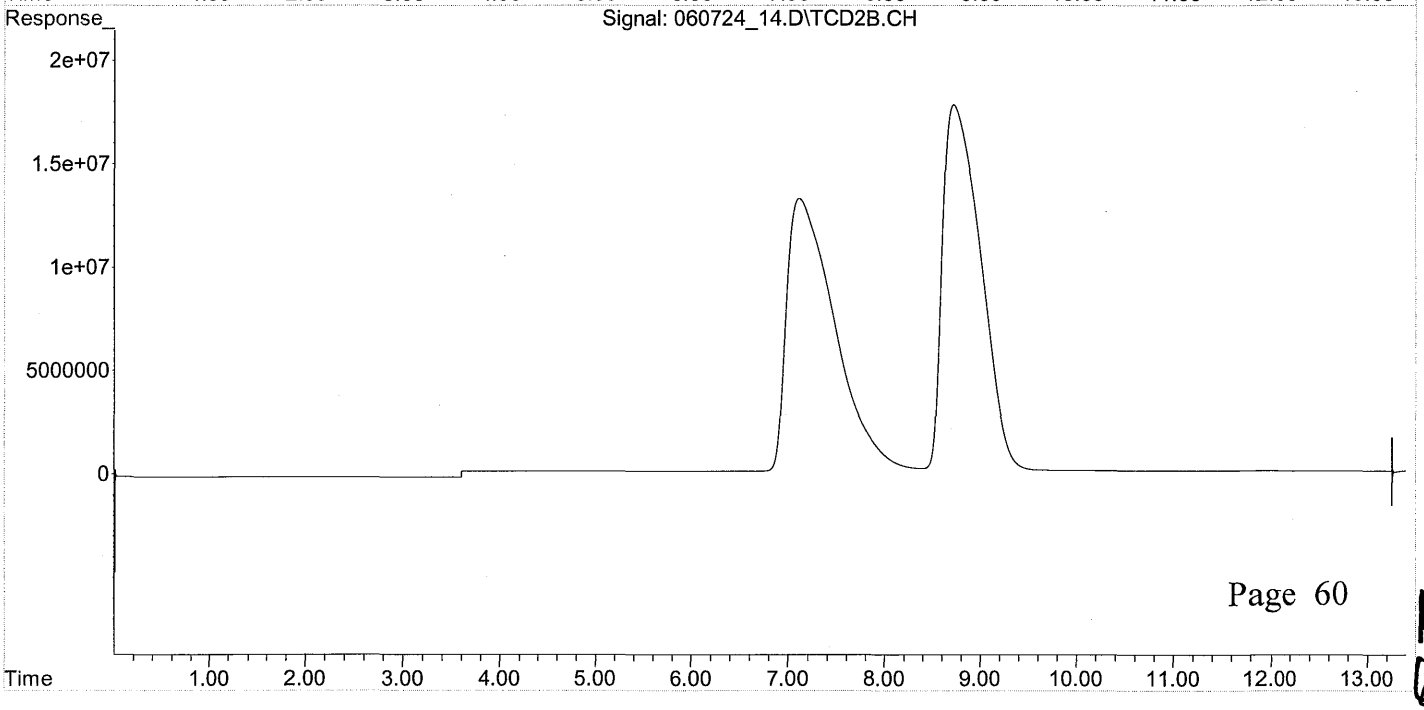
NR
6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 14.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:23
Operator :
Sample : 241230-59058 dp
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:37:26 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-7-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 15.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:40
Operator :
Sample : 241230-59059
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:59:43 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	2.461	3439918	1.805	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

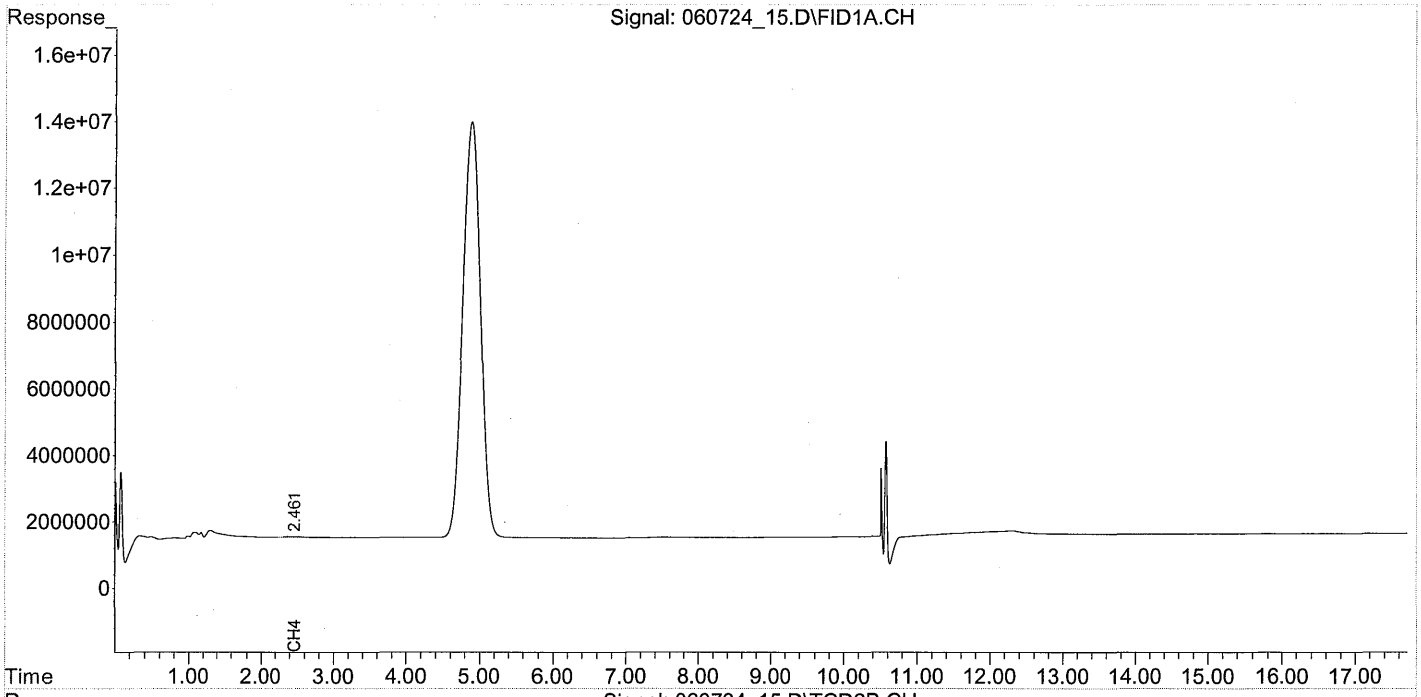
(f)=RT Delta > 1/2 Window (m)=manual int.

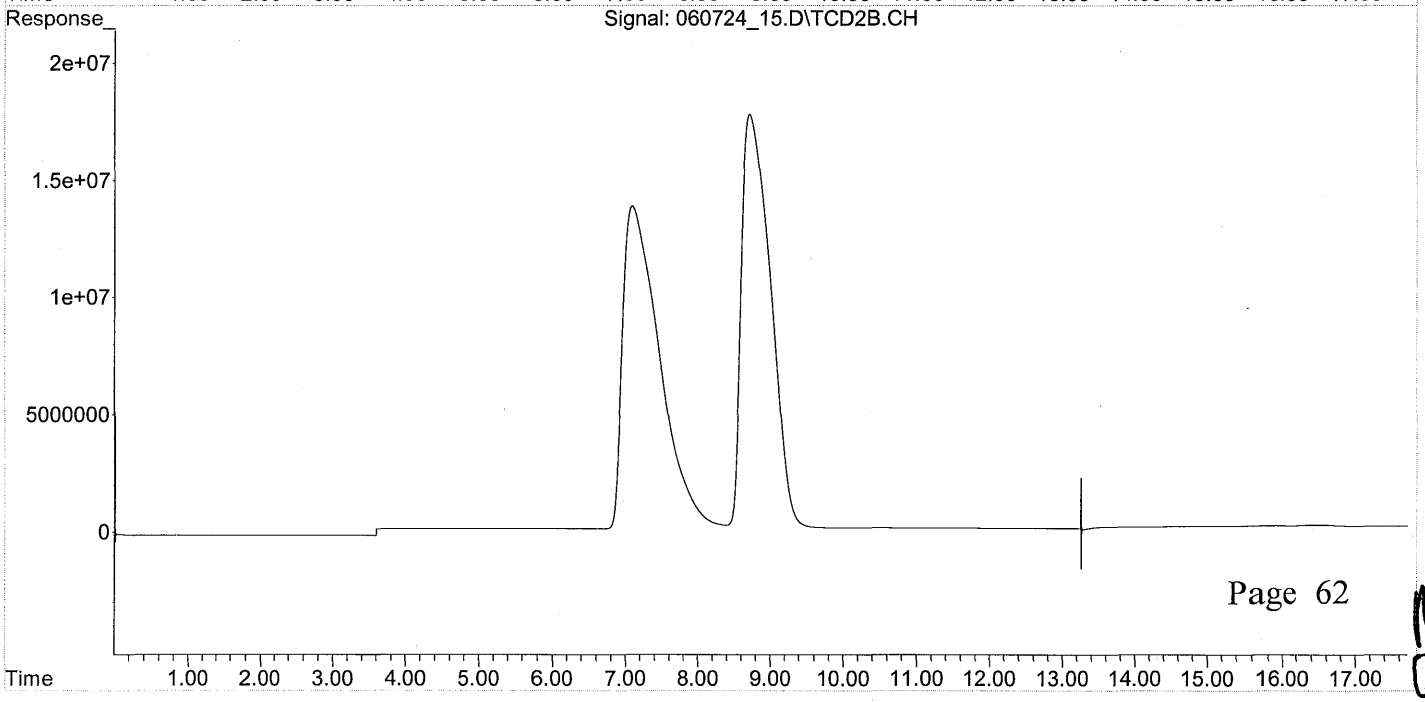
Page 61
NR
6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 15.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 10:40
Operator :
Sample : 241230-59059
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 10:59:43 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 16.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:04
Operator :
Sample : 241230-59059 dp
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 11:21:19 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.463	3384948	1.776	ppm	m
3)	CO2	0.000	0	N.D.	ppm	d
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

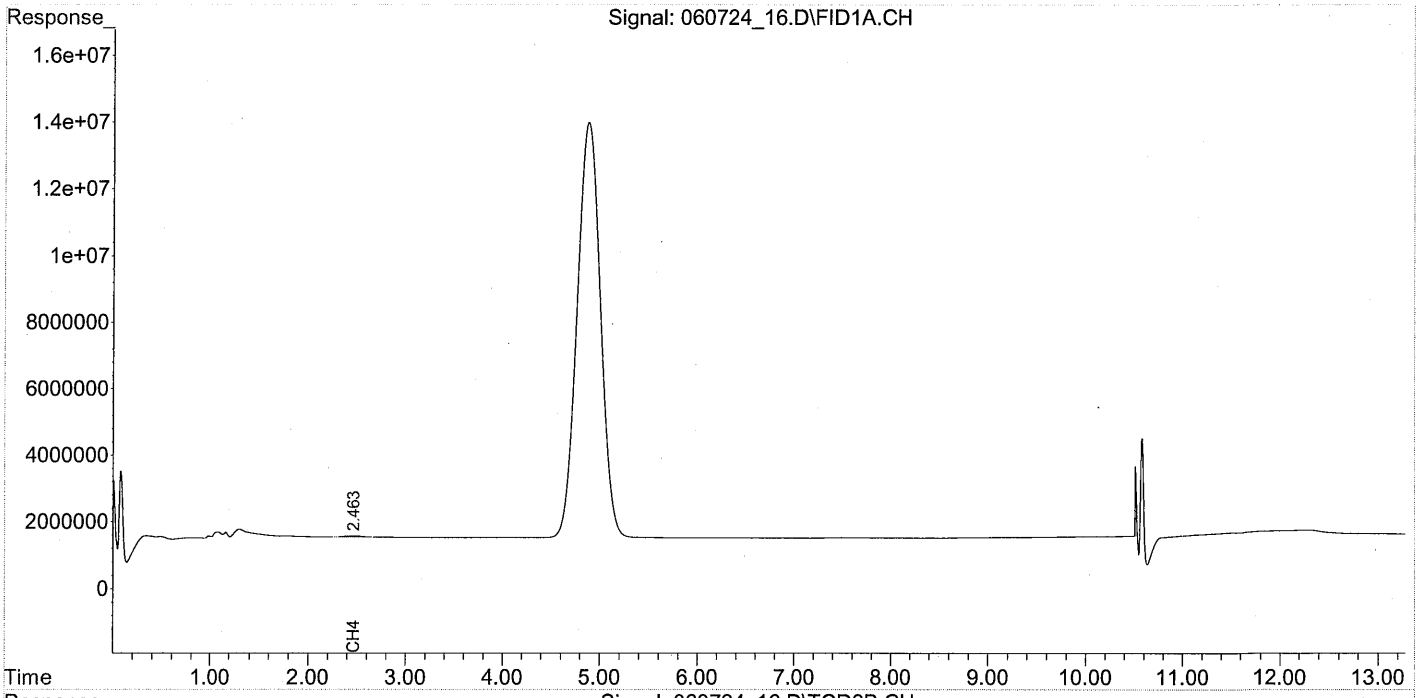
(f)=RT Delta > 1/2 Window (m)=manual int.

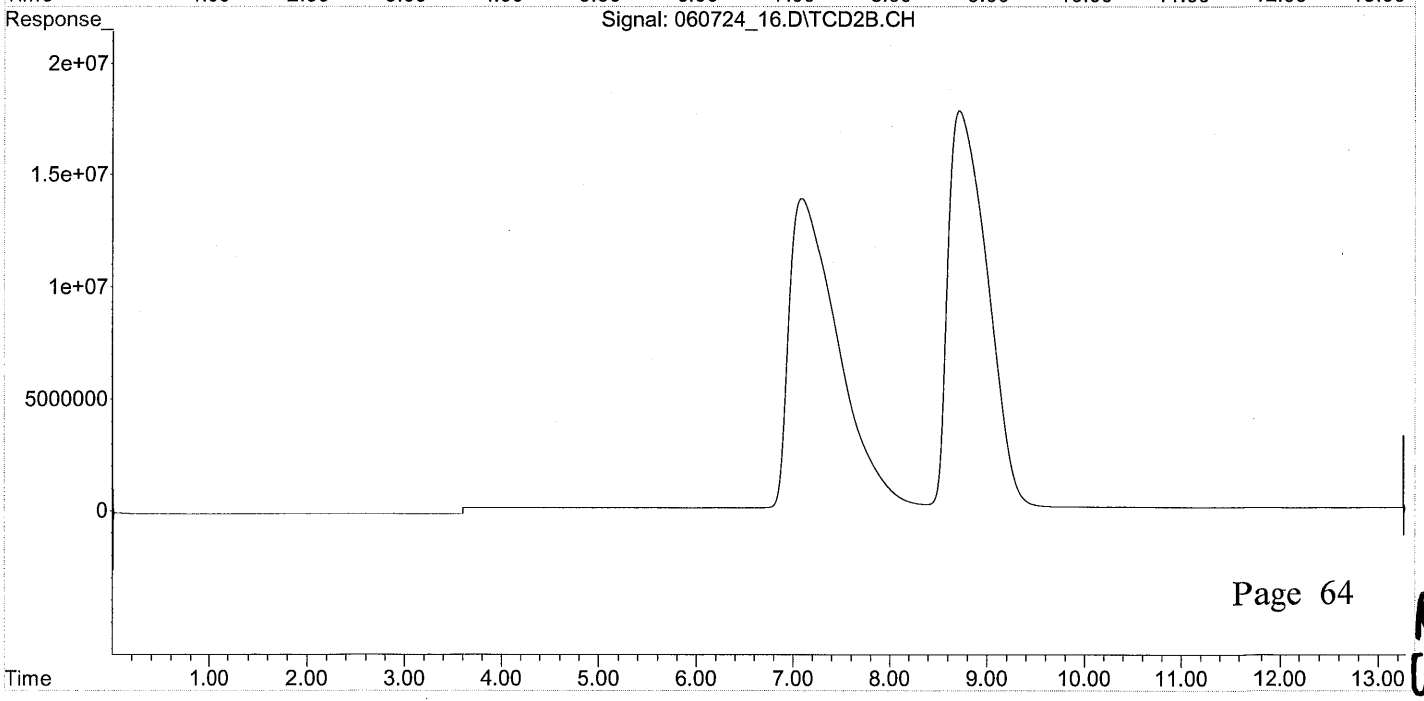
NR 6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 16.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:04
Operator :
Sample : 241230-59059 dp
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 11:21:19 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NL 6-7-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 17.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:22
Operator :
Sample : 241230-59060
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 11:46:55 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.477	3980271	2.088	ppm	m
3)	CO2	4.886	1673492873	~~822.323~~	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

(f)=RT Delta > 1/2 Window (m)=manual int.

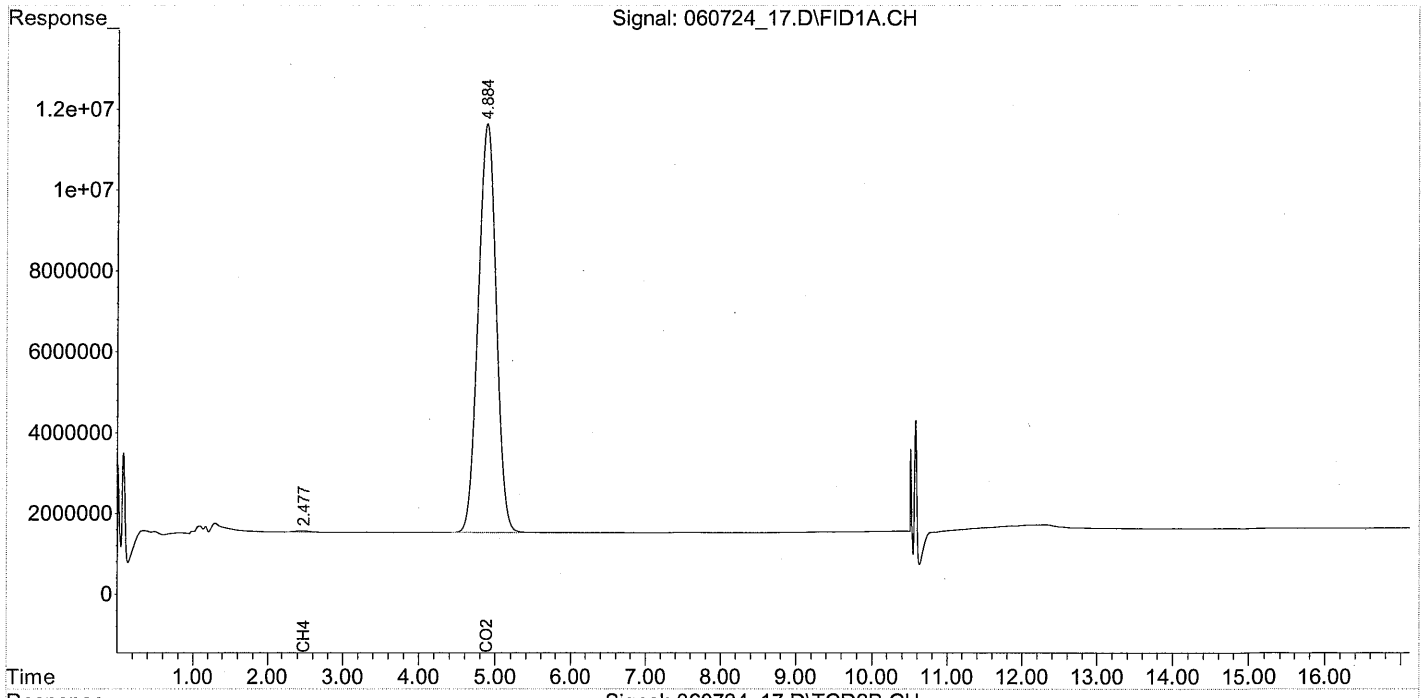
NR 6-7-24

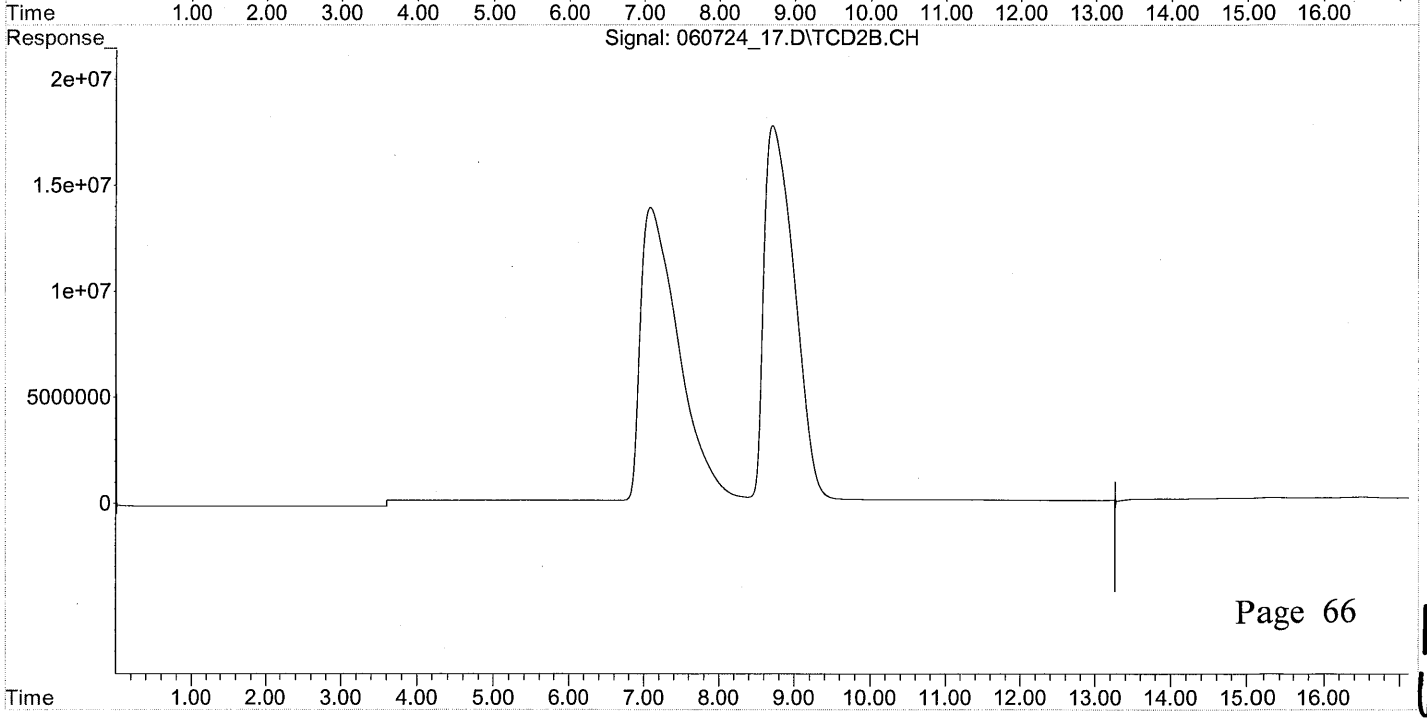
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 17.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:22
Operator :
Sample : 241230-59060
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 11:46:55 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 18.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:45
Operator :
Sample : 241230-59060 dp
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 12:04:56 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.458	4138753	2.171	ppm	m
3)	CO2	4.884	1672052771	821 615	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

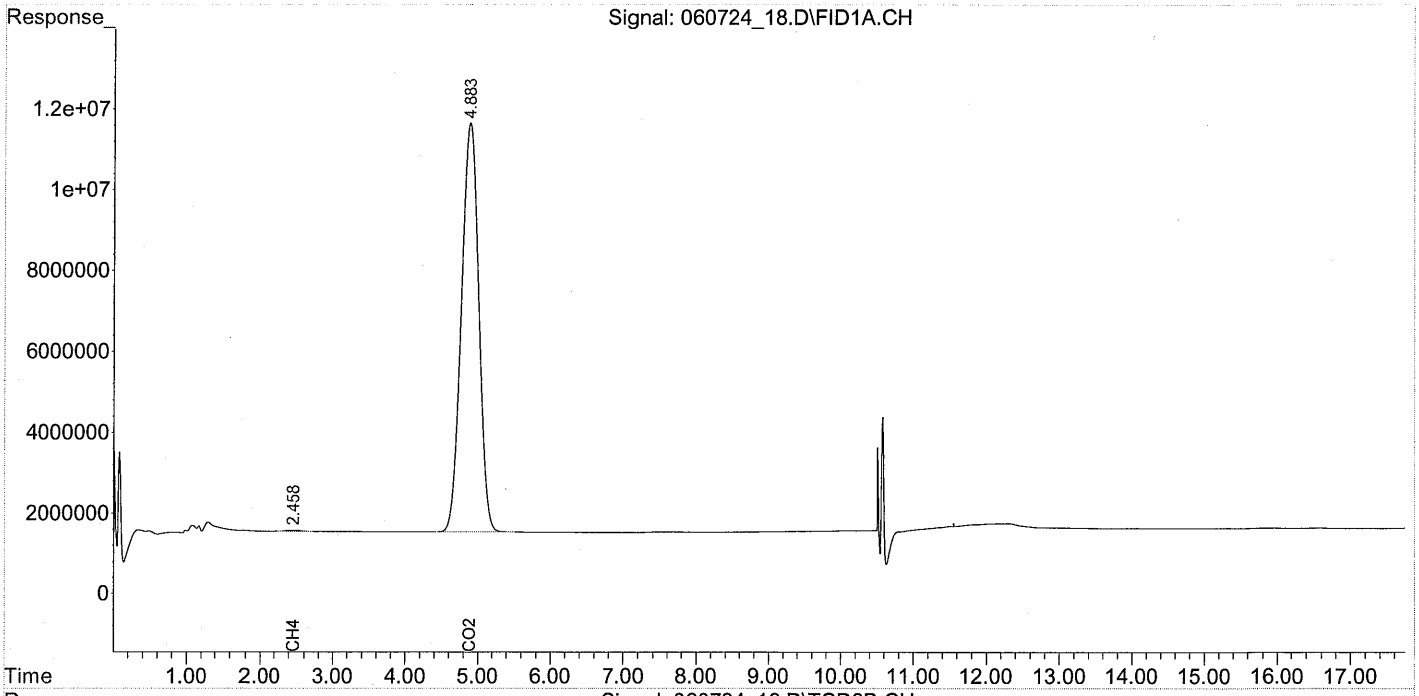
(f)=RT Delta > 1/2 Window (m)=manual int.

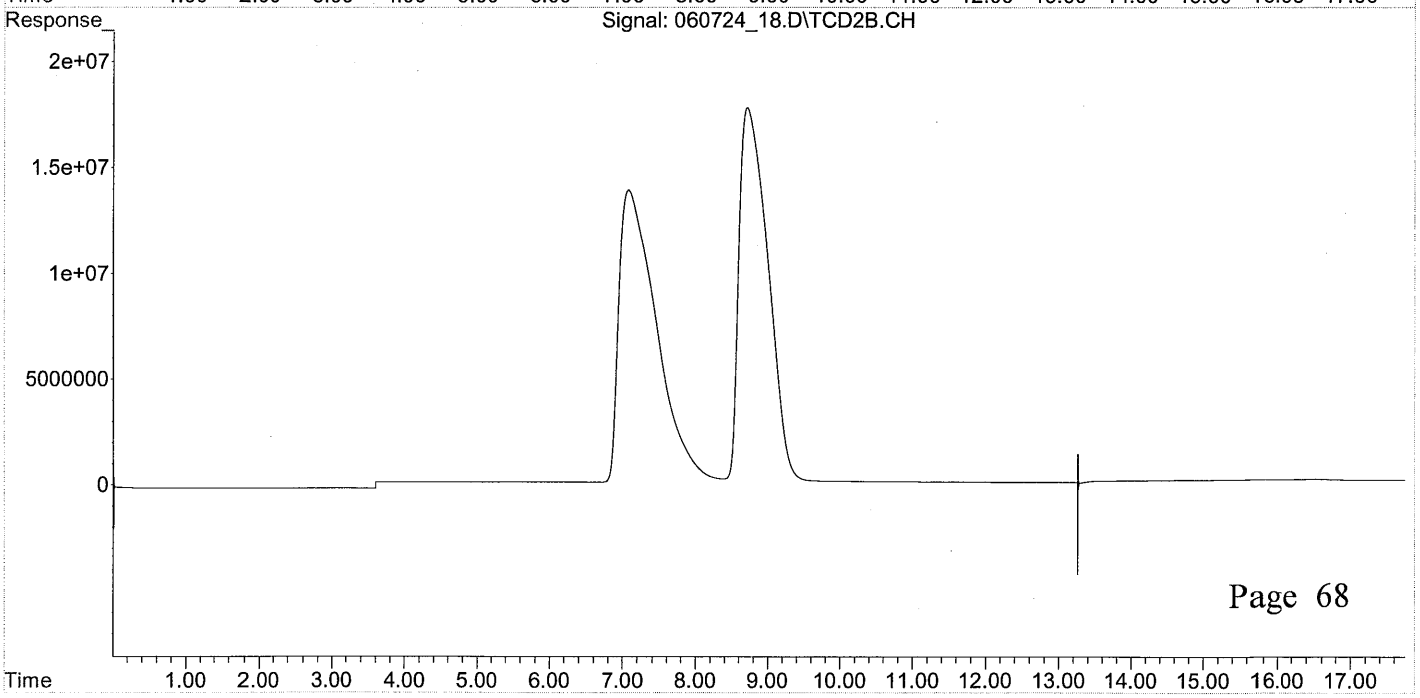
C.M 6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 18.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 11:45
Operator :
Sample : 241230-59060 dp
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 12:04:56 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Q.M
6.7.24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 19.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 12:07
Operator :
Sample : 241230-59060 x5
Misc :
ALS Vial : 19 Sample Multiplier: 5

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 12:51:03 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.874	356766503	876.541	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	d
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

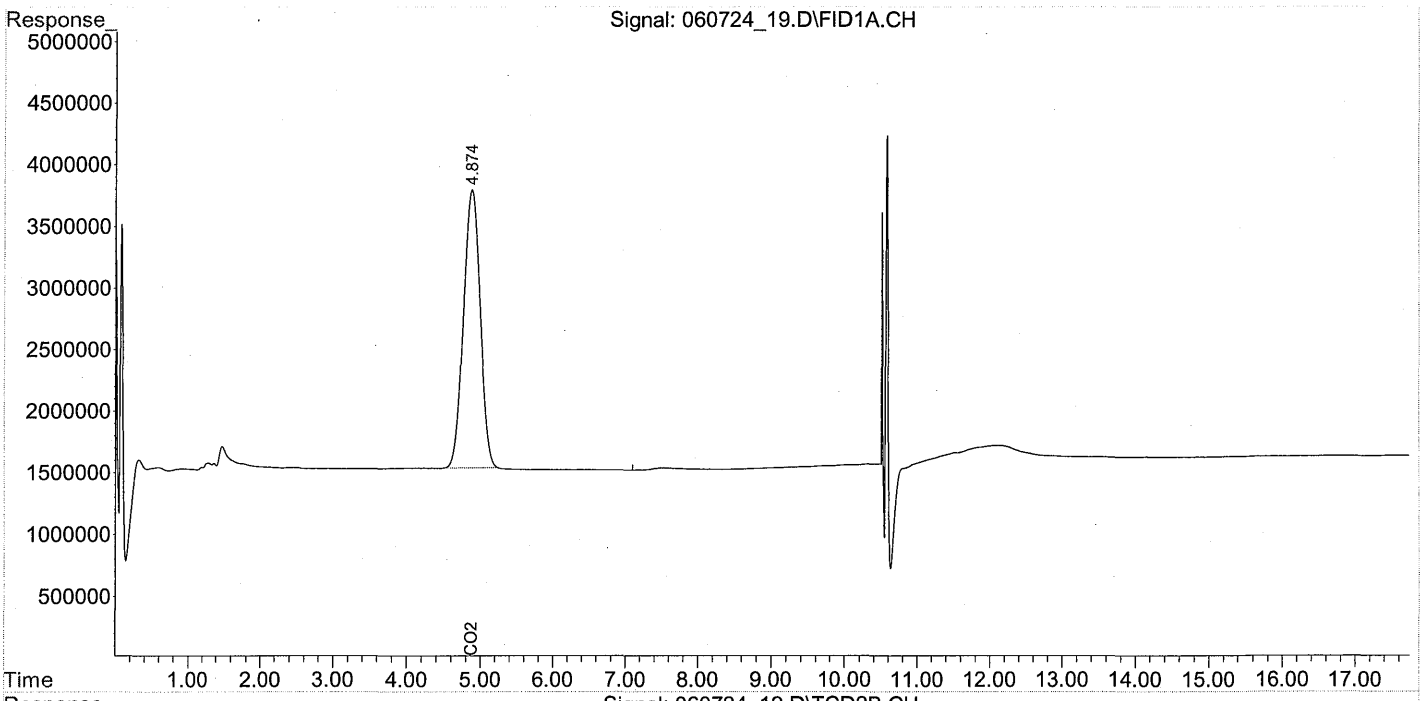
fw 6-7-24

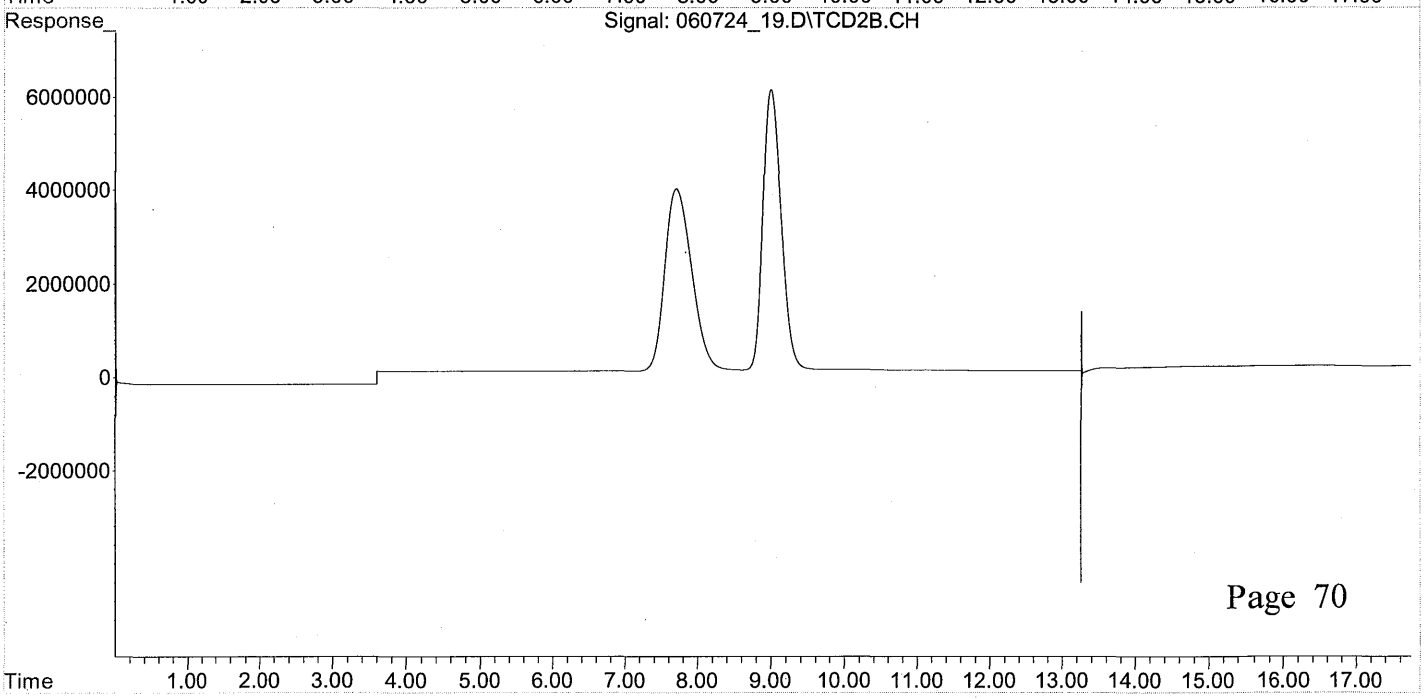
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 19.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 12:07
Operator :
Sample : 241230-59060 x5
Misc :
ALS Vial : 19 Sample Multiplier: 5

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 12:51:03 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 20.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 12:42
Operator :
Sample : 241230-59061
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:13:04 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.462	29892571	15.683	ppm	m
3)	CO2	4.895	538763774	~~264.738~~	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

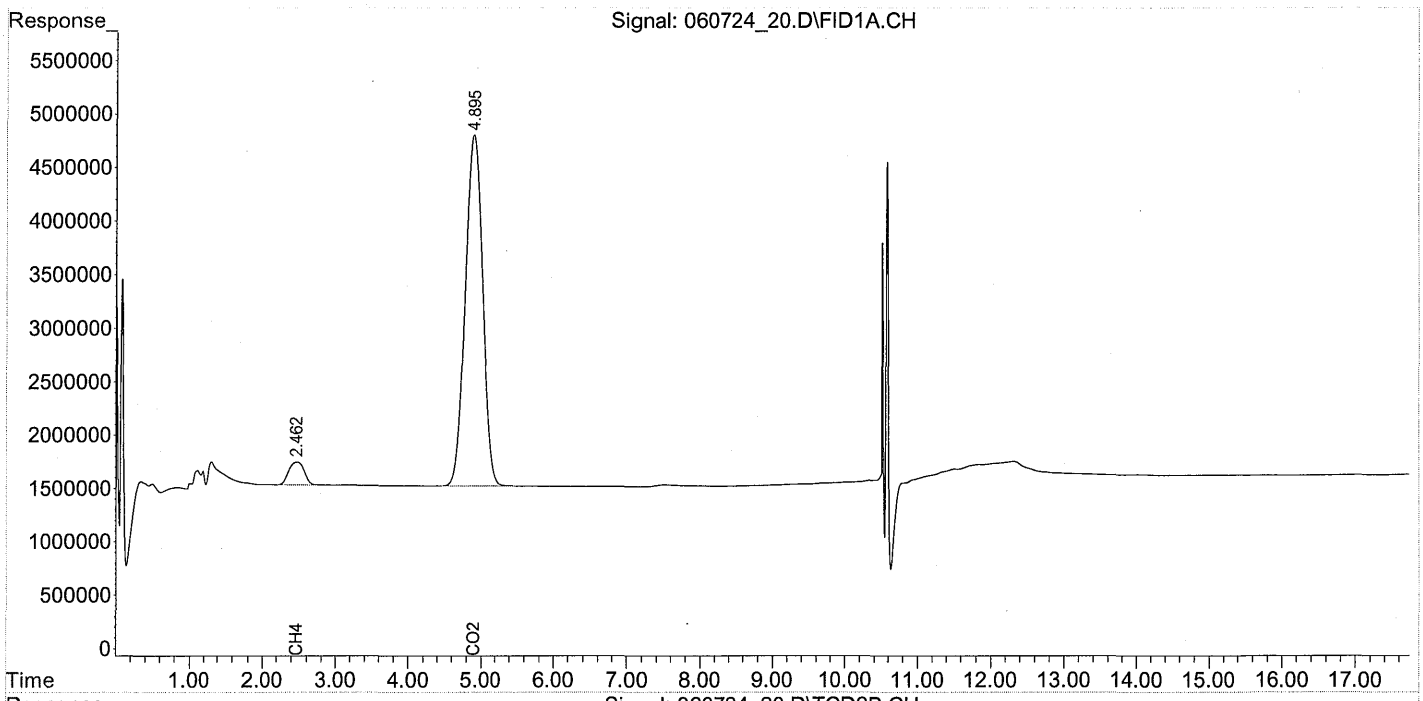
(f)=RT Delta > 1/2 Window (m)=manual int.

