BASIS OF DESIGN

CDB #321-055-138
REPLACE POWER PLANT
ELGIN MENTAL HEALTH CENTER
DEPARTMENT OF HUMAN SERVICES
ELGIN (KANE COUNTY), ILLINOIS
CDB BUILDING INV. NO. DHS055-0001 (New Power Plant)
CONTRACT: BRIDGING DOCUMENTS

State of Illinois

CAPITAL DEVELOPMENT BOARD

USING AGENCY: ILLINOIS DEPARTMENT OF HUMAN SERVICES

BY: STANLEY CONSULTANTS, INC.
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DATE: April 22, 2021

License Expiration Date: 11/30/21

Signature:

Date Signed: 1/18/21

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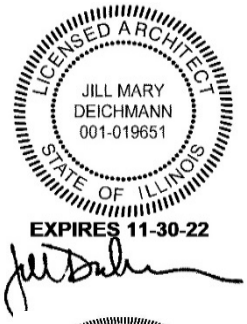

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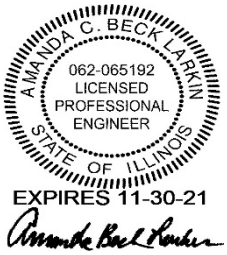

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Section 1

Project Background

1.1 General Facility Description

The Elgin Mental Health Center (EMHC) is a 53-building facility established in 1872. The North Campus is currently under the ownership of The City of Elgin which includes Middle Road. The current powerplant and support structures are located on five acres still under State ownership. The five acres are completely encompassed by property owned by The City of Elgin with the exception of a 66 foot wide easement that traverses from the existing power plant, south to Middle Road, where it traverses Middle Road onto the State's property.

1.2 Project Scope Summary

The location for the new power plant will be located south of Middle Road and north of the Rehab Center on the curb surrounded lawn area. The existing power plant will be abandoned in place and no demolition will be required as part of this project. The proposed site for the new power plant included a hospital building. The building was demolished in 1997.

Elements of the project include constructing a new power plant on the Elgin campus which will provide sufficient power and steam to serve campus demand. The new power plant's equipment will provide a reliable and economical central heating and power facility. Components of this project will be reviewed for eligible grants or rebates from the utility company. Major design features will include the following elements:

- New steam and electrical generation
- Decommissioning of the existing power plant
- Required infrastructure expansion or modification
- Maintenance workspace and vehicle storage
- On-site fuel for backup generation

- Alternate 1: Remote storage for road salt
- Alternate 2: Asbestos abatement of the existing power plant

The basis of design will utilize natural gas boilers for steam production and connect to the existing campus steam distribution system. The steam system must be self-sustaining for 96 hours. Full load capacity is required while one boiler is down for maintenance and another has an unscheduled shutdown. This is considered an N+2 configuration of the boilers. The boilers and support systems will be designed to allow for this type of redundancy and resiliency for this critical infrastructure campus.

The existing ComEd switchyard will need to be decommissioned. New electrical power will be provided for the power plant. Full load campus backup of electrical power will be provided. Fuel for backup generation shall be provided for a 96 hour duration.

Backup electrical generation will be provided within this project. Current generators located throughout the campus primarily support life safety features of the facility buildings. They do not fully support HVAC, lighting, and other features of the buildings. The new power plant will include 100% back-up generation for the entire campus.

The design will incorporate the support services currently within the five acres on the North Campus. This includes trade shops, transport, grounds maintenance and associated equipment.

Section 2

Site Civil

2.1 Basis of Design

Industry / Local Codes and Standards:

1. Illinois Environmental Barriers Act - IEBA
2. Illinois Accessibility Code – IAC
3. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction (SSRBC), latest edition including all addenda
4. Standard Specifications for Water & Sewer Construction in Illinois, 8th Edition
5. Illinois Department of Transportation (IDOT): Bureau of Local Roads and Streets Manual, latest edition including all addenda

Government Regulations:

1. Americans with Disabilities Act (ADA): ADA Standards for Accessible Design, 2010 Edition
2. U.S. Environmental Protection Agency (EPA): EPA 40 CFR – U.S. Environmental Protection Agency Regulations
3. U.S. Environmental Protection Agency (EPA): National Pollutant Discharge Elimination System (NPDES), Stormwater Pollution Prevention Plans for Construction Activities
4. U.S. Department of Labor Occupational Safety and Health Administration (OSHA): OSHA29 CFR 1926 – Safety and Health Regulations for Construction

2.2 General Description

The proposed construction of the New Power Plant, to be located in the approximately 1.75-acre greenspace area bounded by the access road (west), Middle Road (north), Central Road (east), and an existing asphalt parking lot (south), will require a site development plan, to include the following design elements:

1. Site Preparation and Grading Plan:
    a. Site preparation to include tree removal, clearing, grubbing, and topsoil stripping within the limits of the proposed site that conflict with proposed improvements shall be in accordance with the IDOT SSRBC.
    b. All greenspace areas within the limits of the site shall have grading designed to create positive drainage away from the proposed building footprint, to either the proposed asphalt parking lot or the existing adjacent roadways.
2. Stormwater Management Plan:
    a. Erosion Control & Stormwater Pollution Prevention Plan (SWPPP)
        i. The proposed site shall incorporate erosion and sedimentation control measures to prevent water pollution via non-compliant runoff leaving the site during construction.
        ii. Proposed measures include:
            1. Erosion control blanket installed to protect seeding, if applicable
            2. Filter screens/baskets installed in existing catch basins located in the curb flowlines on the adjacent roadways
        iii. All erosion and sediment control measures shall be designed and installed in accordance with federal, state, and local requirements.
    b. Proposed Site Stormwater Drainage Plan
        i. All greenspace areas within the limits of the site shall have grading designed to drain away from the proposed building footprint, to either the proposed asphalt parking lot or the existing adjacent roadways.
        ii. The proposed parking lot shall be graded such that all surface water within the limits of the parking lot flows to proposed open-grate storm sewer structures, such as inlets, catch basins or manholes.
        iii. All stormwater captured by the proposed site drainage system shall be conveyed via proposed stormwater pipes, to be connect to the existing Elgin Mental Health Center drainage system.
        iv. Design of all stormwater systems shall be in compliance with the SSRBC and SSWSC.
3. Asphalt Parking Lot & Concrete Flatwork
    a. Proposed Paved Asphalt Parking Lot
        i. The location of the asphalt parking lot shall be designed such that it provides access from the west access road to the west, Central Road to the east, and the road connecting the west access road and Central road to the south.
        ii. Proposed quantities and layout of parking stalls shall be in accordance with federal, state, and local codes, and ADA design guidelines.
        iii. A proposed post-mounted lighting system shall be designed and installed to properly illuminate all areas of the parking lot and shall be in compliance with all federal, state and local requirements.
    b. Concrete Flatwork
        i. Proposed sidewalk within the limits of the proposed improvements shall ensure access to all entry and exit points of the New Power Plant at the ground floor.
        ii. Sidewalk designs and configurations shall be in accordance with federal, state, and local codes, and ADA design guidelines.
4. Additional Proposed Site Utilities
    a. Sanitary Sewer Connection

i. All sanitary sewer waste generated by the New Power Plant shall discharge the facility via PVC sanitary sewerage piping, to be connect to the existing Elgin Mental Health Center sanitary sewer system.
ii. New sanitary service connection shall be permitted through the Illinois Environmental Protection Agency (IEPA) and installed to meet all IEPA requirements.
iii. Design and installation of all sanitary sewerage components shall be in accordance with the Standard Specifications for Water & Sewer Construction in Illinois.

b. Domestic Water Supply Connection
   i. All domestic water to be supplied to the New Power Plant shall be delivered to the facility by means of a proposed ductile iron watermain pipe, to be connect to the existing Elgin Mental Health Center domestic water supply system.
   ii. Design and installation of all domestic water components shall be in accordance with the SSWSC.

2.3 Performance Requirements

Several site design elements shall be analyzed and considered to ensure that the proposed site improvements accommodate the needs of the New Power Plant facility and its users and will continue to perform as intended for the design life of the facility. The following design elements that shall be analyzed include:

1. Site Preparation and Grading Plan:
   a. Proposed grading across the site shall not be steep in nature to avoid long term damage to the site at grade and shall not allow for ponding or unsafe pedestrian travel.
   b. Existing vegetation within the limits of the site shall not be removed unless it has been determined to be in direct conflict with proposed site improvements.
2. Asphalt Parking Lot & Concrete Flatwork
   a. Design of the proposed parking lot spaces shall at a minimum account for the required number of accessible parking spaces.
   b. Design of the proposed concrete shall be aesthetically pleasing, functional, and provide for safe pedestrian travel
3. Proposed Site Utilities
   a. Sizing and selection for all of the proposed site utilities shall take into consideration for current and future occupancies.

2.4 User Requirements

The User has requested that the New Power Plant parking lot provide, at a minimum, access from the west access road to the west and Central Road to the east.

2.5 Options

At this time, only one proposed site plan is being considered, which encompasses the following design criteria:

1. Proposed site grading and drainage plans that shall provide for positive drainage away from the New Power Plant facility, by means of both surface and pipe conveyance methods.

2. Proposed asphalt parking lot with concrete curb and gutter and post-mounted lighting, providing access to the New Power Plant from both the west access road and Central Road, with adequate regular and accessible parking stalls, in accordance with ADA guidelines
3. Concrete flatwork providing access to the New Power Plant at all entry and exit points at ground level, in accordance with ADA guidelines
4. Connection of the New Power Plant to the existing site utilities using cost effective and long-lasting materials such as PVC and reinforced concrete pipe meeting ASTM D3034, AWWA C900, and/or ASTM C76 at points that minimize the disturbance to adjacent areas within the Elgin Mental Health Center campus.

Section 3

Architectural, LEED, and Fire Protection

3.1 Basis of Design

- Building (commercial) - 2018 International Building Code
- Electrical - 2017 National Electrical Code
- Plumbing - 2014 State of Illinois Plumbing Code
- Mechanical - 2018 International Mechanical Code
- Fire - 2018 International Fire Code
- Accessibility - 2018 State of Illinois Accessibility Code
- Life Safety - 2015 [NFPA 101]
- Energy (commercial and industrial) - 2018 State of Illinois Energy Conservation Code
- Local Amendments

3.2 General Description

Architectural

- The New Power Plant is to be constructed on the Elgin Mental Health Center on land designated by the EMHC. The building will aesthetically blend with the existing buildings on site. The site is located south of Middle Road on property of the State. The new power plant is approximately 30,000 square feet.
- Location of the new power plant will allow for minimal disruption to the existing EMHC and will allow utility connection to existing tunnels that are in proximity.

- Exterior on site there will be (2) fuel storage tanks, an electrical transformer and parking. The new power plant will be a 1-story building with a double height space at the boiler room, generator room and electrical room. There will be a mezzanine with access from the electrical room and a separate access from the boiler room.
- The building will contain the boilers, generators, switchgear, offices, trade workrooms and vehicle storage. The overall footprint of the building is based on the equipment that needs to support the EMHC.
- The functional relationship of the utility spaces within the new power plant, along with the type and amount of equipment, dictates the size and shape of the building layout.
- The switchgear and electrical distribution rooms are relative to the operation of the generator room, as a result the spaces allocated for each function are positioned within the floor plan to allow for this functional compatibility.
- The trades rooms will be adequately sized and located to facilitate the needs of the site engineers.

Sprinkler System

- The power plant will be fully sprinklered throughout by an automatic, wet sprinkler system. The system will be electronically supervised.
- Sprinklers may be omitted from certain electrical spaces provided the criteria of NFPA 13 is met (room rating, equipment type, alternative detection, etc).
- At this time available water pressure at the site has not been provided, it is assumed based on the height and area of the building a fire pump will not be required

3.3 Performance Requirements

Architectural

- The exterior walls of the building will be constructed with an insulated masonry cavity wall with face brick and CMU backup.
- The interior walls will be constructed of CMU walls with hollow metal doors and frames.
- There will be a structural steel superstructure with concrete slab on grade that will be sealed.
- There will be a metal roof deck on steel bar joists and tapered roof insulation
- There will be fixed windows and operable louvers along the exterior façade of the building.
- There will be one canopy at areas where vehicles can access the building and be partially covered from the elements.
- The boiler room, electrical switchgear room, generator room and vehicle storage bays will be separated from the adjacent occupancies with rated enclosures.

Sustainability

- Although this new building is not required to meet USGBC's certification requirements – the following items are to be concerned when designing to meet the intent of sustainable design principals for this project.
  - To be sensitive the environment, the existing site location was previously used as a hospital that was demolished years ago. The site is being reused for the New Power Plant.
  - The site is to contain parking, at a limited capacity, electric vehicle charging, limited removal of existing trees and will create a walkable connection to the EMHC facilities.
  - The roofing material is to have a high reflectance requirement
  - Reduction of light pollution will be incorporated within the design from interior light spillage, exterior building lighting and site lighting
  - Reduction of exterior and interior water use will be incorporated in the design.
  - Materials used for construction to be environmentally friendly and locally sourced
  - Install walk off mats at all main entry doors

Sprinkler System

- The incoming water service will be a combined service, see plumbing and civil sections for more details
- The fire protection side of the incoming water service will be provided with a double check valve detector assembly
- The New Power Plant will be largely Ordinary 1 hazard classification with some auxiliary light hazard spaces
- All equipment must be FM approved and UL listed for the use in fire protection systems
- Piping 2" and smaller shall be schedule 40 black steel with threaded couplings
- Piping 2-1/2" and larger shall be schedule 10 black steel with grooved couplings

3.4 User Requirements

Architectural

- The new power plant will contain individual trade rooms that will have space allocated for existing equipment, machines, and materials from the existing power plant.
- There will be interior vehicle storage bays with area allocated for maintenance of vehicles, with the option of possible tandem bays for storage of equipment, materials and vehicles.
- There will be toilet, shower and locker areas for the employees.

- Based on the occupancy requirements for space requirements and fixtures calculations in the Illinois Plumbing Code the following fixture quantities are required on the existing area of the proposed building. At least 1 fixture of every type to be ADA compliant:
    - 3 water closets per gender
    - 2 lavatories per gender
    - 3 showers per gender
    - 1 drinking fountain for the building
- There will be a break room for employee use
- Approximate sizes of areas are listed below:
    - Boiler Room: 65'x90' with an operator's station 18'x10' that will have access to the mezzanine.
    - Switchgear Room: 60'x40' that will have access to the mezzanine that will house low voltage equipment and a telecom room.
    - Generator Room: 60'x40'
    - Trades Room: 40'x20', some trades require a larger space due to equipment and machines that are being used.
    - Water Service/FP Room: 25'x12'
    - Plan Storage Room: 15'x10'
    - Office: 10'x10'
    - Break Room: 16'x30'
    - Toilet/Shower/Locker Rooms: 25'x20'
    - Mezzanine Level to be accessed from the Boiler Room and Electrical Room
        - The mezzanine from the boiler room will also provide access to the Roof. This mezzanine will also have access for storage and location of the AHU for mechanical.
            - The mezzanine will be 62'x12' from the boiler room
        - The mezzanine from the electrical room will allow for additional space for the low voltage equipment and telecom room.
            - The mezzanine will be 65'x12' from the switchgear room

Sprinkler System

- The building will be fully sprinklered

3.5 Attachments

- Appendix A - Code Analysis

Section 4

Plant Structural and Foundations

4.1 Basis of Design

Applicable Standards:

1. American Concrete Institute (ACI)
    a. ACI 318-14 Building Code Requirements for Structural Concrete
2. American Institute of Steel Construction (AISC)
    a. AISC Steel Construction Manual – 15th Edition
    b. ANSI/AISC 360-16 Specification for Structural Steel Buildings
    c. AISC Seismic Design Manual – 3rd Edition
    d. ANSI/AISC 341-16 Seismic Provision for Structural Steel Buildings
    e. AISC 303-16 Code of Standard Practice for Steel Buildings and Bridges
3. American Society of Civil Engineers (ASCE)
    a. ASCE 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures
4. American Welding Society (AWS)
    a. AWS D1.1 Structural Welding Code - Steel
5. International Building Code (IBC)
    a. IBC 2018
6. Research Council on Structural Connections (RCSC)
    a. Specifications for Structural Joints Using High-Strength Bolts – August 1, 2014
7. Steel Deck Institute (SDI)
    a. ANSI/SDI C-2017 Standard for Composite Steel Floor Deck-Slabs
    b. ANSI/SDI NC-2017 Standard for Non-Composite Steel Floor Deck
    c. ANSI/SDI RD-2017 Standard for Steel Roof Deck
8. Steel Joist Institute (SJI)
    a. SJI Code of Standard Practice for Steel Joists and Steel Joist Girders 2015
9. The Masonry Society (TMS)

a. TMS 402-2016 Building Code for Masonry Structures
b. TMS 602-2016 Specification for Masonry Structures

Design Criteria:

1. Material Specifications
    a. Concrete
        i. Minimum 28-Day Concrete Compressive Strength f'_c = 4,000 psi
        ii. Reinforcing Bars: ASTM A615, Min. Gr. 60
        iii. Welded Wire Fabric: ASTM A1064 (65,000 psi)
    b. Steel
        i. W, WT, HP Shapes: ASTM A992 or ASTM A572, Gr. 50
        ii. M, S, C, MC, L Shapes, Plates, & Bars: ASTM A36
        iii. Rectangular HSS: ASTM A500, Gr. C (F_y = 50 ksi)
        iv. Round HSS: ASTM A500, Gr. C (F_y = 46 ksi)
        v. Structural Pipe: ASTM A53, Gr. B
        vi. Steel Roof Deck: 1-1/2" 18 ga wide rib roof deck, galvanized.
        vii. Composite Floor Deck: 1-1/2" 20 ga steel deck with 2-1/2" thick normal weight concrete topping (4" total thickness)
    c. Masonry
        i. Minimum Net Area Compressive Strength f'_m = 2,000 psi
        ii. Reinforcement Bars: ASTM A615, Min. Gr. 60
        iii. Mortar: ASTM C270 Type S with a Minimum Compressive Strength of 1,800 psi
        iv. Grout: ASTM C476 with a Compressive Strength of 2,000 psi
    d. Fasteners
        i. High Strength Bolts: ASTM A325, ¾" Diameter or ASTM A490, 1 ¼" Diameter
        ii. High Strength Nuts: ASTM A563
        iii. Washers: ASTM F346
        iv. Threaded Rods: ASTM A36
        v. Anchor Rods: ASTM F1554, Gr. 55
    e. Coatings
        i. All steel shapes and plates permanently exposed to weather shall be hot-dip galvanized.
        ii. All steel shapes and plates not permanently exposed to weather shall be primed and painted.
        iii. All attachment bolts, nuts, and miscellaneous hardware shall be galvanized.

Design Loads:

1. Dead Loads
    a. Weights of materials as applicable
    b. Concrete: 145 pcf
    c. Steel: 490 pcf
    d. MEP Equipment: per vendor supplied data
    e. Vehicles: per vendor supplied data

2. Live Loads (IBC 2018 Section 1607 and ASCE 7-16 Chapter 4)
    a. Minimum Roof Live Load: 20 psf
    b. Garage and Mechanical Areas: 250 psf, 3,000 lb concentrated load, or largest vehicle which can access a given area, including consideration of impact and fatigue
    c. Offices: 50 psf or 2,000 lb concentrated load
    d. Corridors
        i. First Floor: 100 psf or 2,000 lb concentrated load
        ii. Above First Floor: 80 psf or 2,000 lb concentrated load
    e. Storage
        i. Heavy: 250 psf
        ii. Light: 125 psf
        iii. Load for storage of specific items per vendor supplied data
    f. Break Rooms: 100 psf or 2,000 lb concentrated load
    g. Toilet rooms and lockers: 100 psf or 2,000 lb concentrated load
    h. Stairs: 100 psf or 300 lb concentrated load
    i. Handrails and Guards: 50 plf or 200 lb concentrated load in any direction at any point along the top
3. Wind Loads
    a. Basic Wind Speed (V): 119 mph (ASCE 7-16 Table 26.5-1D)
    b. Risk Category: IV (CDB Design and Construction Manual)
    c. Exposure Category: C (ASCE 7-16 Section 26.7.3)
    d. Ice Importance Factor – Wind (I_w): 1.00 (ASCE 7-16 Table 1.5-2)
4. Seismic Loads
    a. Risk Category: IV (CDB Design and Construction Manual)
    b. Seismic Importance Factor (I_e): 1.50 (ASCE 7-16 Table 1.5-2)
    c. Site Class: D (ASCE 7-16 Section 11.4.3)
    d. Seismic Design Category: C (ASCE 7-16 Section 11.6)
    e. $S_S = 0.127$
    f. $S_1 = 0.063$
    g. $S_{DS} = 0.135$
    h. $S_{D1} = 0.101$
    i. Systems: Building Frame System with Ordinary Reinforced Masonry Shear Walls
    j. Base Shear = TBD
    k. Analysis Method = Equivalent Lateral Force Method
5. Snow Loads
    a. Ground Snow Load (p_g): 30 psf (CDB Design and Construction Manual)
    b. Exposure Factor (C_e): 1.0 (ASCE 7-16 Table 7.3-1)
    c. Thermal Factor (C_t) (ASCE 7-16 Table 7.3-2)
        i. Roof sections above unheated and open air spaces: 1.2
        ii. Roof sections above areas kept just above freezing: 1.1
        iii. Roof sections other than those indicated above: 1.0
    d. Risk Category: IV (CDB Design and Construction Manual)
    e. Snow Importance Factor (I_s): 1.20 (ASCE 7-16 Table 1.5-2)
    f. Minimum Roof Snow Load (p_m): 24 psf (ASCE 7-16 Section 7.3.4)
    g. Include drift loads per ASCE 7-16 as required.

6. Ice Loads
    a. As Required per ASCE 7-16
7. Soil Data
    a. Geotechnical report provided by Geo Services, Inc. on September 18, 2020. The geotechnical report is included in the project manual.
        i. Soil Unit Weight (γ): 120 pcf
        ii. Recommended conventional spread/continuous wall footing.
        iii. Net Allowable Bearing Pressure at Natural Soils or Compacted Structural Fill: 4,000 psf
        iv. No Hydrostatic Pressure
        v. Depth for Adequate Frost Protection
            1. Non-Heated Areas: 4’
            2. Heated Areas: 3.5’
8. Load Combinations
    a. Where strength design is used: ASCE 7-16 Section 2.3 (IBC 2018 Section 1605.2)
    b. Where allowable stress design is used: ASCE 7-16 Section 2.4 (IBC 2018 Section 1605.3)
    c. Allowable Roof Member Vertical Deflection Limit: $L_r/240$ (ASCE 7-16 CC.2.1)
    d. Allowable Floor Member Vertical Deflection Limit: L/360 (ASCE 7-16 CC.2.1)
    e. Allowable Story Drift: L/600 (ASCE 7-16 CC.2.2)

4.2 General Description

The preferred foundation system for the New Power Plant is shallow concrete foundations with slab-on-grade. Equipment pads will be required for boilers, fuel storage tanks, and other MEP equipment. The roof shall consist of steel roof deck supported by steel beams or joists. Stairs shall be steel. Intermediate floors will be composite steel floor deck on steel beams.

Previously, a hospital was located on this site. It has since been demolished, and available information suggests that foundations and slabs were busted to rubble. If any large pieces of rubble are encountered during construction that would impede with new elements, remove the existing material from the site.

4.3 Performance Requirements

The lateral resisting system shall utilize ordinary reinforced masonry shear walls.

The slab-on-grade shall be 6” thick reinforced concrete in administrative areas and 8” thick reinforced concrete in garage and mechanical areas, with 14” thick equipment pads as required. CMU walls shall bear on thickened slab-on-grade. Slab-on-grade shall overlay at least 4” of granular base course material per the geotechnical report. The geotechnical report recommends removing the existing fill material at slab-on-grade (varies from 1’ to 5.5’ below existing grade).

The preferred foundation system is conventional shallow spread footing foundations, with 2.5’ min. square isolated footings and 1.5’ min. wide continuous strip footings. The bottom of all foundations shall be located at 4’ below grade or below the existing fill (varies 1’ to 5.5’ below existing grade), whichever is deeper.

Intermediate floors will consist of 4” thick normal weight concrete composite floor deck, with a minimum 1-1/2” 20-gauge steel deck, supported by secondary steel beams at spacing as required.

Roof will consist of 1-1/2” 18-gauge galvanized type “B” steel roof deck, supported by secondary steel beams or joists at spacing as required.

Section 5

Building Mechanical, Electrical, and Plumbing

5.1 Basis of Design

The design and specification of work will be in accordance with codes and industry standards referenced herein. The following is a summary of major organizations with codes and standards referenced herein.

- International Mechanical Code - 2018
- International Building Code – 2018
- ASHRAE 62.1 - 2019
- State of Illinois Plumbing Code - 2014
- ASME Boiler and Pressure Vessel Code - 2020
- Piping shall comply with ASME B31.1 - 2020
- National Electric Code (NEC) NFPA 70 – 2017
- Insulation shall conform with ASTM C585 – 2016
- IES Lighting Handbook, 10th edition.

5.2 General Description

The New Power Plant is considered as a multi-use facility that incorporates various trade rooms, break rooms, office spaces, and industrial processes including the boiler and generator room.

Heating, ventilating, and air conditioning (HVAC) will be provided in areas with offices, bathrooms, workstations, benches, or break rooms. The electrical switchgear room and telecommunications room will be conditioned with HVAC. Other areas, such as the boiler room

and generator room will be heated and ventilated. Power and lighting are required throughout the plant.

5.3 HVAC Systems

5.3.1 Boiler Room

Boiler Room will be heated and ventilated via an air handling unit (AHU) with a hot water coil. A rooftop exhaust fan will be utilized for cooling in the summer. Operable louvers and ventilation fans will be installed to provide the proper temperature and air flow for combustion. Flammable and toxic gas detectors will be provided.

5.3.2 Generator Room

Generator Room will be heated via gas-fired unit heaters with local thermostat controls and ventilated via intake louvers and exhaust fans. Intake louvers will be installed on the roof and on the West wall. The West wall louver will be stationary and will provide the necessary airflow to the space when the generators are offline. When the generators fire, air will be drawn through the penthouse roof intake louvers and the wall louvers and will provide the necessary airflow required for combustion and cooling the equipment. Generator cooling fans for will be ducted directly outside to allow the equipment to expel heat. Flammable and toxic gas detectors will be installed throughout the Generator Room.

5.3.3 Electrical / Switchgear Room

The Electrical/Switchgear Room will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls.

5.3.4 Telecommunications (Telecom) Room

The Telecommunications Room will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls.

5.3.5 Office

The Office will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls. Ventilation will be provided per ASHRAE 62.1.

5.3.6 Plan Storage

The Plan Storage Room will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser unit with thermostat controls. Ventilation will be provided per ASHRAE 62.1.

5.3.7 Restrooms/Locker Rooms

Restrooms/Locker Rooms will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls in this space. Exhaust will be provided per ASHRAE 62.1.

5.3.8 Trades Rooms

Seven Trades Rooms will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser unit with thermostat controls in each space. Ventilation will be provided per ASHRAE 62.1.

The Carpentry trades room will include a dust collector and the paint room will include an exhaust fan for additional ventilation.

5.3.9 Break Room

The Break Room will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser unit with thermostat control. Ventilation will be provided per ASHRAE 62.1.

5.3.10 Corridor

The Corridor, that provides internal access to many of the rooms throughout the New Power Plant, will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls. Ventilation will be provided per ASHRAE 62.1.

5.3.11 Storage Room

The Storage Room will be heated, cooled and ventilated via rooftop air-handling unit and air-cooled condenser with thermostat controls. Ventilation will be provided per ASHRAE 62.1.

5.3.12 Indoor Vehicle Bays

The Indoor Vehicle Bays will be heated via gas-fired unit heaters with local thermostat controls. Ventilation will be provided. Carbon monoxide (CO) detectors will be placed throughout the area.

5.3.13 Fire Protection/Plumbing Service Room (FP/Plumb Service)

The Fire Protection/Plumbing Service Room will be heated via gas-fired unit heaters with local thermostat controls. Ventilation will be provided per ASHRAE 62.1.

5.3.14 Janitor Room

The Janitor Room will be heated and cooled via rooftop air-handling unit and air-cooled condenser unit with thermostat control. Exhaust will be provided per ASHRAE 62.1.

5.4 Performance Requirements

Heating, ventilation, and air conditioning will be provided to various rooms of the building depending on the type of use, occupancy, minimum ventilation requirements and equipment demands. Performance requirements for the HVAC system for the New Power Plant were obtained from ASHRAE 62.1 - 2019 and are summarized in Table 5-1. Outdoor design conditions were obtained from ASHRAE Climatic Design Conditions 2017.

Outdoor Design Conditions

Location: Elgin Mental Health Center, Elgin, Illinois

99% Heating: 2.6°F Dry Bulb

1% Cooling: 87.8°F Dry Bulb; 73.5°F Mean Coincident Wet Bulb

Outdoor Air Temperature for Dehumidification: 126.6 gr/lb, 81.5°F Mean Coincident Dry Bulb

Table 5-1 Room Summary for HVAC Requirements

NEW POWER PLANT			**Ventilation (ASHRAE 62.1)**	
Rooms	**Cooling Indoor Design**	**Heating Indoor Design**	**Rp (cfm/person)**	**Ra (cfm/ft²)**
Boiler Room	Note 1	50°F Dry Bulb	Note 2	Note 2
Generator Room	Note 1	50°F Dry Bulb	Note 2	Note 2
Electrical / Switchgear Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	0	0
Telecommunications Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	0	0
Office	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	5	0.06
Plan Storage	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	5	0.06
Restroom	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 3	Note 3
Shower Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 4	Note 4
Locker Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 7	Note 7
Carpentry Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 7	Note 7
Paint Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 6	Note 6
Machine Shop Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	10	0.18
Grounds/Transport Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	10	0.18
Plumbing Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	10	0.18
Pipe Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	10	0.18
Electrical Trades	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	10	0.18
Break Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	5	0.06

Corridor	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	-	0.06
Storage Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	5	0.06
Indoor Vehicle Bays	N/A	50°F Dry Bulb	Note 2	Note 2
FP/Plumb Service	N/A	50°F Dry Bulb	Note 2	Note 2
Janitor Room	76°F Dry Bulb, 50% Relative Humidity	68°F Dry Bulb	Note 5	Note 5

Notes:

1. Maintain indoor temperature to no greater than 10°F above outside ambient.
2. Provide minimum ventilation rate of 4 ACH.
3. Provide minimum exhaust rate of 50 cfm per water closet or urinal.
4. Provide minimum exhaust rate of 20 cfm per showerhead.
5. Provide minimum exhaust rate of 1.00 cfm/sqft
6. Provide minimum exhaust rate of 1.50 cfm/sqft
7. Provide minimum exhaust rate of 0.50 cfm/sqft

5.5 Plumbing

5.5.1 Domestic Water

Domestic water shall be provided to plumbing fixtures throughout the New Power Plant. Average water pressure at the building is 60 to 65 psig. A booster pump is not anticipated. Based on the square footage, each toilet/locker room will have the following:

Men's Toilet/Locker Room

- One (1) water closet – one (1) ADA (Americans with Disabilities Act)
- Two (2) urinals
- Two (2) lavatories – one (1) ADA
- Three (3) showers – one (1) ADA

Women's Toilet/Locker Room

- Three (3) water closets – one (1) ADA (Americans with Disabilities Act)
- Two (2) lavatories – one (1) ADA
- Three (3) showers – one (1) ADA

Two (2) drinking fountains will be located directly outside the Toilet/Locker Room doors.

Two (2) gas-fired tank style water heaters will provide hot water to the bathroom lavatories and showers, and various sinks in the trade areas and break rooms. The Boiler Room will also require potable hot water for the service sink as well as the mixing valve at the combined safety shower and eye-wash station. Shop sinks will be installed in the Painter Room, Carpentry,

Machinists Room and Indoor Vehicle Bays. The Break Room will house a sink in the kitchenette area, and water connections for a refrigerator and coffee machine will be provided.

On the interior wall of the Vehicle Bays, two (2) hose bibbs will be installed and water will be plumbed to these fixtures as well to allow the employees to washdown equipment.

The rooftop units (RTU's) will be provided for the conditioned spaces and an air handler unit (AHU) will be provided for the Boiler Room. A hot water coil will be provided with each unit, served by a hot water boiler installed in the FP/Plumbing Service room.

5.5.2 Sanitary Sewer

The drain and sewer systems will be plumbed to a common sewer main exiting the building to the south. Floor drains will be located throughout the New Power Plant including the toilet and shower area, FP/Plumbing Service, various trades rooms with sinks or plumbing fixtures, and the Break Room. Trench drains for the Boiler Room will be placed throughout the space around the boilers and the water treatment equipment. The Boiler Room will also have floor drains near the service sink and emergency eyewash and shower. Trench drains will be installed in the Indoor Vehicle Bays. A catch basin will be provided for these drains prior to draining to the sewer main.

5.5.3 Natural Gas Piping

Natural gas will enter the New Power Plant in the Boiler Room at the northeast corner. Natural gas will be piped to each of the boilers, the 150-kW generator, and to the FP/Plumbing Service room for the water heaters, unit heater, and hot water boiler. Natural gas will also be provided to the gas-fired unit heaters in the Vehicle Bays as well as the Generator Room.

5.5.4 Diesel Fuel Piping

Diesel fuel will be piped from the outdoor storage tanks to the Generator Room and will enter the building on the westside. A fuel oil heater will be located in the Generator Room to heat the fuel. A day tank inside the Generator Room will hold fuel oil for the 1.5 MW generators. Fuel will also be piped to each individual boiler.

5.5.5 Diesel and Gasoline Dispenser Tanks

Diesel and gasoline fuel will be stored in 300 gallon UL 2085 protected double wall tanks. Placement of the tanks will follow NFPA 30 and 30A along with the requirements of the Illinois State Fire Marshal (including Illinois rules and statues). The tanks will include fuel dispensers for transfer of fuel to mobile tanks, vehicles, and equipment.

5.5.6 Air Compressor

Air compressors will be installed in the Boiler Room to provide the new and transferred boilers with atomizing air for operation on diesel fuel. The compressed air will also be piped to the vehicle bays for use in maintenance activities. Two compressors are to be provided with a minimum capacity of 50% each.

5.6 Electrical – General Building Requirement

5.6.1 Interior Power

Low Voltage (LV) electrical distribution equipment such as Switchboards, panels, LV distribution transformers, control panel in the power plant will be contained in dedicated Electrical Area or in major equipment spaces, such as in the Mechanical Room/Generator Room, and be accessible to trained operators.

Loads will be evaluated when sizing service panelboards, overcurrent protective devices, and circuiting. Voltage drop is limited to not more than 3 percent for feeders and 2 percent for branch circuits at the farthest distance.

Switchboards will be metal-enclosed, general-purpose type and will be installed to provide front access. Busses will be copper. The withstand rating and interrupting capacity of the switchboards and circuit breakers will be based on the maximum fault current available. The main circuit breaker will be stationary, insulated cased, with electronic trip. Branch circuit breakers will be stationary, molded-case circuit breakers conforming to NEMA AB 1 and UL 489. Ground fault protection will be provided per NEC 240.13.

Panelboards will be three-phase vertical copper bus with a main breaker. Panelboards will have a maximum of 14 ways which provide 42-individual branch circuits. Each 480Y/277 and 208Y/120 VAC panelboard serving lighting and power loads will have, as a minimum, 20 percent spare load capacity and 20 percent spare breaker capacity.

Wiring will be copper conductors. All wiring will be installed in conduit or electrical metallic tubing as allowed by the National Electrical Code and the local electrical code. Wiring system will consist of insulated single conductors installed in raceways as follows: Galvanized rigid steel conduit and IMC will be used in exposed area and Type 40 PVC in concrete, masonry and areas subject to moisture; electric metallic tubing (EMT) in concealed areas and exposed where not subject to physical damage; and plastic conduit (Type 40 PVC) direct buried in the ground and (Type 40 PVC) below concrete slabs. Conduit will be concealed within the walls in all areas except Electrical, Mechanical, Maintenance Bays, and Communication Rooms. Empty conduit will have nylon pull rope installed in it with 3 meters of pull cord or wire coiled at each end. A ground conductor will be installed with all feeders and with all branch circuit wiring to receptacle and equipment. UL rated receptacles will be provided. ASHRAE 90.1-2013 section 8.4.2 states at least 50% of the receptacles in all private offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, individual workstations and 25% of branch circuit feeders installed for modular furniture will be controlled by time-of-day operated control device that turns receptacles off at specific programmed times or occupant sensor that will turn receptacles off within 20 minutes of all occupants leaving a space.

Motor and Controllers: UL-rated motor starters will be required for the application. Full-Voltage Non-Reversing (FVNR), Reduced Voltage Solid State (RVSS) and Variable Frequency Drives (VFDs) will be used as applicable.

The power plant will incorporate industrial process areas including the boiler and generator room, break rooms, and office spaces. It will also include various trade rooms, including but not limited to Plumbing Room, Carpentry Room, Painters Room, Electrician Room, Machinists Room, Engineers Room, Transportation Drivers Break Room, and Indoor Vehicle Bays. Provision for electrical saws, drill presses, benches, overhead electric cord reel will be offered in specific trade rooms as desired. 480/277 V Bus Duct and 208/120 V Bus Duct will be provided in trade rooms as required. This is to be confirmed pending future site walkthrough and will be updated in the next submittal.

5.6.2 Emergency Generator

Existing 160kW emergency generator at the existing power plant was in good working condition. Relocation cost was considered against replacement. It is recommended that for a generator of this size, replacement is the more practical solution. The new generator will be sized to cater to the emergency loads at the new power plant.

5.6.3 Interior Lighting

Interior lighting will be LED with modern energy saving lamps and electronic drivers. Lighting controls, sequence of operation, and Lighting Power Density (Watts/m^2) requirements will be in accordance with ASHRAE 90.1-2013.

Mechanical Rooms, Electrical Rooms, and work areas will utilize industrial-type LED fixtures that are gasketed and sealed. Where automatic lighting controls for these spaces may cause safety concerns for operators and maintenance staff, the lighting fixtures will only be controlled by manual ON/OFF wall-mount switching. Lighting levels and color will be in accordance IES Lighting Handbook and any applicable local code. In general, the lamps will have a color temperature of 4000 Kelvin and a minimum rating of 80 CRI. See Table 5-2 for lighting requirement in different rooms of the plant per IES Lighting Handbook, 10^{th} edition.

Table 5-2 Room Summary for Lighting Requirements

NEW POWER PLANT	
Rooms	**Foot Candle Requirements (F.C)**
Boiler Room	20
Generator Room	20
Electrical / Switchgear Room	20
Telecommunications Room	50
Office	30

Plan Storage	10
Restroom	15
Shower / Locker Room	20
Trades Rooms	50
Break Room	15
Corridor	5
Storage Room	10
Indoor Vehicle Bays	50
FP/Plumb Service	20
Janitor Room	5

5.6.4 Interior Emergency and Egress Lighting

Emergency, Means of Egress, and Exit lighting will be provided in accordance with NFPA 101. A central lighting inverter system will be used for emergency egress lighting. Exterior luminaires at egress exits will be connected to the lighting inverter. Emergency fixtures will be connected to lighting circuits fed from the lighting inverter, ahead of any local switching. LED exit signs will be connected to the lighting inverter.

5.6.5 Facility Exterior Lighting

Lighting levels will be in accordance with the Illuminating Engineering Society (IES) Lighting Handbook. Exterior lighting will include facility entrances/exits, walkways, roadways, canopy and parking lighting. Exterior luminaires will utilize LEDs with 4000 degrees Kelvin color temperature. All exterior lighting will be controlled by astronomical timers with manual overrides.

5.6.6 Grounding

Grounding system at the new power plant will include the electrical system service entrance ground, equipment grounding, and other auxiliary systems grounding such that all systems and components maintain low potential differences. Facility grounding system will have a resistance of 25 ohm or less to earth as required. All ground rods will be copper-clad steel, ¾" diameter and 10' in length, sectional type. Electrical room will be provided with Main Grounding Busbar (MGB) and the Telecommunications Room will be provided with Telecommunication Grounding Busbar (TGB).

The building counterpoise system will consist of a continuous 4/0 awg bare copper ground ring conductor buried a minimum of 2' below grade, between 4' and 5', from the building foundation, around the building perimeter. Ground rods will be installed at 30' maximum

intervals around the entire perimeter of the building on the ground ring. At a minimum, four corners of the facility will have a ground test well provided. The ground ring will be connected to the facility grounding system and the lightning protection system down-comers per NFPA 780. Building steel will be bonded at each corner with a 4/0 awg bare copper conductor from the building steel to the ground ring. All connections below grade will be made using exothermic welds.

5.6.7 Lightning Protection System

The power plant will have a conventional lightning protection system consisting of blunt tipped air terminals, down conductors, and ground rods in accordance to NFPA 780. Exterior exposed down conductors will be allowed. Copper conductors and air terminals are the preferred material for lightning protection systems; however, conductors and air terminals on the roof may be required to be aluminum, depending on the roof material in accordance with NFPA 780. Conductors to be generally exposed except where conductors are in protective sleeves at penetrations, inside walls and under concrete slabs. Lightning protection down conductors will connect directly to the grounding electrode of the building ground ring system. A minimum of two down conductors for the building will be utilized. The lightning protection system will be designed per NFPA 780. Per NFPA 780, surge protection will be provided at the main panel for the building interior power.

5.7 User Requirements

The Using Agency has indicated that existing power tools and machinery will be relocated from the existing power plant trades rooms to the new facility. The seven trades rooms must have adequate power and ventilation for the specific equipment and type of work being performed.

Specific requests include providing a dust collection and ventilation system in the Carpentry Room to capture and contain sawdust and debris. The Painters Room will not have a spray booth; however, it will require be ventilated to remove fumes during painting applications.

Section 6

Steam Generating Systems and Controls

6.1 Basis of Design

The design and specification of all work will be in accordance with all applicable codes, standards, and regulations, including the following:

- ACI – American Concrete Institute
- AISC - American Institute of Steel Construction
- ANSI - American National Standards Institute
- ASCE 7- American Society of Civil Engineers, Minimum Design Loads for Buildings
- ASHRAE 135
- ASME - American Society of Mechanical Engineers
- ASME Boiler and Pressure Vessel Code
- ASME B31.1 - Power Piping
- ASME B16 - Valves, Flanges, Fittings and Gaskets
- ASTM C585 Thermal Insulation
- IEEE - Institute of Electrical and Electronic Engineers
- International Building Code – 2018
- International Mechanical Code – 2018
- State of Illinois Plumbing Code - 2014
- State of Illinois Energy Conservation Code – 2018
- ISA - The Instrumentation, Systems, and Automation Society

- NEC - National Electrical Code - 2017
- National Fire Alarm Code - 2019
- NEMA - National Electrical Manufacturers Association
- NETA - International Electrical Testing Association
- NFPA - National Fire Protection Association

Contractors must comply with the most recent version of all applicable State of Illinois regulations including 30 ILCS 00/30-22. Other recommended standards will be used where required to serve as guidelines for design, fabrication, and construction when not in conflict with the above standards.

Other recommended standards will be used where required to serve as guidelines for design, fabrication, and construction when not in conflict with the above standards.

Installation shall be completed by a licensed installer, trained and experienced in the installation of requisite equipment, components and materials. Controls systems shall be installed by a manufacturer's authorized representative who is trained and approved for installation of the system.

6.2 General Description

Elgin Mental Health Center (EMHC) currently produces steam in the existing Power Plant and distributes this across the campus. The boilers in the Power Plant were originally designed as part of a Combined Heat and Power (CHP) system. Due to the changing needs of the campus over the last 70 years, the boilers are mismatched with the current steam demands, operate inefficiently, and would require significant investment to continue to operate. There are six boilers in the existing Power Plant as summarized below. Boilers that are currently in operating condition are Boilers 3, 5, and 6.

- Boiler 1 & 2 (decommissioned): 500 hp coal fired units
- Boiler 3 (currently in use) & Boiler 4 (condemned by state fire marshal and identified for replacement):
    - Wickes – nominal 45,000 PPH steam capacity each
    - Installed in 1963, Converted to natural gas
- Boiler 5 & Boiler 6:
    - Lasker - 600 hp (nameplate on coal from 1947)
    - Each able of producing 37,000-40,000 PPH steam
    - Boiler 5 has a recently replaced burner

A large coal-fired boiler system was installed in the 1940s to create high-pressure steam for backpressure steam turbines, providing electricity and medium pressure steam for EMHC. As the building and operations needs changed over time, the steam turbines were taken offline and

electricity was purchased from the grid. The existing boilers are typically operated well below their name plate capacity, providing the necessary steam to the campus.

Since the decommissioning of the steam turbines, Boilers 3, 4, 5 and 6 had been converted from coal-fired to natural gas. Typically, one boiler is operated at partial load with a second boiler in standby mode. The boilers do not have high turndown capability and operation at partial load is inefficient. Most of the equipment has exceeded its anticipated lifespan and replacement is needed. Continuing to operate the existing boilers will lead to significant maintenance and fuel costs and potential steam outages or adverse unplanned events.

Through a separate emergency project, EMHC is replacing Boiler 4 with a 1,200 horsepower (hp) (~41,400 lb/hr) firetube boiler in the existing power plant to supplement steam needs prior to implementing the New Power Plant. Boiler 6 was also recently repaired with a new modulating burner.

Steam is currently utilized at EMHC for heating and hot water purposes, distributed in tunnels, and direct-buried across the campus to serve building loads. Pressure reducing valves and heat exchangers located at the buildings convert the medium-pressure steam to hot water and condensate is returned to the existing Power Plant. In the summertime, the steam is used to drive absorption chillers producing chilled water for air conditioning. Recent and future projects on campus have been phasing out the absorption chillers and installing electric chillers, further reducing the steam loads in the summer.

The following recent and future absorption chiller projects have been identified.

Table 6-1 Absorption Chiller Projects

Building Name	Building No.	Date	Project
Goldman Bldg.	BR-120	2016-2017	360-ton high pressure two-stage absorption chiller replaced with a York air cooled 275-ton electric air-cooled chiller.
Dietary/ Central Store	BR-30	2017	90-ton low pressure single stage absorption chiller replaced with a Carrier 110-ton electric air-cooled chiller.
Rehab Bldg	BR-110	2020	Project underway for replacement of 260-ton low pressure single stage absorption chiller with 200-ton electric air-cooled chiller.
FTP	BR-121	2020-2021	Plan in place to replace high pressure two stage 500-ton absorption chiller with an electric chiller.

It was noted that the Dietary Building cooking equipment creates the largest fluctuations in steam demand each day. Fluctuations are due to steam kettles used for cooking and other thermal equipment used in this building. Currently in construction, is a project to install a boiler system in the Dietary Building to support these loads directly as a swing boiler.

Many buildings throughout the campus are currently unoccupied or partially occupied. Some of the buildings have been identified for future demolition, while others may be repurposed or fully occupied in the future. Below is a list of buildings that EMHC has identified for additional consideration in utility sizing.

Table 6-2 Future Occupancy Changes

Building	Building Date Built	Status	Sq. Ft.	Comments
BR-026 FTP Main (Old)	1945	Occupied, vending storage	111,315	7-8 packaged air handlers, electric air-cooled chiller
BR-027 Charles F. Read	1986	Partially occupied 51%	46,704	Fair condition. DHS FCRS occupies 24,000 square feet. Connected to a central chiller plant with Pinel, William White, Hartman (2 x 200-ton electric air-cooled chillers)
BR-046 Mendel (OIG)	1960	Unoccupied (Non-EMHC)	18,233	Separate boiler and circulator.

6.2.2 New Power Plant

The New Power Plant steam generating system will provide steam to the EMHC campus, as a replacement to the existing power plant. The steam system will include the necessary and customary equipment, components, and materials to effectuate the steam needs of the campus. Equipment includes the following:

1. Dual Fuel Package Firetube Steam Boilers, Fans, Economizers
    a. One (1) existing 1200 hp boiler relocated
    b. Three (3) new 500 hp boilers
2. Steam Condensate Collection and Deaeration Tanks
3. Boiler feedwater Pumping Skid
4. Boiler Water Treatment Skids
5. Boiler Water Chemical Treatment Totes and Pump Skid
6. Backup Fuel Oil Storage, Pumps and Distribution

The New Power Plant will include a complete PLC-based control system for each of the steam boilers, including the following:

1. Burner Management System (BMS) for each boiler.
2. Combustion Control System (CCS) for each boiler.

3. Interface with Supervisory Monitoring and Control System.
4. Associated solid state PLC based controls and software.
5. Network bus and tie-ins to the plant DCS.
6. DCS with all analog and digital control equipment for the New Power Plant building except for the steam boiler controls listed above.

Natural gas will be utilized as the primary fuel source for the boiler system, but a secondary fuel system will be installed for utilization in the event of a natural gas outage. The system will include the following:

1. Fuel Oil storage in UL-2085 protected tanks for placement near the new building and existing driveways. Fill boxes will be provided for receipt of fuel from a tank truck. A screening wall will be provided to shield the tanks from view.
2. Positive displacement, duplex suction type pump system with supply and return piping to the boilers and backup electric generation day tank. Pump sizing will be based on supplying either the boilers or day tank refilling.
3. Backup electric generation day tank system with a minimum of 3 hours of fuel, including overfill prevention return pump.
4. Tank level monitoring systems and pump control system tied to the Power Plant control system.

6.3 Performance Analysis

Based on the existing Power Plant daily boiler logs from November 2018 to June 2020, the boiler steam loads were estimated for sizing of the new boilers. Typical boiler sizing would be completed by tabulating the individual loads on the system, which in this case would be the individual buildings and equipment from EMHC. At this time, the building and steam heating equipment loads aren't metered, so past performance of the boilers is utilized.

The existing Power Plant doesn't have a central control and monitoring system or digital data record of the boiler equipment. The daily operator logs are maintained with the steam and natural gas usage totals manually entered by the operations staff. The daily logs from November 2018 to June 2020 were evaluated to identify the average and peak daily steam usages in the winter and summer months. Figure 6-1 below shows the daily total of steam and natural gas while Figure 6-2 shows the daily average steam production in PPH.

