Hanford Tank Waste Operations & Closure

EVENT REPORT FORM

1. Project: Tank Farm Project Retrieval and Maintenance **2. Report Date:** 10/08/2025

3. Investigation Title: 217AY-1 Change Tent TF-AOP-015 for 6 ppm

4. Investigation Report Number: EIR-2025-074

5. Responsible Manager: [redacted]

6. Event Investigator: [redacted]

7. Area / Building / Location: 200E/ 217AY-1 Change Tent

8. Date and Approximate Time of Event: **Date:** 09/24/2025 **Time *(military)*:** 1330 Hours

9. Associated Action Request (AR) Number: ITDC-AR-2026-0022

10. Associated Occurrence Report Number *(if applicable)*: N/A

11. Event Learning Meeting Held: Yes [ ] or No [x] **Date:** N/A **Time *(military)*:** N/A

12. Brief Summary of Event: What Happened?

On 09/24/2025, at approximately 1330 hours, a worker's Personal Ammonia Monitor (PAM) began alarming, indicating an ammonia concentration greater than 6 parts per million (ppm) but less than 12 ppm inside the 217AY-1 change tent, shortly after completing a safety walkdown. Seven other workers were in the trailer when the PAM began to alarm. Of the remaining seven workers, two had PAMs and verified their PAMs did not alarm. An alarming PAM inside the 217AY-1 change tent is considered abnormal.

At 1349 hours, Central Shift Manager was notified and initiated TF-AOP-015, Response to Personal Ammonia Monitor Alarm. All workers were instructed to leave the area. Access was restricted to the 217AY-1 change tent.

The workers were not working in an area requiring the use of respiratory protection at the time the PAM began alarming. No workers reported symptoms, and all declined medical evaluation. Access to the 217AY-1 change tent was restricted.

Industrial Hygiene Technicians responded to the area and performed a survey utilizing direct-reading instrumentation; readings were below action levels. Response results did not indicate further actions were necessary regarding worker safety and health occupational exposure limits. At approximately 1440 hours, response actions per TF-AOP-015, Response to Personal Ammonia Monitor Alarm, were complete and access was restored to the area.

To summarize the conclusions of the Industrial Hygiene Event Investigation Report, IHIR-00123 "TF-AOP-015 Response 217AY1 Tent" reviewed of the DFAS application, weather details and chemical details dashboard for the reported time of the event, indicate the cause of the PAM alarm reported was unlikely to be from Tank Farm Exhauster emissions.

After a review of the Industrial Hygiene Equipment Investigation (IHEI), IHEI-00004 "AOP-015 217AY-1 Tent" it was determined that the cause of the PAM alarm was most likely caused by an equipment failure.

For more information on the Industrial Hygiene Event Investigation Report, IHIR-00123 "TF-AOP-015 Response 217AY1 Tent" and Industrial Hygiene Equipment Investigation, IHEI-00004 "AOP-015 217AY-1 Tent" see attachments.

13. What Should Have Happened?

There should have been no equipment failure of the PAM. According to the IHEI the sensor behaviour of the PAM during the physical inspection warrants a sensor replacement.

14. Impact to Facility: *(Caused by the event or a description of known consequences)*
Due to access restriction at the 217AY-1 change tent an impact to operational capabilities occurred until response actions could be completed and access restored.

15. Problem Statements (Who, What, Where, When, Consequence/Impact):
N/A

16. Facts/Timeline:	17. Issues/Gaps	18. Causes (Why?) (Include Cause Code)	19. Safe Stable/Immediate Actions	20. Extent of Condition	21. Short Term Action(s)	22. Corrective Action(s)
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A

23. Signatures

Prepared By: *(Event Investigator)*

[redacted]

Name (First, Middle Initial, Last)

[redacted]

Signature / Date

Responsible Manager Approval:

[redacted]

Name (First, Middle Initial, Last)

[redacted]

Signature / Date

CAS Manager Approval:

[redacted]

Name (First, Middle Initial, Last)

[redacted]

Signature / Date

INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT (IHIR)

Event Title:	IHIR Number:
TF-AOP-015 Response 217AY1 Tent	**IHIR-00123**
	IHEI Number: **IHEI-00004**

Date:	Time:	Location:
09/24/2025	1330	217AY1 Change Tent

Event Summary and Timeline:

Event Summary:

At approximately 1330 on 09/24/2025, one Personal Ammonia Monitor (PAM) alarmed and indicated greater than 6 ppm ammonia but less than 12 ppm ammonia inside the 217AY1 Change Tent. Eight workers were present at the time of the PAM alarm. The Affected Worker was a Safety Professional who had just completed a safety walk down. Of the remaining seven workers, two had PAMs and verified theirs did not alarm. All workers reported that no odors were encountered, and no symptoms were experienced. All workers declined precautionary medical surveillance.

Field Response Timeline:

1343 Shift Office Event Notification (SOEN): "Entering TF-AOP-015 "Response to Personal Ammonia Monitor Alarm" for a VentisPro 6ppm alarm in the AY-2 Tent. Personnel have evacuated the AY-2 Tent. AY-2 Tent Access is Restricted. [Central Shift Manager (CSM)]"

1344 Production Operations (PO) Industrial Hygienist (IH) 1 notifies PO Level 3 Industrial Hygiene (IH) Manager of TF-AOP-015

1346 PO IH 1 and PO Level 3 IH Manager arrive at Central Shift Office (CSO)

1346 CSM briefs PO IH 1 and PO Level 3 IH Manager on TF-AOP-015:

- AY2 Tent
- 1 PAM Alarmed at 6 ppm (Affected Worker 1)
- 2 PAMs co-located did not alarm
- Affected Worker 1 indicated sweat on PAM

1347 PO Level 3 IH Manager contacts PO IH 2 & PO IH 3 and requests additional support for TF-AOP-015

1348 PO Level 3 IH Manager notifies PO Shift Industrial Hygiene Technician (IHT) Supervisor of TF-AOP-015 and requests IHT support for response

1348 CSM dispatches Operations Engineer (OE) to post restricted access boundary

1349 CSM contacts Affected Worker 1

- CSM → Affected Worker 1: Do Affected Workers want medical surveillance?
- Affected Worker 1 → CSM: All decline medical surveillance
- CSM → Affected Worker 1: OE in route to post restricted access. Proceed to CSO to fill out Odor/Vapor Response Card (OVRC)

1355 PO IH 1 requests CSM verify Event Initiating PAM be brought to CSO

1355 CSM contacts Affected Worker 1

- CSM → Affected Worker 1: Bring PAM that alarmed to CSO
- Affected Worker 1 → CSM: Copy. OE has posted restricted access. In route to CSO.

