Ahtna Engineering Services, LLC
110 W. 38th Avenue, Suite 200A
Anchorage, AK 99503
Phone: (907) 646-2969
Fax: (907) 868-8285

Design-Build • Construction • Environmental • Government Services

December 12, 2023

Ms. Laurie Butler
Environmental Manager
Menzies Aviation
6000 DeHavilland Avenue
Anchorage, AK 99502
E-mail: laurie.butler@menziesaviation.com

Subject: Final 2023 Initial Vapor Intrusion Investigation Survey Report, AFSC Off-Airport Fuel Facility, Port of Alaska

Dear Ms. Butler:

Ahtna Engineering Services, LLC, (Ahtna) has prepared this report for the Anchorage Fueling and Service Company (AFSC), owner, and Menzies Aviation (Menzies), operator, for the vapor intrusion (VI) investigation that was conducted at AFSC's Off-Airport Fuel Facility (OAFF), located at the Port of Alaska (POA) in Anchorage (Attachment 1, Figure 1).

The objective of the work performed at the OAFF control building was to determine the potential of VI risks related to vapor phase volatile analytes present in soil and groundwater at the OAFF control building. To receive Alaska Department of Environmental Conservation (DEC) Site Closure status for the OAFF site, the vapor intrusion pathway must be assessed and found to pose no risk to human health or the environment. The first step in determining the risk was to complete the Alaska Department of Environmental Conservation (DEC) Building Survey and Indoor Air Sampling Questionnaire (BSIASQ) (Attachment 2)

This report describes the VI investigation protocols that were followed during the field work as well as the observations of the VI investigation. Attachment 1 includes figures depicting the general vicinity of the project site (Figure 1), the location of the OAFF control building (Figure 2), and the floor plan of the control building (Figure 3); Attachment 2 includes the field notes and BSIASQ form; and Attachment 3 includes the Photographic Log.

SITE LOCATION AND BACKGROUND

The OAFF is located on Tidewater Road at the POA and accessed through Ocean Dock and Anchorage Port Roads. The containment area is located between Terminal Road and Tidewater Road (Figure 1).

The main industrial activity at the OAFF is the storage of jet fuel for aircraft fueling at the Ted Stevens Anchorage International Airport. The tank farm consists of nine bulk fuel storage tanks within an earthen dike secondary containment, a control building, an emergency generator with fuel storage tank, a tank truck loading rack, and a pump station.

WORK PERFORMED

This project was managed by Nick Simmons and overseen by Ashley Olson on behalf of Menzies. The project manager and field scientists performing the inspection met the DEC definition of "qualified environmental professional" as per 18 AAC 75 (DEC, 2023). All work was conducted in accordance with the Vapor Intrusion Guidance for Contaminated Sites (DEC, 2017).

Pre-Field Activities and Mobilization

Barometric pressure data, as presented in Table 1, were recorded 48-hours prior to the field event from Anchorage Weather Station NEDA2.

TABLE 1: BAROMETRIC PRESSURE READINGS

Date	Time	Barometric Pressure (inHg)	Temperature (ºF)
6/20/2023	8:00 AM	30.04	54
6/20/2023	12:00 PM	30.03	57
6/20/2023	5:00 PM	30.02	60
6/20/2023	9:00 PM	30.01	58
6/21/2023	8:00 AM	29.98	55
6/21/2023	12:00 PM	29.94	57
6/21/2023	5:00 PM	29.92	63
6/21/2023	9:00 PM	29.91	63
6/22/2023	8:00 AM	29.94	61
6/22/2023	12:00 PM	29.95	64
6/22/2023	5:00 PM	29.96	65

Notes:

ºF = degrees Fahrenheit

inHg = inches of mercury

Vapor Intrusion Investigation

Ahtna personnel mobilized to the OAFF site for the VI investigation on June 22, 2023. A site safety meeting was held before work began.

The Menzies facilities manager, Mr. Weston Bennett, provided information to complete the BSIASQ. The BSIASQ was used to gather information about occupancy, ventilation, floor plans, storage, and usage that could be factors in determining indoor air assessments of the control building. The completed BSIASQ can be found in Attachment 2.

Upon completion of the BSIASQ, Ahtna personnel began the photoionization detector (PID) survey of the building. A PID with the capability to detect volatile organic compounds (VOCs) in parts-per-billion (ppb) concentrations was used to complete the survey. Prior to beginning the indoor PID survey, the PID was calibrated. A background PID reading was collected from outdoor air, upwind of the control building. The ambient air, potential pathways of VI, and secondary sources of organic vapors in the building were screened in each area of the control building.

During and after the PID survey, Ahtna personnel conducted a visual inspection of the building infrastructure, looking for potential VI intrusion sources, secondary sources of organic vapors, and building air flow. A smoke pen was used to test air flow direction between the rooms in the building.

After the visual inspection was completed, Ahtna personnel collected differential pressure measurements using a digital manometer capable of pressure accuracy of at least ± 0.005 inch of water column (± 1.2 pascals). The wind speed and direction were recorded as 3 miles per hour (mph) blowing toward the southeast. Tubing was inserted on the barbed ends of the manometer. The tubing attached to the positive end of the manometer extended to the outside of the building while the tubing attached to the negative end remained indoors. Measurements were collected on all four sides of the building, with an extra reading being collected on the west side of the building.

The water level in the monitoring wells closest to the control building were measured using an oil/water interface probe. Depth to water from the top of the well casing (btoc) was recorded at monitoring wells MW-4R, MW-01, and MW-10.

VAPOR INTRUSION INSPECTION OBSERVATIONS AND RESULTS

The following section presents the results of the VI inspection.

Visual Inspection

During the VI inspection, Ahtna personnel recorded observations specific to each room of the control building. Figure 3 presents the layout of the control building, PID screening locations, and manometer survey locations. Additional observations were recorded on the BSIASQ form in Attachment 3.

According to the Menzies' facility manager, staff generally spend their shift working in the office of the control building and working outside near the tanks. The control building is constructed on a concrete slab-on-grade with a steel frame construction. The concrete floor is one continuous slab throughout the building and has some hairline cracks. There is no basement or second story. At the time of the interview, the Menzies' facilities manager estimated the building was built sometime in the 1960s to 1970s. The entire building is heated by electric radiant heating and there is no inside air conditioning or ventilation between rooms besides ambient air movement. The water and sewage for the building are connected to the municipal water and sewer system. The building is not airtight, but it is lightly insulated. The office/backroom/restroom area is a sub-area

that is walled off from the garage area. The ceilings in this area do not extend to the roof of the building, instead there is storage on top of the office/backroom/restroom ceiling that is open to the garage area.

The office is where the staff (1-2 people) spend the most amount of time while working in the building (8-10 hours per day, 7 days a week). The office leads into a small hallway area that extends to the backroom, restroom, and the garage. The restroom and garage are separated from the office/hallway area by interior doors. The back room is separated by a plastic divider that allows air to pass through. This room has windows on the north and west walls and an exterior door on the west wall. The office windows and exterior door are open regularly in the summer to help cool the interior. There is an exhaust fan in the wall at the northwest corner of the office that pushes air outside when on. The office is heated by two electric radiant heaters that are installed into the walls under the desk. The restroom has an additional window that usually remains open. The window is the only source of ventilation in the restroom. The floor of the restroom is the same slab-on-grade floor. There are hairline cracks in the concrete and a floor drain. During the inspection air flowed outward through the exterior office door. Air also flows from the office toward the back room and from the garage area into the office when the door is open. The ambient air temperature in the office area was measured at approximately 75º (degrees) Fahrenheit (F).

The back room is a multipurpose room, staff store their fire-retardant coveralls in this room as well as use it for fuel flash point testing. There is a counter where fuel flash point testing is conducted. This set up has various glass sample jars containing fuel products, a piece of equipment that is hooked up to a 20-pound propane tank, and some empty metal sample containers for collecting samples of fuel from the tanks. The sample containers were open to vent excess vapors. There is an exhaust fan in the ceiling above the flash point testing station that vents to the exterior. The back room also houses the electric water heater for the building. The floor has a drain. The room has an exterior man door that leads to the north side of the building, this door is generally closed. The room has a radiant electric heater. Airflow in the room moves outward from the ceiling vent and doorway to the exterior and out of the backroom, through the plastic divider to the office area. The ambient air temperature of the back room was measured at approximately 68º F.