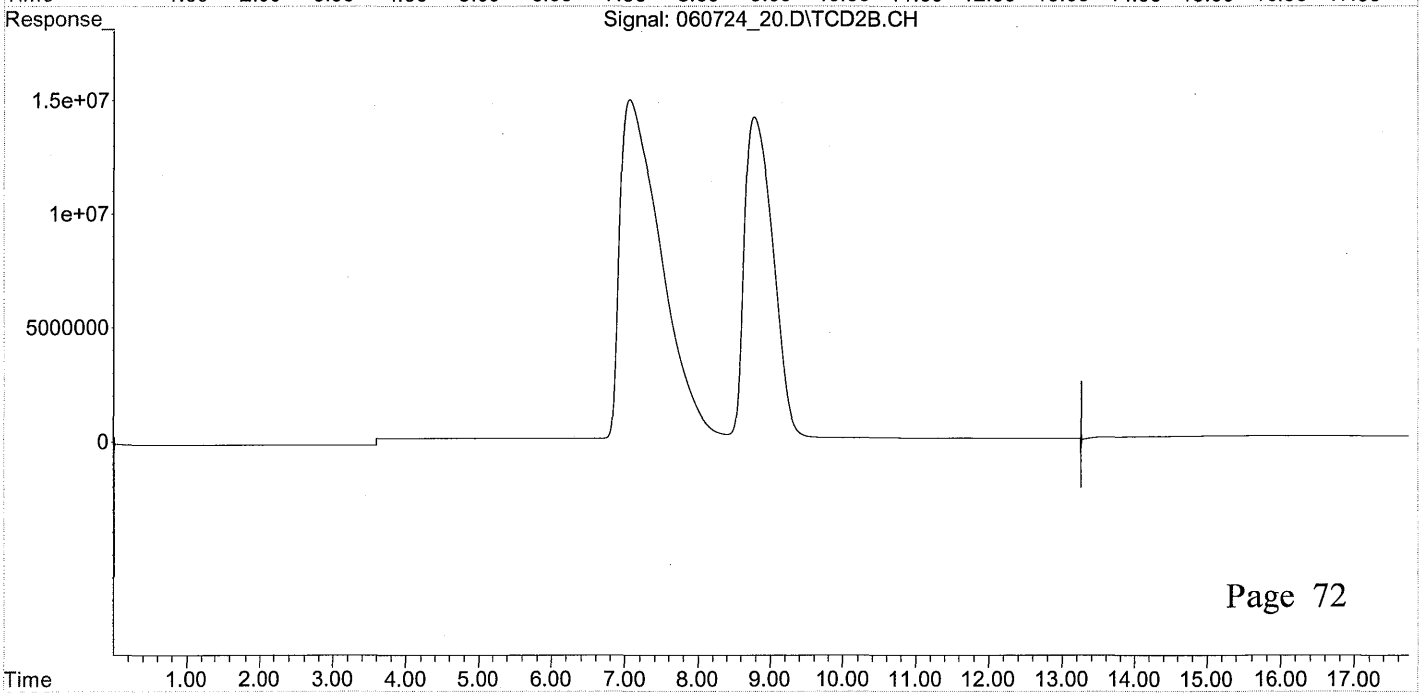
6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 20.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 12:42
Operator :
Sample : 241230-59061
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:13:04 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 21.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:06
Operator :
Sample : 241230-59061 dp
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:24:55 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

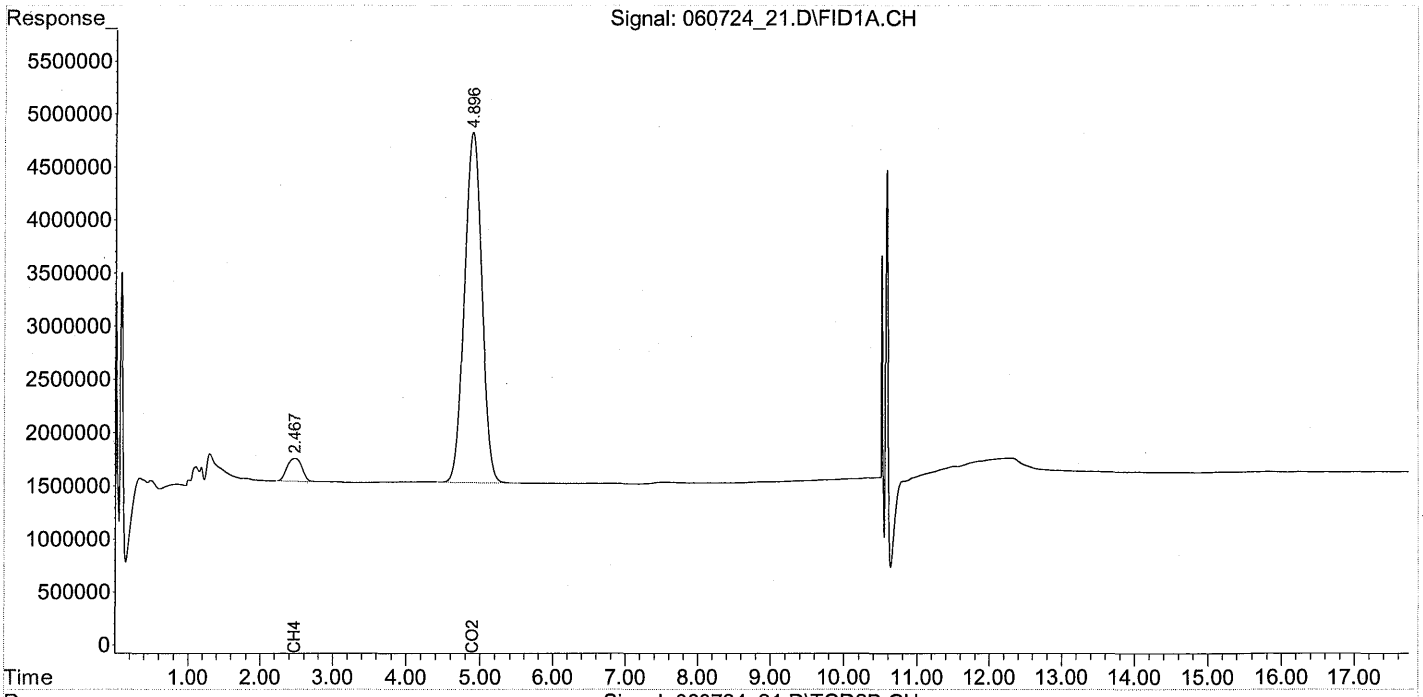
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.469	29706659	15.586	ppm	
3)	CO2	4.895	541570939	~~266.110~~	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

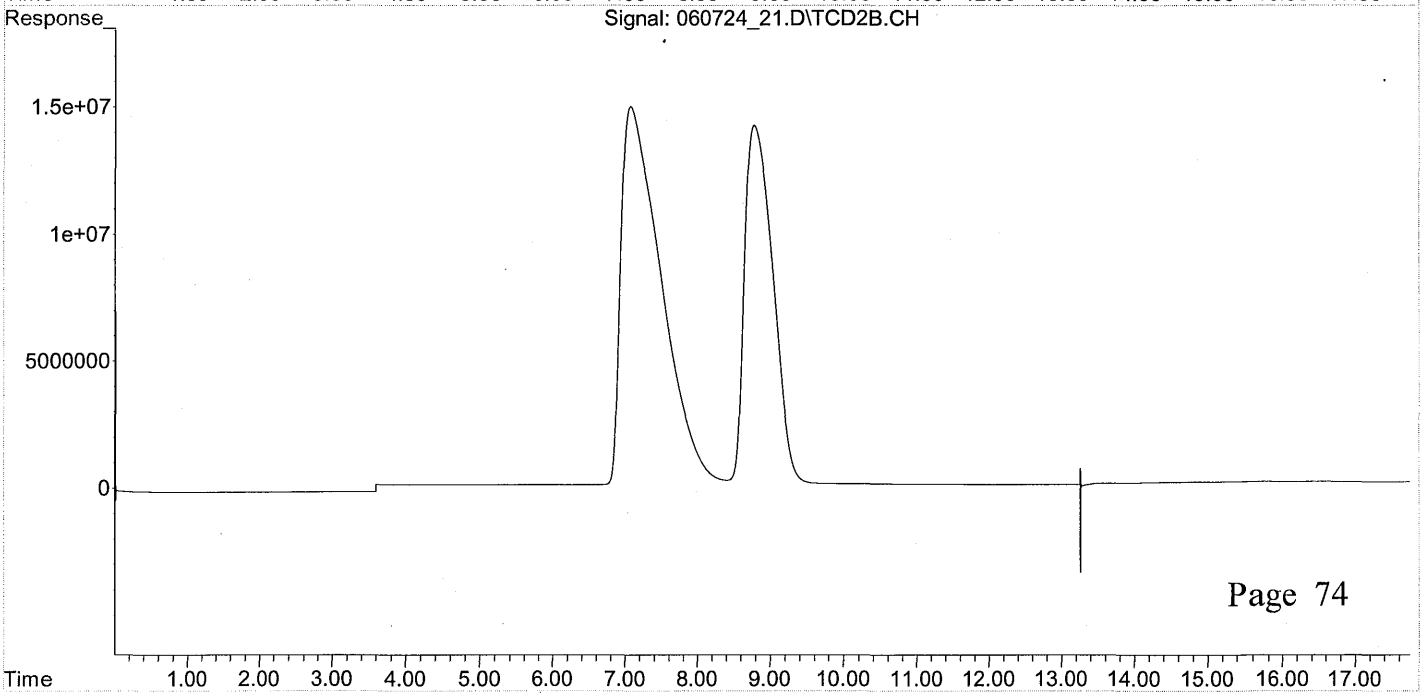
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 21.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:06
Operator :
Sample : 241230-59061 dp
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:24:55 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 22.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:29
Operator :
Sample : 241230-59061 x2
Misc :
ALS Vial : 22 Sample Multiplier: 2

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:56:18 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	d
3)	CO2	4.891	278731003	273.926	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	d
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

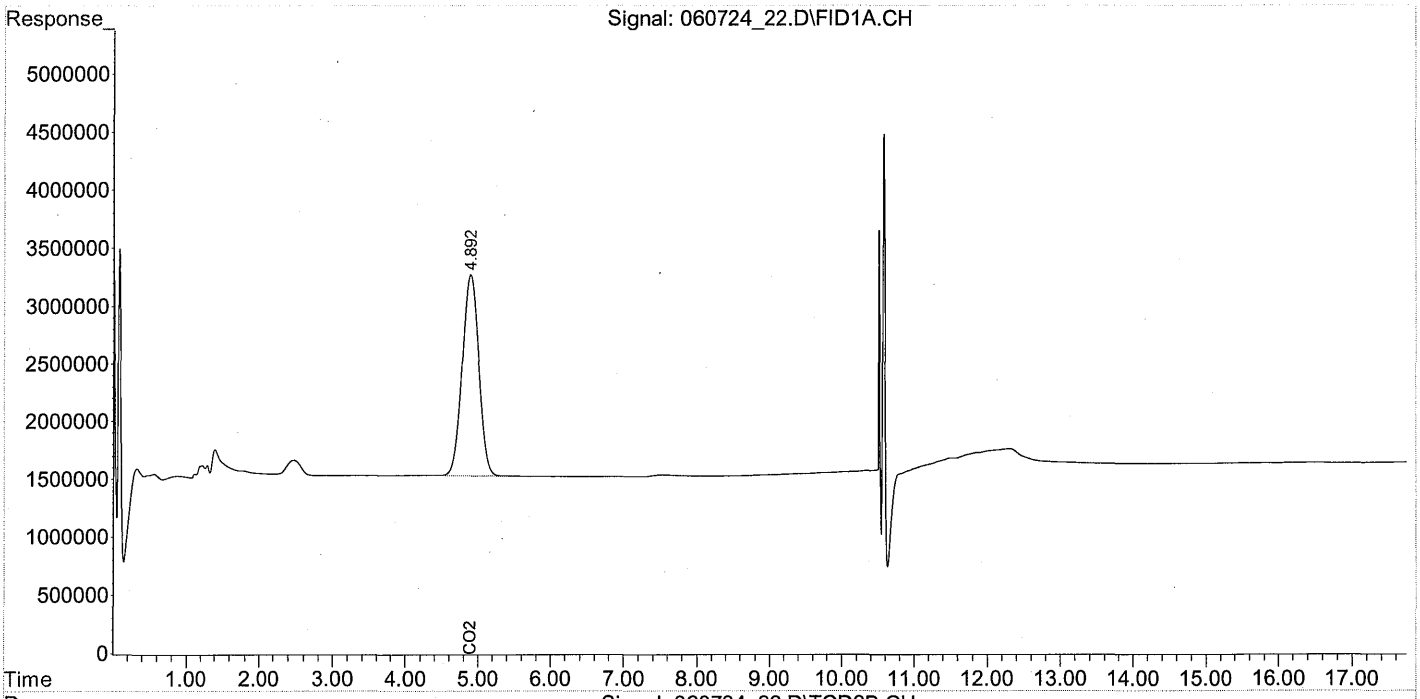
(f)=RT Delta > 1/2 Window (m)=manual int.

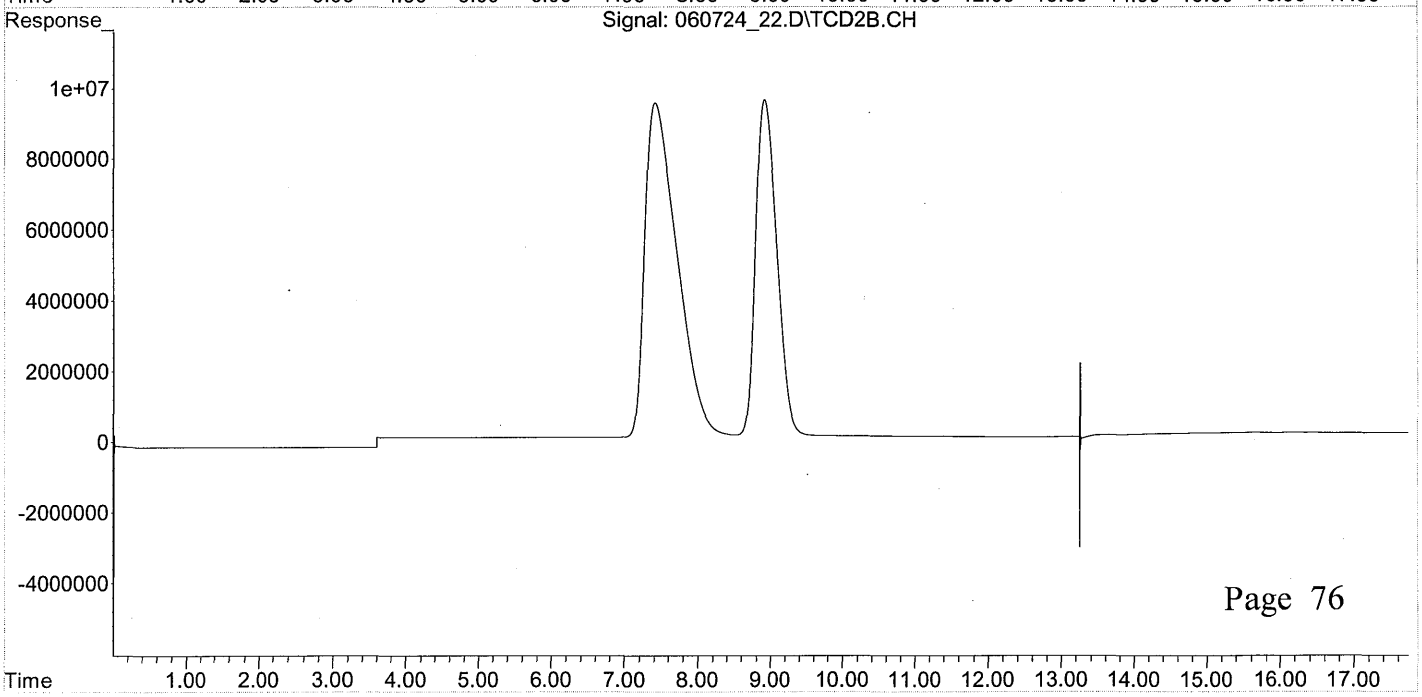
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Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 22.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:29
Operator :
Sample : 241230-59061 x2
Misc :
ALS Vial : 22 Sample Multiplier: 2

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 13:56:18 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 23.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:54
Operator :
Sample : 241230-59062
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:12:11 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.475	39080500	20.504	ppm	m
3)	CO2	4.891	562974597	~~276.635~~	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

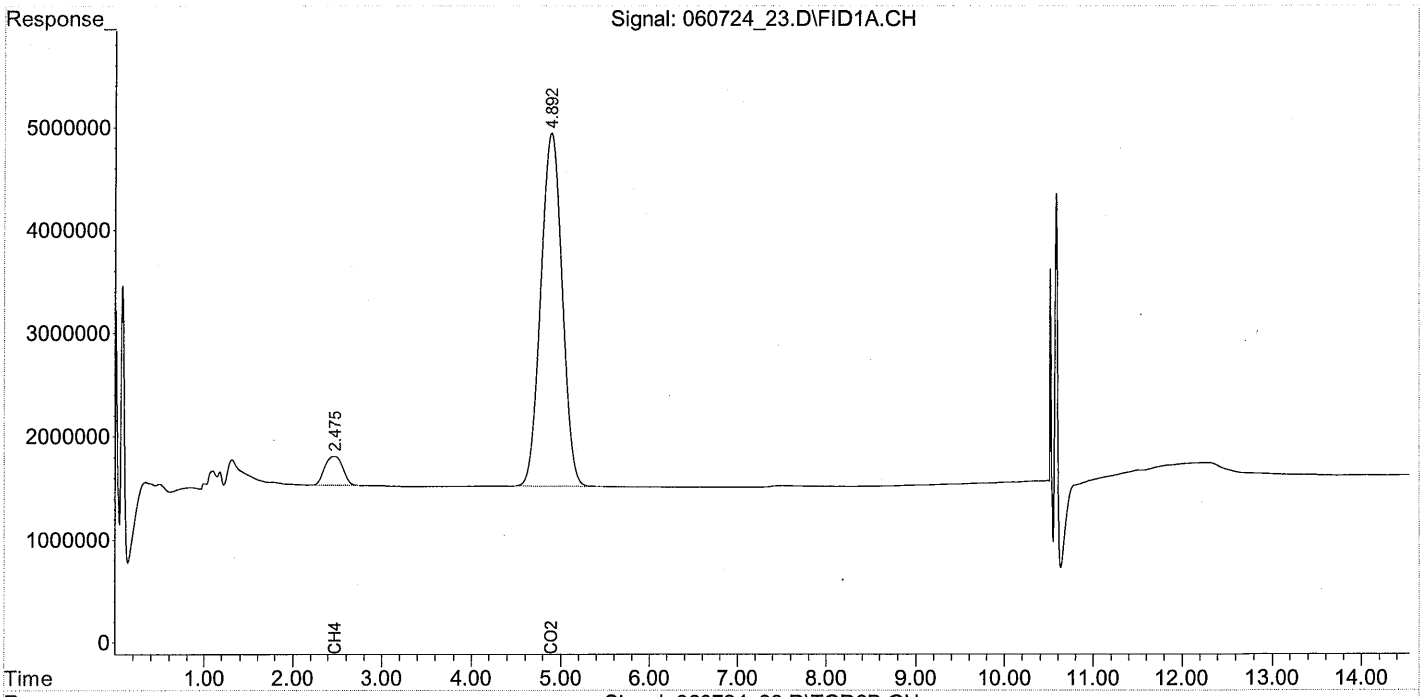
Page 17
KR
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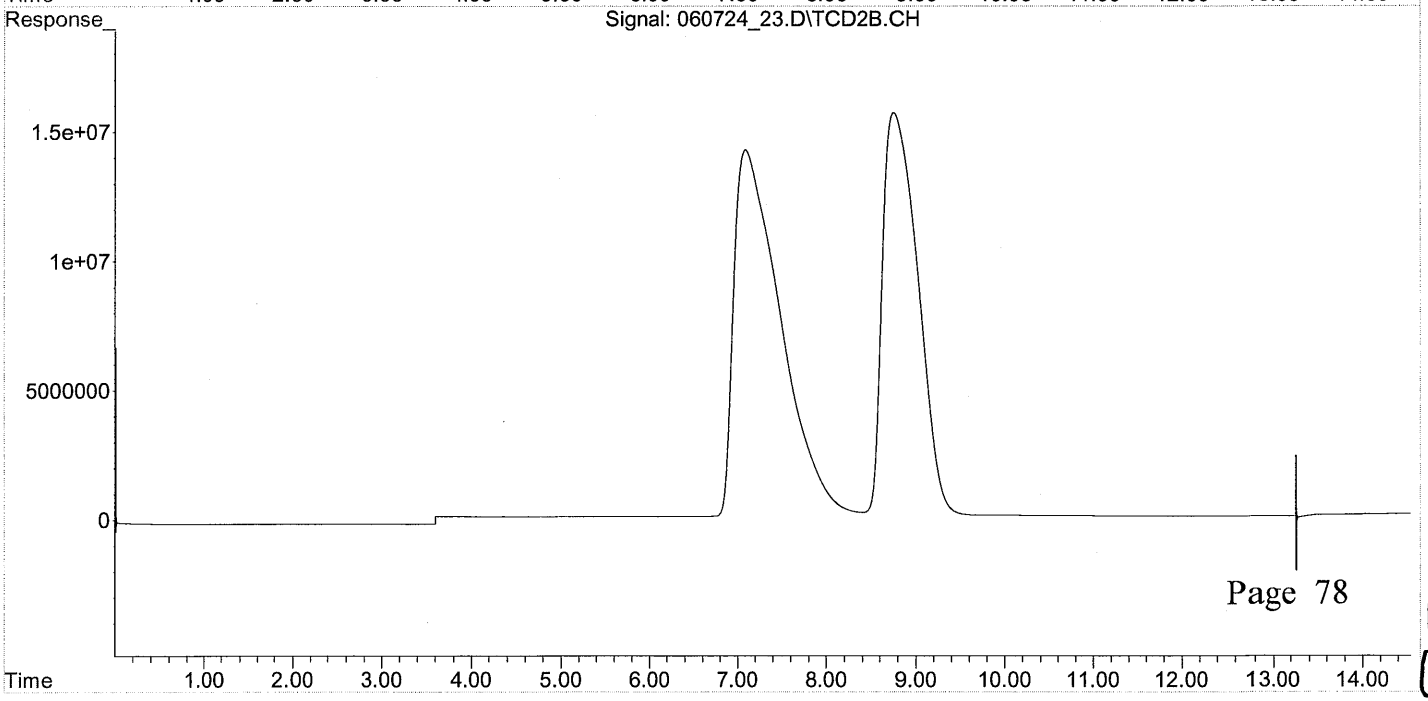
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 23.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 13:54
Operator :
Sample : 241230-59062
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:12:11 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 24.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 14:13
Operator :
Sample : 241230-59062 dp
Misc :
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:31:51 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	2.466	38502322	20.201	ppm	m
3)	CO2	4.892	559819250	~~275.085~~	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	d

(f)=RT Delta > 1/2 Window (m)=manual int.

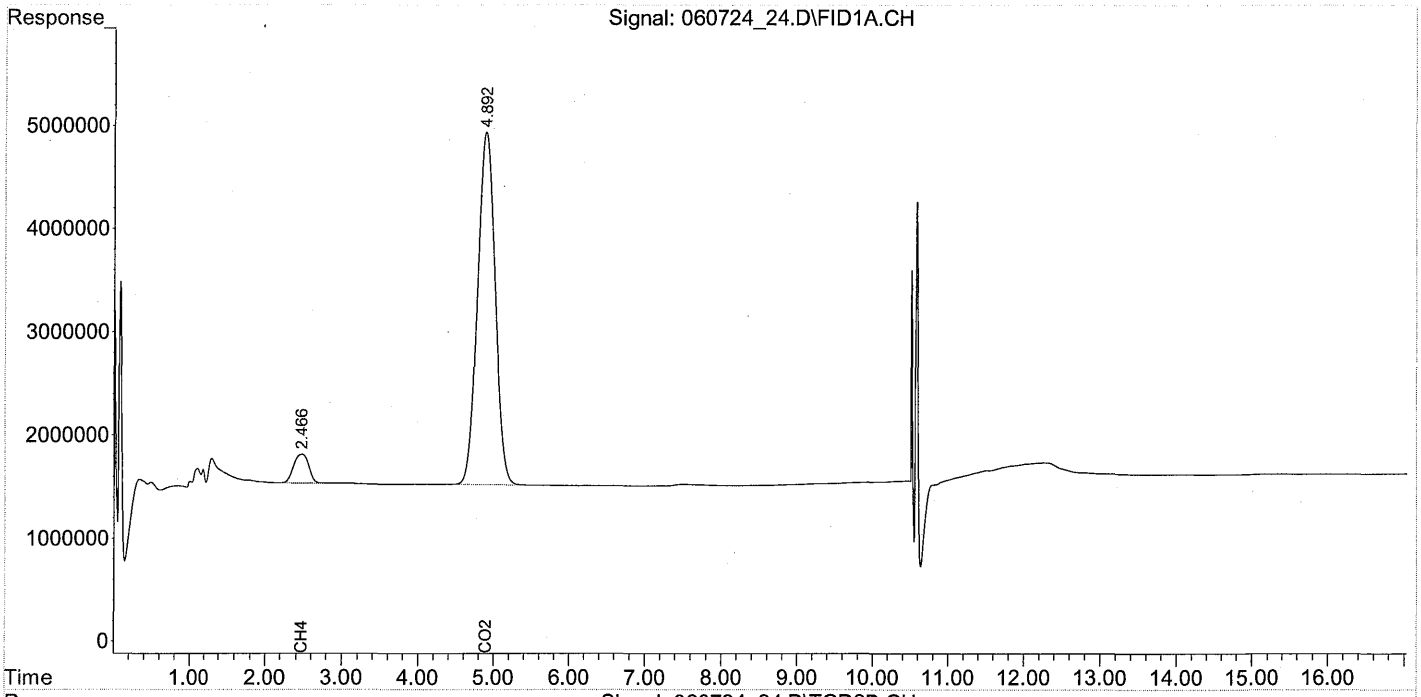
MR 6-7-24

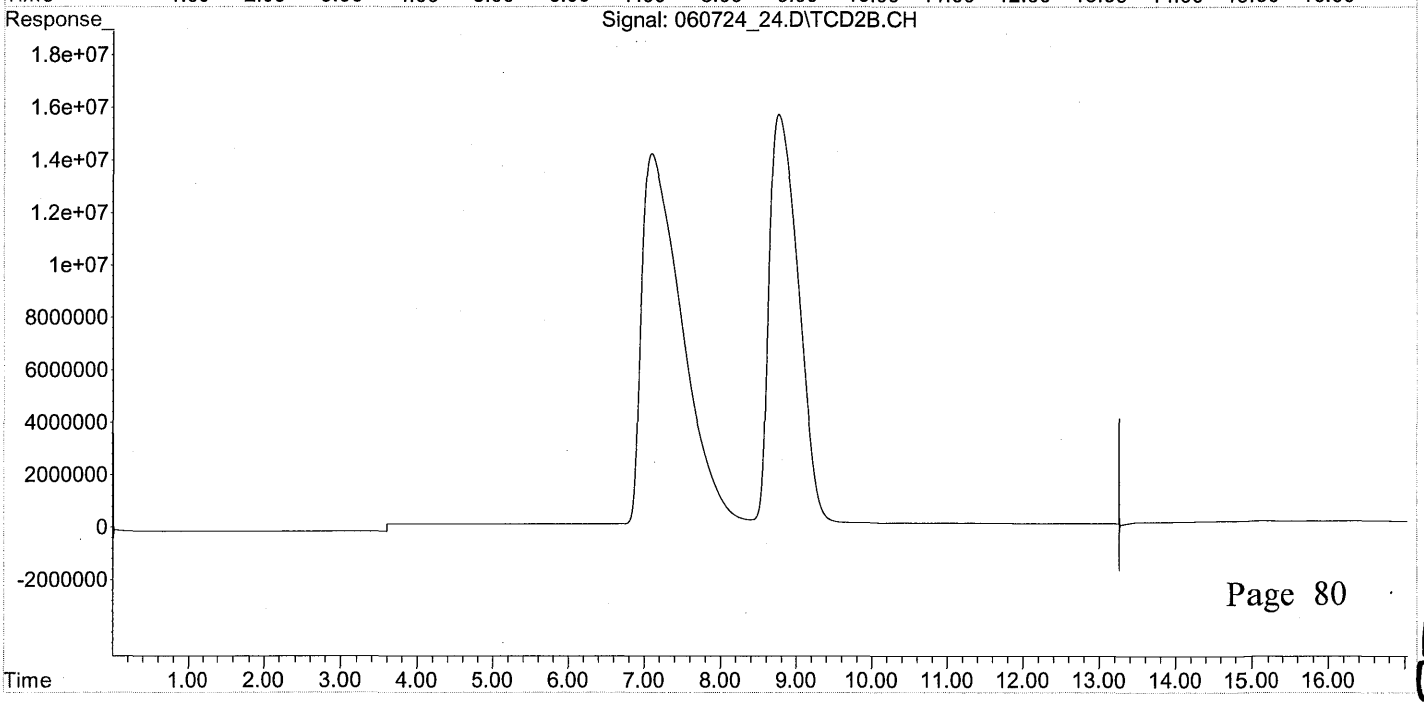
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 24.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 14:13
Operator :
Sample : 241230-59062 dp
Misc :
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:31:51 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 25.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 14:36
Operator :
Sample : 241230-59062 x5
Misc :
ALS Vial : 25 Sample Multiplier: 5

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:52:52 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.878	120183784	295.280	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	d
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

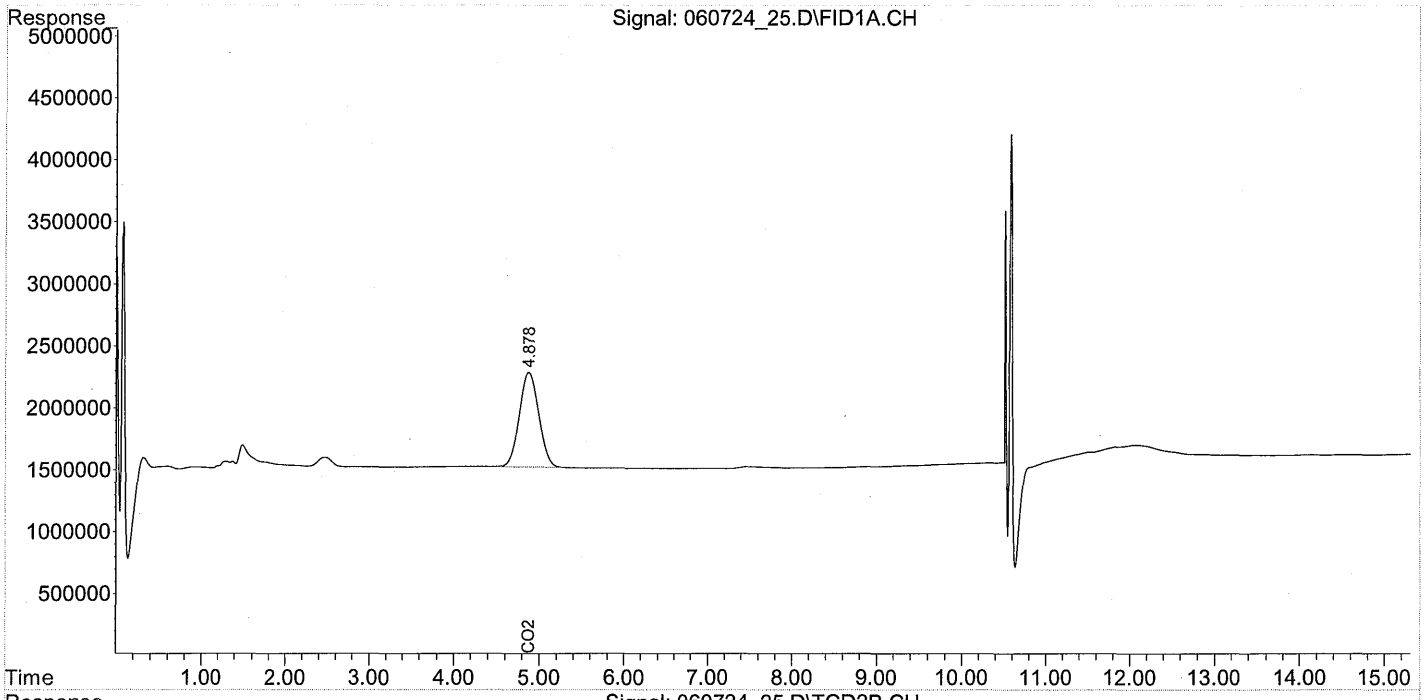
(f)=RT Delta > 1/2 Window (m)=manual int.

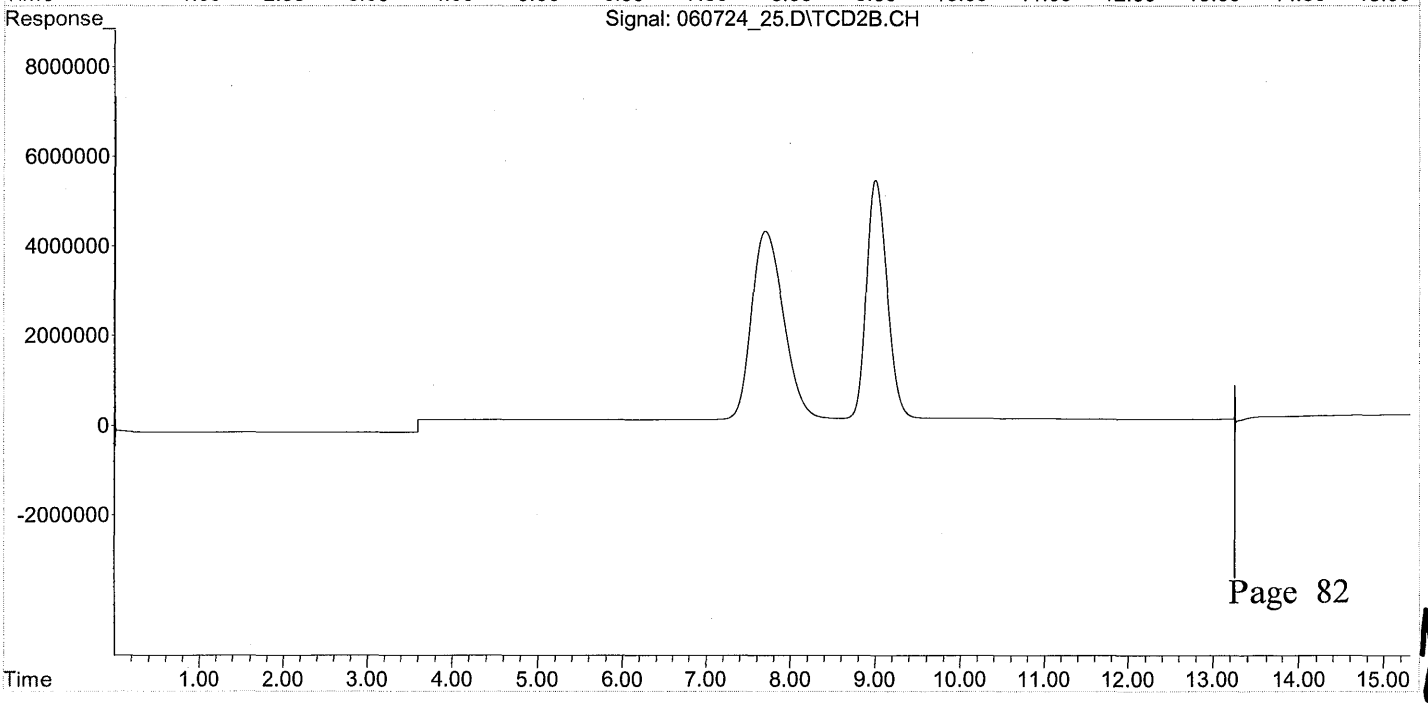
NR 6-7-24

Data Path : D:\DATA\CGTCA5\2024\060724\
Data File : 060724 25.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 07 Jun 2024 14:36
Operator :
Sample : 241230-59062 x5
Misc :
ALS Vial : 25 Sample Multiplier: 5

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 07 14:52:52 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6/7/24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 08.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 Jun 2006 8:41
Operator :
Sample : 241230-59063
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 28 08:55:19 2006
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	0.000	0	N.D.	ppm	d
3)	CO2	4.891	237480887	116.694	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	d
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	d
12)	Methane	0.000	0	N.D.	%	d
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

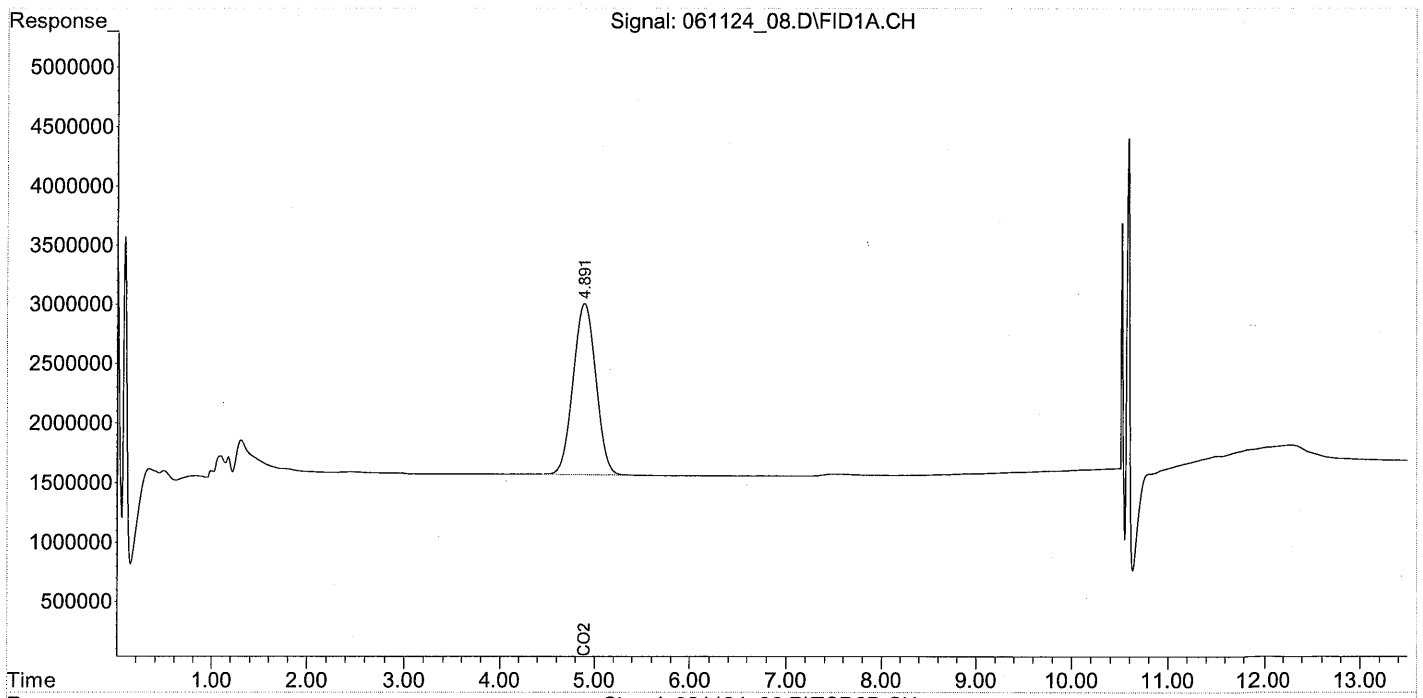
NR 6-11-24

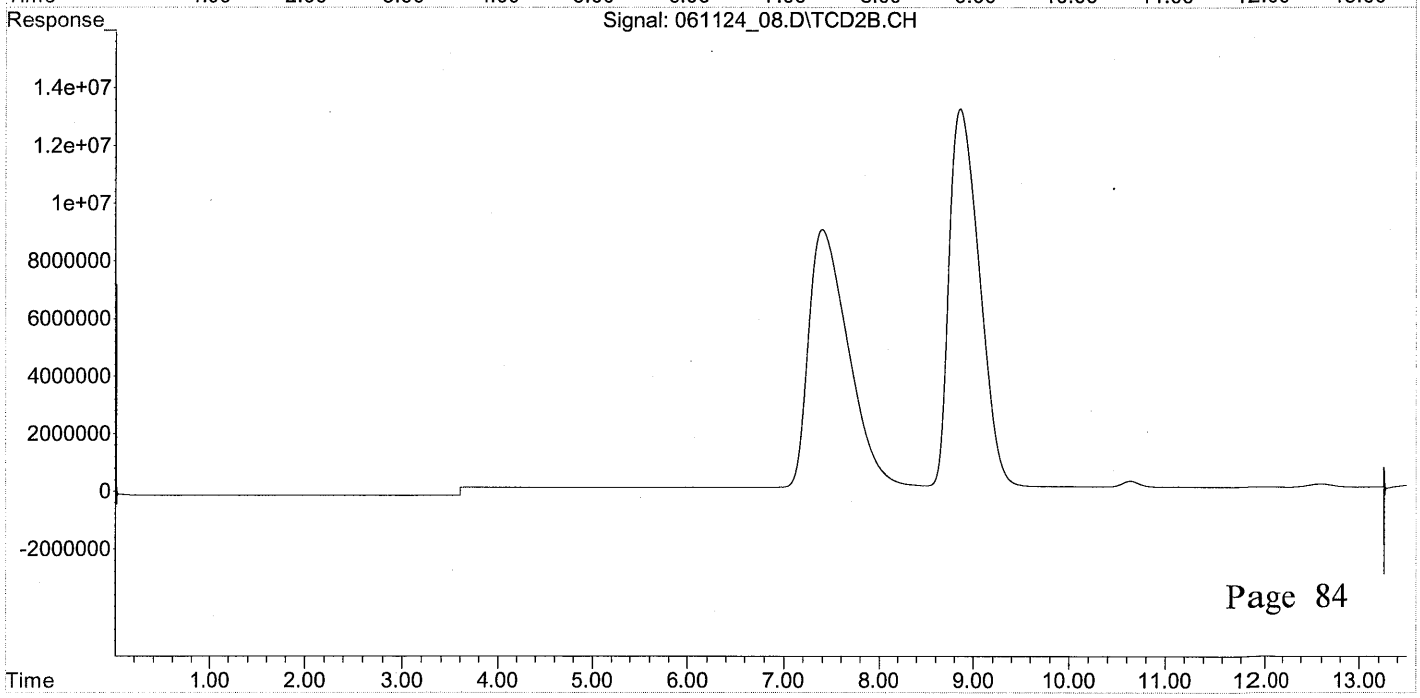
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 08.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 Jun 2006 8:41
Operator :
Sample : 241230-59063
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 28 08:55:19 2006
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





MR 6-11-2

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 09.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 Jun 2006 8:59
Operator :
Sample : 241230-59063 dp
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 09:14:08 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.897	234987502	115.468	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

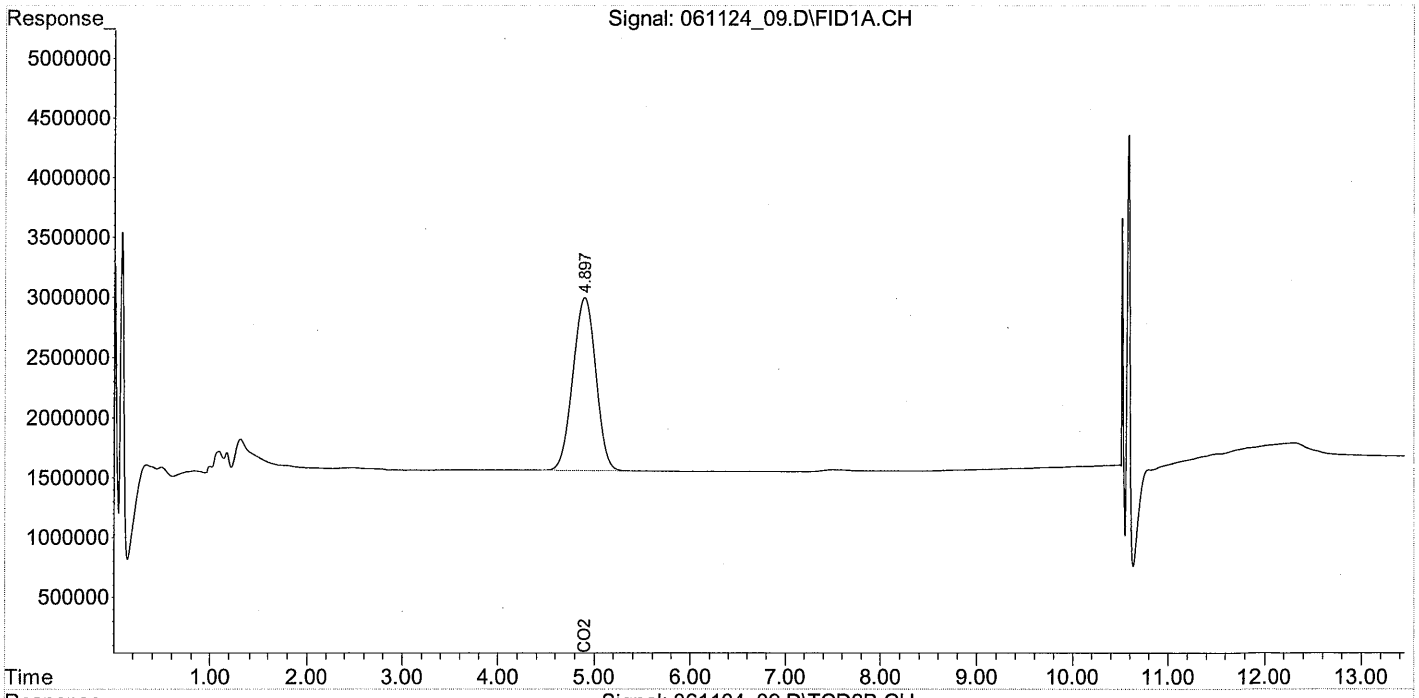
6-11-24

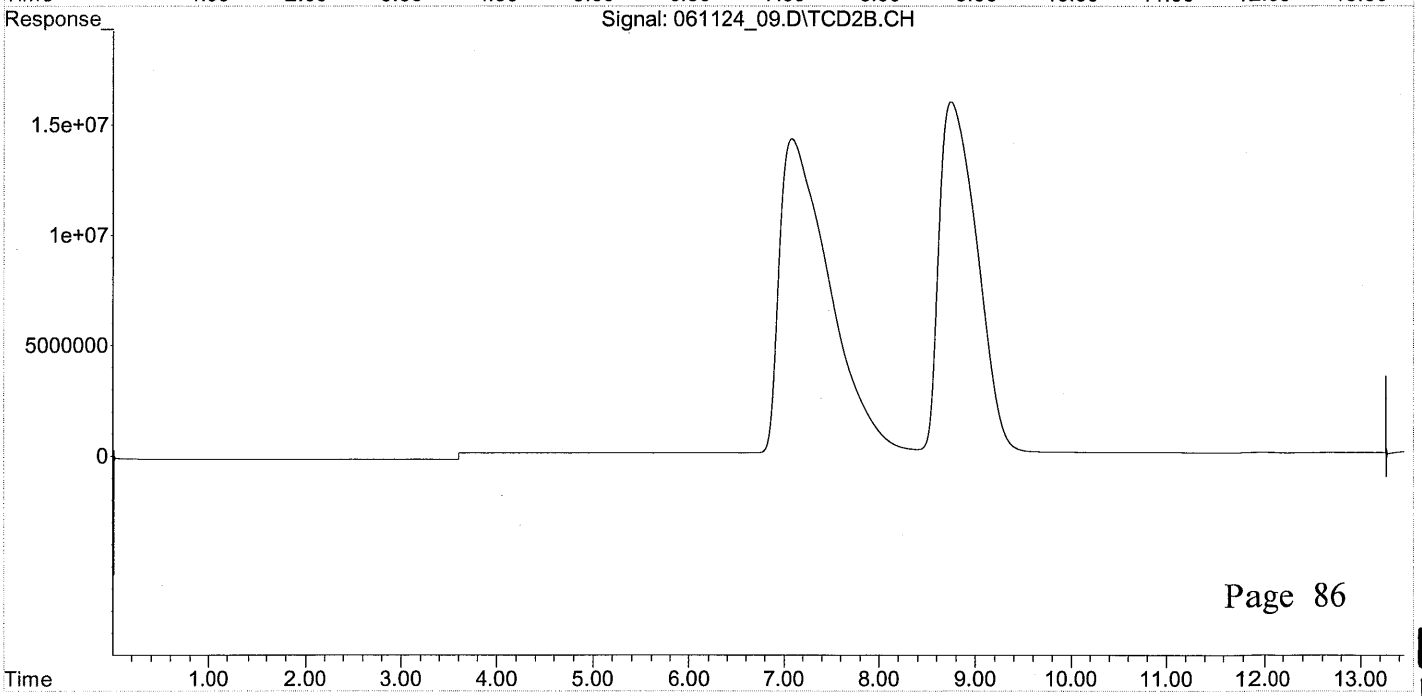
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 09.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 Jun 2006 8:59
Operator :
Sample : 241230-59063 dp
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 09:14:08 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-11-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 13.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:12
Operator :
Sample : 241230-59064
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 10:30:10 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.891	181477124	89.174	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

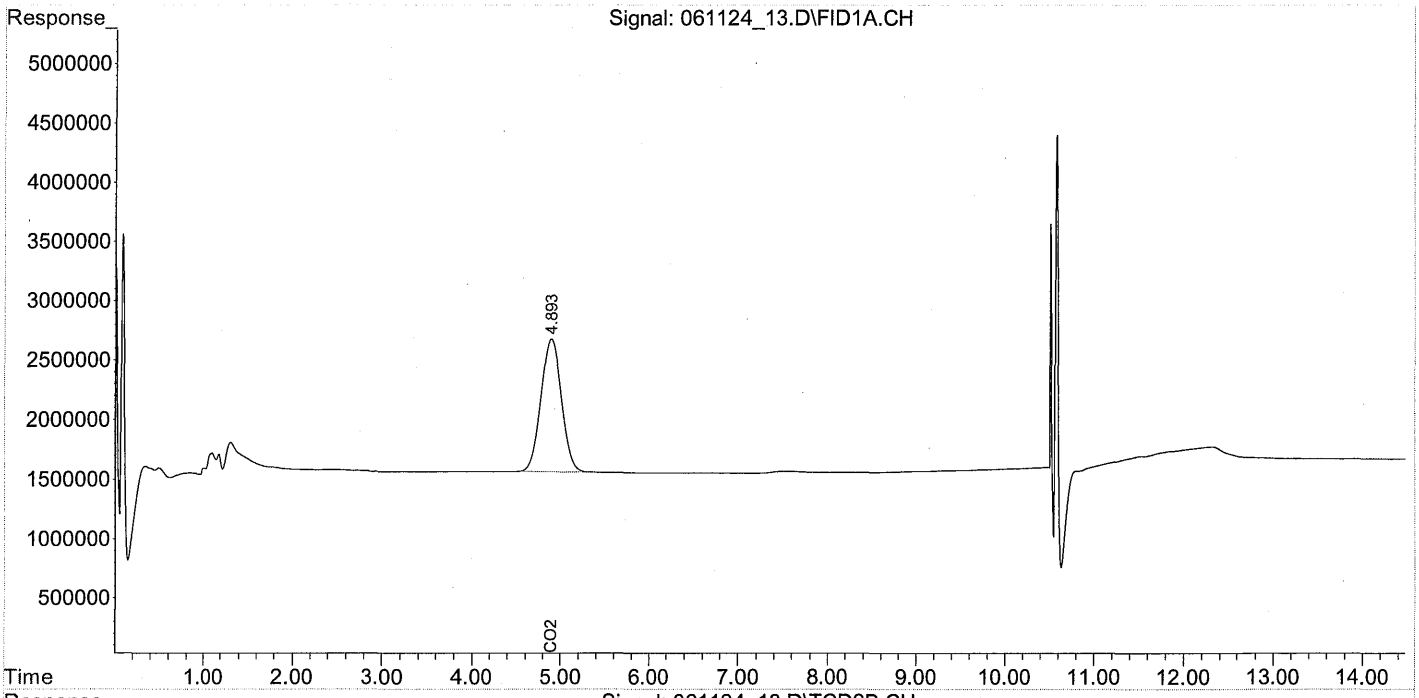
NR 6-11-24

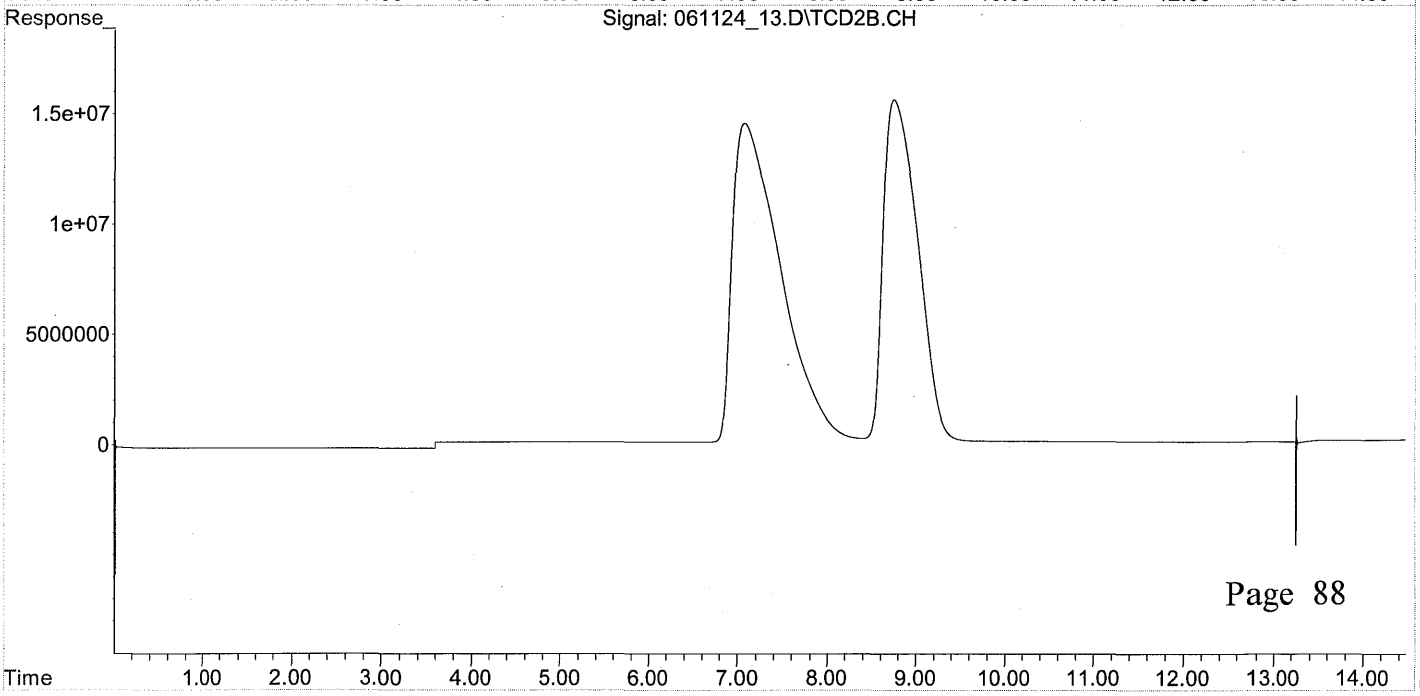
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 13.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:12
Operator :
Sample : 241230-59064
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 10:30:10 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





MR 6-11-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 14.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:31
Operator :
Sample : 241230-59064 dp
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 10:44:58 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.895	181335363	89.105	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

(f)=RT Delta > 1/2 Window (m)=manual int.