1357 PO IH 2 arrives at CSO

1357 CSM updated Department of Energy (DOE) Facility Representative (Fac. Rep.) on TF-AOP-015

1358 PO IHT arrives at CSO

NOTE: Field Response Timeline continued on next page.

Event Summary and Timeline:

Field Response Timeline (continued):

1401 PO Level 3 IH Manager contacts Hanford Weather Station to obtain Mixing Height
- Mixing Height: 700 meters above grade

1401 Three Affected Workers arrive at CSO
- Affected Worker 1 delivered Event Initiating PAM #005235 to PO IH 1

1401 PO IH 1 provides Affected Workers OVRCs to populate

1401 PO IH 1 provides PO Level 3 IH Manager Event Initiating PAM for data download

- Additional Affected Worker arrives at CSO

1407 CSM and Retrieval Field Work Supervisor (FWS) discuss update on Affected Workers

1407 Retrieval IH contacts PO Level 3 IH Manager

1412 PO IH 1 and PO Level 3 IH Manager receive datalog and alarm log for the Event Initiating PAM #005235 from IH Technical Specialist
- Peak reading confirmed to be 6 ppm ammonia

1415 Four Affected Workers at CSO submit OVRC to PO IH 1 for review
- Affected Worker 1 acquired OVRCs to provide to additional Affected Workers and departed CSO

1415 SOEN: "Correction: Entering TF-AOP-015 "Response to Personal Ammonia Monitor Alarm" for a VentisPro 6ppm alarm in the 217AY-1 Tent. Personnel have evacuated the 217AY-1 Tent. 217AY-1 Tent Access is Restricted. CSM"

1417 PO Level 3 IH Manager updates Level 2 IH Manager and Level 1 Environmental, Safety, Health, & Quality (ESH&Q) Manager:
- Entered TF-AOP-015 at AY-1 Tent
- One PAM alarmed at 6 ppm
- Developing response
- No odors have been reported
- All Affected Workers have declined precautionary medical surveillance

1418 PO IH 1 provides PO IHT briefing on response:
- Monitor per IHSP-TI-MULTI-TF-AOP-015:
  - Direct Reading Instrument (DRI) equipped with the following sensors:
    - Ammonia
  - Response Action Limit (AL) based on PAM alarm:
    - PAM alarmed at 6 ppm; therefore, Respiratory Protection not required
    - Response AL: ≥ 12 ppm in general area **AND NOT** wearing Respiratory Protection
- Voluntary Use Respiratory Protection offered
- Map provided indicating Affected Worker 1's location at time of Initiating Event
  - By table in clean side of 217AY1 Change Tent
- Monitor into Affected Area, survey Affected Worker's location, and entirety of clean side only
- If elevated readings are observed, contact PO IH 1 to re-evaluate response

- Following briefing, PO IHT acquires access key to 217AY1 and departs CSO to begin response

NOTE: Field Response Timeline continued on next page.

Event Summary and Timeline:

Field Response Timeline (continued):

1425 PO Level 3 IH Manager contacts Hanford Weather Station to obtain meteorological information for Station #6 on 09/24/2025 @ 1330 (approximate time of Initiating Event):
- Temperature: 78°F
- Relative Humidity: 25%
- Wind Speed: 3 mph
- Wind Direction: North Northwest
- Barometric Pressure: 29.31 inches of mercury and Falling

1431 Remaining OVRCs from four additional Affected Workers submitted to PO IH 1 for review

1439 PO IHT informs PO IH 1 and PO Shift IHT Supervisor that Affected Area readings were less than detectable (< 1 ppm). Areas surveyed included:
- All areas inside 217AY1 outside posted Contamination Area (CA)/Radiological Buffer Area (RBA)
- Paused at vent ducts and at Initiating Event reported location

1440 PO Level 3 IH Manager contacts remaining Affected Workers to ensure they were offered precautionary medical surveillance

1447 All four additional Affected Workers declined precautionary medical surveillance

1451 PO Level 3 IH Manager updates Level 2 IH Manager and Level 1 ESH&Q Manager:
- 8 total employees present at the time of the alarm
- 3 of the 8 had PAMs
- Only 1 PAM alarmed
- Affected Area has been surveyed, all readings less than detectable
- Awaiting Post-Use Function Test

1454 PO IHT informs PO IH 1 and PO Shift IHT Supervisor that DRI has passed Post-Use Function Test

1516 SOEN: "Response actions for the 217AY-1 Change Tent TF-AOP-015 event have been completed and the results are below personal ammonia monitor response level. Exiting TF-AOP-015. Access restored to 217AY-1 Change Tent. CSM"

Field Response Timeline Acronyms:

%	Percent	IH	Industrial Hygienist/Industrial Hygiene
°F	degrees Fahrenheit	IHSP	Industrial Hygiene Sample Plan
AL	Action Limit	IHT	Industrial Hygiene Technician
AOP	Abnormal Operating Procedure	mph	miles per hour
CA	Contamination Area	OE	Operations Engineer
CSM	Central Shift Manager	OVRC	Odor/Vapor Response Card
CSO	Central Shift Office	PAM	Personal Ammonia Monitor
DOE	Department of Energy	PO	Production Operations
DRI	direct reading instrument	ppm	parts per million
ESH&Q	Environmental, Safety, Health, & Quality	RBA	Radiological Buffer Area
FWS	Field Work Supervisor	SOEN	Shift Office Event Notification

Sampling/Monitoring Results:

Direct Reading Instrument Monitoring Results- Field Response:

Response Monitoring performed in and around Affected Area (#25-06745):