The garage area of the control building encompasses the majority of the building. The garage is used for storage of maintenance items for the OAFF. An exterior overhead door and a man door occupy the west wall of the building. A second overhead door is located on the south wall in the southeast corner of the building. These doors generally remain closed but the overhead door on the west wall is opened periodically. The garage area houses a diesel-powered pump for the firefighting foam system for the OAFF. The pump has an exhaust duct that leads to the exterior of the building and appears to be well sealed. The diesel-powered pump showed signs of staining underneath. The diesel above ground storage tank (AST) that powers the pump is housed along the east wall of the interior of the building. The diesel AST does not appear to be leaking and is in good condition. There are fuel lines that run along the floor of the garage to the pump that are protected by metal housing. There is also a firefighting foam AST that occupies the entire southeast corner of the building. There appear to be minor staining at the joints between the foam lines and

the tank. The garage is often used to store vehicles, especially in the winter and is heated via electric radiant heaters and other electrical equipment. There is a cabinet for the storage of flammable items in the northwest corner of the garage. Next to the storage cabinet is an open top container for storing used shop towels. There is a storage rack in the southwest corner of the garage that contains a large amount of fuel samples in glass jars. A propane grill with a 20-pound propane tank is stored in the southwest corner as well. In the central area of the garage, there are cans of paint and empty fuel cannisters that are labeled "JET-A". There is an exhaust fan near the ceiling on the east wall, above the diesel AST. This exhaust fan appears to be the only ventilation in the garage area, apart from the doors. The east wall has various holes open to the outside to let in fuel and firefighting foam lines. The ambient air temperature of the garage was measured at approximately 70º F.

PID Survey

PID readings were collected for informational purposes only, results were not compared to any threshold limit or project action level.

Prior to the indoor PID survey, several ambient outdoor air PID readings were collected up-wind of the control building. The PID readings ranged between 0-30 ppb in the ambient outdoor air. PID screening data was conducted in each area of the control building. Indoor PID results ranged from 36 ppb to 110 ppb. The highest result was collected from within the flammable storage cabinet. Table 2 presents the PID results at each screened location. Figure 3 presents the locations of the PID screening survey. After the PID survey was completed, the outdoor ambient air was measured with the PID again. The results ranged between 9 ppb and 63 ppb.

TABLE 2: PID SCREENING RESULTS

Screening ID	PID Result (ppb)	Comments
01	46	Office ambient air
02	39	Office ambient air
03	43	Office ambient air
04	36	Office ambient air
05	52	Office ambient air
06	38	Hall ambient air
07	57	Restroom ambient air
08	56	Water utility wall access for sink in restroom
09	39	Floor drain in restroom
10	49	Toilet utility access in the wall
11	68	Backroom ambient air
12	106	Foor Drain in back room
13	105	Flash point testing counter
14	88	Near propane tank in back room
15	79	Garage ambient air
16	76	Near fuel sample rack and propane grill
17	72	Near paint cans and empty fuel cans

Screening ID	PID Result (ppb)	Comments
18	110	Flammable storage cabinet
19	58	Garage ambient air
20	72	Near workbench
21	72	Near diesel generator
22	67	Garage ambient air
23	86	Garage ambient air
24	93	Garage ambient air
25	98	Near diesel AST
26	68	Garage ambient air

Notes:

AST = above ground storage tank

PID = photoionization detector

ppb = parts per billion

Manometer Survey

The pressure differential on all four sides of the building was screened using a digital manometer. The west side of the building was screened twice, once in the office and once in the garage. The positive tubing end of the manometer was placed outside of the building and the negative tubing end was placed inside the building. Manometer readings were between 0.000 and 0.008 inch of water column. These results suggest there is a very slight pressure differential between the outdoor and indoor air that causes the air to flow into the building from all sides of the building, except for the east side, which had a zero result. Wind was blowing from the northwest to the southeast resulting in the north and west sides of the building to be the upwind sides of the building and the west and south sides of the building being the downwind sides. Table 3 presents the results of the manometer survey and Figure 3 shows the locations that were surveyed with manometer.

TABLE 3: MANOMETER SURVEY RESULTS

Building Side	Reading (inch of water column)
West/Office	0.004
West/Garage	0.006
South/Garage	0.007
East/Garage	0.000
North/Backroom	0.008

Water Level Survey

The groundwater level was measured at the three wells closest to the Control Building. The water level at monitoring wells MW-4R, MW-01, and MW-10 were measured. Table 4 presents the results of the monitoring well survey. Locations of the monitoring wells are presented in Figure 2.

TABLE 4: WATER LEVEL SURVEY RESULTS

Monitoring Well	Depth to Water (ft btoc)
MW04R	2.34
MW01	2.70
MW10	3.84

Notes:

ft btoc = feet below top of casing

CONCLUSIONS AND RECOMMENDATIONS

Due to the control building at OAFF being located at the POA, within a jet fuel storage area, and adjacent to numerous other contaminated sites and fuel storage/operations, fuel odor was observed inside and outside the building. As a fuel storage area, there is no direct evidence that suggests the groundwater and soil contamination at the site contribute to the fuel odor in or around the control building. Additionally, there are several items/activities within the control building that could interfere with potential air sampling. Many of these items can be removed such as paint cans, fuel samples, flammable liquids, and propane tanks, but the diesel AST and diesel-powered pump are fixed in place.

It is unlikely that the contamination in the groundwater and soil present a significant source of harmful vapors. There are no clear entry points within the building. All the cracks in the foundation are hairline cracks and did not present any likely pathways from the ground. The floor drains were connected to the sewer system and the building has no basement. Due to the limited pathways into the building and large number of secondary sources of volatile compounds around and within the building, it is unlikely that the soil and groundwater pose significant risk to the personnel working in the control building.

Ahtna recommends no further action in pursuing the VI pathway at the control building. If personnel at the control building note a sudden increase in fuel odors or additional pathways become apparent, the VI pathway should be reevaluated.

Please do not hesitate to contact me at 907-433-0764 if you have any questions regarding this report.