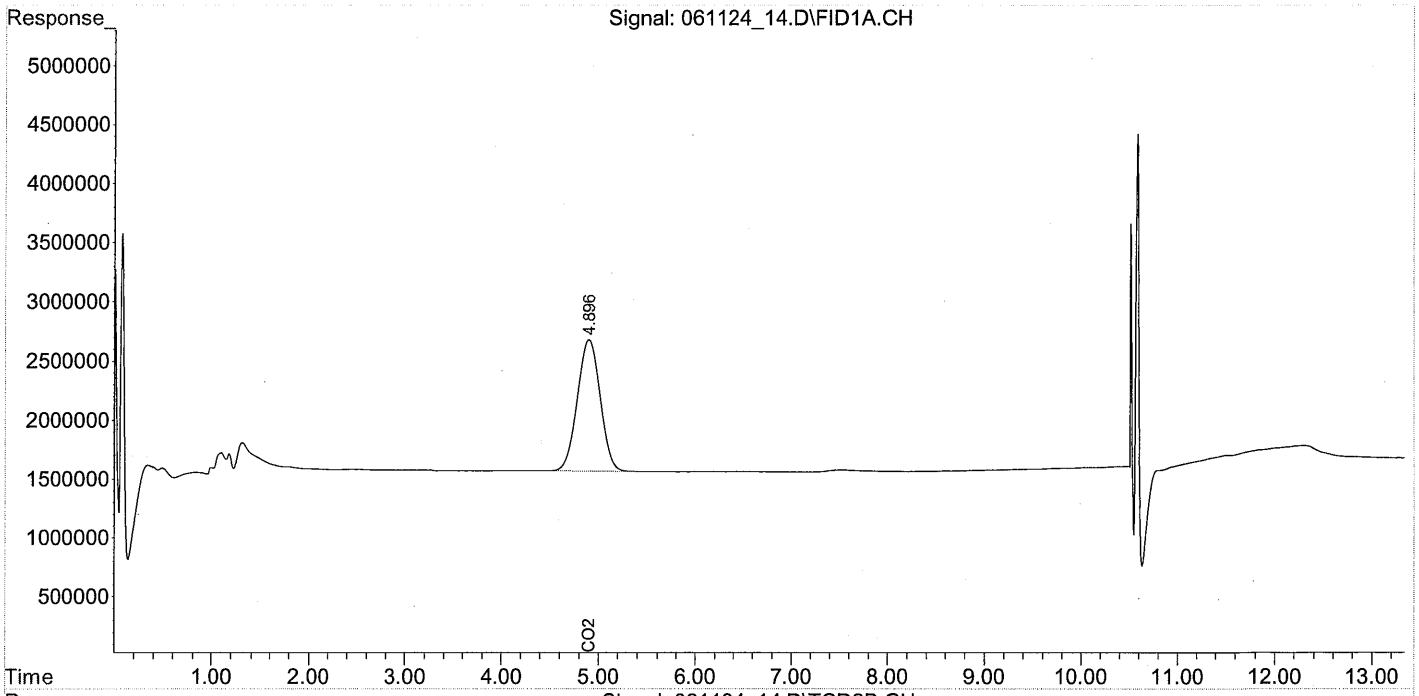
MR 6-11-24

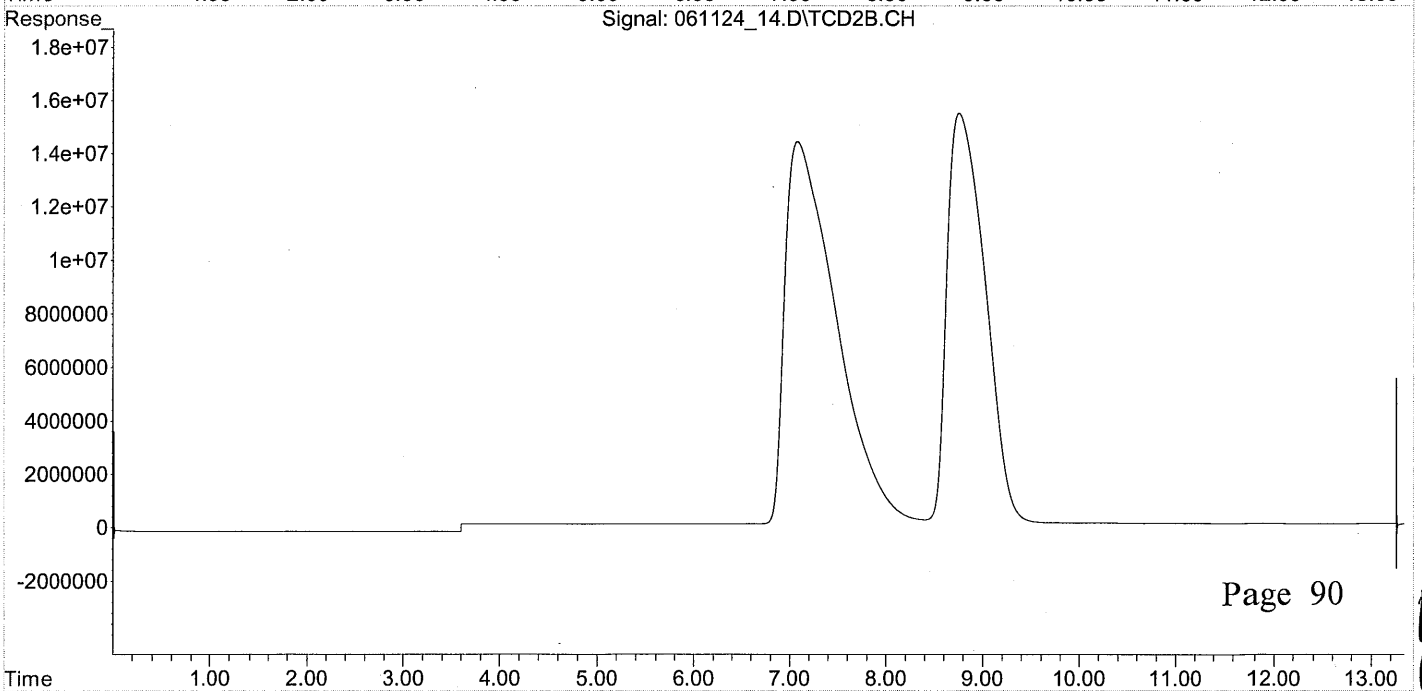
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 14.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:31
Operator :
Sample : 241230-59064 dp
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 10:44:58 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-11-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 15.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:48
Operator :
Sample : 241230-59065
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:02:39 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	d
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.886	195514936	96.072	ppm	m
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

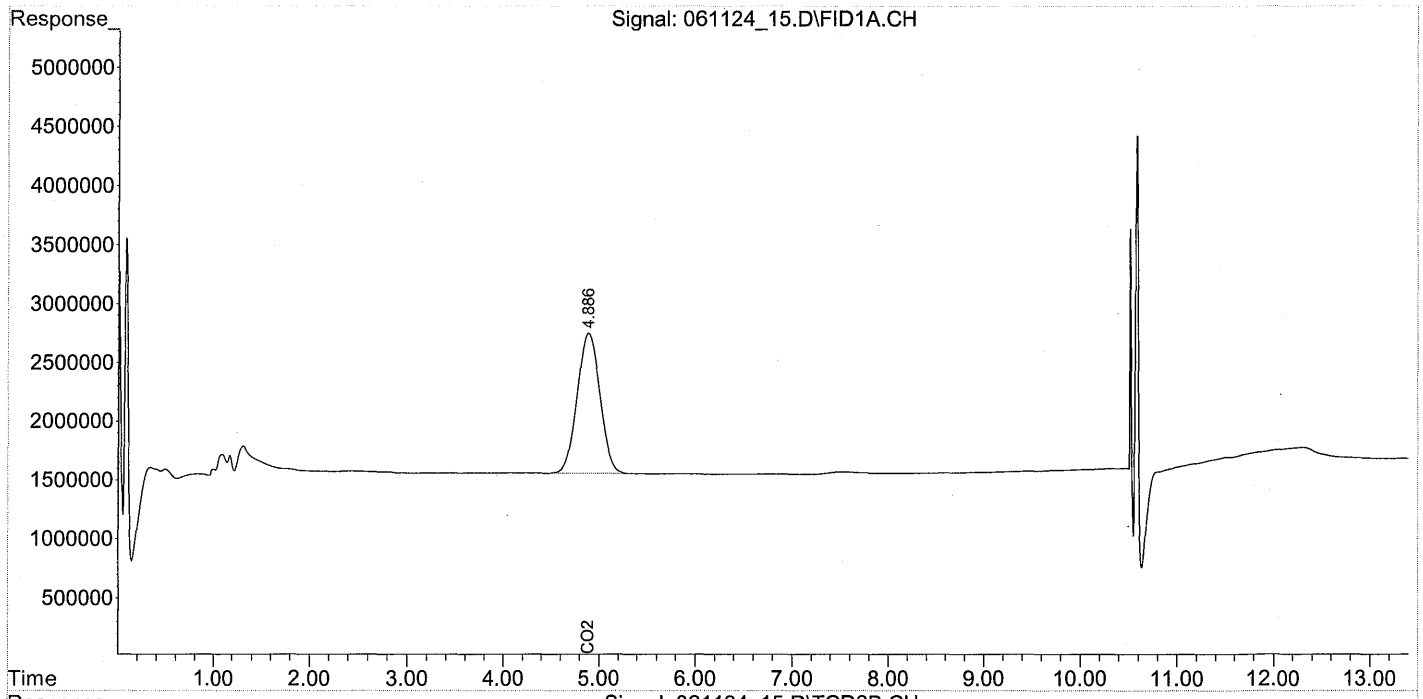
(f)=RT Delta > 1/2 Window (m)=manual int.

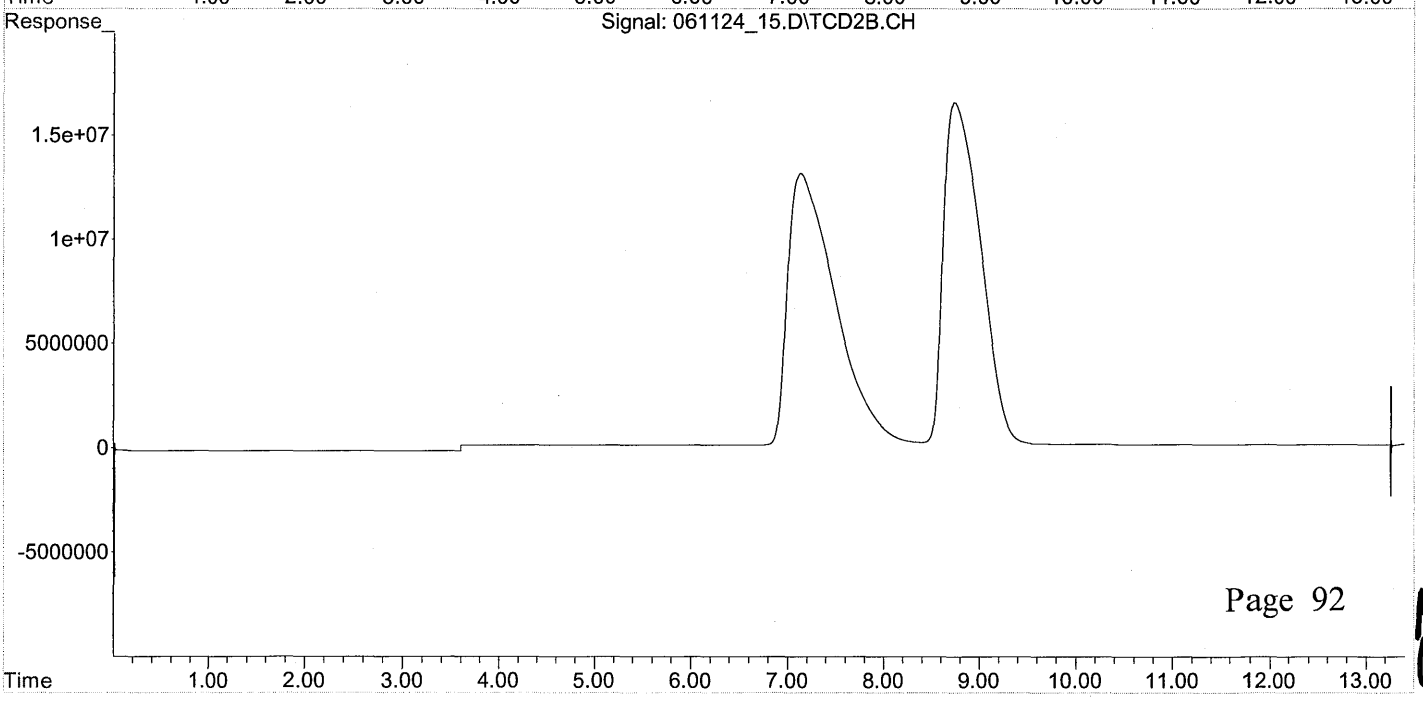
MR 6-11-24

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 15.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 10:48
Operator :
Sample : 241230-59065
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:02:39 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





NR 6-11-2

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 16.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:06
Operator :
Sample : 241230-59065 dp
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:20:38 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	4.883	204066798	100.275	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

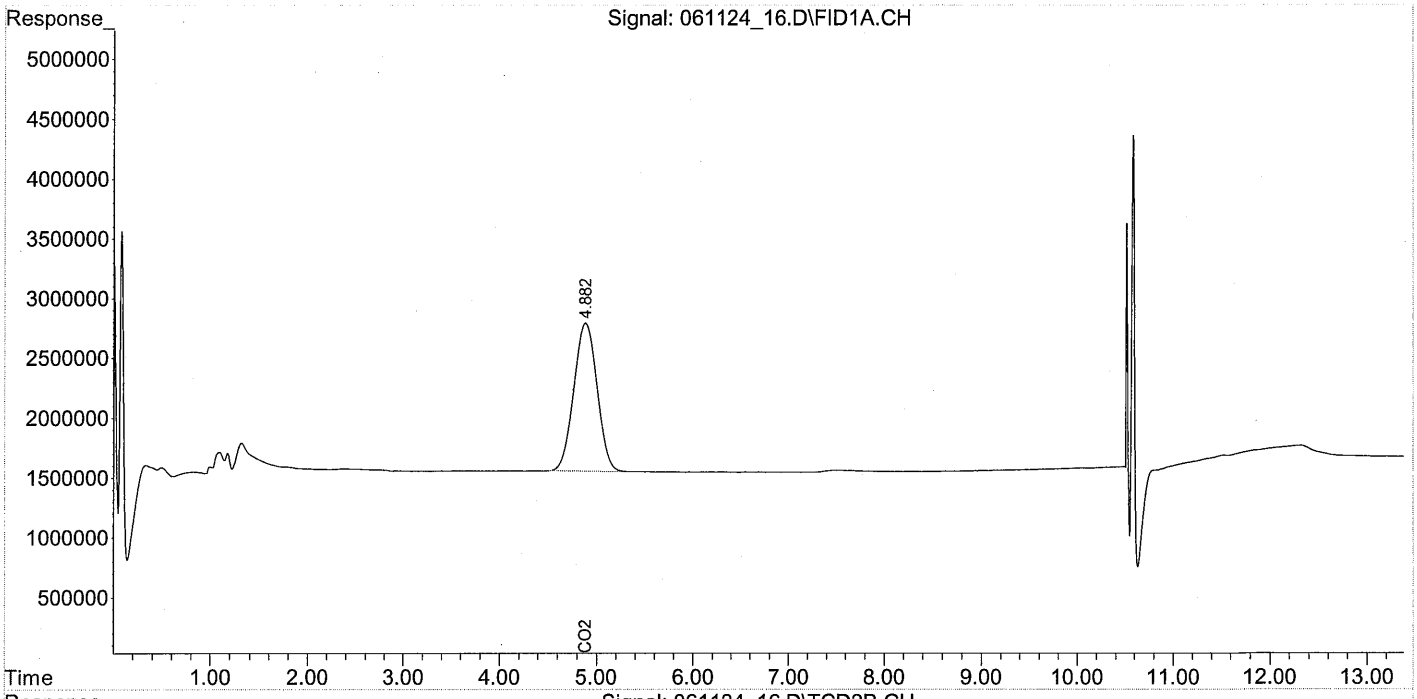
(f)=RT Delta > 1/2 Window (m)=manual int.

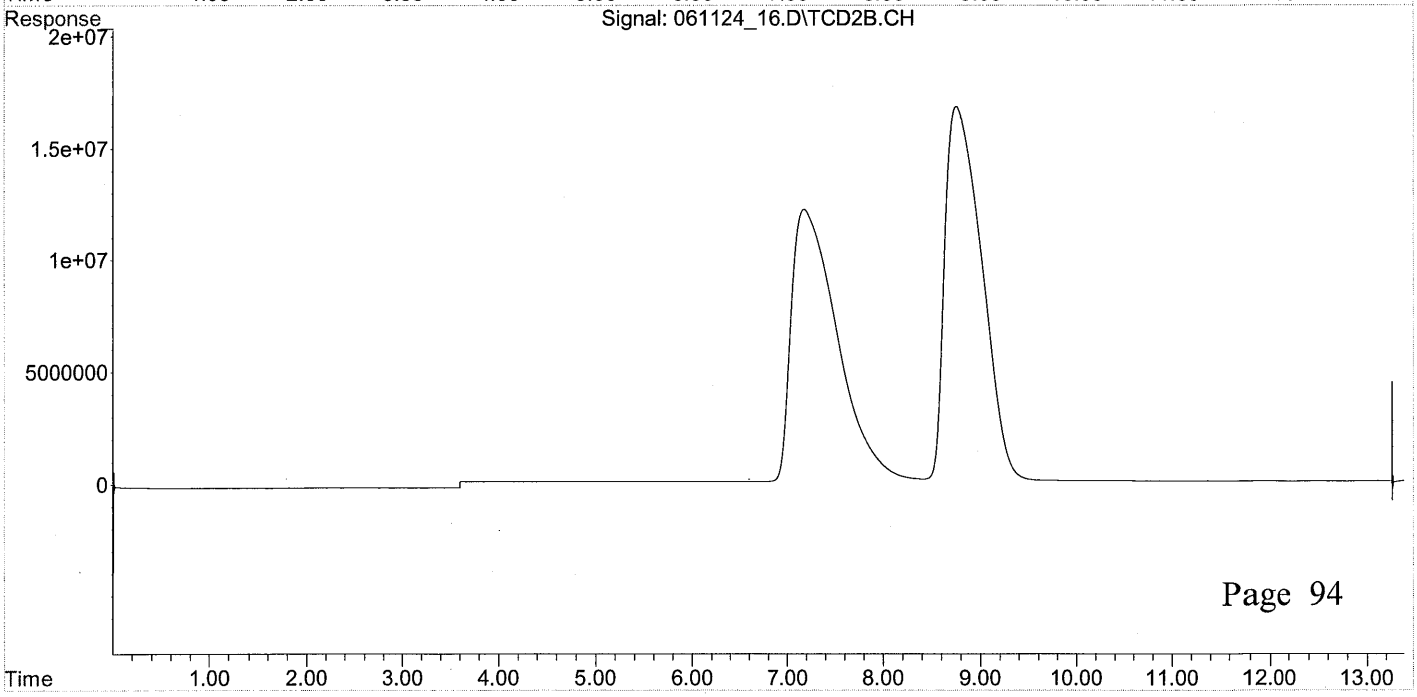
MR 6-11-24

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 16.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:06
Operator :
Sample : 241230-59065 dp
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:20:38 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





MK 6-11-24

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 17.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:23
Operator :
Sample : 241230-59066
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:37:15 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	0.000	0	N.D.	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

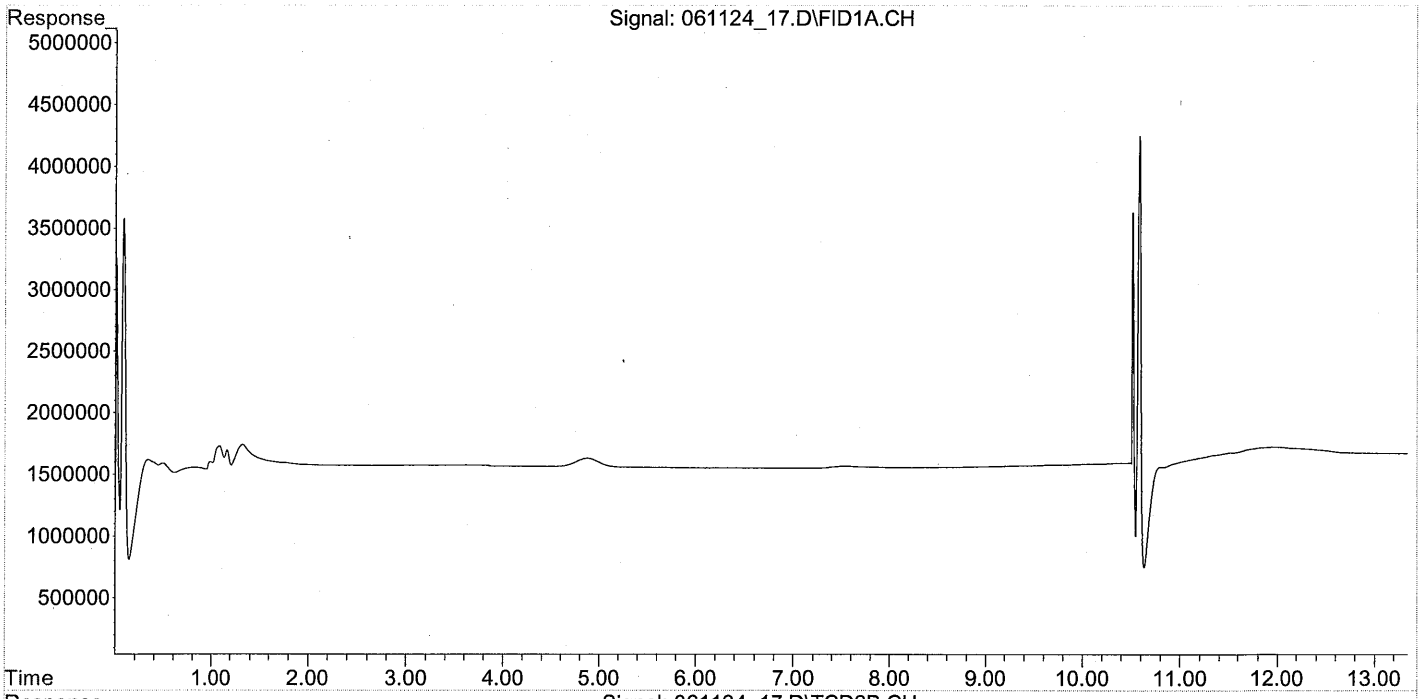
(f)=RT Delta > 1/2 Window (m)=manual int.

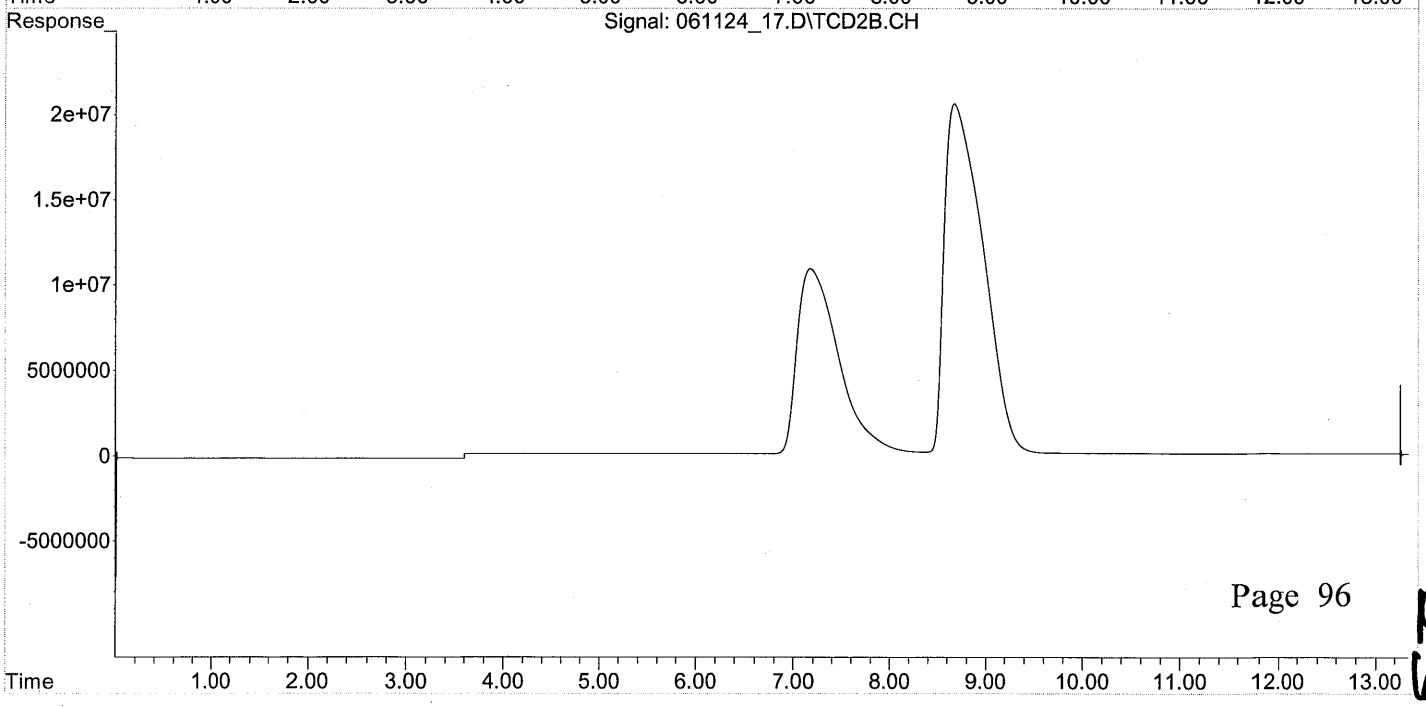
NL 6-11-24

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 17.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:23
Operator :
Sample : 241230-59066
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 11:37:15 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





MR 6-11-2

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 18.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:41
Operator :
Sample : 241230-59066 dp
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 12:31:17 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	CO	0.000	0	N.D.	ppm	
2)	CH4	0.000	0	N.D.	ppm	
3)	CO2	0.000	0	N.D.	ppm	
4)	Ethene	0.000	0	N.D.	ppm	
5)	Ethane	0.000	0	N.D.	ppm	
6)	NMNEOC	0.000	0	N.D.	ppm	
8)	Hydrogen	0.000	0	N.D.	%	
9)	Oxygen/Argon	0.000	0	N.D.	%	
10)	Nitrogen	0.000	0	N.D.	%	d
11)	Carbon Monoxide	0.000	0	N.D.	%	
12)	Methane	0.000	0	N.D.	%	
13)	Ethane	0.000	0	N.D.		
14)	N20	0.000	0	N.D.		
15)	Carbon Dioxide	0.000	0	N.D.	%	

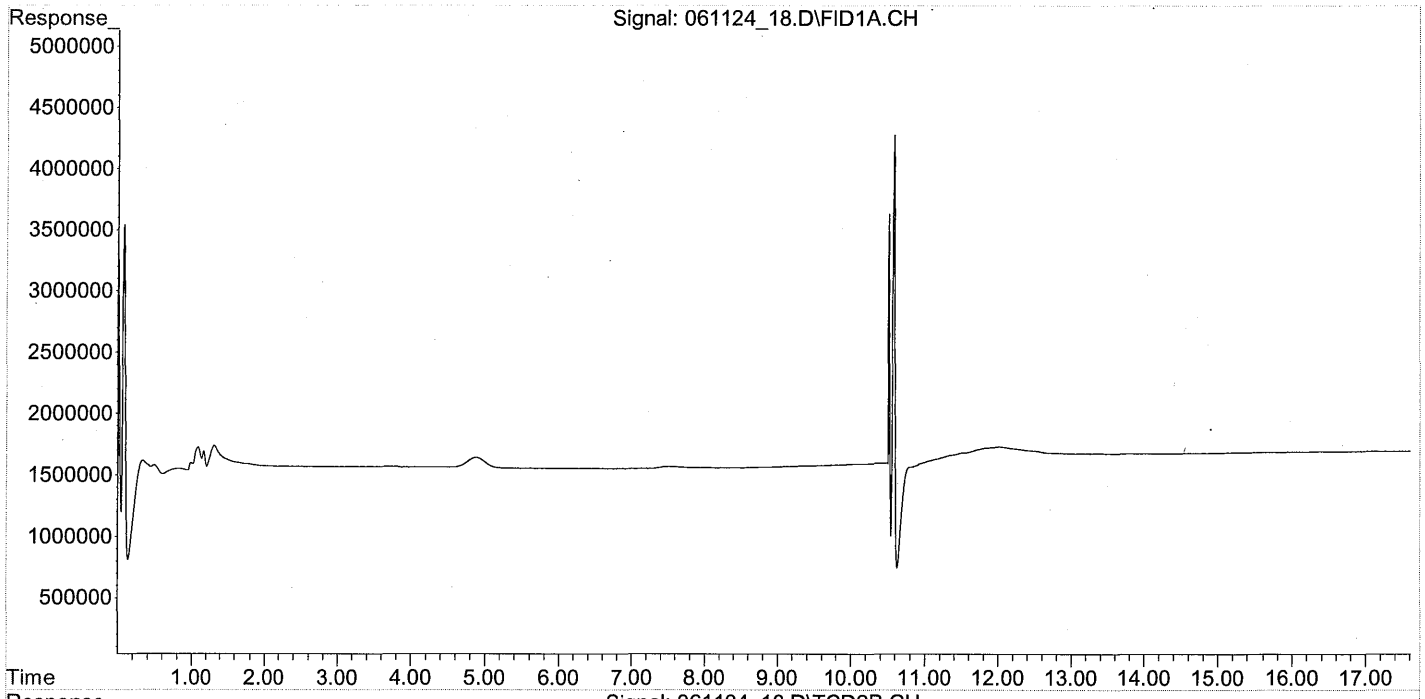
(f)=RT Delta > 1/2 Window (m)=manual int.

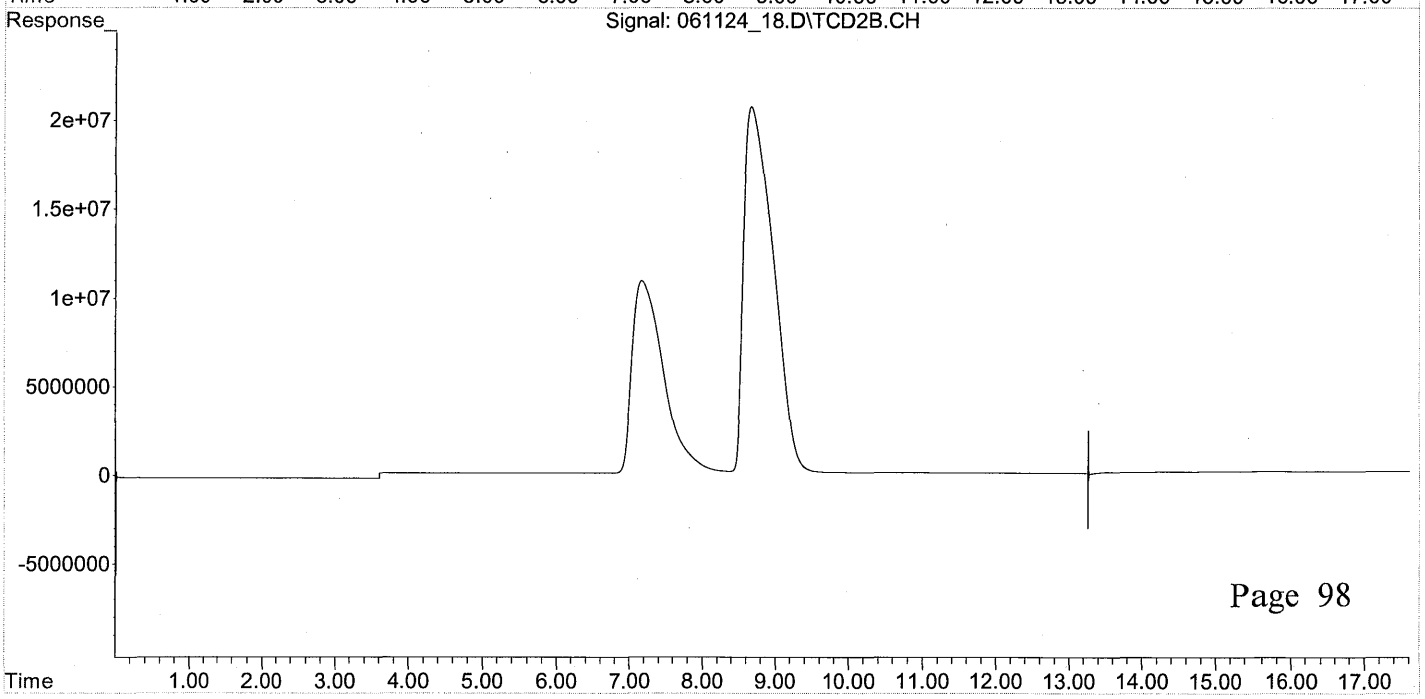
Quantitation Report (QT Reviewed)

Data Path : D:\DATA\CGTCA5\2024\061124\
Data File : 061124 18.D
Signal(s) : Signal #1: FID1A.CH Signal #2: TCD2B.CH
Acq On : 28 May 2024 11:41
Operator :
Sample : 241230-59066 dp
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 28 12:31:17 2024
Quant Method : C:\MSDChem\4\METHODS\Analysis Methods\25C 012624 FID All, 3C.M
Quant Title : 25C3C
QLast Update : Wed Mar 20 14:40:05 2024
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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Sample

Sample Name:	Sample
Sample ID:	Method Blank
Origin:	NPOC.met
Status	Completed
Chk. Result	

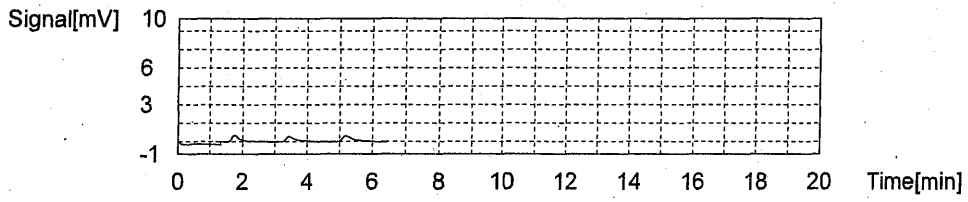
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.06702ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1080	-0.02008ppm	150uL	1	E	10062020.2020_10_06_10_26_16.cal	6/7/2024 9:28:55 AM
2	0.8800	0.06590ppm	150uL	1		10062020.2020_10_06_10_26_16.cal	6/7/2024 9:30:45 AM
3	0.8656	0.06430ppm	150uL	1		10062020.2020_10_06_10_26_16.cal	6/7/2024 9:32:38 AM
4	0.9244	0.07085ppm	150uL	1		10062020.2020_10_06_10_26_16.cal	6/7/2024 9:34:28 AM

Mean Area 0.8900
Mean Conc. 0.06702ppm



6.12.24

Sample

Sample Name: Sample
Sample ID: 241230-59057
Origin: NPOC.met
Status Completed
Chk. Result

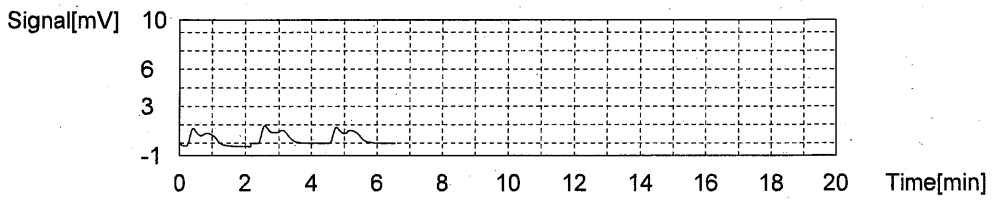
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4539ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.403	0.4519ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 9:50:38 AM
2	5.463	0.4583ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 9:52:57 AM
3	5.398	0.4514ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 9:55:19 AM

Mean Area 5.421
Mean Conc. 0.4539ppm



6.12-2

Sample

Sample Name:	Sample
Sample ID:	241230-59058
Origin:	NPOC.met
Status	Completed
Chk. Result	

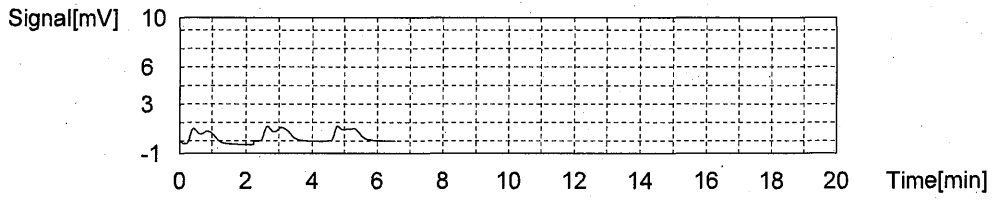
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4133ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.930	0.4016ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:04:58 AM
2	5.114	0.4212ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:07:16 AM
3	5.076	0.4171ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:09:36 AM

Mean Area 5.040
Mean Conc. 0.4133ppm



6-12-24

Sample

Sample Name: Sample
Sample ID: 241230-59059
Origin: NPOC.met
Status Completed
Chk. Result

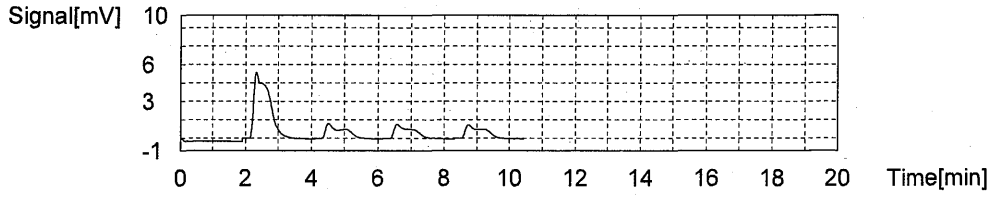
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3191ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	-0.1229ppm	150uL	1	E	020124.2024_02_01_09_14_23.cal	6/7/2024 10:18:56 AM
2	17.64	1.754ppm	150uL	1	E	020124.2024_02_01_09_14_23.cal	6/7/2024 10:21:18 AM
3	4.169	0.3207ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:23:30 AM
4	4.172	0.3210ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:25:48 AM
5	4.121	0.3156ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:28:04 AM

Mean Area 4.154
Mean Conc. 0.3191ppm



6-12-24

Sample

Sample Name: Sample
Sample ID: 241230-59060
Origin: NPOC.met
Status Completed
Chk. Result

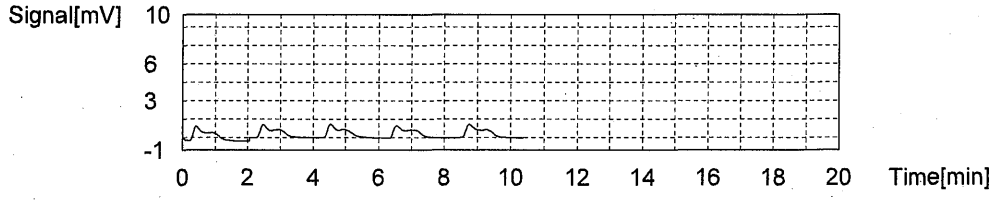
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2770ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.788	0.2801ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:37:27 AM
2	3.574	0.2574ppm	150uL	1	E	020124.2024_02_01_09_14_23.cal	6/7/2024 10:39:40 AM
3	3.562	0.2561ppm	150uL	1	E	020124.2024_02_01_09_14_23.cal	6/7/2024 10:41:50 AM
4	3.753	0.2764ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:44:11 AM
5	3.736	0.2746ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:46:22 AM

Mean Area 3.759
Mean Conc. 0.2770ppm



Sample

Sample Name:	Sample
Sample ID:	241230-59061
Origin:	NPOC.met
Status	Completed
Chk. Result	

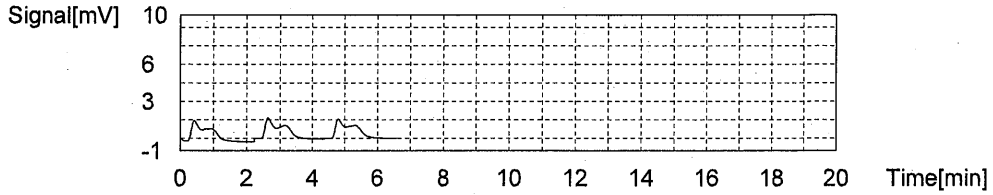
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4909ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.647	0.4779ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:55:54 AM
2	5.852	0.4997ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 10:58:14 AM
3	5.809	0.4951ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:00:35 AM