- Comments by Responding IHT- "IHT...reported to central shift office for AOP-015 response to PAM alarm. IHT received a map from odor response card and IHSP from responding IH... along with instructions for monitoring. Peak reading on PAM at 6ppm was less than level that would initiate required respiratory and IHT declined to voluntarily upgrade. IHT monitored on exterior of 217AY1 change tent around front entrance at approximately 1435 prior to entry. All readings were less than detectable. IHT then entered tent and continuously monitored while sweeping all areas outside those posted as RBA/CA. IHT performed two sweeps of these areas pausing twice at the location where affected PAM was reported to have alarmed, pausing over trash cans, and pausing at ventilation ducts along the North wall. All readings were less than detectable. IHT peered into CA and RBA areas and did not notice anything that could be an obvious source for an ammonia alarm. IHT did not notice any unusual odors while monitoring the area. IHT exited the change tent at 1441 and notified IH of monitoring results."

  Peak Readings During Response:

Location	Ammonia
Exterior 217AY1	< 1 ppm
Initiating Event Location (see Figure 1)	< 1 ppm
Trash Cans	< 1 ppm
Ventilation Ducts along North Wall (Intake & Exhaust)	< 1 ppm
General Area (Clean Side) Inside 217AY1	< 1 ppm

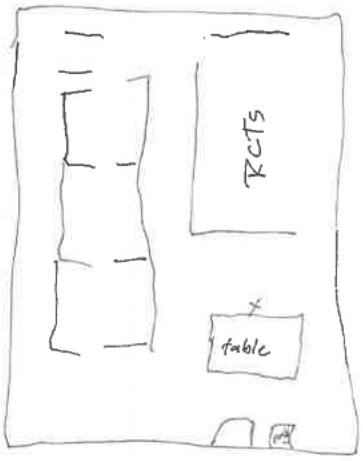


Figure 1. Affected Worker 1's Map Detailing Location of Initiating Event

NOTE: Sampling/Monitoring Results continued on next page.

Sampling/Monitoring Results:

Direct Reading Instrument Monitoring Results- PAMs:

Event Initiating PAM #005235 (Ventis Pro5- Serial No. 2203377-250, Sensor 21090N1237, Gas Type Ammonia)

DS2/DSX Local Server - Industrial Scientific Corporation 9/24/2025 2:07:25 PM - Alarm Events Report

Instrument **2203377-250**
Start Date 8/25/2025
End Date 9/24/2025

Sensor	Gas Type
21090N1237	Ammonia

Time	Duration	Peak Reading	Alarm Low	Alarm High	User	Location
9/24/2025 1:33:08 PM	00:00:05	6	6	12		AY-Farm
9/24/2025 1:32:51 PM	00:00:08	6	6	12		AY-Farm

Figure 2. Event Initiating PAM #005235 Alarm Events Report 08/25/2025 to 09/24/2025

Beginning at 1:29:34 PM, readings (10 second average) fluctuated between 2 ppm and 5 ppm, leading up to the Initiating Event. Two peak readings of 6 ppm occurred, triggering the Alarm Low. Referring to Figure 2, the first lasted 5 seconds (1:32:51 PM to 1:32:59 PM) and the second lasted 8 seconds (1:33:08 PM to 1:33:13 PM). Due to the short nature of these events, the peak readings of 6 ppm do not appear in Datalog Graph (refer to Figure 3), which captures 10 second averages. Following the Initiating Event, readings (10 second average) continued to fluctuate between 2 ppm and 5 ppm until 1:34:58 PM.