Sincerely,

Ahtna Engineering Services, LLC

Nicholas B. Simmons
Project Manager

Attachments:
1. Figures
2. Field Notebook and Forms
3. Photographic Log

ATTACHMENT 1

FIGURES

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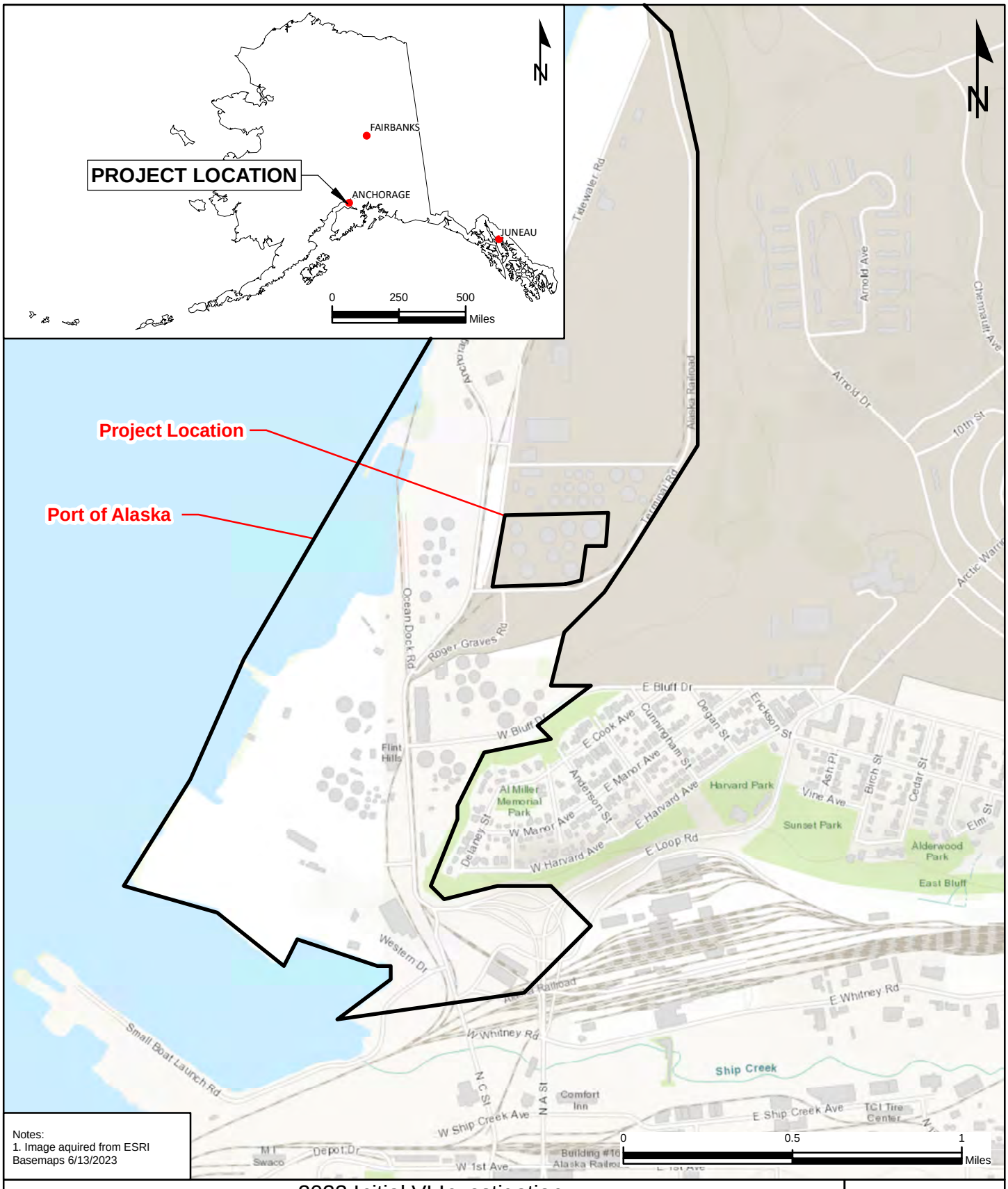

Notes:
1. Image aquired from ESRI Basemaps 6/13/2023

2023 Initial VI Investigation
AFSC Off-Airport Fuel Facility
Anchorage, AK

Ahtna Environmental, Inc.

State and Site Vicinity Map

Project Number:	Figure Number:
20204.078	1
Date: 7/13/2023	
Drafted By: Mike Ebert	

Prepared by mebert, 7/13/2023; C:\Users\mebert\Documents\Menzies\GIS\VI 2023\Figure 1 State and Site.mxd

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Legend

Monitoring Well

NOTES:
1. All locations are approximate.

2023 Initial VI Investigation
AFSC Off-Airport Fuel Facility
Anchorage, AK

Site Layout

Ahtna Engineering Services, LLC

Project Number:	Figure Number:
20204.078	2
Date: 7/13/2023	
Drafted By: Mike Ebert	

Document Path: C:\Users\mebert\Documents\Menzies\GIS\VI 2023\Report\Figure 2.mxd

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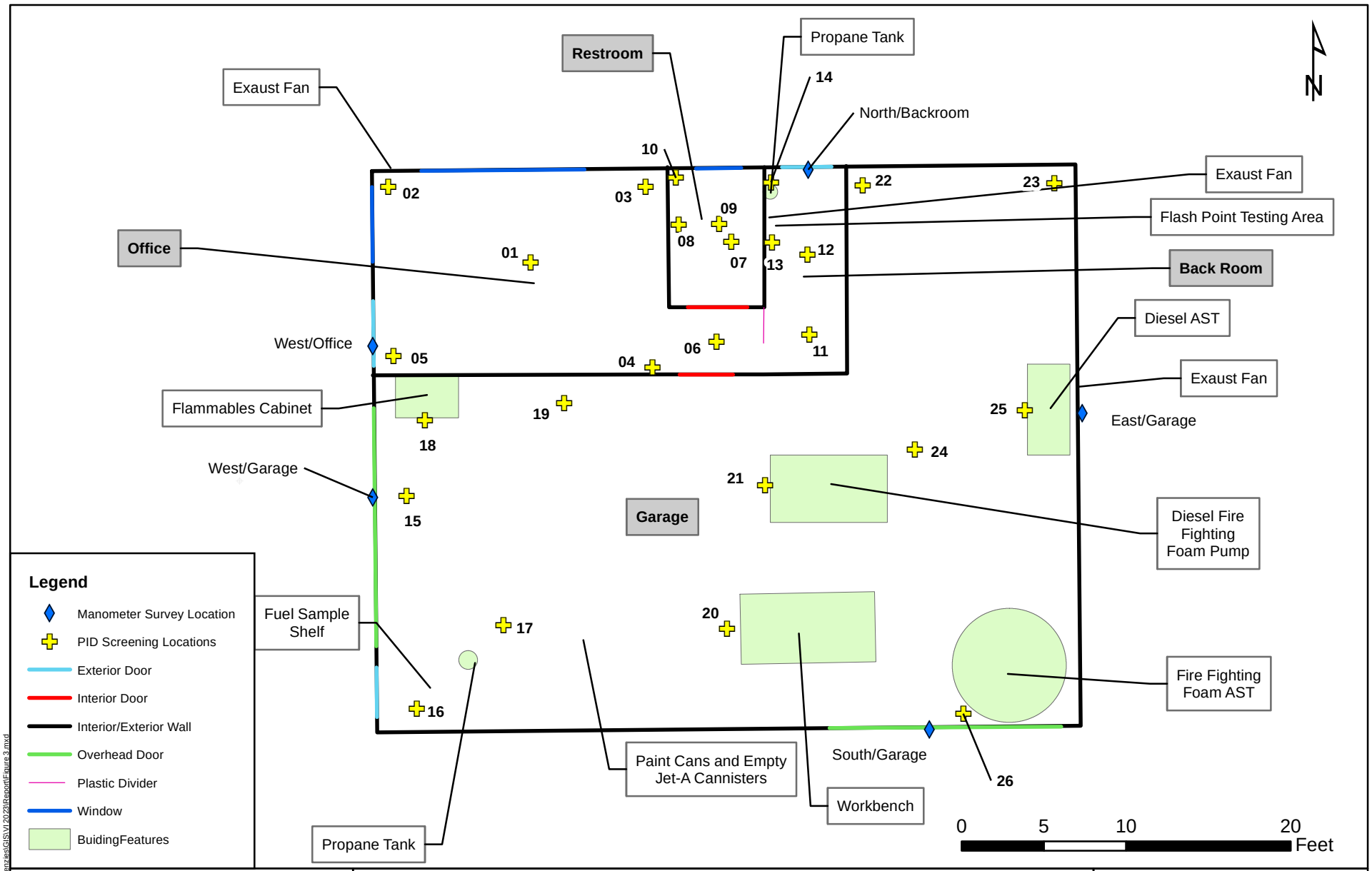

NOTES:
1. All locations are approximate based on field notes.
2. Size of building features are approximate.