Mean Area 5.769
Mean Conc. 0.4909ppm



6-12-24

Sample

Sample Name: Sample
Sample ID: 241230-59062
Origin: NPOC.met
Status Completed
Chk. Result

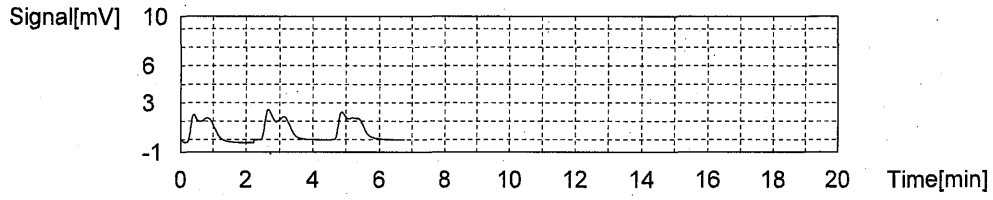
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.8629ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.308	0.8674ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:10:14 AM
2	9.331	0.8698ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:12:37 AM
3	9.159	0.8515ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:15:05 AM

Mean Area 9.266
Mean Conc. 0.8629ppm



6-12-24

Sample

Sample Name:	Sample
Sample ID:	241230-59063
Origin:	NPOC.met
Status	Completed
Chk. Result	

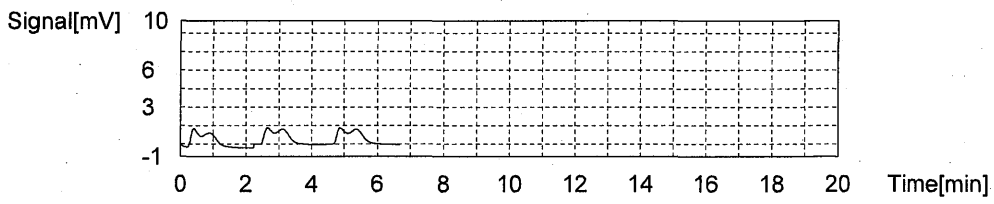
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4838ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.624	0.4754ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:24:43 AM
2	5.754	0.4893ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:27:07 AM
3	5.730	0.4867ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:29:30 AM

Mean Area 5.703
Mean Conc. 0.4838ppm



6-12-24

Sample

Sample Name: Sample
Sample ID: 241230-59064
Origin: NPOC.met
Status Completed
Chk. Result

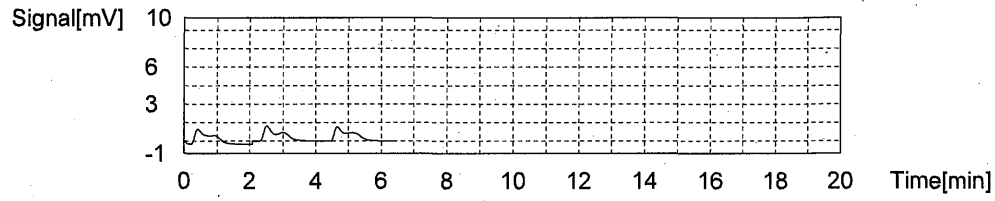
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2928ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.919	0.2941ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:39:00 AM
2	3.912	0.2933ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:41:19 AM
3	3.890	0.2910ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:43:37 AM

Mean Area 3.907
Mean Conc. 0.2928ppm



Sample

Sample Name: Sample
Sample ID: 241230-59065
Origin: NPOC.met
Status Completed
Chk. Result

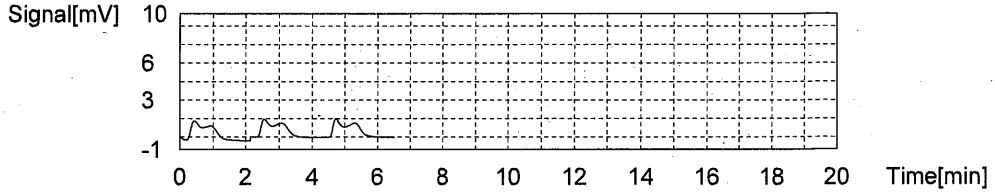
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.5070ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.945	0.5096ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:53:10 AM
2	5.929	0.5079ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:55:30 AM
3	5.889	0.5036ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 11:57:51 AM

Mean Area 5.921
Mean Conc. 0.5070ppm



Sample

Sample Name:	Sample
Sample ID:	241230-59066
Origin:	NPOC.met
Status	Completed
Chk. Result	

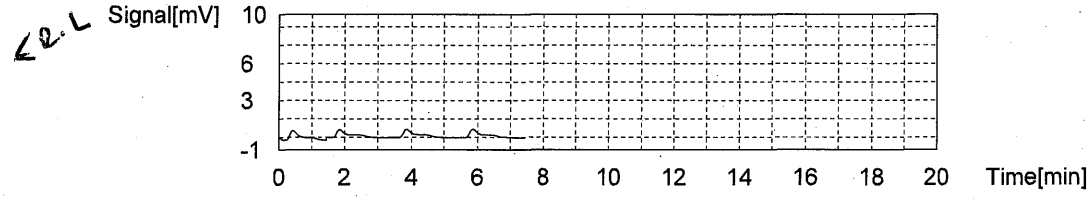
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.05701ppm

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.075	-0.00849ppm	150uL	1	E	020124.2024_02_01_09_14_23.cal	6/7/2024 12:06:44 PM
2	1.688	0.05672ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 12:08:53 PM
3	1.701	0.05811ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 12:11:02 PM
4	1.683	0.05619ppm	150uL	1		020124.2024_02_01_09_14_23.cal	6/7/2024 12:13:10 PM

Mean Area 1.691
Mean Conc. 0.05701ppm



Calibration Summary

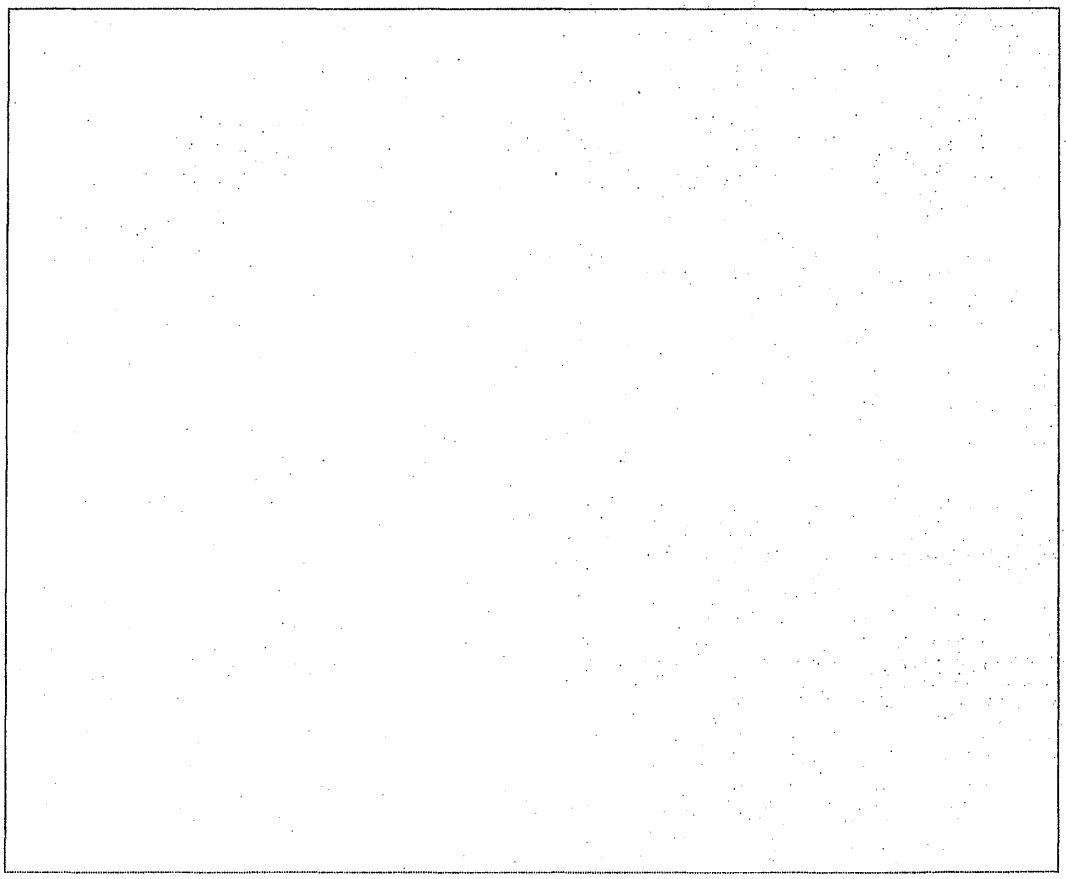
File Name: C:\Chromperfect 1\Cpmethods\Inst #01\2023\FG-092823 Standard.CAL
Version: 371

Creator: CH
Description: Fixed Gases

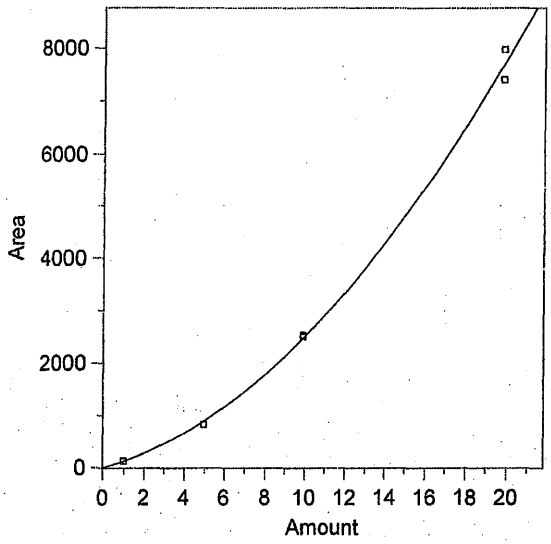
Internal standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 150
Reference peak area reject threshold: 150
Amount units: percent
No default component

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.



1 Hydrogen-MS5A



Expected retention time:	2.18 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

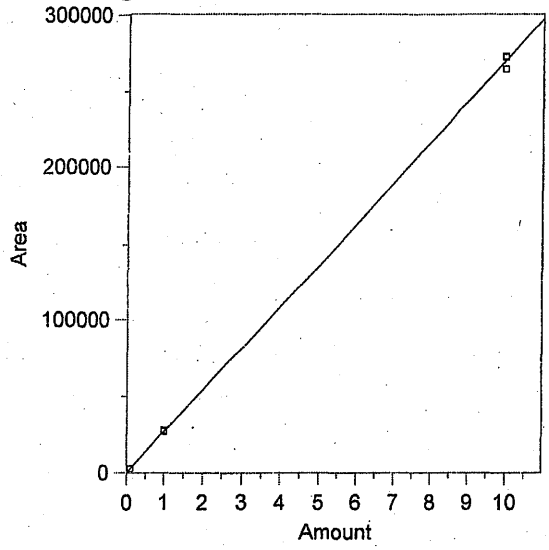
$Y = 14.00787 X^2 + 110.6525 X + 0$

Quadratic fit with equal weighting, forced to origin

Coefficient of determination:	0.9974378
Average error:	4.341%
Average CF:	235.0719
RSD:	45.119%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	(0)	0	--	--	Manual	12/13/2021 7:04:25 AM
2	(0)	0	--	--	Manual	12/13/2021 7:04:26 AM
3	0.991	(130)	131.1806	5.337	Manual	1/12/2023 9:17:40 AM
4	0.991	(129)	130.1715	4.527	Manual	1/12/2023 9:17:42 AM
5	4.955	(834)	168.3148	-6.524	Manual	7/25/2022 4:28:57 PM
6	4.955	(828)	167.1039	-7.196	Manual	8/3/2022 11:39:32 AM
7	9.91	(2531)	255.3986	2.376	Manual	7/25/2022 4:31:55 PM
8	9.91	(2503)	252.5732	1.244	Manual	7/25/2022 4:31:58 PM
9	19.82	(7399)	373.3098	-3.858	Manual	7/25/2022 4:32:03 PM
10	19.82	(7978)	402.5227	3.666	Manual	7/25/2022 4:32:08 PM

2 Argon-MS5A



Expected retention time:	3.41 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

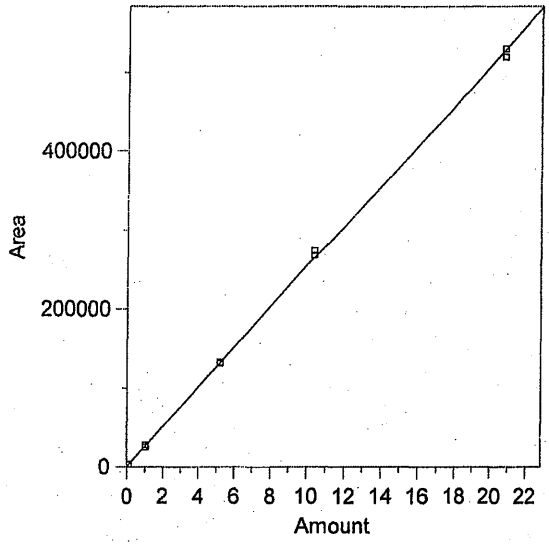
$Y = 27138.58\ X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9996575
Average error:	2.182%
Average CF:	27403.56
RSD:	2.579%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(2719)	27190	0.189	Manual	8/22/2022 12:43:52 PM
2	0.1	(2621)	26210	-3.422	Manual	8/22/2022 12:43:55 PM
3	0.1	(2843)	28430	4.759	Manual	8/22/2022 12:43:58 PM
4	0.997	(27264)	27346.04	0.764	Manual	8/22/2022 12:44:10 PM
5	0.997	(28059)	28143.43	3.703	Manual	8/22/2022 12:44:17 PM
6	0.997	(27833)	27916.75	2.867	Manual	8/22/2022 12:44:25 PM
7	9.97	(265147)	26594.48	-2.005	Manual	8/22/2022 12:44:43 PM
8	9.97	(272845)	27366.6	0.840	Manual	8/22/2022 12:44:50 PM
9	9.97	(273524)	27434.7	1.091	Manual	8/22/2022 12:44:58 PM
10	(0)	0	--	--	Manual	10/2/2020 11:16:32 AM

3 Oxygen-MS5A



Expected retention time:	3.56 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

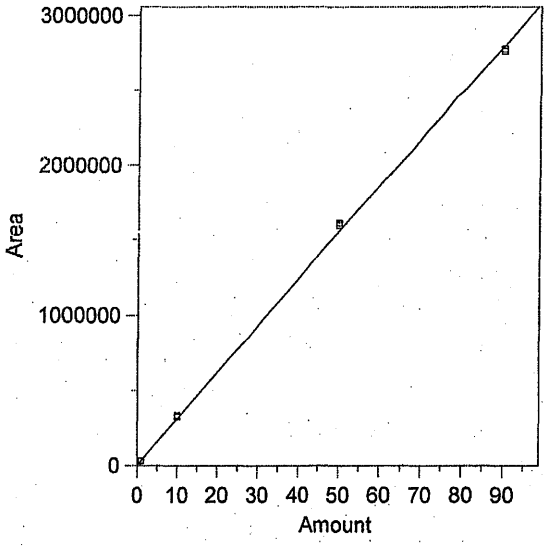
$Y = 25387.19 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.999484
Average error:	3.609%
Average CF:	25961.29
RSD:	4.643%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.104	(2846)	27365.38	7.792	Manual	7/25/2022 4:18:04 PM
2	0.104	(2945)	28317.31	11.542	Manual	8/3/2022 11:36:30 AM
3	1.041	(25087)	24098.94	-5.074	Manual	7/25/2022 4:27:21 PM
4	1.041	(27465)	26383.29	3.924	Manual	7/25/2022 4:27:25 PM
5	5.203	(132958)	25554.1	0.657	Manual	7/25/2022 4:29:15 PM
6	5.203	(132028)	25375.36	-0.047	Manual	7/25/2022 4:29:19 PM
7	10.405	(273984)	26331.96	3.721	Manual	7/25/2022 4:32:21 PM
8	10.405	(267903)	25747.53	1.419	Manual	7/25/2022 4:32:26 PM
9	20.81	(519775)	24977.18	-1.615	Manual	7/25/2022 4:32:30 PM
10	20.81	(529861)	25461.85	0.294	Manual	7/25/2022 4:32:35 PM

4 Nitrogen-MS5A



Expected retention time:	7.75 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

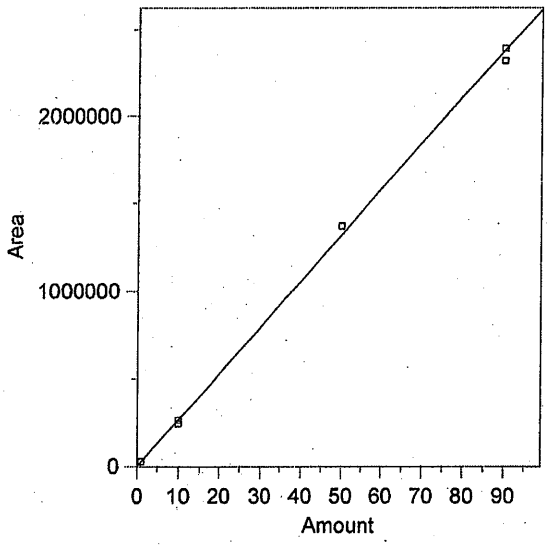
$Y = 31095.6 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9994298
Average error:	3.053%
Average CF:	31751.3
RSD:	3.134%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(3029)	30290	-2.591	Manual	8/10/2022 9:43:58 AM
2	0.1	(3260)	32600	4.838	Manual	8/10/2022 9:44:01 AM
3	1	(32017)	32017	2.963	Manual	8/10/2022 9:44:05 AM
4	1	(31045)	31045	-0.163	Manual	8/10/2022 9:44:10 AM
5	10	(334411)	33441.1	7.543	Manual	8/10/2022 9:39:49 AM
6	10	(325185)	32518.5	4.576	Manual	8/10/2022 9:39:53 AM
7	50	(1593368)	31867.36	2.482	Manual	8/10/2022 9:40:16 AM
8	50	(1607729)	32154.58	3.406	Manual	8/10/2022 9:40:20 AM
9	90	(2779033)	30878.14	-0.699	Manual	8/10/2022 9:40:33 AM
10	90	(2763123)	30701.37	-1.268	Manual	8/10/2022 9:40:40 AM

5 Methane-MS5A



Expected retention time:	8.63 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

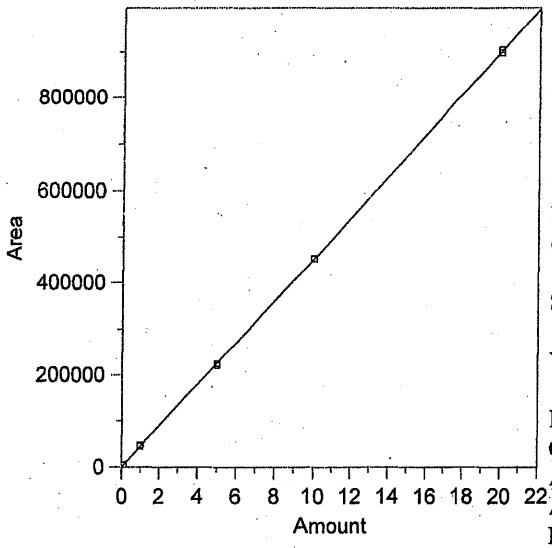
$Y = 26432.15 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9989166
Average error:	4.560%
Average CF:	26357.82
RSD:	6.490%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(2552)	25520	-3.451	Manual	8/10/2022 9:44:50 AM
2	0.1	(2407)	24070	-8.937	Manual	8/10/2022 9:44:54 AM
3	1	(29976)	29976	13.407	Manual	8/10/2022 9:45:08 AM
4	1	(26213)	26213	-0.829	Manual	8/10/2022 9:45:11 AM
5	10	(264662)	26466.2	0.129	Manual	8/10/2022 9:42:15 AM
6	10	(242095)	24209.5	-8.409	Manual	8/10/2022 9:42:19 AM
7	50	(1370838)	27416.76	3.725	Manual	8/10/2022 9:42:29 AM
8	50	(1371335)	27426.7	3.763	Manual	8/10/2022 9:42:33 AM
9	90	(2387703)	26530.03	0.370	Manual	8/10/2022 9:42:49 AM
10	90	(2317503)	25750.03	-2.581	Manual	8/10/2022 9:42:53 AM

6 Carbon Monoxide-MS5A



Expected retention time:	11.07 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

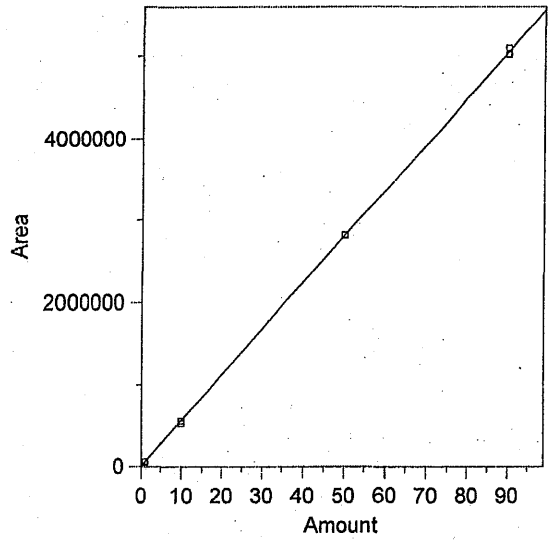
$Y = 45053.8 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.999939
Average error:	2.480%
Average CF:	45848.55
RSD:	4.376%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(5108)	51080	13.376	Manual	7/25/2022 4:23:10 PM
2	0.1	(4576)	45760	1.567	Manual	7/25/2022 4:23:13 PM
3	1.001	(47156)	47108.89	4.561	Manual	7/25/2022 4:28:16 PM
4	1.001	(45414)	45368.63	0.699	Manual	7/25/2022 4:28:19 PM
5	5.003	(223637)	44700.58	-0.784	Manual	7/25/2022 4:30:00 PM
6	5.003	(219941)	43961.82	-2.424	Manual	7/25/2022 4:30:05 PM
7	10.005	(452138)	45191.2	0.305	Manual	7/25/2022 4:34:06 PM
8	10.005	(452138)	45191.2	0.305	Manual	7/25/2022 4:34:11 PM
9	20.01	(905175)	45236.13	0.405	Manual	7/25/2022 4:34:15 PM
10	20.01	(898189)	44887.01	-0.370	Manual	7/25/2022 4:34:21 PM

7 CO2-Q bond



Expected retention time:	13.4 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

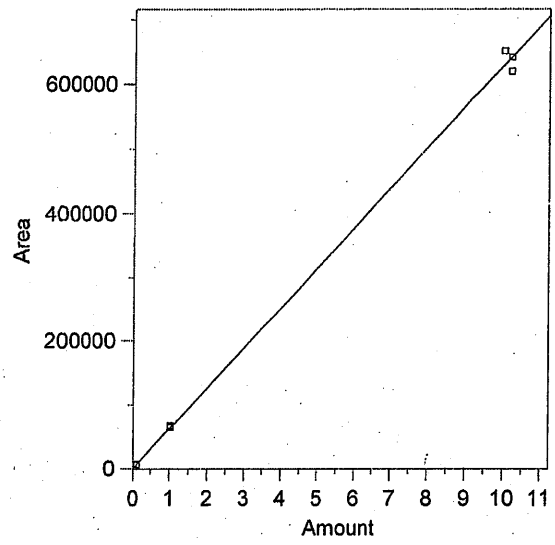
$Y = 56193.41\ X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9998862
Average error:	4.019%
Average CF:	56727.38
RSD:	5.578%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(6202)	62020	10.369	Manual	8/23/2022 11:47:28 AM
2	0.1	(5996)	59960	6.703	Manual	8/23/2022 11:47:32 AM
3	1	(52054)	52054	-7.366	Manual	8/23/2022 11:47:39 AM
4	1	(60017)	60017	6.804	Manual	8/23/2022 11:47:50 AM
5	10	(557328)	55732.8	-0.820	Manual	8/23/2022 11:48:02 AM
6	10	(526629)	52662.9	-6.283	Manual	8/23/2022 11:48:07 AM
7	50	(2813966)	56279.32	0.153	Manual	8/23/2022 11:48:15 AM
8	50	(2805680)	56113.6	-0.142	Manual	8/23/2022 11:48:23 AM
9	90	(5020303)	55781.14	-0.734	Manual	8/23/2022 11:48:35 AM
10	90	(5098777)	56653.08	0.818	Manual	8/23/2022 11:48:43 AM

8 Ethane



Expected retention time:	14.08 minutes
Search window:	0.3 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 62827.24 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9986554
Average error:	2.234%
Average CF:	63751.15
RSD:	2.643%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.102	(6413)	62872.55	0.072	Manual	8/24/2022 4:26:15 PM
2	0.102	(6443)	63166.67	0.540	Manual	8/24/2022 4:26:20 PM
3	0.102	(6565)	64362.75	2.444	Manual	8/24/2022 4:28:17 PM
4	1.021	(64657)	63327.13	0.796	Manual	8/24/2022 4:28:29 PM
5	1.021	(66424)	65057.79	3.550	Manual	8/24/2022 4:28:36 PM
6	1.021	(67872)	66476	5.808	Manual	8/24/2022 4:28:43 PM
7	10.21	(619430)	60668.95	-3.435	Manual	8/24/2022 4:28:54 PM
8	10.21	(641470)	62827.62	0.001	Manual	8/24/2022 4:29:03 PM
9	10.021	(651374)	65000.9	3.460	Manual	8/24/2022 4:31:59 PM
10	(0)	(0)	--	--	Manual	8/24/2022 4:32:12 PM

EPA Method 25C Calibration Curve (GC/FID/TCA #5)

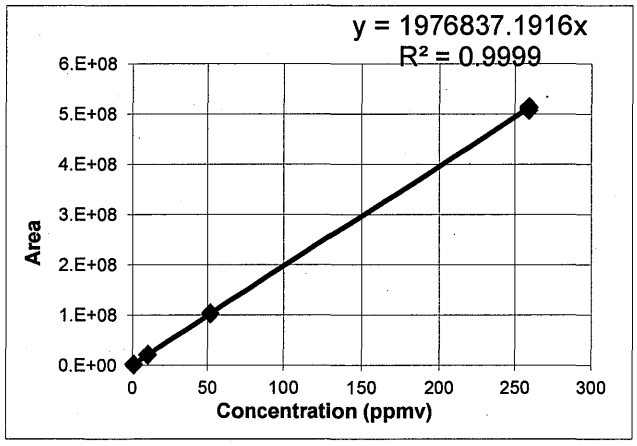
Analysis Date: 1/29/2024 **Analyst:** NR

Analyte: Carbon Monoxide
Retention Time: 0.86

Theoretical Concentration (ppmv)	Response (Area)	Response Factor	RPD from curve (+/- 10%)
1.036	2232865	2155275	9.0
1.036	1989133	1920013	-2.9
1.036	2228277	2150847	8.8
10.360	21370024	2062744	4.3
10.360	21402925	2065919	4.5
10.360	22305409	2153032	8.9
51.800	104130336	2010238	1.7
51.800	103267932	1993589	0.8
51.800	103787149	2003613	1.4
259.00	507827578	1960724	-0.8
259.00	514042264	1984719	0.4
259.00	513188917	1981424	0.2

Calibration Verification Standards:

CCV Concentration (ppmv)	Response Area	Result (ppmv)	% Recovery (90%-110%)
51.80	99733831	50.45	97.4
51.80	97910341	49.53	95.6
51.80	98358183	49.76	96.1



Cal. Type	Linear forced to origin
Equation	Y = 1976837 X
R2	0.9999
Must be > 0.990	
Average Error	3.650%
Average RF	2036845
RSD	3.943%

EPA Method 25C Calibration Curve (GC/FID/TCA #5)

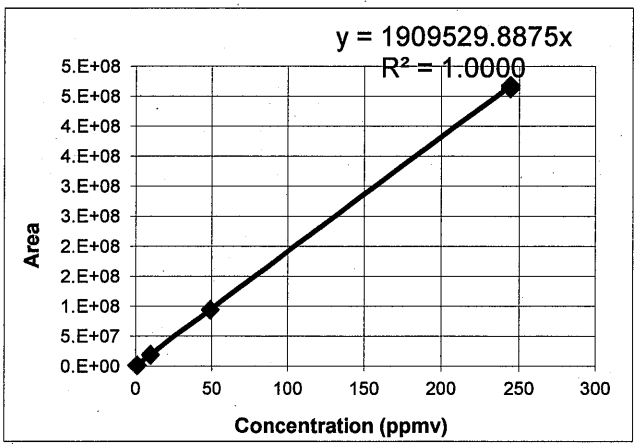
Analysis Date: 1/29/2024 **Analyst:** NR

Analyte: Methane
Retention Time: 1.25

Theoretical Concentration (ppmv)	Response (Area)	Response Factor	RPD from curve (+/- 10%)
0.977	1792114	1834303	-3.9
0.977	1710848	1751124	-8.3
0.977	1825869	1868853	-2.1
9.770	18337360	1876905	-1.7
9.770	19481406	1994003	4.4
9.770	19414886	1987194	4.1
48.85	94385758	1932155	1.2
48.85	94072348	1925739	0.8
48.85	94613743	1936822	1.4
244.25	463051764	1895811	-0.7
244.25	468129505	1916600	0.4
244.25	467331166	1913331	0.2

Calibration Verification Standards:

CCV Concentration (ppmv)	Response Area	Result (ppmv)	% Recovery (90%-110%)
48.85	93612364	49.02	100.4
48.85	92201149	48.28	98.8
48.85	92080457	48.22	98.7



Cal. Type	Linear forced to origin
Equation	Y = 1909530 X
R2	1.0000
Must be > 0.990	
Average Error	2.443%
Average RF	1902737
RSD	3.467%

EPA Method 25C Calibration Curve (GC/FID/TCA #5)

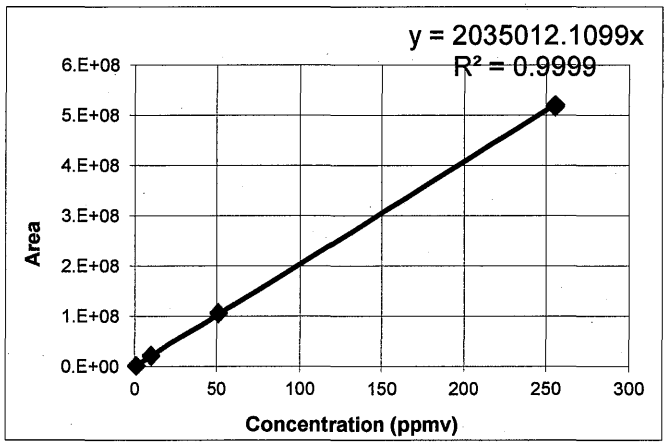
Analysis Date: 1/29/2024 **Analyst:** NR

Analyte: Carbon Dioxide
Retention Time: 2.34

Theoretical Concentration (ppmv)	Response (Area)	Response Factor	RPD from curve (+/- 10%)
1.022	2218653	2170893	6.7
1.022	2102303	2057048	1.1
1.022	2225844	2177930	7.0
10.22	21327555	2086845	2.5
10.22	21025627	2057302	1.1
10.22	22693053	2220455	9.1
51.10	106558859	2085301	2.5
51.10	105748224	2069437	1.7
51.10	107351328	2100809	3.2
255.50	516513788	2021580	-0.7
255.50	520823166	2038447	0.2
255.50	520854277	2038569	0.2

Calibration Verification Standards:

CCV Concentration (ppmv)	Response Area	Result (ppmv)	% Recovery (90%-110%)
51.10	102435737	50.34	98.5
51.10	100071109	49.17	96.2
51.10	102575662	50.41	98.6



Cal. Type	Linear forced to origin
Equation	Y = 2035012 X
R2	0.9999
Must be > 0.990	
Average Error	2.995%
Average RF	2093718
RSD	3.015%

EPA Method 25C Calibration Curve (GC/FID/TCA #5)

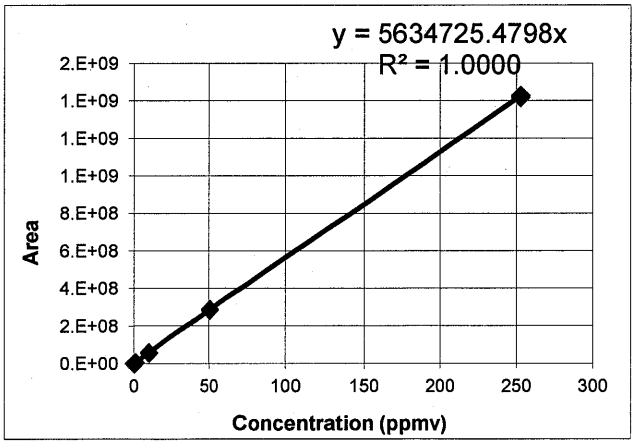
Analysis Date: 1/29/2024 **Analyst:** NR

Analyte: TNMOC (as Propane)
Retention Time: 9.28

Theoretical Concentration (ppmv)	Response (Area)	Response Factor	RPD from curve (+/- 10%)
0.101	599754	5932285	5.3
0.101	584514	5781543	2.6
0.101	580359	5740445	1.9
0.253	1516183	5998746	6.5
0.253	1507514	5964447	5.9
0.253	1482450	5865282	4.1
1.011	5772813	5710003	1.3
1.011	5351931	5293700	-6.1
1.011	5762021	5699328	1.1
10.110	55755255	5514862	-2.1
10.110	57664227	5703682	1.2
10.110	57452418	5682732	0.9
50.55	288244215	5702161	1.2
50.55	285572623	5649310	0.3
50.55	289909459	5735103	1.8
252.75	1417373399	5607808	-0.5
252.75	1426849244	5645299	0.2
252.75	1426465647	5643781	0.2

Calibration Verification Standards:

CCV Concentration (ppmv)	Response Area	Result (ppmv)	% Recovery (90%-110%)
50.55	286004947	50.76	100.4
50.55	280159550	49.72	98.4
50.55	282148113	50.07	99.1



Cal. Type	Linear forced to origin
Equation	Y = 5634725 X
R2	1.0000
Must be > 0.990	
Average Error	1.425%
Average RF	5715029
RSD	2.887%

Cal. Curve

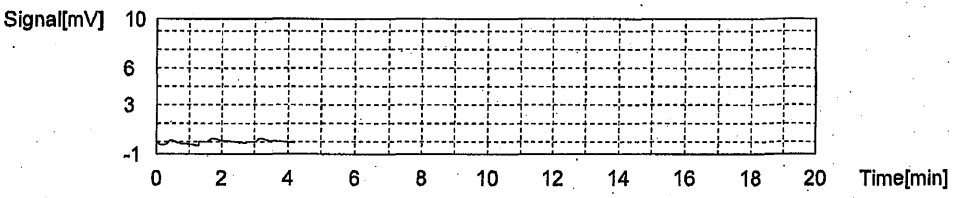
Sample Name: Calibration Standard
Sample ID: PS062822-01
Cal. Curve: 020124.2024_02_01_09_14_23.cal
Status Completed

Type	Anal.
Standard	NPOC

Conc: 0.000ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.4714	150uL	1	*******		2/1/2024 9:20:01 AM
2	0.4216	150uL	1	*******		2/1/2024 9:21:46 AM
3	0.3849	150uL	1	*******		2/1/2024 9:23:22 AM

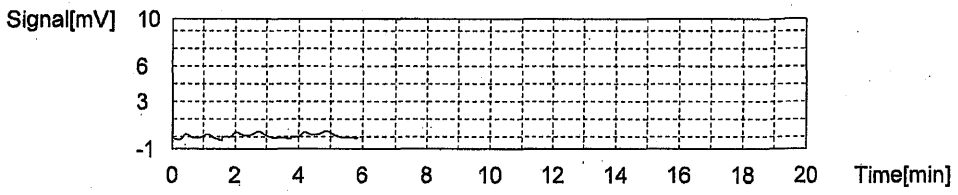
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 0.4260



Conc: 0.1000ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.086	150uL	1	*******		2/1/2024 9:32:13 AM
2	2.067	150uL	1	*******		2/1/2024 9:34:32 AM
3	2.047	150uL	1	*******		2/1/2024 9:36:45 AM

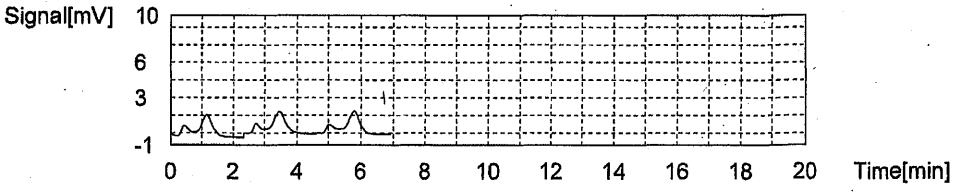
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 2.067



Conc: 0.5000ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	6.184	150uL	1	*******		2/1/2024 9:46:30 AM
2	6.074	150uL	1	*******		2/1/2024 9:49:07 AM
3	6.321	150uL	1	*******		2/1/2024 9:51:34 AM

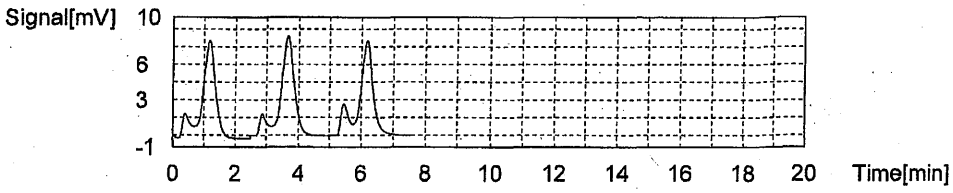
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 6.193



Conc: 2.500ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	25.26	150uL	1	*******		2/1/2024 10:01:28 AM
2	25.52	150uL	1	*******		2/1/2024 10:04:10 AM
3	25.02	150uL	1	*******		2/1/2024 10:06:49 AM

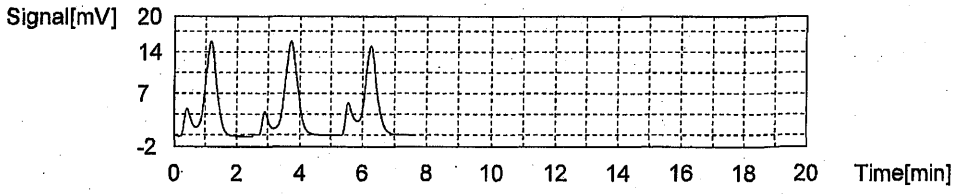
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 25.27



Conc: 5.000ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	48.73	150uL	1	*******		2/1/2024 10:16:46 AM
2	48.83	150uL	1	*******		2/1/2024 10:19:31 AM
3	49.03	150uL	1	*******		2/1/2024 10:22:13 AM

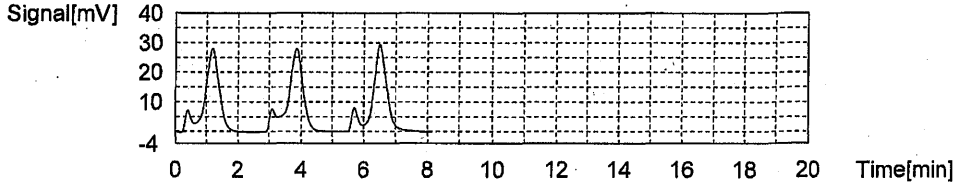
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 48.86



Conc: 10.00ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	93.51	150uL	1	*******		2/1/2024 10:32:21 AM
2	94.20	150uL	1	*******		2/1/2024 10:35:06 AM
3	93.92	150uL	1	*******		2/1/2024 10:38:06 AM

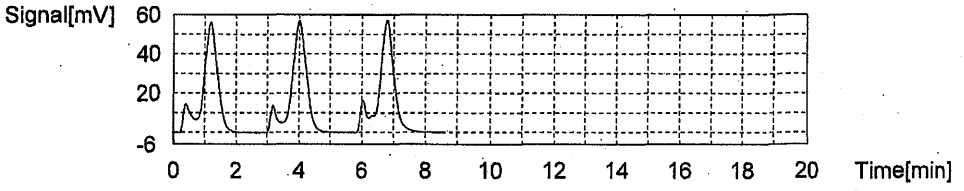
Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 93.88



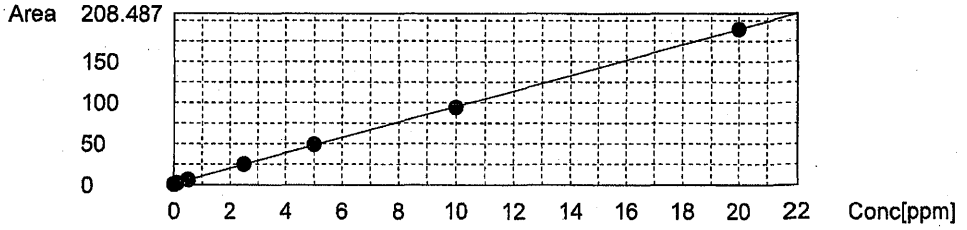
Conc: 20.00ppm

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	188.3	150uL	1	*******		2/1/2024 10:48:20 AM
2	189.9	150uL	1	*******		2/1/2024 10:51:19 AM
3	190.4	150uL	1	*******		2/1/2024 10:54:27 AM

Acid Add. 1.500%
Sp. Time 90.00sec
Mean Area 189.5



Slope: 9.400
Intercept 1.155
r^2 0.9999
r 0.9999
Zero Shift No



Client	: Environmental Management Consulting
Client Project Name	: BIOFILTRO Fanelli Dairy
Client Project No.	: CES F1-02106
AAC Project No.	: 241230 Rev 1
Reporting Date	: 06/14/2024

On May 30, 2024, Atmospheric Analysis & Consulting, Inc. received ten (10) liquid samples for Ammonia Analysis by SCAQMD Method 207.1. Upon receipt, each sample was assigned a unique Laboratory ID number as follows:

Client Sample ID	AAC Sample ID
A-701	241230-59067
A-702	241230-59068
A-703	241230-59069
A-704	241230-59070
A-705	241230-59071
A-706	241230-59072
A-707	241230-59073
A-708	241230-59074
A-709	241230-59075
A-710	241230-59076

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples. The Laboratory Director or his/her designee, as verified by the following signature, has authorized release of the data contained in this hardcopy report.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

Amended Report 241230 Rev 1 supersedes Original Report 241230. The amended report was issued on 06/14/2024. Per client request, sample air volumes were corrected for AAC#s: 59071, 59073, 59074 &59075.

This report consists of 8 pages.