Figure 6-1 Power Plant Daily Steam and Natural Gas Usage

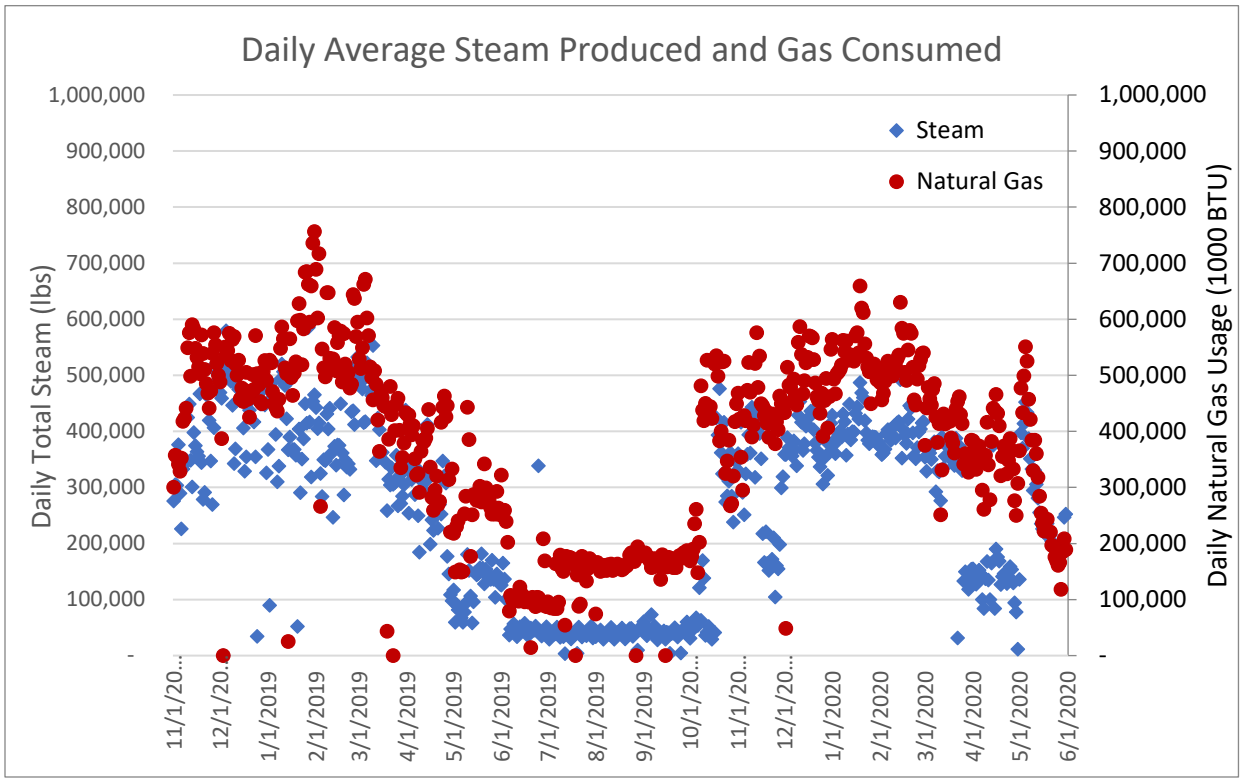
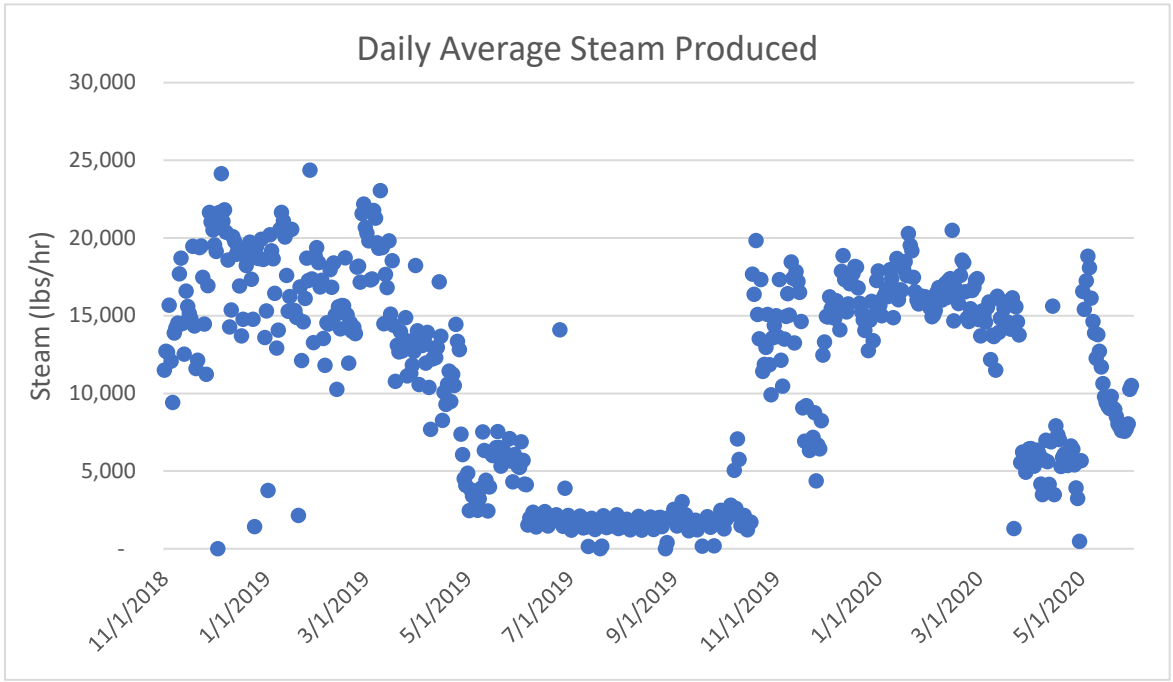


Figure 6-2 Power Plant Daily Steam Average

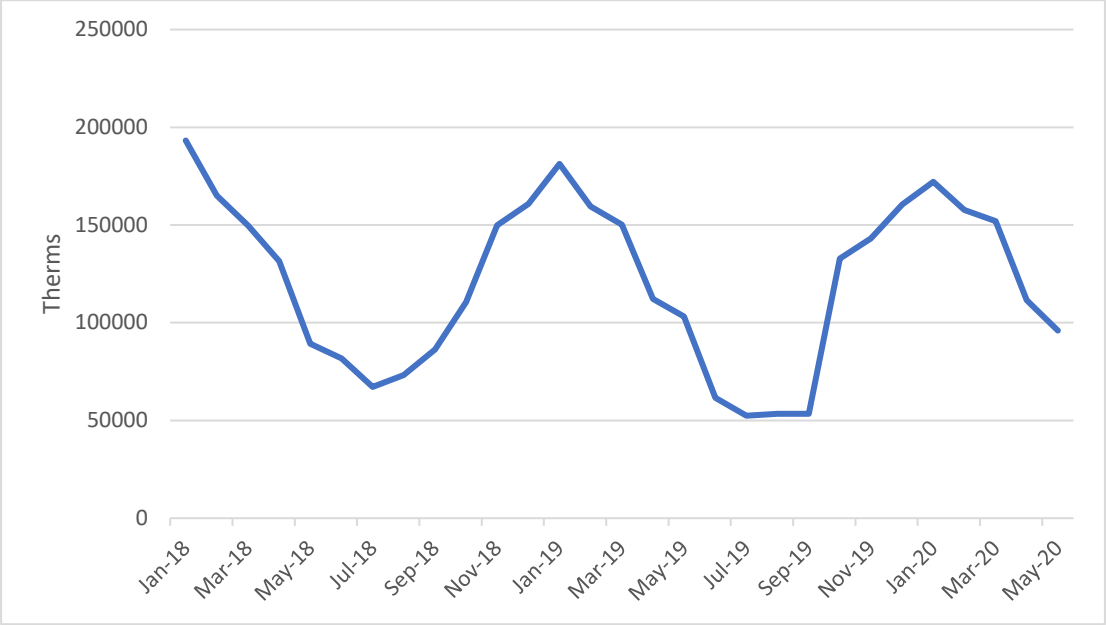


The daily steam totals and natural gas usage indicate a higher steam demand in the winter months and extremely low demand in the summer months. The rate of steam generation divided by natural gas consumption provides an indication of the boiler operating efficiency. Based on this and analysis of the daily data, the existing boilers operate at a much lower efficiency in the summer months mostly due to limited turndown capability of the boilers.

Natural gas lines that supply the existing Power Plant enter the building from the West. Most of the gas consumed is from the Power Plant itself; however, the Mendel Building and the Dietary Building also consume gas from the same source. The Mendel Building has its own condensing boiler that is gas-fired.

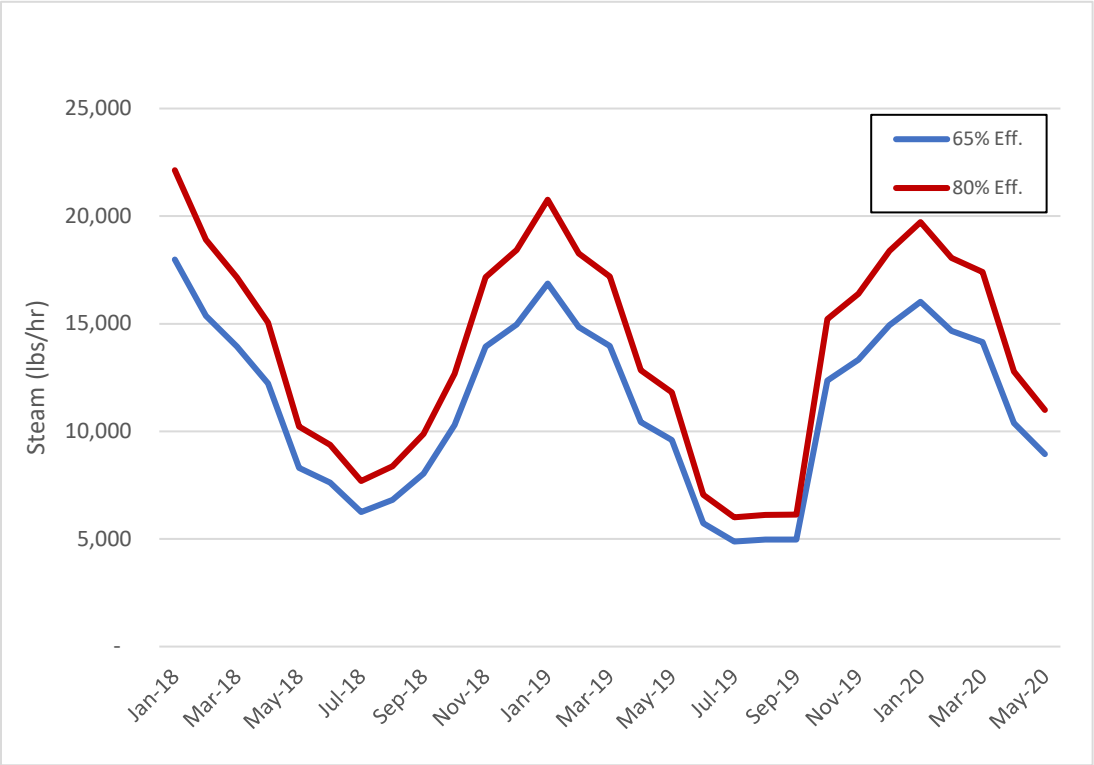
Monthly natural gas bills from Nicor and Constellation were obtained from January 2018 to May 2020. Constellation is the supplier along with Nicor providing the distribution with storage back-up. Therefore, the total metered gas usage was recorded from the Nicor bills. This data was analyzed and compiled to understand the trends of the gas usage over the years. Figure 6-3 shows the natural gas trends over the past 2.5 years.

Figure 6-3 Total Monthly Metered Natural Gas Usage



The number of therms were recorded and converted to steam generated. A boiler efficiency of 65% and 80% over the range of bills was assessed, representing a low and high range of steam generation. Efficiency of 80% is likely an overestimate for the existing boilers, given their age and past fuel conversion, even at high loads. Efficiency of 65% could represent the efficiency at low summer demand. Figure 6-4 shows the estimated average hourly steam generated over the past 2.5 years. The graph follows the same trend as the operator data logs in Figure 6-2.

Figure 6-4 Monthly Estimated Average Steam – Gas Bills



The monthly bills and estimated efficiency do not clearly show the hourly peaks over 24-hr periods. Since there is a wide variability of gas utilized over the course of a month, the monthly total metered data collected from Nicor cannot be used to size the boilers. Additional analysis was completed on the daily meter readings from the Nicor gas bills during the peak winter month (January/February) of 2018, 2019, and 2020. Figures 6-5, 6-6, and 6-7 show the daily average steam generated for this 3-year period. This analysis was utilized to estimate peak steam production dates.

Figure 6-5 2018 Winter Peak Estimated Daily Average Steam

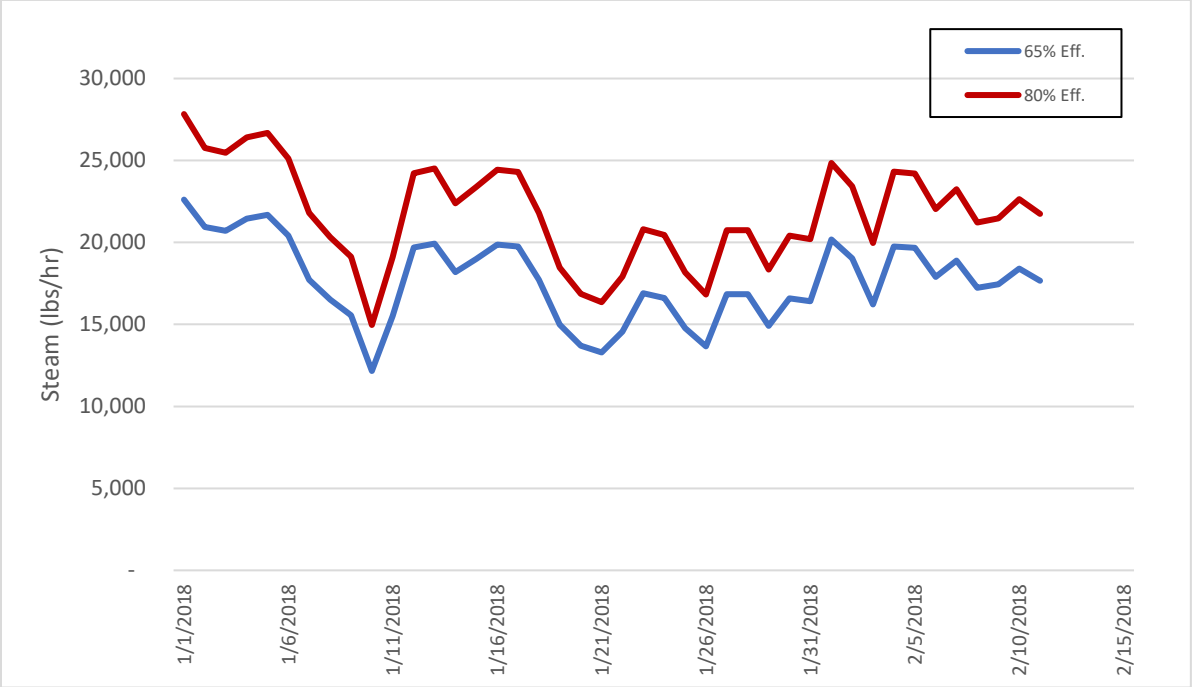


Figure 6-6 2019 Winter Peak Estimated Daily Average Steam

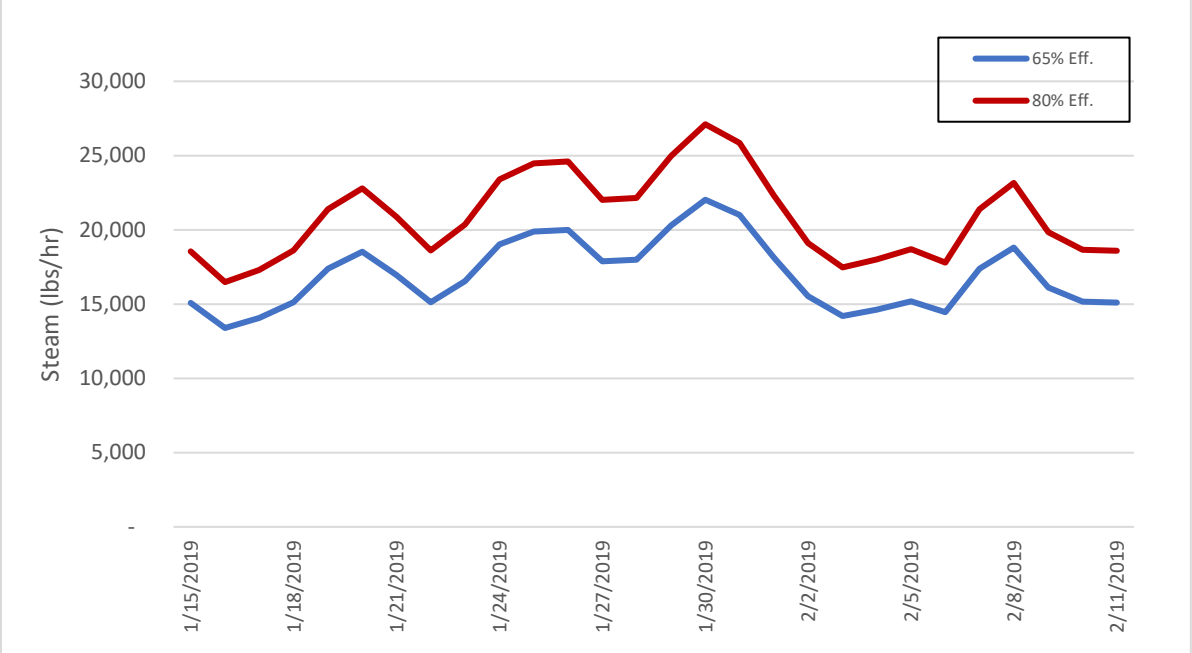
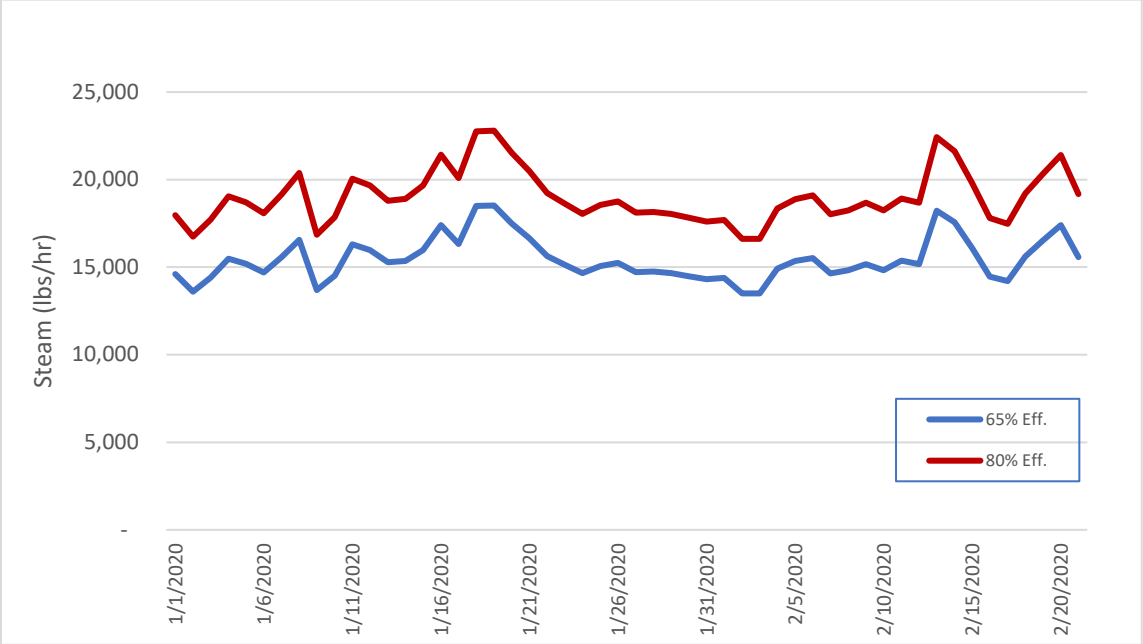


Figure 6-7 2020 Winter Estimate Peak Daily Average Steam



From the daily natural gas bills, peak usage days were identified on Jan 1, 2018 and Jan 30th, 2019. Note that 2020 was a mild winter. Historical climate data indicated that the Elgin, IL daily high/low temperatures were 1°F/-10°F and -11°F / -20°F respectively. For the purposes of boiler sizing, these two dates will be considered the peak expected winter load with a 25k lb/hr average daily steam demand. This peak steam value is also in agreement with the peak operator log data in Figure 6-2.

Additionally, for further sizing confirmation, comparing the operator daily log data and Nicor gas bill data, it is anticipated that the peak winter daily average steam demand would be in the range of 20-25k lb/hr. The hourly peak steam demand will be above this daily average. However, interviews with power plant operations indicated that during peak winter steam usage days, there are limited observed daily fluctuations. This would be consistent that most of the steam is being utilized for building heat due to the low outdoor temperature. For new boiler sizing, an additional 20% capacity will be added to the observed daily steam total, setting the system capacity at 30k lb/hr to meet current demands.

As noted previously, Buildings BR026, BR027, and BR046 are currently in partial occupied states and have been identified for potential future use. The new boilers would need to support these buildings in a fully occupied state. Discussions with EMHC noted Building BR046 - Mendel (OIG) has an independent boiler and won't require steam from the new steam system. Building BR026 - FTP Main (Old) is utilized for storage and is currently provided with freeze protection only, and Building BR027 - Charles F. Read is at 50% occupancy. It is estimated that an additional 5,000 lbs/hr of steam would be required for these buildings.

From the operator log data in Figure 6-2, the average daily summer steam demand varies around 3,000 lb/hr. There are also plans to further reduce the summer loads by replacing adsorption chillers

with electric chillers, further reducing the summer load. The selected replacement boilers need to have a high turndown to meet this low summer demand.

6.3.1 Load Summary

A high-level summary of the thermal load data is provided in Table 6-3. These average values displayed below were taken from daily data obtained from the boiler room reports and were averaged over a 24-hour period. Actual hourly peaks over the course of each day were difficult to determine across all months.

Table 6-3 Current Power Plant Thermal Load Summary

Thermal Load Data	Pounds per Hour
Lowest Average Monthly Load (July)	1,532
Highest Average Monthly Load (January)	16,904
Peak Average Steam Load (January)	24,412
Average Monthly Load	10,735

A boiler with a high turndown ratio is needed to support the low summer loads while maintaining efficient operation. Due to the transition from absorption chillers using steam to electric chillers, it is assumed the summer loads will decrease.

6.4 User Requirements

EMHC provided the following requirements and needs in the installation of the New Power Plant.

- N+2 boiler configuration
- Minimum steam pressure of 140 psi
- Natural gas as primary fuel
- Fuel oil as secondary fuel to sustain minimum 96-hour independent operation

An N+2 boiler configuration is desired by EMHC in order to allow 2 boilers to be offline (1 for maintenance and 1 for backup) and still have full capacity. To add continuity to the backup electric generation system, along with considering site and fuel storage size, fuel oil is the preferred fuel source when comparing secondary fuel options.

6.5 Steam System

For the selected system, burners with a high turndown would be utilized due to the low load in the summer months. It includes an economizer for each new boiler, redundant pump skids, deaerator tank, condensate collection tank, water softener, and a reverse osmosis system.

There will be a total of four boilers. Three new 50% capacity boilers, each rated for 17,250 lb/hr, and a boiler (120% rated capacity) relocated from the existing power plant. This configuration provides improved efficiency, with high turndown capability to be able to support the campus steam

needs under the range of loads. The capacity of two boilers would maintain campus thermal operation year-round.

- Three (3) 500 hp boilers
- Economizers for improved efficiency
- Dual fuel capable burners
- Each new boiler: 17,250 lb/hr steam production capacity
- Dry back design
- Relocate boiler from existing power plant

The backup fuel system will consist of fuel oil storage tanks, large enough to sustain the steam system and backup electric generation system for 96 hours. Utilizing the boiler from the existing power plant will reduce the up-front capital cost.

Equipment

Equipment for process steam and water treatment:

- Boiler Economizers (for the new boilers)
- RO System (N+1 redundancy)
- RO Water Tank
- Water Softeners (N+1 redundancy)
- Brine Tank and Salt Storage (bulk bags)
- Sodium Metabisulfite Addition
- Deaerator and Boiler Feed Water Pumps
- Condensate Surge Tank
- Chemical Storage Totes and Metering Pumps
- Fuel Oil Storage Tanks and Pumps

Economizers will be installed with each new boiler to pre-heat the feedwater in order to improve efficiency. Each new boiler will have a ladder and platform in order to service the boilers from overhead. The existing boiler will be relocated along with the existing service platform and ladder. The boiler chimney systems will be self-supported by the 500 hp boilers with a rain cap on the chimney discharge. The 1200 hp boiler has an offset chimney design.

Water treatment processes such as a Reverse Osmosis (RO) system, water softeners, deaerator tanks and water treatment chemical injection skids will ensure proper quality of water to protect against fouling, scaling, and corrosion within the steam system. The RO system as well as the water softeners will have redundancy in both and if one softener or RO system were to go offline, the boilers will still have treated incoming water. Storage tanks will be installed for the brine system and the RO water. Sodium metabisulfite will be used as the dichlorination

process in replacement of carbon activated filters. A deaerator and condensate return tank will be located in the boiler room along with the water treatment equipment.

Fuel oil will be stored outdoors in two 10,000 gallon, double-walled, aboveground storage tanks with integrated fire and vehicle impact protection complying with UL-2085.

Section 7

Plant Electrical & Communications Systems

7.1 Basis of Design

Electricity will be supplied to the new Power Plant from a new ComEd electric connection to the campus through the Power Plant and via utility power distribution. Backup power will be provided from the generators in the plant to cover 100% of the campus' needs. Generator must be able to meet 96 hours of self-sustained supply. Backup generators will be sized based on the current load requirements of Elgin Mental Health Center (EMHC) as the campus does not anticipate any future expansion.

EHMC currently uses one (1) 160kW natural gas fueled generator in the existing Power Plant. There are six (6) additional diesel engine emergency generators used across the campus serving Buildings BR121, BR120, BR110, BR107, BR030 and BR026.

7.1.1 Codes and Standards

The design and specification of all work will be in accordance with codes and industry standards referenced herein.

The following industry and national codes and standards are applicable to all building electrical work on this project:

1. NFPA 70: National Electrical Code (2017)
2. NFPA 70E: Standard for Electrical Safety in the Workplace (2018)
3. NFPA 110: Standard for Emergency and Standby Power Systems (2019)

The following industry and national code/standards are applicable to utility and medium voltage work on this project:

1. IEEE NESC: National Electrical Safety Code (2017)

The following industry associations provide standards and guidelines for the manufacture and testing of electrical equipment and cable that will be supplied as part of this project:

1. ANSI – American National Standards Institute
2. IEEE – Institute of Electrical and Electronics Engineers
3. NEMA – National Equipment Manufacturers Association
4. UL – Underwriters Laboratories
5. ICEA – Insulated Cable Engineers Association
6. IES/ASHRAE - Lighting Standards
7. International Building Code - Energy Conservation Code

7.1.2 Code Items to be Addressed

The following issues are some of the specific issues found that relate to building electrical work on this project that will need to be addressed as part of this work:

1. All modified equipment will have to meet the current codes.
2. Arc Flash labels will need to be applied to electrical equipment.
3. Arc flash reduction will be required.
4. A short circuit, coordination and arc flash study shall be provided as part of new electrical distribution.
5. Automatic and manual controls for lighting systems will need to be provided for compliance with energy code.

7.2 General Description

EMHC is served by an existing utility plant that generates steam and provides steam throughout the campus. At present, EMHC is served by one (1) 34.5 kV overhead feeder from ComEd, east of the existing power plant. There is one (1) existing 5000KVA, 34.5kV-2.4kV three phase, pad mounted exterior transformer and 2.4kV switchgear in an outdoor switchyard east of the existing power plant. The following buildings across the campus are served through this transformer.

Assembly Hall (#12)/BR012
Burr (#15)/BR015
Wines (#16)/BR016
Kilbourne Admin (#17)/BR017
Pinel (#24)/BR024
William White (#25)/BR025
FTP Main (Old) (#26)/BR026
Central Stores/Dietary (#30)/BR030
Mendel (OIG) (#46)/BR046
Boiler Plant (#50)/BR050
Garage Unit (#51)/BR051
Garage Unit (#52)/BR052

Garage Unit (#53)/BR053
Garage Unit (#54)/BR054
Machine & Pipe Shops (#55)/BR055
Grounds Maintenance (#57)/BR057
Paint Shop (#106)/BR106
Medical Building (#108)/BR108
Rehabilitation Building (#110)/BR110
FTP 1 East (#113)/BR113
FTP Psychosocial (#114)/BR114
Edwin Goldman Building (#120)/BR120
FTP Main (New) (#121)/BR121
Charles F. Read (#27)/BR027

From the outdoor switchgear in the existing power plant, 2.4kV underground feeders are distributed throughout the campus. The campus has six (6) active loops for campus power distribution. Circuit Breaker No 9 & 13 South Loop serve Buildings BR017, BR022, BR026, BR029, BR030, BR039, BR043, and BR046. Circuit Breaker No 2 & 10 South Center Loop serves Building No. BR002, BR003, BR012, BR015, BR016, BR110. Circuit Breaker No 4 & 8 North Loop serve Building BR055, Well 1, BR067, BR068, BR069, BR070, BR071 and BR072. Circuit Breaker No 5 Feeder 5 serves Building BR031 Farm Colony overhead. Circuit Breaker No 15 serves Buildings BR080, BR083, and BR130. Circuit Breaker No 11 & 12 serve the Medical-Surgical Building. As built and current routing of these distribution loops and existing manholes are to be confirmed pending field survey.

Each building throughout the campus is provided with either an exterior or interior pad-mounted transformer to step down the 2.4kV power. Most of the building power is provided at three phase 208/120V, with few served at 480/277V.

The existing power plant (Building BR050) houses five boilers. One boiler is out of operation. Machine & Pipe Shops (Building BR055), adjacent to the power plant, is served by a 300 kVA transformer (T-29 N). For the interior distribution power of the power plant, there is a 150 kVA indoor 480V/208Y-120V transformer. Existing demand load at the power plant is estimated at 360 kW. There is an existing 160KW, 208V natural gas fueled emergency generator in the existing power plant to cater to the emergency loads at the existing power plant. This generator is in good working condition.

There are six additional diesel engine emergency generators used across the campus, serving Buildings BR121, BR120, BR110, BR107, BR030 and BR026. These generators cater to life-safety, critical loads for each building. There is no scope of work involving these generators under this project. Generator size data were not available at the time of preparing this report.

7.3 Performance Requirement

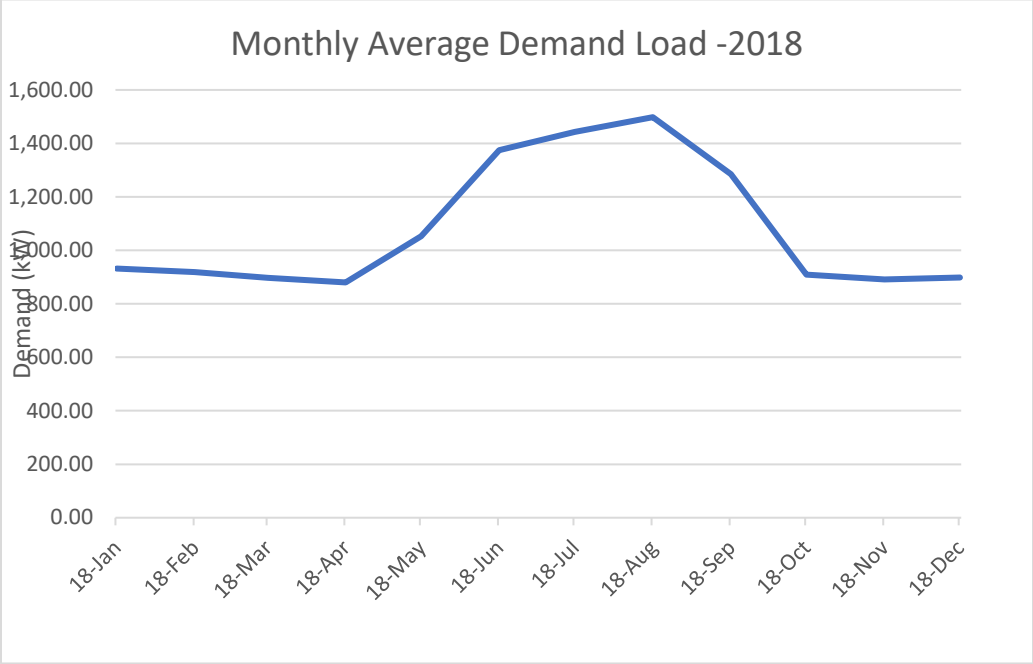
Based on the energy consumption data from ComEd, demand loads were analyzed and discussed for sizing of the generators. See Table 7-1 for overall monthly demand information at the campus from January 2018 to May 2020. This data was verified against the monthly invoices by Constellation.

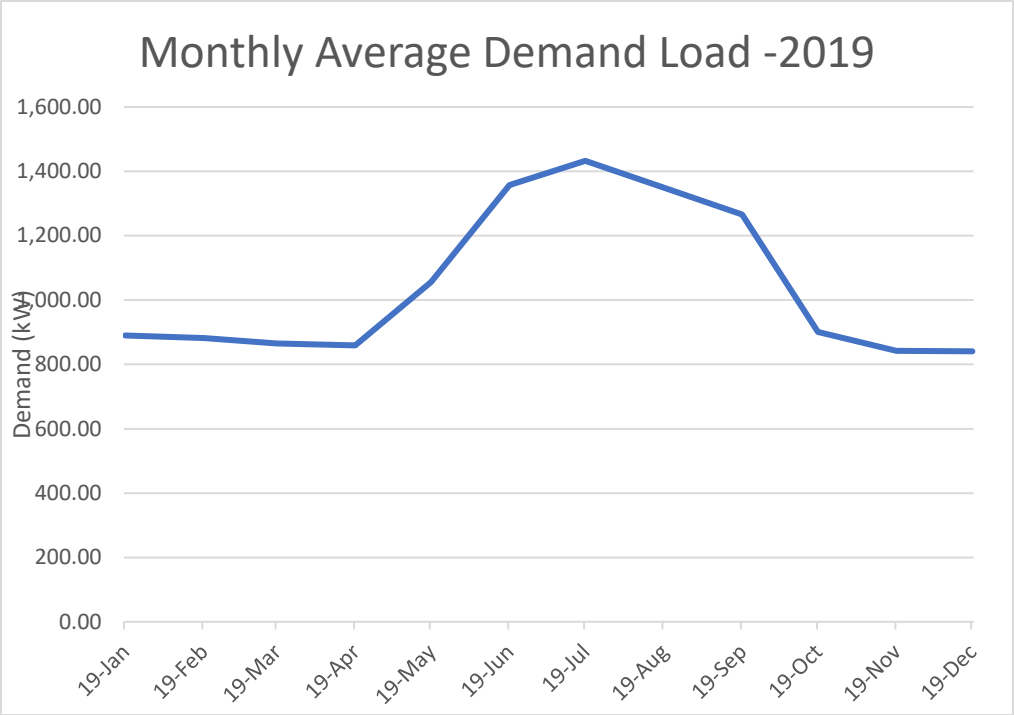
Table 7-1 Demand Load Calculations

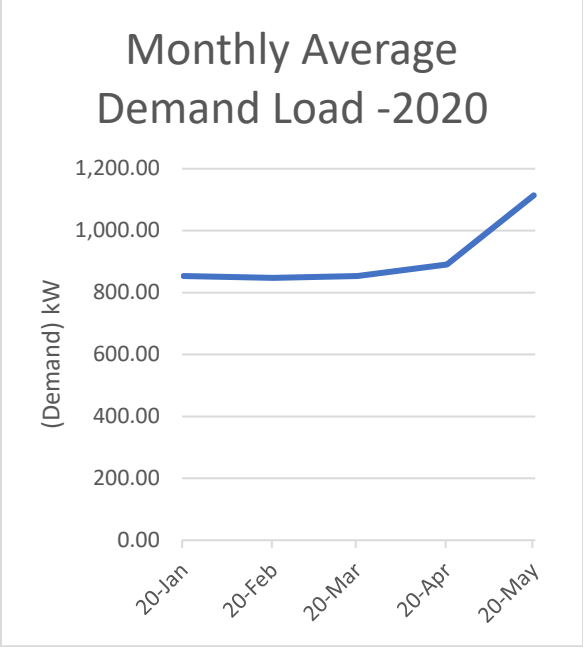
Demand Load Calculation based on ComEd Electricity Bills						
Month	**Bill from**	**Bill to**	**Days per Month**	**Energy Consumption (kWh)**	**Average Demand (kW) (Monthly)**	**Peak Demand (kW) (Monthly)**
18-Jan	1/10/2018	2/9/2018	30	671,197	932.22	1,141.76
18-Feb	2/9/2018	3/12/2018	31	683,946	919.28	1,123.84
18-Mar	3/12/2018	4/10/2018	29	624,420	897.16	1,047.68
18-Apr	4/10/2018	5/9/2018	29	612,488	880.01	1,223.68
18-May	5/9/2018	6/8/2018	30	758,428	1,053.37	1,603.20
18-Jun	6/8/2018	7/10/2018	32	1,055,395	1,374.21	2,006.40
18-Jul	7/10/2018	8/8/2018	29	1,004,161	1,442.76	1,728.00
18-Aug	8/8/2018	9/7/2018	30	1,078,614	1,498.08	1,924.48
18-Sep	9/7/2018	10/8/2018	31	956,444	1,285.54	1,843.20
18-Oct	10/8/2018	11/6/2018	29	632,770	909.15	1,434.88
18-Nov	11/6/2018	12/7/2018	31	663,453	891.74	1,059.20
18-Dec	12/7/2018	1/10/2019	33	711,244	898.04	1,017.50
19-Jan	1/10/2019	2/11/2019	32	683,449	889.91	1,054.08
19-Feb	2/11/2019	3/12/2019	29	613,948	882.11	1,040.00
19-Mar	3/12/2019	4/10/2019	28	581,520	865.36	985.60
19-Apr	4/10/2019	5/9/2019	29	597,959	859.14	1,331.20
19-May	5/9/2019	6/10/2019	32	811,025	1,056.02	1,492.48
19-Jun	6/10/2019	7/10/2019	30	977,634	1,357.83	1,862.40
19-Jul	7/10/2019	8/8/2019	29	997,289	1,432.89	1,932.80
19-Aug	8/8/2019	9/9/2019	32	1,036,223	1,349.25	1,699.20
19-Sep	9/9/2019	10/8/2019	29	880,816	1,265.54	1,767.68
19-Oct	10/8/2019	11/6/2019	29	626,806	900.58	1,265.28
19-Nov	11/6/2019	12/9/2019	33	666,694	841.79	1,012.48
19-Dec	12/9/2019	1/10/2020	32	645,703	840.76	1,012.48
20-Jan	1/10/2020	2/11/2020	32	655,474	853.48	1,015.68
20-Feb	2/11/2020	3/11/2020	29	589,803	847.42	1,004.80
20-Mar	3/11/2020	4/9/2020	29	594,194	853.73	1,009.28
20-Apr	4/9/2020	5/8/2020	29	619,768	890.47	1,078.40
20-May	5/8/2020	6/9/2020	32	855,633	1,114.11	1,699.20

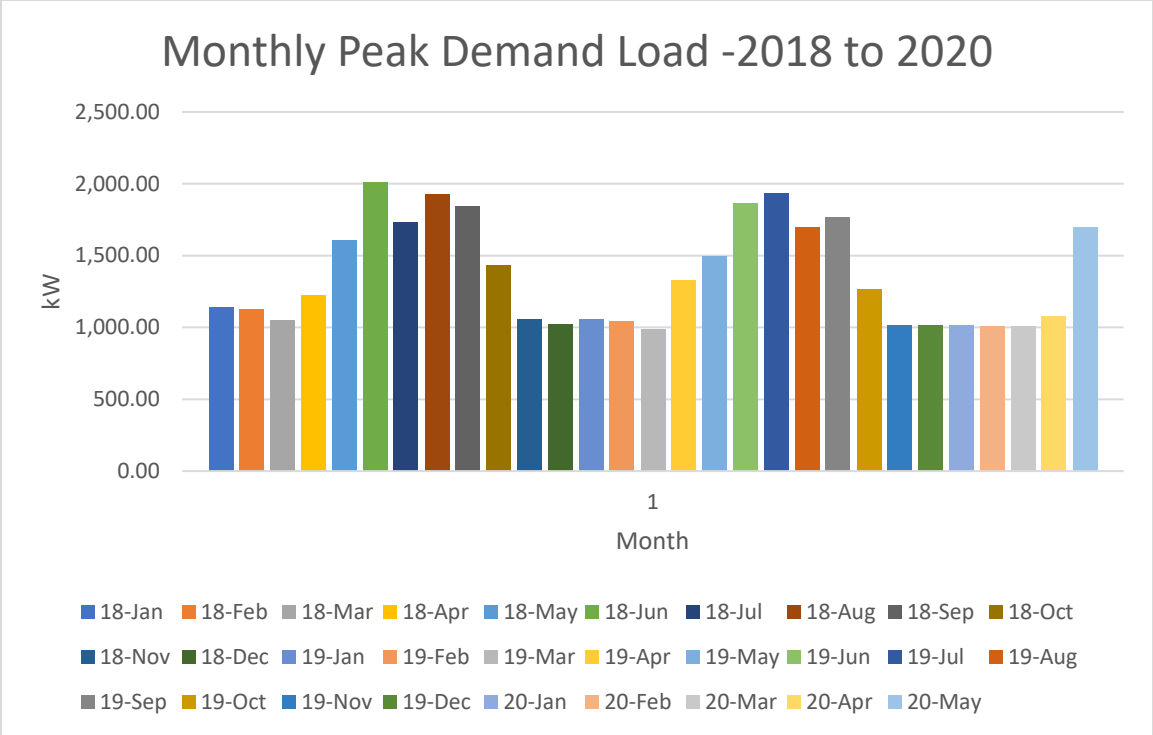
Year	Time of Year (Summer Months - April, May, June, July, Aug, Sep) Winter Months - Oct, Nov, Dec, Jan, Feb, March)	Average Demand (kW)	Peak Demand (kW)
2018	Summer Months	**1,255.66**	**2,006.40**
2018	Winter Months	**907.93**	**1,434.88**
2019	Summer Months	**1,220.11**	**1,932.80**
2019	Winter Months	**870.08**	**1,434.88**
2020	Summer Months	**1,002.29**	**1,699.20**
2020	Not Applicable		

The data shown in Table 7-1 above is shown in graphics format as below.




Monthly Average Demand Load -2019
1,600.00
1,400.00
1,200.00
1,000.00
800.00
600.00
400.00
200.00
0.00
Demand (kW)
19-Jan
19-Feb
19-Mar
19-Apr
19-May
19-Jun
19-Jul
19-Aug
19-Sep
19-Oct
19-Nov
19-Dec


Monthly Average Demand Load -2020
1,200.00
1,000.00
800.00
600.00
400.00
200.00
0.00
(Demand) kW
20-Jan
20-Feb
20-Mar
20-Apr
20-May



As seen on the data presented above, the campus experiences higher average demand loads as well as peak demand loads during summer. The highest monthly peak demand recorded at the campus was 2006.40kW in June 2018. The overall average monthly demand is 1037.31kW. The average monthly demand during the summer months is approximately 1300kW. The demand load at the existing power plant is estimated at 360 kW. There is a future 500kW chiller that will be added to the plant. The power requirement at the new power plant is estimated at 600 kW.

Overall demand at the campus is calculated below:

Total kW = 2006 kW-360 kW+500 kW+600 kW = 2746 kW

Upon further discussion with EHMC, it was found that the buildings BR026 FTP Main (Old), BR027 Charles F. Read and BR046 Mendel (OIG) may come online in the future. Building BR026 currently does not have any load except for a very few trade shops. Building BR046 is currently unoccupied. Building BR027 is currently partially occupied. Both building BR046 and BR026 will need major upgrade before it can be fully utilized. The total area of these 3 buildings is 176,252 square ft. Existing demand load data for these buildings are not available. Future load at these buildings have been estimated at 6VA per square ft for lighting and general power at a total of 1057kVA. However, most of these general loads are of intermittent nature. Heating and cooling loads are assumed fed from the Central Heating Plant.

Generator sizing was based on the existing peak demand data and future load with an approximate total demand of 3000kW. Two 1.5MW generators are recommended along with an additional 1.5 MW generator as backup to the main generators to provide backup.

7.4 User Requirements

N+2 electrical power configuration is desired by EHMC to allow backup generators to supply 100% backup power to the campus. Generators shall be able to provide 96 hours of power at peak load.

To achieve this, one new 3000kVA, 34.5kV-2.4kV, three phase pad mounted transformer will be installed outside of the new power plant. The existing outdoor ComEd transformer and switchyard at the existing power plant will be decommissioned.

Three new Medium Voltage (MV) Switchgear will be installed in the Electrical Room inside the power plant. Of these, two MV switchgear will be used to provide power to multiple MV feeders splice to the existing primary feeders and Low Voltage equipment will be installed indoor. See section 5 for more information on Low Voltage (LV) electrical distribution requirement for the power plant. See appendix G for proposed one-line drawings and plant layout.

As described in Section 7.3, a system generation capacity of 3MW would be adequate. Two 1.5 MW diesel engine generators are recommended to be installed with one additional diesel generator. This configuration along with ComEd utility connection will achieve N+2 redundancy. See Section 7.5 for the options on generator selection.

Two 10,000 gallon diesel (UL-2085) protected, double-wall tanks will be used as the main fuel storage, providing 96 hours of fuel. The tanks will also provide backup fuel for the boilers. However, the storage tanks will not be used for both boilers and engines at the same time under any scenario. See Section 6 for more information on fuel tanks. Given the size of the generators, day tank(s) providing three hours of storage and located within the generator room are recommended.

7.5 Generator Options

Outdoor generator sets were considered but given the size of the generators and the limited amount of land available to fit the new power plant and fuel storage tank, it was determined that indoor generator sets are the most practical solution.

7.5.1 Generator Recommendation:

Three (3) diesel engine generators in the Generator Room in the new power plant: Open set generators with unit mounted radiators are considered as the basis of design. Two generators will provide primary backup power and the third generator will act as the backup in case of any failure thus achieving N+2 redundancy. Conventional paralleling switchgear will be used. All medium voltage switchgear will be double stack and housed in the Electrical Room inside the new power plant. One 600 gallon day tank will be provided in the Generator Room. Onsite, outdoor storage tanks will be furnished to store enough fuel to sustain generator operation for an extended outage of 96 hours.

7.6 Power Plant Electrical Design

Low Voltage electrical distribution design at the new power plant will include power for HVAC equipment, water equipment, receptacles, welding receptacles, backup power for emergency and egress, critical loads inside the plant, indoor/outdoor lighting, parking lights, and emergency/exit lighting. A new emergency generator will be provided to carry the emergency, life safety loads at

the new power plant. See Section 5 for more information on Low Voltage (LV) electrical distribution requirement for the power plant.

7.7 Power Plant Communication Design

The new power plant will be provided with a dedicated Telecommunications Area for installing communication racks and other accessories. A fiber optic data line will be extended from the Rehabilitation Building (BR110) to the south. Voice Over Internet Protocol (VoIP) will be required for phone. Each trade room will be provided with two data line drops. Design-Build contractor shall provide infrastructure for Telecommunications from Rehabilitation Building BR110 to new power plant. Equipment, fiber optic cable, cable pulling and termination will be by CMS.

Section 8

Utility Interconnections

8.1 Basis of Design

A. Comply with requirements of utility company supplying water and natural gas services

B. Comply with 2014 State of Illinois Plumbing Code for potable-water-service piping, including materials, installation, testing, and disinfection.

C. Comply with 2018 International Fire Code for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

D. Comply with 2018 International Mechanical Code for natural gas and steam service piping, including materials, installation, and testing.

E. Relevant Codes and Standards for utilities in the tunnels and those that will be direct buried.

F. Comply with NEC standards (2017 edition) for electrical distribution systems, including materials, installation, and testing.

G. Water service:

1. Piping materials shall bear label, stamp, or other markings of specified testing agency.
2. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.
3. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.
4. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372.

H. Gas service:

1. Piping materials shall bear label, stamp, or other markings of specified testing agency.

J. Steam and condensate piping:

1. Comply with ASME B31.9 for materials, products, and installation.
2. ASME Compliance: Provide safety valves and pressure vessels bearing appropriate ASME labels.

K. Electrical interconnections (to existing campus distribution system 2.4KV):

1. Furnish and install new underground electrical concrete encased duct banks from new Power Plant switchgear to existing manholes and loop switches.
2. Furnish and install additional electrical man holes and remove, decommission ones that may not be required.
3. Evaluate physical condition of existing manholes, loop switches and cable feeders where existing feeds interconnected to new.
4. Modify existing hand holes as required for system reconnection.
5. Before excavating locate all existing utilities: electrical, tele-data/fiberoptic, gas, water, steam etc.
6. Back fill and restore affected areas and surfaces to previous condition or as directed within PA documents.

8.2 General Description

A. Various systems that will be interconnected from the new power plant to the campus existing utility network. The interconnected utility services shall include:

B. Water service: The new power plant building shall be served by a 8” combined domestic and fire protection. The fire sprinkler side to be 6” and the domestic side to be 4” and exact sizes to be determined per building usage”. The 8” service inters enter the building from South side of the building and pipe shall connected to the existing 10” water main at south of the building. Refer to Appendix G sheet C-6.

C. Gas service: New 60 psi gas service shall be coming from east of the new power plant building. Facility gas meter and pressure regulator shall install at North East side of the building to reduce the gas pressure down to 10 psi. A 6” 10 psi gas pipe shall enter the new power plant at the east side of the building. A separate 4” 10 psi direct buried gas pipe shall run west at the south side of the Middle road to intercept existing gas service lines of Mendel building #46 and Dietary buildings #30 to the west side of the facility. Exact sizes to be determined per building usage. Refer to Appendix G sheet C-6 and C-7.

D. Steam and condensate service: Our initial investigation of existing drawings identified the proposed of tie-in points of new power plant to existing steam and condensate distribution network shall be located at approximately 500’-0” west of the new power plant building. The 150 psi steam and 15 psi condensate piping from the new power plant shall run direct buried or in utility tunnel to make connection to the existing 14” steam and condensate main in the south utility tunnel to the south side of the Middle road. A separate direct buried steam and condensate piping shall run from the new power plant south side to intercept existing steam and condensate lines of Rehabilitation building #110. Refer to Appendix G sheet C-6.

E. Electrical underground distribution feeds (2.4KV): Existing campus buildings have been served by 2.4KV feeders connected to loop switches and step-down transformers 2.4KV-480/277V and 2.4KV-120/208V located by the buildings. New loop feeders (from new power plant) shall interconnect to existing; either within existing man holes

or new. Condition of existing manholes, loop switches and cable feeders where exiting feeds interconnected to new must be physically evaluated.

8.3 User Requirements

The Using Agency has requested a dedicated steam line be provided to the Rehabilitation Building BR110 directly from the new power plant.

Section 9

Environmental

9.1 Basis of Design

The basis of design includes a review of Federal, State and local agency required permitting activities associated with the construction and operation of the New Power Plant, as well as the decommissioning of the existing power plant. The asbestos abatement of the existing power plant will be an Alternate to the base bid. This section includes the following assessments:

- Permit Matrix
- Air Permitting Narrative
- Phase 1 Environmental Site Assessment (ESA)
- Lead Based Paint (LBP) Sampling
- Asbestos Containing Materials (ACM) Discussion

9.2 General Description

The below provides for a detailed summary of the above noted assessments, with referenced appendices, to supplement the summary. Section 9.8, Environmental Responsibilities, clarifies whether the Bridging AE or the Design Build AE will perform certain studies, investigations and make applications for permits, as well as define the recommended air permit scenario described in Section 9.3.