2023 Initial VI Investigation
AFSC Off-Airport Fuel Facility
Anchorage, AK

Control Building Layout

Ahtna Engineering Services, LLC

Project Number:	Figure Number:
20204.078	3
Date: 6/27/2023	
Drafted By: Mike Ebert	

Document Path: C:\Users\mebert\Documents\Menzies\GIS\VI 2023\Report\Figure 3.mxd

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ATTACHMENT 2

FIELD NOTEBOOK AND FORMS

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30 MEbert LScully OAFF VI 6/22/23 Cloudless 55°F

925 Arrive onsite hold safety meeting with Mike and Lily.
930 Meet with Weston, Teddy Dylan with Menzies
935 Cal PID
Zero cal = 0.0 ppb
Span Cal = 10.0 ppm
945 Start Building Survey Form
1015 Finish Building questionaire with weston.
1020 Start room by room survey
PID is registering 0-30 ppb in outdoor Air. This could be considered Back ground
1100 finish PID survey
1105 Main Office observations. Floor is concrete slab. Minor cracks that seem normal. There is a In wall vent fan in the NW corner. The North wall and West walls have windows that can open. West wall has A man Door. Staff Split time working in office and working outside. ME

1 of 7

ME Ebert LScully OAFF VI 6/22/23 Cloudy 55 31

Loc ID	Reading (PPb)	
01	46	
02	34	
03	43	
04	36	
05	52	
06	38	
07	57	
08	56	water utility wall access
09	34	Drain in floor
10	44	toilet utility access
11	68	
12	106	Drain in floor
13	105	
14	88	Propane tank
ME 15	79	
16	76	by fuel samples and Grill
17	72	by Empty fuel cans and paint
18	110	flammable Storage cabinet
19	58	
20	72	work Bench
21	72	Diesel generator
22	67	
ME ~~46~~		
23	86	

2 of 7

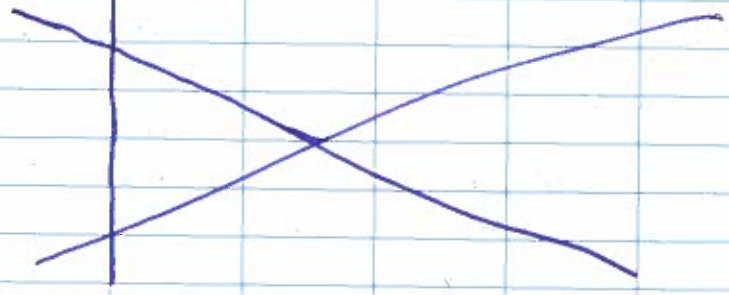
ME Rite in the Rain

M Elvert
L Scully

OAFF VI
6/22/23

Cloudy
55°F

LOCID	PID Reading PPB
24	43
25	98
26	68



Main office leads into a Hall, Bathroom and Back room Bathroom has a window for vent. Floor in Bathroom concrete slab with a floor Drain. Hairline cracks in Bathroom floor

1115 Back room observations: Floor is concrete slab with hairline cracks and a floor Drain. There is a fuel flash point testing area. fuel sample Jars are left open to vent. There is a propane Tank that supplys the Flash point testing Machine. Electric water heater is in this room.

ME

There is a man door with access to the North side of the Building. There are holes in the wall about 2 inches in Diameter. Extra coveralls are stored here. There is a plastic Divider to seperate the Back room and office. There is a vent fan to the outside above the testing desk. Air flows from Main office to back room. Air flows out through vent fan and door when open.

1130 Air in the Main office flows out the door and vent fan.

1215 Take temperature of Main office ambient temp is about 75°F

1217 Temp in back room is 68°F

1218 Temp in garage is 70°F

1235 Garage observations: Garage floor is concrete slab. small cracks throughout floor. There are 2 overhead doors and a man Door to the outside. Overhead door on West side of Building is open periodically Overhead door on South side

ME

M Ehert
L Scully

OAFFVL
6/22/23

Cloudy
55°F

is Rarely opened. There is a flammable storage cabanet. fuel samples are stored on a Rack Next to the rear door. A propane grill is stored in the garage. Various paints are stored on the floor Next to JET A fuel canisters. There is a open top Trash container for oily rags Next to Flammable cabanet. There is a diesel powered ME fuel pump in the center. The Exaust goes up ~~through the~~ ME from the top of the pump and over ~~the~~ ME head and out the south wall. Exaust duct looks well sealed. Exaust vent goes out side. There is a diesel tank (AST) that feeds the ~~fuel~~ ME pump, ~~along~~ ME On the east wall. Diesel line goes out the east wall to feed the tank. Lines from tank to pump run along the floor and are protected. ME Diesel tank does Not

ME

M Ehert
L Scully

OAFFVL
6/22/23

Clouds ~~55~~ 61°F

~~Appear~~ to be Leaking. There is A large poly Fire fighting foam tank in the garage. this is connected to the pump. Pump Appears to have very Minor oil/fuel leaks. Vehicles are occasionally stored in the garage, primarily during winter. There is a style exhaust fan on the east wall Near top of wall All heat in Building is Electric. 3 to 4 inch holes are on East wall with direct Exposue to outdoor air.

1310 Wind speed is about 3 mph blowing towards the SE.

1315 Begin Manometer survey. will collect Differential pressure measurements on all 4 sides of Building Between outdoor and indoor.

wall	Manometer reading	
North	0.008	from back room
South	0.007	under overhead door
East	0.000	hole in wall Diesel tank access
West	0.004	office
	0.006	garage

ME Rite in the Rain

MEDEP
L Scully — Partly Cloudy 61°F — 6/22/23

Positive End of Manometer to outside ~~Negative~~ ME Negative End inside.

1336 Finish Manometer Readings.

~~*Note*~~ No cracks in floor look Big Enough for air flow. all hairline

1340 Post Survey PID readings are Between 9-63 ppb

1350 Start water level survey

MW	Depth to water ft BTOC
MW-4R	2.34
MW-01	2.70
MW-10	3.84

1415 A second set of manometer readings were not collected the building does not have a HVAC system and is heated through patient Electric heaters.

1430 leave site

1450 Drop off equipment at WH

EOD

Alan Reed 6/22/23

7 of 7

ME

ALASKA DEPARTMENT OF ENVIRONMENAL CONSERVATION
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building in which interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during work-plan development. Section II should be used to assist in identification of complicating factors during a presampling building walkthrough.

Preparer's Name Mike Ebert Date/Time Prepared 6/22/23 945

Preparer's Affiliation Ahtna Engineering Services Phone No.

Purpose of Investigation Vapor Intrusion survey

SECTION I: BUILDING INVENTORY

1. **OCCUPANT OR BUILDING PERSONNEL:**

Interviewed: Y / N

Last Name Bennett First Name Weston

Address 1331 Tide water

County N/A

Phone No.

Number of Occupants/persons at this location 1 Age of Occupants adult

2. **OWNER or LANDLORD:** (Check if same as occupant X)

Interviewed: Y / N

Last Name First Name

Address

County

Phone No.

3. **BUILDING CHARACTERISTICS**

Type of Building: (Circle appropriate response)

Residential	School	(Commercial/Multi-use)
Industrial	Church	Other

If the property is residential, type? (Circle appropriate response) N/A

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other_____

If multiple units, how many? N/A

If the property is commercial, type?

Business Types(s) Fuel Storage Depot

Does it include residences (i.e., multi-use)? Y / (N) If yes, how many?_____

Other characteristics:

Number of floors 1 Building age 1960 - 1970

Is the building insulated? (Y) / N How air tight? Tight / Average / (Not Tight)

Have occupants noticed chemical odors in the building? (Y) / N

If yes, please describe: area is a Jet fuel storage facility Constant Smell of Jet fuel

4. AIRFLOW

Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:

Airflow between floors N/A

Airflow in building near suspected source
Air flows from office to back room and out door in Back room
Air flows in from garage area into office. Air flows
out office ~~from~~ through Man door and Exaust Fan
Smoke pen was used to test

Outdoor air infiltration
Doors/windows open if Nice weather
Overhead door in garage area stays closed
Ventalation fans push air out

Infiltration into air ducts No Air ducts

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS** (Circle all that apply)

a. Above grade construction:	wood frame	log	(concrete)	brick	Concrete Slab on grade Metal Structure walls
	constructed on pilings with enclosed air space		constructed on pilings with open air space		
b. Basement type: N/A	full	crawlspace	slab-on-grade	other_____	
c. Basement floor: N/A	concrete	dirt	stone	other_____	
d. Basement floor: N/A	unsealed	sealed	sealed with_____		
e. Foundation walls:	(poured)	block	stone	other_____	
f. Foundation walls: N/A	unsealed	sealed	sealed with_____		
g. The basement is: N/A	wet	damp	dry		
h. The basement is: N/A	finished	unfinished	partially finished		
i. Sump present?	Y (N)				
j. Water in sump?	Y / N / (not applicable)				

Basement/Lowest level depth below grade at grade 0 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

Small cracks in floor, Drains in floor. There is a propane tank in the Back room and Garage. Fuel samples in Backroom and ~~garage~~ garage. Flammable liquids cabanet in garage. Paint and Empty Jet fuel canisters in garage

6. **HEATING, VENTING and AIR CONDITIONING** (Circle all that apply)

Type of heating system(s) used in this building: (Circle all that apply – not primary)

Hot air circulation	Heat pump	Hot water baseboard	
(Space Heaters)	Stream radiation	Radiant floor	
~~Electric~~ baseboard	Wood stove	Outdoor wood boiler	Other Electrical Equipment

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
(Electric)	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by Electric water heater

Boiler/furnace located in: N/A Basement Outdoors Main Floor Other N/A

Do any of the heating appliances have cold-air intakes? Y (N)

Type of air conditioning or ventilation used in this building: No Ventilation

Central Air	Window units	Open Windows	None
Commercial HVAC	Heat-recovery system	Passive air system	

Are there air distribution ducts present? Y / N

Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the locations of air supply and exhaust points on the floor plan.