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com • (805) 650-1642

Laboratory Analysis Report

Cation Analysis by IC #2

Client	: Environmental Management Consulting	Sampling Date	: 05/29/2024
Client Project Name	: BIOFILTRO Fanelli Dairy	Receiving Date	: 05/30/2024
AAC Project No.	: 241230 Rev 1	Analysis Date(s)	: 06/10/2024
Analyst	: ZS	Reporting Date	: 06/14/2024
Units	: ug/Sample		

Ammonia Analysis by SCAQMD 207.1

Client Sample ID	AAC Sample ID	Sample Volume (mL)	Analysis DF	Ammonia (ug/Sample)	Sample Reporting Limit (ug/Sample)
A-701	241230-59067	20.8	2	67.5	0.393
A-702	241230-59068	21.7	2	28.1	0.410
A-703	241230-59069	23.0	2	81.1	0.434
A-704	241230-59070	22.9	2	74.9	0.432
A-705	241230-59071	27.5	2	435	0.519
A-706	241230-59072	26.1	2	366	0.493
A-707	241230-59073	24.0	2	80.8	0.453
A-708	241230-59074	26.7	2	143	0.504
A-709	241230-59075	25.2	2	66.1	0.476
A-710	241230-59076	24.3	2	0.596	0.459

<SRL-compound was analyzed for but not detected at or above the SRL (Sample Reporting Limit)

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Laboratory Analysis Report

Cation Analysis by IC #2

Client	: Environmental Management Consulting	Sampling Date	: 05/29/2024
Client Project Name	: BIOFILTRO Fanelli Dairy	Receiving Date	: 05/30/2024
AAC Project No.	: 241230 Rev 1	Analysis Date(s)	: 06/10/2024
Analyst	: ZS	Reporting Date	: 06/14/2024
Units	: ppbV		

Ammonia Analysis by SCAQMD 207.1

Client Sample ID	AAC Sample ID	Sample Volume (mL)	Analysis DF	Ammonia (ppbV)	Sample Reporting Limit (ppbV)
A-701	241230-59067	20.8	2	9960	58.0
A-702	241230-59068	21.7	2	4850	70.8
A-703	241230-59069	23.0	2	11700	62.9
A-704	241230-59070	22.9	2	11500	66.6
A-705	241230-59071	27.5	2	58000	69.8
A-706	241230-59072	26.1	2	56400	75.9
A-707	241230-59073	24.0	2	4200	23.8
A-708	241230-59074	26.7	2	8100	28.6
A-709	241230-59075	25.2	2	7400	53.5
A-710	241230-59076	24.3	2	85.7	65.9

<SRL-compound was analyzed for but not detected at or above the SRL (Sample Reporting Limit)

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Quality Control/Quality Assurance Report

Ammonia Analysis by OSHA-ID 188 and SCAQMD 207.1

Analysis Date : 06/10/2024
Analyst : ZS
Instrument ID : DIONEX IC #2

Calibration Verification of the 09/14/2023 Calibration

Sample ID	Analyte	Target Concentration (ug/mL)	Measured Concentration (ug/mL)	Percent Recovery (%)*
Opening CV	Ammonium	25.0	25.6	102
Continuing CV	Ammonium	25.0	26.5	106
Continuing CV	Ammonium	5.00	5.09	102
Continuing CV	Ammonium	5.00	5.18	104
Closing CV	Ammonium	5.00	5.29	106
Second Source	Ammonium	25.0	27.7	111

* Must be 85-115%

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QUALITY CONTROL/ASSURANCE REPORT

Ammonia Analysis by OSHA-ID 188 and SCAQMD 207.1

Analysis Date : 06/10/2024
Analyst : ZS
Instrument ID : DIONEX IC #2

Method Blank Analysis

Analyte	Concentration (ug/mL)	Reporting Limit (ug/mL)
Ammonium	<RL	0.100

Laboratory Control Spike Analysis

Analyte	Sample Concentration (ug/mL)	Spike Concentration (ug/mL)	Lab Spike Concentration (ug/mL)	Duplicate Lab Spike Concentration (ug/mL)	Spike Recovery (%)**	Duplicate Spike Recovery (%)**	% RPD****
Ammonium	0.000	12.5	12.5	12.6	99.6	101	1.4

Matrix Spike Analysis [241283-59290]

Analyte	Sample Concentration (ug/mL)	Spike Concentration (ug/mL)	Matrix Spike Concentration (ug/mL)	Duplicate Matrix Spike Concentration (ug/mL)	Spike Recovery (%)***	Duplicate Spike Recovery (%)***	% RPD****
Ammonium	0.000	12.5	12.9	12.9	103	104	0.4

Duplicate Sample Analysis

Sample ID	Analyte	Result (ug/mL)	Duplicate Result (ug/mL)	%RPD *	DF
241268-59247	Ammonium	<SRL	<SRL	NA	1
241230-59067	Ammonium	3.44	3.42	0.6	2
241230-59074	Ammonium	5.66	5.61	0.9	2

** Must be 85-115%

*** Must be 75-125%

**** Must be < 25%

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241230 CBS 6/13/24

Ammonia D1

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

Form Serial Number: CES F1-02106	For Information Regarding These Samples Please Contact:
Client Name: *BIOFILTRO* / *Fanelli Dairy*	Dr. Charles E. Schmidt
Project Manager: *Patrick Beckett*	19200 Live Oak Road, Red Bluff; CA 96080
Requested Completion Date	530-529-4256 Mobile: 530-200-2473
	E-Mail: SCHMIDTCE@aol.com

Client Address and Phone Number: *1949 5th Street, Suite 101* / *Davis, CA 95616 (530) 564 4260*

Laboratory Name: *Atmospheric Analysis and Consulting*
Laboratory Address: *2225 Sperry Avenue* / *Ventura, CA 93003*
Laboratory Phone: *805-650-1642*
Laboratory Contact: *John Yokoyama* / *jyokoyama@aaclab.com*

Station Number/ID	Date	Time	COMP	GRAB	Sample ID Number	Media ID Number	# OF CONTAINERS	Sample Container: Trap	Vial	Can	Sample Vol.(liters)	SCAQMD Method 207.1								Field NH3 (ppmv)	Remarks
59067	5/29/2024	0819		X	A- 701		1		X		9,734	X	✓								PLEASE RECALL
59068	5/29/2024	0920		X	A- 702		1		X		8.316	X	✓								
59069	5/29/2024	0820		X	A- 703		1		X		9,921	X	✓								
59070	5/29/2024	0821		X	A- 704		1		X		9,320	X	✓								
59071	5/29/2024	1057		X	A- 705		1		X		1,069	X									10.69 L
59072	5/29/2024	1058		X	A- 706		1		X		9,332	X	✓								
59073	5/29/2024	1245		X	A- 707		1		X		2,739	X									27.39 L
59074	5/29/2024	1245		X	A- 708		1		X		2536	X									25.36 L
59075	5/29/2024	1245		X	A- 709		1		X		1,277	X									12.77 L
59076	5/29/2024	1016		X	A- 710		1		X		10,0	X									

705
707
708
709

Sampler: CE Schmidt	Date/Time: 5/29/24	Relinquished by: CE Schmidt	Date/Time: 5/29/24 1413
Recieved by: RTC 1413	Date/Time: 1413 5/29	Relinquished by:	Date/Time: 5/30/24 09:19
Recieved by	Date/Time	Relinquished by	Date/Time
Recieved by Laboratory	Date/Time	Sample Shipped Via: UPS FEDEX BUS Other	Air Bill No.

HAZWRAP/NEESA Y N
QC Level 1 2 3
COC | Ice
Ana Req | Temp
Cust Seal | pH
Sample Condition

Remarks

File: BIOFILTRO Forms NH3 3 Form, NH3 COC D1

D/O 12 conc -0.1 c TH (2+ unused)

241230

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

SCAQMD 25.3 Day 1

| | | |

241230

CE Schmidt, PhD, Environmental Consultant — Ammonia D1

Chain of Custody Record

| | | |

ENVIRONMENTAL
Analytical Service, Inc.

Analytical Report

Project Name:

BIOFILTRO Fanelli Dairy GC Reports

EAS SDG Number: **224231**

Client Project Manager: Chuck Schmidt

Prepared For:
C.E. Schmidt
19200 Live Oak Road
Red Bluff CA 96080

Project Number: 17849
Sample Event Date: 5/29/2024
Received Date: 5/29/2024
Report Date: 6/28/2024

Project Number:
PO Number:

This is the Laboratory Report for the samples in the indicated Sample Delivery Group (SDG). Each sample received in the group is assigned a Laboratory ID number. The combination of the SDG number and the Lab ID number is an unique identifier for the sample.

This Report Contains:

Laboratory Work Order
Project Sample Media
Laboratory Case Narrative and Chain of Custody
Method Description (when applicable)
Quality Control Reports
Analytical Reports

NELAC Certification: Florida E871125

173 Cross Street, San Luis Obispo, CA 93401 (805) 781-3585

Laboratory Work Order

SDG Number: 224231
Client: Chuck Schmidt
C.E. Schmidt

Project Number: 17849
Received: 5/29/2024

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
T-701	224231 1	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-701	224231 1	EPA TO-15 Special List	5/29/2024
T-701	224231 1	EAS Special N2O GC/ECD	5/29/2024
T-702	224231 2	EAS Special N2O GC/ECD	5/29/2024
T-702	224231 2	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-702	224231 2	EPA TO-15 Special List	5/29/2024
T-703	224231 3	EAS Special N2O GC/ECD	5/29/2024
T-703	224231 3	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-703	224231 3	EPA TO-15 Special List	5/29/2024
T-704	224231 4	EAS Special N2O GC/ECD	5/29/2024
T-704	224231 4	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-704	224231 4	EPA TO-15 Special List	5/29/2024
T-705	224231 5	EPA TO-15 Special List	5/29/2024
T-705	224231 5	EAS Special N2O GC/ECD	5/29/2024
T-705	224231 5	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-706	224231 6	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-706	224231 6	EPA TO-15 Special List	5/29/2024
T-706	224231 6	EAS Special N2O GC/ECD	5/29/2024
T-707	224231 7	EAS Special N2O GC/ECD	5/29/2024
T-707	224231 7	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-707	224231 7	EPA TO-15 Special List	5/29/2024
T-708	224231 8	EAS Special N2O GC/ECD	5/29/2024
T-708	224231 8	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
T-708	224231 8	EPA TO-15 Special List	5/29/2024
T-708R	224231 9	EAS Special N2O GC/ECD	5/29/2024
T-708R	224231 9	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-708R	224231 9	EPA TO-15 Special List	5/29/2024
T-710	224231 10	EPA TO-15 Special List	5/29/2024
T-710	224231 10	EAS Special N2O GC/ECD	5/29/2024
T-710	224231 10	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024

Project Sample Media

SDG Number: 224231

The following sample media was used for this Sample Delivery Group (SDG). The Sample Media column identifies the type of media. For canisters, the Sample Media Batch gives the canister number followed by the cleaning batch number, which is a unique identification. The initial pressure of the canister when it is received is recorded. If the canister is not pressurized, the final pressure will be the same as the initial pressure. If the canister is pessurized the final pressure will be recorded, and the canister dilution factor is calculated as the ratio of the final to initial pressure. The results are adjusted for the can dilution factor.

SDG	Lab ID	Client Sample No.	Sample Media	Batch	Pressure, torr Initial	Pressure, torr Final	Can Factor
224231	1	T-701	650				
224231	2	T-702	779				
224231	3	T-703	654				
224231	4	T-704	897				
224231	5	T-705	792				
224231	6	T-706	660				
224231	7	T-707	505				
224231	8	T-708	885				
224231	9	T-708R	885				
224231	10	T-710	728				

Laboratory Case Narrative

EAS SDG Number: 224231 **Project Number:** 17849

Client: C.E. Schmidt

The Laboratory Case Narrative for the SDG is below. The Chain of Custody form(s) follow the Laboratory Case Narrative.

Sample Control Narrative

The samples were all received in good condition and with proper preservation.

Analytical Methods

The methods used for sample analysis are listed on the Analytyical Report header, and have been modified as described in the EAS Quality Manual..

Case Narrative

The results for sample T-709, (EAS 224231-09 on the chain of custody) were not valid, so sample T-708 was run a second time to make the duplicate T-708R, which was assigned the EAS number 224231-09 for the duplicate..

QC Narrative

All analyses met EAS method criteria as defined in the Quality Manual, except as noted in the report or QC reports with data qualifiers.

Subcontract Narrative

No sample analysis was subcontracted for this project

Laboratory Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness other than the condition(s) noted above. The Laboratory Report is property of EAS and its client. The entire report has been reviewed and approved.



Date Approved: 6/28/2024

Steven D. Hoyt, Ph.D.
Environmental Analytical Service
Laboratory Director

CE Schmidt, PhD, Environmental Consultant 17849 224231 5/29 **TO-15 Day 1**

Chain of Custody Record

Form Serial Number	For Information Regarding These Samples	# OF CONTAINERS	Client Address and Phone Number	Laboratory Name
CES F1-02106	Please Contact:		*1949 5th Street, Suite 101*	*EAS*
Client Name			*Davis, CA 95616 (530) 564 4260*	
BIOFILTRO	**Dr. Charles E. Schmidt**			Laboratory Address
Fanelli Dairy	19200 Live Oak Road, Red Bluff, CA 96080			*173 Cross Street*
Project Manager	530-529-4256 Mobile: 530-200-2473			*San Luis Obispo, CA 93401*
Patrick Beckett	E-Mail: SCHMIDTCE@aol.com			Laboratory Phone
				805-781-3585
Requested Completion Date				Laboratory Contact
				Dr. Steve Hoyt
				stevehoyt@easlab.com

Station Number	Date	Time	COMP	GRAB	Sample ID Number	Can ID Number	Sample Container: Vial	Can	Tube	Analysis Requested: TO-12 FID (TNMHC)	TO-14 FID (Target List/Groups)	TO-15 (See List on Back)	ASTM D-1945 (O2, CO2, He)	USEPA Method 15 (H2S Only)	Can Pressure In (Inches Hg)	Can Pressure Out (Inches	Remarks
	5/29/2024	0910		x	T - 701	650		x		x		x			-29"	0"	01
	5/29/2024	0918		x	T - 702	779		x		x		x			-29"		02
1146	5/29/2024	0920		x	T - 703	654		x		x		x			-29"		03
	5/29/2024	0927		x	T - 704	897		x		x		x			-29"		04
1200	5/29/2024	~~1054~~ 1057		x	T - 705	792		x		x		x			-29"		05
	5/29/2024	1146		x	T - 706	660		x		x		x			-29"		06
	5/29/2024	1334		x	T - 707	505		x		x		x			-29"		07
	5/29/2024	1339		x	T - 708	~~708~~ 885		x		x		x			-29"		08
	5/29/2024	1339		x	T - 709	631		x		x		x			-29"		09
	5/29/2024	1300		x	T - 710	728		x		x		x			-29"		10
					5" OR 30"												

Page 6 of 32

Sampler	CE SCHMIDT	Date/Time 5/29/24 1413	Relinquished by CE SCHMIDT	Date/Time 5/29/24 1413
Recieved by	EAS 1413	Date/Time 5/29/24 1413	Relinquished by	Date/Time
Recieved by		Date/Time	Relinquished by	Date/Time
Recieved by Laboratory		Date/Time 5/29/24 18:00	Sample Shipped Via UPS FEDEX BUS Other	
Remarks				

HAZWRAP/NEESA Y N
QC Level 1 2 3
COC
Ana Req
Cust Seal
Sample Condition

File: BIOFILTRO Fanelli TO-15 Field COC 10-15 B1

Quality Control Report

EAS SDG Number: 224231

Project Number: 17849

QC Narrative

Samples were anlayzed in a daily analytical batch (DAB) designated by a QC batch number, and were analyzed using EAS standard laboratory QC specified in the EAS Quality Manual which may be different then the referrenced agency method. Any deviations from the EAS QC criteria are flagged in the Laboratory Control Reports or in the sample Analytical Reports.

Standard Laboratory QC Report

Unless project specific QC was requested, this Section containing the standard laboratory QC (Level 2) supplied with the Analytical Reports. Each sample is analyzed in a Daily Analytical Batch (DAB) which includes the method blank, a laboratory control spike (LCS) and a laboratory control duplicate (LCD). A Daily Analytical Batch QC report is supplied for each method requested.

Method Blank

The method blank is a laboratory generated sample which assesses the degree to which laboratory operations cause a false positive. The target analytes in the analytical reports for a daily analytical batch are "B" flagged if their concentrations are present in the Method Blank above the RL, unless the result is greater then ten times the blank value..

Laboratory Control Spike

A laboratory control spike is a well characterized matrix similar to the sample which is spiked and run in duplicate with each Daily Analytical Batch. The laboratory control spike results are reported as a percent recovery. The QC Criteria for the control spike is listed in the Laboratory Control Report. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report. The control spike contains an abbreviated list of compounds in the method, and may contain compounds not on the target list for the specified report.

Laboratory Control Duplicate

The laboratory control duplicate is a duplicate analysis of the laboratory control spike, a standard, or a sample depending on the method. The results are reported as a relative percent difference (RPD). The criteria for the duplicate is in the Laboratory Control Report for the Daily Analytical Batch. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report.

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

Analytical Method: TO-12

SDG: LABQC
Laboratory Number: B06204

File Name: B06204B
Description: METHOD BLANK
Canister:
QC_Batch: 062024-GCK

Date Sampled:
Date Analyzed: 06/20/24
Can Factor: 1.00
Air Volume: 200.0 ml

Time:
Time: 13:06

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	ND	58.88	117.76	ND	ND
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	ND	65.57	131.15	ND	ND

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: LABQC
Laboratory Number: B06254B

File Name: B06254B
Description: METHOD BLANK
Can/Tube#:
QC_Batch: 062524-GCL

Date Sampled: Time:
Date Analyzed: 06/25/24 Time: 13:22
Dilution Factor: 1.00

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.10	0.30	ND	0.19	0.56	ND	

QUALITY CONTROL SPIKE

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Laboratory Control Duplicate

EPA Method TO-12 Total Non-Methane Hydrocarbons

QC_Batch: 062024-GCK
Date: 06/20/24

		LCS Recovery		LCD Recovery		Spike Limit LCL	Spike Limit UCL	Duplicate	Duplicate Limit	
CAS#	Compound	%	Flag	%	Flag	%	%	%	%	Flag
109-66-0	n-Pentane	115		104		70	130	11	25	
110-54-3	n-Hexane	97		95		70	130	2	25	
71-43-2	Benzene	101		105		70	130	4	25	
142-82-5	n-Heptane	87		96		70	130	9	25	
108-88-3	Toluene	72		79		70	130	7	25	
111-65-9	n-Octane	76		84		70	130	8	25	
108-38-3	m,p-xylene	73		80		70	130	8	25	
95-47-6	o-xylene	72		79		70	130	7	25	
108-67-8	1,3,5-Trimethylbenzene	76		78		70	130	2	25	

LCS- Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicates out of Limit

QUALITY CONTROL SPIKE

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Laboratory Control Duplicate

EAS 06 Nitrous Oxide by GC/ECD
Analytical Method: **EAS 06**

Date: 06/25/24
QC_Batch: 062524-GCL

		LCS Recovery		LCD Recovery		Spike Limit LCL	Spike Limit UCL	Duplicate	Duplicate Limit	
CAS#	Compound	%	Flag	%	Flag	%	%	%	%	Flag
10024-97-2	Nitrous Oxide	93		96		70	130	3	25	

LCS- Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicates out of Limit

Analytical Reports

EAS SDG Number: 224231

Project Number: 17849

The following pages contain the certified Analytical Reports for the samples submitted in the Sample Delivery Group (SDG) and are in order of the EAS Lab ID number. All of the analytical methods used are modifications of the published methods. Procedural method modifications, QC modifications, QC Criteria modifications, target lists, definitions of detection limits, and flags are all explained in detail in the EAS Quality Manual. The Analytical Report has columns for the method detection limit (MDL), the reporting limit (RL), and the Amount. The Amount is the concentration of the compound in the sample. The report usually has the results reported with two commonly used units. The MDL, RL, and Amount are adjusted for the canister dilution factor and any dilution caused by sample matrix effects.

NELAC CERTIFICATION

EAS is accredited by the National Environmental Laboratory Accreditation (NELAC) with the Florida Department of Health, one of the NELAC certifying states. EAS is certified for the EPA TO-15, EPA TO-11 and EPA TO-4 methods. A list of accredited compounds is available on request.

DETECTION LIMITS

MDL: The MDL is lowest concentration that can be measured to be statistically above the noise level and is determined using the EPA 2016 method which uses the standard deviation of replicate measurements made over time. The method also incorporates systematic instrumentation blank levels. See Quality Manual for detailed explanation.

RL: The reporting limit (RL) is the lowest concentration that can be reliably reported for each compound that meets the QC Criteria for the method, background levels, or project specific considerations. The QC criteria level for the method blank is to be less then the RL See Quality Manual for more information.

DATA FLAGS

In the standard report, if a compound is not detected above the method detection limit, a "ND" is in the Amount column. The flag column is used for both the not detect flag and for any data flags.

B - This compound was detected in the batch method blank above the reporting limit and is greater then one tenth the amount in the sample.

E - This compound exceeds the calibration range for this sample volume.

J - The amount reported is estimated because it was below the RL and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background

SIGNIFICANT FIGURES

Based on the uncertainty in the methods, the numbers on the Analytical Reports should be used with only two significant digits. Additional significant figures are reported for ease of use and to avoid rounding errors when used in further calculations.

UNITS

PPBV or PPMV: Parts-per-billion (or million) by volume is a mole (volume) ratio of the moles of analyte divided by the moles of air (gas). This is the primary unit used to report air or gas concentrations and is independent of temperature and pressure.

UG/M3 OR MG/M3: The reported result was calculated based on 1 atm pressure and a temperature of 25C. The conversion from PPBV is: UG/M3 = PPBV x MW/24.46 where 24.26 is the gas constant and MW is the Compounds Molecular Weight (sometimes called Formula Weight)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 01

File Name: 2423101A
Description: T-701
Canister: 650
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 9:10
Date Analyzed: 06/20/24 **Time:** 14:30
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	25.62	58.88	117.76	90.52	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	153.73	65.57	131.15	100.81	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 01

File Name: 2423101A
Description: T-701
Can/Tube#: 650
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 9:10
Date Analyzed: 06/25/24 Time: 13:31
Dilution Factor: 1.23

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.12	0.37	1.74	0.23	0.69	3.23	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 02

File Name: 2423102A
Description: T-702
Canister: 779
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 9:18
Date Analyzed: 06/20/24 **Time:** 15:05
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	ND	58.88	117.76	ND	ND
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	ND	65.57	131.15	ND	ND

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

SDG: 224231

Modified Analytical Method: EAS 06

Laboratory Number: 02

File Name: 2423102A
Description: T-702
Can/Tube#: 779
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 9:18
Date Analyzed: 06/25/24 Time: 13:44
Dilution Factor: 1.23

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.12	0.37	2.04	0.23	0.68	3.79	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 03

File Name: 2423103A
Description: T-703
Canister: 654
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 9:20
Date Analyzed: 06/20/24 **Time:** 15:39
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	32.77	58.88	117.76	115.77	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	196.61	65.57	131.15	128.93	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 03

File Name: 2423103A
Description: T-703
Can/Tube#: 654
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 9:20
Date Analyzed: 06/25/24 Time: 13:52
Dilution Factor: 1.26

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.38	1.22	0.23	0.70	2.26	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

Analytical Method: TO-12

SDG: 224231
Laboratory Number: 04

File Name: 2423104A
Description: T-704
Canister: 897
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 9:27
Date Analyzed: 06/20/24 **Time:** 16:15
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	31.87	58.88	117.76	112.59	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	191.22	65.57	131.15	125.39	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

SDG: 224231

Modified Analytical Method: EAS 06

Laboratory Number: 04

File Name: 2423104A
Description: T-704
Can/Tube#: 897
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 9:27
Date Analyzed: 06/25/24 Time: 14:01
Dilution Factor: 1.23

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.12	0.37	1.35	0.23	0.69	2.51	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 05

File Name: 2423105A
Description: T-705
Canister: 792
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 11:46
Date Analyzed: 06/20/24 **Time:** 16:58
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	19.72	58.88	117.76	69.66	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	118.31	65.57	131.15	77.58	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 05

File Name: 2423105A
Description: T-705
Can/Tube#: 792
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 11:46
Date Analyzed: 06/25/24 Time: 14:10
Dilution Factor: 1.27

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.38	0.19	0.24	0.71	0.36	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 06

File Name: 2423106A
Description: T-706
Canister: 660
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 11:46
Date Analyzed: 06/20/24 **Time:** 17:34
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	165.04	58.88	117.76	583.04	
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	990.22	65.57	131.15	649.32	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 06

File Name: 2423106A
Description: T-706
Can/Tube#: 660
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 11:46
Date Analyzed: 06/25/24 Time: 14:19
Dilution Factor: 1.26

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.38	ND	0.24	0.71	ND	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 07

File Name: 2423107A
Description: T-707
Canister: 505
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 13:34
Date Analyzed: 06/20/24 **Time:** 18:11
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	56.01	58.88	117.76	197.89	
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	336.09	65.57	131.15	220.39	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 07

File Name: 2423107A
Description: T-707
Can/Tube#: 505
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 13:34
Date Analyzed: 06/25/24 Time: 14:29
Dilution Factor: 1.28

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.38	0.18	0.24	0.71	0.33	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

Analytical Method: TO-12

SDG: 224231
Laboratory Number: 08

File Name: 2423108A
Description: T-708
Canister: 885
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 13:39
Date Analyzed: 06/20/24 **Time:** 19:26
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	17.39	58.88	117.76	61.43	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	104.34	65.57	131.15	68.42	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 08

File Name: 2423108A
Description: T-708
Can/Tube#: 885
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 13:39
Date Analyzed: 06/25/24 Time: 15:04
Dilution Factor: 1.31

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.39	0.15	0.24	0.73	0.28	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 09

File Name: 2423108B
Description: T-708R
Canister: 885
QC_Batch: 006244-GCK

Date Sampled: 05/29/24 **Time:** 13:39
Date Analyzed: 06/24/24 **Time:** 11:58
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	22.33	58.88	117.76	78.90	J
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	134.01	65.57	131.15	87.87	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

SDG: 224231

Modified Analytical Method: EAS 06

Laboratory Number: 09

File Name: 2423109A
Description: T-708R
Can/Tube#: 885
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 13:39
Date Analyzed: 06/25/24 Time: 15:14
Dilution Factor: 1.31

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.13	0.39	0.17	0.24	0.73	0.32	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA TO-12 Total Non-Methane Hydrocarbons

SDG: 224231
Analytical Method: TO-12
Laboratory Number: 10

File Name: 2423110A
Description: T-710
Canister: 728
QC_Batch: 006204-GCK

Date Sampled: 05/29/24 **Time:** 13:00
Date Analyzed: 06/20/24 **Time:** 13:56
Can Factor: 1.00
Air Volume: 200.0 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
TNMHC - C6	Total Non-Methane Hydrocarbons C6	16.67	33.33	ND	58.88	117.76	ND	ND
TNMHC - C1	Total Non-Methane Hydrocarbons C1	100.00	200.00	ND	65.57	131.15	ND	ND

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EAS 06 Nitrous Oxide by GC/ECD

Modified Analytical Method: EAS 06

SDG: 224231
Laboratory Number: 10

File Name: 2423110A
Description: T-710
Can/Tube#: 728
QC_Batch: 062524-GCL

Date Sampled: 05/29/24 Time: 13:00
Date Analyzed: 06/25/24 Time: 15:33
Dilution Factor: 1.21

CAS#	Compound	MDL ppmv	RL ppmv	Result ppmv	MDL mg/m3	RL mg/m3	Result mg/m3	Flag
10024-97-2	Nitrous Oxide	0.12	0.36	ND	0.22	0.67	ND	

ENVIRONMENTAL
Analytical Service, Inc.

Analytical Report

Project Name:

BioFiltro

EAS SDG Number: **224274**

Client Project Manager: Chuck Schmidt

Prepared For:
C.E. Schmidt
19200 Live Oak Road
Red Bluff CA 96080

Project Number: 17849
Sample Event Date: 7/9/2024
Received Date: 7/12/2024
Report Date: 7/29/2024

Project Number:
PO Number:

This is the Laboratory Report for the samples in the indicated Sample Delivery Group (SDG). Each sample received in the group is assigned a Laboratory ID number. The combination of the SDG number and the Lab ID number is an unique identifier for the sample.

This Report Contains:

Laboratory Work Order
Project Sample Media
Laboratory Case Narrative and Chain of Custody
Method Description (when applicable)
Quality Control Reports
Analytical Reports

NELAC Certification: Florida E871125

173 Cross Street, San Luis Obispo, CA 93401 (805) 781-3585

Laboratory Work Order

SDG Number: 224274
Client: Chuck Schmidt
C.E. Schmidt

Project Number: 17849
Received: 7/12/2024

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
S-101	224274 1	EPA TO-15 Special List	7/9/2024
S-102	224274 2	EPA TO-15 Special List	7/9/2024

Project Sample Media

SDG Number: 224274

The following sample media was used for this Sample Delivery Group (SDG). The Sample Media column identifies the type of media. For canisters, the Sample Media Batch gives the canister number followed by the cleaning batch number, which is a unique identification. The initial pressure of the canister when it is received is recorded. If the canister is not pressurized, the final pressure will be the same as the initial pressure. If the canister is pessurized the final pressure will be recorded, and the canister dilution factor is calculated as the ratio of the final to initial pressure. The results are adjusted for the can dilution factor.

SDG	Lab ID	Client Sample No.	Sample Media	Batch	Pressure, torr Initial	Final	Can Factor
224274	1	S-101	783		676	676	1.00
224274	2	S-102	767		713	713	1.00

Laboratory Case Narrative

EAS SDG Number: 224274 **Project Number:** 17849

Client: C.E. Schmidt

The Laboratory Case Narrative for the SDG is below. The Chain of Custody form(s) follow the Laboratory Case Narrative.

Sample Control Narrative

The samples were all received in good condition and with proper preservation.

Analytical Methods

The methods used for sample analysis are listed on the Analytyical Report header, and have been modified as described in the EAS Quality Manual..

Case Narrative

QC Narrative

All analyses met EAS method criteria as defined in the Quality Manual, except as noted in the report or QC reports with data qualifiers.

Subcontract Narrative

No sample analysis was subcontracted for this project

Laboratory Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness other than the condition(s) noted above. The Laboratory Report is property of EAS and its client. The entire report has been reviewed and approved.



Date Approved: 7/29/2024

Steven D. Hoyt, Ph.D.
Environmental Analytical Service
Laboratory Director

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

224274 17849

| | | |

Quality Control Report

EAS SDG Number: 224274

Project Number: 17849

QC Narrative

Samples were anlayzed in a daily analytical batch (DAB) designated by a QC batch number, and were analyzed using EAS standard laboratory QC specified in the EAS Quality Manual which may be different then the referrenced agency method. Any deviations from the EAS QC criteria are flagged in the Laboratory Control Reports or in the sample Analytical Reports.

Standard Laboratory QC Report

Unless project specific QC was requested, this Section containing the standard laboratory QC (Level 2) supplied with the Analytical Reports. Each sample is analyzed in a Daily Analytical Batch (DAB) which includes the method blank, a laboratory control spike (LCS) and a laboratory control duplicate (LCD). A Daily Analytical Batch QC report is supplied for each method requested.

Method Blank

The method blank is a laboratory generated sample which assesses the degree to which laboratory operations cause a false positive. The target analytes in the analytical reports for a daily analytical batch are "B" flagged if their concentrations are present in the Method Blank above the RL, unless the result is greater then ten times the blank value..

Laboratory Control Spike

A laboratory control spike is a well characterized matrix similar to the sample which is spiked and run in duplicate with each Daily Analytical Batch. The laboratory control spike results are reported as a percent recovery. The QC Criteria for the control spike is listed in the Laboratory Control Report. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report. The control spike contains an abbreviated list of compounds in the method, and may contain compounds not on the target list for the specified report.

Laboratory Control Duplicate

The laboratory control duplicate is a duplicate analysis of the laboratory control spike, a standard, or a sample depending on the method. The results are reported as a relative percent difference (RPD). The criteria for the duplicate is in the Laboratory Control Report for the Daily Analytical Batch. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report.

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B07154

File Name: B07154C.D
Description: METHOD BLANK
Canister:
QC_Batch: 071524-MA1

Date Sampled:
Date Analyzed: 07/15/24
Can Dilution Factor: 1.00
Air Volume: 200 ml

Time:
Time: 11:32

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	ND	3.30	7.07	ND	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	ND	1.19	3.66	ND	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	ND	1.60	4.05	ND	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	114	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B07154

File Name: B07154C.D
Description: METHOD BLANK
Canister:
QC_Batch: 071524-MA1

Date Sampled:
Time:
Date Analyzed: 07/15/24
Time: 11:32
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	ND	3.15	9.00	ND	

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

TO15 **Volatile Organic Compounds by GC/MS**

QC_Batch: 071524-MA1
Date: 07/15/24

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	116		118		70	130	2	25	
75-35-4	1,1-Dichloroethene	120		124		70	130	4	25	
75-09-2	Dichloromethane	114		120		70	130	6	25	
75-34-3	1,1-Dichloroethane	127		124		70	130	3	25	
67-66-3	Chloroform	120		113		70	130	7	25	
71-55-6	1,1,1-Trichloroethane	93		89		70	130	4	25	
107-06-2	1,2-Dichloroethane	110		97		70	130	13	25	
71-43-2	Benzene	115		100		70	130	14	25	
56-23-5	Carbon tetrachloride	94		92		70	130	2	25	
79-01-6	Trichloroethene	89		85		70	130	4	25	
108-88-3	Toluene	112		101		70	130	10	25	
106-93-4	1,2-Dibromoethane	127		102		70	130	22	25	
127-18-4	Tetrachloroethene	76		74		70	130	3	25	
100-41-4	Ethylbenzene	117		106		70	130	10	25	
1330-20-7	m,p-Xylenes	115		105		70	130	9	25	
95-47-6	o-Xylene	120		108		70	130	10	25	
108-67-8	1,3,5-Trimethylbenzene	118		117		70	130	1	25	
95-63-6	1,2,4-Trimethylbenzene	120		126		70	130	5	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

Analytical Reports

EAS SDG Number: 224274

Project Number: 17849

The following pages contain the certified Analytical Reports for the samples submitted in the Sample Delivery Group (SDG) and are in order of the EAS Lab ID number. All of the analytical methods used are modifications of the published methods. Procedural method modifications, QC modifications, QC Criteria modifications, target lists, definitions of detection limits, and flags are all explained in detail in the EAS Quality Manual. The Analytical Report has columns for the method detection limit (MDL), the reporting limit (RL), and the Amount. The Amount is the concentration of the compound in the sample. The report usually has the results reported with two commonly used units. The MDL, RL, and Amount are adjusted for the canister dilution factor and any dilution caused by sample matrix effects.

NELAC CERTIFICATION

EAS is accredited by the National Environmental Laboratory Accreditation (NELAC) with the Florida Department of Health, one of the NELAC certifying states. EAS is certified for the EPA TO-15, EPA TO-11 and EPA TO-4 methods. A list of accredited compounds is available on request.

DETECTION LIMITS

MDL: The MDL is lowest concentration that can be measured to be statistically above the noise level and is determined using the EPA 2016 method which uses the standard deviation of replicate measurements made over time. The method also incorporates systematic instrumentation blank levels. See Quality Manual for detailed explanation.

RL: The reporting limit (RL) is the lowest concentration that can be reliably reported for each compound that meets the QC Criteria for the method, background levels, or project specific considerations. The QC criteria level for the method blank is to be less then the RL See Quality Manual for more information.

DATA FLAGS

In the standard report, if a compound is not detected above the method detection limit, a "ND" is in the Amount column. The flag column is used for both the not detect flag and for any data flags.

B - This compound was detected in the batch method blank above the reporting limit and is greater then one tenth the amount in the sample.

E - This compound exceeds the calibration range for this sample volume.

J - The amount reported is estimated because it was below the RL and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background

SIGNIFICANT FIGURES

Based on the uncertainty in the methods, the numbers on the Analytical Reports should be used with only two significant digits. Additional significant figures are reported for ease of use and to avoid rounding errors when used in further calculations.

UNITS

PPBV or PPMV: Parts-per-billion (or million) by volume is a mole (volume) ratio of the moles of analyte divided by the moles of air (gas). This is the primary unit used to report air or gas concentrations and is independent of temperature and pressure.

UG/M3 OR MG/M3: The reported result was calculated based on 1 atm pressure and a temperature of 25C. The conversion from PPBV is: UG/M3 = PPBV x MW/24.46 where 24.26 is the gas constant and MW is the Compounds Molecular Weight (sometimes called Formula Weight)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224274

Analytical Method: TO-15

Laboratory ID: 01

File Name: 2427401A.D
Description: S-101
Canister: 783
QC_Batch: 071524-MA1

Date Sampled: 07/09/24 **Time:** 13:05
Date Analyzed: 07/15/24 **Time:** 12:12
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	15.58	3.27	3.92	20.39	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	169.10	3.30	7.07	318.68	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	14.70	1.19	3.66	34.92	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	0.67	1.56	3.61	2.08	J
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.01	1.60	4.05	3.23	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	128	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224274

Analytical Method: TO-15

Laboratory ID: 01

File Name: 2427401A.D
Description: S-101
Canister: 783
QC_Batch: 071524-MA1

Date Sampled: 07/09/24 **Time:** 13:05
Date Analyzed: 07/15/24 **Time:** 12:12
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	82.48	3.15	9.00	148.53	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224274

Analytical Method: TO-15

Laboratory ID: 02

File Name: 2427402A.D
Description: S-102
Canister: 767
QC_Batch: 071524-MA1

Date Sampled: 07/09/24 **Time:** 13:47
Date Analyzed: 07/15/24 **Time:** 12:52
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	1.97	0.86	2.65	3.39	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	19.20	3.27	3.92	25.12	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	111.78	3.30	7.07	210.66	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	17.76	1.19	3.66	42.17	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	11.24	0.88	3.87	39.55	
78-93-3	2-Butanone (MEK)	0.50	1.28	2.43	1.47	3.76	7.16	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.07	1.60	4.05	3.43	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	12.45	1.88	4.91	46.87	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	127	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224274

Analytical Method: TO-15

Laboratory ID: 02

File Name: 2427402A.D
Description: S-102
Canister: 767
QC_Batch: 071524-MA1

Date Sampled: 07/09/24 **Time:** 13:47
Date Analyzed: 07/15/24 **Time:** 12:52
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	81.70	3.15	9.00	147.12	

ENVIRONMENTAL
Analytical Service, Inc.

Analytical Report

Project Name:

BIOFILTRO Fanelli Dairy TO-15

EAS SDG Number: **224231**

Client Project Manager: Chuck Schmidt

Prepared For:

C.E. Schmidt
19200 Live Oak Road
Red Bluff CA 96080

Project Number: 17849
Sample Event Date: 5/29/2024
Received Date: 5/29/2024
Report Date: 6/28/2024

Project Number:
PO Number:

This is the Laboratory Report for the samples in the indicated Sample Delivery Group (SDG). Each sample received in the group is assigned a Laboratory ID number. The combination of the SDG number and the Lab ID number is an unique identifier for the sample.

This Report Contains:

Laboratory Work Order
Project Sample Media
Laboratory Case Narrative and Chain of Custody
Method Description (when applicable)
Quality Control Reports
Analytical Reports

NELAC Certification: Florida E871125

173 Cross Street, San Luis Obispo, CA 93401 (805) 781-3585

Laboratory Work Order

SDG Number: 224231
Client: Chuck Schmidt
C.E. Schmidt

Project Number: 17849
Received: 5/29/2024

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
T-701	224231 1	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-701	224231 1	EPA TO-15 Special List	5/29/2024
T-701	224231 1	EAS Special N2O GC/ECD	5/29/2024
T-702	224231 2	EAS Special N2O GC/ECD	5/29/2024
T-702	224231 2	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-702	224231 2	EPA TO-15 Special List	5/29/2024
T-703	224231 3	EAS Special N2O GC/ECD	5/29/2024
T-703	224231 3	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-703	224231 3	EPA TO-15 Special List	5/29/2024
T-704	224231 4	EAS Special N2O GC/ECD	5/29/2024
T-704	224231 4	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-704	224231 4	EPA TO-15 Special List	5/29/2024
T-705	224231 5	EPA TO-15 Special List	5/29/2024
T-705	224231 5	EAS Special N2O GC/ECD	5/29/2024
T-705	224231 5	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-706	224231 6	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-706	224231 6	EPA TO-15 Special List	5/29/2024
T-706	224231 6	EAS Special N2O GC/ECD	5/29/2024
T-707	224231 7	EAS Special N2O GC/ECD	5/29/2024
T-707	224231 7	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-707	224231 7	EPA TO-15 Special List	5/29/2024
T-708	224231 8	EAS Special N2O GC/ECD	5/29/2024
T-708	224231 8	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
T-708	224231 8	EPA TO-15 Special List	5/29/2024
T-708R	224231 9	EAS Special N2O GC/ECD	5/29/2024
T-708R	224231 9	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024
T-708R	224231 9	EPA TO-15 Special List	5/29/2024
T-710	224231 10	EPA TO-15 Special List	5/29/2024
T-710	224231 10	EAS Special N2O GC/ECD	5/29/2024
T-710	224231 10	EPA TO-12 Non-Methane Hydrocarbons	5/29/2024

Project Sample Media

SDG Number: 224231

The following sample media was used for this Sample Delivery Group (SDG). The Sample Media column identifies the type of media. For canisters, the Sample Media Batch gives the canister number followed by the cleaning batch number, which is a unique identification. The initial pressure of the canister when it is received is recorded. If the canister is not pressurized, the final pressure will be the same as the initial pressure. If the canister is pessurized the final pressure will be recorded, and the canister dilution factor is calculated as the ratio of the final to initial pressure. The results are adjusted for the can dilution factor.

SDG	Lab ID	Client Sample No.	Sample Media	Batch	Pressure, torr Initial	Pressure, torr Final	Can Factor
224231	1	T-701	650				
224231	2	T-702	779				
224231	3	T-703	654				
224231	4	T-704	897				
224231	5	T-705	792				
224231	6	T-706	660				
224231	7	T-707	505				
224231	8	T-708	885				
224231	9	T-708R	885				
224231	10	T-710	728				

Laboratory Case Narrative

EAS SDG Number: 224231 **Project Number:** 17849

Client: C.E. Schmidt

The Laboratory Case Narrative for the SDG is below. The Chain of Custody form(s) follow the Laboratory Case Narrative.

Sample Control Narrative

The samples were all received in good condition and with proper preservation.

Analytical Methods

The methods used for sample analysis are listed on the Analytyical Report header, and have been modified as described in the EAS Quality Manual..

Case Narrative

The results for sample T-709, (EAS 224231-09 on the chain of custody) were not valid, so sample T-708 was run a second time to make the duplicate T-708R, which was assigned the EAS number 224231-09 for the duplicate..

QC Narrative

All analyses met EAS method criteria as defined in the Quality Manual, except as noted in the report or QC reports with data qualifiers.

Subcontract Narrative

No sample analysis was subcontracted for this project

Laboratory Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness other than the condition(s) noted above. The Laboratory Report is property of EAS and its client. The entire report has been reviewed and approved.



Date Approved: 6/28/2024

Steven D. Hoyt, Ph.D.
Environmental Analytical Service
Laboratory Director

CE Schmidt, PhD, Environmental Consultant
Chain of Custody Record

17849 224231 5/29

TO-15 Day 1

Form Serial Number CES F1-02106	For Information Regarding These Samples Please Contact:	Client Address and Phone Number *1949 5th Street, Suite 101* *Davis, CA 95616 (530) 564 4260*
Client Name *BIOFILTRO* *Fanelli Dairy*	**Dr. Charles E. Schmidt** 19200 Live Oak Road, Red Bluff, CA 96080 530-529-4256 Mobile: 530-200-2473 E-Mail: SCHMIDTCE@aol.com	Laboratory Name *EAS*
Project Manager *Patrick Beckett*		Laboratory Address *173 Cross Street* *San Luis Obispo, CA 93401*
Requested Completion Date		Laboratory Phone *805-781-3585*
		Laboratory Contact *Dr. Steve Hoyt* stevehoyt@easlab.com

Station Number	Date	Time	COMP	GRAB	Sample ID Number	Can ID Number	# OF CONTAINERS	Sample Container: Vial	Sample Container: Can	Sample Container: Tube	Analysis Requested: TO-12 FID (TNMHC)	TO-14 FID (Target List/Groups)	TO-15 (See List on Back)	ASTM D-1945 (O2, CO2, He)	USEPA Method 15 (H2S Only)	Can Pressure In (Inches Hg)	Can Pressure Out (Inches	Remarks
	5/29/2024	0910		x	T - 701	650	1		x		x		x			-29"	0"	01
	5/29/2024	0918		x	T - 702	779	1		x		x		x			-29"		02
1146	5/29/2024	0920		x	T - 703	654	1		x		x		x			-29"		03
	5/29/2024	0927		x	T - 704	897	1		x		x		x			-29"		04
1200	5/29/2024	~~1054~~ 1057		x	T - 705	792	1		x		x		x			-29"		05
	5/29/2024	1146		x	T - 706	660	1		x		x		x			-29"		06
	5/29/2024	1334		x	T - 707	505	1		x		x		x			-29"		07
	5/29/2024	1339		x	T - 708	~~708~~ 885	1		x		x		x			-29"		08
	5/29/2024	1339		x	T - 709	631	1		x		x		x			-29"		09
	5/29/2024	1300		x	T - 710	728	1		x		x		x			-29"		10
					A " OR DD -													

Page 6 of 58

Sampler CE SCHMIDT	Date/Time 5/29/24 1413	Relinquished by CE SCHMIDT	Date/Time 5/29/24 1413
Recieved by EAS 1413	Date/Time 5/29/24 1413	Relinquished by	Date/Time
Recieved by	Date/Time	Relinquished by	Date/Time
Recieved by Laboratory	Date/Time 5/29/24 18:00	Sample Shipped Via UPS FEDEX BUS Other	
Remarks			

HAZWRAP/NEESA Y N
QC Level 1 2 3
COC
Ana Req
Cust Seal
Sample Condition

File: BIOFILTRO Forms TO-15 Form, COC TO-15 D1

Quality Control Report

EAS SDG Number: 224231

Project Number: 17849

QC Narrative

Samples were anlayzed in a daily analytical batch (DAB) designated by a QC batch number, and were analyzed using EAS standard laboratory QC specified in the EAS Quality Manual which may be different then the referrenced agency method. Any deviations from the EAS QC criteria are flagged in the Laboratory Control Reports or in the sample Analytical Reports.

Standard Laboratory QC Report

Unless project specific QC was requested, this Section containing the standard laboratory QC (Level 2) supplied with the Analytical Reports. Each sample is analyzed in a Daily Analytical Batch (DAB) which includes the method blank, a laboratory control spike (LCS) and a laboratory control duplicate (LCD). A Daily Analytical Batch QC report is supplied for each method requested.

Method Blank

The method blank is a laboratory generated sample which assesses the degree to which laboratory operations cause a false positive. The target analytes in the analytical reports for a daily analytical batch are "B" flagged if their concentrations are present in the Method Blank above the RL, unless the result is greater then ten times the blank value..

Laboratory Control Spike

A laboratory control spike is a well characterized matrix similar to the sample which is spiked and run in duplicate with each Daily Analytical Batch. The laboratory control spike results are reported as a percent recovery. The QC Criteria for the control spike is listed in the Laboratory Control Report. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report. The control spike contains an abbreviated list of compounds in the method, and may contain compounds not on the target list for the specified report.

Laboratory Control Duplicate

The laboratory control duplicate is a duplicate analysis of the laboratory control spike, a standard, or a sample depending on the method. The results are reported as a relative percent difference (RPD). The criteria for the duplicate is in the Laboratory Control Report for the Daily Analytical Batch. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report.