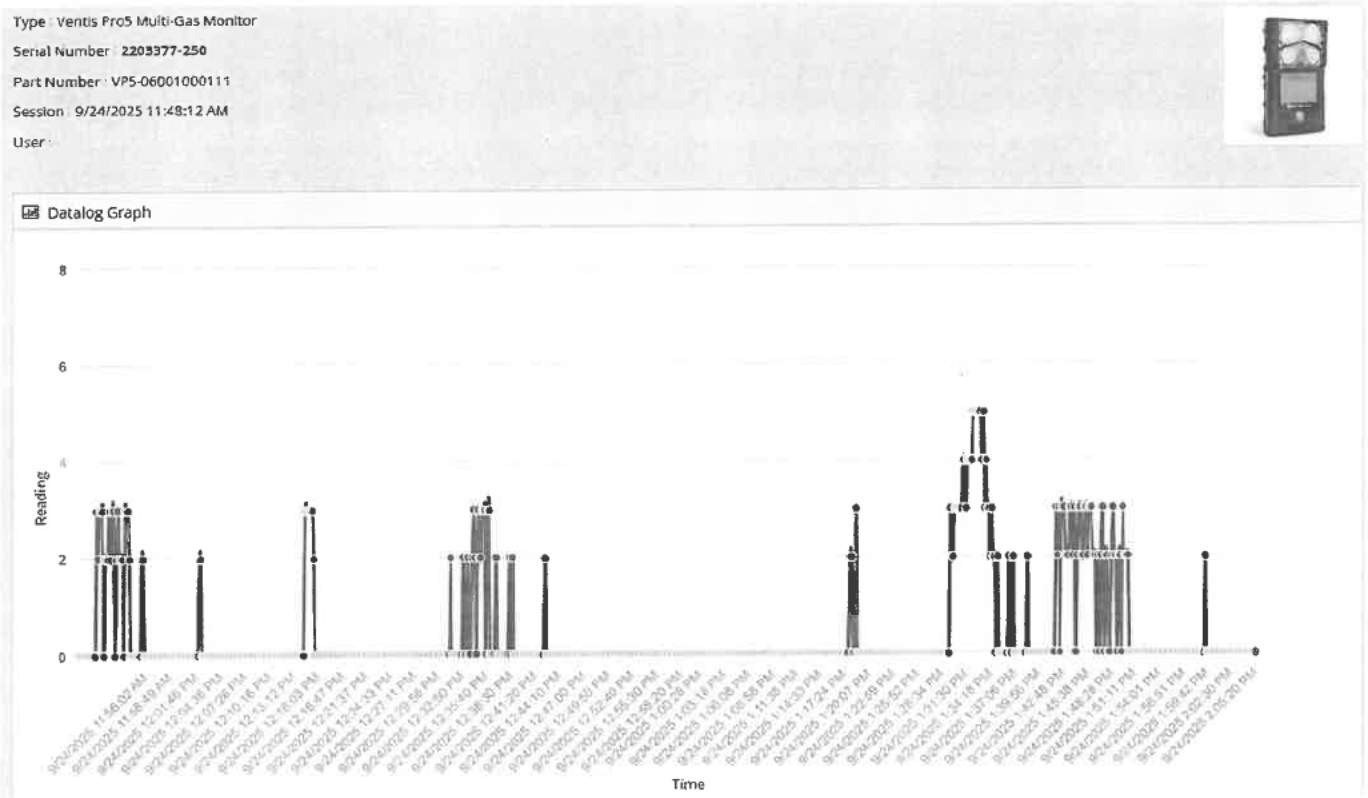


Figure 3. Event Initiating PAM #005235 Datalog Graph 09/24/2025 (10 Second Average)

SWIHD References:

Event Response SWIHD DRI Survey:

- #25-06745 "AOP-015 at 217AY1 Tent".

Additional Information:

At the time of the Initiating Event, the Affected Workers were not in an area requiring the use of Respiratory Protection Equipment. Accordingly, at the time of the Initiating Event, the Affected Workers were not wearing Respiratory Protection Equipment. Respiratory Protection Equipment was not required, nor worn, for Response Actions.

Response Monitoring:

The PAM is utilized during work activities where Tank Vapor exposure is not anticipated [Tank Vapor Work Category (WC) 1 & WC-2]. To enhance the safety of Hanford Tank Farm workers, IH has established a Response Limit (RL) for use with PAMs, set at 6 ppm ammonia. The RL is a conservative and timely indicator of potentially changing conditions in Tank Farm gas/vapor concentrations (e.g., fugitive emission points, exhauster plume to ground interaction).

At the time of the Initiating Event, three of the eight Affected Workers had a PAM. These Affected Workers had just exited 241-A Farm following a safety walk down.

During the TF-AOP-015 response actions, monitoring for Tank Waste Chemical Vapors was performed:

> Ammonia is used as a sentinel Tank Waste Chemical Vapor for chemicals of potential concern (COPC). Each Hanford production process had different feedstock chemicals and generated different waste streams. Hanford production processes were also separated temporally, with different processes being performed at different times in the history of Hanford production (1943 – 1986). Some chemicals are common to all processes/waste streams (e.g., nitric acid), while others are specific to particular processes/waste streams. Some in-tank waste treatment processes (e.g., neutralization and de-nitrification) used the same chemical feed stocks (e.g., sodium hydroxide solution) in most, if not all Tank Farms. The chemistry and radiochemistry of these compounds result in waste stream similarities across all tank farms. Because nitric acid was common to nearly all processes that generated tank waste, and the most common result of those processes was reduction of nitrate ion to ammonia during the dissolution (oxidation) of irradiated fuel, ammonia is the most common COPC and is found in all tanks. It is logical to choose ammonia for the sentinel as it is a byproduct of all production processes and found in all tanks.
>
> Therefore, when monitoring for Tank Waste Chemical Vapors/COPCs, DRI equipped with an ammonia sensor is utilized at a minimum. Refer to TOC-IH-59014 for more information.

Response Monitoring References:

- WRPS (2024). TOC-IH-59014. *Tank Waste Chemical Vapor: Evaluation and Management Strategy.*

NOTE: Additional Information continued on next page.

Additional Information:

Meteorological Conditions:

Meteorological conditions affect the dispersion of chemical contaminants in the atmosphere. The term dispersion is used to describe the evolution of the chemical contaminant from the point of origin through the atmosphere by way of dispersion. Essentially, how the contaminant is transported by the wind, perpendicular to the wind's direction, both vertically and horizontally. The aspects of meteorological variables that affect dispersion include wind speed, wind direction, the atmospheric stability (e.g., turbulence), and the atmosphere mixing height (Casal, 2008).

Wind is the natural motion of air, influenced by the atmospheric pressure and the temperature gradient of the ground. The concentrations of contaminants in a plume are inversely proportional to the wind speed (Casal, 2008).

Atmospheric stability is the tendency of the atmosphere to increase or decrease the vertical displacement of air through mode of force such as the wind. This function is closely related to the ability of the atmosphere to disperse pollutants. Atmospheric stability cannot be measured directly. Rather, it is generally estimated based on the wind velocity and the solar radiation (Casal, 2008). The stability is also impacted by the slope of the temperature relative to altitude (environmental lapse rate) (Cushman-Roisin, 2012). An unstable atmosphere is characterized by significant vertical displacement of air, a negative vertical temperature gradient (the temperature decreases with height), along with frequent fluctuations in wind direction and strong solar radiation. A stable atmosphere on the other hand, has low turbulence, positive vertical temperature (temperature increases with height), little fluctuation in the wind direction, and limited solar radiation (Casal, 2008). The National Oceanic and Atmospheric Administration (NOAA) Pasquill stability classes are denoted by seven letters ranging from A (extremely unstable conditions) to G (extremely stable conditions) (NOAA, n.d.).

The atmospheric mixing height is the height above the ground level (surface) throughout which a contaminant is dispersed. During times of temperature inversion (typically nighttime with clear skies), the mixing height goes to zero and the contaminant dispersion is minimal. At Hanford, waste disturbing activities conducted during a capping inversion (typical of sunny, highly unstable morning conditions with stable conditions remaining aloft) or with highly stable to unstable, low wind conditions (nighttime including surface inversion conditions), there exists the potential for ammonia, nitrous oxide, furan, formaldehyde, and Nitrosamines group to reach ground at or above the Occupational Exposure Limit (OEL) concentration value (dependent upon the Tank Farm). It should be noted that a capping inversion is typically a brief occurrence that exists approximately 2% of the time at the Hanford Site (WRPS, 2024).