There is No Air circulation System in Place. Air Exaust Vents in the Main Office, garage, and Back room

Is there a radon mitigation system for the building/structure? Y / N Date of Installation_____

Is the system active or passive? N/A Active/Passive

7. **OCCUPANCY**

Is basement/lowest level occupied? N/A Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage)**
Basement	N/A
1st Floor	Office, storage, light fuel testing, vehicle storage in garage
2nd Floor	
3rd Floor	

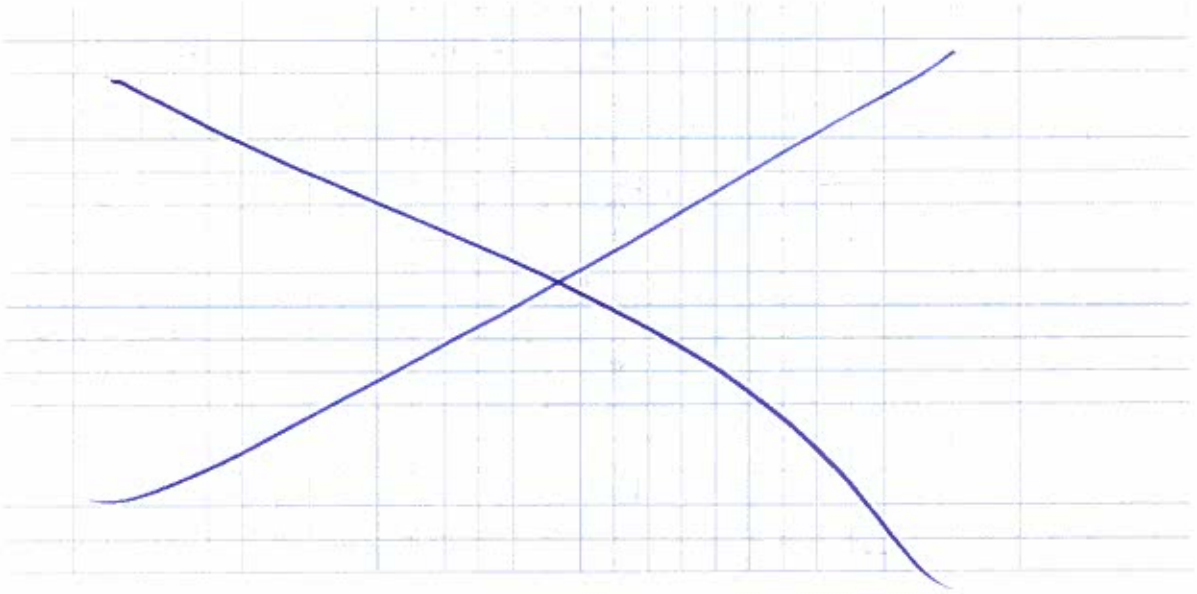
8. **WATER AND SEWAGE**

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other_____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other_____

9. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



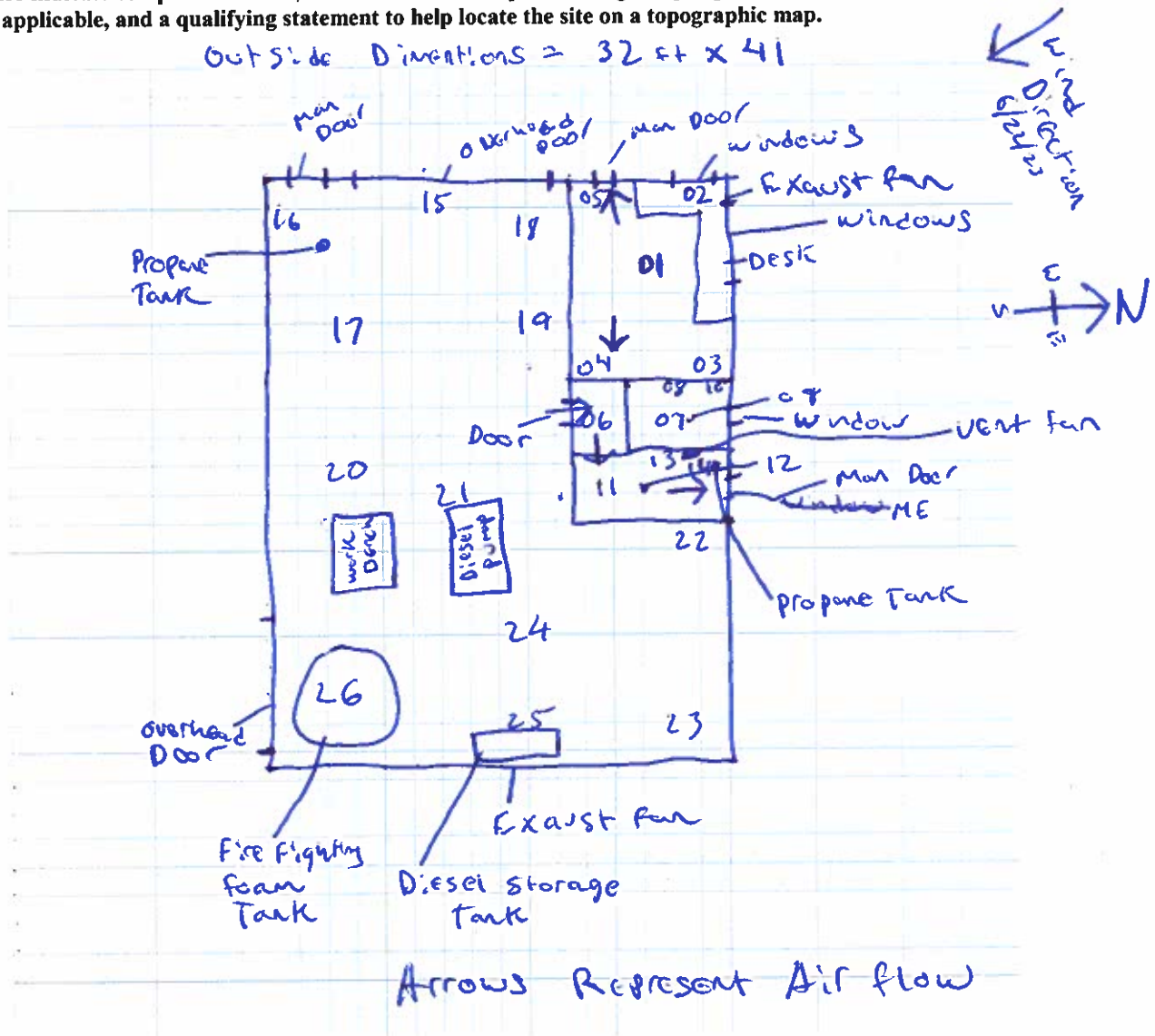
First Floor:

SEE page 6

10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE

This section should be completed during a presampling walkthrough. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

a) 1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Is there an attached garage? (Y) / N

Does the garage have a separate heating unit? (Y) / N / NA Electric

Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car) (Y) / N / NA Diesel powered fuel pump