Table 9-1 Permit Matrix

Agency	Permit/ Plan/ Approval/ Report	Schedule	Agency Associated Fees	Regulated Activity
Illinois EPA (IEPA)	Lifetime Operating Permit 74080024	Varies according to the permit scenario. Construction permits are approximately 8 - 10 weeks. Operating permits are longer, but applicants can operate under a permit shield.	Fees vary significantly depending on permitting actions: The fee for changing from a minor source to either a synthetic minor or major source is $5K; a new major Nonattainment NSR is $20K. Construction permitting fees will range from $5-10K. An additional $10K fee is assessed if a public hearing is required.	Potential NSR and CAA Permitting Issues
EPA (for possible NSR and Title V permitting)				Submit Construction permit application and Operating permit applications.
				• Boilers (subject to 40 CFR 60 Subpart Dc)
				• Backup generators (subject to 40 CFR 60 Subpart JJJJ, 40 CFR 63 Subpart ZZZZ)
				• Diesel storage tank is exempt (35 IAC 201.146(n))
IEPA	Stormwater Construction General Permit ILR10	Authorization starts 30 days after IEPA receives NOI and SWPPP unless notified to the contrary.	Submit annual fees ($250 - 750 depending on size)	Prepare & Submit Notice of Intent (NOI).
				Prepare & Submit Stormwater Pollution Prevention Plan for Construction Activities
				Prepare & Submit Notice of Termination (NOT) when construction is complete and the site is stabilized, all construction materials, waste, and waste handling devices have been removed and properly disposed and all construction equipment has been removed from the site.
	Stormwater General Permit ILR00	NA (not waiting for authorization)	Annual permit fee is $500.	Revise and submit existing SWPPP.

Agency	Permit/ Plan/ Approval/ Report	Schedule	Agency Associated Fees	Regulated Activity
				Monitor/inspect storm water samples from new outfalls (if applicable).
City of Elgin	Stormwater Management Title 21, City of Elgin Ordinances		Approximately $1,000	Submit Drainage Plan, comply with site runoff requirements.
Kane County	Kane County Stormwater Management Permit - Not required if project is within city limits of Elgin.			A stormwater management plan is required if the development has a detention storage facility previously permitted and the net new impervious area is less than 5,000 sf and storage for those improvements is not included in that detention storage facility.
IL DNR / Water Resources	Floodplain Permit - Likely not required, project is not in floodplain or floodway			A permit is required for construction activities within the floodway of streams draining one square mile or greater in an urban area or ten square miles or greater in a rural area.
US EPA	SPCC Plan	Update SPCC plan within 6 months, implement any changes in the plan with 6 months of the amendment. Revised Plan must be certified by a Professional Engineer.	No fees identified.	Amend plan when there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge. Revised Plan must be certified by a Professional Engineer. Provide secondary containment for new tanks, loading/unloading areas.

Agency	Permit/ Plan/ Approval/ Report	Schedule	Agency Associated Fees	Regulated Activity
US EPA US EPA	EPCRA Section 302 - EHS Notification Use Tier II Manager reporting software.	If at any time a facility obtains an EHS exceeding the TPQ, that facility must notify the SERC/TERC and LEPC within 60 days.	No fees identified.	Provide notification of storage of Extremely Hazardous Substances in amounts equal to or greater than the Threshold Planning Quantity (TPQ) (within 60 days of bringing onsite). (Note: TPQ for sulfuric acid is 1,000 lbs). SARA Title III List of Lists is attached.
	EPCRA Section 311-312 - Tier II Reporting	Reports due March 1 of every year.	No fees identified.	Tier II report must include new chemicals as well as increased usage of existing chemicals due to project.
				Site plans submitted as part of Tier II reports will need to consider new chemical storage locations.
IEPA	RCRA Hazardous Waste	NA (not waiting for authorization)	Generator fees are $500 per year.	Calculate monthly hazardous waste generation rate to confirm generator status has not changed due to new facility. If generator status has changed, submit Form 8700-12 to IEPA.
IL DNR	Endangered Species Act	Prepare and submit an Agency Action Report to DNR (EcoCAT). DNR will issue a response within 30 calendar days.	Consultation Fee $500	Any construction, land management or other activity authorized, funded or performed by a State agency or local unit of government that will result in a change to the existing environmental conditions and/or may have a cumulative, direct or indirect adverse impact on a listed species or its essential habitat or that otherwise jeopardizes the survival of that species and/or may have a cumulative, direct or indirect adverse impact on a Natural Area shall be evaluated through the consultation process. This includes but is not limited to:

Agency	Permit/ Plan/ Approval/ Report	Schedule	Agency Associated Fees	Regulated Activity
				• the alteration, removal, excavation or plowing of non-farmed, non-cultivated areas, or dredging of soil, sand, gravel, minerals, organic matter, vegetation, or naturally occurring materials of any kind, • the changing of existing drainage characteristics or sedimentation patterns; • the grading or removal of materials that would alter existing topography; • a discharge of pollutants into the air, water, or on the land
IL DNR	Wetlands Policy	Prepare and submit an Agency Action Report to DNR (EcoCAT).	Consultation Fee $500	May require a Qualified Wetlands Review Specialist if a delineation is required.
		Approximately 30 days for delineation/report. 45-60 days for regulatory review.	No fees identified.	Submit a Joint Application based on EcoCAT findings. Joint Application must include onsite delineation report. Report must be certified by Kane County qualified wetland review specialist.

Agency	Permit/ Plan/ Approval/ Report	Schedule	Agency Associated Fees	Regulated Activity
IL DNR/ IL State Historic Preservation Office	Historic Preservation Act	If Director issues response within 30 days that no resources will be affected, he will inform the agency and the project may proceed. If the Director does not issue a no effect finding within 30 days after receipt of the notice for the undertaking, the Director will consult with the State agency to determine the documentation necessary to identify and evaluate historic resources within the Area of Potential Effects. If the Director determines that historic resources as defined in Section 3(c) of the Act exist within the Area of Potential Effects, he will notify the State agency within thirty (30) calendar days. The State agency may proceed with an undertaking if no response is received from IHPA within forty-five (45) calendar days after date of completed documentation.	No fees identified.	Submit Notice of Undertaking (17 IAC Part 4180.200), to include: • a brief description of the proposed undertaking, including identification of State agency involvement; • a map and other description of the location of the proposed undertaking as appropriate, including known prior land uses; and • current photographs of all structures above ground within the Area of Potential Effects, any history generally known about the area or known previous surveys.
IL DNR/ IL State Historic Preservation Office (SHPO)	Archeological and Paleontological Resources Protection Act	SHPO has 30 days to review and provide a response.	No fees identified.	Submit a letter to SHPO describing project and requesting review. If the project requires a federal EPA permit, then EPA will need to submit a request for review as well.

9.3 Air Permitting Narrative

9.3.1 Current Permit Summary

EMHC is supplied steam and electricity from the existing power plant on the EMHC campus (Campus) operating under Lifetime Operating Permit No. 74080024 (LOP), which permits operation of four (4) boilers that provide steam to the Campus: boiler numbers 3, 4, 5, and 6. Boilers 3 and 4 (Wickes ASME 5694) fire on natural gas and boilers 5 and 6 (Lasker #582 and

#583) fire on natural gas with fuel oil backup. The LOP limits operation of no more than two (2) boilers at a time during any given time period. Natural gas usage is limited to 350 MMcf per year, and fuel oil usage is limited to 20,000 gallons per year with a maximum sulfur content of 0.3% by weight. The LOP includes the emission rates and annual emissions as shown in Table 9-2 below. Compliance is strictly demonstrated by recording monthly and annual fuel usage on a 12-month rolling basis.

Table 9-2 LOP 74080024 Emission Limits

Pollutant	Emission Rate, lb/MMscf	Emissions, tons/yr
Nitrogen Oxides (NOx)	140.0	24.5
Carbon Monoxide (CO)	35.0	6.1
Volatile Organic Material (VOM)	5.8	1.0
Particulate Matter (PM)	6.2	1.1
Sulfur Dioxide (SO2)	0.6	0.1

Consultant was made aware of the following other emitters: one (1) Caterpillar model 3406 (20 KVA/160 kW) natural gas-fired, back-up generator for the existing power plant; additional backup generators at other buildings on the Campus; and a fuel oil tank, all of which are not listed within the LOP. Illinois Administrative Code 35 IAC 201.146 provides exemptions for certain reciprocating internal combustion engines and for diesel storage tanks.

9.3.2 New Project

EMHC is proposing installation of the New Power Plant at a different location than the existing power plant within the Campus. The existing boilers will be used while the New Power Plant is being constructed. The New Power Plant will include one (1) 1,200 hp and three (3) 500 hp dual-fuel firetube boilers (primary fuel will be natural gas with backup fuel being fuel oil) to provide steam to the Campus for building heat and other needs. The New Power Plant will include: three (3) 1,500 kW diesel backup generators; one (1) 160 kW natural gas emergency generator; a 600 gallon fuel oil double-walled day tank; and two (2) 10,000 gallon main fuel oil storage tanks, double-walled, to provide backup fuel for both the boilers and backup generators. Two operating scenarios are planned for the boilers: the 1,200 hp operating simultaneously with one 500 hp boiler or two 500 hp boilers operating simultaneously. After the New Power Plant is operational, EMHC intends to decommission the existing power plant. As such, there will be a limited time in which both the existing and the New Power Plant will be operational and require a combined air permit; further addressed below.

9.3.3 New Project Air Permitting Scenarios

In September 2019 the EPA designated the Chicago area, which includes the EMHC, as serious non-attainment for ozone. As a result, the major source thresholds for NOx and VOM, which are precursors to ozone, was reduced from 100 tons/year to 50 ton/year (each) for Nonattainment New Source Review (NSR) permitting and for Clean Air Act (CAA) Title V permitting programs. Nonattainment NSR permitting requires achieving lowest available emission rates (LAER), emission offsets, federal review, and public involvement. CAA permits for major and synthetic minor sources require public involvement and review by the US EPA.

Three (3) possible permitting scenarios are identified; with the last scenario representing the least complex permitting process. In addition to the boilers, the new backup generators will require construction and operating permits: Illinois regulations require permits for stationary internal combustion engines greater than 1,118 kW in capacity. The project-related emissions consist of the potential emissions from the new boilers and the new backup generators. Facility-wide emissions include the emissions from the existing power plant in addition to the project-related emissions. The existing power plant will remain in operation during installation and commissioning of the New Power Plant. As such, pollutant emissions from both the existing and New Power Plant are combined when considering the operating permit scenarios.

Permitting Scenario 1

For the case in which project-related emissions of NOx exceed 50 ton/yr, the project is considered major for nonattainment NSR. The facility would be a major source for Title V permitting because the major source thresholds for the project and the facility have been exceeded. This represents the most complex and costly option because the facility must apply for a major source Nonattainment NSR permit for the project, as well as a Title V permit for facility.

Permitting Scenario 2

For the case in which project-related emissions of NOx are less than 50 ton/yr, but the facility-wide NOx emissions exceed 50 ton/yr, the project is considered minor for nonattainment NSR, however the facility becomes major for the NSR permitting and Title V permitting programs. The facility will need to apply for a construction permit for the New Power Plant and apply for a Title V operating permit under the CAA Permit Program (CAAPP). These permitting actions will involve EPA review and public involvement. For future projects, the facility would be considered a major source for NSR permitting and any physical change or change in operation would be required to be evaluated to determine whether it was a major modification subject to an NSR permit.

Permitting Scenario 3

For the case in which project-related NOx emissions are limited to less than 24 ton/yr, this would result in facility-wide emissions less than 50 ton/yr. The project would require a construction permit for the new boilers and new backup generators, and then inclusion of the new equipment into an operating permit. In order to limit facility-wide NOx emissions to below 50 ton/yr, fuel usage limits will need to be imposed in the operating permit, resulting in a synthetic minor operating permit, or a Federally Enforceable State Operating Permit (FESOP). After the New Power Plant is operational, a modification to the FESOP to remove the existing power plant boilers 3, 4, 5, and 6 will allow the fuel usage limits for the new power plant to be increased. Potential emissions are shown in Table 9-3 for the existing equipment and the new power plant. The potential emissions for the new power plant are based on proposed fuel usage limits of 352 MMcf/year natural gas and 93,000 gallons/year fuel oil for the project, however, these operating limits are proposed to illustrate the permitting scenario and can be adjusted.

Table 9-3 Facility-wide Emissions

Pollutant	Existing Equipment Emissions, tons/yr	Project Related Emissions, tons/yr	Facility-wide Emissions, ton/yr
Nitrogen Oxides (NOx)	24.5	19.72	44.22
Carbon Monoxide (CO)	6.1	9.07	15.17
Volatile Organic Material (VOM)	1.0	1.15	2.15
Particulate Matter (PM)	1.1	1.85	2.95
Sulfur Dioxide (SO2)	0.1	6.44	6.54

9.3.4 Summary

EMHC will decommission the existing power plant after the New Power Plant is operational. The asbestos abatement work will be included as part of Alternate 2. Maintaining facility-wide NOx emissions below 50 tons/yr (Permitting Scenario 3) represents the least complex permitting approach. In this case, the application submittals will include a construction permit application for the New Power Plant (boilers and backup generators), and an application for a FESOP as a synthetic minor source. After decommissioning the existing power plant, the FESOP would need to be updated to remove boilers 3, 4, 5, and 6 from the permit. Because the limits in a FESOP permit are federally enforceable, a FESOP permit application will involve public notice and review by the EPA.

Permitting fees vary depending on the number of emission units and type of permits required. Construction permit fees are $4K for the first new emission unit and $1K for each additional new emission unit, with a maximum of $10K for modified units under Section 4 of IL EPA Form 197-fee. If a public hearing will be involved there is an additional fee of $10K. A new major Title V permit or FESOP operating permit is $5K, and a fee of $20K applies to a new major source subject to nonattainment NSR.

9.4 Phase 1 Environmental Assessment

A Phase I ESA was performed under Additional Services by Stanley Consultants, Inc. (Consultant) in conformance with the scope and limitations of Practice ASTM E1527-13. Any exceptions to, or deletions from, this practice are described in Section 1 of the Phase I ESA (Appendix D).

The purpose of a Phase I ESA is to meet the requirements of All Appropriate Inquiry (AAI) under the Comprehensive Environmental Response Cleanup and Liability Act (CERCLA), to permit the user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations. This was also being performed as a precautionary measure to assess general conditions in support of the future design-build bidders for the project. The Phase I ESA also captures the historical uses of the site.

The Phase I ESA was completed at 750 South State Street in Elgin, Illinois (Property) for the benefit of the CDB (Client). The Property is a part of the Campus, including areas planned for future development. The areas included are the park south of Assembly Hall, the former general hospital (north of the rehabilitation building), and the area east of the former general hospital. The primary future construction area is the area of the former general hospital, east of Assembly Hall, south of

Middle Road, and north of the rehabilitation building. The areas west and east of this area were included for utility and drainage additions.

The Phase I ESA revealed evidence of recognized environmental conditions (RECs) in connection with the property, and therefore, a Phase II ESA was performed to determine potential soil and groundwater impacts. Results are located in the Subsurface Environmental Investigation report included in Appendix C.

9.5 Lead Based Paint Sampling

Lead Based Paint (LBP) sampling was performed under Additional Services by Consultant's Lead Risk Assessor licensed by the IDPH. A detailed summary and background information and test results are represented within Appendix C. Sampled items were related to items in which the existing power plant would be decommissioned and include the following:

- L-1: Main natural gas pipe
- L-2: Main steam pipe
- L-3: Water supply pipe (east)
- L-4: Water supply pipe (west)
- L-5: Vacuum condensate return pipe
- L-6: Campus condensate return line (south)
- L-7: Electric substation (east)

Samples were analyzed by EMSL Analytical in Hillside, Illinois for lead. Samples at or above 0.5% by weight is considered lead-based paint by EPA and Housing and Urban Development (HUD) regulations. One (1) sample, L-5, contained 3.2% by weight of lead. The other samples were below 0.5% by weight with noting that sample L-7 did not have enough sample pieces necessary for testing. L-7 is a powder coated paint on the electrical gear, which is difficult to obtain samples, however the electrical gear appears to have been manufactured after the use of LBP.

OSHA does not recognize a standard for LBP, however, considers any % by weight of lead as lead-containing paint. If someone were to cut, torch, weld, sand or abrade components with lead-containing paint, personal air monitoring and proper personal protective equipment (PPE) controls must be in place or the lead paint must be abated. Proper remediation and abatement will be by a licensed professional, in accordance with all applicable local, State and Federal regulations, laws, and guidelines.

9.6 Asbestos Containing Materials Discussion

Sample testing was not made for asbestos containing materials (ACM) per direction from the CDB. Instead, the CDB directed Consultant to review the prior ACM inspection reports (ACM Reports) to ascertain the need for asbestos abatement. The ACM Reports have identified where ACM is present within the existing power plant and associated tunnels (note, CDB and EMHC have confirmed that there is no ACM abatement required within the tunnels and this abatement cost is not included herein). Part of the scope of the existing plant decommissioning is to abate ACM. The abatement is included as Alternate 2 to the base bid. Proper remediation and abatement will be by

a licensed professional in accordance with all applicable local, State and Federal regulations, laws, and guidelines. The ACM Reports utilized in Consultant's analysis are referenced below.

- ACM-R2: Asbestos Management Plan Report, EMHC – Power House, CDB Building No. BR050, by C & W Bradley, P.C., Dated January 31, 1996
- ACM-R3: Asbestos Reinspection Management Plan Update, EMHC – Power Plant, CDB Building No. BR050, by Environmental Design International, Inc., Dated July 1, 2002

An estimate of probable cost has been made for abatement of all ACM identified within the ACM Reports. In general, the costs associated with each of the ACM Reports is summarized below for a total abatement cost of $772,016.

- ACM-R2: $747,516
- ACM-R3: $24,500

9.7 Special Environmental Statutory Requirements

Along with the Permit Matrix determinations above, the following major environmental statutory requirements have been reviewed:

- Farmland Preservation Act
- Endangered Species Act
- Wetlands Policy Act
- Historic Preservation Act
- Archeological and Paleontological Resources Protection Act
- Clean Water Act

The below is a summary as to the project's need to comply with the above major environmental statutory requirements.

9.7.1 Farmland Preservation Act

The Farmland Preservation Act, 505 ILCS /1 et seq., seeks to "minimize the conversion of prime farmland that results from the direct or indirect effects of State programs...". In compliance with that act, CDB has adopted an Agricultural Land Preservation Policy and a working agreement with the Department of Agriculture.

No State funds may be committed for land acquisition or construction unless it is provided for in an exception in CDB's working agreement with the Department of Agriculture or until a study of the agricultural impact has been completed by the Department of Agriculture.

If required, CDB shall notify the Dept. of Agriculture if the proposed project will lead to conversion of farmland to nonagricultural purposes. The A/E may be directed to mitigate the conversion to greatest extent possible. This policy does not affect the agreement and any effort involved is considered part of the basic services.

Conclusion: The project does not contemplate the acquisition of land and will be repurposing land used prior for EMHC operations. No need to notify the Department of Agriculture.

9.7.2 Endangered Species Act

The Illinois Endangered Species Protection Act, 520 ILCS 10/1 et seq., provides protection for the State's threatened or endangered flora and fauna. It is the public policy that all agencies, through a consultation process with the Department of Natural Resources, determine whether any action funded by CDB is likely to jeopardize the continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species...". CDB may request the A/E to prepare or cause to be prepared a determination of the project impact on any endangered flora and fauna at the site. This study would be an additional service under the agreement.

Conclusion: For the reasons listed within the above Permit Matrix, the project will require compliance with the Endangered Species Act. As such, the CDB should request the A/E to prepare or cause to be prepared a determination of the project impact on any endangered flora and fauna at the site. This study would be an Additional Service under the agreement. This will require the preparation and submittal of an Agency Action Report to DNR (EcoCAT); the DNR will issue a response within 30 calendar days.

9.7.3 Wetlands Policy Act

The Interagency Wetlands Policy Act of 1989, 20 ILCS 830 /1et seq., requires State agencies to avoid impacting wetlands. If impacts are unavoidable, compensation is required. This Act is administered by the Department of Natural Resources through administrative rules that the department has and may promulgate.

Any CDB project having an adverse impact to a wetland is subject to compliance with this act and the associated administrative rules. No project impacting a wetland shall commence without review and approval of the compensation plan by the Department of Natural Resources.

The A/E shall prepare, or cause to be prepared, a wetland impact determination according to the administrative rules. In addition to the project identifying information, the A/E shall provide the alternative actions considered and the justification for the selected alternative that may or is likely to adversely impact a wetland.

The A/E may be requested to prepare a wetlands compensation plan when the wetland determination which adversely impacts a wetland is approved. This plan must be developed in cooperation with the using agency and CDB.

If the project impacts a wetland, both the determination and the compensation plans must be approved by the Department of Natural Resources prior to commencement of the design.

The preparation of a wetland determination and compensation plan is an additional service to the agreement.

Use the technical procedures approved by or recommended by the Interagency Wetlands Committee.

1997 Illinois Wetland and Creation Guide

US Corps of Engineers Wetland Delineation Manual (www.wes.army.mil/el/wetlands)

Conclusion: For the reasons listed within the above Permit Matrix, the project will require compliance with the Wetlands Policy. As such, the CDB should request the A/E to prepare or cause to be prepared a determination of the project impact on any wetlands at the site. This study would be an Additional Service under the agreement. This will require the preparation and submittal of an Agency Action Report to DNR (EcoCAT) which requires a wetland delineation report, certified by the County of Kane; the regulatory response (DNR and County) will be within 60 calendar days of receipt of request.

9.7.4 Historic Preservation Act

The Historic Preservation Act, 20 ILCS 3410/9, states that "Public funds administered by State agencies shall not be used in projects which will have an adverse economic or environmental impact on a Registered Illinois Historic Place unless in the opinion of the Director (Historic Preservation Agency):

the project is necessary to provide an important public service or benefit
the project cannot be carried out practically so as to avoid the adverse effect and
the adverse effect is minimized to the maximum extent feasible."

A historic place includes real property where any significant improvements are at least 50 years old or any aboriginal mound, fort earthwork, village, location, burial ground, historic or prehistoric ruin, mine case or other location which is or may be the source of important archeological data. A Registered Illinois Historic Place means any historic place placed on the registry.

CDB may request the A/E to prepare or cause to be prepared an impact statement of the project on a Historic Place. This would be an additional service to the agreement.

Any project that is subject to the provisions of this act may require review for adverse impact by the Illinois Historical Preservation agency (IHPA), early in the design process. The CDB PM shall provide the A/E with a copy of the IHPA Architectural/Engineering Review handout when applicable.

Conclusion: For the reasons listed within the above Permit Matrix, the project will require compliance with the Historic Preservations Act. As such, the CDB should request the A/E to prepare or cause to be prepared a Notice of Undertaking within the Area of Potential. This submittal would be an Additional Service under the agreement. The regulatory response (DNR and State Historic Preservation Office, SHPO) will be within 30 to 60 calendar days.

9.7.5 Archaeological and Paleontological Resources Protection Act

The Archaeological and Paleontological Resources Protection Act, 20 ILCS 3435, regulates the exploring, excavating, and surveying of all such resources on public land through the Historic Preservation Agency (HPA). Resources are defined as any significant material remains or localities of past human life or activities. A permit from the HPA is required before disturbance, exploration, excavation or collection of any resources protected by this act is commenced.

CDB may request the A/E to prepare, or cause to be prepared, an application for a permit from HPA when CDB believes that significant archaeological or paleontological resources exist on a project site. CDB may also request the A/E or its consultant to explore, survey, and collect information on the resources on the site. This would be an additional service to the agreement.

If during the life of the project, archaeological or paleontological resources are unexpectedly discovered on the project site, the A/E shall issue directives to protect the resources and advise CDB immediately of the findings.

Conclusion: For the reasons listed within the above Permit Matrix, the project will require compliance with the Archaeological and Paleontological Resources Protection Act. As such, the CDB should request the A/E to prepare or cause to be prepared an application for permit from SHPO. This submittal would be an Additional Service under the agreement. The regulatory response (DNR and State Historic Preservation Office, SHPO) will be within 30 calendar days.

9.7.6 Clean Water Act

All discharges of pollutants into waters of the United States are illegal unless they comply with a permit or with approved standards. 'Pollutants' includes any dirt or waste. 'Waters of the United States' includes any body of water that eventually reaches a navigable body of water by an overland route, including streams and ditches that may be dry for most of the year.

The Clean Water Act calls for two types of permits: NPDES (National Pollutant Discharge Elimination System) under Section 402 or dredge and fill permits under Section 404.

NPDES permits are required on construction sites when storm waters may carry soil or other pollutants into waters of the United States. NPDES permits are issued in Illinois by the Illinois Environmental Protection Agency (ILR 10).

For further information, contact the IEPA: 217/782-0610.

Conclusion: For the reasons listed within the above Permit Matrix, the project will require compliance with IEPA stormwater requirements. The design-build contractor would be responsible for submitting an application for Stormwater Construction General Permit ILR10.

9.7.7 Flood Plain Construction Policy

In response to Executive Order 2006-05, CDB has adopted the following policies. Assistance may be requested from IDNR Office of Water Resources.

All development shall comply with all requirements of the National Flood Insurance Program (44 C.F.R. 59-79) and with all requirements of 92 Illinois Administrative Code Part 700 or 92 Illinois Administrative Code Part 708, whichever is applicable.

All new Critical Facilities shall be located outside of the floodplain. Where this is not practicable, Critical Facilities shall be developed with the lowest floor elevation equal to or greater than the 500-year frequency flood elevation or structurally dry floodproofed to at least the 500-year frequency flood elevation.

All new buildings shall be developed with the lowest floor elevation equal to or greater than the Flood Protection Elevation or structurally dry floodproofed to at least the Flood Protection Elevation (one foot above the applicable base flood or 100-year frequency flood elevation).Modifications, additions, repairs or replacement of existing structures may be allowed so long as the new development does not increase the floor area of the existing structure by more than twenty (20) percent or increase the market value of the structure by fifty (50) percent, and does not obstruct flood flows.

A/Es shall submit a statement with the PA/DD submittal affirming compliance with the Flood Plain Construction Policy.

Conclusion: The project is in compliance with the Flood Plain Construction Policy.

9.8 Environmental Responsibilities

This section clarifies the environmental scopes provided by the Bridging AE (B-AE) and the Design Build AE (DB-AE). The regulated activities necessary for each of the below is further detailed in Table 9.1 - Permit Matrix.

ITEM	B-AE	DB-AE
Illinois EPA (IEPA) - Permit to Construct		X
IEPA - Federally Enforceable State Operating Permit		X
IEPA - Stormwater Construction General Permit ILR10		X
IEPA - Stormwater General Permit ILR00		X
City of Elgin	Not Required per State	
Kane County	Not Required per State	
US EPA - SPCC Plan		X
US EPA - EPCRA	By User	
IEPA - RCRA	By User	
IL DNR - Endangered Species Act	X	
IL DNR - Wetlands	X	
IL DNR/ SHPO - HPA & APRPA	X	

Related to the air permit, it is recommended that the Design Build AE plan for directing and facilitating Permit Scenario 3 detailed further in Section 9.3 Air Permitting Narrative.

Section 10

Decommissioning of Existing Plant

10.1 Basis of Design

A. Comply with requirements of utility company supplying water and natural gas services.

B. Comply with 2014 State of Illinois Plumbing Code for potable-water-service piping, including materials, installation, testing, and disinfection.

C. Comply with 2018 International Fire Code for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

D. Comply with 2018 International Mechanical Code for natural gas and steam service piping, including materials, installation, and testing.

E. Comply with NEC standards (2017 edition) for electrical demolition and decommissioning of existing systems. Disposal of environmental hazardous substances shall comply with local and Illinois standards and regulations.

F. Relevant Codes and Standards for power plant decommissioning.

10.2 General Description

A. After the new power plant is ready in service, the old power plant shall be shutdown and isolated from the campus utility network. The disconnected utility services shall include:

a. Water service: The old power plant building has two 8” water services at the east side and west side of the building. Both water services shall be shutoff in place. Further work shall be coordinated with Using Agency in related to the future building usage.

b. Gas service: Existing 4” 60 psi gas service is coming from northeast side of the campus. Facility gas meter and pressure regulator is located at west side of the old power plant building. The 6” 10 psi gas pipe (downstream of the pressure regulator) to the old power plant shall be shutoff in place. Further work shall be coordinated with Using Agency in related to the future building usage. A separate 6” 10 psi gas pipe (downstream of the pressure regulator) which feeds the Mendel building and Dietary buildings shall remain active until new gas service is ready to tie-in, then this branch shall be disconnected from active gas line.

c. Steam and condensate service: The existing 12” 150 psi steam and 15 psi condensate main from the old new power plant is connected to existing campus steam distribution network at the north end of the south utility tunnel. Both steam lines shall be shutoff in place at the south utility tunnel entrance. Further work shall be coordinated with Using Agency in related to the future building usage. Any active steam loads located to the north side of the old power plant shall be coordinated with Using Agency and reconnected.

d. Electrical power distribution: Existing Power Plant is fed from ComEd’s 2.4KV substation located just east of power plant. All underground feeds to be disconnected and removed. Existing Power Plant is also feeding other buildings and structures within the campus, feeders must be identified and reconnected via new Power Plant distribution system. Existing ComEd’s distribution switch yard equipment including ComEd’s 34KV/2.4KV transformer shall be disconnected, removed and properly disposed.

10.3 Asbestos Abatement

Asbestos abatement of the existing plant is included as Alternate 1 to the base bid. As part of the decommissioning effort, all asbestos shall be removed from the existing plant. Previous asbestos reports have been provided by the Using Agency. Based on these reports, the required abatement has been identified. Refer to Section 9 – Environmental. This work is identified as an Alternate in the bidding documents.

Appendix A

Code Analysis

Building Code Review		Revision Level: 05/20/2013

321-055-138 Elgin Mental Health Center Power Plant Project No. 20191212.00

Applicable Codes:
International Building Code, 2018 (IBC)
Life Safety Code, NFPA 101, 2015
State of Illinois Plumbing Code, 2014
International Energy Conservation Code, 2018 (IECC)
Illinois Accessibility Code, 2018 (IAC)

Note that the most stringent code requirements to be applied to the project are listed below. Where two codes concur, only one instance of the requirement will be listed.

International Building Code (IBC), 2018

CHAPTER 3: Use and Occupancy Classification (2018 IBC)

302.1 General Classification

Factory: Group F-2
Storage: Group S-2 (Parking)

CHAPTER 4: Special Detailed Requirements Based on Occupancy and Use (2018 IBC)

413 Combustible Storage

414 Hazardous Materials

CHAPTER 5: General Building Heights and Areas (2018 IBC)

503.1 The building height, number of stories and building area shall not exceed the limits specified in Section 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. For the purpose of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

503.1.1 Special Industrial Occupancies:
Buildings and structures designed to house special industrial processes that require large areas and unusual building heights to accommodate crane ways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution or electric, gas or steam power, shall be exempt from the building height, number of stories and building area limitations specified in Sections 504 and 506.

503.1.2 Buildings on same lot:
Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building where the building height, number of stories of each building and the aggregate building area of the buildings are within the limitations specified

in Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

Table 504.3 Allowable Building Height in Feet Above Grade Plane

Occupancy Classification **F-2 and S-2**: Height = **75 Feet**

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A, B, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60

Table 504.4 Allowable Number of Stories Above Grade Plane

Occupancy Classification **F-2 and S-2**: Stories = **4**

F-2	NS	UL	11	5	3	4	3	5	3	2
	S	UL	12	6	4	5	4	6	4	3
	c. d									
S-2	NS	UL	11	5	3	4	3	4	4	2
	S	UL	12	6	4	5	4	5	5	3

505.2 Mezzanines**:**

A mezzanine or mezzanines in compliance with Section 505.2 shall be considered a portion of the story below. Such mezzanines shall not contribute to either the buildings area or number of stories as regulated by Section 503.1. The area of the mezzanine shall be included in determining the fire area. The clear height above and below the mezzanine floor construction shall by not less than 7 feet.

505.2.1 Area limitation:

The aggregate area of a mezzanine or mezzanines within a room shall be not greater than 1/3 of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the mezzanine is located. In determining the allowable mezzanine area, the area of the mezzanine shall not be included in the floor area of the room.

Exceptions:

1. The aggregate area of mezzanines in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than 2/3 of the floor area of the room.

2. The aggregate area of mezzanines in buildings and structures of Type I or II construction shall be not greater than ½ of the floor area of the room in buildings and structures equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 and an approved emergency voice/alarm communication system in accordance with Section 907.5.2.2.

505.2.1.1 Aggregate area of mezzanines and equipment platforms:

Where a room contains both a mezzanine and an equipment flatform, the aggregate area of the 2 raised floor levels shall be not greater than 2/3 of the floor area of the room or space in which they are located. The area of the mezzanine shall not exceed the area determined in accordance with Section 505.2.1.

505.2.2 Means of egress:

A mezzanine shall be open and unobstructed to the room in which such mezzanine is located except for walls not more than 42 inches in height, columns and posts.

Exceptions:

1. Mezzanines or portions thereof are not required to be open to the room in which the mezzanines are located, provided that the occupant load of the aggregate area of the enclosed space is not greater than 10.
2. A mezzanine having 2 or more exits or access to exits is not required to be open to the room in which the mezzanine is located.
3. Mezzanines or portions thereof are not required to be open to the room in which the mezzanines are located, provided that the aggregate floor area of the enclosed space is not greater than 10% of the mezzanine area.
4. In industrial facilities, mezzanines used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, which are not more than 2 stories above grade plane and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, a mezzanine having 2 or more exits or access to exits shall not be required to be open to the room in which the mezzanine is located.

505.3 Equipment platforms:

Equipment platforms in buildings shall not be considered as a portion of the floor below. Such equipment platforms shall not contribute to either the building area or the number of stories as regulated by Section 503.1. The area of the equipment platform shall not be included in determining the fire area in accordance with Section 903. Equipment platforms shall not be a part of any mezzanine and such platforms and walkways, stairways, alternating tread devices and ladders providing access to an equipment platform shall not serve as a part of the means of egress from the building.

505.3.1 Area limitations:

The aggregate area of all equipment platforms within a room shall be note greater than 2/3 of the area of the room in which they are located. Where an equipment platform is located in the same room as a mezzanine, the area of the mezzanine shall be determined by Section 505.2.1 and the combined aggregate area of the equipment platforms and mezzanines shall be not greater than 2/3 of the room in which they are located. The area

of the mezzanine shall not exceed the area determined in accordance with Section 505.2.1.

505.3.2 Automatic sprinkler system:

Where located in a building that is required to be protected by an automatic sprinkler system, equipment platforms shall be fully protected by sprinklers above and below the platform, where required by the standards referenced in Section 903.3.

505.3.3 Guards:

Equipment platforms shall have guards where required by Section 1015.2.

Table 506.2 Allowable Area Factor in Square Feet

Occupancy Classification **F-2**: Area = **92,000** SF
Occupancy Classification **S-2**: Area = **104,000** SF

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500

SM = Buildings 2 or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

507 Unlimited Area Buildings

507.4 Sprinklered, 1-story buildings:

The area of Group F building no more than 1-story above grade plan of any construction type, shall not be limited where the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet in width.

Exceptions:

1. Buildings and structures of Type I or II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings

conform to the requirements of Section 507.4 and 903.3.1.1 and Chapter 32 of the International Fire Code.

507.5 2-story Buildings:

The area of a Group F building no more than 2-stories above grade plane shall not be limited where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet in width

508.4 Separated occupancies:

Buildings or portions of buildings that comply with the provisions of the section shall be considered as separated occupancies.

Table 508.4 Required Separation of Occupancies (Hours)

OCCUPANCY	A, E		I-1[a], I-3, I-4		I-2		R[a]		F-2, S-2[b], U		B[e], F-1, M, S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N	N	1	2	2	NP	1	2	N	1	1	2	NP	NP	3	4	2	3	2	NP
I-1[a], I-3, I-4	—	—	N	N	2	NP	1	NP	1	2	1	2	NP	NP	3	NP	2	NP	2	NP
I-2	—	—	—	—	N	N	2	NP	2	NP	2	NP	NP	NP	3	NP	2	NP	2	NP
R[a]	—	—	—	—	—	—	N	N	1[c]	2[c]	1	2	NP	NP	3	NP	2	NP	2	NP
F-2, S-2[b], U	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3	2	NP
B[e], F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2	1	NP
H-1	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP	1	NP
H-3, H-4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1[d]	NP	1	NP
H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

N = No separation requirement

509 Incidental Uses

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 BTU per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies
Incinerator rooms	2 hours or provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system

Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead acid, nickel cadmium or VRLA, or more than 1000 pounds for lithium ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B.F.M.S and U occupancies;
Electrical installations and transformers	See section 110.26 through 11.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements

509.3 Area Limitations:

Incidental uses shall not be individually classified in accordance with Section 302.1. Incidental uses shall be included in the building occupancies within which they are located.

CHAPTER 6: Types of Construction (2018 IBC)

Table 601 Fire Resistance Rating Requirements for Building Elements

Building Element	Type I		Type II		Type III		Type IV	Type V	
	A	B	A	B	A	B		A	B
Primary structural frame	3	2	1	0	1	0	HT	1	0
Bearing walls – exterior	3	2	1	0	2	2	2	1	0
Bearing walls – interior	3	2	1	0	1	0	1/HT	1	0
Non-bearing wall and partitions – exterior	See Table 602								
Non-bearing wall and partitions – interior	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and secondary members	2	2	1	0	1	0	HT	1	0
Roof construction and secondary members	1-1/2	1	1	0	1	0	HT	1	0

Table 602 Fire Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[e]	OCCUPANCY GROUP F-1, M, S-1[f]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U[h]
X < 5[b]	All	3	2	1
5 ≤ X < 10	IA Others	3 2	2 1	1 1
10 ≤ X < 30	IA, IB IIB, VB Others	2 1 1	1 0 1	1[c] 0 1[c]
X ≥ 30	All	0	0	0

CHAPTER 7: Fire and Smoke Protection Features (2018 IBC)

Table 705.8 Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit

Table 706.4 Fire Wall Fire Resistance Ratings

Group	Fire Resistance Rating (hours)
F-2, S-2, R-3, R-4	2

706.5 Horizontal Continuity:

Fire walls shall be continuous from exterior wall to exterior wall and shall extend at least 18 inches beyond the exterior surface of exterior walls.

706.6 Vertical Continuity:

Fire walls shall extend from the foundation to a termination point at least 30 inches above both adjacent roots.

708.3 Fire-resistance Rating:

Fire partitions shall have a fire-resistance rating of not less than 1 hour.

Exceptions:
1. Corridor walls permitted to have a 1/2 hour fire-resistance rating by Table 1018.1.

708.4 Continuity:
Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above and shall be securely attached thereto.

709.3 Fire-resistance rating:
A 1-hour fire-resistance rating is required for smoke barriers.

713.4 Fire Resistance Rating (Shafts):
Shaft enclosures shall have a fire resistance rating of not less than 1 hour where connecting less than 4 stories. The number of stories connected by the shaft enclosure shall include any basements by not any mezzanines. Shaft enclosures shall have a fire resistance rating not less than the floor assembly penetrated but need not exceed 2 hours. Shaft enclosures shall meet the requirements of section 703.2.1.

713.11 Enclosure at the Bottom (shaft):
Shafts that do not extend to the bottom of the building or structure shall comply with 1 of the following:

- They shall be enclosed at the lowest level with construction of the same fire resistance rating as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure.
- They shall terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by fire barriers constructed in accordance with section 707 or horizontal assemblies constructed in accordance with section 711, or both. The fire resistance rating and opening protective shall be at least equal to the protection required for the shaft enclosure.
- They shall be protected by approved fire dampers installed in accordance with their listing at the lowest floor level within the shaft enclosure.

713.12 Enclosure at the Top (shaft):
A shaft enclosure that does not extend to the underside of the roof sheathing, deck or slab on the building shall be enclosed at the top with construction of the same fire resistance rating as the topmost floor penetrated by the shaft, but not less than the fire resistance rating required for the shaft enclosure.

715.1 Fire-Resistance Joint Systems:
Joints installed in or between fire resistance rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire resistant joint system designed to resist the passage of fire for a time period not

less than the required fire resistance rating of the wall, floor or roof in or between which it is installed. Fire resistant joint systems shall be tested in accordance with section 715.3.

Table 716.1 (2) Opening Fire Protection Assemblies, Ratings and Markings

Type of Assembly	Required Wall Assembly Rating (hours)	Min. fire door and fire shutter assembly (hours)	Door vision panel size	Fire rated glazing marking door vision panel	Minimum sidelight/transom assembly rating (hours)		Fire rated glazing marking sidelight/transom panel	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	Not Permitted	Not Permitted	Not Permitted	4	Not Permitted	W-240
	3	3[a]	Not Permitted	Not Permitted	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Shaft, exit enclosures and exit passageway walls	2	1 1/2	100 sq. in.	≤100 sq.in. = D-H-90 > 100 sq.in.= D-H-T-or D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access	1	1	100 sq. in.	≤100 sq.in. = D-H-60 >100 sq.in.= D-H-T-60 or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60

stairways, exit access ramps, interior exit stairways, interior exit ramps and exit passageway walls								
					Fire protection			
Other fire barriers	1	3/4	Max. size tested	D-H-NT-45	3/4		D-H-NT-45	
Fire partitions: Corridor walls	1 0.5	1/3[b] 1/3[b]	Max. size tested Max. size tested	D-20 D-20	3/4[b] 1/3		D-H-0H-45 D-H-0H-20	
Other fire partitions	1 0.5	3/4 1/3	Max. size tested Max. size tested	D-H-45 D-H-20	3/4 1/3		D-H-45 D-H-20	
Exterior walls	3	1 1/2	100 sq. in.	≤ 100 sq.in. = D-H-90 >100 sq.in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire Protection			
	1	3/4	Max.size tested	D-H-45	3/4		D-H-45	
					Fire protection			

Smoke barriers	1	1/3[b]	Max. size tested	D-20	3/4	D-H-OH-45

Table 716.1 (3) Fire Window Assembly Fire Protection Ratings

TYPE OF WALL ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE WINDOW ASSEMBLY RATING (hours)	FIRE-RATED GLAZING MARKING
Interior walls			
Fire walls	All	Not Permitted	W-XXX
Fire barriers	>1 1	Not Permitted Not Permitted	W-XXX W-XXX
Atrium separations (Section 707.3.6) Incidental use areas (707.3.7), Mixed occupancy separations (707.3.9)	1	3/4	OH-45 or W-60
Fire partitions	1 0.5	3/4 1/3	OH-45 or W-60 OH-20 or W-30
Smoke barriers	1	3/4	OH-45 or W-60
Exterior walls	>1 1 0.5	1 1/2 3/4 1/3	OH-90 or W-XXX OH-45 or W-60 OH-20 or W-30
Party wall	All	Not Permitted	Not Applicable

716.2 Fire door assemblies:

Fire door assemblies required by other sections of this code shall comply with the provisions of this section. Fire door frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.2.5.4.

716.2.2.2 Door assemblies in other fire partitions:

Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in other fire partitions having a fire-resistance rating of 0.5 hour in accordance with Table 716.1(2) shall be tested in accordance with NFPA 252, UL 10B or UL 10C with the hose stream test.

716.2.2.3 Doors in interior exit stairways and ramps and exit passageways

Fire door assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F above ambient at the end of 30 minutes of standard fire test exposure.

716.2.5 Glazing in fire door assemblies:
Fire rated glazing conforming to the opening protection requirements in Section 716.2.1 shall be permitted in fire door assemblies.

716.2.5.1.1 Fire resistance rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour:
Fire resistance rated glazing tested to ASTM E119 or UL 263 and NFPA 252, UL 10B or UL 10C shall be permitted in fire door assemblies located in fire walls and in fire barriers in accordance with Table 716.1(2) to the maximum size tested and in accordance with their listings.

716.2.5.1.2.2 Fire barriers:
Fire-protection-rated glazing shall be permitted in fire doors having a 1-1/2 hour fire protection rating intended for installation in fire barriers, where limited to 100 square inches.

716.2.5.3 Glazing in door assemblies in corridors and smoke barriers:
In a 20 minute fire door assembly, the glazing material in the door itself shall have a minimum fire protection rated glazing of 20 minutes and shall be exempt from the hose stream test.

716.2.6.1 Door Closing:
Fire doors shall be latching and self or automatic closing in accordance with this section.

CHAPTER 8: Interior Finishes (2018 IBC)

803.1.1 Interior Wall and Ceiling Finishes
Tested in accordance with NFPA 286, Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered to also comply with the requirements of Class A.
Class A: flame spread 0-25; smoke developed 0-450.
Class B: flame spread 26-75; smoke developed 0-450.
Class C: flame spread 76-200; smoke developed 0-450.

Table 803.13 Interior Finish Requirements based on Occupancy

Group **F-2 and S-2** (*Sprinklered*)
- Interior exit stairways and ramps and exit passageways = Class **C**
- Corridors and enclosure for exit access stairways and ramps = Class **C**
- Rooms and enclosed spaces = Class **C**

CHAPTER 9: Fire Protection and Life Safety Systems (2018 IBC)

901.6.2 Integrated testing

Where two or more fire protection or life safety systems are interconnected, the intended response of subordinate fire protection and life safety systems shall be verified when required testing of the initiating system is conducted. In addition, integrated testing shall be performed in accordance with Section 901.6.2.1 and 901.6.2.2.

903.2 Where Required (Automatic Sprinkler Systems):

Approved automatic sprinkler systems in new buildings and structures shall be provided in the located described in Sections 903.2.1 through 903.2.12

903.2.4 Group F-1:

An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 fire area exceeds 12,000 SF
2. A Group F-1 fire area is located more than 3-stories above grade plane
3. The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceed 24,000 SF

903.2.4.1 Woodworking operations:

An automatic sprinkler system shall be provided throughout all Group F-1 occupancy fire areas that contain woodworking operations in excess of 2500 SF in area that generate finely divided combustible waste or use finely divided combustible materials.

903.2.10 Group S-2 enclosed parking garages:

An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.6 where either of the following conditions exists:

1. Where the fire area of the enclosed parking garage exceeds 12,000 SF
2. Where the enclosed parking garage is located beneath other groups
3. The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceed 24,000 SF

903.2.10.1 Commercial Parking Garages:

An automatic sprinkler system shall be provided throughout buildings used for storage of commercial motor vehicles where the fire area exceeds 5000 SF

903.2.11.3 Buildings 55 feet or more in height

An automatic sprinkler system shall be installed throughout buildings that have one or more stories with an occupant load of 30 or more located 55 feet or more above the lowest level of fire department vehicle access, measured to the finish floor.

Exceptions:

1. Open parking structures
2. Occupancies in Group F-2.

906.1 Portable fire extinguishers – where required:

Portable fire extinguishers shall be installed in all of the following locations:

1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies

3. In areas where flammable or combustible liquids are stored, used or dispensed.
5. Where required by the IFC sections indicated in Table 906.1.

907.2.4 Group F:

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group F occupancies where both of the following conditions exist:

1. The Group F occupancy is 2 or more stories in height
2. The Group F occupancy has a combined occupant load of 500 or more above or below the lowest level of exit discharge.

Exception:

Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupancy notification appliances will activate throughout the notification zones upon sprinkler water flow.

CHAPTER 10: Means of Egress (2018 IBC)

1003.2 Ceiling Height:

The means of egress shall have a ceiling height of not less than 7'-6" above finished floor

Table 1004.1.2 Maximum Floor Area Allowances per Occupant:

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
Accessory storage areas, mechanical equipment room	300 gross
Industrial areas	100 gross
Locker Rooms	50 gross
Parking garages	200 gross

1005.3 Required capacity based on occupant load:

The required capacity, in inches, of the means of egress for any room, area, space or story shall not be less than that determined in accordance with Sections 1005.3.1 and 1005.3.2:

1005.3.1 Stairways:

The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of **0.3 inch per occupant**. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the stairways serving that story.

1005.3.2 Other egress components:

The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of **0.2 inch per occupant.**

1006.2 Egress from Spaces:

Rooms, areas or spaces, including mezzanines, within a story or basement shall be provided with the number of exits or access to exits in accordance with this section.

1006.2.1 Egress based on Occupant Load and Common Path of Egress Travel Distance

2 exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1

1006.2.2.1 Boiler, Incinerator and Furnace Rooms:

2 exit access doorways are required in boiler, incinerator and furnace rooms where the area is over 500 SF and any fuel fired equipment exceeds 400,000 BTU input capacity. Where 2 exit access doorways are required, 1 is permitted to be a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to ½ the length of the maximum overall diagonal dimension of the room.

Table 1006.3.1 Minimum Number of Exits or Access to Exits per Story

Occupant Load per Story	Minimum Number of Exits or Access to Exits from Story
1-500	2
501-1000	3
More than 1000	4

Table 1006.3.2 Stories with 1 Exit or Access to 1 Exit for Other Occupancies

Story	Occupancy	Maximum Occupant Load per Story	Maximum Common Path of Egress Travel Distance (Feet)
1st story above or below grade plane	F(Note b)	49	75
	S (Note b,d)	29	75
2nd story above grade plane	F, S (Note d)	29	75

Note b: Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.

Note d: The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

1008.2.1 Illumination level under normal power:

The means of egress illumination level shall not be less than 1-foot candle at the walking surface.

1008.3.2 Buildings:

In the event of power supply failure in buildings that require 2 or more means of egress, an emergency electrical system shall automatically illuminate all of the following areas:

1. Interior exit access stairways and ramps
2. Interior and exterior exit stairways and ramps
3. Exit passageways
4. Vestibules and areas on the level of discharge used for exit discharge in accordance with Section 1028.1
5. Exterior landings as required by Section 1010.1.6 for exit doorways that lead directly to the exit discharge.

1008.3.3. Rooms and spaces:

In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms
2. Fire Command Centers
3. Fire Pump Rooms
4. Generator rooms
5. Public restrooms with an area greater than 300 SF.

1008.3.5 Illumination level under emergency power:

Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1-foot candle and a minimum at any point of 0.1 foot candle measured along the path of egress at floor level.

1009.1 Accessible means of egress required:

Accessible means of egress shall comply with the section. Accessible spaces shall be provided with not less than 1 accessible means of egress. Where more than 1 means of egress is required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by not less than 2 accessible means of egress.

1. 1 accessible means of egress is required from an accessible mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5.

1010.1.1 Size of Doors:

The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Where this section requires a minimum clear width of 32 inches and a door opening includes 2 door leaves without a

mullion, one leaf shall provide a clear opening width of 32 inches. The maximum width of a swinging door leaf shall be 48 inches normal.

1010.1.9.11 Stairway Doors:

Interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. Stairway discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
3. In stairways serving not more than 4 stories, doors are permitted to be locked from the side opposite the egress side, provided that they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.

1011.2 Stairways - Width and capacity:

The required capacity of stairways shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches.

1011.5.2 Riser height and tread depth:

Stair riser heights shall be 7 inches maximum and 4 inches minimum. The riser height shall be measured vertically between the nosing of adjacent treads. Rectangular tread depths shall be 11 inches minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing.

1011.6 Stairways landings:

There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall be not less than the width of stairways served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches. Doors opening onto a landing shall not reduce the landing to less than ½ the required width. When fully open, the door shall not project more than 7 inches into ta landing. Where wheelchair space s are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

1012.2 Ramp – Slope:

Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope). The slope of other

pedestrian ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

1012.5.1 Width and capacity:

The minimum width of a means of egress ramp shall not be less than that required for corridors by Section 1020.2. The clear width of a ramp between handrails, if provided, or other permissible projections shall be 36 inches minimum.

1012.6 Ramp – Landings:

Ramps shall have landings at the bottom and top of each ramp, points of turning, entrance, exits and at doors.

1012.6.1 Slope:

Landings shall have a slope not steeper than 1 unit vertical in 48 units horizontal (2%) in any direction. Changes in level are not permitted.

1012.6.2 Width:

The landing width shall be not less than the width of the widest ramp run adjoining the landing

1012.6.3 Length:

The landing length shall be 60 inches minimum.