Meteorological Conditions References:

- Casal, J. (2008). Chapter 6 Atmospheric dispersion of toxic or flammable clouds. *Industrial Safety Series, 8, 195-248.* Retrieved from https://doi.org/10.1016/S0921-9110(08)80008-0
- Cushman-Roisin, B. (2012). *Environmental Transport and Fate- Smokestack Plumes (lecture slides).* Dartmouth College: Thayer School of Engineering. Retrieved from https://cushman.host.dartmouth.edu/courses/engs43/Smokestack-plumes.pdf
- National Oceanic and Atmospheric Administration (n.d.). *Air Resource Laboratory Ready Tools: Pasquill Stability Classes.* Retrieved from https://www.ready.noaa.gov/READYpgclass.php
- WRPS (2024). TOC-IH-59014. *Tank Waste Chemical Vapor: Evaluation and Management Strategy.*

NOTE: Additional Information continued on next page.

Additional Information:

Meteorological Conditions- Approximate Time of the Initiating Event (09/24/2025 @ 1330):

Review of the DFAS application, powered by SmartSite™, Weather Details dashboard for the approximate time of the Event:

- Wind Speed: 4.6 mph (15-minute average)
- Wind Direction: 90° (out of East)
- Mixing Height: 500 feet above grade
- Stability Class: D (neutral conditions)

Refer to Figures 4-6.

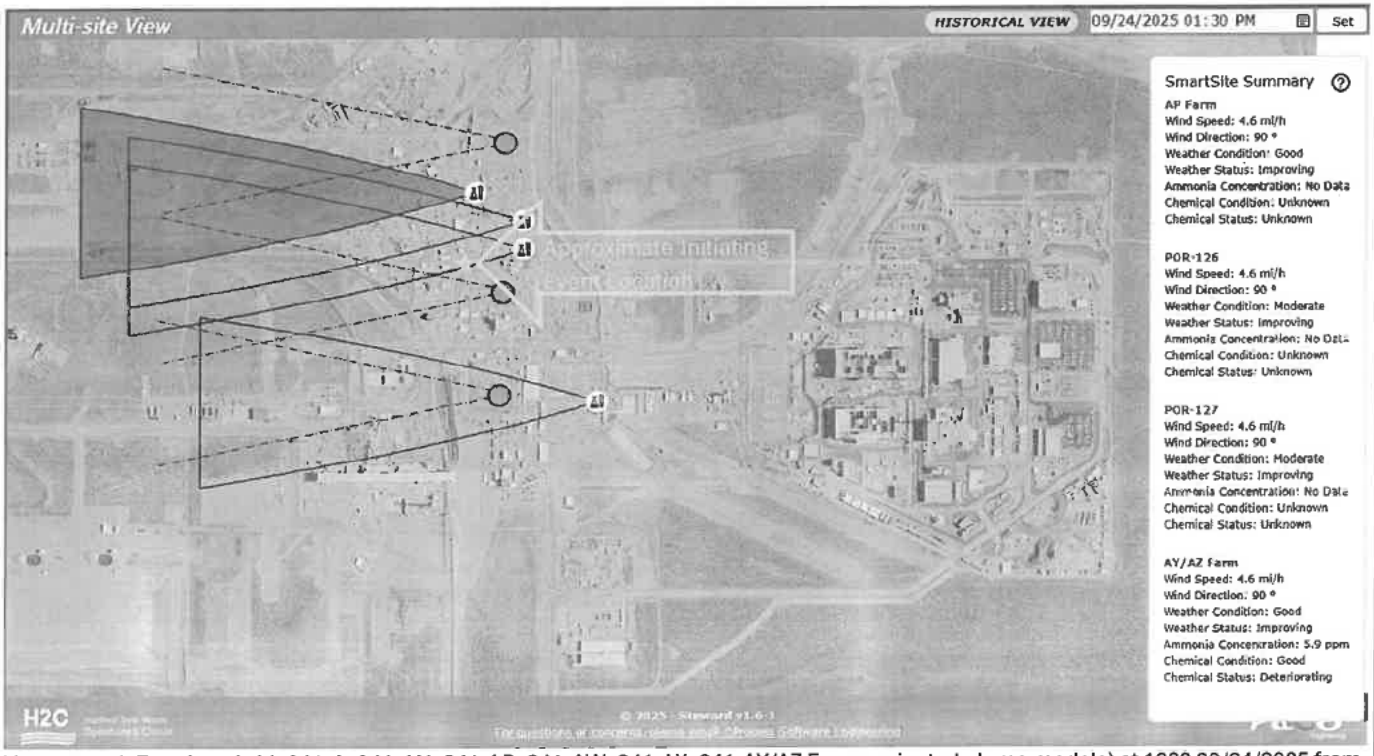


Figure 4. 200-East Area (with 241-A, 241-AN, 241-AP, 241-AW, 241-AX, 241-AY/AZ Farm projected plume models) at 1330 09/24/2025 from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™ (Approximate Time of Initiating Event).

NOTE: 241-A, 241-AN, 241-AW Farm Exhausters are not connected to the DFAS; however, an approximate exhauster plume was added for each based on other modeled plumes.

NOTE: Additional Information continued on next page.

Additional Information:

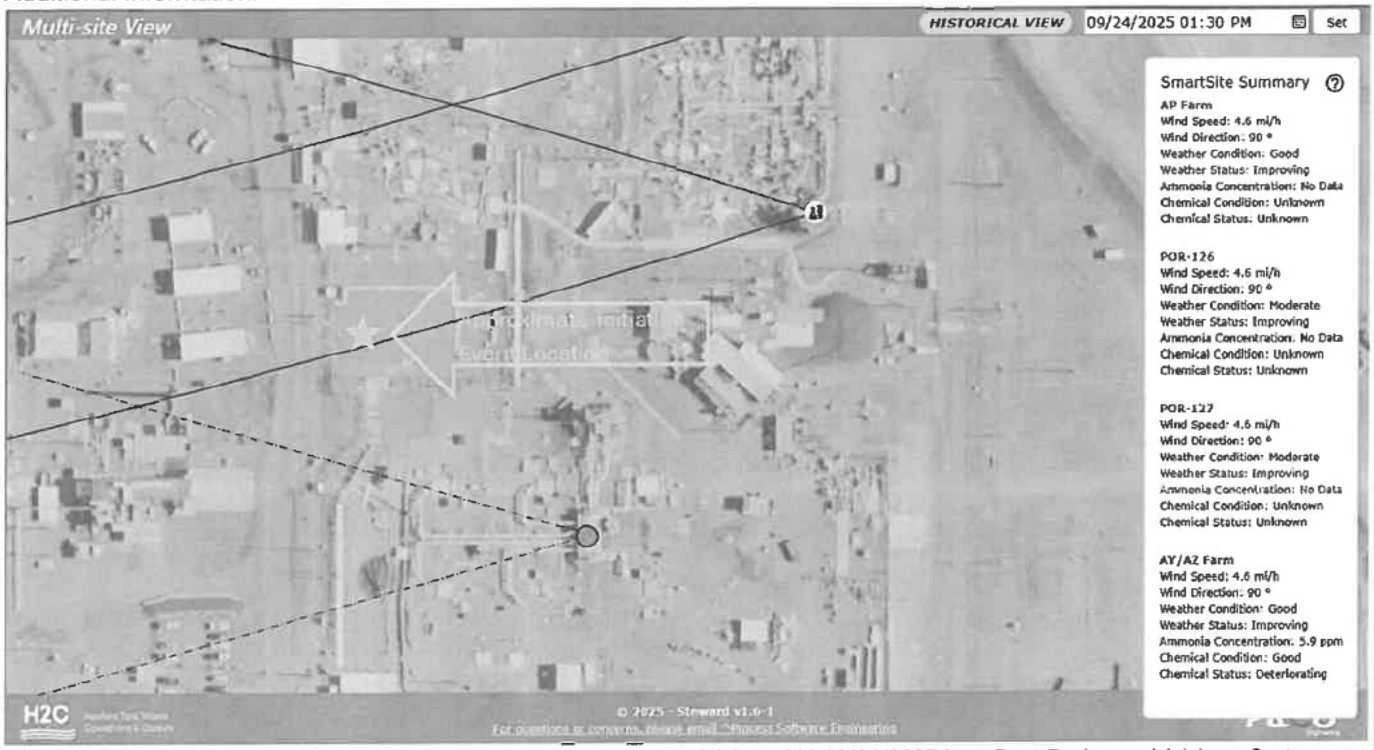


Figure 5. 200-East Area (with 241-A, 241-AX Farm projected plume models) at 1330 09/24/2025 from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™ (Approximate Time of Initiating Event).

NOTE: 241-A Farm Exhausters are not connected to the DFAS; however, an approximate exhauster plume was added for each based on other modeled plumes.

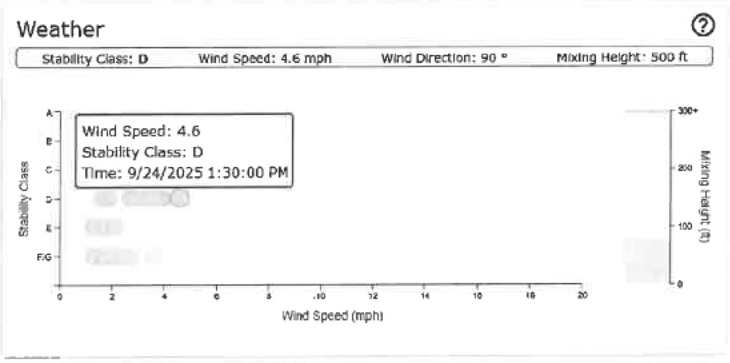


Figure 6. 241-AP Farm Weather Data from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™ at 1330 09/24/2025 (Approximate Time of Initiating Event).

NOTE: 241-AX and 241-AY/AZ Farms Weather Data for Stability Class, Wind Speed, Wind Direction, and Mixing Height are the same.

Meteorological information from the Hanford Weather Station for Station #6 on 09/24/2025 @ 1330:

- Temperature: 78°F
- Relative Humidity: 25%
- Wind Speed: 3 mph
- Wind Direction: North Northwest
- Barometric Pressure: 29.31 inches of mercury and falling

NOTE: Additional Information continued on next page.

Additional Information:

Meteorological Conditions- Approximate Time of Response (09/24/2025 @ 1430):

- Wind Speed: 4.1 mph (15-minute average)
- Wind Direction: 56° (out of Northeast)
- Mixing Height: 800 feet above grade
- Stability Class: D (neutral conditions)

Refer to Figures 7-8.

Figure 7. 200-East Area (with 241-A, 241-AX Farm projected plume models) at 1430 09/24/2025 from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™ (Approximate Time of Response).

NOTE: 241-A Farm Exhausters are not connected to the DFAS; however, an approximate exhauster plume was added for each based on other modeled plumes.

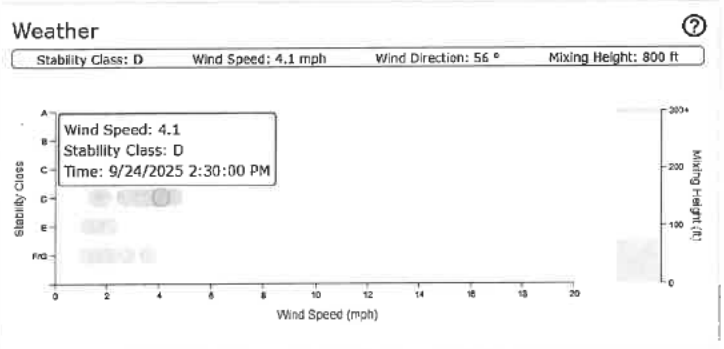


Figure 8. 241-AP Farm Weather Data from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™ at 1430 09/24/2025 (Approximate Time of Response).

NOTE: 241-AX and 241-AY/AZ Farms Weather Data for Stability Class, Wind Speed, Wind Direction, and Mixing Height are the same.

NOTE: Additional Information continued on next page.