Please specify occasional vehicle storage

Has the building ever had a fire? Y / (N) When?_____

Is a kerosene or unvented gas space heater present? Y / (N) Where?_____

Is there a workshop or hobby/craft area? (Y) / N Where & Type Fuel Testing

Is there smoking in the building? Y / (N) How frequently?_____

Has painting/staining been done in the last 6 months? Y / (N) Where & When?_____

Is there new carpet, drapes or other textiles? Y / (N) Where & When?_____

Is there a kitchen exhaust fan? Y / (N) If yes, where vented?_____

Is there a bathroom exhaust fan? Y / (N) If yes, where vented? Window

Is there a clothes dryer? Y / (N) If yes, is it vented outside? Y / N

Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling? (Y) / N

If yes, please describe Bathroom cleaning supplies, hand sanitizer household cleaners

Do any of the building occupants use solvents at work? Y / (N)

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) — No

Yes, use dry-cleaning infrequently (monthly or less) — (Unknown) OFFSITE cleaning service through AISCO for work coveralls

Yes, work at a dry-cleaning services — Unknown IF coveralls are cleaned with Drycleaners

2. **PRODUCT INVENTORY FORM** (For use during building walkthrough)

Make & Model of field instrument used RaQ Plus

List specific products found in the residence that have the potential to affect indoor air quality:

Location	Product Description	Site (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N
	RaQ Plus PPb	ppb	good	NA	PPb	(Y)

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form modified from:

ITRC (Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline.* VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. www.itrcweb.org.

ATTACHMENT 3

PHOTOGRAPHIC LOG

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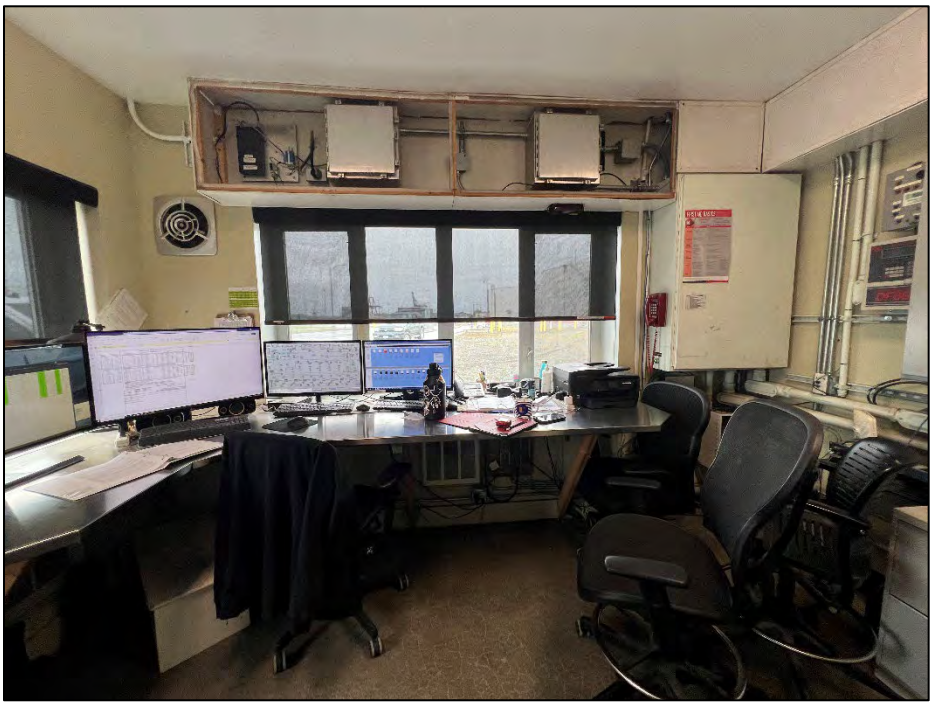
Photograph 1: View close up. Photoionization Detector (PID) that was used for PID survey.

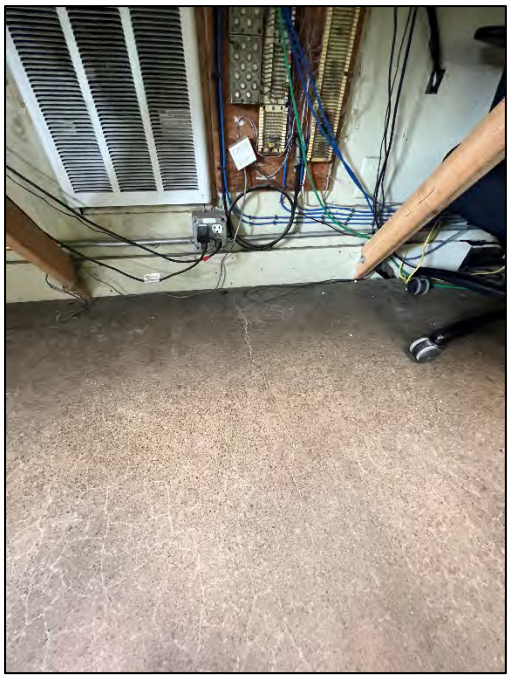
Photograph 2: View looking west. Exterior man door in the office.

Photograph 3: View looking northeast. Facility monitoring station and desk in the office area. Note windows and the in-wall exhaust fan.



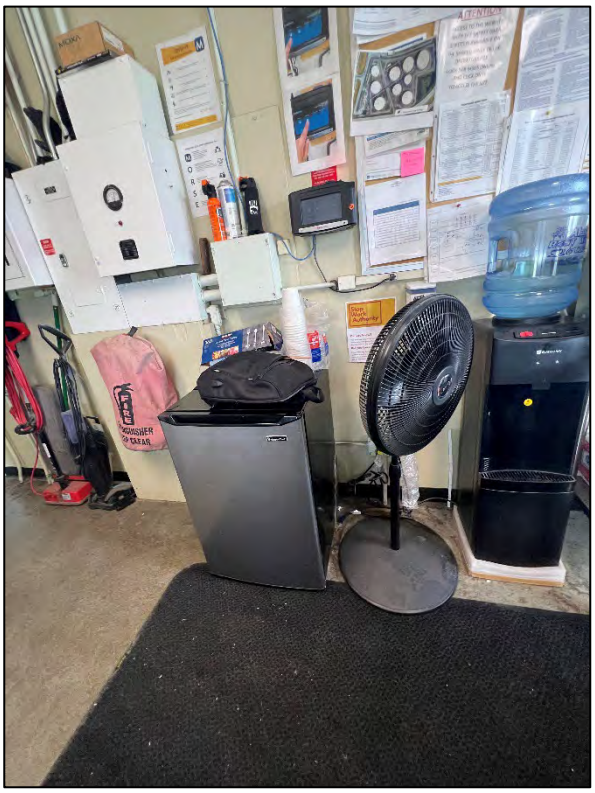
Photograph 4: View looking north. Facility monitoring station and desk in the office area. Note windows, exhaust fan, and radiant heater under the desk.

Photograph 5: View looking east. East side of the Office. Note hallway to back room, door to the garage area along the wall on the right side of the hall.

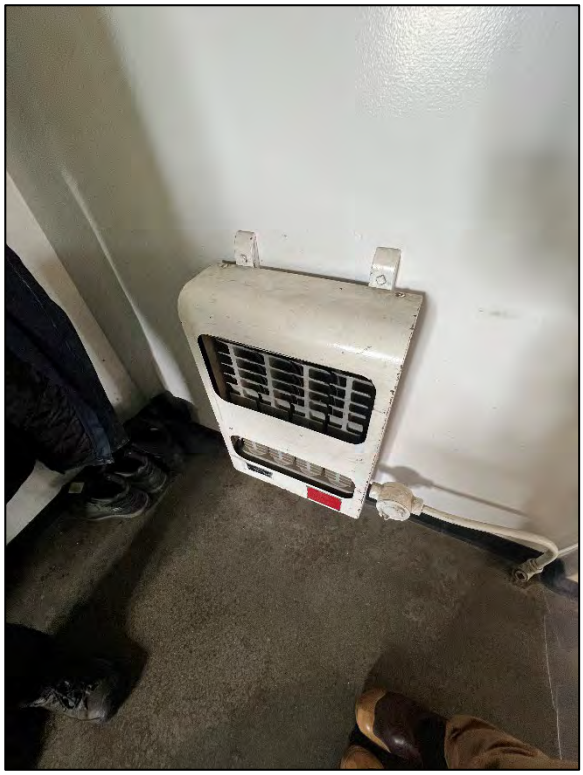


Photograph 6: View looking north. Under the office desk along north wall. Note radiant heater and small cracks in the concrete floor.