1012.8 Handrails:

Ramps with a rise greater than 6 inches shall have handrails on both sides. Handrails shall comply with Section 1014.

1014.2 Handrail Height:

Handrail height measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches and not more than 38 inches.

1014.6 Handrail extensions:

Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight or ramp run. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches minimum beyond the top and bottom of ramp runs. The extensions of handrails shall be in the same direction of the stair flights at stairways and the ramp runs at ramps.

1015.2 Guards – Where Required:

Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, stairs, ramps and landings that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches

horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.8.

1015.3 Height:

Required guards shall be not less than 42 inches high, measured vertically as follows:

1. From the adjacent walking surfaces
3. On ramps and ramped aisles, from the ramp surface at the guard

1015.6 Mechanical equipment, systems and devices:

Guards shall be provided where various components that require service are located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches above the floor, roof or grade below. The guard shall extend not less than 30 inches beyond each end of such components. The guard shall be constructed so as to prevent the passage of a sphere 21 inches in diameter.

1015.7 Roof Access:

Guards shall be provided where the roof hatch opening is located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches in diameter.

1016.2 Egress through Intervening Spaces:

Egress through intervening spaces shall comply with this section.

- Exit access through an enclosed elevator lobby is permitted. Access to not less than 1 of the required exits shall be provided without travel through the enclosed elevator lobbies required by Section 3006. Where the path of exit access travel passes through an enclosed elevator lobby, the level of protection required for the enclosed elevator lobby is not required to be extended to the exit unless direct access to an exit is required by other sections of this code.
- Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.
- An exit access shall not pass through a room that can be locked to prevent egress.
- Means of egress from dwelling units or sleeping areas shall not lead through other sleeping area, toilet rooms or bathrooms.
- Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

1017.2 Exit Access Travel Distance – Limitations:

Exit access travel distance shall not exceed the values given in Table 1016.2.

Table 1017.2 Exit Access Travel Distance:

Occupancy	With Sprinkler System (feet)
F-2, S-2, U	400

1020.1 Construction (Corridors):

Corridors shall be fire resistance rated in accordance with Table 1020.1. The corridor walls required to be fire resistance rated shall comply with section 708 for fire partitions.

Table 1020.1 Corridor Fire Resistance Rating:

Occupancy	Occupant Load Served by Corridor	Required Fire Resistance Rating (Hours)	
		Without Sprinkler System	With Sprinkler System
A,B,E,F,M,S,U	Greater than 30	1	0

1020.2 Corridor width and capacity:

The required capacity of corridors shall be determined as specified in Section 1005.1, but the minimum width shall be note less than that specified in Table 1020.2.

Table 1020.2 Minimum Corridor Width:

Occupancy	Width (minimum)
Any facilities not listed below	44 inches
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches
With an occupant load of less than 50	36 inches

1020.4 Dead ends:

Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet in length.

Exceptions:
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet.
3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

1020.5 Air movement in corridors:

Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such

corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
3. Where located within tenant spaces of 1,000 square feet or less in area, utilization of corridors for conveying return air is permitted.

1020.5.1 Corridor ceiling:

Use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

1. The corridor is not required to be of fire-resistance-rated construction
2. The corridor is separated from the plenum by fire-resistance-rated construction
3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by the International Mechanical Code
4. The air-handling system serving the corridor is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an automatic sprinkler system
5. The space between the corridor ceiling and the floor or roof structure above the corridor is used as a component of an approved engineered smoke control system.

1020.6 Corridor continuity:

Fire-resistance-rated corridors shall be continuous from the point of entry to an exit and shall not be interrupted by intervening rooms. Where the path of egress travel within a fire-resistance-rated corridor to the exit includes travel along unenclosed exit access stairways or ramps, the fire resistance-rating shall be continuous for the length of the stairway or ramp and for the length of the connecting corridor on the adjacent floor leading to the exit.

Exception:

1. Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.

1022.1 Exits – General:

Exits shall comply with Section 1022 through 1027 and the applicable requirements of Sections 1003 through 1015. An exit shall not be used for any purpose that interferes with its function as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge. Exits shall be continuous from the point of entry into the exit to the exit discharge.

1023.2 Interior Exit Stairways and Ramps – Construction:

Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or horizonal assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a fire resistance rating of not less than 2 hours where connecting 4 stories or more and not less than 1 hour where connecting less than 4 stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but

not any mezzanines. Interior exit stairways and ramps shall have a fire resistance rating not less than the floor assembly penetrated but need not exceed 2 hours.

CHAPTER 11: Accessibility (2018 IBC)

1103.2.7 Limited access spaces:

Non-occupied spaces accessed only by ladders, catwalks, crawl spaces, freight elevators or very narrow passageways are not required to be accessible.

1103.2.9 Equipment Spaces:

Spaces frequented only by personnel for maintenance, repair or monitoring of equipment are not required to be accessible. Such spaces include, but are not limited to, elevator pits, elevator penthouses, mechanical, electrical or communications equipment rooms, piping or equipment catwalks, water or sewage treatment pump rooms and stations, electric substations and transformer vaults, and highway and tunnel utility facilities.

Life Safety Code (NFPA 101, 2012)

CHAPTER 6: Classification of Occupancy and Hazard Contents (NFPA 101, 2012)

6.1.12 Industrial

For requirements see Chapter 40.

6.1.14 Multiple Occupancies

Mixed occupancy – each portion of the building shall be classified as to its use in accordance with 6.1. the building shall comply with the most restrictive requirements of the occupancies involved unless separate safeguards are approved.

6.2.2.2 Low Hazard Contents

Low hazard contents shall be classified as those of such low combustibility that no self-propagating fire therein can occur.

CHAPTER 7: Means of Egress (NFPA 101, 2012)

7.1.4 Interior Finish in Exit Enclosures

In exit enclosures, interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B

New interior floor finish in exit enclosures, including stair treads and risers shall be not less than Class II.

7..2.2.2.1.1(a) 12 feet maximum stair rise without landing

7.3.1.2 Occupant Load

Special Purpose Industrial and Storage- The occupant load is the maximum probably number of occupants present at any time.

7.8.1.3 Illumination of means of egress

(1) the minimum illumination for new stairs shall be at least 10 foot-candle, measured at the walking surface

7.8.1.4 Illumination of means of egress

Illumination shall be arranged so that failure of any single lighting unit does not result in an illumination level of less than 0.2 foot-candle in any designated area.

7.9.2 Emergency Illumination Performance

Emergency Illumination shall be provided for a minimum of 1-1/2 hours in the event of failure of normal lighting.

CHAPTER 40: Industrial Occupancies (NFPA 101, 2012)

40.1.2.1.2 Special Purpose Industrial Occupancies

(2) Industrial occupancies that are characterized by a relatively low density of employee population, with much of the area occupied by machinery or equipment.

40.2.2.2 Doors

Doors complying with 7.2.1 shall be permitted.
Delayed egress locks complying with 7.2.1.6.2 shall be permitted

40.2.5.2 Equipment Access

Industrial equipment access doors, walkways, platforms, ramps, and stairs that serve as a component of the means of egress from the involved equipment shall be permitted as modified by table 40.2.5.2.1

Table 40.2.5.2.1 Industrial Equipment Access Dimensional Criteria

Feature	Dimensional Criteria
Minimum horizontal dimension of any walkway, landing, or platform	22 in. (560 mm) clear
Minimum stair or ramp width	22 in. (560 mm) clear between rails
Minimum tread width	22 in. (560 mm) clear
Minimum tread depth	10 in. (255 mm)
Maximum riser height	9 in. (230 mm)
Handrails are permitted to terminate, at the required height, at a point directly above the top and bottom risers.	
Maximum height between landings	12 ft (3660 mm)
Minimum headroom	6 ft 8 in. (2030 mm)
Minimum width of door openings	22 in. (560 mm) clear

40.2.6 Maximum Travel Distance to Exits from Equipment

250 ft when protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)

40.2.9 Maximum Travel Distance to Exits

250 ft when protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)

International Energy Conservation Code (IECC 2018)

C301.1 General:

Climate zones from Figure C301.1 shall be used in determining the applicable requirements from Chapter 4.

Chicago = Zone 5

C402.1.2 Equipment Buildings:

Buildings that comply with the following shall be exempt from the building thermal envelope provisions of this code:

1. Are separate buildings with floor area not more than 500 SF
2. Are intended to house electronic equipment with installed equipment power totaling not less than 7 walls/SF and not intended for human occupancy
3. Have a heating system capacity not greater than 17,000 BTU/Hr and a heating thermostat set point that is restricted to not more than 50 degrees F.
4. Have an average wall and roof U-factor less than 0.200 in Climate Zones 1 through 5.
5. Comply with the roof solar reflectance and thermal emittance provisions for Climate Zone 1.

Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-value Method

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Roofs																
Insulation entirely above roof deck	R-20ci	R-25ci	R-25ci	R-25ci	R-25ci	R-25ci	R-30ci	R-30ci	R-30ci	R-30ci	R-30ci	R-30ci	R-35ci	R-35ci	R-35ci	R-35ci
Metal buildings[b]	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-25 + R-11 LS	R-25 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS
Attic and other	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-49	R-49	R-49	R-49	R-49	R-49	R-49
Walls, above grade																
Mass[g]	R-5.7ci	R-5.7ci	R-5.7ci	R-7.6ci	R-7.6ci	R-9.5ci	R-9.5ci	R-11.4ci	R-11.4ci	R-13.3ci	R-13.3ci	R-15.2ci	R-15.2ci	R-15.2ci	R-25ci	R-25ci
Metal building	R-13+ R-6.5ci	R-13 + R-6.5ci	R13 + R-6.5ci	R-13 + R-13ci	R-13 + R-6.5ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13+ R-19.5ci	R-13 + R-13ci	R-13+ R-19.5ci
Metal framed	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-15.6ci	R-13 + R-7.5ci	R-13+ R17.5ci
Wood framed and other	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R13 + R-15.6ci or R-20 + R-10ci	R13 + R-15.6ci or R-20 + R-10ci
Walls, below grade																
Below-grade wall[d]	NR	NR	NR	NR	NR	NR	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-10ci	R-10ci	R-10ci	R-12.5ci
Floors																
Mass[e]	NR	NR	R-6.3ci	R-8.3ci	R-10ci	R-10ci	R-10ci	R-10.4ci	R-10ci	R-12.5ci	R-12.5ci	R-12.5ci	R-15ci	R-16.7ci	R-15ci	R-16.7ci
Joist/framing	NR	NR	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30[f]	R-30[f]	R-30[f]	R-30[f]	R-30[f]
Slab-on-grade floors																
Unheated slabs	NR	NR	NR	NR	NR	NR	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-15 for 24" below	R-15 for 24" below	R-15 for 24" below	R-15 for 24" below	R-20 for 24" below
Heated slabs[h]	R-7.5 for 12" below + R-5 full slab	R-7.5 for 12" below + R-5 full slab	R-7.5 for 12" below + R-5 full slab	R-7.5 for 12" below + R-5 full slab	R-10 for 24" below + R-5 full slab	R-10 for 24" below + R-5 full slab	R-15 for 24" below + R-5 full slab	R-15 for 24" below + R-5 full slab	R-15 for 36" below + R-5 full slab	R-15 for 36" below + R-5 full slab	R-15 for 36" below + R-5 full slab	R-20 for 48" below + R-5 full slab	R-20 for 48" below + R-5 full slab	R-20 for 48" below + R-5 full slab	R-20 for 48" below + R-5 full slab	R-20 for 48" below + R-5 full slab
Opaque doors																
Nonswinging	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75

C402.2.2 Roof Assembly:

The minimum thermal resistance (R-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly.

C402.2.4 Slab-on-Grade Perimeter Insulation:

Where the slab on grade is in contact with the ground, the minimum thermal resistance (R-value) of the insulation around the perimeter of unheated or heated slab-on-grade floors designed in accordance with the R-value method of Section C402.1.3 shall be as specified in Table C402.1.3. The perimeter insulation shall be placed on the outside of the foundation or on the inside of the foundation wall. The perimeter insulation shall extend downward from the top of the slab for a minimum distance shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table. Insulation extending away from the building shall be protected by pavement or by not less than of 10 inches of soil.

Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
Vertical fenestration																
***U*-factor**																
Fixed fenestration	0.50		0.50		0.46		0.38		0.38		0.36		0.29		0.29	
Operable fenestration	0.65		0.65		0.60		0.45		0.45		0.43		0.37		0.37	
Entrance doors	1.10		0.83		0.77		0.77		0.77		0.77		0.77		0.77	
SHGC																
Orientation[a]	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N
PF < 0.2	0.25	0.33	0.25	0.33	0.25	0.33	0.3640	0.4853	0.3840	0.513	0.40	0.53	0.45	NR	0.45	N
0.2 ≤ PF < 0.5	0.30	0.37	0.30	0.37	0.30	0.37	0.438	0.538	0.468	0.568	0.48	0.58	NR	NR	NR	NR
PF ≥ 0.5	0.40	0.40	0.40	0.40	0.40	0.40	0.5864	0.5864	0.641	0.641	0.64	0.64	NR	NR	NR	NR
Skylights																
U-factor	0.75		0.65		0.55		0.50		0.50		0.50		0.50		0.50	
SHGC	0.35		0.35		0.35		0.40		0.40		0.40		NR		NR	

C402.5.7 Vestibules:

Building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Exceptions:

2. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.

<u>State of Illinois Plumbing Code (2014)</u>

Section 890.810 Minimum Number of Plumbing Fixtures

Building Code Review		Revision Level: 05/20/2013

321-055-138 Elgin Mental Health Center Power Plant Project No. 20191212.00

Section 890.810.a.2 Occupant Load

For those building types for which the minimum number of plumbing fixtures required in Appendix A. Table B is dependent upon the building's occupant load, the occupant load shall be the estimated total occupant load. If the building's occupant load is not known or determinable, the following shall be used to estimate the total occupant load:

Power Plants/Industrial Units = 500 SF/Occ

Section 890.810.b.1 Employee Restrooms and Drinking Fountains

i. If there are more than 5 employees working at any one-time, separate restrooms for men and women shall be provided.
ii. If there are no more than 5 employees working at any time, one restroom may serve both sexes. A restroom shall have a minimum of one water closet and one lavatory.

Section 890.APPENDIX B Minimum Number of Plumbing Fixtures

All Facilities for Employee Use

- Water Closets (Fixture per Person)
  - Each Gender: 1: 1-15
    2: 16-35
    3: 36-55
    4: 56-80
    5: 81-110
    Over 110, add 1 fixture per restroom for each
- Urinals
  - Can be ½ the fixture requirements for Male.
- Lavatories
  - Each Gender: 1: 1-15
    2: 16-35
    3: 36-60
    Over 60, add 1 fixture per restroom for each additional 45 males/females
- Showers
  - 1 per 10
- Drinking Fountain
  - 1 per 100

Appendix B

Site Reports

- Geotechnical Survey
- Soil Boring Analysis

GEOTECHNICAL REPORT

Elgin Mental Health Center

750 S. State Street

Elgin, Illinois

Prepared for:

Orion Engineering, LLC
220 North Green Street
Chicago, IL 60607

Prepared by:

Geo Services, Inc.
805 Amherst Court
Suite 204
Naperville, Illinois 60565
(630) 305-9186

GSI Project No. 20104

September 18, 2020

Geo Services, Inc.
Geotechnical, Environmental and Civil Engineering
An MBE - DBE Firm

September 18, 2020

Orion Engineers, LLC
328 South Jefferson Street
Suite 950
Chicago, IL 60661

Attn: Mr. John E. Naughton III, P.E.

Job No. 20104

Re: Geotechnical Engineering Services
Elgin Mental Health Center
750 South State Street
Elgin, Illinois

Dear Mr. Naughton:

Please find enclosed the results of the geotechnical investigation performed at Elgin Mental Health Center located in Elgin, IL. The investigation was performed to determine soil conditions in the premises of a proposed health center slab-on-grade building. This report is based upon the subsurface information obtained from eight (8) soil borings (SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8). The site is located at 750 South State Street in Elgin, IL. The existing site is North of the Rehabilitation building and East of Assembly Hall.

Historical aerial photos of the site, as observed from Google Earth, indicate that a now demolished building used to occupy the site. The aerial photos indicate that the previous, now demolished building which inhabited the site was constructed before the year 1938. This structure was present at the site up until it was demolished sometime between 1999 and 2002. According to the historical aerial photos, after demolition of the property, the property remained devoid of structures up until the current day. This agrees with the environmental site assessment (ESA) report, titled “Phase I Environmental Site Assessment”, conducted by Stanley Consultants in July, 2020.

According to engineers at Orion Engineers, LLC., the new building which has been planned to occupy the property at 750 South State Street in Elgin, IL is a 1-story building which will have 2nd story ceilings in select parts of the building. Orion also indicated that the current design for the foundation of the building is proposed for slab on grade construction.

SUBSURFACE INVESTIGATION PROCEDURES

The soil borings were performed on September 4, 2020. Boring locations were finalized in the field by Geo Services, Inc. personnel after inspecting the field for drill rig

accessibility and utility line locations. Prior to this, Blood Hound Underground Utility Locators performed electromagnetic (EM) and ground penetrating radar (GRP) scans of 10 ft x 10 ft regions around each boring location to check for utility lines prior to drilling. Also, ground surface elevations were measured at the final locations for each borehole.

A truck mounted drill rig used to perform the eight (8) soil borings. One of the borings, SB-1, was drilled to an approximate depth of 20 feet, while the other borings were advanced to approximately 10 feet. Boreholes were advanced using hollow stem augers and representative samples were obtained employing split spoon sampling procedures in accordance with ASTM Specification D-1586. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N) and is included on the boring logs. The N value is an indication of the relative density of the soil.

LAB TESTING PROGRAM

The laboratory testing program consisted of performing water content and calibrated penetrometer tests on the cohesive samples recovered. The results of all testing performed, along with a visual classification of the material based upon both a textural analysis and the Unified Soil Classification System, are indicated on the boring logs. Furthermore, soil resistivity tests were conducted on soil samples in accordance with ASTM G-187 for three (3) boreholes, namely SB-01, SB-03, and SB-07. The soil sample for each of the aforementioned soil resistivity tests were obtained within 3 to 7 feet depth range below grade.

SOIL AND GROUNDWATER CONDITIONS

Specific soil conditions encountered in the borings are indicated on the soil boring log included in the Attachments. The general trend of the borings indicates the top 2”-12” of soil is dark, brown topsoil. The SPT N-value corresponding to the top 5 feet of soil is 12 blows / foot. The average moisture content of the top 5-foot soil layer is 10.5%. Below this generally lies a 5-foot layer of silty clay fill, which has an average N-value of 55 blows / foot and a moisture content in the range of 1.0% - 3.0%. The last layer, which is found at depths ranging from 10-20 feet, is made up of sand, gravel, and cobbles. The moisture content of this layer is approximately 1.0% – 3.0%. This layer has an average N-value of 50 blows / foot. These layers are illustrated in the boring logs attached.

Groundwater was not encountered during or after drilling operations. The entirety of the soil borings exhibited brown soil, with no coloration change in the soil. Due to this, we

assume that the long-term water table to be greater than 20 feet below existing grade. Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending upon variations in precipitation, and surface runoff.

ANALYSIS AND RECOMMENDATIONS

Shallow Foundations

We recommend that the new proposed building be supported below the existing fill material, which lies in the range of 1 to 5.5 feet below existing grade, on conventional shallow spread footing foundations situated within the natural, medium dense to very dense sand, gravel, and cobble layer underlying the existing fill or on a pad of structural fill. The depths at which fill is found varies across the site. The depth of existing fill from existing grade is shown below in Table 1 for all of the borings performed at the site. We recommend that spread footings supported on the natural soils as described previously or on compacted structural fill placed at 95% maximum dry density (ASTM D-1557 Modified Proctor) be designed for a maximum net allowable bearing pressure of 4,000 pounds per square foot (psf). The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation soils in excess of the final minimum surrounding overburden pressure.

TABLE 1
Soil Boring Fill Depth Information

Boring #	Ground Surface Elevation of Boring (ft.)	Existing Fill Depth (ft.)
SB-01	738.457	5.5
SB-02	741.337	0.2
SB-03	740.312	5.5
SB-04	744.239	5.5
SB-05	740.715	3.0
SB-06	738.105	3.0
SB-07	743.103	5.5
SB-08	741.773	5.5

If soils with less than adequate bearing strength are noted at the foundation level during footing construction, the weaker soils encountered at the base of the footings should be undercut to reach suitable bearing soils, and the undercut area filled with lean concrete or a suitable compacted crushed stone structural fill material. Suitable crushed stone fill

materials include materials meeting the gradation requirements of IDOT CA-1, CA-7 and CA-6. Total settlement of shallow footing foundations situated within compacted stone fill is estimated to be less than 0.5".

Structural fill utilized to support footings should be extended at least 6 inches beyond the proposed footing limits and then one foot horizontally for each one foot of fill placed below the base of the footing. This new fill should consist of inorganic material free of debris and should be placed in maximum 9-inch loose lifts and compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Standard D-1557, modified Proctor method. If CA-1 or CA-7 crushed stone materials are used, they can be compacted by tamping with a backhoe bucket. If open-graded stone is used, a non-woven geotechnical fabric should be used between the structural fill and the bottom of undercut to prevent fine migration from the subgrade to the structural fill. The moisture content of the fill should be controlled within +2% of the optimum moisture content.

To provide adequate frost protection, we recommend that footing foundations in non-heated areas be situated at a minimum depth of 4 feet below final grade while the perimeter footings in heated areas should be situated at a minimum depth of 3.5 feet below final outside grade. Also, in order to prevent disproportionately small footings, we recommend that continuous wall footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension of 2.5 feet.

Slab-On-Grade Construction

The borings indicate that the existing surface materials below the topsoil consists of silty clay fill, or a layer of sand, gravel, and cobbles over some thickness of dense to very dense sand, gravel, and cobbles. Assuming that the foundation will be done as slab-on-grade, the fill described in previous sections should be stripped and any organic, unsuitable or deleterious material should be removed. The subgrade should also be thoroughly proofrolled as described below prior to placing any new fill or base course for support of the floor slab and adjacent parking lot pavement.

Proofrolling of the resultant subgrade should be performed to locate unstable/unsuitable soils that should be stabilized /removed. During the proofrolling procedure, the soil stripped to design subgrade elevation is rolled with the heaviest piece of construction equipment available at the site, such as a heavily loaded tandem axle dump truck having a gross weight of not less than 25 tons. Areas exhibiting deflection or rutting should be removed (or disked, dried and recompacted) and the proofrolling continued until all unsuitable soils have been located and removed, or improved in-place.

Where new fill is required to reach the design slab or pavement subgrade elevation, we recommend that an approved inorganic material be utilized for structural fill. This material should consist of material that is free of organic matter, topsoil, and debris. Fill material used in pavement or slab-on-grade subgrade that may be exposed to freezing temperatures should also be non-frost susceptible. Provided they can be moisture

conditioned to facilitate proper compaction, the on-site clayey fill materials appear suitable for reuse as engineered fill below floor slabs and pavements. New fill should be placed in maximum 9-inch thick loose lifts and be compacted to a minimum of 90% of the maximum dry density obtained in accordance with ASTM Standard D-1557, modified Proctor method.

Beneath slab-on-grade areas, a minimum of 4 inches of granular base course material is recommended to facilitate fine grading and provide a capillary cut-off. Floor slabs should be isolated from foundations to permit relative displacement without cracking. Slabs should also be provided with adequate reinforcing and jointing to control minor slab cracking.

CONSTRUCTION CONSIDERATIONS

All excavations that extend greater than 4 feet in depth should be designed in accordance with OSHA regulations with properly sloped or braced sides to prevent excavation instability. Excavation safety is the responsibility of the contractor; however, we recommend that excavation sides be sloped at 1-1/2H:1V or flatter above the water table for this purpose. Stockpiles of material or equipment should not be placed near the top of excavation slopes.

All soils which become softened or loosened at the base of foundation excavation areas or subgrade areas should be carefully recompacted or removed prior to placement of foundation concrete or fill material. No foundation concrete or structural fill should be placed in areas of ponded water or frozen soil.

GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil boring performed at the indicated location and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services, Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and

recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services, Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's' subsurface data or engineering analyses without the express written authorization of Geo Services, Inc.

If there are any questions regarding the information submitted herein, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, Inc.

Sean Kirwan
Assistant Project Engineer

Andrew J. Ptak, P.E.
Office Manager

Attachments:
- General Notes
- Site Location Map
- Boring Location Diagram
- Boring Logs

ATTACHMENTS

GENERAL NOTES

CLASSIFICATION

Unified Soil Classification System used for soil classification.

Cohesionless Soils

Relative Density	No. of Blows per foot N
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

Cohesive Soils

Consistency	Unconfined Compressive Strength - qu (tsf)
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

TERMINOLOGY

Streaks are considered to be paper thick. **Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

DRILLING AND SAMPLING SYMBOLS

SS:	Split Spoon 1-3/8" I.D., 2" O.D.	HS:	Housel Sampler
ST:	Shelby Tube 2" O.D., except where noted	WS:	Wash Sample
AS:	Auger Sample	FT:	Fish Tail
DB:	Diamond Bit - NX: BX: AX	RB:	Rock Bit
CB:	Carboloy Bit - NX: BX: AX	WO:	Wash Out
OS:	Osterberg Sampler		

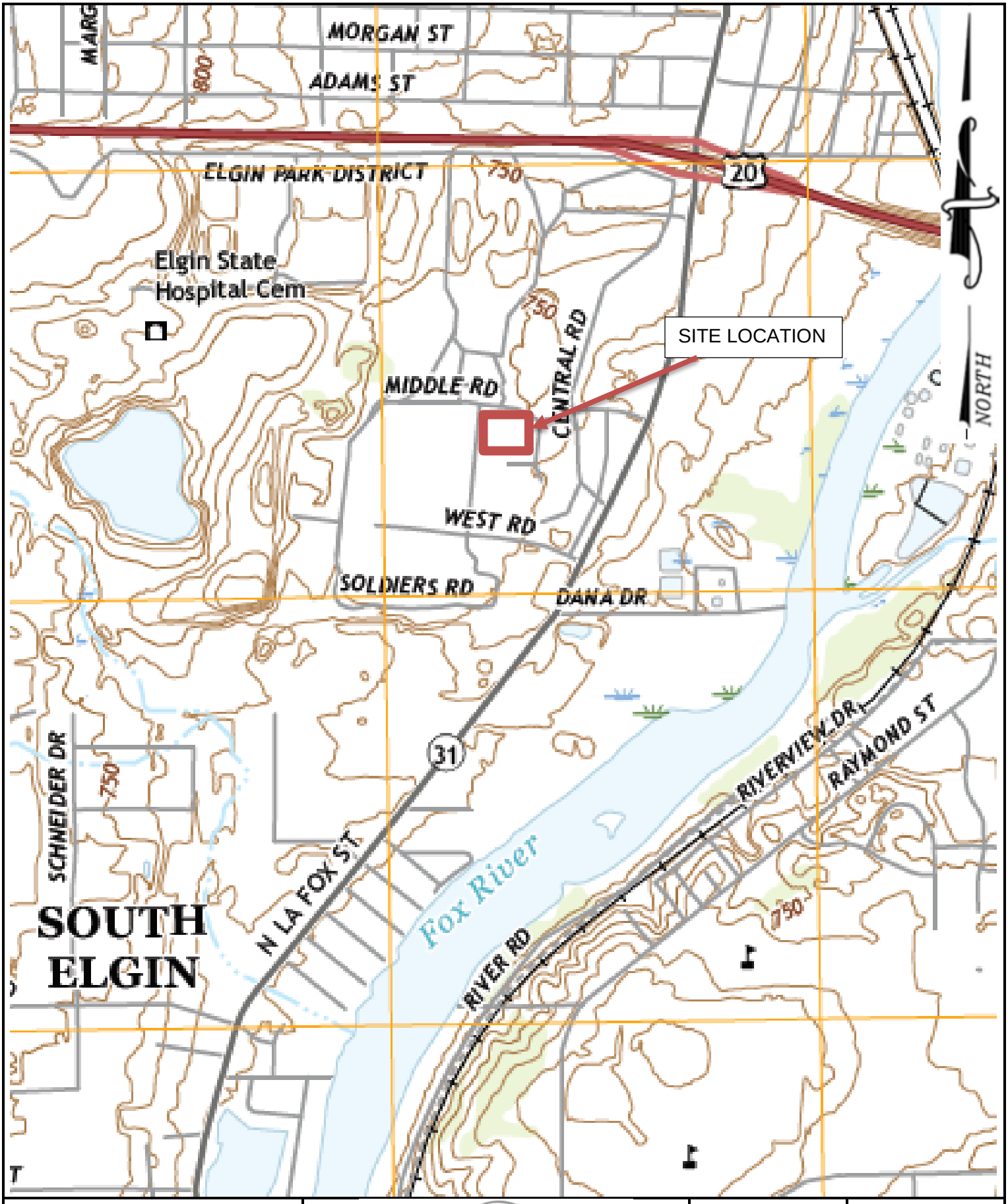
Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

WATER LEVEL MEASUREMENT SYMBOLS

WL:	Water	WD:	While Drilling
WCI:	Wet Cave In	BCR:	Before Casing Removal
DCI:	Dry Cave In	ACR:	After Casing Removal
WS :	While sampling	AB:	After Boring

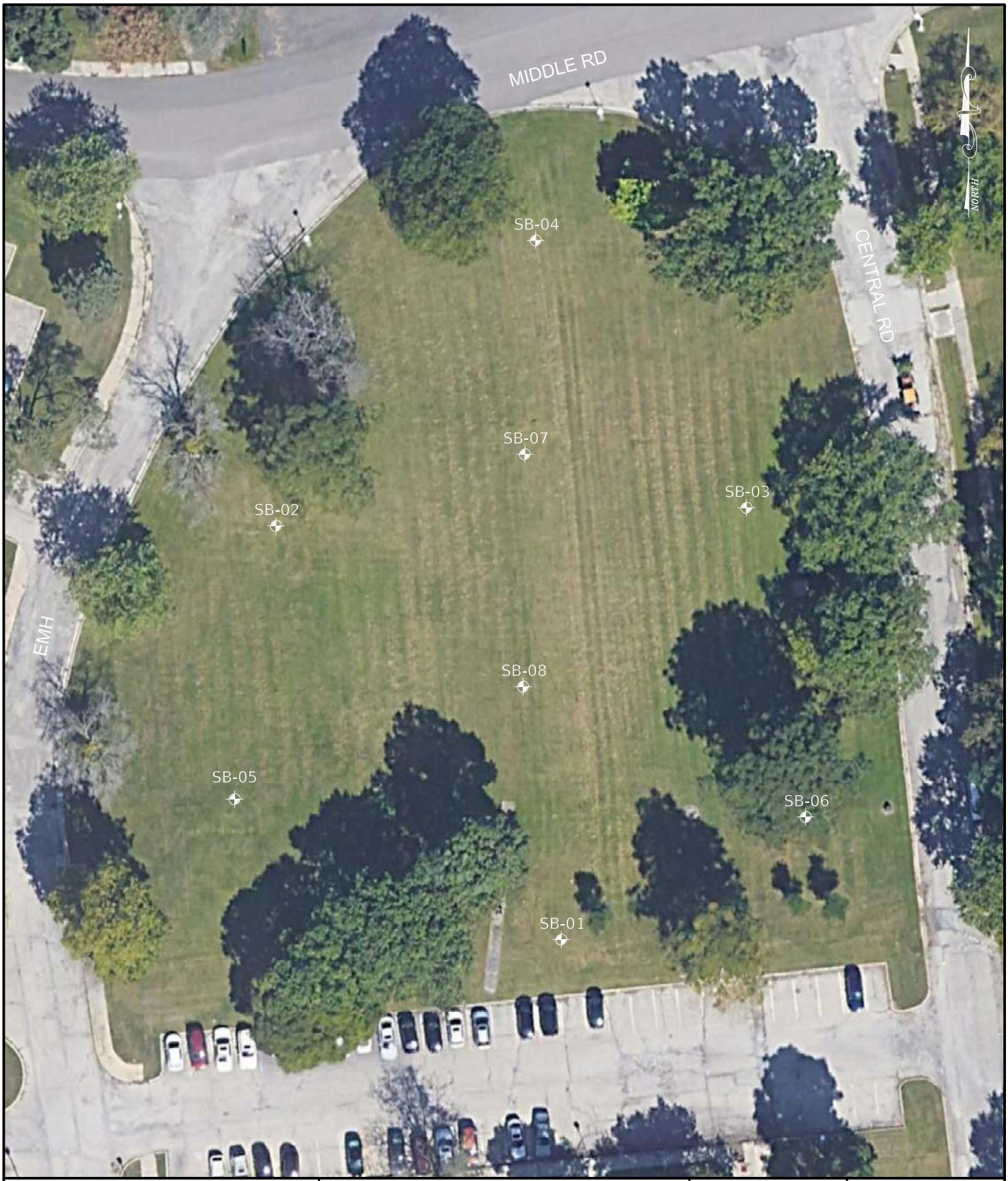
Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

Site Map



SITE LOCATION MAP			
Elgin Mental Health Center Middle Rd. and Soldiers Rd., Elgin, IL, 60123	**Geo Services, Inc.** Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	DRAWN BY	SWK
		APPROVED BY	AJP
		DATE	September 18, 2020
		GSI JOB No.	20104
		SCALE	NTS

Boring Location Map



SOIL BORING LOCATION DIAGRAM			
Geotechnical Investigation For The Proposed Combined Heat & Power Plant Elgin Mental Health Center, 750 South State Street, Elgin, Illinois	Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	DRAWN BY	RWC
		APPROVED BY	AJP
		DATE	September 08, 2020
		GSI JOB No.	20104
		SCALE	1"=50'

Boring Logs

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
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(630) 355-2838

STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane Drilling Method: 4.0" Hollow Stem Auger Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-01**

Northing: 1948287.771

Easting: 996749.16

Ground Surface Elev. *738.457*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	AS		8	12.0 " TOPSOIL–dark brown
	6			
	7			SILTY CLAY–dark brown–hard (CL) Fill
	8	4.5+P	13	
	8			SILTY SANDY CLAY with Stone–dark brown to black–medium dense Fill
–5	11			
	11		21	
	12			
	21			SAND, GRAVEL & COBBLES–brown–dense to very dense (GP)
	17		2	
	17			
	26			
–10	27		2	
	12			
	14			
	19		2	
	15			
	23			
–15	29		2	
	18			
	34			
	41		2	
	28			End Of Boring @ –20.0'
	50/6"			Hollow Stem Augers
–20			1	CME Automatic Hammer

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
–25			
–30			
–35			
–40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery NP–Nonplastic

Geo Services, Inc.
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(630) 355-2838

STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane

Drilling Method: 4.0" Hollow Stem Auger

Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-02**

Northing: 1948445.027

Easting: 996640.77

Ground Surface Elev. *741.337*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
2.0" TOPSOIL—dark brown			
	AS		11
	6		
	12		
SAND, GRAVEL & COBBLES—brown—medium dense to very dense (GP)	15		3
	11		
	22		
−5	29		2
	18		
	25		
	31		3
	21		
	28		
−10	39		1
End Of Boring @ −10.0' Hollow Stem Augers CME Automatic Hammer			
−15			
−20			
−25			
−30			
−35			
−40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR—No Recovery NP—Nonplastic

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STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane

Drilling Method: 4.0" Hollow Stem Auger

Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-03**

Northing: 1948451.919

Easting: 996819.509

Ground Surface Elev. *740.312*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs. _____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
10.0" TOPSOIL with Stone–dark brown	AS		5				
SILTY CLAY–dark brown–hard (CL) Fill	5						
	6						
	8	4.0P	17				
CLAYEY SAND & GRAVEL–dark brown–medium dense (GC) Fill	8						
	11						
–5	17		8	–25			
SAND, GRAVEL & COBBLES–brown–dense to very dense (GP)	21						
	28						
	29		3				
	15						
	31						
–10	37		2	–30			
End Of Boring @ –10.0' Hollow Stem Augers CME Automatic Hammer							
–15				–35			
–20				–40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery NP–Nonplastic

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STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane

Drilling Method: 4.0" Hollow Stem Auger

Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-04**

Northing: 1948553.534

Easting: 996739.454

Ground Surface Elev. *744.239*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	AS		11	12.0" TOPSOIL-black
	3			
	4			SILTY CLAY with Stone-dark brown-very stiff (Fill)
	7	3.0P	12	
	6			SILTY CLAY-dark brown-hard (CL) Fill
-5	7			
	9	4.5+P	16	
	20			
	21			SAND, GRAVEL & COBBLES-brown-dense (GP)
	29		2	
	19			
	22			
-10	37		1	
				End Of Boring @ -10.0'
				Hollow Stem Augers
				CME Automatic Hammer
-15				
-20				
-25				
-30				
-35				
-40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery NP-Nonplastic

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STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane | Drilling Method: 4.0" Hollow Stem Auger | Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-05**

Northing: 1948341.155

Easting: 996625.078

Ground Surface Elev. *740.715*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
12.0" TOPSOIL—dark brown	AS		8				
	3						
SILTY CLAY—dark brown—stiff (CL) Fill	4						
	5	1.5P	13				
	10						
	12						
−5	17		3	−25			
SAND, GRAVEL & COBBLES—brown—medium dense to very dense (GP)	23						
	32						
	40		1				
	18						
	38						
−10	35		2	−30			
End Of Boring @ −10.0' Hollow Stem Augers CME Automatic Hammer							
−15				−35			
−20				−40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR—No Recovery NP—Nonplastic

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STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane Drilling Method: 4.0" Hollow Stem Auger Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-06**

Northing: 1948334.357

Easting: 996842.043

Ground Surface Elev. *738.105*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	AS		12	12.0" TOPSOIL–black
	6			
	7			SILTY CLAY–dark brown–hard (CL) Fill
	9	4.5+P	13	
	13			
	23			
–5	24		3	SAND, GRAVEL & COBBLES–brown–dense (GP)
	10			
	21			
	27		2	
	18			
	25			
–10	33		3	
				End Of Boring @ –10.0'
				Hollow Stem Augers
				CME Automatic Hammer
–15				
–20				
–25				
–30				
–35				
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery NP–Nonplastic

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STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane

Drilling Method: 4.0" Hollow Stem Auger

Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-07**

Northing: 1948472.258

Easting: 996735.34

Ground Surface Elev. *743.103*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				10.0" TOPSOIL with Gravel–dark brown
	AS		6	
	6			SILTY CLAY with Sand–dark brown to black–medium dense (CL) Fill
	7			
	8		8	
				SILTY CLAY–dark brown–very stiff (CL) Fill
	3			
	4			
–5	4	2.0P	25	
				SAND, GRAVEL & COBBLES–brown–dense to very dense (GP)
	12			
	16			
	21		3	
	20			
	24			
–10	39		2	
				End Of Boring @ –10.0' Hollow Stem Augers CME Automatic Hammer
–15				
–20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
–25			
–30			
–35			
–40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery NP–Nonplastic

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

STRUCTURE FOUNDATION BORING LOG

DATE 9/4/2020

LOGGED BY RJ

GSI JOB No. 20104

Project: Geotechnical Investigation For The Proposed Combined Heat & Power Plant

Location: Elgin Mental Health Center, 750 South State Street, Elgin, Illinois

County: Kane

Drilling Method: 4.0" Hollow Stem Auger

Hammer Type: CME Automatic

Client: Orion Engineers, LLC

BORING No.: **SB-08**

Northing: 1948383.915

Easting: 996734.682

Ground Surface Elev. *741.773*

Surface Water Elev. *n/a*

Stream Bed Elev. *n/a*

Groundwater Elevation:

First Encounter *Dry*

Upon Completion *Dry*

After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8.0" TOPSOIL—black							
	AS		10				
CRUSHED CONCRETE & GRAVEL—brown—medium dense (FIII)	5						
	6						
	7		3				
	5						
SILTY CLAY—dark brown—very stiff (CL) Fill	7						
−5	8	3.0P	20	−25			
	12						
SAND, GRAVEL & COBBLES—brown—dense (GP)	22						
	23		3				
	15						
	22						
−10	29		2	−30			
End Of Boring @ −10.0' Hollow Stem Augers CME Automatic Hammer							
−15				−35			
−20				−40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR—No Recovery NP—Nonplastic

Appendix C

Site Sampling and Testing Reports

- **Soil Sampling and Testing Report**
- **Lead Sampling and Testing Report**

Report of

Subsurface Environmental Investigation

750 State Street, Elgin, Kane County, Illinois

Prepared for:
Orion Engineers, PLLC

May 10, 2021

ECS Midwest, LLC
1575 Barclay Blvd
Buffalo Grove, Illinois 60089
847-279-0366

May 10, 2021

Mr. Brett Butterfield
Orion Engineers, PLLC
3750 North Kedzie Avenue, PO Box 18321
Chicago, Illinois 60618

ECS Project No. 53-3032

RE: **Subsurface Environmental Assessment – Elgin Mental Health Center, 750 State Street, Elgin, Kane County, Illinois**

Dear Mr. Butterfield,

Please find enclosed one copy of the Subsurface Environmental Investigation completed by ECS for the above referenced property. If you have any questions concerning the information contained in this report, please contact either of the undersigned at (847) 279-0366. Thank you for retaining ECS for this assessment.

Respectfully Submitted,

ECS MIDWEST, LLC

Kara Bach
Project Manager

Jason Warren, REM
Principal

I:\Office 53 Environmental\Phase II\Phase II\Illinois\3032 Elgin Mental Health Center SSI

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FIGURES

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APPENDIX

1.0 INTRODUCTION

ECS Midwest, LLC (ECS) was retained to perform a subsurface environmental investigation at the property located at 750 State Street, Elgin, Kane County, Illinois (subject property). A site plan/topographic map is provided as Figure 1 and an Aerial Photograph is provided as Figure 2.

The subject property is identified by the Kane County Assessor's Office as portions of two parcels, including parcel numbers 06-23-400-017 and 06-26-201-016. The subject property consists of a 7-acre parcel of land that is currently grass covered with some paved sidewalks. Additionally, there are three residential structures and storage sheds located throughout the property.

1.1 Purpose of Investigation

Stanley Consultants, Inc. (Stanley) conducted a Phase I Environmental Site Assessment on the subject property (dated October 7, 2020). As noted within the report, the following recognized environmental conditions were identified:

- Former Hospital Operations/Demolition – The former operations and demolition on the site as a hospital and diagnostic building to the east. The site was developed as a hospital for over sixty years and it is unknown what became of medical waste generated by the site. The hospital also had identified steam tunnels in the northwest corner and the northeast corner that connected it to the diagnostic building. These tunnels were not accessed during the site inspection. Demolition debris of the general hospital and diagnostic buildings could have resulted in contamination of the soil.

- Underground Storage Tanks – The greater Elgin Mental Health Center is considered to be a REC in connection with the Property, as the site has had several LUST incidents and USTs on the site. While most have been addressed, the potential presence of additional USTs and soil contamination from LUST incidents represent a potential material threat to the Property.

Based on the findings of this assessment, sampling of the onsite soil and soil/gas sampling was requested.

1.2 Objectives and Scope of Work

In an effort to determine if the subject property has been affected by the identified RECs, ECS performed a subsurface environmental investigation. The subsurface investigation consisted of the collection of thirteen soil samples and three soil/gas samples. Please note that ECS originally proposed to collect three groundwater samples; however, due to the fact that groundwater was not encountered to the maximum depth explored, groundwater samples were not collected and three deeper soil samples were collected in lieu of groundwater samples.

2.0 SUBSURFACE EXPLORATION

The subsurface investigation activities included soil and soil/gas sampling and analysis as described below.

2.1 Soil Sampling Program

On April 20, 2021, in order to evaluate subsurface soil conditions, ECS collected one soil sample from each of ten soil borings (B-1 through B-10) advanced on the subject property. In addition, ECS collected three deep soil samples from each of three soil borings (B-3, B-4, and B-9). The locations of the soil borings are shown in Figure 3. The soil borings were advanced by using a direct-push hydraulic probe (Geoprobe) and were advanced continuously from the ground surface to the bottom of the borings (approximately 15 feet) by pushing a 2 inch diameter by 5 foot long hollow-barreled sampler into/through the soil. Soil samples were collected in dedicated, disposal plastic liners contained in the sampler. Following sample collection the soil boring holes were backfilled with granular bentonite and/or the soil cuttings to match the existing ground surface. Drilling equipment, including the sampling rods, was decontaminated prior to sampling and in between boring locations using a high pressure steam cleaner. All drilling activities were conducted by Environmental Soil Probing Corp. of Saint Charles, Illinois under the supervision of an ECS geologist.

2.2 Soil/Gas Sampling Program

ECS installed three soil/gas sample collection points (SG-1, SG-2, and SG-3) and collected soil/gas samples directly from on-site shallow soils. Sampling and analysis were conducted in general accordance with Illinois EPA regulations. Figure 3 provides the locations of the soil/gas sampling points.

The soil/gas samples were collected from a depth of 3 feet below the ground surface and above the saturation zone. The soil/gas monitoring points were installed using the truck mounted, direct-push hydraulic probe with an expendable tip, to the desired depth (approximately 3 feet below ground surface – as required by the Illinois EPA). Once the desired depth was reached, a ⅛ inch outside diameter post-run nylon tubing was connected to the expendable point holders. The rods were then pulled up three to six inches to create cavities to collect the soil/gas samples. The rods were sealed at the surface with bentonite clay to prevent air from entering around the rods.

Following installation, the monitoring points were purged of approximately five volumes of air prior to soil/gas sample collection. Upon completion of purging activities and prior to sample collection, leak tests, utilizing helium tracer gas, were performed in order to confirm that there were no leaks within the sampling trains. Upon verification that no leaks existed within the sampling trains, soil/gas samples were collected over an 8 minute period utilizing an 8 minute regulator and stainless steel summa canister (calibrated and certified clean by the analytical laboratory). Soil/gas sampling was not conducted within 48 hours after a rainfall event of ½ inch or greater, in standing or ponded water areas or where soil is constantly watered by an irrigation system.

2.3 Soil and Soil/Gas Analytical Program

Thirteen soil samples and three soil/gas samples were collected and analyzed for the parameters listed below:

Number of Samples	Analytical Parameters
Soil	
10	VOCs, PNAs, RCRA Metals, pH
3 (Deep)	BTEX and PNAs
Soil/Gas	
3	VOCs

VOCs/BTEX – Volatile organic compounds/Benzene Toluene, Ethylbenzene, total Xylenes via Method 5035/8260B, TO-15)
PNAs – Polynuclear aromatic hydrocarbons via Method 8270
RCRA Metals – Via Method 6010B/7471B
pH – Via Method 9045D

The soil and soil/gas analysis was performed by Test America of University Park, Illinois on a standard laboratory turnaround basis.

3.0 RESULTS OF SUBSURFACE EXPLORATION

3.1 Soil Conditions

Soil samples were examined for overburden classification as well as for visual evidence of contamination. Soil type, consistency, and the thickness and depth of the units were used to define the site stratigraphy. The following soils were encountered:

During drilling, the stratigraphy of the subject property was defined to a depth of approximately 15 feet, the depth of the deepest soil boring. Generally, the subject property comprised of 1 foot of topsoil underlain by a sand fill that extended down to 15 feet bgs. At locations B-1 and B-3, a clay seam was encountered from 2 to 10 feet bgs. Boring logs are included in Appendix I.

Headspace vapor measurements were taken in the field on separate split samples (i.e. not on the portion of the sample preserved for subsequent analysis) to estimate the VOC content of the samples using a Ray Systems Mini-Ray® photoionization detector (PID). The PID was calibrated with a 100-$ppm_{v/v}$ isobutylene-in-air commercial grade gas standard. The headspace samples were prepared by filling a new airtight plastic bag approximately half full with a sample of the soil collected from the respective sample interval. The airtight bag was then sealed and allowed to equilibrate at ambient temperature and out of direct sunlight for at least 15 minutes. The sample headspace was screened for VOCs by inserting the PID probe through the plastic approximately 1 inch into the airtight bag.

PID readings were observed to be at or below background levels at each of the soil boring locations.

3.2 Results of Soil Analysis

Soil samples were collected and analyzed for VOCs/BTEX, PNAs, RCRA Metals, and/or pH. The locations of the soil borings are shown on Figure 3 and the results of the soil analysis are summarized in Tables 1 through 4. Copies of the laboratory report and chain of custody document are included in Appendix I.

The results of the soil analysis were compared to the Illinois EPA Tier 1 Soil Remediation Objectives (SROs), and/or documented background concentrations, as cited in Title 35 Illinois Administrative Code 742 (35 IAC 742). Given the use of the subject property (residential), these comparisons were based upon a residential classification and construction worker scenarios for the soil ingestion and outdoor soil inhalation exposure pathways. The soil component to groundwater ingestion (SCGI) exposure pathway was based upon a Class I groundwater designation, as the actual class of groundwater has not been determined for the subject property.

The results of the investigation are as follows:

VOCs/BTEX compounds were not detected at concentrations exceeding applicable SROs.

PNAs were not detected at concentrations exceeding applicable SROs.

Metals were not detected at concentrations exceeding applicable SROs.

3.3 Results of Soil/Gas Analysis

Soil/gas samples were collected and analyzed for VOCs. The locations of the soil/gas sampling points are shown in Figure 3. The results of the soil/gas analysis are summarized in Table 5. Copies of the laboratory report and chain of custody document are included in Appendix I. The results of the soil/gas sampling were compared to the Remediation Objectives (ROs) for the Indoor Inhalation Exposure Route and Construction Worker Exposure Route, for residential properties, as identified in Table H of *Part 742 Tiered Approach to Corrective Action Objectives (TACO)*.

- **VOCs** were not detected at concentrations exceeding applicable industrial/commercial ROs; however, there were detections of various VOCs that exceeded laboratory detection limits.

4.0 CONCLUSIONS

4.1 Summary and Recommendations

ECS was retained to perform a subsurface environmental investigation at 750 State Street, Elgin, Kane County, Illinois. The objective of the subsurface environmental investigation was to determine if the previously identified RECs have negatively impacted the subject property. To meet this objective, ECS collected thirteen soil samples and three soil/gas samples for chemical analysis. The findings of our subsurface investigation are noted below.