Additional Information:

Tank Farm Exhauster Concentrations:

The ventilation exhaust system (exhauster) plume behavior is dependent on meteorological conditions. Exhauster plumes may be bent over (stability classes A, B, C, and D) or vertical (stability classes E, F, and G). The bent over plumes are found during unstable and neutral states are further characterized by their pattern: fanning, fumigation, coning, looping, and lofting (TOC-IH-59014 Section 3.1.2.1). The most probable meteorological conditions for a ventilation exhaust system touchdown to occur is during a capping inversion. For a ventilation exhaust system "touchdown" to result in ground level exposures above action limits, the stack concentration also needs to exceed the High High Alarm limit.

Hanford Tank Waste Operations & Closure (H2C) employs a Vapor Monitoring and Detection System (VMDS) to enhance worker protection from chemical vapor compound emissions from the Hanford Site tank farms (VMDS Overview). The objective of the VMDS is to provide continuous, near real-time measurements of tank farm vapors, meteorological conditions, and the ability to assess this information for a worker protective response. The VMDS consists of chemical vapor sensors, meteorological sensors, vapor sampling technologies, and data management and evaluation software.

Memo WRPS-1904672.1, TANK FARM EXHAUST ~ CK CONCENTRATION ALARM/ ACTION LEVELS FOR AMMONIA establishes stack alarm/action set points for Tank Farm Exhausters. The alarm/action set points are based on a linear extrapolation of the Quantitative Risk Assessment (QRA) model prediction; conservatively established at the ammonia stack concentration that could result in various ammonia concentrations at an unspecified ground receptor:

- High Alarm → ammonia concentration of 2.5 ppm at an unspecified ground receptor
- High High Alarm → ammonia concentration of 5 ppm at an unspecified ground receptor

Memo WRPS-1904672.1, TANK FARM EXHAUST ~ CK CONCENTRATION ALARM/ ACTION LEVELS FOR AMMONIA:

Tank Farm	Exhauster	High Alarm	High High Alarm
241-A	POR518/POR519	160 ppm	320 ppm
241-AN	Primary		
241-AP	Primary		
241-AW	Primary	460 ppm	920 ppm
241-AX	POR126/POR127		
241-AY/AZ	702AZ		
241-SY	Primary	310 ppm	620 ppm

200-East VMDS Exhauster Ammonia Readings on 09/24/2025 @ 1333 (Figure 9):

Tank Farm	Exhauster	Maximum Value
241-A	POR518	1.122 ppm
241-A	POR519	0 ppm
241-AN	Primary	0 ppm
241-AP	Primary	N/A
241-AW	Primary	0 ppm
241-AX	POR126	N/A
241-AX	POR127	N/A
241-AY/AZ	702AZ	5.942 ppm

NOTE: Additional Information continued on next page.

Additional Information:

9/24/2025 1:32:59 PM 1m 9/24/2025 1:33:59 PM

Name	Description	Value	Units	Trend	Minimum	Maximum
A241-VTP-AE-710U|NH3	Ammonia Concentration	1.092	ppm		1.092	1.122
A241-VTP-AE-810U|NH3	Ammonia Concentration	0	ppm		0	0
AN241-VTP-AE-653U|NH3	Ammonia Concentration	0	ppm		0	0
AP241-VTP-AE-507I|NH3	NH3 Concentration (5ppm	Scan Off	ppm		No Data	No Data
AP241-VTP-AE-507U|NH3	NH3 Concentration (5ppm	Scan Off	ppm		No Data	No Data
AP241-VTP-AE-710|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AW241-VTP-AE-653I|NH3		No Data			No Data	No Data
AW241-VTP-AE-653U|NH3	Ammonia Concentration	0	ppm		0	0
AX241-VTP-AE-710|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AX241-VTP-AE-810|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AZ702-VTP-AE-653U|NH3	Ammonia Concentration	5.942	ppm		5.734	5.942

Figure 9. OSIsoft Pi Vision VMDS Ammonia Concentrations for 1333 09/24/2025.

200-East VMDS Exhauster Ammonia Readings from 09/18/2025 @ 0828 to 09/24/2025 @ 1215 (Figure 10):

Tank Farm	Exhauster	Minimum*A	Maximum*A
241-A	POR518/POR519	0 ppm	22.443 ppm
241-AN	Primary	0 ppm	0 ppm
241-AP	Primary	N/A	N/A
241-AW	Primary	0 ppm	6.662 ppm
241-AX	POR126/POR127	N/A	N/A
241-AY/AZ	702AZ	0 ppm	17.463 ppm

*A VMDS Alternate Real Time Monitoring performed 09/18/2025 to 09/24/2025 for 241-AN, 241-AP, 241-AW, and 241-AX Farms.

9/18/2025 8:27:59 AM 6d 3h 9/24/2025 12:15:59 PM

Name	Description	Value	Units	Trend	Minimum	Maximum
A241-VTP-AE-710U|NH3	Ammonia Concentration	1.112	ppm		0	1.711
A241-VTP-AE-810U|NH3	Ammonia Concentration	0	ppm		0	22.443
AN241-VTP-AE-653U|NH3	Ammonia Concentration	0	ppm		0	0
AP241-VTP-AE-507I|NH3	NH3 Concentration (5ppm	Scan Off	ppm		No Data	No Data
AP241-VTP-AE-507U|NH3	NH3 Concentration (5ppm	Scan Off	ppm		No Data	No Data
AP241-VTP-AE-710|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AW241-VTP-AE-653I|NH3		No Data			No Data	No Data
AW241-VTP-AE-653U|NH3	Ammonia Concentration	0	ppm		0	6.662
AX241-VTP-AE-710|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AX241-VTP-AE-810|NH3	Ammonia Concentration	Unit Down	ppm		No Data	No Data
AZ702-VTP-AE-653U|NH3	Ammonia Concentration	7.031	ppm		0	17.463

Figure 10. OSIsoft Pi Vision VMDS Ammonia Concentrations from 0828 09/18/2025 to 1215 09/24/2025.