Photograph 7: View looking northeast. Area under office desk along northeast wall. Note heater and cracks in concrete floor.



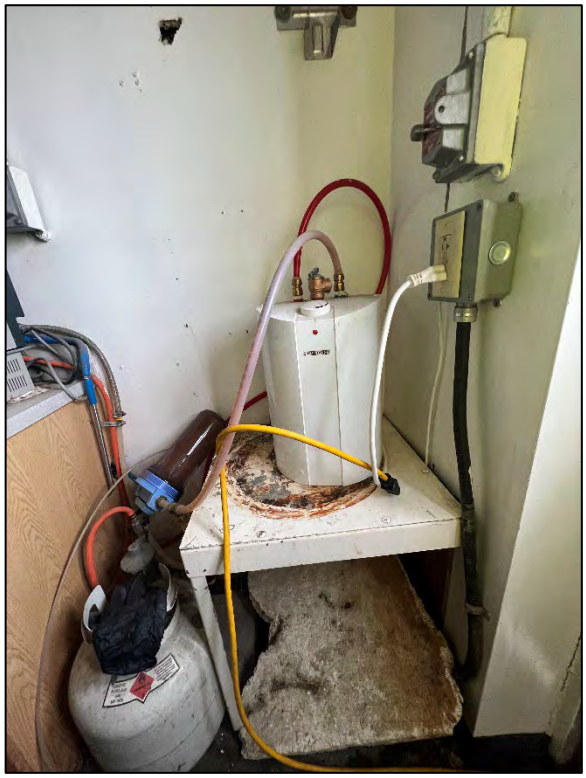
Photograph 8: View looking south. Office south wall. Fan supplements ventilation in the office area.



Photograph 9: View close up. Space heater in the back room.

Photograph 10: View looking west. Flash point testing station. Note metal sample containers and flash point testing machine located in the back room.

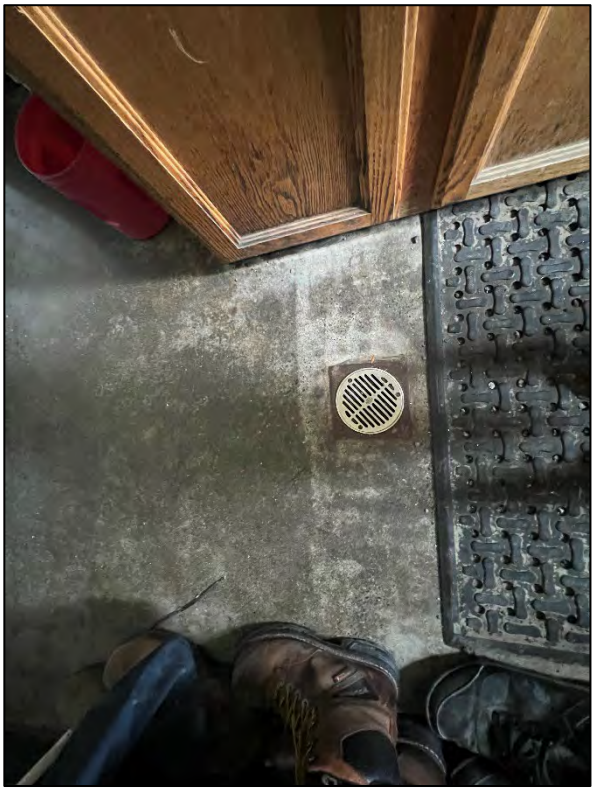
Photograph 11: View looking west. Close up on the metal sample containers at the flash point testing station in the back room.



Photograph 12: View looking west. Area to the right of the flash point testing station (when facing counter) in the back room. Note 20-pound propane tank hooked up to the flash point testing machine and the electric water heater.

Photograph 13: View looking west. Shelving above the flash point testing area in the back room. Amber glass bottles have fuel in them for testing.

Photograph 14: View looking east. Spare coverall storage in the back room.



Photograph 15: View close up. Floor drain in the back room.

Photograph 16: View looking up. Exhaust fan above the flash point testing area in the back room.

Photograph 17: View looking north. Exterior personnel door in back room on the north side of the building.

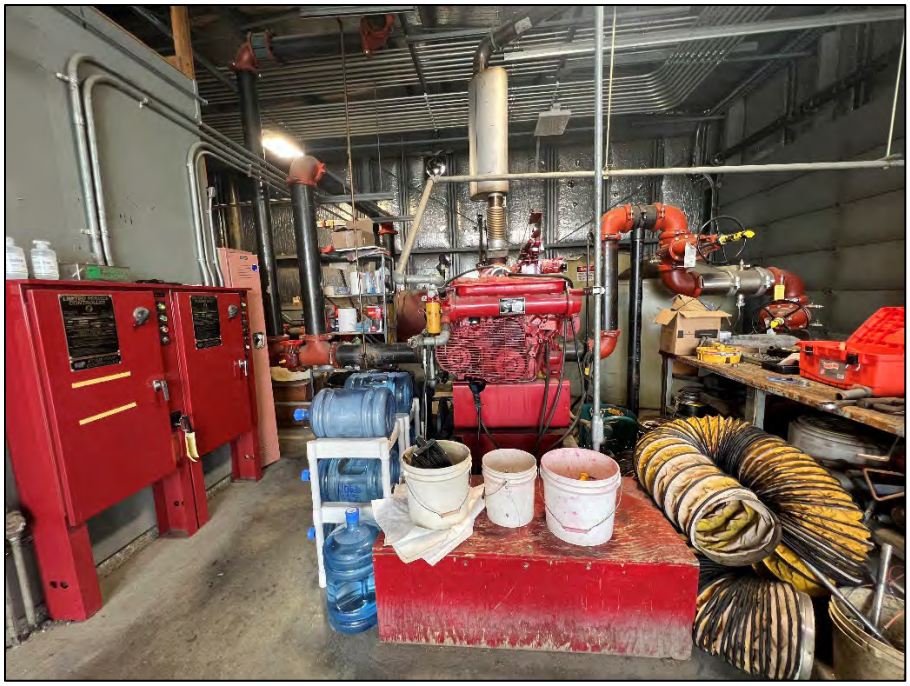
Photograph 18: View looking west. Utility access under flash point testing counter in the garage area of the control building.

Photograph 19: View looking south. Fuel sample storage rack and the propane grill in the garage. Garage personnel door on right side of photo.

Photograph 20: View looking north. Flammable storage cabinet and oily rags disposal cannister. Garage overhead door on left of the photo.

Photograph 21: View looking south. Storage area with paint cans and empty Jet-A fuel cannisters located in the garage.

Photograph 22: View looking north. North side of garage area. Walled off area is the office/restroom/backroom areas. Note open storage on top of office rooms. Door leads to hallway between office and back room.



Photograph 23: View looking east. Diesel powered fire fighting foam pump in center of picture. Note exhaust coming from top of pump.

Photograph 24: View looking southeast. Exhaust system for the diesel pump. Exhaust goes out through ducts to the south wall of building.

Photograph 25: View looking northeast. Northeast corner of the garage area. Note piping and infrastructure for the fire fighting foam system.

Photograph 26: View looking southeast. East side of the garage area. Area is mostly full of piping and infrastructure for the fire fighting foam system.

Photograph 27: View looking northeast. The east area of the garage. Diesel powered fire fighting foam system pump in center of picture. Foam AST on right side of photo in the southeast corner.

Photograph 28: View looking east. Hand pump in containment in the southeast corner of the garage. Southeast corner overhead door on right side of photo. Fire fighting foam AST in background.

Photograph 29: View looking south. Diesel powered fire fighting foam AST in center of picture. The tank is white poly. Diesel tank on left side of photo and part of the pump on the right.