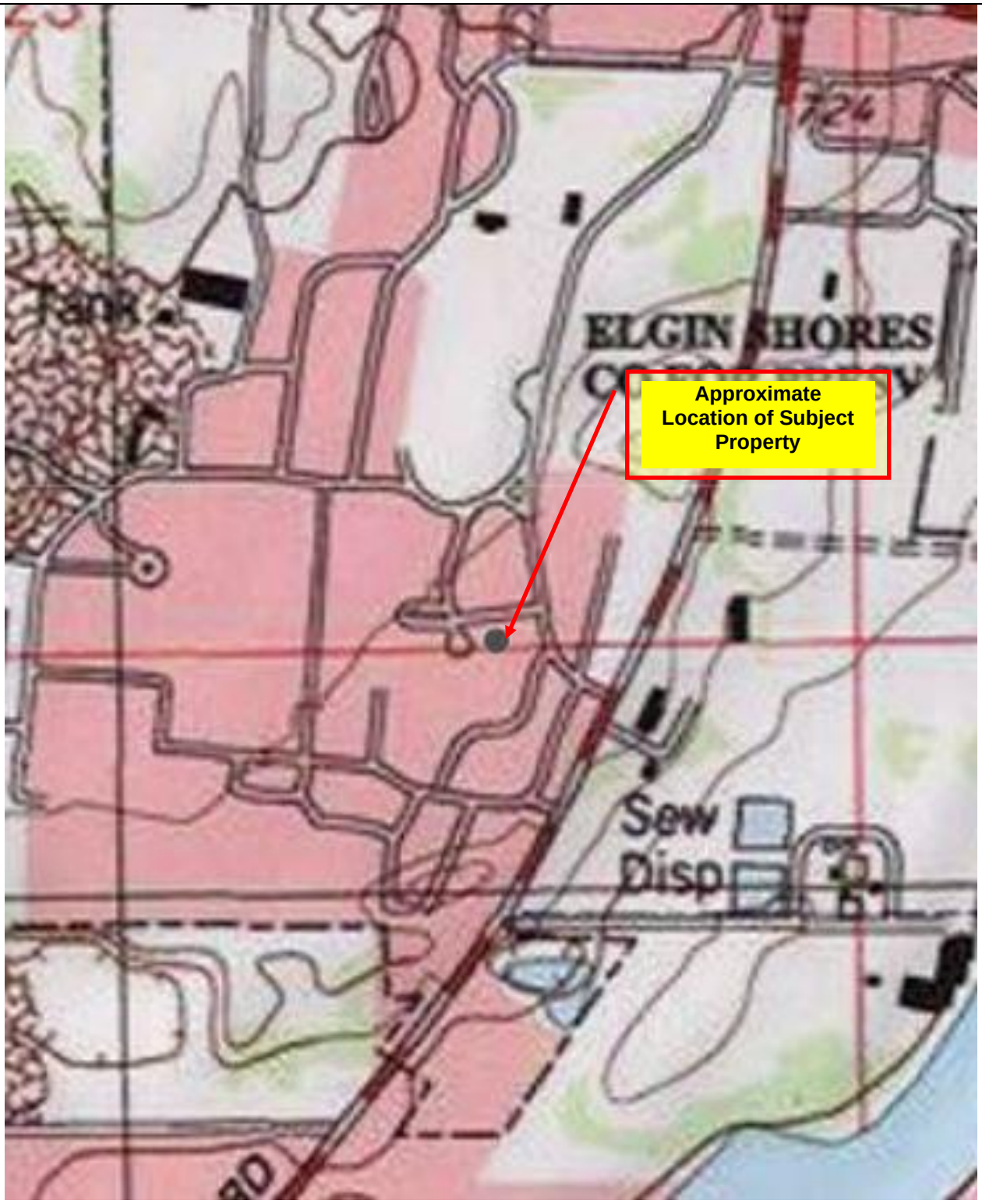
As indicated in the attached tables, exceedances of applicable exposure pathways were not identified within the soil and/or soil/gas samples collected from the subject property. As such, further investigation is not recommended at this time. However, as various detections were identified within

the samples, in order to stay compliant with current Illinois EPA regulations, future buildings should maintain a full concrete slab on-grade and/or full concrete walls and floor basement construction, with no sumps or sealed sumps.

5.0 LIMITATIONS

The conclusions presented herein are based on field observations and analytical data obtained by ECS at the subject property. The opinions presented here are based on our understanding of existing environmental statutes and regulations. No representation is made or intended relative to future environmental statutes, regulations, or objectives. This report represents our professional judgment and opinion. No warranty is expressed or implied.

FIGURES



Source: USGS Topography

N

Figure 1
Topography Map
ECS Project # 3001
750 South State Street
Elgin, Illinois

Elgin Mental Health Center SSI
750 South State Street
Elgin, Kane County, Illinois

Figure 2
Aerial Photograph
ECS Project No. 53: 3032
May 2021

Legend – Not to Scale

Approximate Soil Sample Locations

Approximate Soil/Gas Sample Locations

Elgin Mental Health Center SSI
750 South State Street
Elgin, Kane County, Illinois

Figure 3
Sample Location Diagram
ECS Project No. 53: 3032
May 2021

TABLES

Table 2. Summary of Soil Sample Analyses for BTEX Compounds
Samples Collected April 2021

Analyte	Residential		SCGI	Construction Worker		Sample Location and Depth (ft)				
	Ingestion	Inhalation	Class II	Ingestion	Inhalation	B-2	B-4	B-4 Deep	B-6	B-7
	mg/kg									
Benzene	12	0.8	0.03	2300	2.2	<0.0074	<0.0074	<0.0066	<0.0086	<0.0069
Ethylbenzene	7800	400	13	20000	58	<0.0093	<0.0093	<0.0083	<0.011	<0.0086
Toluene	16000	650	12	410000	42	<0.0075	<0.0075	<0.0067	<0.0087	<0.0069
Xylenes, Total	16000	320	150	41000	5.6	<0.011	<0.011	<0.010	<0.013	<0.010

Concentrations in excess of Tier 1 SROs are shaded yellow

Exceeded SROs are shaded green

NRO – No Remediation Objective Listed in 35 IAC 742

VOCs via USEPA Method SW8260B/5035

Table 3. Summary of Soil Sample Analyses for PNA Compounds
Samples Collected April 2021

Analyte	Residential		SCGI	Construction Worker		Sample Location and Depth (ft)												
	Ingestion	Inhalation	Class II	Ingestion	Inhalation	B-1	B-2	B-3 Deep	B-3	B-4	B-4 Deep	B-5	B-6	B-7	B-8	B-9	B-9 Deep	B-10
	mg/kg																	
Acenaphthene	4,700	NRO	2900	120,000	NRO	<0.0069	<0.0069	<0.0061	0.013	<0.0067	<0.0059	<0.0074	0.058	<0.0062	0.014	<0.0074	<0.0062	<0.0075
Acenaphthylene	2,300	NRO	420	61,000	NRO	0.0056	<0.0051	<0.0045	0.047	<0.0049	<0.0044	<0.0054	0.0053	<0.0046	<0.0048	<0.0054	<0.0045	<0.0055
Anthracene	23,000	NRO	59000	610,000	NRO	0.024	0.015	<0.0057	0.063	<0.0062	<0.0055	<0.0068	0.14	<0.0058	0.029	<0.0068	<0.0058	<0.0070
Benzo[a]anthracene	1.8	NRO	8	170	NRO	0.13	0.084	<0.0046	0.43	<0.0050	<0.0044	<0.0055	0.44	<0.0047	0.068	<0.0055	<0.0046	<0.0056
Benzo[a]pyrene	2.1	NRO	82	17	NRO	0.16	0.092	<0.0066	0.44	<0.0072	<0.0064	<0.0079	0.36	<0.0067	0.061	<0.0079	<0.0067	<0.0081
Benzo[b]fluoranthene	2.1	NRO	25	170	NRO	0.22	0.15	<0.0074	0.61	<0.0080	<0.0071	<0.0088	0.46	<0.0075	0.076	<0.0088	<0.0074	<0.0090
Benzo[g,h,i]perylene	2,300	NRO	130000	61,000	NRO	0.049	0.040	<0.011	0.15	<0.012	<0.011	<0.013	0.13	<0.011	0.025	<0.013	<0.011	<0.013
Benzo[k]fluoranthene	9	NRO	250	1,700	NRO	0.11	0.060	<0.010	0.27	<0.011	<0.0097	<0.012	0.23	<0.010	0.028	<0.012	<0.010	<0.012
Chrysene	88	NRO	800	17,000	NRO	0.14	0.10	<0.0093	0.43	<0.010	<0.0090	<0.011	0.44	<0.0095	0.069	<0.011	<0.0094	<0.011
Dibenz(a,h)anthracene	0.2	NRO	7.6	17	NRO	0.013	0.0099	<0.0066	0.049	<0.0072	<0.0064	<0.0079	0.048	<0.0067	<0.0071	<0.0079	<0.0067	<0.0080
Fluoranthene	3,100	NRO	21000	82,000	NRO	0.29	0.15	<0.0063	0.58	<0.0069	<0.0061	<0.0076	0.76	<0.0064	0.12	<0.0076	<0.0064	<0.0077
Fluorene	3,100	NRO	2800	82,000	NRO	<0.0054	<0.0054	<0.0048	0.013	<0.0052	<0.0046	<0.0058	0.050	<0.0049	0.014	<0.0058	<0.0048	<0.0059
Indeno[1,2,3-cd]pyrene	0.9	NRO	69	170	NRO	0.054	0.040	<0.0089	0.16	<0.0096	<0.0086	<0.011	0.14	<0.0090	0.025	<0.011	<0.0089	<0.011
Naphthalene	1,600	170	18	4,100	1.8	0.0066	0.030	<0.0053	0.014	<0.0057	<0.0051	<0.0063	0.030	<0.0053	0.0083	<0.0063	<0.0053	<0.0064
Phenanthrene	2,300	NRO	1100	61,000	NRO	0.11	0.10	<0.0048	0.24	<0.0052	<0.0046	<0.0057	0.62	<0.0048	0.11	<0.0057	<0.0048	<0.0058
Pyrene	2,300	NRO	21000	61,000	NRO	0.20	0.15	<0.0068	0.56	<0.0074	<0.0066	<0.0081	0.68	<0.0069	0.11	<0.0081	<0.0068	<0.0083

Concentrations in excess of Tier 1 SROs are shaded yellow
Exceeded SROs are shaded green
NRO – No Remediation Objective Listed in 35 IAC 742
PNAs via USEPA Method 8270c

Table 4. Summary of Soil Sample Analyses for RCRA Metals and pH
Samples Collected April 2021

Analyte	Residential		SCGI	Construction Worker		Sample Location and Depth (ft)							
	Ingestion	Inhalation	Class II*	Ingestion	Inhalation	B-1	B-3 Deep	B-3	B-5	B-8	B-9	B-9 Deep	B-10
	mg/kg												
Arsenic	13	750	120-130 [13]	61	25,000	5.8	2.4	8.2	9.3	9.2	7.2	4.9	9.8
Barium	5,500	690,000	NRO-2,100 [110]	14000	870,000	29	8.8	100	120	100	150	16	100
Cadmium	78	1800	NRO-4,300 [0.6]	200	59,000	0.18	0.11	0.27	0.16	0.17	0.13	0.11	0.26
Chromium	230	270	21-28** [16.2]	4,100	690	9.6	3.6	14	18	14	17	4.9	15
Lead	400	NRO	1,420-3,760 [36]	700	NRO	25	3.4	50	16	27	17	7.5	12
Selenium	390	NRO	1.3-2.4 [0.48]	1,000	NRO	<0.66	<0.56	<0.60	<0.72	<0.65	<0.73	<0.59	<0.71
Silver	390	NRO	NRO-110** [0.55]	1,000	NRO	0.21	<0.12	0.39	0.56	0.35	0.43	<0.13	0.34
Mercury	23	10	NRO-40 [0.06]	61	0.1	0.046	<0.0054	0.084	0.068	0.044	0.042	0.0055	0.030
pH	NRO					8.34	8.93	8.32	8.02	8.15	7.73	8.79	7.30

Concentrations in excess of Tier 1 SROs are shaded yellow
Exceeded SROs are shaded green
NRO – No Remediation Objective listed in 35 IAC 742
* - Indicates that RO is pH specific
** - indicates the more restrivtive Class I groundwater classification was utilized for comparison
[x] - Indicates that background concentration was utilized as pH specific RO does not exist
Metals and pH via USEPA Method 6010B/9014

Table 5. Summary of Soil/Gas Sample Analyses for Volatile Organic Compounds

Samples Collected April 2021

Analyte	Indoor Inhalation (Residential)	Sample ID		
		SG-1	SG-2	SG-3
	mg/m^3			
1,1,1-Trichloroethane	6,600	<0.0020	<0.0020	<0.0020
1,1,2-Trichloroethane	170,000	<0.00038	<0.00038	<0.00038
1,1-Dichloroethane	690	<0.00028	<0.00028	<0.00028
1,1-Dichloroethylene	240	<0.00032	<0.00032	<0.00032
1,2,4-Trichlorobenzene	5.4	<0.0047	<0.0047	<0.0047
1,2-Dibromoethane	0.0078	<0.00054	<0.00054	<0.00054
1,2-Dichlorobenzene	290	<0.0019	<0.0019	<0.0019
1,2-Dichloroethane	0.099	<0.00040	<0.00040	<0.00040
1,2-Dichloropropane	0.31	<0.00046	<0.00046	<0.00046
1,4-Dichlorobenzene	1,200	<0.00096	<0.00096	<0.00096
2-Butanone (MEK)	6,400	<0.0022	0.030	0.022
Acetone	750,000	0.017	0.42	0.42
Benzene	0.37	0.00049	0.032	0.017
Bromodichloromethane	450,000	<0.0012	<0.0012	<0.0012
Bromoform	11	<0.00093	<0.00093	<0.00093
Butanol	29,000	<0.0052	<0.0052	0.0083
Carbon disulfide	780	<0.00034	0.0049	0.042
Carbon tetrachloride	0.21	0.00046	0.00051	0.00057
Chlorobenzene	69	0.00034	0.00037	0.00046
Chlorodibromomethane	57,000	<0.00060	<0.00060	<0.00060
Chloroform	0.11	<0.00034	0.00036	<0.00034
cis-1,2-Dichloroethylene	1,100,000	<0.00040	<0.00040	<0.00040
Dichlorodifluoromethane	270	0.0027	0.0026	0.0028
Ethylbenzene	1.3	0.0043	0.0021	0.0047
Isopropylbenzene	600	<0.00084	<0.00084	<0.00084
m+p-Xylene	130	0.017	0.0025	0.010
Methyl bromide	6.9	<0.00085	<0.00085	<0.00085
Methyl tertiary butyl ether	3,700	<0.0019	<0.0019	<0.0019
Methylene chloride	5.6	<0.014	<0.014	<0.014
Naphthalene	0.11	<0.0040	<0.0040	<0.0040
o-Xylene	120	0.0052	<0.00065	0.0024
p-Dioxane	0.22	<0.0011	<0.0011	<0.0011
Styrene	1,400	<0.0010	<0.0010	<0.0010
Tetrachloroethylene	0.55	<0.00047	0.0022	0.0031
Toluene	6,200	<0.0029	0.10	0.12
trans-1,2-Dichloroethylene	85	<0.00028	<0.00028	<0.00028
Trichloroethylene	1.5	<0.00070	0.0060	0.0067
Trichlorofluoromethane	860	0.0014	0.0015	0.0015
Vinyl acetate	250	<0.00099	<0.00099	<0.00099
Vinyl chloride	0.29	<0.00066	<0.00066	0.00087
Xylenes (total)	140	0.022	0.0025	0.012
cis-1,3-Dichloropropene	NRO	<0.00073	<0.00073	<0.00073
trans-1,3-Dichloropropene	NRO	<0.00041	<0.00041	<0.00041

Concentrations in excess of ROs are shaded yellow

Exceeded ROs are shaded green

Indoor ROs as Listed in 35 IAC 742 Appendix B - Table H

NRO – No Remedial Objective Listed

Air Analysis via USEPA Method TO-15

APPENDIX I
BORING LOGS

PROJECT: Elgin Mental Health Center **BORING NUM.** B-1

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0					
5					CL	Brown lean clay, trace gravel
10	0.0					Brown sand, fill
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-2

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0					
5					SW	Tan sand, fill
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-3

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0					
5					CL	Brown lean clay, trace gravel
10	0.0					Brown sand, fill
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-4

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-5

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0					
5					SW	Tan sand, fill
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-6

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021 / LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-7

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021 / LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-8

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:	
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021	LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:	

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-9

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021 / LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

PROJECT: Elgin Mental Health Center **BORING NUM.** B-10

CLIENT: Orion Engineers **PROJECT NO.** 53:3032

LOCATION:	750 South State Street, Elgin, IL	ELEVATION:
DRILLER:	ESP Drilling	DATE DRILLED: 4/20/2021 / LOGGED BY: Kara B.
DRILL RIG:	Geoprobe	DEPTH TO WATER:

Elevation/ Depth (Ft)	PID Reading	Sample Number	Sample Recovery (in/in)	Graphic Log	Soil Classification	SOIL DESCRIPTION
0	0.0				Topsoil	Dark brown topsoil, trace gravel
	0.0				SW	Tan sand, fill
5						
10	0.0					
	0.0					
15						END OF BORING @ 15'
20						
25						
30						
35						

This information pertains only to this boring and should not be in terpreted as being indicative of the site.

APPENDIX II
Analytical Laboratory Reports

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-22794-1
Client Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-3032)

For:
ECS Midwest LLC
1575 Barclay Blvd.
Buffalo Grove, Illinois 60089

Attn: Kara Beth Sterling Bach

Authorized for release by:
4/27/2021 4:12:21 PM

Jim Knapp, Project Manager II
(630)758-0262
Jim.Knapp@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 140-22794-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-22794-1

Comments
No additional comments.

Receipt
The samples were received on 4/22/2021 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice.

Receipt Exceptions
The Field Sampler was not listed on the Chain of Custody.

Air - GC/MS VOA
Methods D1946, TO 15 LL, TO-14A, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-1
Lab Sample ID: 140-22794-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.017	J	0.048	0.014	mg/m3	1		TO 15 LL	Total/NA
Benzene	0.00049	J B	0.0026	0.00026	mg/m3	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.00046	J	0.0050	0.00044	mg/m3	1		TO 15 LL	Total/NA
Chlorobenzene	0.00034	J B	0.0037	0.00028	mg/m3	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.0027	J	0.0040	0.00069	mg/m3	1		TO 15 LL	Total/NA
Ethylbenzene	0.0043		0.0035	0.00056	mg/m3	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.017		0.0035	0.0013	mg/m3	1		TO 15 LL	Total/NA
o-Xylene	0.0052		0.0035	0.00065	mg/m3	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.0014	J	0.0045	0.00062	mg/m3	1		TO 15 LL	Total/NA
Xylenes, Total	0.022		0.0069	0.0010	mg/m3	1		TO 15 LL	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.0073	J	0.020	0.0057	ppm v/v	1		TO 15 LL	Total/NA
Benzene	0.00015	J B	0.00080	0.000080	ppm v/v	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.000074	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Chlorobenzene	0.000073	J B	0.00080	0.000060	ppm v/v	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.00055	J	0.00080	0.00014	ppm v/v	1		TO 15 LL	Total/NA
Ethylbenzene	0.00098		0.00080	0.00013	ppm v/v	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.0039		0.00080	0.00029	ppm v/v	1		TO 15 LL	Total/NA
o-Xylene	0.0012		0.00080	0.00015	ppm v/v	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.00025	J	0.00080	0.00011	ppm v/v	1		TO 15 LL	Total/NA
Xylenes, Total	0.0051		0.0016	0.00024	ppm v/v	1		TO 15 LL	Total/NA

Client Sample ID: SG-2
Lab Sample ID: 140-22794-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.030		0.012	0.0022	mg/m3	1		TO 15 LL	Total/NA
Acetone	0.42		0.048	0.014	mg/m3	1		TO 15 LL	Total/NA
Benzene	0.032	B	0.0026	0.00026	mg/m3	1		TO 15 LL	Total/NA
Carbon disulfide	0.0049	J	0.0062	0.00034	mg/m3	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.00051	J	0.0050	0.00044	mg/m3	1		TO 15 LL	Total/NA
Chlorobenzene	0.00037	J B	0.0037	0.00028	mg/m3	1		TO 15 LL	Total/NA
Chloroform	0.00036	J	0.0039	0.00034	mg/m3	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.0026	J	0.0040	0.00069	mg/m3	1		TO 15 LL	Total/NA
Ethylbenzene	0.0021	J	0.0035	0.00056	mg/m3	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.0025	J	0.0035	0.0013	mg/m3	1		TO 15 LL	Total/NA
Tetrachloroethene	0.0022	J	0.0054	0.00047	mg/m3	1		TO 15 LL	Total/NA
Toluene	0.10		0.0045	0.0029	mg/m3	1		TO 15 LL	Total/NA
Trichloroethene	0.0060		0.0021	0.00070	mg/m3	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.0015	J	0.0045	0.00062	mg/m3	1		TO 15 LL	Total/NA
Xylenes, Total	0.0025	J	0.0069	0.0010	mg/m3	1		TO 15 LL	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.010		0.0040	0.00073	ppm v/v	1		TO 15 LL	Total/NA
Acetone	0.18		0.020	0.0057	ppm v/v	1		TO 15 LL	Total/NA
Benzene	0.010	B	0.00080	0.000080	ppm v/v	1		TO 15 LL	Total/NA
Carbon disulfide	0.0016	J	0.0020	0.00011	ppm v/v	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.000082	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Chlorobenzene	0.000080	J B	0.00080	0.000060	ppm v/v	1		TO 15 LL	Total/NA
Chloroform	0.000073	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.00052	J	0.00080	0.00014	ppm v/v	1		TO 15 LL	Total/NA
Ethylbenzene	0.00047	J	0.00080	0.00013	ppm v/v	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.00058	J	0.00080	0.00029	ppm v/v	1		TO 15 LL	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG-2 (Continued) — Lab Sample ID: 140-22794-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.00032	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Toluene	0.027		0.0012	0.00078	ppm v/v	1		TO 15 LL	Total/NA
Trichloroethene	0.0011		0.00040	0.00013	ppm v/v	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.00027	J	0.00080	0.00011	ppm v/v	1		TO 15 LL	Total/NA
Xylenes, Total	0.00058	J	0.0016	0.00024	ppm v/v	1		TO 15 LL	Total/NA

Client Sample ID: SG-3 — Lab Sample ID: 140-22794-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1-Butanol	0.0083	J	0.024	0.0052	mg/m3	1		TO 15 LL	Total/NA
2-Butanone (MEK)	0.022		0.012	0.0022	mg/m3	1		TO 15 LL	Total/NA
Acetone	0.42		0.048	0.014	mg/m3	1		TO 15 LL	Total/NA
Benzene	0.017	B	0.0026	0.00026	mg/m3	1		TO 15 LL	Total/NA
Carbon disulfide	0.042		0.0062	0.00034	mg/m3	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.00057	J	0.0050	0.00044	mg/m3	1		TO 15 LL	Total/NA
Chlorobenzene	0.00046	J B	0.0037	0.00028	mg/m3	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.0028	J	0.0040	0.00069	mg/m3	1		TO 15 LL	Total/NA
Ethylbenzene	0.0047		0.0035	0.00056	mg/m3	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.010		0.0035	0.0013	mg/m3	1		TO 15 LL	Total/NA
o-Xylene	0.0024	J	0.0035	0.00065	mg/m3	1		TO 15 LL	Total/NA
Tetrachloroethene	0.0031	J	0.0054	0.00047	mg/m3	1		TO 15 LL	Total/NA
Toluene	0.12		0.0045	0.0029	mg/m3	1		TO 15 LL	Total/NA
Trichloroethene	0.0067		0.0021	0.00070	mg/m3	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.0015	J	0.0045	0.00062	mg/m3	1		TO 15 LL	Total/NA
Vinyl chloride	0.00087	J	0.0010	0.00066	mg/m3	1		TO 15 LL	Total/NA
Xylenes, Total	0.012		0.0069	0.0010	mg/m3	1		TO 15 LL	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1-Butanol	0.0027	J	0.0080	0.0017	ppm v/v	1		TO 15 LL	Total/NA
2-Butanone (MEK)	0.0074		0.0040	0.00073	ppm v/v	1		TO 15 LL	Total/NA
Acetone	0.18		0.020	0.0057	ppm v/v	1		TO 15 LL	Total/NA
Benzene	0.0054	B	0.00080	0.000080	ppm v/v	1		TO 15 LL	Total/NA
Carbon disulfide	0.013		0.0020	0.00011	ppm v/v	1		TO 15 LL	Total/NA
Carbon tetrachloride	0.000091	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Chlorobenzene	0.00010	J B	0.00080	0.000060	ppm v/v	1		TO 15 LL	Total/NA
Dichlorodifluoromethane	0.00056	J	0.00080	0.00014	ppm v/v	1		TO 15 LL	Total/NA
Ethylbenzene	0.0011		0.00080	0.00013	ppm v/v	1		TO 15 LL	Total/NA
m-Xylene & p-Xylene	0.0023		0.00080	0.00029	ppm v/v	1		TO 15 LL	Total/NA
o-Xylene	0.00055	J	0.00080	0.00015	ppm v/v	1		TO 15 LL	Total/NA
Tetrachloroethene	0.00045	J	0.00080	0.000070	ppm v/v	1		TO 15 LL	Total/NA
Toluene	0.031		0.0012	0.00078	ppm v/v	1		TO 15 LL	Total/NA
Trichloroethene	0.0013		0.00040	0.00013	ppm v/v	1		TO 15 LL	Total/NA
Trichlorofluoromethane	0.00027	J	0.00080	0.00011	ppm v/v	1		TO 15 LL	Total/NA
Vinyl chloride	0.00034	J	0.00040	0.00026	ppm v/v	1		TO 15 LL	Total/NA
Xylenes, Total	0.0029		0.0016	0.00024	ppm v/v	1		TO 15 LL	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG-1
Lab Sample ID: 140-22794-1

Date Collected: 04/20/21 10:43
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0044	0.0020	mg/m3			04/24/21 13:12	1
1,1,2-Trichloroethane	ND		0.0044	0.00038	mg/m3			04/24/21 13:12	1
1,1-Dichloroethane	ND		0.0032	0.00028	mg/m3			04/24/21 13:12	1
1,1-Dichloroethene	ND		0.0032	0.00032	mg/m3			04/24/21 13:12	1
1,2,4-Trichlorobenzene	ND		0.030	0.0047	mg/m3			04/24/21 13:12	1
1,2-Dibromoethane (EDB)	ND		0.0061	0.00054	mg/m3			04/24/21 13:12	1
1,2-Dichlorobenzene	ND		0.0048	0.0019	mg/m3			04/24/21 13:12	1
1,2-Dichloroethane	ND		0.0032	0.00040	mg/m3			04/24/21 13:12	1
1,2-Dichloropropane	ND		0.0037	0.00046	mg/m3			04/24/21 13:12	1
1,4-Dichlorobenzene	ND		0.0048	0.00096	mg/m3			04/24/21 13:12	1
1,4-Dioxane	ND		0.0072	0.0011	mg/m3			04/24/21 13:12	1
1-Butanol	ND		0.024	0.0052	mg/m3			04/24/21 13:12	1
2-Butanone (MEK)	ND		0.012	0.0022	mg/m3			04/24/21 13:12	1
Acetone	**0.017**	**J**	0.048	0.014	mg/m3			04/24/21 13:12	1
Benzene	**0.00049**	**J B**	0.0026	0.00026	mg/m3			04/24/21 13:12	1
Bromodichloromethane	ND		0.0054	0.0012	mg/m3			04/24/21 13:12	1
Bromoform	ND		0.0083	0.00093	mg/m3			04/24/21 13:12	1
Bromomethane	ND		0.0031	0.00085	mg/m3			04/24/21 13:12	1
Carbon disulfide	ND		0.0062	0.00034	mg/m3			04/24/21 13:12	1
Carbon tetrachloride	**0.00046**	**J**	0.0050	0.00044	mg/m3			04/24/21 13:12	1
Chlorobenzene	**0.00034**	**J B**	0.0037	0.00028	mg/m3			04/24/21 13:12	1
Chloroform	ND		0.0039	0.00034	mg/m3			04/24/21 13:12	1
cis-1,2-Dichloroethene	ND		0.0032	0.00040	mg/m3			04/24/21 13:12	1
cis-1,3-Dichloropropene	ND		0.0036	0.00073	mg/m3			04/24/21 13:12	1
Dibromochloromethane	ND		0.0068	0.00060	mg/m3			04/24/21 13:12	1
Dichlorodifluoromethane	**0.0027**	**J**	0.0040	0.00069	mg/m3			04/24/21 13:12	1
Ethylbenzene	**0.0043**		0.0035	0.00056	mg/m3			04/24/21 13:12	1
Isopropylbenzene	ND		0.0079	0.00084	mg/m3			04/24/21 13:12	1
Methyl tert-butyl ether	ND		0.014	0.0019	mg/m3			04/24/21 13:12	1
Methylene Chloride	ND		0.014	0.014	mg/m3			04/24/21 13:12	1
m-Xylene & p-Xylene	**0.017**		0.0035	0.0013	mg/m3			04/24/21 13:12	1
Naphthalene	ND		0.010	0.0040	mg/m3			04/24/21 13:12	1
o-Xylene	**0.0052**		0.0035	0.00065	mg/m3			04/24/21 13:12	1
Styrene	ND		0.0034	0.0010	mg/m3			04/24/21 13:12	1
Tetrachloroethene	ND		0.0054	0.00047	mg/m3			04/24/21 13:12	1
Toluene	ND		0.0045	0.0029	mg/m3			04/24/21 13:12	1
trans-1,2-Dichloroethene	ND		0.0032	0.00028	mg/m3			04/24/21 13:12	1
trans-1,3-Dichloropropene	ND		0.0036	0.00041	mg/m3			04/24/21 13:12	1
Trichloroethene	ND		0.0021	0.00070	mg/m3			04/24/21 13:12	1
Trichlorofluoromethane	**0.0014**	**J**	0.0045	0.00062	mg/m3			04/24/21 13:12	1
Vinyl acetate	ND		0.014	0.00099	mg/m3			04/24/21 13:12	1
Vinyl chloride	ND		0.0010	0.00066	mg/m3			04/24/21 13:12	1
Xylenes, Total	**0.022**		0.0069	0.0010	mg/m3			04/24/21 13:12	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.00080	0.00037	ppm v/v			04/24/21 13:12	1
1,1,2-Trichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
1,1-Dichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
1,1-Dichloroethene	ND		0.00080	0.000080	ppm v/v			04/24/21 13:12	1

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-1
Lab Sample ID: 140-22794-1
Date Collected: 04/20/21 10:43
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.0040	0.00064	ppm v/v			04/24/21 13:12	1
1,2-Dibromoethane (EDB)	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
1,2-Dichlorobenzene	ND		0.00080	0.00031	ppm v/v			04/24/21 13:12	1
1,2-Dichloroethane	ND		0.00080	0.00010	ppm v/v			04/24/21 13:12	1
1,2-Dichloropropane	ND		0.00080	0.00010	ppm v/v			04/24/21 13:12	1
1,4-Dichlorobenzene	ND		0.00080	0.00016	ppm v/v			04/24/21 13:12	1
1,4-Dioxane	ND		0.0020	0.00030	ppm v/v			04/24/21 13:12	1
1-Butanol	ND		0.0080	0.0017	ppm v/v			04/24/21 13:12	1
2-Butanone (MEK)	ND		0.0040	0.00073	ppm v/v			04/24/21 13:12	1
Acetone	**0.0073**	**J**	0.020	0.0057	ppm v/v			04/24/21 13:12	1
Benzene	**0.00015**	**J B**	0.00080	0.000080	ppm v/v			04/24/21 13:12	1
Bromodichloromethane	ND		0.00080	0.00018	ppm v/v			04/24/21 13:12	1
Bromoform	ND		0.00080	0.000090	ppm v/v			04/24/21 13:12	1
Bromomethane	ND		0.00080	0.00022	ppm v/v			04/24/21 13:12	1
Carbon disulfide	ND		0.0020	0.00011	ppm v/v			04/24/21 13:12	1
Carbon tetrachloride	**0.000074**	**J**	0.00080	0.000070	ppm v/v			04/24/21 13:12	1
Chlorobenzene	**0.000073**	**J B**	0.00080	0.000060	ppm v/v			04/24/21 13:12	1
Chloroform	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
cis-1,2-Dichloroethene	ND		0.00080	0.00010	ppm v/v			04/24/21 13:12	1
cis-1,3-Dichloropropene	ND		0.00080	0.00016	ppm v/v			04/24/21 13:12	1
Dibromochloromethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
Dichlorodifluoromethane	**0.00055**	**J**	0.00080	0.00014	ppm v/v			04/24/21 13:12	1
Ethylbenzene	**0.00098**		0.00080	0.00013	ppm v/v			04/24/21 13:12	1
Isopropylbenzene	ND		0.0016	0.00017	ppm v/v			04/24/21 13:12	1
Methyl tert-butyl ether	ND		0.0040	0.00052	ppm v/v			04/24/21 13:12	1
Methylene Chloride	ND		0.0040	0.0039	ppm v/v			04/24/21 13:12	1
m-Xylene & p-Xylene	**0.0039**		0.00080	0.00029	ppm v/v			04/24/21 13:12	1
Naphthalene	ND		0.0020	0.00076	ppm v/v			04/24/21 13:12	1
o-Xylene	**0.0012**		0.00080	0.00015	ppm v/v			04/24/21 13:12	1
Styrene	ND		0.00080	0.00024	ppm v/v			04/24/21 13:12	1
Tetrachloroethene	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
Toluene	ND		0.0012	0.00078	ppm v/v			04/24/21 13:12	1
trans-1,2-Dichloroethene	ND		0.00080	0.000070	ppm v/v			04/24/21 13:12	1
trans-1,3-Dichloropropene	ND		0.00080	0.000090	ppm v/v			04/24/21 13:12	1
Trichloroethene	ND		0.00040	0.00013	ppm v/v			04/24/21 13:12	1
Trichlorofluoromethane	**0.00025**	**J**	0.00080	0.00011	ppm v/v			04/24/21 13:12	1
Vinyl acetate	ND		0.0040	0.00028	ppm v/v			04/24/21 13:12	1
Vinyl chloride	ND		0.00040	0.00026	ppm v/v			04/24/21 13:12	1
Xylenes, Total	**0.0051**		0.0016	0.00024	ppm v/v			04/24/21 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*60 - 140*		*04/24/21 13:12*	*1*

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-2
Lab Sample ID: 140-22794-2
Date Collected: 04/20/21 11:43
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0044	0.0020	mg/m3			04/24/21 13:54	1
1,1,2-Trichloroethane	ND		0.0044	0.00038	mg/m3			04/24/21 13:54	1
1,1-Dichloroethane	ND		0.0032	0.00028	mg/m3			04/24/21 13:54	1
1,1-Dichloroethene	ND		0.0032	0.00032	mg/m3			04/24/21 13:54	1
1,2,4-Trichlorobenzene	ND		0.030	0.0047	mg/m3			04/24/21 13:54	1
1,2-Dibromoethane (EDB)	ND		0.0061	0.00054	mg/m3			04/24/21 13:54	1
1,2-Dichlorobenzene	ND		0.0048	0.0019	mg/m3			04/24/21 13:54	1
1,2-Dichloroethane	ND		0.0032	0.00040	mg/m3			04/24/21 13:54	1
1,2-Dichloropropane	ND		0.0037	0.00046	mg/m3			04/24/21 13:54	1
1,4-Dichlorobenzene	ND		0.0048	0.00096	mg/m3			04/24/21 13:54	1
1,4-Dioxane	ND		0.0072	0.0011	mg/m3			04/24/21 13:54	1
1-Butanol	ND		0.024	0.0052	mg/m3			04/24/21 13:54	1
2-Butanone (MEK)	**0.030**		0.012	0.0022	mg/m3			04/24/21 13:54	1
Acetone	**0.42**		0.048	0.014	mg/m3			04/24/21 13:54	1
Benzene	**0.032**	**B**	0.0026	0.00026	mg/m3			04/24/21 13:54	1
Bromodichloromethane	ND		0.0054	0.0012	mg/m3			04/24/21 13:54	1
Bromoform	ND		0.0083	0.00093	mg/m3			04/24/21 13:54	1
Bromomethane	ND		0.0031	0.00085	mg/m3			04/24/21 13:54	1
Carbon disulfide	**0.0049**	**J**	0.0062	0.00034	mg/m3			04/24/21 13:54	1
Carbon tetrachloride	**0.00051**	**J**	0.0050	0.00044	mg/m3			04/24/21 13:54	1
Chlorobenzene	**0.00037**	**J B**	0.0037	0.00028	mg/m3			04/24/21 13:54	1
Chloroform	**0.00036**	**J**	0.0039	0.00034	mg/m3			04/24/21 13:54	1
cis-1,2-Dichloroethene	ND		0.0032	0.00040	mg/m3			04/24/21 13:54	1
cis-1,3-Dichloropropene	ND		0.0036	0.00073	mg/m3			04/24/21 13:54	1
Dibromochloromethane	ND		0.0068	0.00060	mg/m3			04/24/21 13:54	1
Dichlorodifluoromethane	**0.0026**	**J**	0.0040	0.00069	mg/m3			04/24/21 13:54	1
Ethylbenzene	**0.0021**	**J**	0.0035	0.00056	mg/m3			04/24/21 13:54	1
Isopropylbenzene	ND		0.0079	0.00084	mg/m3			04/24/21 13:54	1
Methyl tert-butyl ether	ND		0.014	0.0019	mg/m3			04/24/21 13:54	1
Methylene Chloride	ND		0.014	0.014	mg/m3			04/24/21 13:54	1
m-Xylene & p-Xylene	**0.0025**	**J**	0.0035	0.0013	mg/m3			04/24/21 13:54	1
Naphthalene	ND		0.010	0.0040	mg/m3			04/24/21 13:54	1
o-Xylene	ND		0.0035	0.00065	mg/m3			04/24/21 13:54	1
Styrene	ND		0.0034	0.0010	mg/m3			04/24/21 13:54	1
Tetrachloroethene	**0.0022**	**J**	0.0054	0.00047	mg/m3			04/24/21 13:54	1
Toluene	**0.10**		0.0045	0.0029	mg/m3			04/24/21 13:54	1
trans-1,2-Dichloroethene	ND		0.0032	0.00028	mg/m3			04/24/21 13:54	1
trans-1,3-Dichloropropene	ND		0.0036	0.00041	mg/m3			04/24/21 13:54	1
Trichloroethene	**0.0060**		0.0021	0.00070	mg/m3			04/24/21 13:54	1
Trichlorofluoromethane	**0.0015**	**J**	0.0045	0.00062	mg/m3			04/24/21 13:54	1
Vinyl acetate	ND		0.014	0.00099	mg/m3			04/24/21 13:54	1
Vinyl chloride	ND		0.0010	0.00066	mg/m3			04/24/21 13:54	1
Xylenes, Total	**0.0025**	**J**	0.0069	0.0010	mg/m3			04/24/21 13:54	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.00080	0.00037	ppm v/v			04/24/21 13:54	1
1,1,2-Trichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:54	1
1,1-Dichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:54	1
1,1-Dichloroethene	ND		0.00080	0.000080	ppm v/v			04/24/21 13:54	1

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-2
Lab Sample ID: 140-22794-2
Date Collected: 04/20/21 11:43
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.0040	0.00064	ppm v/v			04/24/21 13:54	1
1,2-Dibromoethane (EDB)	ND		0.00080	0.000070	ppm v/v			04/24/21 13:54	1
1,2-Dichlorobenzene	ND		0.00080	0.00031	ppm v/v			04/24/21 13:54	1
1,2-Dichloroethane	ND		0.00080	0.00010	ppm v/v			04/24/21 13:54	1
1,2-Dichloropropane	ND		0.00080	0.00010	ppm v/v			04/24/21 13:54	1
1,4-Dichlorobenzene	ND		0.00080	0.00016	ppm v/v			04/24/21 13:54	1
1,4-Dioxane	ND		0.0020	0.00030	ppm v/v			04/24/21 13:54	1
1-Butanol	ND		0.0080	0.0017	ppm v/v			04/24/21 13:54	1
2-Butanone (MEK)	**0.010**		0.0040	0.00073	ppm v/v			04/24/21 13:54	1
Acetone	**0.18**		0.020	0.0057	ppm v/v			04/24/21 13:54	1
Benzene	**0.010**	**B**	0.00080	0.000080	ppm v/v			04/24/21 13:54	1
Bromodichloromethane	ND		0.00080	0.00018	ppm v/v			04/24/21 13:54	1
Bromoform	ND		0.00080	0.000090	ppm v/v			04/24/21 13:54	1
Bromomethane	ND		0.00080	0.00022	ppm v/v			04/24/21 13:54	1
Carbon disulfide	**0.0016**	**J**	0.0020	0.00011	ppm v/v			04/24/21 13:54	1
Carbon tetrachloride	**0.000082**	**J**	0.00080	0.000070	ppm v/v			04/24/21 13:54	1
Chlorobenzene	**0.000080**	**J B**	0.00080	0.000060	ppm v/v			04/24/21 13:54	1
Chloroform	**0.000073**	**J**	0.00080	0.000070	ppm v/v			04/24/21 13:54	1
cis-1,2-Dichloroethene	ND		0.00080	0.00010	ppm v/v			04/24/21 13:54	1
cis-1,3-Dichloropropene	ND		0.00080	0.00016	ppm v/v			04/24/21 13:54	1
Dibromochloromethane	ND		0.00080	0.000070	ppm v/v			04/24/21 13:54	1
Dichlorodifluoromethane	**0.00052**	**J**	0.00080	0.00014	ppm v/v			04/24/21 13:54	1
Ethylbenzene	**0.00047**	**J**	0.00080	0.00013	ppm v/v			04/24/21 13:54	1
Isopropylbenzene	ND		0.0016	0.00017	ppm v/v			04/24/21 13:54	1
Methyl tert-butyl ether	ND		0.0040	0.00052	ppm v/v			04/24/21 13:54	1
Methylene Chloride	ND		0.0040	0.0039	ppm v/v			04/24/21 13:54	1
m-Xylene & p-Xylene	**0.00058**	**J**	0.00080	0.00029	ppm v/v			04/24/21 13:54	1
Naphthalene	ND		0.0020	0.00076	ppm v/v			04/24/21 13:54	1
o-Xylene	ND		0.00080	0.00015	ppm v/v			04/24/21 13:54	1
Styrene	ND		0.00080	0.00024	ppm v/v			04/24/21 13:54	1
Tetrachloroethene	**0.00032**	**J**	0.00080	0.000070	ppm v/v			04/24/21 13:54	1
Toluene	**0.027**		0.0012	0.00078	ppm v/v			04/24/21 13:54	1
trans-1,2-Dichloroethene	ND		0.00080	0.000070	ppm v/v			04/24/21 13:54	1
trans-1,3-Dichloropropene	ND		0.00080	0.000090	ppm v/v			04/24/21 13:54	1
Trichloroethene	**0.0011**		0.00040	0.00013	ppm v/v			04/24/21 13:54	1
Trichlorofluoromethane	**0.00027**	**J**	0.00080	0.00011	ppm v/v			04/24/21 13:54	1
Vinyl acetate	ND		0.0040	0.00028	ppm v/v			04/24/21 13:54	1
Vinyl chloride	ND		0.00040	0.00026	ppm v/v			04/24/21 13:54	1
Xylenes, Total	**0.00058**	**J**	0.0016	0.00024	ppm v/v			04/24/21 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*60 - 140*		*04/24/21 13:54*	*1*

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-3
Lab Sample ID: 140-22794-3
Date Collected: 04/20/21 12:57
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0044	0.0020	mg/m3			04/24/21 14:36	1
1,1,2-Trichloroethane	ND		0.0044	0.00038	mg/m3			04/24/21 14:36	1
1,1-Dichloroethane	ND		0.0032	0.00028	mg/m3			04/24/21 14:36	1
1,1-Dichloroethene	ND		0.0032	0.00032	mg/m3			04/24/21 14:36	1
1,2,4-Trichlorobenzene	ND		0.030	0.0047	mg/m3			04/24/21 14:36	1
1,2-Dibromoethane (EDB)	ND		0.0061	0.00054	mg/m3			04/24/21 14:36	1
1,2-Dichlorobenzene	ND		0.0048	0.0019	mg/m3			04/24/21 14:36	1
1,2-Dichloroethane	ND		0.0032	0.00040	mg/m3			04/24/21 14:36	1
1,2-Dichloropropane	ND		0.0037	0.00046	mg/m3			04/24/21 14:36	1
1,4-Dichlorobenzene	ND		0.0048	0.00096	mg/m3			04/24/21 14:36	1
1,4-Dioxane	ND		0.0072	0.0011	mg/m3			04/24/21 14:36	1
1-Butanol	**0.0083**	**J**	0.024	0.0052	mg/m3			04/24/21 14:36	1
2-Butanone (MEK)	**0.022**		0.012	0.0022	mg/m3			04/24/21 14:36	1
Acetone	**0.42**		0.048	0.014	mg/m3			04/24/21 14:36	1
Benzene	**0.017**	**B**	0.0026	0.00026	mg/m3			04/24/21 14:36	1
Bromodichloromethane	ND		0.0054	0.0012	mg/m3			04/24/21 14:36	1
Bromoform	ND		0.0083	0.00093	mg/m3			04/24/21 14:36	1
Bromomethane	ND		0.0031	0.00085	mg/m3			04/24/21 14:36	1
Carbon disulfide	**0.042**		0.0062	0.00034	mg/m3			04/24/21 14:36	1
Carbon tetrachloride	**0.00057**	**J**	0.0050	0.00044	mg/m3			04/24/21 14:36	1
Chlorobenzene	**0.00046**	**J B**	0.0037	0.00028	mg/m3			04/24/21 14:36	1
Chloroform	ND		0.0039	0.00034	mg/m3			04/24/21 14:36	1
cis-1,2-Dichloroethene	ND		0.0032	0.00040	mg/m3			04/24/21 14:36	1
cis-1,3-Dichloropropene	ND		0.0036	0.00073	mg/m3			04/24/21 14:36	1
Dibromochloromethane	ND		0.0068	0.00060	mg/m3			04/24/21 14:36	1
Dichlorodifluoromethane	**0.0028**	**J**	0.0040	0.00069	mg/m3			04/24/21 14:36	1
Ethylbenzene	**0.0047**		0.0035	0.00056	mg/m3			04/24/21 14:36	1
Isopropylbenzene	ND		0.0079	0.00084	mg/m3			04/24/21 14:36	1
Methyl tert-butyl ether	ND		0.014	0.0019	mg/m3			04/24/21 14:36	1
Methylene Chloride	ND		0.014	0.014	mg/m3			04/24/21 14:36	1
m-Xylene & p-Xylene	**0.010**		0.0035	0.0013	mg/m3			04/24/21 14:36	1
Naphthalene	ND		0.010	0.0040	mg/m3			04/24/21 14:36	1
o-Xylene	**0.0024**	**J**	0.0035	0.00065	mg/m3			04/24/21 14:36	1
Styrene	ND		0.0034	0.0010	mg/m3			04/24/21 14:36	1
Tetrachloroethene	**0.0031**	**J**	0.0054	0.00047	mg/m3			04/24/21 14:36	1
Toluene	**0.12**		0.0045	0.0029	mg/m3			04/24/21 14:36	1
trans-1,2-Dichloroethene	ND		0.0032	0.00028	mg/m3			04/24/21 14:36	1
trans-1,3-Dichloropropene	ND		0.0036	0.00041	mg/m3			04/24/21 14:36	1
Trichloroethene	**0.0067**		0.0021	0.00070	mg/m3			04/24/21 14:36	1
Trichlorofluoromethane	**0.0015**	**J**	0.0045	0.00062	mg/m3			04/24/21 14:36	1
Vinyl acetate	ND		0.014	0.00099	mg/m3			04/24/21 14:36	1
Vinyl chloride	**0.00087**	**J**	0.0010	0.00066	mg/m3			04/24/21 14:36	1
Xylenes, Total	**0.012**		0.0069	0.0010	mg/m3			04/24/21 14:36	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.00080	0.00037	ppm v/v			04/24/21 14:36	1
1,1,2-Trichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
1,1-Dichloroethane	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
1,1-Dichloroethene	ND		0.00080	0.000080	ppm v/v			04/24/21 14:36	1

Client Sample ID: SG-3
Lab Sample ID: 140-22794-3

Date Collected: 04/20/21 12:57
Matrix: Air
Date Received: 04/22/21 10:30
Sample Container: Summa Canister 1L

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.0040	0.00064	ppm v/v			04/24/21 14:36	1
1,2-Dibromoethane (EDB)	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
1,2-Dichlorobenzene	ND		0.00080	0.00031	ppm v/v			04/24/21 14:36	1
1,2-Dichloroethane	ND		0.00080	0.00010	ppm v/v			04/24/21 14:36	1
1,2-Dichloropropane	ND		0.00080	0.00010	ppm v/v			04/24/21 14:36	1
1,4-Dichlorobenzene	ND		0.00080	0.00016	ppm v/v			04/24/21 14:36	1
1,4-Dioxane	ND		0.0020	0.00030	ppm v/v			04/24/21 14:36	1
1-Butanol	**0.0027**	**J**	0.0080	0.0017	ppm v/v			04/24/21 14:36	1
2-Butanone (MEK)	**0.0074**		0.0040	0.00073	ppm v/v			04/24/21 14:36	1
Acetone	**0.18**		0.020	0.0057	ppm v/v			04/24/21 14:36	1
Benzene	**0.0054**	**B**	0.00080	0.000080	ppm v/v			04/24/21 14:36	1
Bromodichloromethane	ND		0.00080	0.00018	ppm v/v			04/24/21 14:36	1
Bromoform	ND		0.00080	0.000090	ppm v/v			04/24/21 14:36	1
Bromomethane	ND		0.00080	0.00022	ppm v/v			04/24/21 14:36	1
Carbon disulfide	**0.013**		0.0020	0.00011	ppm v/v			04/24/21 14:36	1
Carbon tetrachloride	**0.000091**	**J**	0.00080	0.000070	ppm v/v			04/24/21 14:36	1
Chlorobenzene	**0.00010**	**J B**	0.00080	0.000060	ppm v/v			04/24/21 14:36	1
Chloroform	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
cis-1,2-Dichloroethene	ND		0.00080	0.00010	ppm v/v			04/24/21 14:36	1
cis-1,3-Dichloropropene	ND		0.00080	0.00016	ppm v/v			04/24/21 14:36	1
Dibromochloromethane	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
Dichlorodifluoromethane	**0.00056**	**J**	0.00080	0.00014	ppm v/v			04/24/21 14:36	1
Ethylbenzene	**0.0011**		0.00080	0.00013	ppm v/v			04/24/21 14:36	1
Isopropylbenzene	ND		0.0016	0.00017	ppm v/v			04/24/21 14:36	1
Methyl tert-butyl ether	ND		0.0040	0.00052	ppm v/v			04/24/21 14:36	1
Methylene Chloride	ND		0.0040	0.0039	ppm v/v			04/24/21 14:36	1
m-Xylene & p-Xylene	**0.0023**		0.00080	0.00029	ppm v/v			04/24/21 14:36	1
Naphthalene	ND		0.0020	0.00076	ppm v/v			04/24/21 14:36	1
o-Xylene	**0.00055**	**J**	0.00080	0.00015	ppm v/v			04/24/21 14:36	1
Styrene	ND		0.00080	0.00024	ppm v/v			04/24/21 14:36	1
Tetrachloroethene	**0.00045**	**J**	0.00080	0.000070	ppm v/v			04/24/21 14:36	1
Toluene	**0.031**		0.0012	0.00078	ppm v/v			04/24/21 14:36	1
trans-1,2-Dichloroethene	ND		0.00080	0.000070	ppm v/v			04/24/21 14:36	1
trans-1,3-Dichloropropene	ND		0.00080	0.000090	ppm v/v			04/24/21 14:36	1
Trichloroethene	**0.0013**		0.00040	0.00013	ppm v/v			04/24/21 14:36	1
Trichlorofluoromethane	**0.00027**	**J**	0.00080	0.00011	ppm v/v			04/24/21 14:36	1
Vinyl acetate	ND		0.0040	0.00028	ppm v/v			04/24/21 14:36	1
Vinyl chloride	**0.00034**	**J**	0.00040	0.00026	ppm v/v			04/24/21 14:36	1
Xylenes, Total	**0.0029**		0.0016	0.00024	ppm v/v			04/24/21 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*60 - 140*		*04/24/21 14:36*	*1*