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B06204

File Name: B06204D.D
Description: METHOD BLANK
Canister:
QC_Batch: 062024-MA1

Date Sampled:
Date Analyzed: 6/20/2024
Can Dilution Factor: 1.00
Air Volume: 200 ml

Time:
Time: 20:32

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	ND	3.30	7.07	ND	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	ND	1.19	3.66	ND	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	ND	1.60	4.05	ND	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	104	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B06204

File Name: B06204D.D
Description: METHOD BLANK
Canister:
QC_Batch: 062024-MA1

Date Sampled:
Date Analyzed: 6/20/2024
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

Time:
Time: 20:32

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	ND	3.15	9.00	ND	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B06254

File Name: B06254C.D
Description: METHOD BLANK
Canister:
QC_Batch: 062524-MA1

Date Sampled:
Date Analyzed: 6/25/2024
Can Dilution Factor: 1.00
Air Volume: 200 ml

Time:
Time: 12:39

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	ND	3.30	7.07	ND	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	ND	1.19	3.66	ND	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	ND	1.60	4.05	ND	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	103	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B06254

File Name: B06254C.D
Description: METHOD BLANK
Canister:
QC_Batch: 062524-MA1

Date Sampled:
Date Analyzed: 6/25/2024
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

Time:
Time: 12:39

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	ND	3.15	9.00	ND	

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

TO15 **Volatile Organic Compounds by GC/MS**

QC_Batch: 062024-MA1
Date: 06/20/24

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	115		120		70	130	4	25	
75-35-4	1,1-Dichloroethene	119		105		70	130	13	25	
75-09-2	Dichloromethane	110		107		70	130	3	25	
75-34-3	1,1-Dichloroethane	121		124		70	130	3	25	
67-66-3	Chloroform	114		117		70	130	2	25	
71-55-6	1,1,1-Trichloroethane	88		95		70	130	7	25	
107-06-2	1,2-Dichloroethane	91		92		70	130	2	25	
71-43-2	Benzene	104		109		70	130	5	25	
56-23-5	Carbon tetrachloride	82		84		70	130	3	25	
79-01-6	Trichloroethene	90		99		70	130	9	25	
108-88-3	Toluene	101		108		70	130	7	25	
106-93-4	1,2-Dibromoethane	104		116		70	130	11	25	
127-18-4	Tetrachloroethene	72		80		70	130	10	25	
100-41-4	Ethylbenzene	91		100		70	130	9	25	
1330-20-7	m,p-Xylenes	89		94		70	130	5	25	
95-47-6	o-Xylene	89		95		70	130	7	25	
108-67-8	1,3,5-Trimethylbenzene	76		87		70	130	14	25	
95-63-6	1,2,4-Trimethylbenzene	75		82		70	130	9	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

TO15 **Volatile Organic Compounds by GC/MS**

QC_Batch: 062524-MA1
Date: 06/25/24

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	125		107		70	130	15	25	
75-35-4	1,1-Dichloroethene	126		125		70	130	1	25	
75-09-2	Dichloromethane	123		125		70	130	2	25	
75-34-3	1,1-Dichloroethane	128		129		70	130	1	25	
67-66-3	Chloroform	120		121		70	130	1	25	
71-55-6	1,1,1-Trichloroethane	97		97		70	130	1	25	
107-06-2	1,2-Dichloroethane	104		105		70	130	1	25	
71-43-2	Benzene	109		109		70	130	0	25	
56-23-5	Carbon tetrachloride	97		96		70	130	1	25	
79-01-6	Trichloroethene	91		91		70	130	0	25	
108-88-3	Toluene	112		110		70	130	2	25	
106-93-4	1,2-Dibromoethane	116		112		70	130	3	25	
127-18-4	Tetrachloroethene	77		75		70	130	2	25	
100-41-4	Ethylbenzene	109		103		70	130	6	25	
1330-20-7	m,p-Xylenes	106		101		70	130	5	25	
95-47-6	o-Xylene	107		100		70	130	7	25	
108-67-8	1,3,5-Trimethylbenzene	102		102		70	130	0	25	
95-63-6	1,2,4-Trimethylbenzene	102		96		70	130	6	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

Analytical Reports

EAS SDG Number: 224231

Project Number: 17849

The following pages contain the certified Analytical Reports for the samples submitted in the Sample Delivery Group (SDG) and are in order of the EAS Lab ID number. All of the analytical methods used are modifications of the published methods. Procedural method modifications, QC modifications, QC Criteria modifications, target lists, definitions of detection limits, and flags are all explained in detail in the EAS Quality Manual. The Analytical Report has columns for the method detection limit (MDL), the reporting limit (RL), and the Amount. The Amount is the concentration of the compound in the sample. The report usually has the results reported with two commonly used units. The MDL, RL, and Amount are adjusted for the canister dilution factor and any dilution caused by sample matrix effects.

NELAC CERTIFICATION

EAS is accredited by the National Environmental Laboratory Accreditation (NELAC) with the Florida Department of Health, one of the NELAC certifying states. EAS is certified for the EPA TO-15, EPA TO-11 and EPA TO-4 methods. A list of accredited compounds is available on request.

DETECTION LIMITS

MDL: The MDL is lowest concentration that can be measured to be statistically above the noise level and is determined using the EPA 2016 method which uses the standard deviation of replicate measurements made over time. The method also incorporates systematic instrumentation blank levels. See Quality Manual for detailed explanation.

RL: The reporting limit (RL) is the lowest concentration that can be reliably reported for each compound that meets the QC Criteria for the method, background levels, or project specific considerations. The QC criteria level for the method blank is to be less then the RL See Quality Manual for more information.

DATA FLAGS

In the standard report, if a compound is not detected above the method detection limit, a "ND" is in the Amount column. The flag column is used for both the not detect flag and for any data flags.

B - This compound was detected in the batch method blank above the reporting limit and is greater then one tenth the amount in the sample.

E - This compound exceeds the calibration range for this sample volume.

J - The amount reported is estimated because it was below the RL and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background

SIGNIFICANT FIGURES

Based on the uncertainty in the methods, the numbers on the Analytical Reports should be used with only two significant digits. Additional significant figures are reported for ease of use and to avoid rounding errors when used in further calculations.

UNITS

PPBV or PPMV: Parts-per-billion (or million) by volume is a mole (volume) ratio of the moles of analyte divided by the moles of air (gas). This is the primary unit used to report air or gas concentrations and is independent of temperature and pressure.

UG/M3 OR MG/M3: The reported result was calculated based on 1 atm pressure and a temperature of 25C. The conversion from PPBV is: UG/M3 = PPBV x MW/24.46 where 24.26 is the gas constant and MW is the Compounds Molecular Weight (sometimes called Formula Weight)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 01**

File Name: 2423101A.D
Description: T-701
Canister: 650
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:10
Date Analyzed: 6/20/2024 **Time:** 12:36
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	1.17	0.86	2.65	2.02	J
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	3.59	1.55	2.60	7.41	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	46.15	3.30	7.07	86.97	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	9.88	1.19	3.66	23.47	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	1.10	1.47	3.76	3.25	J
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.08	1.60	4.05	3.46	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.62	1.31	2.46	3.26	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	98	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 01

File Name: 2423101A.D
Description: T-701
Canister: 650
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:10
Date Analyzed: 6/20/2024 **Time:** 12:36
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	92.55	3.15	9.00	166.66	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 02**

File Name: 2423102A.D
Description: T-702
Canister: 779
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:18
Date Analyzed: 6/20/2024 **Time:** 13:15
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	4.02	1.55	2.60	8.30	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	30.37	3.30	7.07	57.24	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	6.50	1.19	3.66	15.44	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	0.89	1.56	3.61	2.76	J
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	1.30	1.47	3.76	3.83	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.05	1.60	4.05	3.35	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.28	1.31	2.46	1.45	J
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	98	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 02

File Name: 2423102A.D
Description: T-702
Canister: 779
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:18
Date Analyzed: 6/20/2024 **Time:** 13:15
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	47.76	3.15	9.00	86.01	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 03**

File Name: 2423103A.D
Description: T-703
Canister: 654
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:20
Date Analyzed: 6/20/2024 **Time:** 13:58
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	6.95	3.27	3.92	9.09	
74-87-3	Chloromethane	0.75	1.26	3.22	1.55	2.60	6.65	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	21.19	3.30	7.07	39.92	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	14.79	1.19	3.66	35.12	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	1.86	1.47	3.76	5.50	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.17	1.60	4.05	3.72	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	0.65	2.74	3.83	3.58	J
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.34	1.31	2.46	1.77	J
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	114	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 03

File Name: 2423103A.D
Description: T-703
Canister: 654
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:20
Date Analyzed: 6/20/2024 **Time:** 13:58
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	54.51	3.15	9.00	98.16	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: 224231
Laboratory ID: 04

File Name: 2423104A.D
Description: T-704
Canister: 897
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 09:27
Date Analyzed: 6/20/2024 **Time:** 14:36
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	5.69	3.27	3.92	7.45	
74-87-3	Chloromethane	0.75	1.26	2.93	1.55	2.60	6.04	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	6.53	3.30	7.07	12.31	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	10.32	1.19	3.66	24.50	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	0.83	1.60	4.05	2.65	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.27	1.31	2.46	1.41	J
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	99	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID:** 04

File Name: 2423104A.D **Date Sampled:** 5/29/2024 **Time:** 09:27
Description: T-704 **Date Analyzed:** 6/20/2024 **Time:** 14:36
Canister: 897 **Can Dilution Factor:** 1.00
QC_Batch: 062024-MA1 **Air Volume:** 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	45.08	3.15	9.00	81.18	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 05**

File Name: 2423105A.D
Description: T-705
Canister: 792
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 11:46
Date Analyzed: 6/20/2024 **Time:** 15:13
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	1.88	0.86	2.65	3.24	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	19.67	3.27	3.92	25.73	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	3.65	3.30	7.07	6.88	J
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	35.49	1.19	3.66	84.30	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	1.35	1.23	3.53	3.31	J
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	7.00	1.56	3.61	21.76	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	8.26	1.47	3.76	24.35	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.58	1.60	4.05	5.06	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	1.81	1.88	4.91	6.83	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.77	1.31	2.46	4.01	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	96	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 05

File Name: 2423105A.D
Description: T-705
Canister: 792
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 11:46
Date Analyzed: 6/20/2024 **Time:** 15:13
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	54.36	3.15	9.00	97.88	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 06**

File Name: 2423106A.D
Description: T-706
Canister: 660
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 11:46
Date Analyzed: 6/20/2024 **Time:** 15:56
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	2.78	0.86	2.65	4.79	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	10.87	3.27	3.92	14.22	
74-87-3	Chloromethane	0.75	1.26	8.75	1.55	2.60	18.05	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	9.31	3.30	7.07	17.54	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	58.44	1.19	3.66	138.80	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	22.70	1.47	3.76	66.91	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.73	1.60	4.05	5.51	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	2.26	1.88	4.91	8.51	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	1.37	2.74	3.83	7.49	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.52	1.31	2.46	2.72	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	102	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 06

File Name: 2423106A.D
Description: T-706
Canister: 660
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 11:46
Date Analyzed: 6/20/2024 **Time:** 15:56
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	145.41	3.15	9.00	261.85	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 07**

File Name: 2423107A.D
Description: T-707
Canister: 505
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:34
Date Analyzed: 6/20/2024 **Time:** 16:42
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	1.85	0.86	2.65	3.18	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	26.81	3.27	3.92	35.08	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	8.99	3.30	7.07	16.94	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	29.25	1.19	3.66	69.47	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	4.56	1.47	3.76	13.44	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.40	1.60	4.05	4.47	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	0.58	1.31	2.46	3.05	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	99	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 07

File Name: 2423107A.D
Description: T-707
Canister: 505
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:34
Date Analyzed: 6/20/2024 **Time:** 15:56
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	186.85	3.15	9.00	336.47	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 08**

File Name: 2423108A.D
Description: T-708
Canister: 885
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:39
Date Analyzed: 6/20/2024 **Time:** 17:41
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	4.41	1.32	3.32	11.62	
64-17-5	Ethanol	1.75	3.75	109.06	3.30	7.07	205.53	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	22.59	1.19	3.66	53.65	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	3.47	1.47	3.76	10.23	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.00	1.60	4.05	3.18	J
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	QC Limits UCL	Flag
2037-26-5	Toluene-d8	104	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 08

File Name: 2423108A.D
Description: T-708
Canister: 885
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:39
Date Analyzed: 6/20/2024 **Time:** 17:41
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	49.95	3.15	9.00	89.95	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 09**

File Name: 2423109A.D
Description: T-708R
Canister: 885
QC_Batch: 062524-MA1

Date Sampled: 5/29/2024 **Time:** 13:39
Date Analyzed: 6/25/2024 **Time:** 19:48
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	1.38	0.86	2.65	2.37	J
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	66.55	3.30	7.07	125.42	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	18.13	1.19	3.66	43.06	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	2.14	1.47	3.76	6.32	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	1.38	1.60	4.05	4.40	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	111	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231
Analytical Method: TO-15
Laboratory ID: 09

File Name: 2423109A.D
Description: T-708R
Canister: 885
QC_Batch: 062524-MA1

Date Sampled: 5/29/2024 **Time:** 13:39
Date Analyzed: 6/25/2024 **Time:** 19:48
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	56.22	3.15	9.00	101.24	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15 **Laboratory ID: 10**

File Name: 2423110A.D
Description: T-710
Canister: 726
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:00
Date Analyzed: 6/20/2024 **Time:** 11:54
Can Dilution Factor: 1.00
Air Volume: 200 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
115-07-1	Propylene	0.50	1.54	ND	0.86	2.65	ND	
75-71-8	Dichlorodifluoromethane	0.75	1.26	ND	3.71	6.23	ND	
67-56-1	Methanol	2.50	3.00	ND	3.27	3.92	ND	
74-87-3	Chloromethane	0.75	1.26	ND	1.55	2.60	ND	
76-14-2	1,2-Dichlorotetrafluoroethane	0.50	1.26	ND	3.49	8.80	ND	
75-01-4	Vinyl chloride	0.25	1.26	ND	0.64	3.22	ND	
106-99-0	1,3-Butadiene	0.25	1.26	ND	0.56	2.79	ND	
74-83-9	Bromomethane	0.50	1.26	ND	1.94	4.89	ND	
75-00-3	Chloroethane	0.50	1.26	ND	1.32	3.32	ND	
64-17-5	Ethanol	1.75	3.75	ND	3.30	7.07	ND	
75-69-4	Trichlorofluoromethane	0.50	1.20	ND	2.81	6.74	ND	
67-64-1	Acetone	0.50	1.54	ND	1.19	3.66	ND	
67-63-0	2-propanol (isopropylalcohol)	0.50	1.44	ND	1.23	3.53	ND	
75-65-0	t-Butyl alcohol	0.50	1.40	ND	1.51	4.24	ND	
4227-95-6	Methyl iodide	0.50	0.43	ND	2.92	2.51	ND	
75-35-4	1,1-Dichloroethene	0.25	1.24	ND	0.99	4.89	ND	
107-13-1	Acrylonitrile	1.00	1.62	ND	2.17	3.52	ND	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.25	1.20	ND	1.92	9.15	ND	
107-05-1	Allyl chloride	0.25	1.21	ND	0.78	3.77	ND	
75-09-2	Methylene chloride	0.25	1.21	ND	0.87	4.18	ND	
75-15-0	Carbon disulfide	0.50	1.16	ND	1.56	3.61	ND	
156-60-5	trans-1,2-Dichloroethene	0.25	0.91	ND	0.99	3.58	ND	
1634-04-4	Methyl tert butyl ether	0.50	0.92	ND	1.80	3.31	ND	
107-12-0	Propionitrile	1.25	2.00	ND	2.82	4.50	ND	
75-34-3	1,1-Dichloroethane	0.25	1.25	ND	1.01	5.04	ND	
637-92-3	Ethyl tert butyl ether	0.50	0.93	ND	2.09	3.86	ND	
108-05-4	Vinyl acetate	0.25	1.10	ND	0.88	3.87	ND	
78-93-3	2-Butanone (MEK)	0.50	1.28	ND	1.47	3.76	ND	
108-20-3	Diisopropyl ether	0.50	0.83	ND	2.09	3.47	ND	
110-54-3	Hexane	0.50	0.93	ND	1.76	3.26	ND	
126-98-7	Methacrylonitrile	0.50	1.53	ND	1.37	4.20	ND	
141-78-6	Ethyl acetate	0.50	1.10	ND	1.80	3.94	ND	
74-97-5	Bromochloromethane	0.25	0.67	ND	1.32	3.52	ND	
96-33-3	Methyl acrylate	0.50	0.76	ND	1.76	2.66	ND	
109-99-9	Tetrahydrofuran	0.25	1.26	ND	0.74	3.71	ND	
78-83-1	Isobutyl alcohol	1.00	1.16	ND	3.03	3.51	ND	
156-59-2	cis-1,2-Dichloroethene	0.25	1.34	ND	0.99	5.31	ND	
594-20-7	2,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-66-3	Chloroform	0.25	1.26	ND	1.22	6.13	ND	
71-55-6	1,1,1-Trichloroethane	0.25	1.11	ND	1.36	6.03	ND	
107-06-2	1,2-Dichloroethane	0.25	1.14	ND	1.01	4.61	ND	
563-58-6	1,1-Dichloropropene	0.25	0.83	ND	1.13	3.74	ND	
110-82-7	Cyclohexane	0.25	0.96	ND	0.86	3.29	ND	
71-43-2	Benzene	0.50	1.27	ND	1.60	4.05	ND	
56-23-5	Carbon tetrachloride	0.25	1.18	ND	1.57	7.42	ND	
994-05-8	t-Amyl methyl ether	0.50	0.58	ND	2.09	2.40	ND	
540-84-1	2,2,4-Trimethylpentane	0.25	0.68	ND	1.17	3.17	ND	
142-82-5	n-Heptane	0.50	0.76	ND	2.05	3.09	ND	
78-87-5	1,2-Dichloropropane	0.25	1.12	ND	1.15	5.15	ND	
123-91-1	1,4 Dioxane	0.50	2.05	ND	1.80	7.37	ND	
74-95-3	Dibromomethane	0.25	0.92	ND	1.78	6.54	ND	
79-01-6	Trichloroethene (TCE)	0.13	1.17	ND	0.67	6.26	ND	
75-27-4	Bromodichloromethane	0.25	0.50	ND	1.67	3.35	ND	
80-62-6	Methyl methacrylate	0.50	0.85	ND	2.05	3.46	ND	
108-10-1	4-Methyl-2-pentanone (MIBK)	0.50	0.95	ND	2.05	3.87	ND	
10061-01-5	cis-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
108-88-3	Toluene	0.50	1.31	ND	1.88	4.91	ND	
10061-02-6	trans-1,3-Dichloropropene	0.25	1.30	ND	1.13	5.88	ND	
79-00-5	1,1,2-Trichloroethane	0.25	1.29	ND	1.36	7.01	ND	
97-63-2	Ethyl methacrylate	0.50	0.74	ND	2.33	3.43	ND	
591-78-6	2-Hexanone	0.50	0.89	ND	2.05	3.63	ND	
142-28-9	1,3-Dichloropropane	0.25	0.82	ND	1.15	3.79	ND	
111-65-9	Octane	0.50	0.68	ND	2.33	3.17	ND	
124-48-1	Dibromochloromethane	0.50	0.50	ND	4.26	4.26	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.25	0.61	ND	1.92	4.65	ND	
127-18-4	Tetrachloroethene (PCE)	0.13	0.61	ND	0.85	4.13	ND	
108-90-7	Chlorobenzene	0.50	1.14	ND	2.30	5.25	ND	
630-20-6	1,1,1,2-Tetrachloroethane	0.50	0.52	ND	3.43	3.57	ND	
100-41-4	Ethylbenzene	0.50	1.32	ND	2.17	5.73	ND	
1330-20-7	m,p-Xylenes	0.50	1.33	ND	2.17	5.75	ND	
111-84-2	Nonane	0.50	0.60	ND	2.62	3.12	ND	
100-42-5	Styrene	0.50	1.30	ND	2.13	5.52	ND	
75-25-2	Bromoform	0.50	0.34	ND	5.17	3.46	ND	
95-47-6	o-Xylene	0.50	1.29	ND	2.17	5.60	ND	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	0.62	ND	1.71	4.25	ND	
96-18-4	1,2,3-Trichloropropane	0.50	0.62	ND	3.01	3.71	ND	
110-57-6	t-1,4-Dichloro-2-butene	0.50	0.68	ND	2.55	3.45	ND	
103-65-1	n-Propylbenzene	0.50	0.75	ND	2.46	3.69	ND	
98-82-8	Isopropylbenzene	0.50	0.76	ND	2.46	3.73	ND	
622-96-8	4-Ethyltoluene	1.00	2.07	ND	4.91	10.17	ND	
108-67-8	1,3,5-Trimethylbenzene	0.50	1.29	ND	2.46	6.34	ND	
124-18-5	Decane	0.50	0.64	ND	2.91	3.69	ND	
98-06-6	tert-butyl benzene	0.50	0.67	ND	2.74	3.68	ND	
95-63-6	1,2,4-Trimethylbenzene	0.50	1.27	ND	2.46	6.24	ND	
538-93-2	i-Butylbenzene	0.50	0.67	ND	2.74	3.65	ND	
135-98-8	sec-butylbenzene	0.50	0.71	ND	2.74	3.87	ND	
541-73-1	1,3-Dichlorobenzene	0.50	0.93	ND	3.00	5.57	ND	
99-87-6	Isopropyltoluene	0.50	0.70	ND	2.74	3.83	ND	
100-44-7	Benzyl chloride	0.50	0.76	ND	2.59	3.93	ND	
106-46-7	1,4-Dichlorobenzene	0.50	0.87	ND	3.00	5.20	ND	

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
104-51-8	n-Butylbenzene	0.50	0.65	ND	2.74	3.59	ND	
95-50-1	1,2-Dichlorobenzene	0.50	0.81	ND	3.00	4.88	ND	
96-12-8	1,2-Dibromo-3-chloropropane	0.50	0.73	ND	4.83	7.09	ND	
120-82-1	1,2,4-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
91-20-3	Naphthalene	0.25	0.47	ND	1.31	2.46	ND	
87-61-6	1,2,3-Trichlorobenzene	0.50	1.25	ND	3.71	9.27	ND	
87-68-3	Hexachlorobutadiene	1.25	1.50	ND	13.33	15.99	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	100	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224231

Analytical Method: TO-15

Laboratory ID: 10

File Name: 2423110A.D
Description: T-710
Canister: 728
QC_Batch: 062024-MA1

Date Sampled: 5/29/2024 **Time:** 13:00
Date Analyzed: 6/20/2024 **Time:** 19:44
Can Dilution Factor: 1.00
Air Volume: 200.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-07-0	Acetaldehyde	1.75	5.00	ND	3.15	9.00	ND	

Appendix B:

Biological Evaluation Report

BAR E DAIRY BIOFILTRO WASTEWATER PROCESSING BEDS
BIOLOGICAL EVALUATION
KINGS COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Austin Pearson, Vice President
Natalie Neff, Staff Ecologist

Prepared for

Tyler Esteves
4Creeks, Inc.
324 S. Santa Fe Suite A
Visalia, CA 93292

April 19, 2024 PN 2876-01

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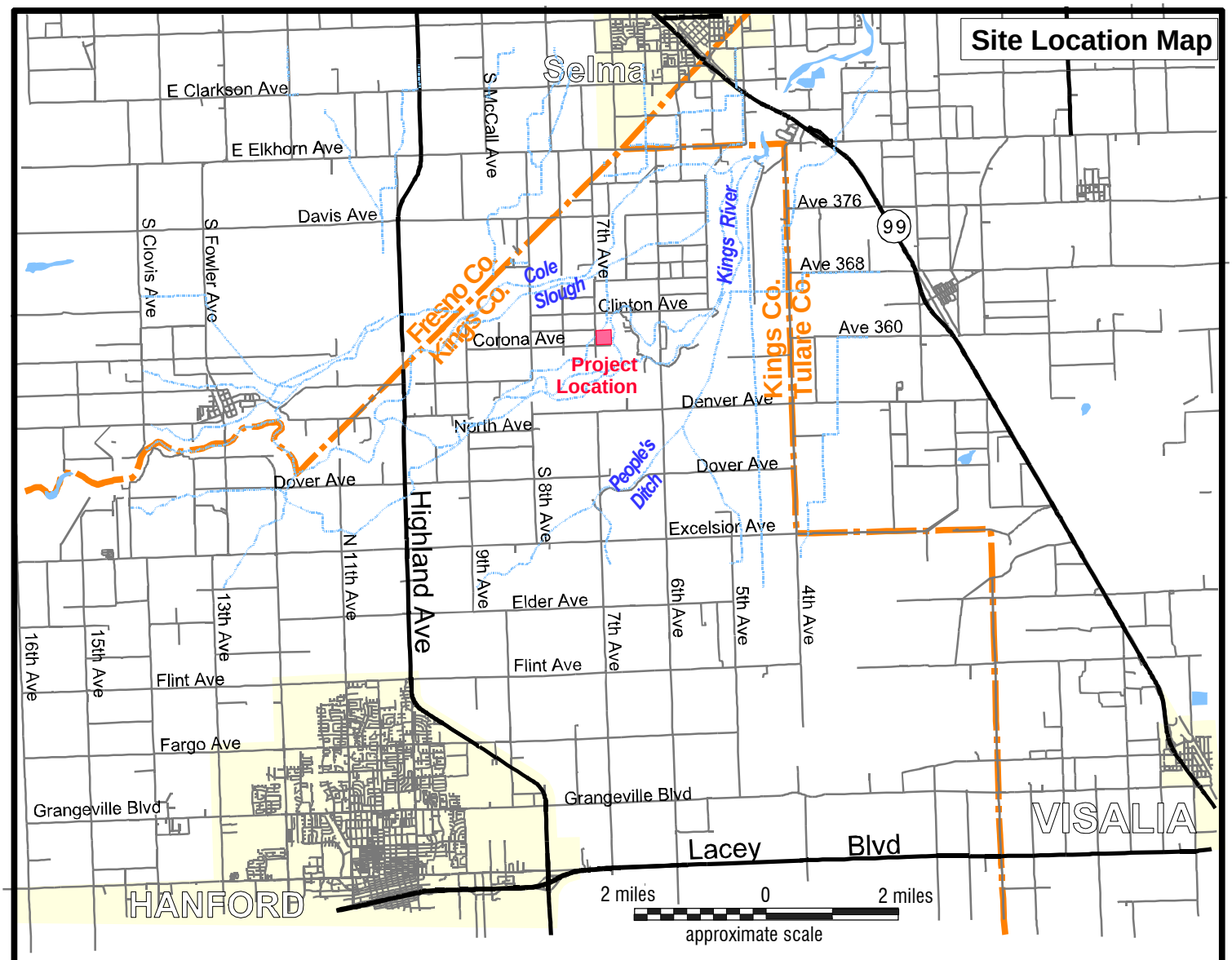
1.0 INTRODUCTION

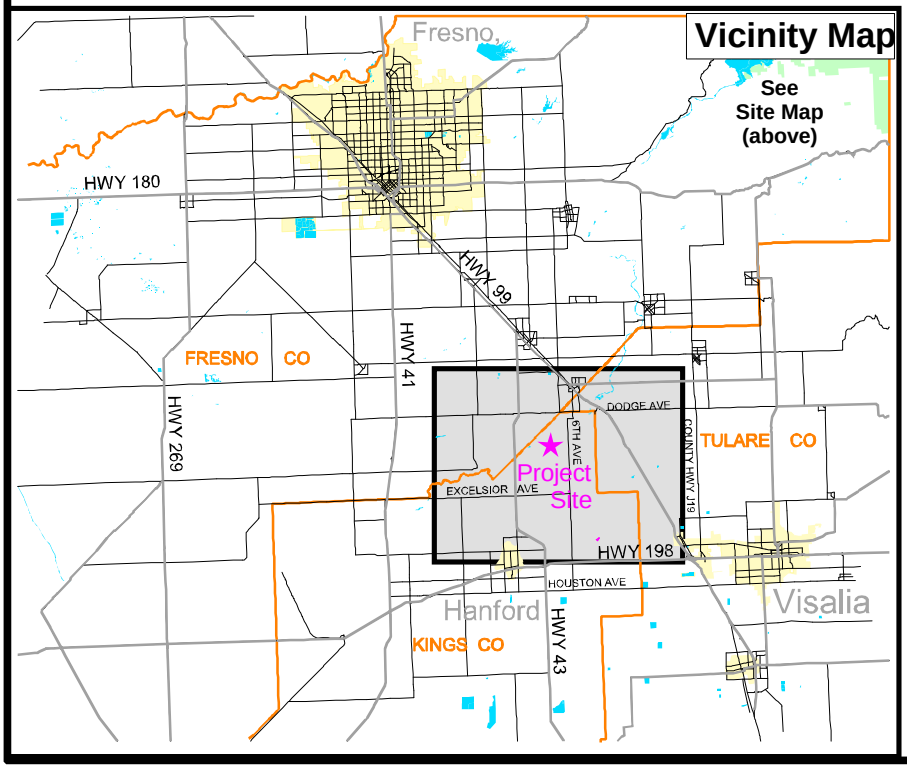
The technical report that follows describes the biotic resources of areas within and adjacent to the existing Bar E Dairy facility that are proposed for constructing a biofiltro wastewater processing bed and associated infrastructure (hereafter referred to as the "site" or "project site") and evaluates possible impacts to sensitive or protected biological resources that could result from these improvements (hereafter referred to as the "project"). The project site is located in northern Kings County approximately 3.25 miles east of State Route 43 and 5 miles west of State Route 99, in the northeast corner of the intersection of South 7th Avenue and Corona Avenue. (Figure 1). The project site is located within the Burris Park U.S. Geological Survey (USGS) 7.5-minute quadrangle; Section 15, Township 17 South, Range 22 East (Mt. Diablo Base and Meridian).

1.1 PROJECT DESCRIPTION

The project is the construction of the following features within the Bar E property. These improvements have a collective footprint of approximately 5 acres. A site plan is presented in Figure 2.

- A 720'L x 40' W Biofiltro wastewater processing bed with associated infrastructure
- A 300' L x 70' W storage area
- A 105' L x 70 W' stacking pad with a relocated existing mechanical separator and associated infrastructure
- Two earthen berms







LIVE OAK ASSOCIATES, INC.

Bar E Dairy

Biofiltro Wastewater Processing Beds

Site Location / Vicinity Map

Date	Project #	Figure #
4/11/2024	2876-01	1

BAR E DAIRY
PROPOSED SITE PLAN



PROPOSED SITE PLAN — SCALE: 1" =100'

OWNER	MATTHEW EVANGELO
ADDRESS	6740 CORONA AVENUE KINGSBURG, CA 93631
COUNTY	KINGS COUNTY
A.P.N.	020-070-058, 020-070-068

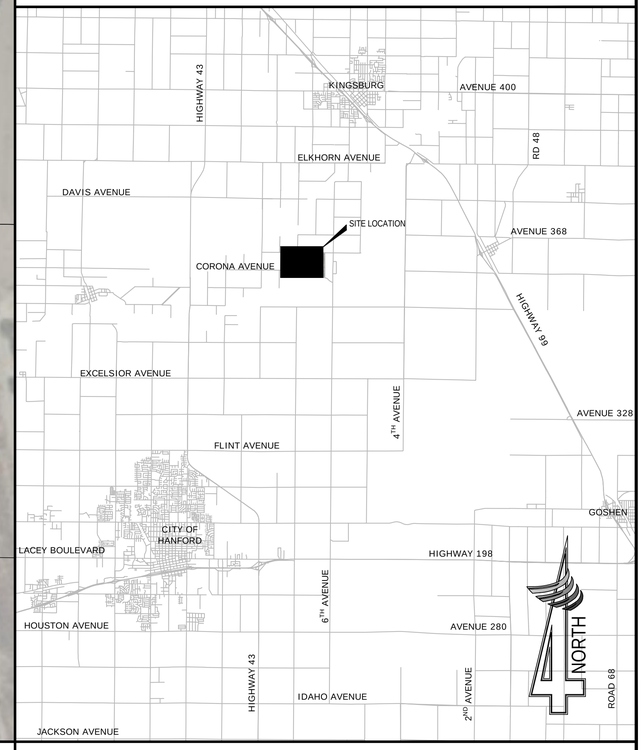
NORTH

100' 0' 100'

LEGEND

- PROPERTY LINE
- PROPOSED CONCRETE
- PROPOSED BIOFILTRO BED
- PROPOSED DG/GRAVEL

SITE DATA



VICINITY MAP — 1" = 2 MI.

REVISIONS

DESCRIPTION	BY	DATE

PREPARED BY:
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CHK BY: KMP
DRW BY: CGM

FACILITY MODIFICATIONS
BAR E DAIRY
6740 CORONA AVENUE
KINGSBURG, CA 93631

BIOFILTRO WASTEWATER PROCESSING
PROPOSED SITE PLAN

PLOT DATE:	Mar 06, 2024
JOB NO.:	240337
FILE NAME:	240337-SITE PLAN
SCALE:	SEE SHEET
SHEET NO.:	1 of 1

1.2 REPORT OBJECTIVES

Development of agricultural areas has the potential to damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, and/or covered by local policies and ordinances. Specifically, this investigation and report were completed in compliance with Policy DE 3.3a of the Dairy Element of the Kings County General Plan, which requires all applications for new or expanded dairies to include a Biological Resources Survey for wetlands and habitat for sensitive species. As such, the objectives of this report are to summarize all site-specific information related to existing biological resources and, if necessary, identify appropriate avoidance and mitigation measures that would reduce the magnitude of potential project-related impacts to biological resources.

1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the project site discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2024), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. A reconnaissance-level field survey of the project site was conducted on March 28, 2024 by LOA biologist Natalie Neff. This survey consisted of a visual inspection of the survey area while systematically walking the site in order to assure full visual coverage. During the field visit the principal land uses of the site were identified and the constituent plants and animals of each were noted. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the dairy expansion and to assess the need for more detailed studies that could be warranted if potentially sensitive biotic resources were identified in this initial survey.

2.0 EXISTING CONDITIONS

2.1 PROJECT SITE

The project site consists entirely of ruderal (i.e. disturbed) land. Immediately surrounding lands consist of agricultural land to the north, a wastewater pond and dairy infrastructure to the east and south, and existing dairy infrastructure and residential area to the west. Topographically, the site is relatively level at an average elevation of approximately 277 ft. National Geodetic Vertical Datum (NGVD).

The project site experiences a Mediterranean climate where warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 100 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the project site is about 9 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Storm water readily infiltrates the soils.

Aquatic features in the near vicinity of the site include three dairy wastewater retention ponds, one of which is proposed for the construction of two earthen berms within it, and the Kings River approximately 300 feet east of the project area.

Two soil mapping units occur on the project site: Grangeville fine sandy loam, partially drained; and Nord fine sandy loam (NRCS 2024). Grangeville fine sandy loam, partially drained occurs over the majority of the project site and is considered hydric. Hydric soils have the propensity to pond water in depressions and form vernal pools.

Soils of the project site have been substantially altered through agricultural use of the site prior to dairy development, ground disturbance during initial dairy construction, and dairy operations that have resulted in the deposition of dairy solid waste across much of the soil surface within the project site. As a result, the soils of the site no longer maintain their native soil characteristics and would, therefore, have no particular significance to biological resources of the site.

2.2 BIOTIC HABITATS/LAND USES

Natural biotic habitats are absent from the project site due to years of agricultural uses and activities associated with dairy operations. The land use of the project site can best be characterized as ruderal. A list of the vascular plant species observed within the project site and a list of the terrestrial vertebrates using, or potentially using, the site is provided in Appendices A and B, respectively.

Ruderal lands on the site have experienced disturbance from activities associated with historic farming and ongoing dairy use of the site. At the time of LOA's field survey, vegetation was restricted to the berms of the wastewater ponds, a cultivated wheat field, and the edges of the cultivated wheat field. Vegetation outside of the wheat field consisted primarily of weedy grasses and forbs including cheeseweed (*Malva parviflora*), bluegrass (*Poa annua*), bulbus canary grass (*Phalaris aquatica*), dwarf nettle (*Urtica urens*), common sowthistle (*Sonchus oleraceus*), oat (*Avena fatua*), pineapple weed (*Matricaria discoidea*), London rocket (*Sisymbrium irio*), and others. One large shrub, a blue elderberry (*Sambucus mexicana*), is located on the northwest side of the middle wastewater pond.

The site offers little to no habitat value for many wildlife species. Though the Bar E property lies immediately west of the Kings River, amphibians are unlikely to be found on the project site due to the low habitat value and disturbed nature of the project site. If any amphibians were to be found on the project site, the likely species would be Pacific chorus frogs (*Pseudacris regilla*) and western toads (*Anaxyrus boreas*). Reptile species such as side-blotched lizards (*Uta stansburiana*) and gopher snakes (*Pituophis melanoleucus*) may forage on site, though these species numbers would be expected to be quite low as well due to the disturbed nature of the site.

Many resident bird species were seen on site and are expected to utilize the habitat for foraging. Red-winged blackbirds (*Agelaius phoeniceus*), killdeer (*Charadrius vociferus*), mourning doves (*Zenaida macroura*), and Brewer's blackbirds (*Euphagus cyanocephalus*) were all observed on site. Wintering birds observed included American pipit (*Anthus rubescens*), white-crowned sparrow (*Zonotrichia leucophrys*), and savannah sparrow (*Passerella sandwichensis*) among others.

Several California ground squirrel (*Otospermophilus beecheyi*) burrows were observed on the berms of the wastewater ponds. Other rodents that may occur on the site in limited numbers include the Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*).

The site offers limited foraging opportunities for mammalian and avian predators. However, raptors such as red-tailed hawks (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and barn owls (*Tyto alba*) may occasionally forage over the site. Various species of bat may forage over the site for flying insects and disturbance-tolerant mammalian predators such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and coyotes (*Canis latrans*) may occasionally forage on or pass through the site as well.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Many species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.0, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such a listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2024). Collectively, these plants and animals are referred to as "special status species."

A review of the California Natural Diversity Data Base (CNDDB) Bios 5 Data Viewer (CDFW 2024) identified no special status plant species occurrences on or in the near vicinity of the project site, and the project site provides no habitat for special status plant species due to disturbance of the site from more than a decade of dairy activity and former farming of the site.

The following special status animal species have been documented in the project vicinity: California tiger salamander (*Ambystoma californiense*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), burrowing owl (*Athene cunicularia*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), western mastiff bat (*Eumops perotis californicus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The potential for each of these special status species to occur on the project site is discussed below.

2.3.1 California Tiger Salamander (Federally Threatened, California Threatened)

This species is found primarily in annual grasslands and requires vernal pools for breeding and rodent burrows for aestivation. Most California tiger salamanders will aestivate within 0.4 miles of their breeding pool but can aestivate up to 1.3 miles away.

The project site does not have the potential to support the California tiger salamander due to the absence of suitable habitat. Historical suitable habitat that may have once been present within the project site has been eliminated due to past and current agriculture and dairy operations. Though the project site lies near an aquatic feature (Kings River), rivers such as this do not provide suitable breeding habitat for this species. As a result, this species is considered absent from the project site.

2.3.2 Swainson's Hawk (California Threatened)

The Swainson's hawk typically nests in large trees along riparian systems, but may also nest in oak groves, or lone, mature trees in agricultural fields or along roadsides. Nest sites are typically located adjacent to suitable foraging habitat such as grasslands, lightly grazed pastures, or alfalfa or other hay crops. In the Central Valley, California voles account for about 45% of non-insect prey taken by the Swainson's hawk, followed by birds (32%), and gophers, mice, and other small mammals (20%) (Estep 1989). Insects comprise a large proportion of individual prey items, but a negligible proportion of total prey biomass.

The project site does not contain any trees, though many mature trees lie within 0.25 mile of the project site including valley oak (*Quercus lobata*), grey pine (*Pinus sabiniana*), and Eucalyptus (*Eucalyptus spp.*). These large, mature trees could provide suitable nesting habitat for Swainson's hawk. Over fifty recent sightings of Swainson's hawk have been documented within

a 10-mile radius of the project site on eBird and 21 CNDDB nesting occurrences were documented within a 10-mile radius of the project site. The ruderal lands of the project site offer marginal foraging habitat for Swainson's hawk, though agricultural fields within the vicinity of the project site offer suitable foraging habitat for this species. It is likely that a Swainson's hawk could forage or pass over the site and could nest within 0.25 mile of the project site.

2.3.3 Loggerhead Shrike (California Species of Special Concern)

This bird frequents open habitats with sparse shrubs and trees and is a common species found in cropland. It requires elevated perches and trees for nesting. The loggerhead shrike's diet consists of arthropods and small vertebrates that they will spear on the end of sharp branches or barbed wire fences.

Multiple ebird sightings and one CNDDB nesting occurrence of this species were documented within 10 miles of the project site. The elderberry shrub provides the only potential nesting habitat on site for this species, and the site itself provides marginal foraging habitat. Several smaller trees within 250 ft of the project site could provide potential nesting habitat for this species as well. Loggerhead shrikes therefore could nest on or within 250 feet of the project site and could occasionally forage or fly over the site.

2.3.4 Burrowing Owl (California Species of Special Concern)

The burrowing owl is associated with open habitats including grasslands, grazed pastures, open shrub lands, and occasionally agricultural fields. The primary indicators of suitable habitat for this species are relatively short vegetation and underground burrows or similar features for roosting and nesting. In California, burrowing owls primarily roost and nest in the burrows of California ground squirrels, but may also use badger, coyote, or fox dens. The burrowing owl diet includes a broad array of arthropods, small rodents, birds, reptiles, and amphibians. In California, burrowing owl survival and reproductive success appear to be linked to rodent populations, particularly California vole (Gervais et al. 2006)

Although several California ground squirrel burrows were found on site (which provide potential burrowing owl habitat), there was no sign of burrowing owls on site. There are nine CNDDB burrowing occurrences documented within 10 miles of the project site, however, there were no

eBird occurrences within that distance. The tall, thick wheat field provides unsuitable foraging habitat for this species, while the limited area outside the wheat field only provides marginal habitat for this species, at best. All burrows found were directly on the edge of the wastewater pond, where they experience regular disturbance. Given the lack of burrowing owl sign, the lack of suitable foraging and nesting habitat on site, and the regular disturbance where potential nest burrows are located, it is unlikely that burrowing owls would occur on or immediately adjacent to the project site.

2.3.5 Western Yellow-Billed Cuckoo (Federally Threatened, California Endangered)

This species prefers deciduous woodlands, cottonwood-willow forests, and other dense foliage in riparian habitats. This is a seclusive species that requires large contiguous patches of multilayered habitat for nesting. They eat arthropods and occasionally small vertebrates.

A single CNDDB nesting occurrence from 1898 was documented within 10 miles of the project site, though the CNDDB indicates that this species is possibly extirpated from the area. No eBird occurrences have been documented within 10 miles. Although the property of Bar E dairy borders a riparian corridor, the absence of a large, continuous area of habitat and the current interspersal of the riparian habitat within a matrix of agricultural and developed lands makes the project site and surrounding lands unsuitable for this species. Therefore, this species is absent from the project site.

2.3.6 Western Mastiff Bat (California Species of Special Concern)

This species frequents open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban environments. These bats roost in cliff faces, high buildings, and tunnels.

One historical CNDDB occurrence was documented approximately 5-miles east of the project site. This species may occasionally forage for flying insects on the site, but due to the lack of available roosting habitat, would not roost on site. At most, this species would forage over the site.

2.3.7 San Joaquin Kit Fox (Federally Endangered, California Threatened)

The San Joaquin kit fox (SJKF) historically occupied the dry plains of the San Joaquin Valley from San Joaquin County to southern Kern County but has been extirpated from much of its historic range. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998). The kit fox prefers habitats of open or low vegetation with loose soils, including various types of grassland and scrub. It may also be found in urban settings and in areas adjacent to tilled or fallow fields (USFWS 1998). The SJKF requires underground dens to raise pups, regulate body temperature, and avoid predators.

Habitat for kit fox is absent to extremely marginal within the project site. Nine CNDDB recorded occurrences of this species are documented within a 10-mile radius of the project site. The most recent San Joaquin kit fox occurrence was in 2006, approximately 8 miles southwest of the project site within the City of Hanford. Currently, there are no extant kit fox populations known to occur in Kings County. No evidence of San Joaquin kit fox denning was found on the site during LOA's field survey. The site represents extremely marginal habitat for the kit fox due to its disturbed landscape and human activities. Moreover, the site is situated within a mosaic of agricultural lands that have been identified as low suitability for kit fox (Cypher et al. 2013), such that kit fox would be unlikely to occur in the project vicinity in the first place. At most, kit fox may, on rare occasions, pass through the site during dispersal movements.

2.4 NESTING BIRDS AND RAPTORS

Several species of resident and migratory birds could potentially use the project site for nesting, Disturbance tolerant ground nesters like Killdeer (*Charadrius vociferus*) could nest in the hardpacked earth that lines much of the project site. Though no trees and only one elderberry shrub was found on site, various migratory birds could use it for nesting. Bushes and trees within 250 ft of the project site could provide nesting habitat for migratory bird species as well.

While there is no nesting habitat for raptors on site, mature trees within 500 feet of the project site along the kings river corridor provide nesting habitat for some raptors, such as red-tailed hawk (*Buteo jamaicensis*).

2.5 WETLANDS AND OTHER JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the CDFW, and the California Regional Water Quality Control Board (RWQCB).

Potential jurisdictional waters and wetlands are absent from the project site. The nearest natural drainage is Kings River, approximately 300 feet east of the project site.