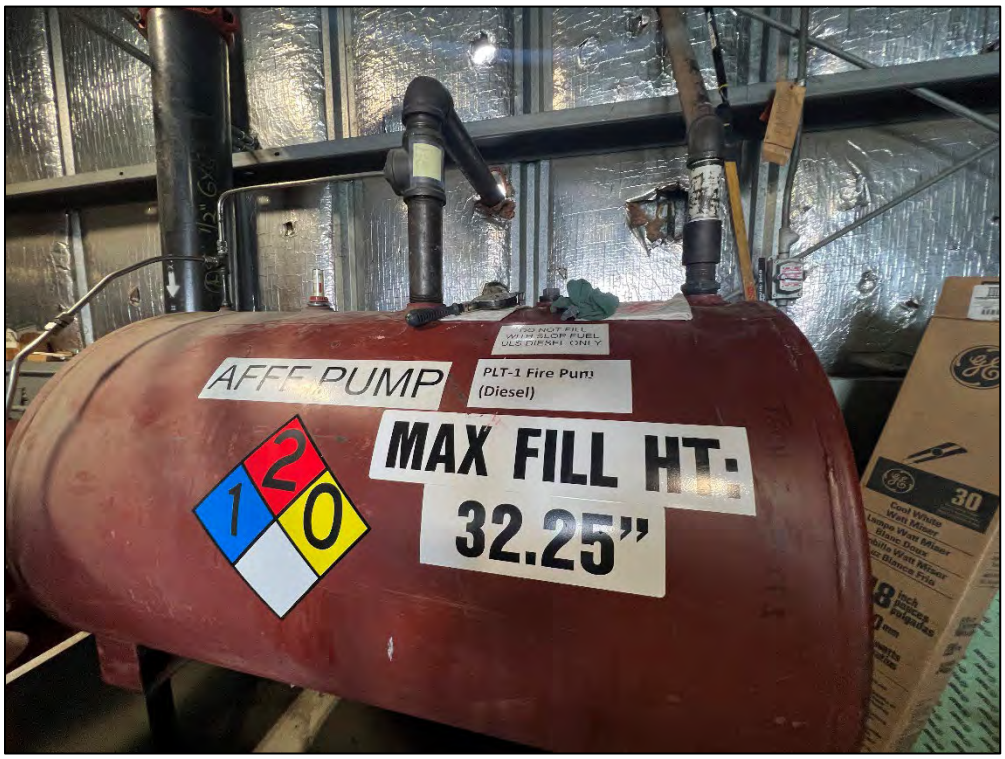
Photograph 30: View looking east. East wall of the garage. Diesel AST in front. Fire fighting foam AST on right side of photo. Note vent fan on the top of the photo near garage ceiling. Note holes in walls for diesel tank filling access.

Photograph 31: View looking north. Northeast corner of the garage area.

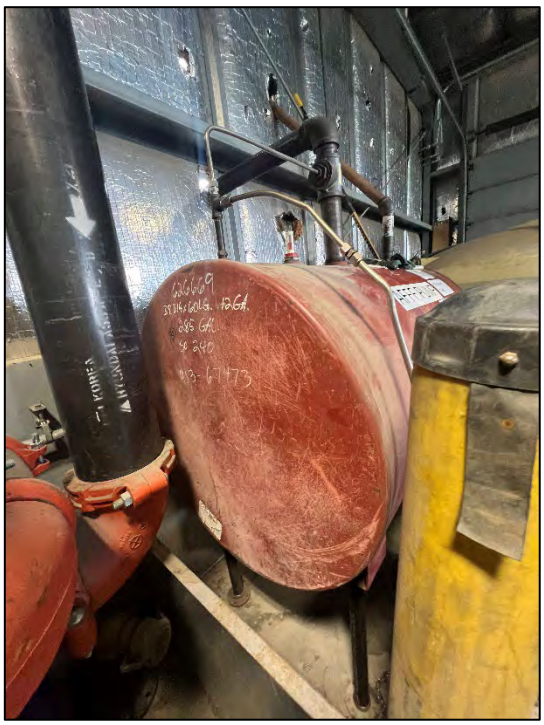
Photograph 32: View looking south. Central area of the garage. Used for storage. Note protected diesel lines running on floor from diesel AST to the pump (behind the shelf)

Photograph 33: View looking east. East wall above diesel AST. Note fan near ceiling and various holes in the wall.

Photograph 34: View close up. Contents of the fire fighting foam AST and warning labels.



Photograph 35: View looking east. Closeup of diesel AST.

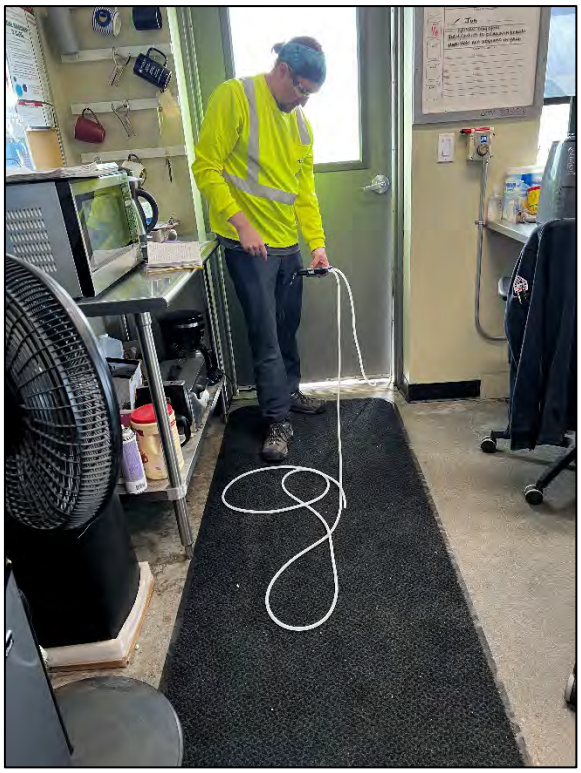


Photograph 36: View looking southeast. Markings on side of diesel tank. Note dry containment, tank does not appear to leak or have history of leaks.

Photograph 37: View closeup. Diesel powered firefighting foam pump closeup. Note small minor leaks under pump.

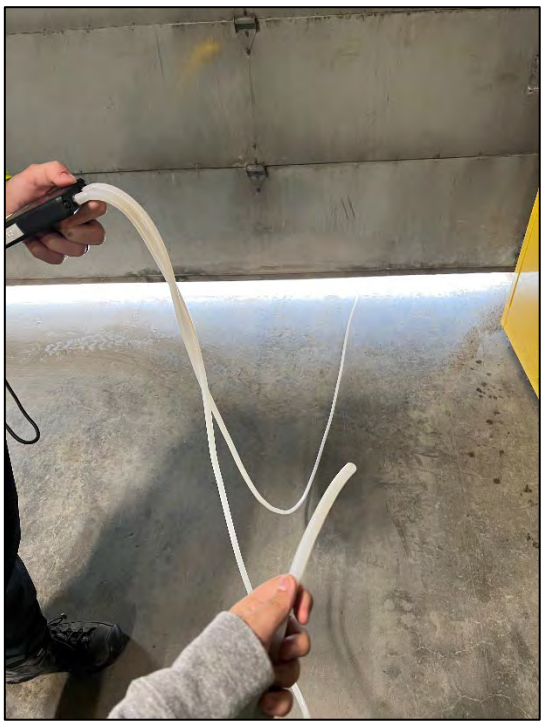
Photograph 38: View closeup. Label on diesel pump.

Photograph 39: View looking North. Inside of the flammable storage cabinet.



Photograph 40: View looking west. Collecting manometer readings at the west side of the office.

Photograph 41: View looking north. Collecting manometer readings at the north side of the building in the back room.



Photograph 42: View looking west. Collecting manometer readings from the west side of the garage.

Photograph 43: View looking east. Collecting manometer readings from east side of building. Manometer tubing going outside alongside diesel supply line.

Photograph 44: View looking south. Collecting PID readings at the flash point testing station.

Photograph 4546: View looking west. Measuring water level at MW-4R.

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