Default Detection Limits

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	RL	MDL	Units
1,1,1-Trichloroethane	0.00044	0.00020	mg/m3
1,1,1-Trichloroethane	0.000080	0.000037	ppm v/v
1,1,2-Trichloroethane	0.00044	0.000038	mg/m3
1,1,2-Trichloroethane	0.000080	0.0000070	ppm v/v
1,1-Dichloroethane	0.00032	0.000028	mg/m3
1,1-Dichloroethane	0.000080	0.0000070	ppm v/v
1,1-Dichloroethene	0.00032	0.000032	mg/m3
1,1-Dichloroethene	0.000080	0.0000080	ppm v/v
1,2,4-Trichlorobenzene	0.0030	0.00047	mg/m3
1,2,4-Trichlorobenzene	0.00040	0.000064	ppm v/v
1,2-Dibromoethane (EDB)	0.00061	0.000054	mg/m3
1,2-Dibromoethane (EDB)	0.000080	0.0000070	ppm v/v
1,2-Dichlorobenzene	0.00048	0.00019	mg/m3
1,2-Dichlorobenzene	0.000080	0.000031	ppm v/v
1,2-Dichloroethane	0.00032	0.000040	mg/m3
1,2-Dichloroethane	0.000080	0.000010	ppm v/v
1,2-Dichloropropane	0.00037	0.000046	mg/m3
1,2-Dichloropropane	0.000080	0.000010	ppm v/v
1,4-Dichlorobenzene	0.00048	0.000096	mg/m3
1,4-Dichlorobenzene	0.000080	0.000016	ppm v/v
1,4-Dioxane	0.00072	0.00011	mg/m3
1,4-Dioxane	0.00020	0.000030	ppm v/v
1-Butanol	0.0024	0.00052	mg/m3
1-Butanol	0.00080	0.00017	ppm v/v
2-Butanone (MEK)	0.0012	0.00022	mg/m3
2-Butanone (MEK)	0.00040	0.000073	ppm v/v
Acetone	0.0048	0.0014	mg/m3
Acetone	0.0020	0.00057	ppm v/v
Benzene	0.00026	0.000026	mg/m3
Benzene	0.000080	0.0000080	ppm v/v
Bromodichloromethane	0.00054	0.00012	mg/m3
Bromodichloromethane	0.000080	0.000018	ppm v/v
Bromoform	0.00083	0.000093	mg/m3
Bromoform	0.000080	0.0000090	ppm v/v
Bromomethane	0.00031	0.000085	mg/m3
Bromomethane	0.000080	0.000022	ppm v/v
Carbon disulfide	0.00062	0.000034	mg/m3
Carbon disulfide	0.00020	0.000011	ppm v/v
Carbon tetrachloride	0.00050	0.000044	mg/m3
Carbon tetrachloride	0.000080	0.0000070	ppm v/v
Chlorobenzene	0.00037	0.000028	mg/m3
Chlorobenzene	0.000080	0.0000060	ppm v/v
Chloroform	0.00039	0.000034	mg/m3
Chloroform	0.000080	0.0000070	ppm v/v
cis-1,2-Dichloroethene	0.00032	0.000040	mg/m3
cis-1,2-Dichloroethene	0.000080	0.000010	ppm v/v
cis-1,3-Dichloropropene	0.00036	0.000073	mg/m3
cis-1,3-Dichloropropene	0.000080	0.000016	ppm v/v
Dibromochloromethane	0.00068	0.000060	mg/m3
Dibromochloromethane	0.000080	0.0000070	ppm v/v
Dichlorodifluoromethane	0.00040	0.000069	mg/m3
Dichlorodifluoromethane	0.000080	0.000014	ppm v/v
Ethylbenzene	0.00035	0.000056	mg/m3

Default Detection Limits

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Conti

Analyte	RL	MDL	Units
Ethylbenzene	0.000080	0.000013	ppm v/v
Isopropylbenzene	0.00079	0.000084	mg/m3
Isopropylbenzene	0.00016	0.000017	ppm v/v
Methyl tert-butyl ether	0.0014	0.00019	mg/m3
Methyl tert-butyl ether	0.00040	0.000052	ppm v/v
Methylene Chloride	0.0014	0.0014	mg/m3
Methylene Chloride	0.00040	0.00039	ppm v/v
m-Xylene & p-Xylene	0.00035	0.00013	mg/m3
m-Xylene & p-Xylene	0.000080	0.000029	ppm v/v
Naphthalene	0.0010	0.00040	mg/m3
Naphthalene	0.00020	0.000076	ppm v/v
o-Xylene	0.00035	0.000065	mg/m3
o-Xylene	0.000080	0.000015	ppm v/v
Styrene	0.00034	0.00010	mg/m3
Styrene	0.000080	0.000024	ppm v/v
Tetrachloroethene	0.00054	0.000047	mg/m3
Tetrachloroethene	0.000080	0.0000070	ppm v/v
Toluene	0.00045	0.00029	mg/m3
Toluene	0.00012	0.000078	ppm v/v
trans-1,2-Dichloroethene	0.00032	0.000028	mg/m3
trans-1,2-Dichloroethene	0.000080	0.0000070	ppm v/v
trans-1,3-Dichloropropene	0.00036	0.000041	mg/m3
trans-1,3-Dichloropropene	0.000080	0.0000090	ppm v/v
Trichloroethene	0.00021	0.000070	mg/m3
Trichloroethene	0.000040	0.000013	ppm v/v
Trichlorofluoromethane	0.00045	0.000062	mg/m3
Trichlorofluoromethane	0.000080	0.000011	ppm v/v
Vinyl acetate	0.0014	0.000099	mg/m3
Vinyl acetate	0.00040	0.000028	ppm v/v
Vinyl chloride	0.00010	0.000066	mg/m3
Vinyl chloride	0.000040	0.000026	ppm v/v
Xylenes, Total	0.00069	0.00010	mg/m3
Xylenes, Total	0.00016	0.000024	ppm v/v

Surrogate Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Matrix: Air **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(60-140)
140-22794-1	SG-1	92
140-22794-2	SG-2	90
140-22794-3	SG-3	92
LCS 140-49163/1002	Lab Control Sample	103
MB 140-49163/4	Method Blank	92

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Lab Sample ID: MB 140-49163/4
Matrix: Air
Analysis Batch: 49163

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.00044	0.00020	mg/m3			04/24/21 05:39	1
1,1,2-Trichloroethane	ND		0.00044	0.000038	mg/m3			04/24/21 05:39	1
1,1-Dichloroethane	ND		0.00032	0.000028	mg/m3			04/24/21 05:39	1
1,1-Dichloroethene	ND		0.00032	0.000032	mg/m3			04/24/21 05:39	1
1,2,4-Trichlorobenzene	ND		0.0030	0.00047	mg/m3			04/24/21 05:39	1
1,2-Dibromoethane (EDB)	ND		0.00061	0.000054	mg/m3			04/24/21 05:39	1
1,2-Dichlorobenzene	ND		0.00048	0.00019	mg/m3			04/24/21 05:39	1
1,2-Dichloroethane	ND		0.00032	0.000040	mg/m3			04/24/21 05:39	1
1,2-Dichloropropane	ND		0.00037	0.000046	mg/m3			04/24/21 05:39	1
1,4-Dichlorobenzene	ND		0.00048	0.000096	mg/m3			04/24/21 05:39	1
1,4-Dioxane	ND		0.00072	0.00011	mg/m3			04/24/21 05:39	1
1-Butanol	ND		0.0024	0.00052	mg/m3			04/24/21 05:39	1
2-Butanone (MEK)	ND		0.0012	0.00022	mg/m3			04/24/21 05:39	1
Acetone	ND		0.0048	0.0014	mg/m3			04/24/21 05:39	1
Benzene	0.0000328	J	0.00026	0.000026	mg/m3			04/24/21 05:39	1
Bromodichloromethane	ND		0.00054	0.00012	mg/m3			04/24/21 05:39	1
Bromoform	ND		0.00083	0.000093	mg/m3			04/24/21 05:39	1
Bromomethane	ND		0.00031	0.000085	mg/m3			04/24/21 05:39	1
Carbon disulfide	ND		0.00062	0.000034	mg/m3			04/24/21 05:39	1
Carbon tetrachloride	ND		0.00050	0.000044	mg/m3			04/24/21 05:39	1
Chlorobenzene	0.0000434	J	0.00037	0.000028	mg/m3			04/24/21 05:39	1
Chloroform	ND		0.00039	0.000034	mg/m3			04/24/21 05:39	1
cis-1,2-Dichloroethene	ND		0.00032	0.000040	mg/m3			04/24/21 05:39	1
cis-1,3-Dichloropropene	ND		0.00036	0.000073	mg/m3			04/24/21 05:39	1
Dibromochloromethane	ND		0.00068	0.000060	mg/m3			04/24/21 05:39	1
Dichlorodifluoromethane	ND		0.00040	0.000069	mg/m3			04/24/21 05:39	1
Ethylbenzene	ND		0.00035	0.000056	mg/m3			04/24/21 05:39	1
Isopropylbenzene	ND		0.00079	0.000084	mg/m3			04/24/21 05:39	1
Methyl tert-butyl ether	ND		0.0014	0.00019	mg/m3			04/24/21 05:39	1
Methylene Chloride	ND		0.0014	0.0014	mg/m3			04/24/21 05:39	1
m-Xylene & p-Xylene	ND		0.00035	0.00013	mg/m3			04/24/21 05:39	1
Naphthalene	ND		0.0010	0.00040	mg/m3			04/24/21 05:39	1
o-Xylene	ND		0.00035	0.000065	mg/m3			04/24/21 05:39	1
Styrene	ND		0.00034	0.00010	mg/m3			04/24/21 05:39	1
Tetrachloroethene	ND		0.00054	0.000047	mg/m3			04/24/21 05:39	1
Toluene	ND		0.00045	0.00029	mg/m3			04/24/21 05:39	1
trans-1,2-Dichloroethene	ND		0.00032	0.000028	mg/m3			04/24/21 05:39	1
trans-1,3-Dichloropropene	ND		0.00036	0.000041	mg/m3			04/24/21 05:39	1
Trichloroethene	ND		0.00021	0.000070	mg/m3			04/24/21 05:39	1
Trichlorofluoromethane	ND		0.00045	0.000062	mg/m3			04/24/21 05:39	1
Vinyl acetate	ND		0.0014	0.000099	mg/m3			04/24/21 05:39	1
Vinyl chloride	ND		0.00010	0.000066	mg/m3			04/24/21 05:39	1
Xylenes, Total	ND		0.00069	0.00010	mg/m3			04/24/21 05:39	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.000080	0.000037	ppm v/v			04/24/21 05:39	1
1,1,2-Trichloroethane	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
1,1-Dichloroethane	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Lab Sample ID: MB 140-49163/4
Matrix: Air
Analysis Batch: 49163

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.000080	0.0000080	ppm v/v			04/24/21 05:39	1
1,2,4-Trichlorobenzene	ND		0.00040	0.000064	ppm v/v			04/24/21 05:39	1
1,2-Dibromoethane (EDB)	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
1,2-Dichlorobenzene	ND		0.000080	0.000031	ppm v/v			04/24/21 05:39	1
1,2-Dichloroethane	ND		0.000080	0.000010	ppm v/v			04/24/21 05:39	1
1,2-Dichloropropane	ND		0.000080	0.000010	ppm v/v			04/24/21 05:39	1
1,4-Dichlorobenzene	ND		0.000080	0.000016	ppm v/v			04/24/21 05:39	1
1,4-Dioxane	ND		0.00020	0.000030	ppm v/v			04/24/21 05:39	1
1-Butanol	ND		0.00080	0.00017	ppm v/v			04/24/21 05:39	1
2-Butanone (MEK)	ND		0.00040	0.000073	ppm v/v			04/24/21 05:39	1
Acetone	ND		0.0020	0.00057	ppm v/v			04/24/21 05:39	1
Benzene	0.0000103	J	0.000080	0.0000080	ppm v/v			04/24/21 05:39	1
Bromodichloromethane	ND		0.000080	0.000018	ppm v/v			04/24/21 05:39	1
Bromoform	ND		0.000080	0.0000090	ppm v/v			04/24/21 05:39	1
Bromomethane	ND		0.000080	0.000022	ppm v/v			04/24/21 05:39	1
Carbon disulfide	ND		0.00020	0.000011	ppm v/v			04/24/21 05:39	1
Carbon tetrachloride	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
Chlorobenzene	0.00000944	J	0.000080	0.0000060	ppm v/v			04/24/21 05:39	1
Chloroform	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
cis-1,2-Dichloroethene	ND		0.000080	0.000010	ppm v/v			04/24/21 05:39	1
cis-1,3-Dichloropropene	ND		0.000080	0.000016	ppm v/v			04/24/21 05:39	1
Dibromochloromethane	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
Dichlorodifluoromethane	ND		0.000080	0.000014	ppm v/v			04/24/21 05:39	1
Ethylbenzene	ND		0.000080	0.000013	ppm v/v			04/24/21 05:39	1
Isopropylbenzene	ND		0.00016	0.000017	ppm v/v			04/24/21 05:39	1
Methyl tert-butyl ether	ND		0.00040	0.000052	ppm v/v			04/24/21 05:39	1
Methylene Chloride	ND		0.00040	0.00039	ppm v/v			04/24/21 05:39	1
m-Xylene & p-Xylene	ND		0.000080	0.000029	ppm v/v			04/24/21 05:39	1
Naphthalene	ND		0.00020	0.000076	ppm v/v			04/24/21 05:39	1
o-Xylene	ND		0.000080	0.000015	ppm v/v			04/24/21 05:39	1
Styrene	ND		0.000080	0.000024	ppm v/v			04/24/21 05:39	1
Tetrachloroethene	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
Toluene	ND		0.00012	0.000078	ppm v/v			04/24/21 05:39	1
trans-1,2-Dichloroethene	ND		0.000080	0.0000070	ppm v/v			04/24/21 05:39	1
trans-1,3-Dichloropropene	ND		0.000080	0.0000090	ppm v/v			04/24/21 05:39	1
Trichloroethene	ND		0.000040	0.000013	ppm v/v			04/24/21 05:39	1
Trichlorofluoromethane	ND		0.000080	0.000011	ppm v/v			04/24/21 05:39	1
Vinyl acetate	ND		0.00040	0.000028	ppm v/v			04/24/21 05:39	1
Vinyl chloride	ND		0.000040	0.000026	ppm v/v			04/24/21 05:39	1
Xylenes, Total	ND		0.00016	0.000024	ppm v/v			04/24/21 05:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*60 - 140*		*04/24/21 05:39*	*1*

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Lab Sample ID: LCS 140-49163/1002
Matrix: Air
Analysis Batch: 49163

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.00873	0.00915		mg/m3		105	70 - 130
1,1,2-Trichloroethane	0.00873	0.00911		mg/m3		104	70 - 130
1,1-Dichloroethane	0.00648	0.00697		mg/m3		108	70 - 130
1,1-Dichloroethene	0.00634	0.00647		mg/m3		102	70 - 130
1,2,4-Trichlorobenzene	0.0119	0.0130		mg/m3		110	60 - 140
1,2-Dibromoethane (EDB)	0.0123	0.0133		mg/m3		108	70 - 130
1,2-Dichlorobenzene	0.00962	0.0102		mg/m3		106	70 - 130
1,2-Dichloroethane	0.00648	0.00677		mg/m3		105	70 - 130
1,2-Dichloropropane	0.00739	0.00771		mg/m3		104	70 - 130
1,4-Dichlorobenzene	0.00962	0.0101		mg/m3		105	70 - 130
1,4-Dioxane	0.00577	0.00597		mg/m3		104	60 - 140
1-Butanol	0.00485	0.00526		mg/m3		108	60 - 140
2-Butanone (MEK)	0.00472	0.00492		mg/m3		104	60 - 140
Acetone	0.00380	0.00387	J	mg/m3		102	60 - 140
Benzene	0.00511	0.00548		mg/m3		107	70 - 130
Bromodichloromethane	0.0107	0.0115		mg/m3		107	70 - 130
Bromoform	0.0165	0.0172		mg/m3		104	60 - 140
Bromomethane	0.00621	0.00647		mg/m3		104	70 - 130
Carbon disulfide	0.00498	0.00536		mg/m3		108	70 - 130
Carbon tetrachloride	0.0101	0.0121		mg/m3		121	70 - 130
Chlorobenzene	0.00737	0.00778		mg/m3		106	70 - 130
Chloroform	0.00781	0.00840		mg/m3		108	70 - 130
cis-1,2-Dichloroethene	0.00634	0.00675		mg/m3		106	70 - 130
cis-1,3-Dichloropropene	0.00726	0.00815		mg/m3		112	70 - 130
Dibromochloromethane	0.0136	0.0151		mg/m3		111	70 - 130
Dichlorodifluoromethane	0.00791	0.00923		mg/m3		117	60 - 140
Ethylbenzene	0.00695	0.00733		mg/m3		106	70 - 130
Isopropylbenzene	0.00787	0.00860		mg/m3		109	70 - 130
Methyl tert-butyl ether	0.00577	0.00623		mg/m3		108	60 - 140
Methylene Chloride	0.00556	0.00603		mg/m3		109	70 - 130
m-Xylene & p-Xylene	0.0139	0.0150		mg/m3		108	70 - 130
Naphthalene	0.00839	0.00955		mg/m3		114	60 - 140
o-Xylene	0.00695	0.00741		mg/m3		107	70 - 130
Styrene	0.00682	0.00754		mg/m3		111	70 - 130
Tetrachloroethene	0.0109	0.0112		mg/m3		103	70 - 130
Toluene	0.00603	0.00642		mg/m3		107	70 - 130
trans-1,2-Dichloroethene	0.00634	0.00658		mg/m3		104	70 - 130
trans-1,3-Dichloropropene	0.00726	0.00813		mg/m3		112	70 - 130
Trichloroethene	0.00860	0.00867		mg/m3		101	70 - 130
Trichlorofluoromethane	0.00899	0.00978		mg/m3		109	60 - 140
Vinyl acetate	0.00563	0.00644		mg/m3		114	60 - 140
Vinyl chloride	0.00409	0.00443		mg/m3		108	70 - 130
Xylenes, Total	0.0208	0.0224		mg/m3		108	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.0016	0.00168		ppm v/v		105	70 - 130
1,1,2-Trichloroethane	0.0016	0.00167		ppm v/v		104	70 - 130

Method: TO 15 LL - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Lab Sample ID: LCS 140-49163/1002
Matrix: Air
Analysis Batch: 49163

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	0.0016	0.00172		ppm v/v		108	70 - 130
1,1-Dichloroethene	0.0016	0.00163		ppm v/v		102	70 - 130
1,2,4-Trichlorobenzene	0.0016	0.00176		ppm v/v		110	60 - 140
1,2-Dibromoethane (EDB)	0.0016	0.00173		ppm v/v		108	70 - 130
1,2-Dichlorobenzene	0.0016	0.00169		ppm v/v		106	70 - 130
1,2-Dichloroethane	0.0016	0.00167		ppm v/v		105	70 - 130
1,2-Dichloropropane	0.0016	0.00167		ppm v/v		104	70 - 130
1,4-Dichlorobenzene	0.0016	0.00167		ppm v/v		105	70 - 130
1,4-Dioxane	0.0016	0.00166		ppm v/v		104	60 - 140
1-Butanol	0.0016	0.00173		ppm v/v		108	60 - 140
2-Butanone (MEK)	0.0016	0.00167		ppm v/v		104	60 - 140
Acetone	0.0016	0.00163	J	ppm v/v		102	60 - 140
Benzene	0.0016	0.00171		ppm v/v		107	70 - 130
Bromodichloromethane	0.0016	0.00171		ppm v/v		107	70 - 130
Bromoform	0.0016	0.00166		ppm v/v		104	60 - 140
Bromomethane	0.0016	0.00167		ppm v/v		104	70 - 130
Carbon disulfide	0.0016	0.00172		ppm v/v		108	70 - 130
Carbon tetrachloride	0.0016	0.00193		ppm v/v		121	70 - 130
Chlorobenzene	0.0016	0.00169		ppm v/v		106	70 - 130
Chloroform	0.0016	0.00172		ppm v/v		108	70 - 130
cis-1,2-Dichloroethene	0.0016	0.00170		ppm v/v		106	70 - 130
cis-1,3-Dichloropropene	0.0016	0.00180		ppm v/v		112	70 - 130
Dibromochloromethane	0.0016	0.00177		ppm v/v		111	70 - 130
Dichlorodifluoromethane	0.0016	0.00187		ppm v/v		117	60 - 140
Ethylbenzene	0.0016	0.00169		ppm v/v		106	70 - 130
Isopropylbenzene	0.0016	0.00175		ppm v/v		109	70 - 130
Methyl tert-butyl ether	0.0016	0.00173		ppm v/v		108	60 - 140
Methylene Chloride	0.0016	0.00174		ppm v/v		109	70 - 130
m-Xylene & p-Xylene	0.0032	0.00345		ppm v/v		108	70 - 130
Naphthalene	0.0016	0.00182		ppm v/v		114	60 - 140
o-Xylene	0.0016	0.00171		ppm v/v		107	70 - 130
Styrene	0.0016	0.00177		ppm v/v		111	70 - 130
Tetrachloroethene	0.0016	0.00165		ppm v/v		103	70 - 130
Toluene	0.0016	0.00170		ppm v/v		107	70 - 130
trans-1,2-Dichloroethene	0.0016	0.00166		ppm v/v		104	70 - 130
trans-1,3-Dichloropropene	0.0016	0.00179		ppm v/v		112	70 - 130
Trichloroethene	0.0016	0.00161		ppm v/v		101	70 - 130
Trichlorofluoromethane	0.0016	0.00174		ppm v/v		109	60 - 140
Vinyl acetate	0.0016	0.00183		ppm v/v		114	60 - 140
Vinyl chloride	0.0016	0.00173		ppm v/v		108	70 - 130
Xylenes, Total	0.0048	0.00516		ppm v/v		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*60 - 140*

QC Association Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Air - GC/MS VOA

Analysis Batch: 49163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22794-1	SG-1	Total/NA	Air	TO 15 LL	
140-22794-2	SG-2	Total/NA	Air	TO 15 LL	
140-22794-3	SG-3	Total/NA	Air	TO 15 LL	
MB 140-49163/4	Method Blank	Total/NA	Air	TO 15 LL	
LCS 140-49163/1002	Lab Control Sample	Total/NA	Air	TO 15 LL	

Lab Chronicle

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Client Sample ID: SG-1
Lab Sample ID: 140-22794-1
Date Collected: 04/20/21 10:43
Matrix: Air
Date Received: 04/22/21 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO 15 LL		1	50 mL	500 mL	49163	04/24/21 13:12	S1K	TAL KNX
	Instrument ID: MR									

Client Sample ID: SG-2
Lab Sample ID: 140-22794-2
Date Collected: 04/20/21 11:43
Matrix: Air
Date Received: 04/22/21 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO 15 LL		1	50 mL	500 mL	49163	04/24/21 13:54	S1K	TAL KNX
	Instrument ID: MR									

Client Sample ID: SG-3
Lab Sample ID: 140-22794-3
Date Collected: 04/20/21 12:57
Matrix: Air
Date Received: 04/22/21 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO 15 LL		1	50 mL	500 mL	49163	04/24/21 14:36	S1K	TAL KNX
	Instrument ID: MR									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-49163/4
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO 15 LL		1	500 mL	500 mL	49163	04/24/21 05:39	S1K	TAL KNX
	Instrument ID: MR									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-49163/1002
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO 15 LL		1	500 mL	500 mL	49163	04/24/21 04:27	S1K	TAL KNX
	Instrument ID: MR									

Laboratory References:
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-14-22
Arkansas DEQ	State	88-0688	06-17-21
California	State	2423	06-30-22
Colorado	State	TN00009	02-28-22
Connecticut	State	PH-0223	09-30-21
Florida	NELAP	E87177	07-01-21
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21
Kentucky (DW)	State	90101	12-31-21
Louisiana	NELAP	83979	06-30-21
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-22
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-21
New Hampshire	NELAP	299919	01-17-22
New Jersey	NELAP	TN001	07-01-21
New York	NELAP	10781	03-31-22
North Carolina (DW)	State	21705	07-31-21
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-21
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-21
Virginia	NELAP	460176	09-14-21
Washington	State	C593	01-19-22
West Virginia (DW)	State	9955C	01-02-22
West Virginia DEP	State	345	05-01-21
Wisconsin	State	998044300	08-31-21

Method Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Method	Method Description	Protocol	Laboratory
TO 15 LL	Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: ECS Midwest LLC
Job ID: 140-22794-1
Project/Site: ELGIN MENTAL HEALTHCARE CENTER(53-303

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
140-22794-1	SG-1	Air	04/20/21 10:43	04/22/21 10:30	Air Canister (1-Liter) #11860
140-22794-2	SG-2	Air	04/20/21 11:43	04/22/21 10:30	Air Canister (1-Liter) #34001097
140-22794-3	SG-3	Air	04/20/21 12:57	04/22/21 10:30	Air Canister (1-Liter) #34000329

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike

Knoxville, TN 37921-5947
phone 865.291.3000 fax 865.584.4315

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

140-22794 Chain of Custody

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact Information	**Client Project Manager:** Kara Bach	**Samples Collected By:**	COC No:
Company Name: ECS	**Phone:**		____ of ____ COCs
Address: 1525 Barclay Blvd	**Email:** kbach@ecslimited.com		TALS Project #:
City/State/Zip: Buffalo Grove, IL 60089			**For Lab Use Only:**
Phone: 847-279-0366	**Site Contact:**		Walk-in Client:
FAX:	**Tel/Fax**		Lab Sampling:
Project Name: Elgin Mental Health Center SSE	**Analysis Turnaround Time**		Job / SDG No.:
Site/Location: 53-3032	Standard (Specific):		(See below for Add'l Items)
P O # 53-3032	Rush (Specifiy):		

Sample Identification	Sample Start Date	Time Start	Sample End Date	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-14/15 (Standard / Low Level)	TO-15 SIM	EPA 3C	EPA 25C	ASTM D-1946	EPA 15/16	Other (Please specify in notes section)	*Sample Type*	Indoor Air/Ambient Air	Sub-Slab	Soil Gas	Soil Vapor Extraction (SVE)	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:
SG-1	4/20/21	1035	4/20/21	1043	-27	0	11896	11860		X													
SG-2	4/20/21	1135	4/20/21	1143	-27	0	7447	3400/1097		X													
SG-3	4/20/21	1249	4/20/21	1257	-30	0	11010	3400329		X													

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Received @ ambient, 1 box, Fedex Po
Custody seal intact
trk# 1893 4451 6339
KW 4/22/21

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	**Date / Time:** 4/20/21 0400	**Samples Received by:**	JA 4/21/21 1100
Samples Relinquished by: JA 4/21/21	**Date / Time:** 1350	**Received by:** ETA 4/22/21	1030
Relinquished by:	**Date / Time:**	**Received by:**	3 cans, 3 KR
Lab Use Only: **Shipper Name:**	**Opened by:**	**Condition:**	

Form No. CA-C-WI-003, Rev. 2.23, dated 5/4/2020

4/27/2021

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number: Loc: 140 22794

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	/			☐ **Containers, Broken**
2. Were ambient air containers received intact?			/	☑ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	/			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID :_____ Correction factor: _____			/	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	/			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	/			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	/			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	/			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?		/		☑ **Sam[illegible] Not Listed on COC**
11. Is the client and project name/# identified?	/			☐ **C[illegible]C Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	/			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	/			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	/			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			/	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:_____			/	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			/	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info

Comments/Actions Taken

10.

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: 5000 5314 PM Instructions: _____

Sample Receiving Associate: Ken Wil Date: 4/22/21

QA026R32.doc, 062719

TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID: G5
Date: 4/22/2021

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BRS	140-22794-a-1	11860	140-22366-	B	1	0.0	12:26	
BRS	140-22794-a-2	34001097	140-22559-	B	1	0.0	12:27	
BRS	140-22794-a-3	34000329	140-22366-	B	1	0.0	12:28	

□ Receiving –Air Can –Calve Open (NCM #_____)
□ Air - Can P -24 to -25 " - Flow Contr. Works (NCM#_____)
□ Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM#_____)
□ Air - Can P Out -26" - Flow Contr. Works (NCM#_____)
□ Air - Can P Out -26" - Flow Contr. Faulty (NCM#_____)
□ Air - Can P Low -24 to -25 " - Grab Sample (NCM#_____)
□ Air - Can P Low -26 "- Grab Sample (NCM#_____)

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-197981-1
Client Project/Site: Elgin Mental Health Center SSI(53-3032)

For:
ECS Midwest LLC
1575 Barclay Blvd.
Buffalo Grove, Illinois 60089

Attn: Kara Beth Sterling Bach

Authorized for release by:
4/28/2021 10:37:43 AM

Jim Knapp, Project Manager II
(630)758-0262
Jim.Knapp@Eurofinset.com

Table of Contents

Case Narrative

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Job ID: 500-197981-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-197981-1

Comments
No additional comments.

Receipt
The samples were received on 4/21/2021 1:50 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 6010B: The interference check standard solution (ICSA) associated with batch 500-595464 was outside the acceptable limits for Barium. These results are not indicative of a matrix interference.

B-1 (500-197981-1), B-3 Deep (500-197981-3), B-3 (500-197981-4), B-5 (500-197981-7), B-8 (500-197981-10), B-9 (500-197981-11), B-9 Deep (500-197981-12), B-10 (500-197981-13), (500-197981-F-3-C DU), (500-197981-F-3-D MS), (500-197981-F-3-E MSD) and (500-197981-F-3-B SD ^5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-1
Lab Sample ID: 500-197981-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.0066	J	0.038	0.0059	mg/Kg	1	☼	8270D	Total/NA
Acenaphthylene	0.0056	J	0.038	0.0051	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.11		0.038	0.0054	mg/Kg	1	☼	8270D	Total/NA
Anthracene	0.024	J	0.038	0.0064	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.29		0.038	0.0071	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.20		0.038	0.0076	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	0.13		0.038	0.0052	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.14		0.038	0.010	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.22		0.038	0.0083	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.11		0.038	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.16		0.038	0.0074	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.054		0.038	0.010	mg/Kg	1	☼	8270D	Total/NA
Dibenz(a,h)anthracene	0.013	J	0.038	0.0074	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.049		0.038	0.012	mg/Kg	1	☼	8270D	Total/NA
Arsenic	5.8		1.1	0.38	mg/Kg	1	☼	6010B	Total/NA
Barium	29	^6+	1.1	0.13	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.18	J B	0.22	0.040	mg/Kg	1	☼	6010B	Total/NA
Chromium	9.6		1.1	0.55	mg/Kg	1	☼	6010B	Total/NA
Lead	25		0.56	0.26	mg/Kg	1	☼	6010B	Total/NA
Silver	0.21	J	0.56	0.14	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.046		0.018	0.0059	mg/Kg	1	☼	7471B	Total/NA
pH	8.3		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-2
Lab Sample ID: 500-197981-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.030	J	0.038	0.0059	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.10		0.038	0.0054	mg/Kg	1	☼	8270D	Total/NA
Anthracene	0.015	J	0.038	0.0064	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.15		0.038	0.0071	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.15		0.038	0.0077	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	0.084		0.038	0.0052	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.10		0.038	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.15		0.038	0.0083	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.060		0.038	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.092		0.038	0.0075	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.040		0.038	0.010	mg/Kg	1	☼	8270D	Total/NA
Dibenz(a,h)anthracene	0.0099	J	0.038	0.0074	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.040		0.038	0.012	mg/Kg	1	☼	8270D	Total/NA

Client Sample ID: B-3 Deep
Lab Sample ID: 500-197981-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.4		0.95	0.32	mg/Kg	1	☼	6010B	Total/NA
Barium	8.8	^6+	0.95	0.11	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.11	J B	0.19	0.034	mg/Kg	1	☼	6010B	Total/NA
Chromium	3.6		0.95	0.47	mg/Kg	1	☼	6010B	Total/NA
Lead	3.4		0.47	0.22	mg/Kg	1	☼	6010B	Total/NA
pH	8.9		0.2	0.2	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-3
Lab Sample ID: 500-197981-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.014	J	0.038	0.0059	mg/Kg	1	☼	8270D	Total/NA
Acenaphthylene	0.047		0.038	0.0050	mg/Kg	1	☼	8270D	Total/NA
Acenaphthene	0.013	J	0.038	0.0068	mg/Kg	1	☼	8270D	Total/NA
Fluorene	0.013	J	0.038	0.0053	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.24		0.038	0.0053	mg/Kg	1	☼	8270D	Total/NA
Anthracene	0.063		0.038	0.0064	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.58		0.038	0.0071	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.56		0.038	0.0076	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	0.43		0.038	0.0051	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.43		0.038	0.010	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.61		0.038	0.0082	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.27		0.038	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.44		0.038	0.0074	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.16		0.038	0.0099	mg/Kg	1	☼	8270D	Total/NA
Dibenz(a,h)anthracene	0.049		0.038	0.0074	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.15		0.038	0.012	mg/Kg	1	☼	8270D	Total/NA
Arsenic	8.2		1.0	0.35	mg/Kg	1	☼	6010B	Total/NA
Barium	100	^6+	1.0	0.12	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.27	B	0.20	0.037	mg/Kg	1	☼	6010B	Total/NA
Chromium	14		1.0	0.51	mg/Kg	1	☼	6010B	Total/NA
Lead	50		0.51	0.24	mg/Kg	1	☼	6010B	Total/NA
Silver	0.39	J	0.51	0.13	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.084		0.018	0.0060	mg/Kg	1	☼	7471B	Total/NA
pH	8.3		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-4
Lab Sample ID: 500-197981-5

No Detections.

Client Sample ID: B-4 Deep
Lab Sample ID: 500-197981-6

No Detections.

Client Sample ID: B-5
Lab Sample ID: 500-197981-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.0011	J	0.0019	0.00062	mg/Kg	1	☼	8260B	Total/NA
Tetrachloroethene	0.00075	J	0.0019	0.00063	mg/Kg	1	☼	8260B	Total/NA
Arsenic	9.3		1.2	0.42	mg/Kg	1	☼	6010B	Total/NA
Barium	120	^6+	1.2	0.14	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.16	J B	0.25	0.044	mg/Kg	1	☼	6010B	Total/NA
Chromium	18		1.2	0.61	mg/Kg	1	☼	6010B	Total/NA
Lead	16		0.61	0.28	mg/Kg	1	☼	6010B	Total/NA
Silver	0.56	J	0.61	0.16	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.068		0.020	0.0068	mg/Kg	1	☼	7471B	Total/NA
pH	8.0		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-6
Lab Sample ID: 500-197981-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.030	J	0.040	0.0062	mg/Kg	1	☼	8270D	Total/NA
Acenaphthylene	0.0053	J	0.040	0.0053	mg/Kg	1	☼	8270D	Total/NA
Acenaphthene	0.058		0.040	0.0072	mg/Kg	1	☼	8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-6 (Continued) — Lab Sample ID: 500-197981-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluorene	0.050		0.040	0.0056	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.62		0.040	0.0056	mg/Kg	1	☼	8270D	Total/NA
Anthracene	0.14		0.040	0.0067	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.76		0.040	0.0074	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.68		0.040	0.0080	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	0.44		0.040	0.0054	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.44		0.040	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.46		0.040	0.0087	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.23		0.040	0.012	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.36		0.040	0.0078	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.14		0.040	0.010	mg/Kg	1	☼	8270D	Total/NA
Dibenz(a,h)anthracene	0.048		0.040	0.0078	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.13		0.040	0.013	mg/Kg	1	☼	8270D	Total/NA

Client Sample ID: B-7 — Lab Sample ID: 500-197981-9

No Detections.

Client Sample ID: B-8 — Lab Sample ID: 500-197981-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.0083	J	0.037	0.0057	mg/Kg	1	☼	8270D	Total/NA
Acenaphthene	0.014	J	0.037	0.0066	mg/Kg	1	☼	8270D	Total/NA
Fluorene	0.014	J	0.037	0.0052	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.11		0.037	0.0051	mg/Kg	1	☼	8270D	Total/NA
Anthracene	0.029	J	0.037	0.0061	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.12		0.037	0.0068	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.11		0.037	0.0073	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	0.068		0.037	0.0049	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.069		0.037	0.010	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.076		0.037	0.0079	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.028	J	0.037	0.011	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.061		0.037	0.0071	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.025	J	0.037	0.0095	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.025	J	0.037	0.012	mg/Kg	1	☼	8270D	Total/NA
Arsenic	9.2		1.1	0.38	mg/Kg	1	☼	6010B	Total/NA
Barium	100	^6+	1.1	0.13	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.17	J B	0.22	0.040	mg/Kg	1	☼	6010B	Total/NA
Chromium	14		1.1	0.55	mg/Kg	1	☼	6010B	Total/NA
Lead	27		0.56	0.26	mg/Kg	1	☼	6010B	Total/NA
Silver	0.35	J	0.56	0.14	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.044		0.017	0.0058	mg/Kg	1	☼	7471B	Total/NA
pH	8.2		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-9 — Lab Sample ID: 500-197981-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.2		1.2	0.43	mg/Kg	1	☼	6010B	Total/NA
Barium	150	^6+	1.2	0.14	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.13	J B	0.25	0.045	mg/Kg	1	☼	6010B	Total/NA
Chromium	17		1.2	0.62	mg/Kg	1	☼	6010B	Total/NA
Lead	17		0.62	0.29	mg/Kg	1	☼	6010B	Total/NA
Silver	0.43	J	0.62	0.16	mg/Kg	1	☼	6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-9 (Continued) — Lab Sample ID: 500-197981-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.042		0.020	0.0066	mg/Kg	1	☼	7471B	Total/NA
pH	7.7		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-9 Deep — Lab Sample ID: 500-197981-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.0022	J	0.0048	0.0019	mg/Kg	1	☼	8260B	Total/NA
1,1,1-Trichloroethane	0.0020		0.0019	0.00064	mg/Kg	1	☼	8260B	Total/NA
Tetrachloroethene	0.00072	J	0.0019	0.00065	mg/Kg	1	☼	8260B	Total/NA
Arsenic	4.9		1.0	0.34	mg/Kg	1	☼	6010B	Total/NA
Barium	16	^6+	1.0	0.11	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.11	J B	0.20	0.036	mg/Kg	1	☼	6010B	Total/NA
Chromium	4.9		1.0	0.49	mg/Kg	1	☼	6010B	Total/NA
Lead	7.5		0.50	0.23	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.0055	J	0.016	0.0053	mg/Kg	1	☼	7471B	Total/NA
pH	8.8		0.2	0.2	SU	1		9045D	Total/NA

Client Sample ID: B-10 — Lab Sample ID: 500-197981-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.0024	J	0.0048	0.0019	mg/Kg	1	☼	8260B	Total/NA
1,1,1-Trichloroethane	0.0011	J	0.0019	0.00065	mg/Kg	1	☼	8260B	Total/NA
Arsenic	9.8		1.2	0.41	mg/Kg	1	☼	6010B	Total/NA
Barium	100	^6+	1.2	0.14	mg/Kg	1	☼	6010B	Total/NA
Cadmium	0.26	B	0.24	0.043	mg/Kg	1	☼	6010B	Total/NA
Chromium	15		1.2	0.60	mg/Kg	1	☼	6010B	Total/NA
Lead	12		0.60	0.28	mg/Kg	1	☼	6010B	Total/NA
Silver	0.34	J	0.60	0.16	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.030		0.020	0.0066	mg/Kg	1	☼	7471B	Total/NA
pH	7.3		0.2	0.2	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
6010B	Metals (ICP)	SW846	TAL CHI
7471B	Mercury (CVAA)	SW846	TAL CHI
9045D	pH	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI
3541	Automated Soxhlet Extraction	SW846	TAL CHI
5035	Closed System Purge and Trap	SW846	TAL CHI
7471B	Preparation, Mercury	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-197981-1	B-1	Solid	04/20/21 09:30	04/21/21 13:50	
500-197981-2	B-2	Solid	04/20/21 09:40	04/21/21 13:50	
500-197981-3	B-3 Deep	Solid	04/20/21 09:50	04/21/21 13:50	
500-197981-4	B-3	Solid	04/20/21 10:00	04/21/21 13:50	
500-197981-5	B-4	Solid	04/20/21 11:30	04/21/21 13:50	
500-197981-6	B-4 Deep	Solid	04/20/21 11:40	04/21/21 13:50	
500-197981-7	B-5	Solid	04/20/21 11:50	04/21/21 13:50	
500-197981-8	B-6	Solid	04/20/21 12:30	04/21/21 13:50	
500-197981-9	B-7	Solid	04/20/21 12:40	04/21/21 13:50	
500-197981-10	B-8	Solid	04/20/21 12:50	04/21/21 13:50	
500-197981-11	B-9	Solid	04/20/21 13:00	04/21/21 13:50	
500-197981-12	B-9 Deep	Solid	04/20/21 13:10	04/21/21 13:50	
500-197981-13	B-10	Solid	04/20/21 13:20	04/21/21 13:50	

Client Sample ID: B-1
Lab Sample ID: 500-197981-1
Date Collected: 04/20/21 09:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0040	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Vinyl chloride	ND		0.0016	0.00071	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Bromomethane	ND		0.0040	0.0015	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Chloroethane	ND		0.0040	0.0012	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,1-Dichloroethene	ND		0.0016	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Acetone	ND		0.016	0.0070	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Carbon disulfide	ND		0.0040	0.00084	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Methylene Chloride	ND		0.0040	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
trans-1,2-Dichloroethene	ND		0.0016	0.00071	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Methyl tert-butyl ether	ND		0.0016	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,1-Dichloroethane	ND		0.0016	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
cis-1,2-Dichloroethene	ND		0.0016	0.00045	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Methyl Ethyl Ketone	ND		0.0040	0.0018	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Chloroform	ND		0.0016	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,1,1-Trichloroethane	ND		0.0016	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Carbon tetrachloride	ND		0.0016	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Benzene	ND		0.0016	0.00041	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,2-Dichloroethane	ND		0.0040	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Trichloroethene	ND		0.0016	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,2-Dichloropropane	ND		0.0016	0.00042	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Bromodichloromethane	ND		0.0016	0.00033	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
cis-1,3-Dichloropropene	ND		0.0016	0.00049	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
methyl isobutyl ketone	ND		0.0040	0.0012	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Toluene	ND		0.0016	0.00041	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
trans-1,3-Dichloropropene	ND		0.0016	0.00057	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,1,2-Trichloroethane	ND		0.0016	0.00069	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Tetrachloroethene	ND		0.0016	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
2-Hexanone	ND		0.0040	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Dibromochloromethane	ND		0.0016	0.00053	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Chlorobenzene	ND		0.0016	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Ethylbenzene	ND		0.0016	0.00077	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Xylenes, Total	ND		0.0032	0.00052	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Styrene	ND		0.0016	0.00049	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
Bromoform	ND		0.0016	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,1,2,2-Tetrachloroethane	ND		0.0016	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1
1,3-Dichloropropene, Total	ND		0.0016	0.00057	mg/Kg	☼	04/21/21 18:00	04/22/21 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 134*	*04/21/21 18:00*	*04/22/21 13:28*	*1*
Toluene-d8 (Surr)	*98*		*75 - 124*	*04/21/21 18:00*	*04/22/21 13:28*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*	*04/21/21 18:00*	*04/22/21 13:28*	*1*
Dibromofluoromethane	*102*		*75 - 126*	*04/21/21 18:00*	*04/22/21 13:28*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.0066**	**J**	0.038	0.0059	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Acenaphthylene	**0.0056**	**J**	0.038	0.0051	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Acenaphthene	ND		0.038	0.0069	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Fluorene	ND		0.038	0.0054	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Phenanthrene	**0.11**		0.038	0.0054	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1

Client Sample ID: B-1
Lab Sample ID: 500-197981-1
Date Collected: 04/20/21 09:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	0.024	J	0.038	0.0064	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Fluoranthene	0.29		0.038	0.0071	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Pyrene	0.20		0.038	0.0076	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Benzo[a]anthracene	0.13		0.038	0.0052	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Chrysene	0.14		0.038	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Benzo[b]fluoranthene	0.22		0.038	0.0083	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Benzo[k]fluoranthene	0.11		0.038	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Benzo[a]pyrene	0.16		0.038	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Indeno[1,2,3-cd]pyrene	0.054		0.038	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Dibenz(a,h)anthracene	0.013	J	0.038	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1
Benzo[g,h,i]perylene	0.049		0.038	0.012	mg/Kg	☼	04/26/21 08:21	04/27/21 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*65*		*37 - 147*	*04/26/21 08:21*	*04/27/21 15:17*	*1*
2-Fluorobiphenyl	*84*		*43 - 145*	*04/26/21 08:21*	*04/27/21 15:17*	*1*
Terphenyl-d14	*80*		*42 - 157*	*04/26/21 08:21*	*04/27/21 15:17*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.8		1.1	0.38	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Barium	29	^6+	1.1	0.13	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Cadmium	0.18	J B	0.22	0.040	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Chromium	9.6		1.1	0.55	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Lead	25		0.56	0.26	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Selenium	ND		1.1	0.66	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1
Silver	0.21	J	0.56	0.14	mg/Kg	☼	04/26/21 17:36	04/27/21 11:51	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.046		0.018	0.0059	mg/Kg	☼	04/26/21 14:00	04/27/21 08:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.3		0.2	0.2	SU			04/26/21 18:23	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-2
Date Collected: 04/20/21 09:40
Date Received: 04/21/21 13:50

Lab Sample ID: 500-197981-2
Matrix: Solid
Percent Solids: 85.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.013	0.0074	mg/Kg	☼	04/20/21 09:40	04/27/21 12:11	50
Toluene	ND		0.013	0.0075	mg/Kg	☼	04/20/21 09:40	04/27/21 12:11	50
Ethylbenzene	ND		0.013	0.0093	mg/Kg	☼	04/20/21 09:40	04/27/21 12:11	50
Xylenes, Total	ND		0.025	0.011	mg/Kg	☼	04/20/21 09:40	04/27/21 12:11	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 126*	*04/20/21 09:40*	*04/27/21 12:11*	*50*
Toluene-d8 (Surr)	*101*		*75 - 120*	*04/20/21 09:40*	*04/27/21 12:11*	*50*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*	*04/20/21 09:40*	*04/27/21 12:11*	*50*
Dibromofluoromethane	*112*		*75 - 120*	*04/20/21 09:40*	*04/27/21 12:11*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.030**	**J**	0.038	0.0059	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Acenaphthylene	ND		0.038	0.0051	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Acenaphthene	ND		0.038	0.0069	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Fluorene	ND		0.038	0.0054	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Phenanthrene	**0.10**		0.038	0.0054	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Anthracene	**0.015**	**J**	0.038	0.0064	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Fluoranthene	**0.15**		0.038	0.0071	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Pyrene	**0.15**		0.038	0.0077	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Benzo[a]anthracene	**0.084**		0.038	0.0052	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Chrysene	**0.10**		0.038	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Benzo[b]fluoranthene	**0.15**		0.038	0.0083	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Benzo[k]fluoranthene	**0.060**		0.038	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Benzo[a]pyrene	**0.092**		0.038	0.0075	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Indeno[1,2,3-cd]pyrene	**0.040**		0.038	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Dibenz(a,h)anthracene	**0.0099**	**J**	0.038	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1
Benzo[g,h,i]perylene	**0.040**		0.038	0.012	mg/Kg	☼	04/26/21 08:21	04/27/21 01:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*60*		*37 - 147*	*04/26/21 08:21*	*04/27/21 01:15*	*1*
2-Fluorobiphenyl	*58*		*43 - 145*	*04/26/21 08:21*	*04/27/21 01:15*	*1*
Terphenyl-d14	*88*		*42 - 157*	*04/26/21 08:21*	*04/27/21 01:15*	*1*

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-3 Deep
Lab Sample ID: 500-197981-3
Date Collected: 04/20/21 09:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 96.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0046	0.0018	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Vinyl chloride	ND		0.0018	0.00081	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Bromomethane	ND		0.0046	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Chloroethane	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,1-Dichloroethene	ND		0.0018	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Acetone	ND		0.018	0.0080	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Carbon disulfide	ND		0.0046	0.00095	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Methylene Chloride	ND		0.0046	0.0018	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
trans-1,2-Dichloroethene	ND		0.0018	0.00081	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Methyl tert-butyl ether	ND		0.0018	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,1-Dichloroethane	ND		0.0018	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
cis-1,2-Dichloroethene	ND		0.0018	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Methyl Ethyl Ketone	ND		0.0046	0.0020	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Chloroform	ND		0.0018	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,1,1-Trichloroethane	ND		0.0018	0.00061	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Carbon tetrachloride	ND		0.0018	0.00053	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Benzene	ND		0.0018	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,2-Dichloroethane	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Trichloroethene	ND		0.0018	0.00062	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,2-Dichloropropane	ND		0.0018	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Bromodichloromethane	ND		0.0018	0.00037	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
cis-1,3-Dichloropropene	ND		0.0018	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
methyl isobutyl ketone	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Toluene	ND		0.0018	0.00046	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
trans-1,3-Dichloropropene	ND		0.0018	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,1,2-Trichloroethane	ND		0.0018	0.00079	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Tetrachloroethene	ND		0.0018	0.00062	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
2-Hexanone	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Dibromochloromethane	ND		0.0018	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Chlorobenzene	ND		0.0018	0.00068	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Ethylbenzene	ND		0.0018	0.00088	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Xylenes, Total	ND		0.0037	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Styrene	ND		0.0018	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
Bromoform	ND		0.0018	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,1,2,2-Tetrachloroethane	ND		0.0018	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1
1,3-Dichloropropene, Total	ND		0.0018	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 134*	*04/21/21 18:00*	*04/22/21 13:54*	*1*
Toluene-d8 (Surr)	*96*		*75 - 124*	*04/21/21 18:00*	*04/22/21 13:54*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*	*04/21/21 18:00*	*04/22/21 13:54*	*1*
Dibromofluoromethane	*100*		*75 - 126*	*04/21/21 18:00*	*04/22/21 13:54*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.034	0.0053	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Acenaphthylene	ND		0.034	0.0045	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Acenaphthene	ND		0.034	0.0061	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Fluorene	ND		0.034	0.0048	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Phenanthrene	ND		0.034	0.0048	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1