3.0 RELEVANT GOALS, POLICIES, AND LAWS

3.1 KINGS COUNTY GENERAL PLAN DAIRY ELEMENT BIOLOGICAL RESOURCES SURVEY (POLICY DE 3.3A):

The Kings County General Plan contains a Dairy Element that requires environmental review of all new dairies or the expansion of an existing dairy. The environmental review requirements that pertain to biological resources are stated below.

> "The results of a Biological Resources Survey shall be made a part of the Technical Report submitted with each application to either establish a new dairy or expand an existing dairy. The survey of habitat for sensitive species and wetlands shall be conducted by a qualified wildlife biologist prior to initiation of grading for each dairy facility to confirm the presence or absence of any nesting activity at each location. If habitat for sensitive species or wetlands is found, appropriate measures shall be taken to avoid destruction of active dens or nests. An appropriate buffer zone shall be established around any active den or nest based on consultation with representatives of the California Department of Fish and Wildlife. Construction activities shall be restricted in this zone until the qualified biologist has determined that the young animals are no longer using the dens or nests. Passive relocation methods shall be used by the qualified biologist in the event that removal of any wildlife from the impact area is deemed necessary by a regulatory agency with appropriate jurisdiction."

3.2 THREATENED AND ENDANGERED SPECIES

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt,

pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). The USFWS commonly interprets "take" to include the loss of habitat utilized by a listed species.

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.3 CALIFORNIA FULLY PROTECTED SPECIES

The classification of certain animal species as "fully protected" was the State of California's initial effort in the 1960s, prior to the passage of the California Endangered Species Act, to identify and provide additional protection to those species that were rare or faced possible extinction. Following CESA enactment in 1970, many fully protected species were also listed as California threatened or endangered. The list of fully protected species are identified, and their protections stipulated, in California Fish and Game Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and fish (5515). Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except in conjunction with necessary scientific research and protection of livestock.

3.4 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is defined by section 3(5)(A) of the federal Endangered Species Act as "(i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species."

The Act goes on to define "conservation" as "the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary."

The designation of a specific area as critical habitat does not directly affect its ownership. Federal actions that result in destruction or adverse modification of critical habitat are, however, prohibited in the absence of prior consultation with the USFWS according to provisions of the act. Furthermore, recent appellate court cases require that federal actions affecting critical habitat promote the recovery of the listed species protected by the critical habitat designation.
The USFWS designates critical habitat for a species by identifying general areas likely to contain the species' "primary constituent elements," or physical or biological features of the landscape that the species needs to survive and reproduce. Although a unit of critical habitat for a particular species may be quite large, only those lands within the unit that contain the species' primary constituent elements are actually considered critical habitat by the USFWS.

3.5 MIGRATORY BIRDS

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

3.6 BIRDS OF PREY

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, 1992), which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted

pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.7 NESTING BIRDS

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.8 HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

3.9 WETLANDS AND OTHER "JURISDICTIONAL WATERS"

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency

(EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), with certain interpretive modifications imposed by the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*. Generally speaking, these waters include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- The territorial seas
- Interstate waters including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems
- Prior converted cropland
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water
- Certain artificial features, e.g. irrigation basins, swimming pools, borrow pits, and artificially irrigated areas
- Swales and erosional features characterized by low volume, infrequent, or short duration flow

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California. In practice, however, not all such waters are considered jurisdictional "waters of the State." Broadly, waters of the State include all waters of the U.S., all natural wetlands, certain artificial wetlands, and various other features. Nine RWQCBs, each corresponding to a different region of the state, regulate discharges of fill and pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be

prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

4.0 PROJECT IMPACTS

The following impact analysis assumes project-related disturbance to approximately 5 acres within the existing Bar E Dairy property, as shown in figure 2.

4.1 PROJECT IMPACTS TO SPECIAL STATUS SPECIES

Potential project impacts to each of the special status species identified as having the potential to occur in the project vicinity are discussed below, as well as measures to minimize potential impacts.

4.1.1 Special Status Plants

Impact: The project site and surrounding lands have experienced many years of farming and dairy use and contain no suitable habitat for special status plant species. Special status plants have no appreciable potential to occur on site or to be affected by the project.

Mitigation: None warranted.

4.1.2 California Tiger Salamander

Impact: The project site does not have the potential to support the California tiger salamander. The project will not affect this species.

Mitigation: No mitigation is warranted.

4.1.3 Swainson's Hawk

Impact: The project site does not contain any suitable nesting trees, however, there are many mature trees within a half-mile radius of the project site. The trees lining the Kings River, which sits approximately 300 feet east of the project site, are representative of the type of riparian habitat Swainson's hawks historically prefer. The high level of human and vehicular disturbance associated with agricultural and dairy operations surrounding and within the vicinity of the project site are such that, even if a Swainson's hawk was nesting in a nearby tree at the time of construction, they would be unlikely to distinguish project construction activities from existing ambient noise. The loss of less than 5-acres of marginal foraging habitat situated within a region

with many square miles of similar to more suitable foraging habitat in the form of agricultural fields would not constitute as a significant loss of Swainson's hawk foraging habitat or significantly impact regional populations of Swainson's hawks.

Mitigation:

> ***Mitigation Measure 4.1.4a* (*Temporal Avoidance*).** In order to avoid impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.
>
> ***Mitigation Measure 4.1.4b (Preconstruction Surveys).*** If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.
>
> ***Mitigation Measure 4.1.4c (Avoidance of Active Nests).*** Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

4.1.5 Burrowing Owl

Impact: Burrows suitably sized for burrowing owl nesting and roosting were observed on the project site, though the availability of suitable burrows and foraging habitat is low. Despite the presence of ground squirrel burrows, the lack of suitable foraging habitat and high level of disturbance makes the project site unsuitable for this species. Due to the project site's inability to support this species, burrowing owls are considered absent from the project site.

Mitigation: No mitigation is warranted.

4.1.6 Western Yellow-Billed Cuckoo

Impact: Although the project site is located near riparian habitat, the riparian habitat is situated within a matrix of agricultural land. Given that these birds need many continuous acres of mature, undisturbed riparian habitat to nest in and the lack of documented occurrences since 1898, this species is considered absent from the project site and vicinity. Therefore, this project will not affect this species.

Mitigation: No mitigation is warranted.

4.1.7 Western Mastiff Bat

Impact: Though this species could forage on the project site from time to time, there is no suitable roosting habitat nearby. Given the high mobility of this species, if it was to occur on the project site during construction, it would simply fly away.

Mitigation: No mitigation is warranted.

4.1.8 San Joaquin Kit Fox

Impact: Habitat for the San Joaquin kit fox is absent to extremely marginal within the project site due to dairy activity, lack of denning habitat, and poor foraging opportunity. No burrows suitable for kit fox denning were observed on or adjacent to the site, and no evidence of San Joaquin kit fox use of the site was found during LOA's field survey. At most, kit fox may, on rare occasions, pass through the site during dispersal movements. Therefore, proposed project activities are unlikely to result in any impacts to San Joaquin kit fox.

Mitigation: No mitigation is warranted.

4.2 IMPACTS TO NESTING BIRDS AND RAPTORS

Impact: The project site provides some nesting habitat for a number of resident and migratory bird species, including loggerhead shrike. Even the most disturbed areas of the project site could be used by disturbance-tolerant birds. While nesting habitat for raptors is absent from the project site, mature trees within 500 feet of the site provide some nesting opportunities for raptors. Nearly all native avian species are protected by state and federal laws previously described in Sections 3.5-3.7. Birds nesting within or immediately adjacent to the project site at the time of project construction have the potential to be injured or killed by project activities. In addition, project activities could disturb birds nesting within or adjacent to work areas such that they would abandon their nests. Project activities that adversely affect the nesting success of birds or result in the mortality of individual birds would violate state and federal laws.

Mitigation: The following measures will be implemented prior to the start of construction.

***Mitigation Measure 4.2a* (*Avoidance*).** In order to avoid impacts to native nesting birds and raptors, including the loggerhead shrike, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

Mitigation Measure 4.2b (Preconstruction Surveys). If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) and surrounding lands within 250 feet for migratory birds, and out to 500 feet for raptors, where accessible. If no active nests are found within the survey area, no further mitigation is required.

Mitigation Measure 4.2c (Establish Buffers). Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Implementation of the above measures will minimize potential project impacts to nesting native birds and will ensure compliance with state and federal laws protecting these species.

4.3 IMPACTS TO WETLANDS AND OTHER JURISDICTIONAL WATERS

Impact: Potential jurisdictional waters and wetlands are absent from the project site, and the project will not impact any such resources.

Mitigation: None warranted.

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APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The plant species listed below were observed on the Moonstone Dairy Digester project site during a survey conducted by Live Oak Associates, Inc. on March 28, 2023. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NR - No review
NA - No agreement
NI - No investigation

ADOXACEAE – Moschatel Family		
Sambucus nigra	Blue Elder	FACU
AIZOACEAE – Ice Plant Family		
Sesuvium verrucosum	Western sea-purslane	FACW
AMARANTHACEAE – Amaranth Family		
Amaranthus retroflexus	Red-root amaranth	FACU
ASTERACEAE – Daisy Family		
Erigeron bonariensis	Flax-leaf fleabane	FACU
Lactuca serriola	Prickly lettuce	FACU
Matricaria discoidea	Pineapple Weed	FACU
Sonchus oleraceus	Common Sowthistle	UPL
BORAGINACEAE – Borage Family		
Amsinckia intermedia	Common Fiddleneck	FACU
BRASSICACEAE – Mustard Family		
Capsella bursa-pastoris	Shepherd's Purse	FACU
Lepidium didymum	Lesser Swinecress	UPL
Sisymbrium irio	London Rocket	UPL
FABACEAE – Legume Family		
Lupinus spp.	Lupine	UPL
GERANIACEAE – Geranium Family		
Erodium cicutarium	Common Stork's Bill	FACU
MALVACEAE – Mallow Family		
Malva parviflora	Cheeseweed	UPL
POACEAE – Grass Family		

Avena fatua	Wild Oat	UPL
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermuda grass	FACU
Hordeum murinum	Wall Barley	FACU
Hordeum jubatum	Foxtail Barley	FAC
Phalaris aquatica	Bulbous Canary Grass	FACU
Poa pratensis	Kentucky Bluegrass	FAC
Triticum aestivum	Cultivated Wheat	UPL
URTICACEAE – Nettle Family		
Urtica uren	Dwarf Nettle	UPL

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may reasonably be expected to use the habitats of the project site routinely from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the project site on March 28, 2024 have been noted with an asterisk.

CLASS: REPTILIA (Reptiles)
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Side-blotched Lizard (*Uta stansburiana*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Gopher Snake (*Pituophis melanoleucus*)
Common Kingsnake (*Lampropeltis getulus*)

CLASS: AVES (Birds)
ORDER: ANSERIFORMES (Waterfowl)
FAMILY: ANATIDAE (Ducks)
*Wood Duck (*Aix sponsa*)
Mallard (*Anas platyrhynchos*)
ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: CATHARTIDAE (American Vultures)
Turkey Vulture (*Cathartes aura*)
ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)
*Red-tailed Hawk (*Buteo jamaicensis*)
Swainson's Hawk (*Buteo swainsoni*)
FAMILY: FALCONIDAE (Caracaras and Falcons)
*American Kestrel (*Falco sparverius*)
ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)
FAMILY: CHARADRIIDAE (Plovers and relatives)
*****Killdeer (*Charadrius vociferus*)
ORDER: COLUMBIFORMES (Pigeons and Doves)
FAMILY: COLUMBIDAE (Pigeons and Doves)
*Rock Pigeon (*Columba livia*)
*Eurasian Collared Dove (*Streptopelia decaocto*)
*Mourning Dove (*Zenaida macroura*)
ORDER: STRIGIFORMES (Owls)
FAMILY: TYTONIDAE (Barn Owls)
Common Barn Owl (*Tyto alba*)
FAMILY: STRIGIDAE (Typical Owls)
Burrowing Owl (*Athene cunicularia*)

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Anna's Hummingbird (*Calypte anna*)

Rufous Hummingbird (*Selasphorus rufus*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

*Black Phoebe (*Sayornis nigricans*)

Say's Phoebe (*Sayornis saya*)

Western Kingbird (*Tyrannus verticalis*)

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

*California Scrub Jay (*Aphelocoma californica*)

*American Crow (*Corvus brachyrhynchos*)

Common Raven (*Corvus corax*)

FAMILY: ALAUDIDAE (Larks)

Horned Lark (*Eremophila alpestris*)

FAMILY: HIRUNDINIDAE (Swallows)

Cliff Swallow (*Hirundo pyrrhonota*)

Barn Swallow (*Hirundo rustica*)

FAMILY: TURDIDAE

*American Robin (*Turdus migratorius*)

FAMILY: MIMIDAE (Mockingbirds and Thrashers)

Northern Mockingbird (*Mimus polyglottos*)

FAMILY: STURNIDAE (Starlings)

*European Starling (*Sturnus vulgaris*)

FAMILY: MOTACILLIDAE (Wagtails and Pipits)

*American Pipit (*Anthus rubescens*)

FAMILY: PARULIDAE (Wood Warblers and Relatives)

*Yellow-rumped Warbler (*Dendroica coronata*)

FAMILY: EMBERIZIDAE (Wood Warblers, Sparrows, Blackbirds, and relatives)

Dark-eyed Junco (*Junco hyemalis*)

Lincoln's Sparrow (*Melospiza lincolnii*)

*Savannah Sparrow (*Passerculus sandwichensis*)

*White-crowned Sparrow (*Zonotrichia leucophrys*)

FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)

*Red-winged Blackbird (*Agelaius phoeniceus*)

Tricolored Blackbird (*Agelaius tricolor*)

Western Meadowlark (*Sturnella neglecta*)

*Brewer's Blackbird (*Euphagus cyanocephalus*)

*Brown-headed Cowbird (*Molothrus ater*)

FAMILY: FRIGILLIDAE (Finches)

Lesser Goldfinch (*Carduelis psaltria*)

American Goldfinch (*Spinus tristis*)

*House Finch (*Carpodacus mexicanus*)

FAMILY: PASSERIDAE (Old World Sparrows)

*House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA (Mammals)

ORDER: CHIROPTERA (Bats)

FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)

Southern Long-nosed Bat (*Leptonycteris curasoae*)

FAMILY: VESPERTILIONIDAE (Evening Bats)

Yuma Myotis (*Myotis yumanensis*)

California Myotis (*Myotis californicus)*

Western Pipistrelle (*Pipistrellus hesperus*)

Big Brown Bat (*Eptesicus fuscus*)

FAMILY: MOLOSSIDAE (Free-tailed Bat)

Western Mastiff Bat (*Eumops perotis californicus*)

Brazilian Free-tailed Bat (*Tadarida brasiliensis*)

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

ORDER: RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

*California Ground Squirrel (*Otospermophilus beecheyi*)

FAMILY: GEOMYIDAE (Pocket Gophers)

Botta's Pocket Gopher (*Thomomys bottae*)

FAMILY: MURIDAE (Old World Rats and Mice)

Western Harvest Mouse (*Reithrodontomys megalotis*)

Deer Mouse (*Peromyscus maniculatus*)

Norway Rat (*Rattus norvegicus*)

House Mouse (*Mus musculus*)

California Vole (*Microtus californicus*)

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and relatives)

Coyote (*Canis latrans*)

*Domestic Dog (*Canis lupus familiaris*)

FAMILY: FELIDAE (Felines)

***Feral Cat (*Felis catus*)

FAMILY: PROCYONIDAE (Raccoons and relatives)

Raccoon (*Procyon lotor*)

FAMILY: MEPHITIDAE (Skunks)

Striped Skunk (*Mephitis mephitis*)

APPENDIX C: SELECTED SITE PHOTOGRAPHS



Photo 1: Wastewater pond on the right is the site of proposed earthen berms.



Photo 2: Elderberry shrub and CA ground squirrel burrows on project site.



Photo 3: Looking west at proposed storage area (dirt) and bioflitro wastewater ponds (wheat field).



Photo 4: Looking east at proposed storage area (dirt) and bioflitro wastewater ponds (wheat field).



Photos 7: Looking southwest at site of proposed biofiltro wastewater ponds (wheat field).



Photo 8: Mature trees in the adjacent Kings River. Rail represents Bar E property line.

Appendix C:

Archaeological Survey Report

CONFIDENTIAL APPENDIX

Appendix D:

Kings County Association of Governments Traffic Analysis Letter

Kings County
Association of Governments

339 W. D Street, Suite B
Lemoore, CA 93245
Tel. (559) 852-2654
Fax (559) 924-5632
www.kingscog.org

Member Agencies: Cities of Avenal, Corcoran, Hanford and Lemoore, County of Kings

March 21, 2024

Tyler Esteves
4Creeks, Inc.
324 S. Santa Fe St., Suite A
Visalia, CA 93292

Dear Mr. Esteves:

This memo is regarding your request for a traffic analysis for the Bar E Dairy proposal of the construction, installation, and operation of BioFiltro wastewater treatment beds and the necessary infrastructure for wastewater management located at 6740 Corona Avenue, Kingsburg, CA 93631. Based on the information below, this project is not expected to degrade the present Level of Service (LOS) on the nearby county roads of regional significance below acceptable levels.

Bar E Dairy BioFiltro Wastewater Project
Traffic Analysis

This project is not expected to increase the number of trips per day. Based on the following average daily traffic (ADT) figures for 6th Avenue, and the current LOS, it appears that the project would not significantly impact the operational capacity of these roads.

Roadway	ADT	Peak Hour	LOS
6th Avenue:			
North of Fargo Ave. South of Chico Ave.	2,560	248	B

If you have any questions regarding this matter, please call me at (559) 852-2678 or email me at Terri.King@co.kings.ca.us.

Sincerely,

KINGS COUNTY ASSOCIATION OF GOVERNMENTS

Terri King

Terri King, Executive Director

Appendix E:

Geotechnical Engineering Investigation Report

GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
PROPOSED BIDA SYSTEM – BAR E DAIRY
6730 CORONA AVENUE
KINGSBURG, CALIFORNIA 93631

BSK PROJECT G24000445

PREPARED FOR:

4-CREEKS, INC.
324 S. SANTA FE STREET, SUITE A
VISALIA, CALIFORNIA 93292

APRIL 26, 2024

GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
PROPOSED BIDA SYSTEM – BAR E DAIRY
6730 CORONA AVENUE
KINGSBURG, CALIFORNIA 93631

Prepared for:

4-Creeks, Inc.
324 S. Santa Fe Street, Suite A
Visalia, California 93292

BSK Project: G24000445

April 26, 2024

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Appendix B: Laboratory Testing

1 INTRODUCTION

1.1 General

This report presents the results of our geotechnical engineering investigation for the proposed BIDA water treatment system to be constructed at Bar E Dairy in Kingsburg, California as shown on the Site Vicinity Map, Figure 1. The geotechnical engineering investigation was conducted in general accordance with the scope of services outlined in BSK Proposal G24000445, dated March 7, 2024. The proposed improvements and exploratory borings and tests are shown on Figure 2, Boring Location Map.

In the event that significant changes occur in the design or location of the proposed improvements, the conclusions and recommendations presented in this report will not be considered valid unless the changes are reviewed by BSK, and the conclusions and recommendations are modified or verified in writing as necessary.

1.2 Project Description

BSK understands that the project consists of the completion of a geotechnical analysis for the proposed BIDA water treatment system at Bar E Dairy, located at 6730 Corona Avenue, in Kingsburg, California. The proposed system consists of two (2) 60 foot by 1000 foot beds. The beds are anticipated to be raised lengthwise in the center with a 3 percent cross slope to the edge on either side. The BIDA beds are anticipated to be constructed entirely above ground, and the anticipated maximum height of the beds is approximately 1 foot above ground surface. Concrete drainage channels and barrier curbs will also be constructed lengthwise along the outside edges of the beds. The base of the beds will contain layers of materials consisting of a liner, plastic pallets, and shade mesh. The beds will be constructed side by side lengthwise with 20 feet of separation.

Other improvements are anticipated to include underground utilities and other miscellaneous structures supported on mat footings. Maximum loading on structures is anticipated to be less than 1,000 psf.

If the project description differs significantly from that anticipated above, we should be notified so that we can review our scope of work for applicability.

1.3 Purpose and Scope of Services

The purpose of the geotechnical investigation is to assess soil conditions at the project site and provide geotechnical engineering recommendations for use by the project designers. The scope of the investigation included a field exploration, laboratory testing, engineering analysis, and preparation of this report.

2 FIELD INVESTIGATION AND LABORATORY TESTING

2.1 General

The field exploration, conducted on March 20, 2024, consisted of a site reconnaissance and drilling three (3) exploratory test borings. The borings were drilled to depths of approximately 21.5 feet below ground surface (bgs) within the proposed improvement locations. The test borings were drilled with a truck-mounted drill rig, equipped with 8-inch augers. The approximate boring locations are presented on Figure 2. Details of the field exploration and the boring logs are provided in Appendix A.

2.2 Laboratory Testing

Laboratory testing of selected soil samples were performed to evaluate certain physical, chemical, and engineering characteristics and properties. The testing program included: in-situ moisture and density, expansion index, gradation, direct shear, collapse potential, and corrosion potential. The in-situ moisture and dry density test results are presented on the boring logs in Appendix A. Descriptions of the laboratory test methods, and test results are provided in Appendix B.

3 SITE CONDITIONS

3.1 Site Description

The proposed improvements will be situated within the Bar E Dairy facility, which generally contains agricultural fields, access roads, lagoons, and other dairy improvements. The area containing the proposed BIDA beds included an agricultural field and was bound to the north and east by access roads with agricultural fields and the Kings River beyond, to the south by the existing Bar E Dairy facility, and to the west by an access road with residential property, S 7th Avenue and agricultural fields beyond. The depths of the existing basins were not provided. The site also contained pumps and other dairy infrastructure.

3.2 Subsurface Conditions

The near surface soil consisted of silty sand, sand clay and sandy silt underlain by layers of silty sand, sandy silt, and poorly graded sand with varying silt content to the maximum depth explored (21.5 feet bgs). The boring logs in Appendix A provide a more detailed description of the soils encountered in each boring, including the applicable Unified Soil Classification System symbols. The approximate locations of the soil borings are shown on the Boring Location Map (Figure 2).

Sandy clay had a low expansion potential. Silt material had a low collapse potential, 1.48 percent at a 2000 psf load. See Appendix B for more details.

3.3 Groundwater

Groundwater was not encountered at the completion of our field exploration, March 20, 2024. The California Department of Water Resources indicates the depth to regional groundwater at the project site is greater than 50 feet bgs. However, fluctuations in the groundwater level or the presence of perched groundwater may occur due to variations in the water level in the Kings River rainfall, irrigation, seasonal factors, pumping from wells, and other factors that were not evident at the time of our investigation.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 General

Based upon the data collected during this investigation and from a geotechnical engineering standpoint, it is our opinion that there are no soil conditions that would preclude the construction of the proposed improvements, provided the recommendations presented in this report are incorporated into the project design and construction. The planned improvements may be supported on shallow isolated/continuous reinforced concrete spread footings, thickened mat foundations, and/or pole footings provided the structural engineer evaluate if the structure can tolerate the estimated settlement shown in Section 4.6.

4.2 Soil Corrosivity

One (1) surface soil sample obtained from the site was tested to provide a preliminary screening of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts. The test results are presented in Appendix B. The soil was evaluated for minimum resistivity and pH (CT 643), soluble sulfate (CT 417), and chlorides (CT 422).

The water-soluble sulfate is considered Exposure Category S0 per Table 19.3.1.1 of ACI 318-19. The water-soluble chloride content severity class depends on the ability to protect the soils from moisture. The chloride content with moisture would be considered Exposure Category C0 per Table 19.3.1.1 of ACI 318-19. Type I/Type II cement is recommended for use in formulation of concrete in contact with site soils. Other recommendations for concrete by exposure type should reference Table 19.3.2.1 in ACI 318-19.

The site soils minimum resistivity is very low and is considered potentially very severely corrosive to buried metal. Buried reinforcing steel protection be provided with the minimum concrete cover required by the American Concrete Institute (ACI) Building Code for Structural Concrete, ACI 318, Chapter 7.7 and 20.5.1. Buried metal conduits, ferrous metal pipes, and exposed steel must have protective coatings in accordance with the manufacturer's specifications. Based on the anticipated groundwater, and exposure category, there are no restrictions for cement type and maximum water-

cement ratio. If detailed recommendations for corrosion protection are desired, a corrosion specialist should be consulted.

4.3 Seismic Design Criteria

There are no known active fault zones within the vicinity of the project site. In accordance with Section 1613.2.2 of the 2022 California Building Code (CBC) and Table 20.3-1 of ASCE 7-16, the site can be classified as Site Class D (stiff soil profile).

Use of the 2022 California Building Code (CBC) seismic design criteria is considered appropriate and the following parameters are considered applicable for the structural design of foundations.

Table 1: 2022 California Building Code (CBC) Seismic Design Parameters

Seismic Design Parameter	2022 CBC Value		Reference
MCE Mapped Spectral Acceleration (g)	S_S = 0.63	S_1 = 0.239	USGS Mapped Value
Amplification Factors (Site Class D)	F_a = 1.296	F_v = null[1](2.122)[2]	ASCE Table 11.4
Site Adjusted MCE Spectral Acceleration (g)	S_{MS} = 0.817	S_{M1} = null[1](0.507)[2]	ASCE Equations 11.4.1-2
Design Spectral Acceleration (g)	S_{DS} = 0.544	S_{D1} = null[1] (0.338)[2]	ASCE Equations 11.4.1-4
Geometric Mean PGA (g)	PGA_M = 0.363		Section 11.8.3, ASCE 7-16
Site Short Period – T_s (seconds)	T_s = 0.622		$T_s = S_{D1}/S_{DS}$
Site Long Period – T_L (seconds)	T_L = 12		USGS Mapped Value

Notes: [1] Requires site-specific ground motion procedure or exception as per ASCE 7-16 Section 11.4.8.

[2] Values from ASCE 7-16 supplement shall only be used to calculate T_s. Values provided based on use of exception, as provided in Section 11.4.8.2 to Site-Specific Ground Motion Procedures and assumes the value of the seismic response coefficient C_s is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Eq. 12.8-3 for $T_L \geq T > 1.5T_s$ or Eq. 12.8-4 for $T > T_L$. The 1.5 increase has not been applied to the values presented.

As shown above, the short period design spectral response acceleration coefficient, S_{DS}, is greater than 0.5, therefore the Site lies in Seismic Design Category D as specified in Section 1613.2.5 of the 2022 CBC. The long period design spectral response acceleration coefficient, S_{D1}, is greater than 0.2, therefore the Site lies in Seismic Design Category D as specified in Section 1613.2.5 of the 2022 CBC. In accordance with the 2022 CBC, each structure shall be assigned to the more severe seismic design category in accordance with Table 1613.2.5(1) or 1613.2.5(2), irrespective of the fundamental period of vibration of the structure.

4.4 Slope Stability

Based upon the provided plan sheet dated February 27, 2024, the maximum height and gradient of the slopes of the proposed BIDA beds were assumed to be 2 feet and 3 percent respectively. Due to the relatively flat slope of the beds, a general slope stability analysis was performed using Janbu, which indicated slopes have a factor of safety greater than 1.5.

Based upon the provided plan sheet dated February 27, 2024, the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that there are no soil conditions that would preclude the construction of the proposed beds provided that the recommendations presented in the references report are incorporated into the project design and construction. The proposed beds may be designed/constructed with a maximum height of 2 feet above ground surface with slopes of 3 percent.

4.5 Site Preparation and Earthwork Construction

The following procedures must be implemented during site preparation for the proposed improvements. It should be noted that references to maximum dry density, optimum moisture content, and relative compaction are based on ASTM D1557 (latest test revision) laboratory test procedures.

1. Prior to any site grading, all miscellaneous surface obstructions must be removed from the improvement area. Near surface soils containing vegetation, roots, organics, compost, or other objectionable material must be stripped to a depth of at least 3-inches to expose a clean soil surface. Surface strippings must not be incorporated into engineered fill unless the organic content is less than 3 percent by weight (ASTM D2974).
2. Existing utilities or irrigation pipes must be removed to a point at least 5-feet horizontally outside the proposed improvement area. Resultant cavities must be backfilled with engineered fill. Abandoned pipelines to remain that are less than 2 inches in diameter must be capped at the cutoff point, while pipelines greater than 2 inches in diameter must be filled with a 1-sack sand-cement slurry.
3. Soil disturbed as a result of undocumented fill, debris, and abandoned underground structures must be excavated to expose undisturbed native soil.
4. Following the required stripping, and/or removal of underground structures, the exposed soil surface in proposed at-grade improvement areas including foundations or lightly loaded concrete structures must be over-excavated uniformly to a depth of 24 inches below existing site grade or 12 inches below the bottom of the proposed foundation, whichever is deeper. The over-excavation must extend at least 5 feet laterally beyond the outside edge of the proposed foundation or areas to receive fill, whichever distance is greater. The exposed subgrade must be proof-rolled under the observation of a BSK field representative to detect soft or pliant areas. Soft

or pliant areas must be over-excavated to firm native soil. The exposed surface must be scarified at minimum of 8 inches, uniformly moisture conditioned to 2 percent above optimum moisture, and compacted to 90 percent relative compaction.

5. Engineered fill in areas of at-grade structures must consist of non-expansive soil (EI < 20), moisture conditioned to at or above optimum moisture, and compacted to 90 percent relative compaction. Excavated soils, free of deleterious substances (organic matter, demolition debris, tree roots, etc.), meeting requirements for engineering fill below, and with less than 3 percent organic content by weight, may be reused as engineered fill for the backfill.
6. Engineered fill must be placed in uniform layers not exceeding 8-inches in loose thickness, moisture-conditioned and compacted as recommended above. Acceptance of engineered fill placement must be based on both moisture content at time of compaction and relative compaction.
7. Imported fill materials must be free of deleterious substances and have less than 3 percent organic content by weight. The project specifications must require the contractor to contact BSK for review of the proposed import fill materials for conformance with these recommendations at least two weeks prior to importing to the site, whether from on-site or off-site borrow areas. Imported fill soils must be non-hazardous and be derived from a single, consistent soil type source conforming to the following criteria:

Maximum Particle Size:	3-inches
Percent Passing #4 Sieve:	65 – 100
Percent Passing #200 Sieve:	20 – 45
Plasticity Index:	less than 12
Expansion Index:	< 20
Low Corrosion Potential:	
Soluble Sulfates:	< 1,500 mg/kg
Soluble Chlorides:	< 300 mg/kg
Soil Resistivity:	> 2,000 ohm-cm

Grading operations must be scheduled as to avoid working during periods of inclement weather. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a "pumping" condition. This condition is caused by excess moisture, in combination with compaction, resulting in saturation and near zero air voids in the soils. If this condition occurs, the affected soils must be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the Contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which must be subject to review by BSK prior to implementation.

4.6 Shallow, Mat, and Pole-Type Foundations

Provided the recommendations contained in this report are implemented during design and construction, it is our opinion that the proposed structures can be supported on shallow, mat, or pole-type foundations. A structural engineer must evaluate reinforcement and embedment depth based on the requirements for the structural loadings.

4.6.1 Shallow Foundations

The proposed at-grade structures may be supported on reinforced concrete spread footings bearing on engineered fill. Footing design must follow the criteria listed below:

The allowable bearing pressure applies to the dead load plus live load (DL + LL) condition. Footing design must follow the criteria listed in Table 24.

Table 2: Allowable Bearing Pressure

Footing Embedment[1] (inches)	Minimum Footing Width (inches)		Allowable Bearing Capacity[2] (psf)	
	Continuous Footing	Isolated Spread Footing	Continuous Footing	Isolated Spread Footing
12	12	24	600	1,200

Note: (1) – Measure with respect to the lowest adjacent subgrade surface.
(2) – The bearing pressure can be increased one-third for transient loading such as wind or seismic.

The estimated total and differential settlement for the recommended spread footings is shown below:

Table 3: Anticipated Post-Construction Settlement

Footing Type	Post-Construction Settlement (inches)	Differential Settlement (inches)	Angular Distortion
Continuous	1.0	--	0.005
Isolated	1.0	0.5	--

Isolated footing differential settlement is based on adjacent similarly loaded footings spaced at 30-feet. The settlement values given above are applicable to the maximum loading conditions. For loads, other than the design maximum loads, the settlements can be decreased proportionally.

4.6.2 Mat Foundations

The proposed trucking station and scale may be supported on a thickened mat/slab foundation. The foundation may be designed for a maximum allowable bearing pressure of 250 psf (DL + LL), which may be increased by 1/3 for transient loading, such as wind or seismic. Estimated total settlement for mat/slabs is approximately 1.0 inch. Differential settlement across mat/slab foundations is anticipated to be on the order of about half of the total settlement over the length of the mat foundation. The weight of the concrete should be included in evaluating the contact pressure at the base of mat/slab foundations. The weight of embedded concrete can be reduced by the unit weight of soil times the depth of embedded concrete.

Mat foundations must be a minimum of 4-inches thick and must be supported on a compacted subgrade prepared in accordance with the "Site Preparation and Earthwork Construction" section of this report. In order to regulate cracking of the slabs, construction joints and/or saw-cut control joints must be provided in each direction at a maximum spacing of 10 feet on centers along with steel reinforcement as recommended by the project's Structural Engineer. Control joints must have a minimum depth of one-quarter of the slab thickness. It is recommended that steel reinforcement used in concrete slabs-on-grade consist of steel rebar. Structural concrete slabs-on-grade may be designed using an unadjusted long-term Modulus of Subgrade Reaction (Ks) of 150 pounds per cubic inch (pci) constructed on a properly compacted subgrade or engineered fill. This value is based on the correlations to soil strength using one foot by one-foot plate-load tests and should therefore be scaled (adjusted) to the actual slab width. The adjusted Ks value can be obtained by multiplying the value provided above by $[(B+B_1)/(2B)]^2$, where B is the slab width in feet and B_1 is 1 foot (width of a one foot by one foot plate-load test apparatus).

4.6.3 Pole Type Foundations

Structures such as stadium lighting, signs, etc. may be supported on pole type foundations. This type of foundation must be designed in accordance with Section 1807.3 of the 2022 CBC. However, it is recommended that an allowable lateral soil bearing pressure of 230 psf per foot of embedment be used to develop parameters S_1 and S_3 rather than one of the values given in Table 1806.2. This value includes a factor of safety of 2 and may be increased as indicated by 1806.3 and the footnotes to Table 1806.2. Unless the area surrounding the pole, foundation is paved or covered with concrete flatwork, the upper 24 inches of soil should be ignored when calculating the minimum depth of embedment.

The following table provides expressions for the allowable and ultimate axial capacity using friction to resist axial loads. The skin friction within the upper two feet of embedded length must be ignored in unpaved areas. The total settlement of pier foundations designed in accordance with these recommendations should not exceed one-half inch.

Table 4: Friction Resistance for Vertical Loads	
Allowable (lbs)	**Ultimate (lbs)**
$51\ DL^2$	$128DL^2$

Note (1) – D is pile diameter (feet), and L is the total embedment length (feet).

Prior to placing concrete, loose or disturbed soils must be removed from the bottom of the drilled pier excavations using a flat bottom clean-out bucket or other pre-approved method. A representative of BSK must observe the drilling and clean-out associated with the construction of pier foundations in order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

Pier deflection may govern the design lateral resistance. If provided with pier geometry, lateral load, and loading eccentricity, the estimated pier head deflection can be provided.

4.7 Lateral Earth Pressures and Frictional Resistance

Lateral loads applied against foundations may be resisted by a combination of passive resistance against the vertical faces of the foundations and friction between the foundation bottom and the supporting subgrade. An unfactored coefficient of friction of 0.32 may be used between soil subgrade and precast foundation bottoms, or 0.73 between soil subgrade and cast-in-place foundation bottom. The unfactored passive pressure is presented in Table 7. The coefficient of friction and passive earth pressure values given above represent ultimate soil strength values. BSK recommends that a safety factor consistent with the design conditions be included in their usage. For resistance against lateral sliding that is countered solely by the passive earth pressure against footings or friction along the bottom of footings, a minimum safety factor of 1.5 is recommended. For stability against lateral sliding that is resisted by combined passive pressure and frictional resistance, a minimum safety factor of 2.0 is recommended. For lateral resistance against seismic loading conditions, a minimum safety factor of 1.2 is recommended. We based these lateral resistance values on the assumption that the concrete for the foundations is either placed directly against undisturbed soils or that the voids created from the use of forms are backfilled with engineered fill or other approved materials, such as lean concrete. Passive resistance in the upper foot of soil cover below finished grades should be neglected unless the ground surface is confined by concrete slabs, pavements, or other such positive protection.

The following earth pressure parameters may be used for designing earth-retaining structures and foundations.

Table 5: Lateral Earth Pressures	
Lateral Pressure Conditions	**Equivalent Fluid Pressure (pcf)**
Active Pressure	30
At-Rest Pressure	50
Passive Pressure	460

Parameters are shown in the above table for drained conditions of select engineered fill or prepared native soil. In addition, the drained condition assumes that positive drainage will be provided away from the structure improvements and that water does not accumulate around the structure and cause a build-up of hydrostatic pressure.

4.8 Excavation Stability

Soils encountered within the upper 10 feet are generally Type C soil in accordance with OSHA (Occupational Safety and Health Administration). The slopes surrounding or along temporary excavations must be no steeper than 2.5H:1V to a maximum depth of 10 feet. As stated above, relatively cohesionless soils were encountered within the test borings, as such, it may be necessary to lay back slopes flatter to facilitate construction. Temporary excavations for the project construction must be left open for as short a time as possible and must be protected from water runoff. Excavations must be scheduled as to avoid working during periods of inclement weather (e.g., rain). No equipment should be operated within 8 feet of the top of the slope. Slope height, slope inclination, and excavation depths (including utility trench excavations) must in no case exceed those specified in local, state, or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations 29 CFR Part 1926, or successor regulations). These excavation recommendations are based on soil characteristics derived from the borings. Variations in soil conditions will likely be encountered during excavation. At the time of construction, BSK must be afforded the opportunity to observe and document sloping and shoring conditions, and the opportunity to provide review of actual field conditions to account for condition variations not otherwise anticipated in the preparation of these recommendations.

4.9 Utility Trench Excavation and Backfill

Pipes and conduits must be bedded and shaded in accordance with the requirements of the pipe manufacturer. Where no specific requirements exist, we recommend a minimum of 6-inches of sand bedding material for pipe installations 12 to 24-inches in diameter. For pipe diameters, smaller than 12-inches, the bedding thickness may be reduced to 4-inches. For HDPE pipe installations/construction, sand bedding is not required, and the on-site soil can be used as backfill. The bedding material and envelope (up to 6-inches above the pipe) must consist of sand (Sand Equivalent greater than 30), be placed in loose lifts not exceeding 8-inches in thickness, compacted to at least 90 percent of the maximum dry density, and moisture conditioned to within 2 percent of optimum moisture content. Water jetting to attain compaction must not be allowed.

Adequate excavation width must be provided to permit uniform compaction on both sides of utility lines installed within the trench. The trench backfill material may consist of engineered fill. Trench backfill outside the containment area must be placed in loose lifts not to exceed 8-inches in loose thickness, compacted to 90 percent of the maximum dry density, and moisture conditioned to 2 percent above optimum moisture content. Conduits extending through or below footings must be "sleeved" as determined by the Project Structural Engineer

4.10 Surface Drainage Control

Final grading around site improvements must provide for positive and enduring drainage. Ponding of water must not be allowed on or near the proposed structures. Saturation of the soils immediately adjacent to or below structures must not be allowed. Although landscaping is not anticipated, irrigation water must be applied in amounts not exceeding those required to offset evaporation, sustain plant life, and maintain a relatively uniform moisture profile around and below site improvements. Fill elevations are anticipated to be less than 3 feet above natural grade to achieve positive site drainage.

5 PLANS AND SPECIFICATIONS REVIEW

BSK recommends that it be retained to review the draft plans and specifications for the project, with regard to foundations and earthwork, prior to there being finalized and issued for construction bidding.

6 CONSTRUCTION TESTING AND OBSERVATIONS

Geotechnical testing and observation during construction is a vital extension of this geotechnical investigation. BSK recommends that it be retained for those services. Field review during site preparation and grading allows for evaluation of the exposed soil conditions and confirmation or revision of the assumptions and extrapolations made in formulating the design parameters and recommendations. BSK's observations must be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. BSK must also be called to the site to observe foundation excavations, prior to placement of reinforcing steel or concrete, in order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report. BSK must also be called to the site to observe placement of foundation and slab concrete.

If a firm other than BSK is retained for these services during construction, that firm must notify the owner, project designers, governmental building officials, and BSK that the firm has assumed the responsibility for all phases (i.e., both design and construction) of the project within the purview of the geotechnical engineer. Notification must indicate that the firm has reviewed this report and any subsequent addenda, and that it either agrees with BSK's conclusions and recommendations or that it will provide independent recommendations.

7 LIMITATIONS

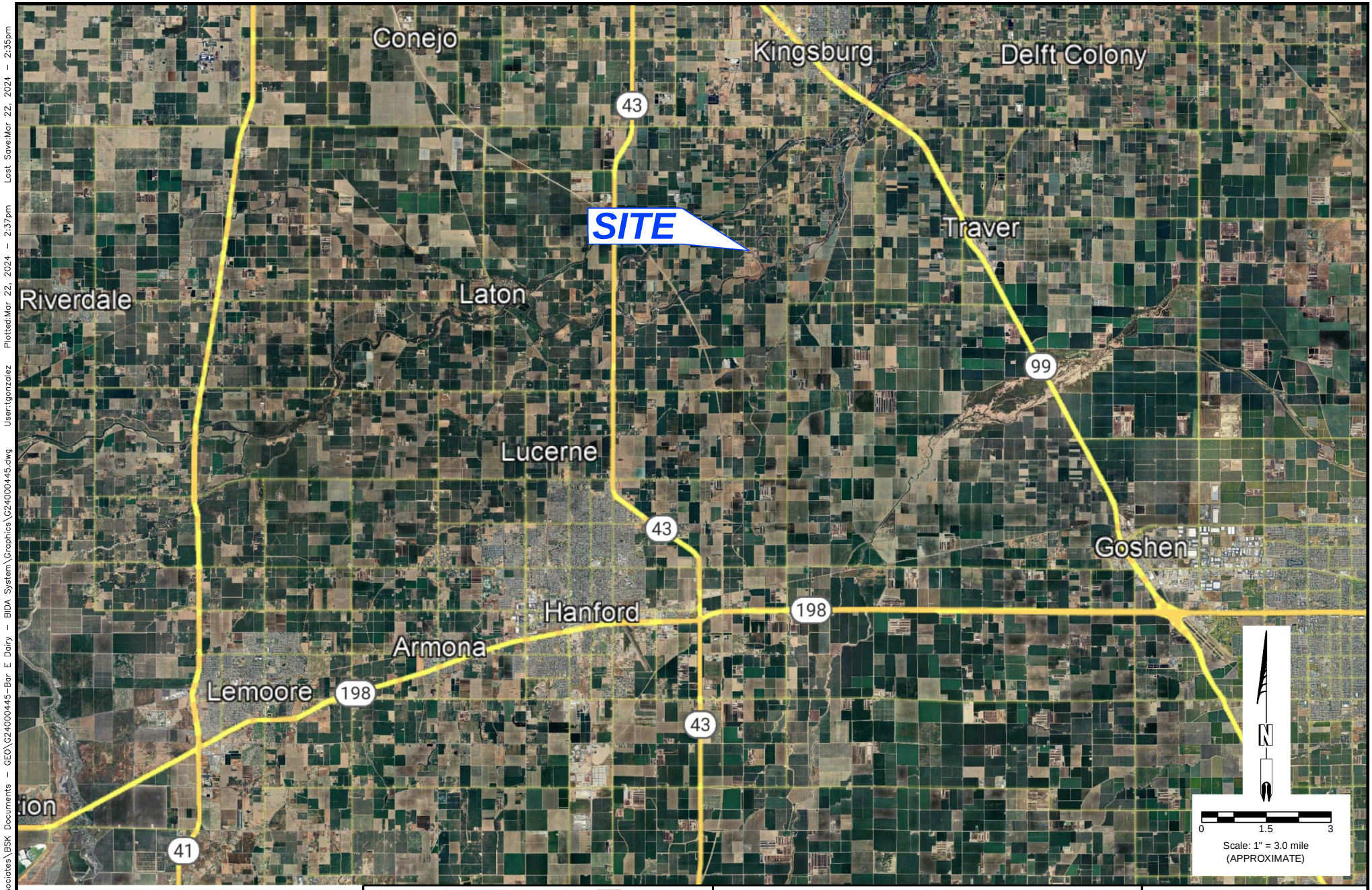
The analyses and recommendations submitted in this report are based upon the data obtained from the test borings performed at the locations shown on Figure 2. The report does not reflect variations, which may occur between or beyond the borings. The nature and extent of such variations may not become evident until additional exploration and testing is performed, or construction is initiated. If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of the variations.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observation program during the construction phase. BSK assumes no responsibility for construction compliance with the design concepts or recommendations unless it has been retained to perform the testing and observation services during construction as described above.

The findings of this report are valid as of the present. However, changes in the conditions of the site can occur with the passage of time, whether caused by natural processes or the work of man, on this property or adjacent property. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation, governmental policy, or the broadening of knowledge.

BSK has prepared this report for the exclusive use of the Client and members of the project design team. The report has been prepared in accordance with generally accepted geotechnical engineering practices, which existed in Kings County at the time the report was written. No other warranties, either express or implied, are made as to the professional advice provided under the terms of BSK's agreement with Client and included in this report.