Client Sample ID: B-3 Deep
Lab Sample ID: 500-197981-3
Date Collected: 04/20/21 09:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 96.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.034	0.0057	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Fluoranthene	ND		0.034	0.0063	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Pyrene	ND		0.034	0.0068	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Benzo[a]anthracene	ND		0.034	0.0046	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Chrysene	ND		0.034	0.0093	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Benzo[b]fluoranthene	ND		0.034	0.0074	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Benzo[k]fluoranthene	ND		0.034	0.010	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Benzo[a]pyrene	ND		0.034	0.0066	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Indeno[1,2,3-cd]pyrene	ND		0.034	0.0089	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Dibenz(a,h)anthracene	ND		0.034	0.0066	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1
Benzo[g,h,i]perylene	ND		0.034	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*86*		*37 - 147*	*04/26/21 08:21*	*04/26/21 21:13*	*1*
2-Fluorobiphenyl	*84*		*43 - 145*	*04/26/21 08:21*	*04/26/21 21:13*	*1*
Terphenyl-d14	*94*		*42 - 157*	*04/26/21 08:21*	*04/26/21 21:13*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.4**		0.95	0.32	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Barium	**8.8**	**^6+**	0.95	0.11	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Cadmium	**0.11**	**J B**	0.19	0.034	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Chromium	**3.6**		0.95	0.47	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Lead	**3.4**		0.47	0.22	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Selenium	ND		0.95	0.56	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1
Silver	ND		0.47	0.12	mg/Kg	☼	04/26/21 17:36	04/27/21 11:54	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.016	0.0054	mg/Kg	☼	04/26/21 14:00	04/27/21 08:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.9**		0.2	0.2	SU			04/26/21 18:26	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-3
Lab Sample ID: 500-197981-4
Date Collected: 04/20/21 10:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0043	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Vinyl chloride	ND		0.0017	0.00076	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Bromomethane	ND		0.0043	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Chloroethane	ND		0.0043	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,1-Dichloroethene	ND		0.0017	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Acetone	ND		0.017	0.0075	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Carbon disulfide	ND		0.0043	0.00089	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Methylene Chloride	ND		0.0043	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
trans-1,2-Dichloroethene	ND		0.0017	0.00076	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Methyl tert-butyl ether	ND		0.0017	0.00050	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,1-Dichloroethane	ND		0.0017	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
cis-1,2-Dichloroethene	ND		0.0017	0.00048	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Methyl Ethyl Ketone	ND		0.0043	0.0019	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Chloroform	ND		0.0017	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,1,1-Trichloroethane	ND		0.0017	0.00057	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Carbon tetrachloride	ND		0.0017	0.00050	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Benzene	ND		0.0017	0.00044	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,2-Dichloroethane	ND		0.0043	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Trichloroethene	ND		0.0017	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,2-Dichloropropane	ND		0.0017	0.00044	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Bromodichloromethane	ND		0.0017	0.00035	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
cis-1,3-Dichloropropene	ND		0.0017	0.00052	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
methyl isobutyl ketone	ND		0.0043	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Toluene	ND		0.0017	0.00043	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
trans-1,3-Dichloropropene	ND		0.0017	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,1,2-Trichloroethane	ND		0.0017	0.00074	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Tetrachloroethene	ND		0.0017	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
2-Hexanone	ND		0.0043	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Dibromochloromethane	ND		0.0017	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Chlorobenzene	ND		0.0017	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Ethylbenzene	ND		0.0017	0.00082	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Xylenes, Total	ND		0.0034	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Styrene	ND		0.0017	0.00052	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
Bromoform	ND		0.0017	0.00050	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,1,2,2-Tetrachloroethane	ND		0.0017	0.00055	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1
1,3-Dichloropropene, Total	ND		0.0017	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 134*	*04/21/21 18:00*	*04/22/21 14:20*	*1*
Toluene-d8 (Surr)	*99*		*75 - 124*	*04/21/21 18:00*	*04/22/21 14:20*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 131*	*04/21/21 18:00*	*04/22/21 14:20*	*1*
Dibromofluoromethane	*100*		*75 - 126*	*04/21/21 18:00*	*04/22/21 14:20*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.014**	**J**	0.038	0.0059	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Acenaphthylene	**0.047**		0.038	0.0050	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Acenaphthene	**0.013**	**J**	0.038	0.0068	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Fluorene	**0.013**	**J**	0.038	0.0053	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Phenanthrene	**0.24**		0.038	0.0053	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1

Client Sample ID: B-3
Lab Sample ID: 500-197981-4
Date Collected: 04/20/21 10:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	0.063		0.038	0.0064	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Fluoranthene	0.58		0.038	0.0071	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Pyrene	0.56		0.038	0.0076	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Benzo[a]anthracene	0.43		0.038	0.0051	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Chrysene	0.43		0.038	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Benzo[b]fluoranthene	0.61		0.038	0.0082	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Benzo[k]fluoranthene	0.27		0.038	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Benzo[a]pyrene	0.44		0.038	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Indeno[1,2,3-cd]pyrene	0.16		0.038	0.0099	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Dibenz(a,h)anthracene	0.049		0.038	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1
Benzo[g,h,i]perylene	0.15		0.038	0.012	mg/Kg	☼	04/26/21 08:21	04/27/21 01:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*74*		*37 - 147*	*04/26/21 08:21*	*04/27/21 01:37*	*1*
2-Fluorobiphenyl	*66*		*43 - 145*	*04/26/21 08:21*	*04/27/21 01:37*	*1*
Terphenyl-d14	*85*		*42 - 157*	*04/26/21 08:21*	*04/27/21 01:37*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.2		1.0	0.35	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Barium	100	^6+	1.0	0.12	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Cadmium	0.27	B	0.20	0.037	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Chromium	14		1.0	0.51	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Lead	50		0.51	0.24	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Selenium	ND		1.0	0.60	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1
Silver	0.39	J	0.51	0.13	mg/Kg	☼	04/26/21 17:36	04/27/21 12:10	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.084		0.018	0.0060	mg/Kg	☼	04/26/21 14:00	04/27/21 08:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.3		0.2	0.2	SU			04/26/21 18:28	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-4
Lab Sample ID: 500-197981-5
Date Collected: 04/20/21 11:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 87.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.013	0.0074	mg/Kg	☼	04/20/21 11:30	04/27/21 12:37	50
Toluene	ND		0.013	0.0075	mg/Kg	☼	04/20/21 11:30	04/27/21 12:37	50
Ethylbenzene	ND		0.013	0.0093	mg/Kg	☼	04/20/21 11:30	04/27/21 12:37	50
Xylenes, Total	ND		0.025	0.011	mg/Kg	☼	04/20/21 11:30	04/27/21 12:37	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 126*	*04/20/21 11:30*	*04/27/21 12:37*	*50*
Toluene-d8 (Surr)	*98*		*75 - 120*	*04/20/21 11:30*	*04/27/21 12:37*	*50*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*	*04/20/21 11:30*	*04/27/21 12:37*	*50*
Dibromofluoromethane	*114*		*75 - 120*	*04/20/21 11:30*	*04/27/21 12:37*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.037	0.0057	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Acenaphthylene	ND		0.037	0.0049	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Acenaphthene	ND		0.037	0.0067	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Fluorene	ND		0.037	0.0052	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Phenanthrene	ND		0.037	0.0052	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Anthracene	ND		0.037	0.0062	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Fluoranthene	ND		0.037	0.0069	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Pyrene	ND		0.037	0.0074	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Benzo[a]anthracene	ND		0.037	0.0050	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Chrysene	ND		0.037	0.010	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Benzo[b]fluoranthene	ND		0.037	0.0080	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Benzo[k]fluoranthene	ND		0.037	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Benzo[a]pyrene	ND		0.037	0.0072	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Indeno[1,2,3-cd]pyrene	ND		0.037	0.0096	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Dibenz(a,h)anthracene	ND		0.037	0.0072	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1
Benzo[g,h,i]perylene	ND		0.037	0.012	mg/Kg	☼	04/26/21 08:21	04/26/21 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*76*		*37 - 147*	*04/26/21 08:21*	*04/26/21 21:35*	*1*
2-Fluorobiphenyl	*73*		*43 - 145*	*04/26/21 08:21*	*04/26/21 21:35*	*1*
Terphenyl-d14	*87*		*42 - 157*	*04/26/21 08:21*	*04/26/21 21:35*	*1*

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-4 Deep
Lab Sample ID: 500-197981-6

Date Collected: 04/20/21 11:40
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 97.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.011	0.0066	mg/Kg	☼	04/20/21 11:40	04/27/21 13:02	50
Toluene	ND		0.011	0.0067	mg/Kg	☼	04/20/21 11:40	04/27/21 13:02	50
Ethylbenzene	ND		0.011	0.0083	mg/Kg	☼	04/20/21 11:40	04/27/21 13:02	50
Xylenes, Total	ND		0.023	0.010	mg/Kg	☼	04/20/21 11:40	04/27/21 13:02	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*75 - 126*	*04/20/21 11:40*	*04/27/21 13:02*	*50*
Toluene-d8 (Surr)	*101*		*75 - 120*	*04/20/21 11:40*	*04/27/21 13:02*	*50*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*	*04/20/21 11:40*	*04/27/21 13:02*	*50*
Dibromofluoromethane	*107*		*75 - 120*	*04/20/21 11:40*	*04/27/21 13:02*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.033	0.0051	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Acenaphthylene	ND		0.033	0.0044	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Acenaphthene	ND		0.033	0.0059	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Fluorene	ND		0.033	0.0046	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Phenanthrene	ND		0.033	0.0046	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Anthracene	ND		0.033	0.0055	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Fluoranthene	ND		0.033	0.0061	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Pyrene	ND		0.033	0.0066	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Benzo[a]anthracene	ND		0.033	0.0044	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Chrysene	ND		0.033	0.0090	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Benzo[b]fluoranthene	ND		0.033	0.0071	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Benzo[k]fluoranthene	ND		0.033	0.0097	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Benzo[a]pyrene	ND		0.033	0.0064	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Indeno[1,2,3-cd]pyrene	ND		0.033	0.0086	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Dibenz(a,h)anthracene	ND		0.033	0.0064	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1
Benzo[g,h,i]perylene	ND		0.033	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*75*		*37 - 147*	*04/26/21 08:21*	*04/26/21 21:57*	*1*
2-Fluorobiphenyl	*74*		*43 - 145*	*04/26/21 08:21*	*04/26/21 21:57*	*1*
Terphenyl-d14	*83*		*42 - 157*	*04/26/21 08:21*	*04/26/21 21:57*	*1*

Client Sample ID: B-5
Date Collected: 04/20/21 11:50
Date Received: 04/21/21 13:50

Lab Sample ID: 500-197981-7
Matrix: Solid
Percent Solids: 79.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0046	0.0019	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Vinyl chloride	ND		0.0019	0.00082	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Bromomethane	ND		0.0046	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Chloroethane	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,1-Dichloroethene	ND		0.0019	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Acetone	ND		0.019	0.0081	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Carbon disulfide	ND		0.0046	0.00096	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Methylene Chloride	ND		0.0046	0.0018	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
trans-1,2-Dichloroethene	ND		0.0019	0.00082	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Methyl tert-butyl ether	ND		0.0019	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,1-Dichloroethane	ND		0.0019	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
cis-1,2-Dichloroethene	ND		0.0019	0.00052	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Methyl Ethyl Ketone	ND		0.0046	0.0021	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Chloroform	ND		0.0019	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,1,1-Trichloroethane	**0.0011**	**J**	0.0019	0.00062	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Carbon tetrachloride	ND		0.0019	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Benzene	ND		0.0019	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,2-Dichloroethane	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Trichloroethene	ND		0.0019	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,2-Dichloropropane	ND		0.0019	0.00048	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Bromodichloromethane	ND		0.0019	0.00038	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
cis-1,3-Dichloropropene	ND		0.0019	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
methyl isobutyl ketone	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Toluene	ND		0.0019	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
trans-1,3-Dichloropropene	ND		0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,1,2-Trichloroethane	ND		0.0019	0.00079	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Tetrachloroethene	**0.00075**	**J**	0.0019	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
2-Hexanone	ND		0.0046	0.0014	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Dibromochloromethane	ND		0.0019	0.00061	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Chlorobenzene	ND		0.0019	0.00068	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Ethylbenzene	ND		0.0019	0.00089	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Xylenes, Total	ND		0.0037	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Styrene	ND		0.0019	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
Bromoform	ND		0.0019	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,1,2,2-Tetrachloroethane	ND		0.0019	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1
1,3-Dichloropropene, Total	ND		0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/22/21 14:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 134*	*04/21/21 18:00*	*04/22/21 14:46*	*1*
Toluene-d8 (Surr)	*98*		*75 - 124*	*04/21/21 18:00*	*04/22/21 14:46*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*	*04/21/21 18:00*	*04/22/21 14:46*	*1*
Dibromofluoromethane	*99*		*75 - 126*	*04/21/21 18:00*	*04/22/21 14:46*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.041	0.0063	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Acenaphthylene	ND		0.041	0.0054	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Acenaphthene	ND		0.041	0.0074	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Fluorene	ND		0.041	0.0058	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Phenanthrene	ND		0.041	0.0057	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1

Client Sample ID: B-5
Lab Sample ID: 500-197981-7
Date Collected: 04/20/21 11:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 79.8

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.041	0.0068	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Fluoranthene	ND		0.041	0.0076	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Pyrene	ND		0.041	0.0081	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Benzo[a]anthracene	ND		0.041	0.0055	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Chrysene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Benzo[b]fluoranthene	ND		0.041	0.0088	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Benzo[k]fluoranthene	ND		0.041	0.012	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Benzo[a]pyrene	ND		0.041	0.0079	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Indeno[1,2,3-cd]pyrene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Dibenz(a,h)anthracene	ND		0.041	0.0079	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1
Benzo[g,h,i]perylene	ND		0.041	0.013	mg/Kg	☼	04/26/21 08:21	04/26/21 22:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*73*		*37 - 147*	*04/26/21 08:21*	*04/26/21 22:19*	*1*
2-Fluorobiphenyl	*68*		*43 - 145*	*04/26/21 08:21*	*04/26/21 22:19*	*1*
Terphenyl-d14	*88*		*42 - 157*	*04/26/21 08:21*	*04/26/21 22:19*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**9.3**		1.2	0.42	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Barium	**120**	**^6+**	1.2	0.14	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Cadmium	**0.16**	**J B**	0.25	0.044	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Chromium	**18**		1.2	0.61	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Lead	**16**		0.61	0.28	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Selenium	ND		1.2	0.72	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1
Silver	**0.56**	**J**	0.61	0.16	mg/Kg	☼	04/26/21 17:36	04/27/21 12:13	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.068**		0.020	0.0068	mg/Kg	☼	04/26/21 14:00	04/27/21 08:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.0**		0.2	0.2	SU			04/26/21 18:31	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-6
Date Collected: 04/20/21 12:30
Date Received: 04/21/21 13:50

Lab Sample ID: 500-197981-8
Matrix: Solid
Percent Solids: 81.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.015	0.0086	mg/Kg	☼	04/20/21 12:30	04/27/21 13:29	50
Toluene	ND		0.015	0.0087	mg/Kg	☼	04/20/21 12:30	04/27/21 13:29	50
Ethylbenzene	ND		0.015	0.011	mg/Kg	☼	04/20/21 12:30	04/27/21 13:29	50
Xylenes, Total	ND		0.029	0.013	mg/Kg	☼	04/20/21 12:30	04/27/21 13:29	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 126*	*04/20/21 12:30*	*04/27/21 13:29*	*50*
Toluene-d8 (Surr)	*100*		*75 - 120*	*04/20/21 12:30*	*04/27/21 13:29*	*50*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*	*04/20/21 12:30*	*04/27/21 13:29*	*50*
Dibromofluoromethane	*109*		*75 - 120*	*04/20/21 12:30*	*04/27/21 13:29*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.030**	**J**	0.040	0.0062	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Acenaphthylene	**0.0053**	**J**	0.040	0.0053	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Acenaphthene	**0.058**		0.040	0.0072	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Fluorene	**0.050**		0.040	0.0056	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Phenanthrene	**0.62**		0.040	0.0056	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Anthracene	**0.14**		0.040	0.0067	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Fluoranthene	**0.76**		0.040	0.0074	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Pyrene	**0.68**		0.040	0.0080	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Benzo[a]anthracene	**0.44**		0.040	0.0054	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Chrysene	**0.44**		0.040	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Benzo[b]fluoranthene	**0.46**		0.040	0.0087	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Benzo[k]fluoranthene	**0.23**		0.040	0.012	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Benzo[a]pyrene	**0.36**		0.040	0.0078	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Indeno[1,2,3-cd]pyrene	**0.14**		0.040	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Dibenz(a,h)anthracene	**0.048**		0.040	0.0078	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1
Benzo[g,h,i]perylene	**0.13**		0.040	0.013	mg/Kg	☼	04/26/21 08:21	04/27/21 00:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*67*		*37 - 147*	*04/26/21 08:21*	*04/27/21 00:09*	*1*
2-Fluorobiphenyl	*61*		*43 - 145*	*04/26/21 08:21*	*04/27/21 00:09*	*1*
Terphenyl-d14	*90*		*42 - 157*	*04/26/21 08:21*	*04/27/21 00:09*	*1*

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-7
Lab Sample ID: 500-197981-9
Date Collected: 04/20/21 12:40
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.012	0.0069	mg/Kg	☼	04/20/21 12:40	04/27/21 13:55	50
Toluene	ND		0.012	0.0069	mg/Kg	☼	04/20/21 12:40	04/27/21 13:55	50
Ethylbenzene	ND		0.012	0.0086	mg/Kg	☼	04/20/21 12:40	04/27/21 13:55	50
Xylenes, Total	ND		0.023	0.010	mg/Kg	☼	04/20/21 12:40	04/27/21 13:55	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*75 - 126*	*04/20/21 12:40*	*04/27/21 13:55*	*50*
Toluene-d8 (Surr)	*99*		*75 - 120*	*04/20/21 12:40*	*04/27/21 13:55*	*50*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*	*04/20/21 12:40*	*04/27/21 13:55*	*50*
Dibromofluoromethane	*110*		*75 - 120*	*04/20/21 12:40*	*04/27/21 13:55*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.034	0.0053	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Acenaphthylene	ND		0.034	0.0046	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Acenaphthene	ND		0.034	0.0062	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Fluorene	ND		0.034	0.0049	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Phenanthrene	ND		0.034	0.0048	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Anthracene	ND		0.034	0.0058	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Fluoranthene	ND		0.034	0.0064	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Pyrene	ND		0.034	0.0069	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Benzo[a]anthracene	ND		0.034	0.0047	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Chrysene	ND		0.034	0.0095	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Benzo[b]fluoranthene	ND		0.034	0.0075	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Benzo[k]fluoranthene	ND		0.034	0.010	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Benzo[a]pyrene	ND		0.034	0.0067	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Indeno[1,2,3-cd]pyrene	ND		0.034	0.0090	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Dibenz(a,h)anthracene	ND		0.034	0.0067	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1
Benzo[g,h,i]perylene	ND		0.034	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 22:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*87*		*37 - 147*	*04/26/21 08:21*	*04/26/21 22:41*	*1*
2-Fluorobiphenyl	*75*		*43 - 145*	*04/26/21 08:21*	*04/26/21 22:41*	*1*
Terphenyl-d14	*90*		*42 - 157*	*04/26/21 08:21*	*04/26/21 22:41*	*1*

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-8
Lab Sample ID: 500-197981-10
Date Collected: 04/20/21 12:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 86.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0042	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Vinyl chloride	ND		0.0017	0.00075	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Bromomethane	ND		0.0042	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Chloroethane	ND		0.0042	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,1-Dichloroethene	ND		0.0017	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Acetone	ND		0.017	0.0074	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Carbon disulfide	ND		0.0042	0.00088	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Methylene Chloride	ND		0.0042	0.0017	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
trans-1,2-Dichloroethene	ND		0.0017	0.00075	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Methyl tert-butyl ether	ND		0.0017	0.00050	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,1-Dichloroethane	ND		0.0017	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
cis-1,2-Dichloroethene	ND		0.0017	0.00047	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Methyl Ethyl Ketone	ND		0.0042	0.0019	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Chloroform	ND		0.0017	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,1,1-Trichloroethane	ND		0.0017	0.00057	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Carbon tetrachloride	ND		0.0017	0.00049	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Benzene	ND		0.0017	0.00043	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,2-Dichloroethane	ND		0.0042	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Trichloroethene	ND		0.0017	0.00057	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,2-Dichloropropane	ND		0.0017	0.00044	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Bromodichloromethane	ND		0.0017	0.00035	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
cis-1,3-Dichloropropene	ND		0.0017	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
methyl isobutyl ketone	ND		0.0042	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Toluene	ND		0.0017	0.00043	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
trans-1,3-Dichloropropene	ND		0.0017	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,1,2-Trichloroethane	ND		0.0017	0.00073	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Tetrachloroethene	ND		0.0017	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
2-Hexanone	ND		0.0042	0.0013	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Dibromochloromethane	ND		0.0017	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Chlorobenzene	ND		0.0017	0.00063	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Ethylbenzene	ND		0.0017	0.00081	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Xylenes, Total	ND		0.0034	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Styrene	ND		0.0017	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
Bromoform	ND		0.0017	0.00050	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,1,2,2-Tetrachloroethane	ND		0.0017	0.00054	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1
1,3-Dichloropropene, Total	ND		0.0017	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 134*	*04/21/21 18:00*	*04/22/21 15:14*	*1*
Toluene-d8 (Surr)	*98*		*75 - 124*	*04/21/21 18:00*	*04/22/21 15:14*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 131*	*04/21/21 18:00*	*04/22/21 15:14*	*1*
Dibromofluoromethane	*104*		*75 - 126*	*04/21/21 18:00*	*04/22/21 15:14*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.0083**	**J**	0.037	0.0057	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Acenaphthylene	ND		0.037	0.0048	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Acenaphthene	**0.014**	**J**	0.037	0.0066	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Fluorene	**0.014**	**J**	0.037	0.0052	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Phenanthrene	**0.11**		0.037	0.0051	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-8
Lab Sample ID: 500-197981-10
Date Collected: 04/20/21 12:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 86.6

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	0.029	J	0.037	0.0061	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Fluoranthene	0.12		0.037	0.0068	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Pyrene	0.11		0.037	0.0073	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Benzo[a]anthracene	0.068		0.037	0.0049	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Chrysene	0.069		0.037	0.010	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Benzo[b]fluoranthene	0.076		0.037	0.0079	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Benzo[k]fluoranthene	0.028	J	0.037	0.011	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Benzo[a]pyrene	0.061		0.037	0.0071	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Indeno[1,2,3-cd]pyrene	0.025	J	0.037	0.0095	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Dibenz(a,h)anthracene	ND		0.037	0.0071	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1
Benzo[g,h,i]perylene	0.025	J	0.037	0.012	mg/Kg	☼	04/26/21 08:21	04/27/21 00:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*83*		*37 - 147*	*04/26/21 08:21*	*04/27/21 00:31*	*1*
2-Fluorobiphenyl	*79*		*43 - 145*	*04/26/21 08:21*	*04/27/21 00:31*	*1*
Terphenyl-d14	*96*		*42 - 157*	*04/26/21 08:21*	*04/27/21 00:31*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.2		1.1	0.38	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Barium	100	^6+	1.1	0.13	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Cadmium	0.17	J B	0.22	0.040	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Chromium	14		1.1	0.55	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Lead	27		0.56	0.26	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Selenium	ND		1.1	0.65	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1
Silver	0.35	J	0.56	0.14	mg/Kg	☼	04/26/21 17:36	04/27/21 12:23	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.044		0.017	0.0058	mg/Kg	☼	04/26/21 14:00	04/27/21 08:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.2		0.2	0.2	SU			04/26/21 18:33	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-9
Lab Sample ID: 500-197981-11
Date Collected: 04/20/21 13:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 80.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0050	0.0020	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Vinyl chloride	ND		0.0020	0.00089	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Bromomethane	ND		0.0050	0.0019	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Chloroethane	ND		0.0050	0.0015	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,1-Dichloroethene	ND		0.0020	0.00069	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Acetone	ND		0.020	0.0087	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Carbon disulfide	ND		0.0050	0.0010	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Methylene Chloride	ND		0.0050	0.0020	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
trans-1,2-Dichloroethene	ND		0.0020	0.00089	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Methyl tert-butyl ether	ND		0.0020	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,1-Dichloroethane	ND		0.0020	0.00069	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
cis-1,2-Dichloroethene	ND		0.0020	0.00056	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Methyl Ethyl Ketone	ND		0.0050	0.0022	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Chloroform	ND		0.0020	0.00070	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,1,1-Trichloroethane	ND		0.0020	0.00067	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Carbon tetrachloride	ND		0.0020	0.00058	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Benzene	ND		0.0020	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,2-Dichloroethane	ND		0.0050	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Trichloroethene	ND		0.0020	0.00068	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,2-Dichloropropane	ND		0.0020	0.00052	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Bromodichloromethane	ND		0.0020	0.00041	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
cis-1,3-Dichloropropene	ND		0.0020	0.00060	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
methyl isobutyl ketone	ND		0.0050	0.0015	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Toluene	ND		0.0020	0.00051	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
trans-1,3-Dichloropropene	ND		0.0020	0.00070	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,1,2-Trichloroethane	ND		0.0020	0.00086	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Tetrachloroethene	ND		0.0020	0.00068	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
2-Hexanone	ND		0.0050	0.0016	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Dibromochloromethane	ND		0.0020	0.00066	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Chlorobenzene	ND		0.0020	0.00074	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Ethylbenzene	ND		0.0020	0.00096	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Xylenes, Total	ND		0.0040	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Styrene	ND		0.0020	0.00061	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
Bromoform	ND		0.0020	0.00059	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00064	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1
1,3-Dichloropropene, Total	ND		0.0020	0.00070	mg/Kg	☼	04/21/21 18:00	04/22/21 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 134*	*04/21/21 18:00*	*04/22/21 15:40*	*1*
Toluene-d8 (Surr)	*94*		*75 - 124*	*04/21/21 18:00*	*04/22/21 15:40*	*1*
4-Bromofluorobenzene (Surr)	*82*		*75 - 131*	*04/21/21 18:00*	*04/22/21 15:40*	*1*
Dibromofluoromethane	*106*		*75 - 126*	*04/21/21 18:00*	*04/22/21 15:40*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.041	0.0063	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Acenaphthylene	ND		0.041	0.0054	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Acenaphthene	ND		0.041	0.0074	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Fluorene	ND		0.041	0.0058	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Phenanthrene	ND		0.041	0.0057	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1

Client Sample ID: B-9
Lab Sample ID: 500-197981-11
Date Collected: 04/20/21 13:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 80.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.041	0.0068	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Fluoranthene	ND		0.041	0.0076	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Pyrene	ND		0.041	0.0081	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Benzo[a]anthracene	ND		0.041	0.0055	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Chrysene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Benzo[b]fluoranthene	ND		0.041	0.0088	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Benzo[k]fluoranthene	ND		0.041	0.012	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Benzo[a]pyrene	ND		0.041	0.0079	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Indeno[1,2,3-cd]pyrene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Dibenz(a,h)anthracene	ND		0.041	0.0079	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1
Benzo[g,h,i]perylene	ND		0.041	0.013	mg/Kg	☼	04/26/21 08:21	04/26/21 23:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*71*		*37 - 147*	*04/26/21 08:21*	*04/26/21 23:03*	*1*
2-Fluorobiphenyl	*67*		*43 - 145*	*04/26/21 08:21*	*04/26/21 23:03*	*1*
Terphenyl-d14	*89*		*42 - 157*	*04/26/21 08:21*	*04/26/21 23:03*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.2**		1.2	0.43	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Barium	**150**	**^6+**	1.2	0.14	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Cadmium	**0.13**	**J B**	0.25	0.045	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Chromium	**17**		1.2	0.62	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Lead	**17**		0.62	0.29	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Selenium	ND		1.2	0.73	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1
Silver	**0.43**	**J**	0.62	0.16	mg/Kg	☼	04/26/21 17:36	04/27/21 12:26	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.042**		0.020	0.0066	mg/Kg	☼	04/26/21 14:00	04/27/21 08:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**		0.2	0.2	SU			04/26/21 18:36	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-9 Deep
Lab Sample ID: 500-197981-12
Date Collected: 04/20/21 13:10
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0048	0.0019	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Vinyl chloride	ND		0.0019	0.00084	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Bromomethane	ND		0.0048	0.0018	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Chloroethane	ND		0.0048	0.0014	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,1-Dichloroethene	ND		0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Acetone	ND		0.019	0.0083	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Carbon disulfide	ND		0.0048	0.00099	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Methylene Chloride	**0.0022**	**J**	0.0048	0.0019	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
trans-1,2-Dichloroethene	ND		0.0019	0.00084	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Methyl tert-butyl ether	ND		0.0019	0.00056	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,1-Dichloroethane	ND		0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
cis-1,2-Dichloroethene	ND		0.0019	0.00053	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Methyl Ethyl Ketone	ND		0.0048	0.0021	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Chloroform	ND		0.0019	0.00066	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,1,1-Trichloroethane	**0.0020**		0.0019	0.00064	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Carbon tetrachloride	ND		0.0019	0.00055	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Benzene	ND		0.0019	0.00049	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,2-Dichloroethane	ND		0.0048	0.0015	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Trichloroethene	ND		0.0019	0.00064	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,2-Dichloropropane	ND		0.0019	0.00049	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Bromodichloromethane	ND		0.0019	0.00039	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
cis-1,3-Dichloropropene	ND		0.0019	0.00057	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
methyl isobutyl ketone	ND		0.0048	0.0014	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Toluene	ND		0.0019	0.00048	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
trans-1,3-Dichloropropene	ND		0.0019	0.00067	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,1,2-Trichloroethane	ND		0.0019	0.00082	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Tetrachloroethene	**0.00072**	**J**	0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
2-Hexanone	ND		0.0048	0.0015	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Dibromochloromethane	ND		0.0019	0.00062	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Chlorobenzene	ND		0.0019	0.00070	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Ethylbenzene	ND		0.0019	0.00091	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Xylenes, Total	ND		0.0038	0.00061	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Styrene	ND		0.0019	0.00057	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
Bromoform	ND		0.0019	0.00056	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,1,2,2-Tetrachloroethane	ND		0.0019	0.00061	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1
1,3-Dichloropropene, Total	ND		0.0019	0.00067	mg/Kg	☼	04/21/21 18:00	04/23/21 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 134*	*04/21/21 18:00*	*04/23/21 13:59*	*1*
Toluene-d8 (Surr)	*98*		*75 - 124*	*04/21/21 18:00*	*04/23/21 13:59*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*	*04/21/21 18:00*	*04/23/21 13:59*	*1*
Dibromofluoromethane	*97*		*75 - 126*	*04/21/21 18:00*	*04/23/21 13:59*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.034	0.0053	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Acenaphthylene	ND		0.034	0.0045	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Acenaphthene	ND		0.034	0.0062	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Fluorene	ND		0.034	0.0048	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Phenanthrene	ND		0.034	0.0048	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-9 Deep
Lab Sample ID: 500-197981-12
Date Collected: 04/20/21 13:10
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.6

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.034	0.0058	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Fluoranthene	ND		0.034	0.0064	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Pyrene	ND		0.034	0.0068	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Benzo[a]anthracene	ND		0.034	0.0046	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Chrysene	ND		0.034	0.0094	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Benzo[b]fluoranthene	ND		0.034	0.0074	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Benzo[k]fluoranthene	ND		0.034	0.010	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Benzo[a]pyrene	ND		0.034	0.0067	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Indeno[1,2,3-cd]pyrene	ND		0.034	0.0089	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Dibenz(a,h)anthracene	ND		0.034	0.0067	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1
Benzo[g,h,i]perylene	ND		0.034	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 23:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*72*		*37 - 147*	*04/26/21 08:21*	*04/26/21 23:25*	*1*
2-Fluorobiphenyl	*67*		*43 - 145*	*04/26/21 08:21*	*04/26/21 23:25*	*1*
Terphenyl-d14	*83*		*42 - 157*	*04/26/21 08:21*	*04/26/21 23:25*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.9**		1.0	0.34	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Barium	**16**	**^6+**	1.0	0.11	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Cadmium	**0.11**	**J B**	0.20	0.036	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Chromium	**4.9**		1.0	0.49	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Lead	**7.5**		0.50	0.23	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Selenium	ND		1.0	0.59	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1
Silver	ND		0.50	0.13	mg/Kg	☼	04/26/21 17:36	04/27/21 12:30	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0055**	**J**	0.016	0.0053	mg/Kg	☼	04/26/21 14:00	04/27/21 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.8**		0.2	0.2	SU			04/26/21 18:39	1

Client Sample ID: B-10
Lab Sample ID: 500-197981-13
Date Collected: 04/20/21 13:20
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 79.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0048	0.0019	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Vinyl chloride	ND		0.0019	0.00086	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Bromomethane	ND		0.0048	0.0018	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Chloroethane	ND		0.0048	0.0014	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,1-Dichloroethene	ND		0.0019	0.00067	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Acetone	ND		0.019	0.0084	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Carbon disulfide	ND		0.0048	0.0010	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Methylene Chloride	**0.0024**	**J**	0.0048	0.0019	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
trans-1,2-Dichloroethene	ND		0.0019	0.00086	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Methyl tert-butyl ether	ND		0.0019	0.00057	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,1-Dichloroethane	ND		0.0019	0.00066	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
cis-1,2-Dichloroethene	ND		0.0019	0.00054	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Methyl Ethyl Ketone	ND		0.0048	0.0022	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Chloroform	ND		0.0019	0.00067	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,1,1-Trichloroethane	**0.0011**	**J**	0.0019	0.00065	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Carbon tetrachloride	ND		0.0019	0.00056	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Benzene	ND		0.0019	0.00049	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,2-Dichloroethane	ND		0.0048	0.0015	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Trichloroethene	ND		0.0019	0.00066	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,2-Dichloropropane	ND		0.0019	0.00050	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Bromodichloromethane	ND		0.0019	0.00039	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
cis-1,3-Dichloropropene	ND		0.0019	0.00058	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
methyl isobutyl ketone	ND		0.0048	0.0014	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Toluene	ND		0.0019	0.00049	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
trans-1,3-Dichloropropene	ND		0.0019	0.00068	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,1,2-Trichloroethane	ND		0.0019	0.00083	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Tetrachloroethene	ND		0.0019	0.00066	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
2-Hexanone	ND		0.0048	0.0015	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Dibromochloromethane	ND		0.0019	0.00063	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Chlorobenzene	ND		0.0019	0.00072	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Ethylbenzene	ND		0.0019	0.00093	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Xylenes, Total	ND		0.0039	0.00062	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Styrene	ND		0.0019	0.00059	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
Bromoform	ND		0.0019	0.00057	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,1,2,2-Tetrachloroethane	ND		0.0019	0.00062	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1
1,3-Dichloropropene, Total	ND		0.0019	0.00068	mg/Kg	☼	04/21/21 18:00	04/23/21 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 134*	*04/21/21 18:00*	*04/23/21 14:25*	*1*
Toluene-d8 (Surr)	*98*		*75 - 124*	*04/21/21 18:00*	*04/23/21 14:25*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*	*04/21/21 18:00*	*04/23/21 14:25*	*1*
Dibromofluoromethane	*99*		*75 - 126*	*04/21/21 18:00*	*04/23/21 14:25*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.041	0.0064	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Acenaphthylene	ND		0.041	0.0055	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Acenaphthene	ND		0.041	0.0075	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Fluorene	ND		0.041	0.0059	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Phenanthrene	ND		0.041	0.0058	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1

Client Sample ID: B-10
Lab Sample ID: 500-197981-13
Date Collected: 04/20/21 13:20
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 79.1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.041	0.0070	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Fluoranthene	ND		0.041	0.0077	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Pyrene	ND		0.041	0.0083	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Benzo[a]anthracene	ND		0.041	0.0056	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Chrysene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Benzo[b]fluoranthene	ND		0.041	0.0090	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Benzo[k]fluoranthene	ND		0.041	0.012	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Benzo[a]pyrene	ND		0.041	0.0081	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Indeno[1,2,3-cd]pyrene	ND		0.041	0.011	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Dibenz(a,h)anthracene	ND		0.041	0.0080	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1
Benzo[g,h,i]perylene	ND		0.041	0.013	mg/Kg	☼	04/26/21 08:21	04/26/21 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*75*		*37 - 147*	*04/26/21 08:21*	*04/26/21 23:47*	*1*
2-Fluorobiphenyl	*71*		*43 - 145*	*04/26/21 08:21*	*04/26/21 23:47*	*1*
Terphenyl-d14	*83*		*42 - 157*	*04/26/21 08:21*	*04/26/21 23:47*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**9.8**		1.2	0.41	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Barium	**100**	**^6+**	1.2	0.14	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Cadmium	**0.26**	**B**	0.24	0.043	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Chromium	**15**		1.2	0.60	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Lead	**12**		0.60	0.28	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Selenium	ND		1.2	0.71	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1
Silver	**0.34**	**J**	0.60	0.16	mg/Kg	☼	04/26/21 17:36	04/27/21 12:33	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.030**		0.020	0.0066	mg/Kg	☼	04/26/21 14:00	04/27/21 08:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**		0.2	0.2	SU			04/26/21 18:41	1

Definitions/Glossary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

GC/MS VOA

Prep Batch: 594462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-2	B-2	Total/NA	Solid	5035	
500-197981-5	B-4	Total/NA	Solid	5035	
500-197981-6	B-4 Deep	Total/NA	Solid	5035	
500-197981-8	B-6	Total/NA	Solid	5035	
500-197981-9	B-7	Total/NA	Solid	5035	

Prep Batch: 594482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	5035	
500-197981-3	B-3 Deep	Total/NA	Solid	5035	
500-197981-4	B-3	Total/NA	Solid	5035	
500-197981-7	B-5	Total/NA	Solid	5035	
500-197981-10	B-8	Total/NA	Solid	5035	
500-197981-11	B-9	Total/NA	Solid	5035	
500-197981-12	B-9 Deep	Total/NA	Solid	5035	
500-197981-13	B-10	Total/NA	Solid	5035	

Analysis Batch: 594493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	8260B	594482
500-197981-3	B-3 Deep	Total/NA	Solid	8260B	594482
500-197981-4	B-3	Total/NA	Solid	8260B	594482
500-197981-7	B-5	Total/NA	Solid	8260B	594482
500-197981-10	B-8	Total/NA	Solid	8260B	594482
500-197981-11	B-9	Total/NA	Solid	8260B	594482
MB 500-594493/7	Method Blank	Total/NA	Solid	8260B	
LCS 500-594493/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 500-594493/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 594733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-12	B-9 Deep	Total/NA	Solid	8260B	594482
500-197981-13	B-10	Total/NA	Solid	8260B	594482
MB 500-594733/7	Method Blank	Total/NA	Solid	8260B	
LCS 500-594733/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 500-594733/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 595316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-2	B-2	Total/NA	Solid	8260B	594462
500-197981-5	B-4	Total/NA	Solid	8260B	594462
500-197981-6	B-4 Deep	Total/NA	Solid	8260B	594462
500-197981-8	B-6	Total/NA	Solid	8260B	594462
500-197981-9	B-7	Total/NA	Solid	8260B	594462
MB 500-595316/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-595316/4	Lab Control Sample	Total/NA	Solid	8260B	

QC Association Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

GC/MS Semi VOA

Prep Batch: 595134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	3541	
500-197981-2	B-2	Total/NA	Solid	3541	
500-197981-3	B-3 Deep	Total/NA	Solid	3541	
500-197981-4	B-3	Total/NA	Solid	3541	
500-197981-5	B-4	Total/NA	Solid	3541	
500-197981-6	B-4 Deep	Total/NA	Solid	3541	
500-197981-7	B-5	Total/NA	Solid	3541	
500-197981-8	B-6	Total/NA	Solid	3541	
500-197981-9	B-7	Total/NA	Solid	3541	
500-197981-10	B-8	Total/NA	Solid	3541	
500-197981-11	B-9	Total/NA	Solid	3541	
500-197981-12	B-9 Deep	Total/NA	Solid	3541	
500-197981-13	B-10	Total/NA	Solid	3541	
MB 500-595134/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-595134/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 595265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-2	B-2	Total/NA	Solid	8270D	595134
500-197981-3	B-3 Deep	Total/NA	Solid	8270D	595134
500-197981-4	B-3	Total/NA	Solid	8270D	595134
500-197981-5	B-4	Total/NA	Solid	8270D	595134
500-197981-6	B-4 Deep	Total/NA	Solid	8270D	595134
500-197981-7	B-5	Total/NA	Solid	8270D	595134
500-197981-8	B-6	Total/NA	Solid	8270D	595134
500-197981-9	B-7	Total/NA	Solid	8270D	595134
500-197981-10	B-8	Total/NA	Solid	8270D	595134
500-197981-11	B-9	Total/NA	Solid	8270D	595134
500-197981-12	B-9 Deep	Total/NA	Solid	8270D	595134
500-197981-13	B-10	Total/NA	Solid	8270D	595134
MB 500-595134/1-A	Method Blank	Total/NA	Solid	8270D	595134
LCS 500-595134/2-A	Lab Control Sample	Total/NA	Solid	8270D	595134

Analysis Batch: 595380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	8270D	595134

Metals

Prep Batch: 595202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	7471B	
500-197981-3	B-3 Deep	Total/NA	Solid	7471B	
500-197981-4	B-3	Total/NA	Solid	7471B	
500-197981-7	B-5	Total/NA	Solid	7471B	
500-197981-10	B-8	Total/NA	Solid	7471B	
500-197981-11	B-9	Total/NA	Solid	7471B	
500-197981-12	B-9 Deep	Total/NA	Solid	7471B	
500-197981-13	B-10	Total/NA	Solid	7471B	
MB 500-595202/12-A	Method Blank	Total/NA	Solid	7471B	
LCS 500-595202/13-A	Lab Control Sample	Total/NA	Solid	7471B	

Metals

Prep Batch: 595272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	3050B	
500-197981-3	B-3 Deep	Total/NA	Solid	3050B	
500-197981-4	B-3	Total/NA	Solid	3050B	
500-197981-7	B-5	Total/NA	Solid	3050B	
500-197981-10	B-8	Total/NA	Solid	3050B	
500-197981-11	B-9	Total/NA	Solid	3050B	
500-197981-12	B-9 Deep	Total/NA	Solid	3050B	
500-197981-13	B-10	Total/NA	Solid	3050B	
MB 500-595272/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-595272/2-A	Lab Control Sample	Total/NA	Solid	3050B	
500-197981-3 MS	B-3 Deep	Total/NA	Solid	3050B	
500-197981-3 MSD	B-3 Deep	Total/NA	Solid	3050B	
500-197981-3 DU	B-3 Deep	Total/NA	Solid	3050B	

Analysis Batch: 595400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	7471B	595202
500-197981-3	B-3 Deep	Total/NA	Solid	7471B	595202
500-197981-4	B-3	Total/NA	Solid	7471B	595202
500-197981-7	B-5	Total/NA	Solid	7471B	595202
500-197981-10	B-8	Total/NA	Solid	7471B	595202
500-197981-11	B-9	Total/NA	Solid	7471B	595202
500-197981-12	B-9 Deep	Total/NA	Solid	7471B	595202
500-197981-13	B-10	Total/NA	Solid	7471B	595202
MB 500-595202/12-A	Method Blank	Total/NA	Solid	7471B	595202
LCS 500-595202/13-A	Lab Control Sample	Total/NA	Solid	7471B	595202

Analysis Batch: 595464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	6010B	595272
500-197981-3	B-3 Deep	Total/NA	Solid	6010B	595272
500-197981-4	B-3	Total/NA	Solid	6010B	595272
500-197981-7	B-5	Total/NA	Solid	6010B	595272
500-197981-10	B-8	Total/NA	Solid	6010B	595272
500-197981-11	B-9	Total/NA	Solid	6010B	595272
500-197981-12	B-9 Deep	Total/NA	Solid	6010B	595272
500-197981-13	B-10	Total/NA	Solid	6010B	595272
MB 500-595272/1-A	Method Blank	Total/NA	Solid	6010B	595272
LCS 500-595272/2-A	Lab Control Sample	Total/NA	Solid	6010B	595272
500-197981-3 MS	B-3 Deep	Total/NA	Solid	6010B	595272
500-197981-3 MSD	B-3 Deep	Total/NA	Solid	6010B	595272
500-197981-3 DU	B-3 Deep	Total/NA	Solid	6010B	595272

General Chemistry

Analysis Batch: 595173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	Moisture	
500-197981-2	B-2	Total/NA	Solid	Moisture	
500-197981-3	B-3 Deep	Total/NA	Solid	Moisture	
500-197981-4	B-3	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 595173 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-5	B-4	Total/NA	Solid	Moisture	
500-197981-6	B-4 Deep	Total/NA	Solid	Moisture	
500-197981-7	B-5	Total/NA	Solid	Moisture	
500-197981-8	B-6	Total/NA	Solid	Moisture	
500-197981-9	B-7	Total/NA	Solid	Moisture	
500-197981-10	B-8	Total/NA	Solid	Moisture	
500-197981-11	B-9	Total/NA	Solid	Moisture	
500-197981-12	B-9 Deep	Total/NA	Solid	Moisture	
500-197981-13	B-10	Total/NA	Solid	Moisture	
500-197981-3 DU	B-3 Deep	Total/NA	Solid	Moisture	

Analysis Batch: 595298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-197981-1	B-1	Total/NA	Solid	9045D	
500-197981-3	B-3 Deep	Total/NA	Solid	9045D	
500-197981-4	B-3	Total/NA	Solid	9045D	
500-197981-7	B-5	Total/NA	Solid	9045D	
500-197981-10	B-8	Total/NA	Solid	9045D	
500-197981-11	B-9	Total/NA	Solid	9045D	
500-197981-12	B-9 Deep	Total/NA	Solid	9045D	
500-197981-13	B-10	Total/NA	Solid	9045D	
LCS 500-595298/2	Lab Control Sample	Total/NA	Solid	9045D	
LCSD 500-595298/3	Lab Control Sample Dup	Total/NA	Solid	9045D	

Surrogate Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(70-134)	(75-124)	(75-131)	(75-126)
500-197981-1	B-1	98	98	86	102
500-197981-3	B-3 Deep	96	96	86	100
500-197981-4	B-3	97	99	87	100
500-197981-7	B-5	96	98	86	99
500-197981-10	B-8	97	98	87	104
500-197981-11	B-9	103	94	82	106
500-197981-12	B-9 Deep	94	98	86	97
500-197981-13	B-10	97	98	86	99
LCS 500-594493/4	Lab Control Sample	91	100	82	94
LCS 500-594733/4	Lab Control Sample	87	99	82	92
LCSD 500-594493/5	Lab Control Sample Dup	88	101	83	92
LCSD 500-594733/5	Lab Control Sample Dup	88	100	81	91
MB 500-594493/7	Method Blank	95	97	87	98
MB 500-594733/7	Method Blank	93	97	86	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-197981-2	B-2	113	101	100	112
500-197981-5	B-4	115	98	101	114
500-197981-6	B-4 Deep	112	101	100	107
500-197981-8	B-6	113	100	97	109
500-197981-9	B-7	112	99	99	110
LCS 500-595316/4	Lab Control Sample	108	102	99	105
MB 500-595316/6	Method Blank	117	100	98	112

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(37-147)	(43-145)	(42-157)
500-197981-1	B-1	65	84	80
500-197981-2	B-2	60	58	88
500-197981-3	B-3 Deep	86	84	94
500-197981-4	B-3	74	66	85

Surrogate Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(37-147)	(43-145)	(42-157)
500-197981-5	B-4	76	73	87
500-197981-6	B-4 Deep	75	74	83
500-197981-7	B-5	73	68	88
500-197981-8	B-6	67	61	90
500-197981-9	B-7	87	75	90
500-197981-10	B-8	83	79	96
500-197981-11	B-9	71	67	89
500-197981-12	B-9 Deep	72	67	83
500-197981-13	B-10	75	71	83
LCS 500-595134/2-A	Lab Control Sample	101	87	103
MB 500-595134/1-A	Method Blank	87	90	94

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TPHL = Terphenyl-d14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-594493/7
Matrix: Solid
Analysis Batch: 594493

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0050	0.0020	mg/Kg			04/22/21 12:27	1
Vinyl chloride	ND		0.0020	0.00089	mg/Kg			04/22/21 12:27	1
Bromomethane	ND		0.0050	0.0019	mg/Kg			04/22/21 12:27	1
Chloroethane	ND		0.0050	0.0015	mg/Kg			04/22/21 12:27	1
1,1-Dichloroethene	ND		0.0020	0.00069	mg/Kg			04/22/21 12:27	1
Acetone	ND		0.020	0.0087	mg/Kg			04/22/21 12:27	1
Carbon disulfide	ND		0.0050	0.0010	mg/Kg			04/22/21 12:27	1
Methylene Chloride	0.00416	J	0.0050	0.0020	mg/Kg			04/22/21 12:27	1
trans-1,2-Dichloroethene	ND		0.0020	0.00089	mg/Kg			04/22/21 12:27	1
Methyl tert-butyl ether	ND		0.0020	0.00059	mg/Kg			04/22/21 12:27	1
1,1-Dichloroethane	ND		0.0020	0.00069	mg/Kg			04/22/21 12:27	1
cis-1,2-Dichloroethene	ND		0.0020	0.00056	mg/Kg			04/22/21 12:27	1
Methyl Ethyl Ketone	ND		0.0050	0.0022	mg/Kg			04/22/21 12:27	1
Chloroform	ND		0.0020	0.00069	mg/Kg			04/22/21 12:27	1
1,1,1-Trichloroethane	ND		0.0020	0.00067	mg/Kg			04/22/21 12:27	1
Carbon tetrachloride	ND		0.0020	0.00058	mg/Kg			04/22/21 12:27	1
Benzene	ND		0.0020	0.00051	mg/Kg			04/22/21 12:27	1
1,2-Dichloroethane	ND		0.0050	0.0016	mg/Kg			04/22/21 12:27	1
Trichloroethene	ND		0.0020	0.00068	mg/Kg			04/22/21 12:27	1
1,2-Dichloropropane	ND		0.0020	0.00052	mg/Kg			04/22/21 12:27	1
Bromodichloromethane	ND		0.0020	0.00041	mg/Kg			04/22/21 12:27	1
cis-1,3-Dichloropropene	ND		0.0020	0.00060	mg/Kg			04/22/21 12:27	1
methyl isobutyl ketone	ND		0.0050	0.0015	mg/Kg			04/22/21 12:27	1
Toluene	ND		0.0020	0.00051	mg/Kg			04/22/21 12:27	1
trans-1,3-Dichloropropene	ND		0.0020	0.00070	mg/Kg			04/22/21 12:27	1
1,1,2-Trichloroethane	ND		0.0020	0.00086	mg/Kg			04/22/21 12:27	1
Tetrachloroethene	ND		0.0020	0.00068	mg/Kg			04/22/21 12:27	1
2-Hexanone	ND		0.0050	0.0016	mg/Kg			04/22/21 12:27	1
Dibromochloromethane	ND		0.0020	0.00065	mg/Kg			04/22/21 12:27	1
Chlorobenzene	ND		0.0020	0.00074	mg/Kg			04/22/21 12:27	1
Ethylbenzene	ND		0.0020	0.00096	mg/Kg			04/22/21 12:27	1
Xylenes, Total	ND		0.0040	0.00064	mg/Kg			04/22/21 12:27	1
Styrene	ND		0.0020	0.00060	mg/Kg			04/22/21 12:27	1
Bromoform	ND		0.0020	0.00058	mg/Kg			04/22/21 12:27	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00064	mg/Kg			04/22/21 12:27	1
1,3-Dichloropropene, Total	ND		0.0020	0.00070	mg/Kg			04/22/21 12:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 134*		*04/22/21 12:27*	*1*
Toluene-d8 (Surr)	*97*		*75 - 124*		*04/22/21 12:27*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 131*		*04/22/21 12:27*	*1*
Dibromofluoromethane	*98*		*75 - 126*		*04/22/21 12:27*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-594493/4
Matrix: Solid
Analysis Batch: 594493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	0.0500	0.0441		mg/Kg		88	70 - 125
Vinyl chloride	0.0500	0.0480		mg/Kg		96	70 - 125
Bromomethane	0.0500	0.0580		mg/Kg		116	70 - 130
Chloroethane	0.0500	0.0555		mg/Kg		111	75 - 125
1,1-Dichloroethene	0.0500	0.0474		mg/Kg		95	70 - 120
Acetone	0.0500	0.0587		mg/Kg		117	40 - 150
Carbon disulfide	0.0500	0.0456		mg/Kg		91	70 - 129
Methylene Chloride	0.0500	0.0511		mg/Kg		102	70 - 126
trans-1,2-Dichloroethene	0.0500	0.0475		mg/Kg		95	70 - 125
Methyl tert-butyl ether	0.0500	0.0453		mg/Kg		91	50 - 140
1,1-Dichloroethane	0.0500	0.0451		mg/Kg		90	70 - 125
cis-1,2-Dichloroethene	0.0500	0.0471		mg/Kg		94	70 - 125
Methyl Ethyl Ketone	0.0500	0.0555		mg/Kg		111	47 - 138
Chloroform	0.0500	0.0480		mg/Kg		96	57 - 135
1,1,1-Trichloroethane	0.0500	0.0465		mg/Kg		93	70 - 128
Carbon tetrachloride	0.0500	0.0467		mg/Kg		93	75 - 125
Benzene	0.0500	0.0470		mg/Kg		94	70 - 125
1,2-Dichloroethane	0.0500	0.0477		mg/Kg		95	70 - 130
Trichloroethene	0.0500	0.0513		mg/Kg		103	70 - 125
1,2-Dichloropropane	0.0500	0.0472		mg/Kg		94	70 - 125
Bromodichloromethane	0.0500	0.0496		mg/Kg		99	67 - 129
cis-1,3-Dichloropropene	0.0500	0.0520		mg/Kg		104	70 - 125
methyl isobutyl ketone	0.0500	0.0515		mg/Kg		103	50 - 148
Toluene	0.0500	0.0500		mg/Kg		100	70 - 125
trans-1,3-Dichloropropene	0.0500	0.0517		mg/Kg		103	70 - 125
1,1,2-Trichloroethane	0.0500	0.0559		mg/Kg		112	70 - 125
Tetrachloroethene	0.0500	0.0550		mg/Kg		110	70 - 124
2-Hexanone	0.0500	0.0538		mg/Kg		108	48 - 146
Dibromochloromethane	0.0500	0.0572		mg/Kg		114	69 - 125
Chlorobenzene	0.0500	0.0503		mg/Kg		101	50 - 150
Ethylbenzene	0.0500	0.0521		mg/Kg		104	61 - 136
Xylenes, Total	0.100	0.0953		mg/Kg		95	53 - 147
Styrene	0.0500	0.0511		mg/Kg		102	70 - 125
Bromoform	0.0500	0.0594		mg/Kg		119	68 - 136
1,1,2,2-Tetrachloroethane	0.0500	0.0521		mg/Kg		104	70 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 134*
Toluene-d8 (Surr)	*100*		*75 - 124*
4-Bromofluorobenzene (Surr)	*82*		*75 - 131*
Dibromofluoromethane	*94*		*75 - 126*

Lab Sample ID: LCSD 500-594493/5
Matrix: Solid
Analysis Batch: 594493

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloromethane	0.0500	0.0425		mg/Kg		85	70 - 125	4	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 500-594493/5
Matrix: Solid
Analysis Batch: 594493

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride	0.0500	0.0458		mg/Kg		92	70 - 125	5	30
Bromomethane	0.0500	0.0554		mg/Kg		111	70 - 130	5	30
Chloroethane	0.0500	0.0507		mg/Kg		101	75 - 125	9	30
1,1-Dichloroethene	0.0500	0.0440		mg/Kg		88	70 - 120	7	30
Acetone	0.0500	0.0491		mg/Kg		98	40 - 150	18	30
Carbon disulfide	0.0500	0.0427		mg/Kg		85	70 - 129	7	30
Methylene Chloride	0.0500	0.0435		mg/Kg		87	70 - 126	16	30
trans-1,2-Dichloroethene	0.0500	0.0447		mg/Kg		89	70 - 125	6	30
Methyl tert-butyl ether	0.0500	0.0398		mg/Kg		80	50 - 140	13	30
1,1-Dichloroethane	0.0500	0.0418		mg/Kg		84	70 - 125	7	30
cis-1,2-Dichloroethene	0.0500	0.0437		mg/Kg		87	70 - 125	7	30
Methyl Ethyl Ketone	0.0500	0.0466		mg/Kg		93	47 - 138	17	30
Chloroform	0.0500	0.0447		mg/Kg		89	57 - 135	7	30
1,1,1-Trichloroethane	0.0500	0.0424		mg/Kg		85	70 - 128	9	30
Carbon tetrachloride	0.0500	0.0438		mg/Kg		88	75 - 125	6	30
Benzene	0.0500	0.0444		mg/Kg		89	70 - 125	6	30
1,2-Dichloroethane	0.0500	0.0436		mg/Kg		87	70 - 130	9	30
Trichloroethene	0.0500	0.0493		mg/Kg		99	70 - 125	4	30
1,2-Dichloropropane	0.0500	0.0439		mg/Kg		88	70 - 125	7	30
Bromodichloromethane	0.0500	0.0472		mg/Kg		94	67 - 129	5	30
cis-1,3-Dichloropropene	0.0500	0.0491		mg/Kg		98	70 - 125	6	30
methyl isobutyl ketone	0.0500	0.0468		mg/Kg		94	50 - 148	10	30
Toluene	0.0500	0.0476		mg/Kg		95	70 - 125	5	30
trans-1,3-Dichloropropene	0.0500	0.0481		mg/Kg		96	70 - 125	7	30
1,1,2-Trichloroethane	0.0500	0.0523		mg/Kg		105	70 - 125	7	30
Tetrachloroethene	0.0500	0.0530		mg/Kg		106	70 - 124	4	30
2-Hexanone	0.0500	0.0463		mg/Kg		93	48 - 146	15	30
Dibromochloromethane	0.0500	0.0529		mg/Kg		106	69 - 125	8	30
Chlorobenzene	0.0500	0.0482		mg/Kg		96	50 - 150	4	30
Ethylbenzene	0.0500	0.0502		mg/Kg		100	61 - 136	4	30
Xylenes, Total	0.100	0.0901		mg/Kg		90	53 - 147	6	30
Styrene	0.0500	0.0486		mg/Kg		97	70 - 125	5	30
Bromoform	0.0500	0.0527		mg/Kg		105	68 - 136	12	30
1,1,2,2-Tetrachloroethane	0.0500	0.0486		mg/Kg		97	70 - 122	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 134*
Toluene-d8 (Surr)	*101*		*75 - 124*
4-Bromofluorobenzene (Surr)	*83*		*75 - 131*
Dibromofluoromethane	*92*		*75 - 126*

Lab Sample ID: MB 500-594733/7
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.0050	0.0020	mg/Kg			04/23/21 11:23	1
Vinyl chloride	ND		0.0020	0.00089	mg/Kg			04/23/21 11:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-594733/7
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		0.0050	0.0019	mg/Kg			04/23/21 11:23	1
Chloroethane	ND		0.0050	0.0015	mg/Kg			04/23/21 11:23	1
1,1-Dichloroethene	ND		0.0020	0.00069	mg/Kg			04/23/21 11:23	1
Acetone	ND		0.020	0.0087	mg/Kg			04/23/21 11:23	1
Carbon disulfide	ND		0.0050	0.0010	mg/Kg			04/23/21 11:23	1
Methylene Chloride	ND		0.0050	0.0020	mg/Kg			04/23/21 11:23	1
trans-1,2-Dichloroethene	ND		0.0020	0.00089	mg/Kg			04/23/21 11:23	1
Methyl tert-butyl ether	ND		0.0020	0.00059	mg/Kg			04/23/21 11:23	1
1,1-Dichloroethane	ND		0.0020	0.00069	mg/Kg			04/23/21 11:23	1
cis-1,2-Dichloroethene	ND		0.0020	0.00056	mg/Kg			04/23/21 11:23	1
Methyl Ethyl Ketone	ND		0.0050	0.0022	mg/Kg			04/23/21 11:23	1
Chloroform	ND		0.0020	0.00069	mg/Kg			04/23/21 11:23	1
1,1,1-Trichloroethane	ND		0.0020	0.00067	mg/Kg			04/23/21 11:23	1
Carbon tetrachloride	ND		0.0020	0.00058	mg/Kg			04/23/21 11:23	1
Benzene	ND		0.0020	0.00051	mg/Kg			04/23/21 11:23	1
1,2-Dichloroethane	ND		0.0050	0.0016	mg/Kg			04/23/21 11:23	1
Trichloroethene	ND		0.0020	0.00068	mg/Kg			04/23/21 11:23	1
1,2-Dichloropropane	ND		0.0020	0.00052	mg/Kg			04/23/21 11:23	1
Bromodichloromethane	ND		0.0020	0.00041	mg/Kg			04/23/21 11:23	1
cis-1,3-Dichloropropene	ND		0.0020	0.00060	mg/Kg			04/23/21 11:23	1
methyl isobutyl ketone	ND		0.0050	0.0015	mg/Kg			04/23/21 11:23	1
Toluene	ND		0.0020	0.00051	mg/Kg			04/23/21 11:23	1
trans-1,3-Dichloropropene	ND		0.0020	0.00070	mg/Kg			04/23/21 11:23	1
1,1,2-Trichloroethane	ND		0.0020	0.00086	mg/Kg			04/23/21 11:23	1
Tetrachloroethene	ND		0.0020	0.00068	mg/Kg			04/23/21 11:23	1
2-Hexanone	ND		0.0050	0.0016	mg/Kg			04/23/21 11:23	1
Dibromochloromethane	ND		0.0020	0.00065	mg/Kg			04/23/21 11:23	1
Chlorobenzene	ND		0.0020	0.00074	mg/Kg			04/23/21 11:23	1
Ethylbenzene	ND		0.0020	0.00096	mg/Kg			04/23/21 11:23	1
Xylenes, Total	ND		0.0040	0.00064	mg/Kg			04/23/21 11:23	1
Styrene	ND		0.0020	0.00060	mg/Kg			04/23/21 11:23	1
Bromoform	ND		0.0020	0.00058	mg/Kg			04/23/21 11:23	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00064	mg/Kg			04/23/21 11:23	1
1,3-Dichloropropene, Total	ND		0.0020	0.00070	mg/Kg			04/23/21 11:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 134*		*04/23/21 11:23*	*1*
Toluene-d8 (Surr)	*97*		*75 - 124*		*04/23/21 11:23*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 131*		*04/23/21 11:23*	*1*
Dibromofluoromethane	*97*		*75 - 126*		*04/23/21 11:23*	*1*

Lab Sample ID: LCS 500-594733/4
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	0.0500	0.0439		mg/Kg		88	70 - 125
Vinyl chloride	0.0500	0.0488		mg/Kg		98	70 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-594733/4
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	0.0500	0.0577		mg/Kg		115	70 - 130
Chloroethane	0.0500	0.0543		mg/Kg		109	75 - 125
1,1-Dichloroethene	0.0500	0.0455		mg/Kg		91	70 - 120
Acetone	0.0500	0.0497		mg/Kg		99	40 - 150
Carbon disulfide	0.0500	0.0437		mg/Kg		87	70 - 129
Methylene Chloride	0.0500	0.0443		mg/Kg		89	70 - 126
trans-1,2-Dichloroethene	0.0500	0.0464		mg/Kg		93	70 - 125
Methyl tert-butyl ether	0.0500	0.0418		mg/Kg		84	50 - 140
1,1-Dichloroethane	0.0500	0.0434		mg/Kg		87	70 - 125
cis-1,2-Dichloroethene	0.0500	0.0452		mg/Kg		90	70 - 125
Methyl Ethyl Ketone	0.0500	0.0430		mg/Kg		86	47 - 138
Chloroform	0.0500	0.0460		mg/Kg		92	57 - 135
1,1,1-Trichloroethane	0.0500	0.0439		mg/Kg		88	70 - 128
Carbon tetrachloride	0.0500	0.0437		mg/Kg		87	75 - 125
Benzene	0.0500	0.0456		mg/Kg		91	70 - 125
1,2-Dichloroethane	0.0500	0.0452		mg/Kg		90	70 - 130
Trichloroethene	0.0500	0.0534		mg/Kg		107	70 - 125
1,2-Dichloropropane	0.0500	0.0451		mg/Kg		90	70 - 125
Bromodichloromethane	0.0500	0.0480		mg/Kg		96	67 - 129
cis-1,3-Dichloropropene	0.0500	0.0494		mg/Kg		99	70 - 125
methyl isobutyl ketone	0.0500	0.0436		mg/Kg		87	50 - 148
Toluene	0.0500	0.0478		mg/Kg		96	70 - 125
trans-1,3-Dichloropropene	0.0500	0.0472		mg/Kg		94	70 - 125
1,1,2-Trichloroethane	0.0500	0.0531		mg/Kg		106	70 - 125
Tetrachloroethene	0.0500	0.0525		mg/Kg		105	70 - 124
2-Hexanone	0.0500	0.0434		mg/Kg		87	48 - 146
Dibromochloromethane	0.0500	0.0526		mg/Kg		105	69 - 125
Chlorobenzene	0.0500	0.0483		mg/Kg		97	50 - 150
Ethylbenzene	0.0500	0.0502		mg/Kg		100	61 - 136
Xylenes, Total	0.100	0.0902		mg/Kg		90	53 - 147
Styrene	0.0500	0.0484		mg/Kg		97	70 - 125
Bromoform	0.0500	0.0526		mg/Kg		105	68 - 136
1,1,2,2-Tetrachloroethane	0.0500	0.0387		mg/Kg		77	70 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 134*
Toluene-d8 (Surr)	*99*		*75 - 124*
4-Bromofluorobenzene (Surr)	*82*		*75 - 131*
Dibromofluoromethane	*92*		*75 - 126*

Lab Sample ID: LCSD 500-594733/5
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloromethane	0.0500	0.0427		mg/Kg		85	70 - 125	3	30
Vinyl chloride	0.0500	0.0472		mg/Kg		94	70 - 125	3	30
Bromomethane	0.0500	0.0568		mg/Kg		114	70 - 130	1	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 500-594733/5
Matrix: Solid
Analysis Batch: 594733

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroethane			0.0500	0.0526		mg/Kg		105	75 - 125	3	30
1,1-Dichloroethene			0.0500	0.0443		mg/Kg		89	70 - 120	3	30
Acetone			0.0500	0.0508		mg/Kg		102	40 - 150	2	30
Carbon disulfide			0.0500	0.0427		mg/Kg		85	70 - 129	2	30
Methylene Chloride			0.0500	0.0440		mg/Kg		88	70 - 126	1	30
trans-1,2-Dichloroethene			0.0500	0.0457		mg/Kg		91	70 - 125	1	30
Methyl tert-butyl ether			0.0500	0.0420		mg/Kg		84	50 - 140	1	30
1,1-Dichloroethane			0.0500	0.0426		mg/Kg		85	70 - 125	2	30
cis-1,2-Dichloroethene			0.0500	0.0450		mg/Kg		90	70 - 125	0	30
Methyl Ethyl Ketone			0.0500	0.0418		mg/Kg		84	47 - 138	3	30
Chloroform			0.0500	0.0457		mg/Kg		91	57 - 135	1	30
1,1,1-Trichloroethane			0.0500	0.0428		mg/Kg		86	70 - 128	2	30
Carbon tetrachloride			0.0500	0.0431		mg/Kg		86	75 - 125	1	30
Benzene			0.0500	0.0453		mg/Kg		91	70 - 125	1	30
1,2-Dichloroethane			0.0500	0.0442		mg/Kg		88	70 - 130	2	30
Trichloroethene			0.0500	0.0528		mg/Kg		106	70 - 125	1	30
1,2-Dichloropropane			0.0500	0.0459		mg/Kg		92	70 - 125	2	30
Bromodichloromethane			0.0500	0.0477		mg/Kg		95	67 - 129	1	30
cis-1,3-Dichloropropene			0.0500	0.0512		mg/Kg		102	70 - 125	4	30
methyl isobutyl ketone			0.0500	0.0470		mg/Kg		94	50 - 148	8	30
Toluene			0.0500	0.0488		mg/Kg		98	70 - 125	2	30
trans-1,3-Dichloropropene			0.0500	0.0498		mg/Kg		100	70 - 125	5	30
1,1,2-Trichloroethane			0.0500	0.0548		mg/Kg		110	70 - 125	3	30
Tetrachloroethene			0.0500	0.0534		mg/Kg		107	70 - 124	2	30
2-Hexanone			0.0500	0.0469		mg/Kg		94	48 - 146	8	30
Dibromochloromethane			0.0500	0.0543		mg/Kg		109	69 - 125	3	30
Chlorobenzene			0.0500	0.0494		mg/Kg		99	50 - 150	2	30
Ethylbenzene			0.0500	0.0510		mg/Kg		102	61 - 136	1	30
Xylenes, Total			0.100	0.0927		mg/Kg		93	53 - 147	3	30
Styrene			0.0500	0.0499		mg/Kg		100	70 - 125	3	30
Bromoform			0.0500	0.0552		mg/Kg		110	68 - 136	5	30
1,1,2,2-Tetrachloroethane			0.0500	0.0400		mg/Kg		80	70 - 122	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 134*
Toluene-d8 (Surr)	*100*		*75 - 124*
4-Bromofluorobenzene (Surr)	*81*		*75 - 131*
Dibromofluoromethane	*91*		*75 - 126*

Lab Sample ID: MB 500-595316/6
Matrix: Solid
Analysis Batch: 595316

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00025	0.00015	mg/Kg			04/27/21 11:18	1
Toluene	ND		0.00025	0.00015	mg/Kg			04/27/21 11:18	1
Ethylbenzene	ND		0.00025	0.00018	mg/Kg			04/27/21 11:18	1
Xylenes, Total	ND		0.00050	0.00022	mg/Kg			04/27/21 11:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-595316/6
Matrix: Solid
Analysis Batch: 595316

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*117*		*75 - 126*		*04/27/21 11:18*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*04/27/21 11:18*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*04/27/21 11:18*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*04/27/21 11:18*	*1*

Lab Sample ID: LCS 500-595316/4
Matrix: Solid
Analysis Batch: 595316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0473		mg/Kg		95	70 - 120
Toluene	0.0500	0.0509		mg/Kg		102	70 - 125
Ethylbenzene	0.0500	0.0490		mg/Kg		98	70 - 123
Xylenes, Total	0.100	0.104		mg/Kg		104	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 126*
Toluene-d8 (Surr)	*102*		*75 - 120*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*
Dibromofluoromethane	*105*		*75 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-595134/1-A
Matrix: Solid
Analysis Batch: 595265

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595134

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.033	0.0051	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Acenaphthylene	ND		0.033	0.0044	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Acenaphthene	ND		0.033	0.0060	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Fluorene	ND		0.033	0.0047	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Phenanthrene	ND		0.033	0.0046	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Anthracene	ND		0.033	0.0056	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Fluoranthene	ND		0.033	0.0062	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Pyrene	ND		0.033	0.0066	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Benzo[a]anthracene	ND		0.033	0.0045	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Chrysene	ND		0.033	0.0091	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Benzo[b]fluoranthene	ND		0.033	0.0072	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Benzo[k]fluoranthene	ND		0.033	0.0098	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Benzo[a]pyrene	ND		0.033	0.0064	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Indeno[1,2,3-cd]pyrene	ND		0.033	0.0086	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Dibenz(a,h)anthracene	ND		0.033	0.0064	mg/Kg		04/26/21 08:21	04/26/21 19:44	1
Benzo[g,h,i]perylene	ND		0.033	0.011	mg/Kg		04/26/21 08:21	04/26/21 19:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*87*		*37 - 147*	*04/26/21 08:21*	*04/26/21 19:44*	*1*
2-Fluorobiphenyl	*90*		*43 - 145*	*04/26/21 08:21*	*04/26/21 19:44*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-595134/1-A
Matrix: Solid
Analysis Batch: 595265

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595134

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	94		42 - 157	04/26/21 08:21	04/26/21 19:44	1

Lab Sample ID: LCS 500-595134/2-A
Matrix: Solid
Analysis Batch: 595265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 595134

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.33	1.37		mg/Kg		103	63 - 110
Acenaphthylene	1.33	1.36		mg/Kg		102	68 - 120
Acenaphthene	1.33	1.39		mg/Kg		105	65 - 124
Fluorene	1.33	1.23		mg/Kg		92	62 - 120
Phenanthrene	1.33	1.29		mg/Kg		96	62 - 120
Anthracene	1.33	1.29		mg/Kg		97	70 - 114
Fluoranthene	1.33	1.21		mg/Kg		90	62 - 120
Pyrene	1.33	1.35		mg/Kg		101	61 - 128
Benzo[a]anthracene	1.33	1.36		mg/Kg		102	67 - 122
Chrysene	1.33	1.38		mg/Kg		104	63 - 120
Benzo[b]fluoranthene	1.33	1.23		mg/Kg		92	69 - 129
Benzo[k]fluoranthene	1.33	1.24		mg/Kg		93	68 - 127
Benzo[a]pyrene	1.33	1.43		mg/Kg		107	65 - 133
Indeno[1,2,3-cd]pyrene	1.33	1.24		mg/Kg		93	68 - 130
Dibenz(a,h)anthracene	1.33	1.29		mg/Kg		96	64 - 131
Benzo[g,h,i]perylene	1.33	1.25		mg/Kg		94	72 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	101		37 - 147
2-Fluorobiphenyl	87		43 - 145
Terphenyl-d14	103		42 - 157

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 500-595272/1-A
Matrix: Solid
Analysis Batch: 595464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.34	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Barium	ND	^6+	1.0	0.11	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Cadmium	0.0438	J	0.20	0.036	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Chromium	ND		1.0	0.50	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Lead	ND		0.50	0.23	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Selenium	ND		1.0	0.59	mg/Kg		04/26/21 17:36	04/27/21 11:44	1
Silver	ND		0.50	0.13	mg/Kg		04/26/21 17:36	04/27/21 11:44	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 500-595272/2-A
Matrix: Solid
Analysis Batch: 595464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 595272

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			10.0	9.79		mg/Kg		98	80 - 120		
Barium			200	203	^6+	mg/Kg		101	80 - 120		
Cadmium			5.00	4.84		mg/Kg		97	80 - 120		
Chromium			20.0	19.1		mg/Kg		96	80 - 120		
Lead			10.0	9.51		mg/Kg		95	80 - 120		
Selenium			10.0	9.14		mg/Kg		91	80 - 120		
Silver			5.00	4.71		mg/Kg		94	80 - 120		

Lab Sample ID: 500-197981-3 MS
Matrix: Solid
Analysis Batch: 595464

Client Sample ID: B-3 Deep
Prep Type: Total/NA
Prep Batch: 595272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	2.4		9.82	12.8		mg/Kg	☼	106	75 - 125		
Barium	8.8	^6+	196	193	^6+	mg/Kg	☼	94	75 - 125		
Cadmium	0.11	J B	4.91	4.96		mg/Kg	☼	99	75 - 125		
Chromium	3.6		19.6	20.8		mg/Kg	☼	87	75 - 125		
Lead	3.4		9.82	13.1		mg/Kg	☼	99	75 - 125		
Selenium	ND		9.82	8.87		mg/Kg	☼	90	75 - 125		
Silver	ND		4.91	4.83		mg/Kg	☼	98	75 - 125		

Lab Sample ID: 500-197981-3 MSD
Matrix: Solid
Analysis Batch: 595464

Client Sample ID: B-3 Deep
Prep Type: Total/NA
Prep Batch: 595272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	2.4		9.70	11.8		mg/Kg	☼	97	75 - 125	8	20
Barium	8.8	^6+	194	188	^6+	mg/Kg	☼	93	75 - 125	3	20
Cadmium	0.11	J B	4.85	4.75		mg/Kg	☼	96	75 - 125	4	20
Chromium	3.6		19.4	20.6		mg/Kg	☼	88	75 - 125	1	20
Lead	3.4		9.70	12.8		mg/Kg	☼	97	75 - 125	2	20
Selenium	ND		9.70	8.13		mg/Kg	☼	84	75 - 125	9	20
Silver	ND		4.85	4.67		mg/Kg	☼	96	75 - 125	3	20

Lab Sample ID: 500-197981-3 DU
Matrix: Solid
Analysis Batch: 595464

Client Sample ID: B-3 Deep
Prep Type: Total/NA
Prep Batch: 595272

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	2.4		2.90		mg/Kg	☼	20	20
Barium	8.8	^6+	8.33	^6+	mg/Kg	☼	6	20
Cadmium	0.11	J B	0.108	J	mg/Kg	☼	3	20
Chromium	3.6		3.49		mg/Kg	☼	4	20
Lead	3.4		3.36		mg/Kg	☼	1	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 500-595202/12-A
Matrix: Solid
Analysis Batch: 595400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595202

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0056	mg/Kg		04/26/21 14:00	04/27/21 08:17	1

Lab Sample ID: LCS 500-595202/13-A
Matrix: Solid
Analysis Batch: 595400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 595202

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.179		mg/Kg		108	80 - 120

Lab Chronicle

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-1
Lab Sample ID: 500-197981-1
Date Collected: 04/20/21 09:30
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:23	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-1
Lab Sample ID: 500-197981-1
Date Collected: 04/20/21 09:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 13:28	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595380	04/27/21 15:17	AJD	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 11:51	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:21	MJG	TAL CHI

Client Sample ID: B-2
Lab Sample ID: 500-197981-2
Date Collected: 04/20/21 09:40
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-2
Lab Sample ID: 500-197981-2
Date Collected: 04/20/21 09:40
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594462	04/20/21 09:40	WRE	TAL CHI
Total/NA	Analysis	8260B		50	595316	04/27/21 12:11	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/27/21 01:15	SS	TAL CHI

Client Sample ID: B-3 Deep
Lab Sample ID: 500-197981-3
Date Collected: 04/20/21 09:50
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:26	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-3 Deep
Lab Sample ID: 500-197981-3
Date Collected: 04/20/21 09:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 13:54	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 21:13	SS	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 11:54	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:23	MJG	TAL CHI

Client Sample ID: B-3
Lab Sample ID: 500-197981-4
Date Collected: 04/20/21 10:00
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:28	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-3
Lab Sample ID: 500-197981-4
Date Collected: 04/20/21 10:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 14:20	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/27/21 01:37	SS	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:10	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:30	MJG	TAL CHI

Client Sample ID: B-4
Lab Sample ID: 500-197981-5
Date Collected: 04/20/21 11:30
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-4
Lab Sample ID: 500-197981-5
Date Collected: 04/20/21 11:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594462	04/20/21 11:30	WRE	TAL CHI
Total/NA	Analysis	8260B		50	595316	04/27/21 12:37	PMF	TAL CHI

Lab Chronicle

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-4
Lab Sample ID: 500-197981-5
Date Collected: 04/20/21 11:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 21:35	SS	TAL CHI

Client Sample ID: B-4 Deep
Lab Sample ID: 500-197981-6
Date Collected: 04/20/21 11:40
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-4 Deep
Lab Sample ID: 500-197981-6
Date Collected: 04/20/21 11:40
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 97.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594462	04/20/21 11:40	WRE	TAL CHI
Total/NA	Analysis	8260B		50	595316	04/27/21 13:02	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 21:57	SS	TAL CHI

Client Sample ID: B-5
Lab Sample ID: 500-197981-7
Date Collected: 04/20/21 11:50
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:31	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-5
Lab Sample ID: 500-197981-7
Date Collected: 04/20/21 11:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 14:46	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 22:19	SS	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:13	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:32	MJG	TAL CHI

Lab Chronicle

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-6
Lab Sample ID: 500-197981-8
Date Collected: 04/20/21 12:30
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-6
Lab Sample ID: 500-197981-8
Date Collected: 04/20/21 12:30
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 81.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594462	04/20/21 12:30	WRE	TAL CHI
Total/NA	Analysis	8260B		50	595316	04/27/21 13:29	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/27/21 00:09	SS	TAL CHI

Client Sample ID: B-7
Lab Sample ID: 500-197981-9
Date Collected: 04/20/21 12:40
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-7
Lab Sample ID: 500-197981-9
Date Collected: 04/20/21 12:40
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594462	04/20/21 12:40	WRE	TAL CHI
Total/NA	Analysis	8260B		50	595316	04/27/21 13:55	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 22:41	SS	TAL CHI

Client Sample ID: B-8
Lab Sample ID: 500-197981-10
Date Collected: 04/20/21 12:50
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:33	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-8
Lab Sample ID: 500-197981-10
Date Collected: 04/20/21 12:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 15:14	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/27/21 00:31	SS	TAL CHI

Client Sample ID: B-8
Lab Sample ID: 500-197981-10
Date Collected: 04/20/21 12:50
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:23	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:34	MJG	TAL CHI

Client Sample ID: B-9
Lab Sample ID: 500-197981-11
Date Collected: 04/20/21 13:00
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:36	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-9
Lab Sample ID: 500-197981-11
Date Collected: 04/20/21 13:00
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594493	04/22/21 15:40	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 23:03	SS	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:26	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:36	MJG	TAL CHI

Client Sample ID: B-9 Deep
Lab Sample ID: 500-197981-12
Date Collected: 04/20/21 13:10
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:39	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-9 Deep
Lab Sample ID: 500-197981-12
Date Collected: 04/20/21 13:10
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594733	04/23/21 13:59	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 23:25	SS	TAL CHI

Lab Chronicle

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Client Sample ID: B-9 Deep
Lab Sample ID: 500-197981-12
Date Collected: 04/20/21 13:10
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:30	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:38	MJG	TAL CHI

Client Sample ID: B-10
Lab Sample ID: 500-197981-13
Date Collected: 04/20/21 13:20
Matrix: Solid
Date Received: 04/21/21 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	595298	04/26/21 18:41	LWN	TAL CHI
Total/NA	Analysis	Moisture		1	595173	04/26/21 10:56	LWN	TAL CHI

Client Sample ID: B-10
Lab Sample ID: 500-197981-13
Date Collected: 04/20/21 13:20
Matrix: Solid
Date Received: 04/21/21 13:50
Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			594482	04/21/21 18:00	WRE	TAL CHI
Total/NA	Analysis	8260B		1	594733	04/23/21 14:25	PMF	TAL CHI
Total/NA	Prep	3541			595134	04/26/21 08:21	BSO	TAL CHI
Total/NA	Analysis	8270D		1	595265	04/26/21 23:47	SS	TAL CHI
Total/NA	Prep	3050B			595272	04/26/21 17:36	LMN	TAL CHI
Total/NA	Analysis	6010B		1	595464	04/27/21 12:33	JJB	TAL CHI
Total/NA	Prep	7471B			595202	04/26/21 14:00	MJG	TAL CHI
Total/NA	Analysis	7471B		1	595400	04/27/21 08:40	MJG	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: ECS Midwest LLC
Job ID: 500-197981-1
Project/Site: Elgin Mental Health Center SSI(53-3032)

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Illinois	NELAP	IL00035	04-29-21

Chicago
2417 Bond Street

University Park IL 60466
phone 708 534 5200 fax 708 534 5363

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Kara Bach	Site Contact.		COC No
ECS Midwest LLC	Tel/Fax:Same	Lab Contact: Jim Knapp		1 of 1 COCs
1575 Barclay Blvd	**Analysis Turnaround Time**			Job No 500-197981
Buffalo Grove IL 60089	Calendar (C) or Work Days (W)			SDG No
Phone				
847-279-0366 FAX 847 279-0369	☐ 2 weeks			
Project Name Elgin Mental Health Center SSI	☐ Standard			
Site 53-3032	☐ 3 day			
P O # 53-3032	☐ 1 day			

500-197981 COC

	Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	VOCs	BTEX	PNAs	RCRA Metals	pH	Sample Specific Notes
1	B-1	4/20/2021	0930	Grab	Soil	Kit		X		X	X	X	
2	B-2	4/20/2021	0940	Grab	Soil	Kit			X	X			
3	B-3 Deep	4/20/2021	0950	Grab	Soil	Kit		X		X	X	X	
4	B-3 ~~Deep~~	4/20/2021	1000	Grab	Soil	Kit		X	X	X	X	X	
5	B-4	4/20/2021	1130	Grab	Soil	Kit			X	X			
6	B-4 Deep	4/20/2021	1140	Grab	Soil	Kit			X	X			
7	B-5	4/20/2021	1150	Grab	Soil	Kit		X		X	X	X	
8	B-6	4/20/2021	1230	Grab	Soil	Kit			X	X			
9	B-7	4/20/2021	1240	Grab	Soil	Kit			X	X			
10	B-8	4/20/2021	1250	Grab	Soil	Kit		X		X	X	X	
11	B-9	4/20/2021	1300	Grab	Soil	Kit		X		X	X	X	
12	B-9 Deep	4/20/2021	1310	Grab	Soil	Kit		X		X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ In Irritant ☐ son B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ chive For _____ Months

Special Instructions/QC Requirements & Comments:

2.7 → 2.3 48hr.

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Kara Bach	ECS Midwest	4/20/21 0400		TA	4/21/21 1100
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
	TA 4/21/21	1350	Stephanie Hernandez	ETA-CHI	4/21/21 1350
Relinquished by	Company	Date/Time	Received by	Company	Date/Time

Chicago
2417 Bond Street

University Park IL 60466
phone 708 534 5200 fax 708 534 5363

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Kara Bach	Site Contact:		COC No
ECS Midwest LLC	Tel/Fax:Same	Lab Contact: Jim Knapp		1 of 1 COCs
1575 Barclay Blvd	**Analysis Turnaround Time**			Job No 500-197981
Buffalo Grove, IL 60089	Calendar (C) or Work Days (W)			
Phone				SDG No
847-279-0366 FAX 847 279-0369	☐ 2 weeks			
Project Name Elgin Mental Health Center SSI	☐ Standard			
Site 53-3032	3 day			
P O # 53-3032	☐ 1 day			

	Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	VOCs	BTEX	PNAs	RCRA Metals	pH	Sample Specific Notes
13	B-10	4/20/2021	1320	Grab	Soil	Kit		X		X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B Unknown ☒

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

2.7 → 2.3 48hr

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	ECS Midwest	4/20/21 0400	[signature]	TA	4/21/21 1100
[signature]	TA	1350	Stephanie Hernandez	ETA-CHI	4/21/21 1350
Relinquished by	Company	Date/Time	Received by	Company	Date/Time

Login Sample Receipt Checklist

Client: ECS Midwest LLC

Job Number: 500-197981-1

Login Number: 197981
List Number: 1
Creator: Hernandez, Stephanie

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

STANLEYCONSULTANTS, Inc

2658 Crosspark Road ❯ Suite 100 ❯ Coralville, IA 52241
319.626.3990 ❯ stanleyconsultants.com

July 23, 2020

David Arvans
Chief Engineer
Elgin Mental Health Center
Department of Human Services
750 S State Street
Elgin, Il 60123-7612

RE: Lead Paint Sampling- Elgin Mental Health Center- Elgin, Illinois

Dear David Arvans:

Mr. Tim Morland of Stanley Consultants took paint chip samples in 7 locations at the Elgin Mental Health Center in Elgin, Illinois in regard to the Capitol Development Board – Replace Power Plant Project 321-055-128. Mr. Morland took the samples on July 14, 2020.

Mr. Morland was escorted around the Power Plant by Power Plant maintenance employees to sample gas, steam and water pipes in areas where the piping is to be cut and capped prior to demolition.

Samples were analyzed by EMSL Analytical in Hillside, Illinois for lead. Samples at or above 0.5% by weight is considered lead-based paint by EPA and Housing and Urban Development (HUD) regulations.

Of the 7 samples taken, 1 sample was above 0.5% by weight – Sample #L-5 – the Plant Condensate Return (Vacuum) Line in the Power House tunnel. Sample L-7 – Electric Field Boxes did not have enough sample taken and was not analyzed.

OSHA does not recognize a standard for lead based paint. OSHA considers any % by weight of lead as lead-containing paint. If someone were to cut, torch, weld, sand or abrade components with lead-containing paint, personal air monitoring and proper personal protective equipment (PPE) controls must be in place or the lead paint must be abated.

If you have any questions regarding this matter, please contact Tim Morland at 309-236-6819.

We appreciate the opportunity to be of service to you on this project and hope to assist you on future engineering and environmental projects.

Sincerely,

Tim A. Morland

Timothy Morland
Senior Scientist
Stanley Consultants, Inc.

Attachments: IDPH Certification, Lab Report and Chain of Custody, Photo log

Illinois Department of Public Health Lead Licensure

IDPH
ILLINOIS DEPARTMENT OF PUBLIC HEALTH

525-535 West Jefferson Street • Springfield, Illinois 62761-0001 • www.dph.illinois.gov

12/11/2019

LICENSE NUMBER: 010852
Timothy A Morland
527 Colleen St
Woodhull, IL 61490

LICENSE APPROVED

IDPH recently received and reviewed your application for lead licensure. Your qualifications have been reviewed and found that you meet the requirements set forth by the Lead Poisoning Prevention Code, Section 845.125. Therefore, your application for lead licensure is now complete. Enclosed please find your lead license card. Please have this identification card with you at all times while conducting lead abatement activities.

IDPH has updated its 7 – Day Notice of Commencement effective immediately. The revised document can be identified by its 9/16 revision date on the bottom left corner. Please discontinue using the old form and begin using the new form as soon as possible. The revised form is located in the same web address that the old form was located (http://www.dph.illinois.gov/sites/default/files/forms/7-day-notice-leadabatement-mitigation-project-091916.pdf).

IDPH **LEAD RISK ASSESSOR LICENSE**

LEAD ID 010852 ISSUED **12/11/2019** EXPIRES 1/31/2021

Timothy A Morland
527 Colleen St
Woodhull, IL 61490

ILLINOIS LEAD PROGRAM
Environmental Health

Alteration of this license shall result in legal action
RISK ASSESSOR CERTIFICATE EXPIRES
3/14/2021
This license issued under authority of the State of Illinois -Department of Public Health
This license is valid only when accompanied by a valid training course certificate
If found return to 525 W. Jefferson St Springfield, IL 62761

2018

OCCUPATIONAL TRAINING & SUPPLY, INC.

7233 S. Adams Street ♦ Willowbrook, IL 60527 ♦ (630) 655-3900 ♦ www.otssafety.com

Lead Risk Assessor Refresher

Occupational Training & Supply, Inc. certifies that

Tim Morland

has successfully completed the Lead Risk Assessor Refresher course and has passed the competency exam with a minimum score of 70%. This course is accredited by the Illinois Department of Public Health in accordance with the Illinois Lead Poisoning Prevention Code.

Course Date: 3/14/2018

Exam Date: 3/14/2018

Expiration Date: 3/14/2021

Certificate Number: LRAR1803141075

Kathy DeSalvo

Kathy DeSalvo, Director

Photo Log

Sample L-1 Main Gas Line into Powerhouse – West Exterior of Powerhouse – Non Lead Based Paint

Sample L-2 Main Steam Line into Powerhouse – Powerhouse – 2nd Floor – Non Lead Based Paint

Sample L-3 East Water Supply Line – Powerhouse Tunnel – Non Lead Based Paint

Sample L-4 West Water Supply Line – Powerhouse Tunnel – Non Lead Based Paint

Sample L-5 Plant Condensate Return Line (Vacuum) – Powerhouse Tunnel – Lead Based Paint

Sample L-6 Plant South Condensate Return Line (Buildings) – Powerhouse Tunnel – Non Lead Based Paint

Sample L-7 Electric Field Boxes – East of Powerhouse – Not Analyzed due to lack of material sampled

Chain of Custody and Laboratory Analysis

OrderID: 262005373

EMSL Analytical, Inc.
4140 Litt Drive

Hillside, IL 60162
PHONE: (773) 313-0099
FAX: (773) 313-0139

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 262005373

Company: Stanley Consultants		**EMSL-Bill to:** ☐ Different ☑ Same If Bill to is Different note instructions in Comments**	
Street: 2658 Crosspark Road, Suite 100		*Third Party Billing requires written authorization from third party*	
City: Corralville	**State/Province:** Iowa	**Zip/Postal Code:** 52241	**Country:** US
Report To (Name): Bill Carrig		**Telephone #:** 319-626-5321	
Email Address: carrigbill@stanleygroup.com		**Fax #:** 319-626-3993	**Purchase Order:** 29851.04
Project Name/Number: Elgin Mental Health Center / 29851		**Please Provide Results:** ☐ FAX ☑ E-mail ☐ Mail	
U.S. State Samples Taken: Elgin, Illinois		**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ☐ 96 Hour | ■ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ■ % by wt. ☐ mg/cm² ☐ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Tim Morland **Signature of Sampler:** [signature]

Sample #	Location	Volume/Area	Date/Time Sampled
L-1	Powerhouse - West Exterior	Main Gas Line into Powerhouse	7/14/2020 / 0900
L-2	Powerhouse - 2nd Floor	Main Steam Line	
L-3	Powerhouse Tunnel	East Water Supply Line	
L-4	Powerhouse Tunnel	West Water Supply Line	
L-5	Powerhouse Tunnel	Plant Condensate Return (Vacuum)	

Client Sample #'s L-1 -L-7 **Total # of Samples:** 7

Relinquished (Client):	Tim Morland	**Date:**	7/15/2020	**Time:**	1300 (UPS)
Received (Lab):		**Date:**	7-16-20	**Time:**	10:15 UPS

Comments:
Elgin Mental Health Center - 700 South State Street, Elgin, Illinois 60123

Page 1 of 2

1Z234 323 425 1

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Analytical, Inc.
4140 Litt Drive
Hillside, IL 60162
PHONE: (773) 313-0099
FAX: (773) 313-0139

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only):* -05373

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
L-6	Powerhouse Tunnel	South Condensate Return (Buildings)	7/14/2020 / 0900
L-7	Powerhouse - East Exterior	Electric Field Boxes	

Comments/Special Instructions:

Elgin Mental Health Center - 700 South State Street, Elgin, Illinois 60123

Page 2 of 2 pages

EMSL Analytical, Inc.
4140 Litt Drive, Hillside, IL 60162
Phone/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com chicagolab@emsl.com

EMSL Order:	262005373
CustomerID:	STNC42
CustomerPO:	29851.01
ProjectID:	

Attn: **Bill Carrig**
Stanley Consultants
2658 Crosspark Road
Suite 100
Coralville, IA 52241

Phone:	(319) 626-3990
Fax:	(319) 626-3993
Received:	7/16/2020 10:15 AM
Collected:	

Project: **ELGIN MENTAL HEALTH CENTERr/29851**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Weight*	*Lead Concentration*
L-1	*262005373-0001*		7/21/2020	0.2547 g	<0.0080 % wt
	Site: POWERHOUSE-WEST EXTERIOR Desc: MAIN GAS LINE INTO POWERHOUSE				
L-2	*262005373-0002*		7/21/2020	0.2510 g	0.015 % wt
	Site: POWERHOUSE-2ND FLOOR Desc: MAIN STEAM LINE				
L-3	*262005373-0003*		7/21/2020	0.2566 g	0.13 % wt
	Site: POWERHOUSE TUNNEL Desc: EAST WATER SUPPLY LINE				
L-4	*262005373-0004*		7/21/2020	0.2530 g	<0.0080 % wt
	Site: POWERHOUSE TUNNEL Desc: WEST WATER SUPPLY LINE				
L-5	*262005373-0005*		7/21/2020	0.2536 g	3.2 % wt
	Site: POWERHOUSE TUNNEL Desc: PLANT CONDENSATE RETURN (VACUUM)				
L-6	*262005373-0006*		7/21/2020	0.2564 g	0.040 % wt
	Site: POWERHOUSE TUNNEL Desc: SOUTH CONDENSATE RETURN (BUILDINGS)				
L-7	*262005373-0007*			n/a	Not Enough Sample Submitted ppm
	Site: POWERHOUSE-EAST EXTERIOR Desc: ELECTRIC FIELD BOXES				

Lisa M. Odeshoo

Lisa Odeshoo, Lead Lab Manager
or other approved signatory

Initial report from 07/21/2020 12:38:10

Appendix D

Construction Sequence and Schedule

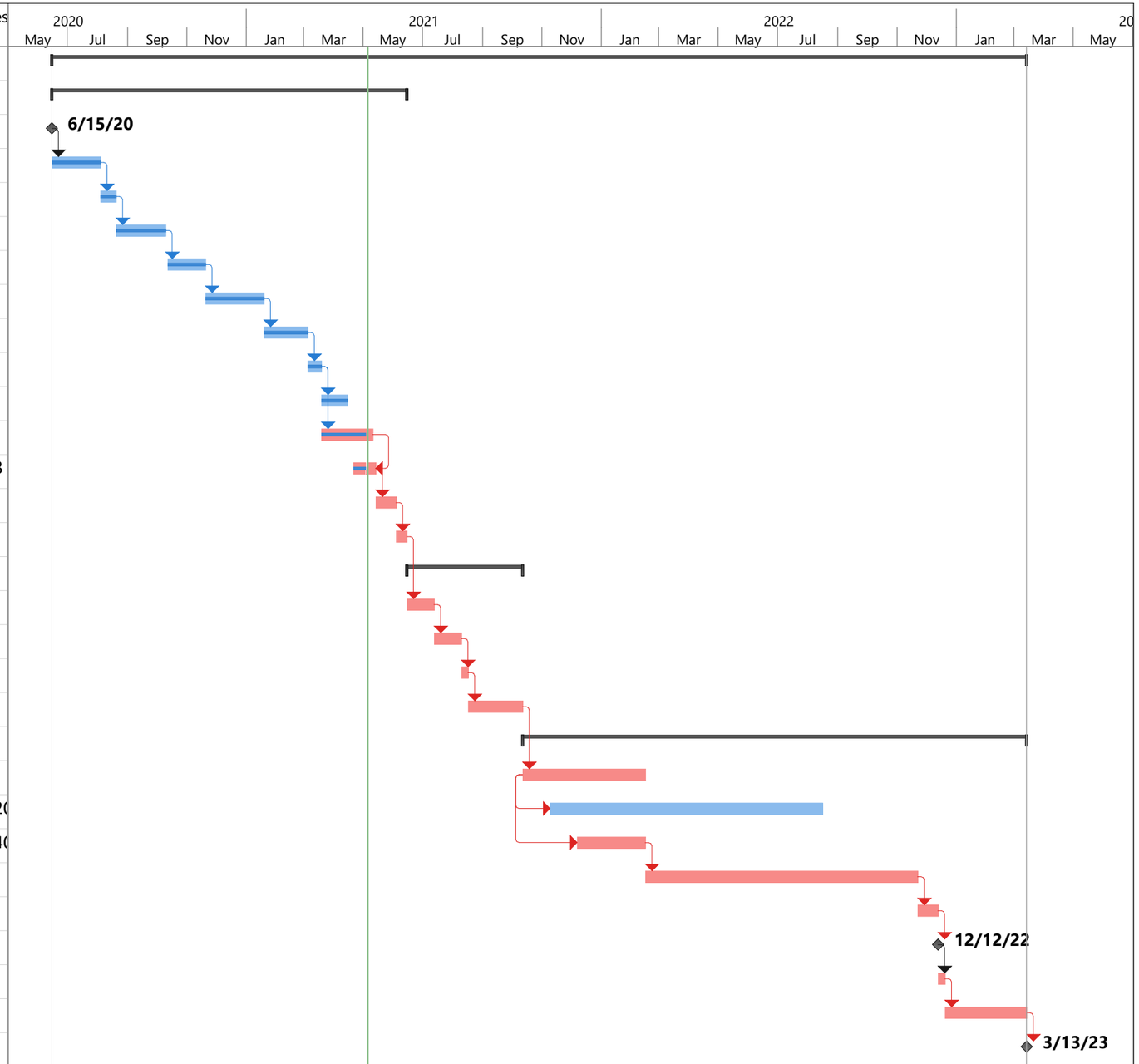
The EMHC new power plant project is being executed by CDB as a design build contract. The key project phases include Development of Bridging Documents by the Bridging A/E, Bidding by Design-Build Contractors, detailed design by the Design-Build A/E, Construction of the new Power Plant, and Decommissioning of the existing Power Plant.

The Design-Build A/E will take the preliminary design from the Bridging Documents and develop the project detailed design documents. These detailed design documents will be used for project permitting and construction.

The Construction Phase will include the following stages: engineering, long lead equipment procurement, construction, commissioning/testing, and decommission of the existing powerhouse. Identification and specification of the long lead equipment will occur early during the detailed design to optimize the overall project duration and avoid a significant delay between the design and construction stages.

The new power plant will be constructed and commissioned while the old powerhouse remains online, so that there are no campus steam or power outages. Natural gas and electrical service connections for the new power plant will be coordinated with the Using Agency to avoid or minimize disruption to the existing services. Interconnection of the new power plant systems will be completed to the campus and then the existing powerhouse will be decommissioned. Project Final Completion will be after the decommissioning.

ID	Task Name	Duration	Start	Finish	Predeces
1	**EMHC New Power Plant**	**716 days**	**Mon 6/15/20**	**Mon 3/13/23**	
2	**Bridging Documents**	**261 days**	**Mon 6/15/20**	**Mon 6/14/21**	
3	A/E Executed PSA	0 days	Mon 6/15/20	Mon 6/15/20	
4	Program Analysis - Informal	36 days	Mon 6/15/20	Mon 8/3/20	3
5	Review Period	12 days	Tue 8/4/20	Wed 8/19/20	4
6	Program Analysis / Schematic Design	37 days	Thu 8/20/20	Fri 10/9/20	5
7	Review Period	29 days	Mon 10/12/20	Thu 11/19/20	6
8	Bridging Documents for Review	42 days	Fri 11/20/20	Mon 1/18/21	7
9	Review Period	33 days	Tue 1/19/21	Thu 3/4/21	8
10	Address Comments	10 days	Fri 3/5/21	Thu 3/18/21	9
11	Additional Site Testing - GPR	19 days	Fri 3/19/21	Wed 4/14/21	10
12	Additional Soil Boring / Lab Results	37 days	Fri 3/19/21	Mon 5/10/21	10
13	Bridging Documents 101%	15 days	Wed 4/21/21	Thu 5/13/21	12FF+3
14	Review Period	15 days	Fri 5/14/21	Thu 6/3/21	13
15	Bridging Documents IFB	7 days	Fri 6/4/21	Mon 6/14/21	14
16	**Bidding Phase**	**85 days**	**Tue 6/15/21**	**Mon 10/11/21**	
17	Advertise for Bids	20 days	Tue 6/15/21	Mon 7/12/21	15
18	Receive Bids	20 days	Tue 7/13/21	Mon 8/9/21	17
19	Bid Tab/Recommendation	5 days	Tue 8/10/21	Mon 8/16/21	18
20	CDB - Issue Notice of Award	40 days	Tue 8/17/21	Mon 10/11/21	19
21	**Construction Phase**	**370 days**	**Tue 10/12/21**	**Mon 3/13/23**	
22	Engineering	90 days	Tue 10/12/21	Mon 2/14/22	20
23	Long Lead Equipment	200 days	Tue 11/9/21	Mon 8/15/22	22SS+2(
24	Regulatory Reviews	50 days	Tue 12/7/21	Mon 2/14/22	22SS+4(
25	Construction	200 days	Tue 2/15/22	Mon 11/21/22	24
26	Commissioning/Testing	15 days	Tue 11/22/22	Mon 12/12/22	25
27	Substantial Completion	0 days	Mon 12/12/22	Mon 12/12/22	26
28	Training	5 days	Tue 12/13/22	Mon 12/19/22	27
29	Decommissioning Old Plant	60 days	Tue 12/20/22	Mon 3/13/23	28
30	Project Complete	0 days	Mon 3/13/23	Mon 3/13/23	29



Project #321-055-138
New Power Plant
Date: Thu 5/6/21

Task	Inactive Task	Manual Summary Rollup	External Milestone	Manual Progress
Split	Inactive Milestone	Manual Summary	Deadline	
Milestone	Inactive Summary	Start-only	Critical	
Summary	Manual Task	Finish-only	Critical Split	
Project Summary	Duration-only	External Tasks	Progress	