FIGURES



C:\Users\tgonzalez\BSK Associates\BSK Documents - GEO\G24000445-Bar E Dairy - BIDA System\Graphics\G24000445.dwg User:tgonzalez Plotted:Mar 22, 2024 - 2:37pm Last Save:Mar 22, 2024 - 2:35pm

REFERENCE IMAGE: Google Earth

BSK ASSOCIATES
691 N. Laverne Avenue #101
Fresno, California 93727
Tel. (559) 497-2880

SITE VICINITY MAP

Bar E Dairy
BIDA System
6730 Corona Avenue
Kingsburg, California

FIGURE 1

JOB NO. G24-000-445
DATE March 22, 2024
DR. BY TG
CH. BY NP
SCALE AS SHOWN
SHEET NO. 1
OF 1 SHEETS



LEGEND:

B-3 APPROXIMATE BORING LOCATIONS

REFERENCE IMAGE: Google Earth

BSK ASSOCIATES
691 N. Laverne Avenue #101
Fresno, California 93727
Tel. (559) 497-2880

BORING LOCATION MAP

Bar E Dairy
BIDA System
6730 Corona Avenue
Kingsburg, California

FIGURE 2

JOB NO. G24-000-445
DATE March 22, 2024
DR. BY TG
CH. BY NP
SCALE AS SHOWN
SHEET NO. 1
OF 1 SHEETS

C:\Users\tgonzalez\BSK Associates\BSK Documents - GEO\G24000445-Bar E Dairy - BIDA System\Graphics\G24000445.dwg User:tgonzalez Plotted:Mar 22, 2024 - 2:38pm Last Save:Mar 22, 2024 - 2:35pm

APPENDIX A

FIELD EXPLORATION

APPENDIX A
Field Exploration

The field exploration, conducted on March 20, 2024, consisted of a site reconnaissance and drilling three (3) exploratory test borings. The borings were drilled to depths of approximately 21.5 feet below ground surface (bgs) within the proposed improvement locations. The test borings were drilled with a truck-mounted drill rig, equipped with 8-inch augers. The approximate boring locations are presented on Figure 2.

The soil materials encountered in the test borings were visually classified in the field, and logs were recorded during the excavation and sampling operations. Visual classification of the materials encountered in the test borings were made in general accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart is presented herein. Boring logs are presented herein and should be consulted for more details concerning subsurface conditions.

Subsurface samples were obtained at the various depths shown on the boring logs by driving samplers which consisted of a 2.5-inch inside diameter (I.D.) lined with stainless sleeves and 1.4-inch I.D. Standard Penetration Test (SPT) sampler. The samplers were driven 18 inches using a 140-pound, automatic hammer dropping 30 inches. The number of blows required to drive the last 12 inches was recorded as the blow count (blows/foot) on the log of borings. The relatively undisturbed soil core samples were capped at both ends to preserve the samples at their natural moisture content. Disturbed soil samples were obtained using the Split-Spoon Sampler (marked X in logs) and were placed and sealed in polyethylene bags. At the completion of the field exploration, the test borings were backfilled with the soil cuttings, as set forth in BSK's proposal.

It should be noted that the use of terms such as "soft", "medium stiff", "very stiff," or "hard" to describe the consistency of a soil is based on sampler blow count and is not necessarily reflective of the in-place density or unit weight of the soils being sampled. The relationship between sampler blow count and consistency is provided in the following Tables A-1 and A-2 for coarse-grained (sandy and gravelly) soils and fine-grained (silty and clayey) soils, respectively.

Table A-1: Density of Coarse-Grained Soil versus Sampler Blow Count		
Consistency	**SPT Blow Count Blows / Foot)**	**2.5" I.D. Cal. Sampler (Blows / Foot)**
Very Loose	<4	<6
Loose	4 – 10	6 – 15
Medium Dense	10 – 30	15 – 45
Dense	30 – 50	45 – 80
Very Dense	>50	>80

Table A-2: Consistency of Fine-Grained Soil versus Sampler Blow Count		
Consistency	**SPT Blow Count (Blows / Foot)**	**2.5" I.D. Cal. Sampler (Blows / Foot)**
Very Soft	<2	<3
Soft	2 – 4	3 – 6
Medium Stiff	4 – 8	6 – 12
Stiff	8 – 15	12 – 24
Very Stiff	15 – 30	24 – 45
Hard	>30	>45

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 15% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 15% FINES	SM	SILTY SANDS, POOORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

■	Modified California	RV	R-Value
⊠	Standard Penetration Test (SPT)	SA	Sieve Analysis
☒	Split Spoon	SW	Swell Test
◪	Pushed Shelby Tube	TC	Cyclic Triaxial
	Auger Cuttings	TX	Unconsolidated Undrained Triaxial
	Grab Sample	TV	Torvane Shear
⊘	Sample Attempt with No Recovery	UC	Unconfined Compression
CA	Chemical Analysis	(1.2)	(Shear Strength, ksf)
CN	Consolidation	WA	Wash Analysis
CP	Compaction	(20)	(with % Passing No. 200 Sieve)
DS	Direct Shear	▽	Water Level at Time of Drilling
PM	Permeability	▼	Water Level after Drilling(with date measured)
PP	Pocket Penetrometer		

SOIL CLASSIFICATION CHART AND LOG KEY

Figure A-1

BSK ASSOCIATES

LGD A NNNN02 TEST.GPJ 5/10/18

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

Project: Bar E Dairy BIDA

Location: 6730 Corona Avenue, Kingsburg, CA 93631

Project No.: G24000445

Logged By: A. Sizemore

Checked By: N. Popenoe

Boring: **B- 1**

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1–4								SM	**Silty SAND (SM)** - grayish brown, moist, fine grained sand	Hand Augered to 5'
5–9			11	114.3	6.5	22			...brown, fine to medium grained sand ...loose	
10–14			24	98.2	4.6			SP	**Poorly Graded SAND (SP)** - medium dense, light gray, moist, fine to medium grained sand	
15–19			34	106.3	9.2			SP-SM	**Poorly Graded SAND with Silt (SP-SM)** - medium dense, brown with orange striations, moist, fine to medium grained sand	
20–21			32	91.5	3.6			SP	**Poorly Graded SAND (SP)** - medium dense, light gray, moist, fine grained sand	
22–29									Boring terminated at approximately 21.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75
Date Started: 3/20/24
Date Completed: 3/20/24

Surface Elevation:
Sample Method: 2.5" Modified California Sampler & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.

GEO_BORING LOGS.GPJ BSK.GDT 4/17/24

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

Project: Bar E Dairy BIDA

Location: 6730 Corona Avenue, Kingsburg, CA 93631

Project No.: G24000445

Logged By: A. Sizemore

Checked By: N. Popenoe

Boring: **B- 2**

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1–5								CL	**Sandy CLAY (CL)** - hard, grayish brown, moist, fine grained sand	
3			19	103.3	20.4	66				Pocket Penetrometer = 2.0
6			21	109.3	11.3			ML	**Sandy SILT(ML)** - hard, grayish brown, moist, fine grained sand	Pocket Penetrometer > 4.5
11			30						... very stiff, light gray with orange striations, increased sand content	Pocket Penetrometer = 4.25
16			22	92.8	2.3			SP	**Poorly Graded SAND (SP)** - medium dense, light gray, moist, fine to medium grained sand	Pocket Penetrometer = 3.5
21			37							
									Boring terminated at approximately 21.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75
Date Started: 3/20/24
Date Completed: 3/20/24

Surface Elevation:
Sample Method: 2.5" Modified California Sampler & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.

GEO_BORING LOGS.GPJ_BSK.GDT_4/17/24

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

Project: Bar E Dairy BIDA

Location: 6730 Corona Avenue, Kingsburg, CA 93631

Project No.: G24000445

Logged By: A. Sizemore

Checked By: N. Popenoe

Boring: **B- 3**

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1–5								ML	**Sandy SILT (ML)** - grayish brown, moist, fine grained sand	Pocket Penetrometer = 2.0
3			7	97.0	16.3	69				
6			20	107.2	11.7				... light gray with orange striations	Pocket Penetrometer > 4.5
11			18	106.0	7.1			SP-SM	**Poorly Graded SAND with Silt (SP-SM)** - medium dense, brown with orange striations, moist, fine to medium grained sand	
15								SP	**Poorly Graded SAND (SP)** - medium dense, light gray, moist, fine to medium grained sand	
16			22	104.2	3.6					
21			37							
22									Boring terminated at approximately 21.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75
Date Started: 3/20/24
Date Completed: 3/20/24

Surface Elevation:
Sample Method: 2.5" Modified California Sampler & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.

GEO_BORING LOGS.GPJ BSK.GDT 4/17/24

APPENDIX B

LABORATORY TESTING

APPENDIX B
Laboratory Testing

The results of laboratory testing performed in conjunction with this project are contained in this Appendix. The following laboratory tests were performed on soil samples in general conformance with applicable standards.

In-Situ Moisture and Density

The field moisture content and in-place dry density determinations were performed on relatively undisturbed samples obtained from the test borings. The field moisture content, as a percentage of dry weight of the soils, was determined by weighing the samples before and after oven drying in accordance with ASTM D2216 test procedures. Dry densities, in pounds per cubic foot, were also determined for undisturbed core samples in accordance with ASTM D2937 test procedures. Test results are presented on the boring logs in Appendix A.

Gradation

Three (3) #200 Wash Tests were performed on selected soil samples obtained at the time of drilling in the area of planned construction. The tests were performed to determine the amount of fine material present in the subsurface material. The tests were performed in general accordance with ASTM Test Method D1140. The test results are presented in the boring logs in Appendix A.

Direct Shear Test

One (1) direct shear test was performed on test specimens trimmed from a selected soil sample. The three-point shear test was performed in general accordance with ASTM D3080, Direct Shear Test for Soils under Consolidated Drained Conditions. The test specimens, each 2.42 inches in diameter and 1 inch in height, were subjected to shear along a plane at mid-height after allowing for pore pressure dissipation. The results of the test are presented in Figure B-1.

Collapse Potential Test

One (1) Collapse Potential test was performed on a relatively undisturbed soil sample to evaluate collapse potential characteristics. The tests were performed in general accordance with ASTM D5333. The sample was initially loaded under as-received moisture content to a selected stress level, loaded to a maximum load of 2000 psf, and then saturated. The test results are presented in Figure B-2.

Expansion Index Test

One (1) Expansion Index Test was performed on a bulk soil sample in the Site area. The test was performed in general accordance with UBC Standard 18-2. The tests results are presented on Figure B-3.

Soil Corrosivity

The results of chemical analyses performed on one (1) bulk soil sample using California Test Method 643 (for pH and minimum resistivity) and California Test Methods 417 and 422 (for soluble sulfate and chlorides, respectively), are presented below.

SUMMARY OF CHEMICAL TEST RESULTS

Sample Location	pH	Sulfate (mg/kg)	Chloride (mg/kg)	Minimum Resistivity (ohms-cm)
B-2 at 0-5´	7.5	400	150	460

Direct Shear Test

ASTM D-3080

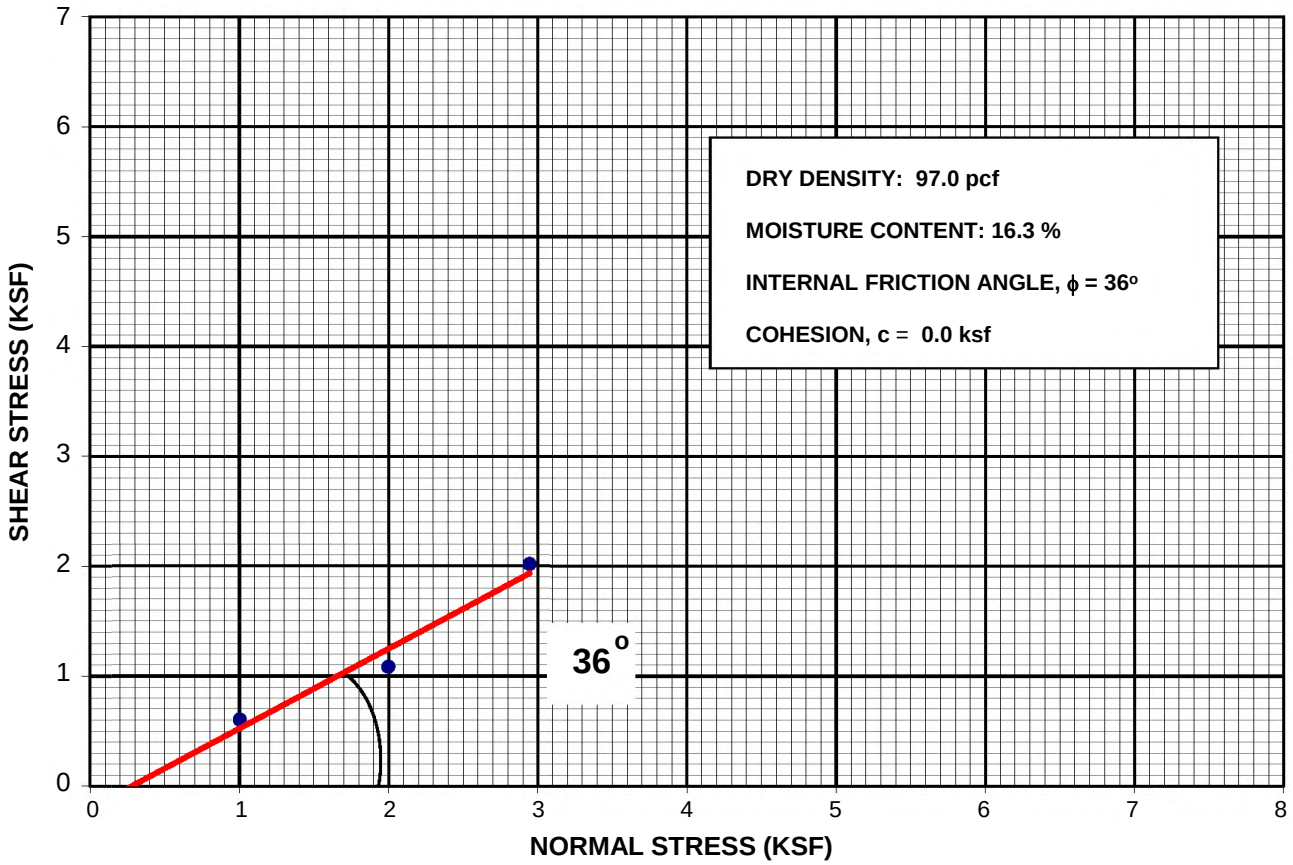
FIGURE B-1

691 N Laverne Ave,
Suite 101
Fresno, CA 93727
Ph: (559) 497-2880

Project Name:	Bar E Dairy BIDA System	**Sampled By:**	A. Sizemore	**Sample Date:**	3/20/2024
		Tested By:	D. Messfin	**Test Date:**	4/9/2024
Project Number:	G24000445	**Lab Tracking ID:**	N/A	**Report Date:**	4/17/2024

Sample Location: B-3 @ 3' **Sample Description:** Sandy Silt (ML) - very stiff, grayish brown, moist, fine grained sand

SHEAR STRENGTH DIAGRAM



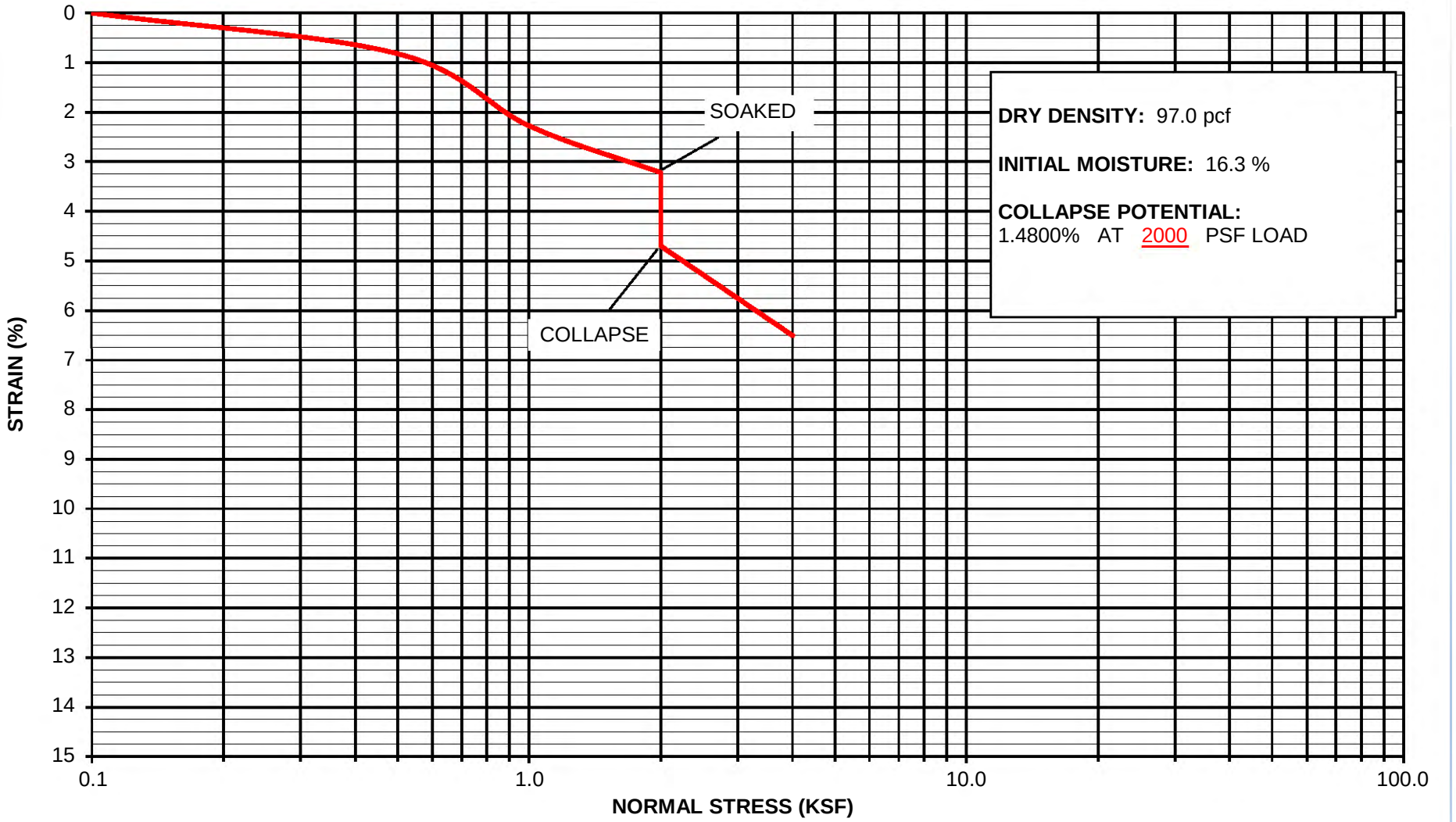
ASSOCIATES

691 N. Laverne, Suite 101
Fresno, CA 93727
Ph: (559) 497-2880

FIGURE B-2

COLLAPSE POTENTIAL
ASTM D-5333

Project Name:	Bar E Dairy BIDA System	**Sampled By:**	A. Sizemore	**Sample Date:**	3/20/24
		Tested By:	D.Messfin	**Test Date:**	4/4/24
Project Number:	G24000445	**Lab Tracking ID:**	N/A	**Report Date:**	4/16/24
Sample Location:	B - 3 @ 3'	**Sample Description:**	Sandy Silt (ML) - very stiff, grayish brown, moist, fine to coarse grained sand		



ASSOCIATES

Expansion Index of Soils

ASTM D 4829 / UBC Standard 18-2

FIGURE B-3

691 N. Laverne, Suite 101
Fresno, CA 93727
Ph: (559) 497-2868

Project Name: Bar E Dairy BIDA System
Report Date: 4/11/2024
Project Number: G24000445
Sample Date: 3/20/2024
Lab Tracking ID: N/A
Test Date: 4/11/2024
Sample Location: B - 2 @ 0 - 5'
Sample Source
Sampled By: A. Sizemore **Tested By:** D.Messfin **Reviewed By:** N. Popenoe

TEST DATA

INITIAL SET-UP DATA			
Sample + Tare Weight (g)	763.8		
Tare Weight (g)	375.2	**FINAL TAKE-DOWN DATA**	
		Moisture Content Data	
Wet Weight + Tare	134.2	Wet Weight + Tare	792.0
Dry Weight + Tare	123.42	Dry Weight + Tare	717.0
Tare Weight (g)	20.63	Tare Weight (g)	374.0
Moisture Content (%)	10.5%	Moisture Content (%)	21.9%
Initial Volume (ft^3)	0.007272	Final Volume (ft^3)	0.007426
Remolded Wet Density (pcf)	117.8	Final Wet Density (pcf)	127.3
Remolded Dry Density (pcf)	106.7	Final Dry Density (pcf)	104.4
Degree of Saturation	**49**	**Degree of Saturation**	**96**

EXPANSION READINGS

Initial Gauge Reading (in)	0.308
Final Gauge Reading (in)	0.32915
Expansion (in)	0.02115

Uncorrected Expansion Index	**21**
Corrected Expansion Index, EI	**20**

Classification of Expansive Soil

EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

APPENDIX B.2

GROUNDWATER EVALUATION REPORT

GROUNDWATER EVALUATION REPORT

BAR E DAIRY

June 10, 2024

PREPARED FOR:

BAR E DAIRY
6970 CORONA AVENUE
KINGSBURG, CA 93631

COMPLETED BY:



324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

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I. Hydrogeologic Setting 1

II. Depth to First Groundwater 1

III. Depth to First Usable Groundwater for Human Consumption 2

IV. Proximity to Watercourses 2

V. References 3

ATTACHMENTS

A. Depth to Groundwater
B. Central Valley Dairy Representative Monitoring Program Letter

I. Hydrogeologic Setting

The site is located within the Central Valley, which is a structural trough about 400 miles long, 20 to 70 miles wide. Rocks beneath the Hanford-Visalia area can be generally divided into three groups.

The first group are pre-Tertiary metamorphic and igneous basement complex rocks at considerable depth and are not exposed beneath the site. These rocks form the relatively impermeable surface at the base of the valley and have been encountered at a depth greater than 14,000-feet beneath the Tulare Lake bed.

The second group are consolidated Tertiary marine rocks containing saline water that overlie the basement rocks. Above the marine rocks are freshwater-bearing unconsolidated Tertiary and Quaternary continental deposits, lacustrine and marsh deposits, younger and older alluvium, and flood basin deposits that are a maximum of 3,000-feet thick near the valley axis. Groundwater pumped within the site area is from the freshwater-bearing unconsolidated deposits.

The lacustrine and marsh deposits near the area of the Tulare Lake bed form clay lenses that interfinger with the alluvial deposits. The most significant clay zones include the A-clay, B-clay, C-clay, D-clay, and E-clay. These clay beds form confined groundwater conditions beneath the site.

In particular, a lens of coarse sand, silty sand and clay, described by Croft and Gordon (1968) as older alluvium is located between the C-clay and E-clay, underlies the City of Corcoran, and is approximately 200-feet thick. This tongue, and the older deposits beneath the E-clay, are the major aquifers in the area. Many wells in the area penetrating this deposit are 200 to 400-feet deep and have yields of up to 2,000-gallons per minute.

The aquifer system above the A-clay, which occurs 40 to 50-feet below land surface near the site, is unconfined. The aquifer systems between the A-clay and C-clay is confined and the aquifer system beneath the E-clay is confined. Water levels in the shallowest aquifer above the A-clay are less than 10-feet below ground surface.

II. Depth to First Groundwater

Per the Kings County Dairy Element, “minimum separation from bottom of (lined and unlined) lagoons, manure and feed storage areas, and corrals shall be at least five (5) feet to the highest recorded groundwater level”.

BSK Associates conducted a geotechnical investigation at the Site on March 20, 2024. Three borings installed at the proposed dairy expansion area were completed at approximately 21.5 feet below ground surface (bgs). Groundwater was not encountered in the three borings. The Department of Water Resources indicates the depth to recent regional groundwater at the project site is greater than 170-feet bgs. The proposed BioFiltro (BIDA) wastewater processing beds will be built at ground level while maintaining a minimum of 5 feet above the highest groundwater level.

III. Depth to First Usable Groundwater for Human Consumption

Groundwater data was downloaded from DWR's Groundwater Information Center Map Interface. Depth to groundwater data from spring 2023 were selected and groundwater contours were constructed from the DWR monitoring data. Based on the DWR data, depth to usable freshwater is approximately 170-feet bgs (Attachment A of Groundwater Evaluation Report). The groundwater contours show groundwater flow beneath the site is southeast to northwest.

Safeguards to protect the water source include mitigation such as best management practices of farm operations to reduce or minimize introduction of contaminants to the potable water sources. Best management practices include wellhead protection and techniques during farming operations to minimize infiltration of chemicals such as following nutrient management and waste management plans.

Other safeguards include measures to ensure cross-contamination from shallow groundwater to deeper potable groundwater does not occur. This can be performed by ensuring well construction methods do not allow affected groundwater to communicate with deeper potable freshwater zones.

Wellhead protection measures should be implemented to protect potable water sources. These protection measures include public education, proper toxic and hazardous materials handling, ensuring private well and septic system setbacks are adequate, contingency planning in case of a contaminant release, hazardous waste collection, wellhead monitoring, and delineation of groundwater zones (as described above).

Physical geologic barriers act as hydrogeologic boundaries and include confining layers such as the lacustrine and marsh deposits (A through E-clay) encountered beneath the site. These clay layers act as natural barriers from migrating groundwater. Aquifers between these natural barriers should be protected by proper well construction techniques such as properly sealing the well annulus between confining layers.

IV. Proximity to Watercourses

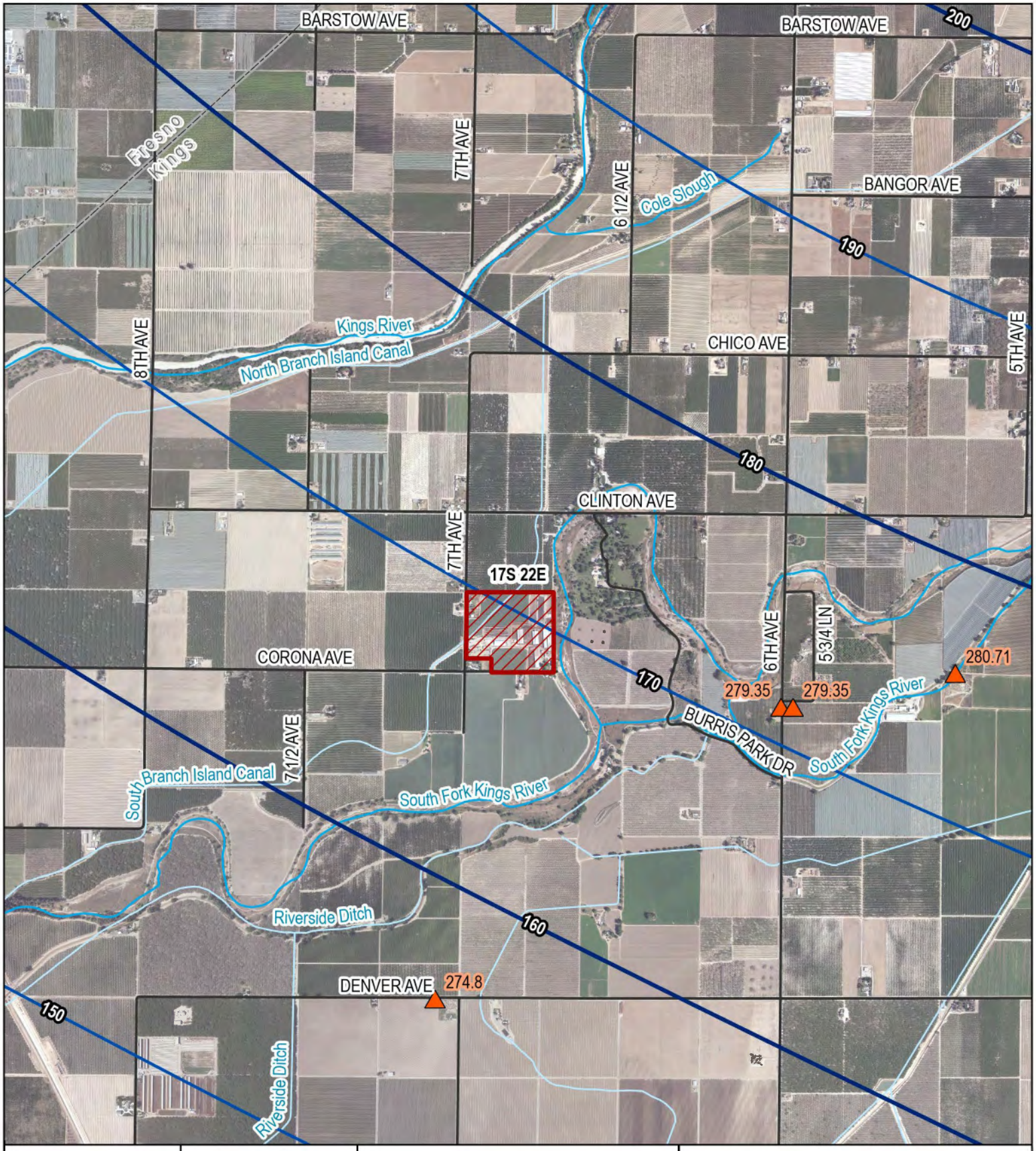
There are no surface waterways that cross the site. The nearest surface waterway is the Kings River, which runs approximately 300 feet east of the production area.

V. References

Croft, M.G., and Gordon, G.V., 1968, Geology, Hydrology, and Quality of Water in the Hanford-Visalia Area San Joaquin Valley, California, United States Department of the Interior Geological Survey, Water Resources Division, Open-File Report 68-67, 68p.

Popenoe, Neva. Geotechnical Engineering Investigation Report. Rep. no. G00-001-528. Fresno: BSK Associates, 2023. Print

Page, R.W., 1986, Geology of the Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections, Regional Aquifer System Analysis, United States Geological Survey Professional Paper 1401-C, United States Government Printing Office, Washington.



4CREEKS

Created by 4Creeks: 3/13/24

N

1 in = 0.4 miles

0 0.2 0.4 0.8 Miles

324 S. Santa Fe Ave. Ste. A
Visalia, CA 93292
(559) 802-3052

Legend

- Counties
- Bar E Dairy
- Waterways
- Canal / Ditch
- Roads
- 20 ft Contour Intervals
- 10 ft Contour Intervals
- Well Locations

ATTACHMENT B
Depth to Groundwater

Spring 2023

Central Valley Dairy Representative Monitoring Program

For the benefit of dairy producers, cattle operators and water quality across our valley

Board Members

Justin Gioletti
Chairman
District 4
(Stanislaus County)

Jeff Troost
Vice Chairman
District 2
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Greg Hooker
Secretary
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Vacant
District 4
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District 5
(Other Central Valley Counties)

Vacant
District 5
(Other Central Valley Counties)

Lucy Areias
At-large

Scott Wickstrom
At-large

March 13, 2024

Tyler Esteves, EIT
4Creeks, Inc.
324 S. Santa Fe Street, Suite A
Visalia, CA 93292

RE: Bar E Dairy, 6740 Corona Avenue, Kingsburg, CA 93631

Dear Mr. Esteves,

This letter confirms that Bar E Dairy, 6740 Corona Avenue, Kingsburg, CA, is currently a member in good standing in the Central Valley Dairy Representative Monitoring Program (CVDRMP).

Please feel free to contact me with any questions at 916-594-9450 or cvdrmp@gmail.com

Thank you for your attention to this matter.

James Garner
CVDRMP Administrator

P.O. Box 227 · Sacramento, CA 95812 · (916) 594-9450 · cvdrmp@gmail.com

APPENDIX B.3

PRELIMINARY SOILS REPORT

PRELIMINARY SOILS REPORT

BAR E DAIRY

June 10, 2024

PREPARED FOR:

BAR E DAIRY
6970 CORONA AVENUE
KINGSBURG, CA 93631

COMPLETED BY:



324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

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I. Soils Evaluation

On March 20, 2024 BSK Associates conducted a field exploration including a site reconnaissance and drilling test soil borings for geotechnical subsurface soil sampling. Soil boring B-1 was drilled at the southwest corner of the proposed BioFiltro (BIDA) processing beds location. Soil boring B-2 was drilled at near the location of the proposed process pit location. Soil boring B-3 was drilled at the northeast corner of the facility.

Soil borings B-1, B-2, and B-3 were all terminated at approximately 21.5 feet below ground surface. Groundwater was not encountered in any of the three borings. A Geotechnical Engineering Investigation Report was prepared for the site by BSK Associates and is included in Appendix B.1.

The following is a summary of soil types at the dairy expansion area as reported by the Natural Resources Conservation Service (NRCS) Web Soil Survey. An NRCS Custom Soil Resource Report was prepared for the site and includes general physical and engineering properties of the soil types (Attachment A).

The dairy expansion area overlies Grangeville fine sandy loam, Nord fine sandy loam, and Wasco sandy loam map units. Physical and engineering properties of each soil type from the NRCS summary report are discussed below.

1. Grangeville Fine Sandy Loam

The Grangeville fine sandy loam overlies a majority of the production area and expansion area. Parent material is alluvium derived from granite. Typical profiles are an A horizon of fine sandy loam 0 to 10 inches thick and a C horizon of stratified sandy loam to fine sandy loam 10 to 60 inches thick. This soil forms on 0 to 1% slopes and is somewhat poorly drained. This soil has a high saturated hydraulic conductivity (capacity to transmit water) from 1.98 to 5.95 inches per hour. Depth to the water table is about 0 inches. This soil contains a maximum of 5% calcium carbonate, is nonsaline to very slightly saline from 0.0 to 2.0 mmhos/cm, and the maximum sodium adsorption ratio in profile is 0.

- Engineering Properties

This soil has a low rating for corroding concrete and a high rating for corrosion of steel. Shallow excavation to approximately six feet is very limited based on unstable excavation walls. Soil properties for small commercial buildings less than three stories high with no basements are very limited. Soil properties for unpaved local roads, local roads, and streets are very limited. Erosion hazards are slight. The soil has a 0% rating for gypsum. The plasticity index is 2.5 percent. The liquid limit rating is 25.0 percent. The soil has a maximum of 13.0% clay, 70.0% sand, and 17.0% silt. The Unified Soil Classification System rating is SM (silty sands and poorly graded sand-silt mixtures). The AASHTO rating is A-4, which classifies the soil as silty-clay material (more than 35% passing the number 200 sieve).

2. Nord Fine Sandy Loam

The Nord fine sandy loam overlies a majority of the production and expansion area. Parent material is alluvium derived from sedimentary rock and/or igneous rock. Typical profiles are an A horizon of fine sandy

loam 0 to 18 inches thick and a C horizon of stratified sandy loam to loam 18 to 72 inches thick. This soil forms on 0 to 1% slopes and is well drained. This soil has a moderately high to high saturated hydraulic conductivity (capacity to transmit water) of 0.57 to 1.98 inches per hour. Depth to the water table is greater than 80 inches. This soil contains a maximum of 5% calcium carbonate, is nonsaline to very slightly saline from 0.0 to 2.0 mmhos/cm, and the maximum sodium adsorption ratio in profile is 0.

- Engineering Properties

This soil has a low rating to corrode concrete and a high rating for corrosion of steel. Shallow excavation to approximately six feet are somewhat limited based on unstable excavation walls. Soil properties for small commercial buildings less than three stories high with no basements are not limited. Soil properties for unpaved local roads, local roads, and streets are not limited. Erosion hazards are slight. The soil has 0% rating for gypsum. The plasticity index is 2.5 percent. The liquid limit rating is 25.0 percent. The soil has a maximum of 14.0% clay, 70.0% sand, and 16.0% silt. The Unified Soil Classification System rating is SM (silty sands and poorly graded sand-silt mixtures). The AASHTO rating is A-4, which classifies the soil as silty-clay material (more than 35% passing the number 200 sieve).

3. Wasco Sandy Loam

The Wasco sandy loam overlies a minority of the production area and expansion area. Parent material is alluvium derived from sandstone. Typical profiles are an A horizon of sandy loam 0 to 20 inches thick and a C horizon of sandy loam 20 to 60 inches thick. This soil forms on 0 to 5% slopes and is somewhat poorly drained. This soil has a high saturated hydraulic conductivity (capacity to transmit water) from 1.98 to 5.95 inches per hour. Depth to the water table is greater than 80 inches. This soil contains a maximum of 5% calcium carbonate, is nonsaline to very slightly saline from 0.0 to 2.0 mmhos/cm, and the maximum sodium adsorption ratio in profile is 0.

- Engineering Properties

This soil has a low rating for corroding concrete and a moderate rating for corrosion of steel. Shallow excavation to approximately six feet is somewhat limited based on unstable excavation walls. Soil properties for small commercial buildings less than three stories high with no basements are not limited. Soil properties for unpaved local roads, local roads, and streets are somewhat limited. Erosion hazards are slight. The soil has a 0% rating for gypsum. The plasticity index is 2.5 percent. The liquid limit rating is 22.5 percent. The soil has a maximum of 13.0% clay, 67.4% sand, and 19.6% silt. The Unified Soil Classification System rating is SM (silty sands and poorly graded sand-silt mixtures). The AASHTO rating is A-2, which classifies the soil as a granular material (less than 35% passing the number 200 sieve).

II. Discussion and Recommendations

1. Grading and Excavation

Excavations should not exceed 5 feet deep. If greater than 5 feet, shoring should be provided. Grading should be completed to ensure drainage away from structures.

2. Compaction

Exposed native soils should be scarified and to at least 90% maximum density. Engineered fill should be placed in a maximum of 8 inch lift and compacted at or near optimum moisture to achieve at least 90% of the maximum dry density.

3. Drainage and Erosion Control

Finished grade should be sloped to allow surface water to drain away from structures and restrict ponding. Rock up to 2 inches should be placed as a minimum 2-foot wide apron around the perimeter of each new slab to minimize soil erosion at the slab/soil interface.

4. Surface Drainage

Finished grade should allow surface drainage to be directed away from structures and toward a collection system such as an onsite wastewater lagoon or tailwater basin.

5. Expansive Soils

Based on the soil types observed in soil borings, NRCS soil descriptions, and geotechnical laboratory tests, expansive soils are not present at the site. The soil characteristics do not indicate the need for additional structural reinforcement requirements for any building or potential leakage of contaminants.

6. Slabs on grade and pavements

Concrete slabs on grade should be placed on at least 8 inches of compacted subgrade or engineered fill. Slabs are recommended to be reinforced with rebar placed 18 inches on center.

III. References

Popenoe, Neva. Geotechnical Engineering Investigation Report. Rep. no. G24-000-445. Fresno: BSK Associates, 2024. Print

USDA, Web Soil Survey, http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

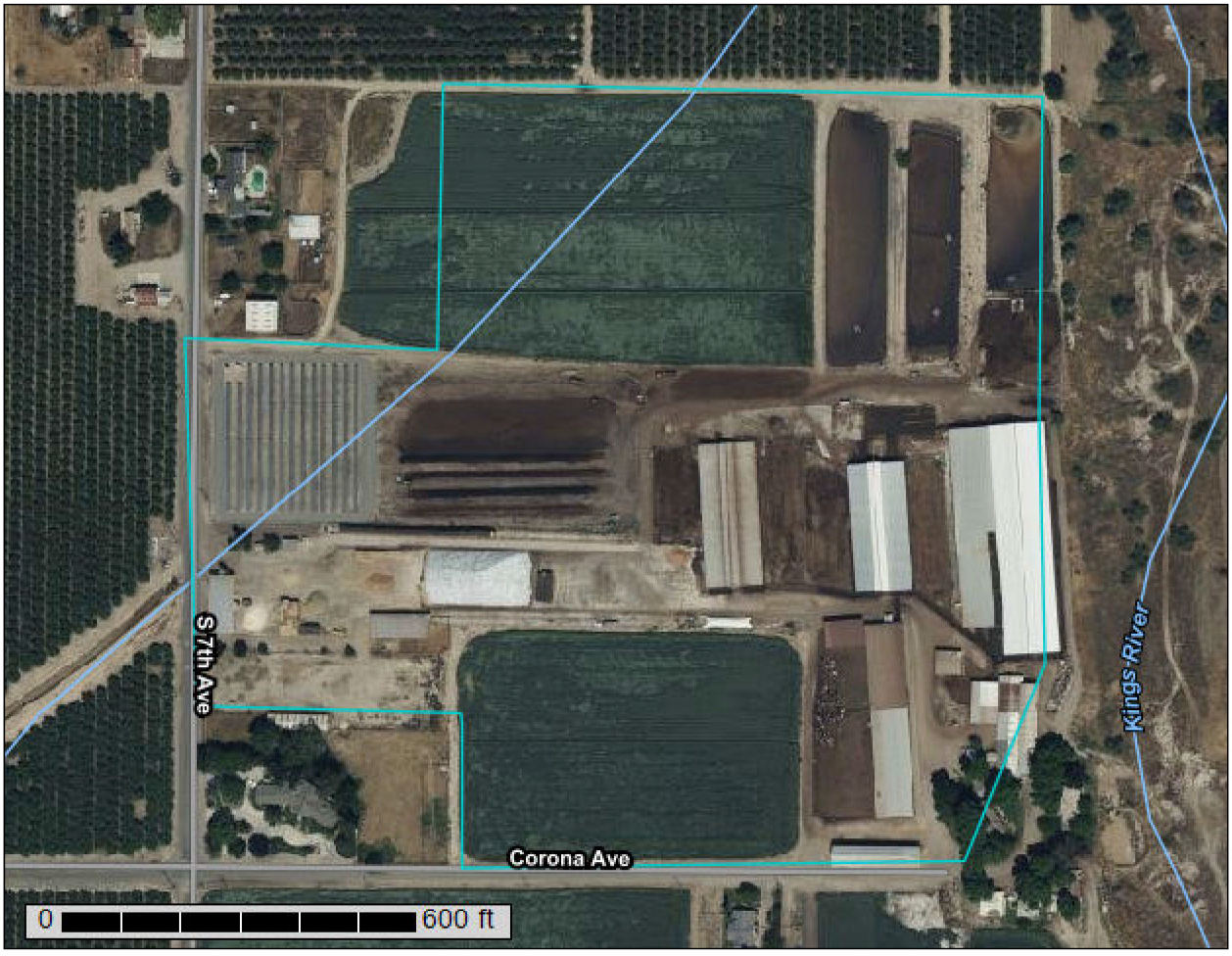
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Kings County, California



April 25, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


119° 35' 3" W
119° 34' 33" W
36° 26' 56" N
36° 26' 41" N
268390
268470
268550
268630
268710
268790
268870
268950
269030
269110
4036870
4036790
4036710
4036630
4036550
4036470
4036390
120
174
147
S 7th Ave
Corona Ave
Soil Map may not be valid at this scale.
Map Scale: 1:3,410 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
50
100
200
300
Feet
0
150
300
600
900
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kings County, California
Survey Area Data: Version 19, Aug 31, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 16, 2022—May 30, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
120	Grangeville fine sandy loam, partially drained	20.2	56.6%
147	Nord fine sandy loam	13.5	37.8%
174	Wasco sandy loam, 0 to 5 percent slopes	2.0	5.6%
Totals for Area of Interest		**35.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Kings County, California

120—Grangeville fine sandy loam, partially drained

Map Unit Setting

National map unit symbol: hhj5
Elevation: 210 to 290 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Grangeville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

A - 0 to 10 inches: fine sandy loam
C - 10 to 60 inches: stratified sandy loam to fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A/D
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: Yes

Minor Components

Nord

Percent of map unit: 4 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Kimberlina

Percent of map unit: 3 percent
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Whitewolf

Percent of map unit: 3 percent
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Vanguard

Percent of map unit: 3 percent
Landform: Flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: Yes

Wasco

Percent of map unit: 2 percent
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

147—Nord fine sandy loam

Map Unit Setting

National map unit symbol: hhk1
Elevation: 210 to 290 feet
Mean annual precipitation: 8 to 9 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 250 to 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nord and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nord

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or igneous rock

Typical profile

A - 0 to 18 inches: fine sandy loam
C - 18 to 72 inches: stratified sandy loam to loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Grangeville

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: Yes

Lakeside

Percent of map unit: 3 percent
Landform: Rims
Hydric soil rating: Yes

Kimberlina

Percent of map unit: 2 percent
Hydric soil rating: No

Cajon

Percent of map unit: 2 percent
Hydric soil rating: No

Nor, saline-alkali

Percent of map unit: 2 percent
Hydric soil rating: No

Whitewolf

Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, rare flooding

Percent of map unit: 1 percent
Landform: Sloughs
Hydric soil rating: Yes

Unnamed, rare flooding

Percent of map unit: 1 percent
Hydric soil rating: No

174—Wasco sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hhkx
Elevation: 250 to 3,700 feet
Mean annual precipitation: 4 to 7 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 210 to 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Wasco and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wasco

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 20 inches: sandy loam
C - 20 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Kimberlina
Percent of map unit: 3 percent
Hydric soil rating: No

Cantua
Percent of map unit: 3 percent
Hydric soil rating: No

Kettleman
Percent of map unit: 3 percent
Hydric soil rating: No

Cajon
Percent of map unit: 2 percent
Hydric soil rating: No

Panoche
Percent of map unit: 2 percent
Hydric soil rating: No

Avenal
Percent of map unit: 2 percent
Hydric soil rating: No

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