When stack monitoring via the VMDS is unavailable, and ventilation is operating, IH will conduct alternate monitoring for ammonia. Report TOC-IH-RPT-50042, Ammonia Monitoring- Rate of Change of Tank Vapor Source Concentration and Monitoring Frequency, recommends measuring the exhaust ventilation systems once every 4 days. Conservatively, stack readings are required once per calendar day when VMDS is unavailable. Additionally, monitoring is performed in accordance with ARP-T-041-00002 to react to specific alarms. The VMDS alternate monitoring readings are obtained in accordance with TF-OPS-IHT-037.

NOTE: Additional Information continued on next page.

Additional Information:

VMDS Alternate Ammonia Monitoring from 09/18/2024 to 09/24/2025 (Figure 11):

Tank Farm	Exhauster	Minimum*A	Maximum*A
241-AN	Primary	4 ppm	25 ppm
241-AP	Primary	10 ppm	16 ppm
241-AW	Primary	6 ppm	15 ppm
241-AX	POR126/POR127	0 ppm	1 ppm

*A VMDS Alternate Real Time Monitoring performed 09/18/2025 to 09/24/2025 for 241-AN, 241-AP, 241-AW, and 241-AX Farms.

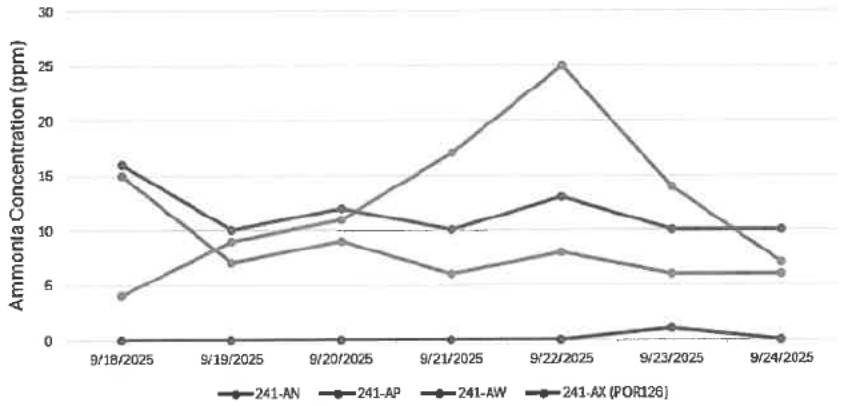


Figure 11. VMDS Alternate Ammonia Monitoring from 0828 09/18/2025 to 1215 09/24/2025.

Tank Farm Exhauster Concentration References:

- AVEVA™ PI Vision™. VMDS Overview.
- H2C (2025). ARP-T-041-00002. *Tank Farm Alarm Response Procedure*.
- H2C (2025). TF-OPS-IHT-037. IHT Ammonia Monitoring on Exhausters.
- SmartSite™. Data Fusion & Advisory System. *Hanford Multi-Farm View*.
- WRPS (2019). Memo WRPS-1904672.1. *Interoffice Memorandum: Tank Farm Exhaust Stack Concentration Alarm/Action Levels for Ammonia*.
- WRPS (2021). TOC-IH-RPT-50042. *Ammonia Monitoring – Rate of Change of Tank Vapor Source Concentration and Monitoring Frequency*.
- WRPS (2024). TOC-IH-59014. *Tank Waste Chemical Vapors: Evaluation and Management Strategy*.

Additional Information Acronyms:

%	Percent	NOAA	National Oceanic and Atmospheric Administration
°	degrees	OEL	Occupational Exposure Limit
°F	degrees Fahrenheit	PAM	Personal Ammonia Monitor
COPC	Chemicals of Potential Concern	ppm	parts per million
DFAS	Data Fusion & Advisory System	QRA	Quantitative Risk Assessment
DRI	direct reading instrument	RL	Response Limit
H2C	Hanford Tank Waste Operations & Closure	VMDS	Vapor Monitoring & Detection System
IH	Industrial Hygiene	WC	Tank Vapor Work Category
mph	miles per hour	WRPS	Washington River Protection Solutions

Recommendations/Conclusions:

Recommendations:

N/A

Conclusions:

Review of the DFAS application, powered by SmartSite™, Weather Details dashboard and VMDS exhauster ammonia readings for the approximate time of the Event, indicate the cause of the Personal Ammonia Monitor alarm is unlikely to be from Tank Farm Exhauster emissions. The atmospheric stability at the time of the event was neutral conditions and the mixing height was 500 feet above grade. These atmospheric conditions typically do not result in ground level exposures from the exhausters. Additionally, VMDS exhauster ammonia readings for the approximate time of the Event were below levels that could result in ground level exposures above ALs.

Hanford Tank Waste Operations & Closure (H2C) Industrial Hygiene Department has established a conservative, reasonable, and data-derived response limit of 6 ppm for Personal Ammonia Monitor concentrations associated with tank waste gases/vapors in the Hanford Tank Farms. The intent of this response level is to enhance the safety of Hanford Tank Farm workers by establishing a conservative and timely indicator of potential changing conditions in Tank Farm gas/vapor conditions, at which prudent and protective investigative measures may be taken.

During response actions, monitoring was performed around the exterior of 217AY1 around the front entrance. Continuous monitoring was then performed inside of 217AY1, checking all areas outside those posted as RBA/CA, pausing at the indicated location of the PAM alarm. Additionally, extra time was spent searching for potential sources, pausing over trash cans and ventilation ducts (intake & exhaust) along the North wall. Monitoring results did not indicate further action was necessary to protect worker safety and health. As a result, the area was released from restricted access and work was allowed to continue.

Others:

No symptoms were reported and all Affected Workers declined precautionary medical surveillance.

Associated Documents:

iCAS Number: N/A EIR Number: EIR-2025-074

Industrial Hygienist:

[redacted] [redacted]

Print First and Last Name *Signature / Date*

Industrial Hygiene Level 3 Manager

[redacted] [redacted]

Print First and Last Name *Signature / Date*

Industrial Hygiene Level 2 Manager:

[redacted] [redacted]

Print First and Last Name *Signature / Date*

Washington River Protection Solutions

INDUSTRIAL HYGIENE EQUIPMENT INVESTIGATION (IHEI)

Event Title:	IHEI Number:00004
AOP-015 217AY-1 Tent	IHIR Number:00123

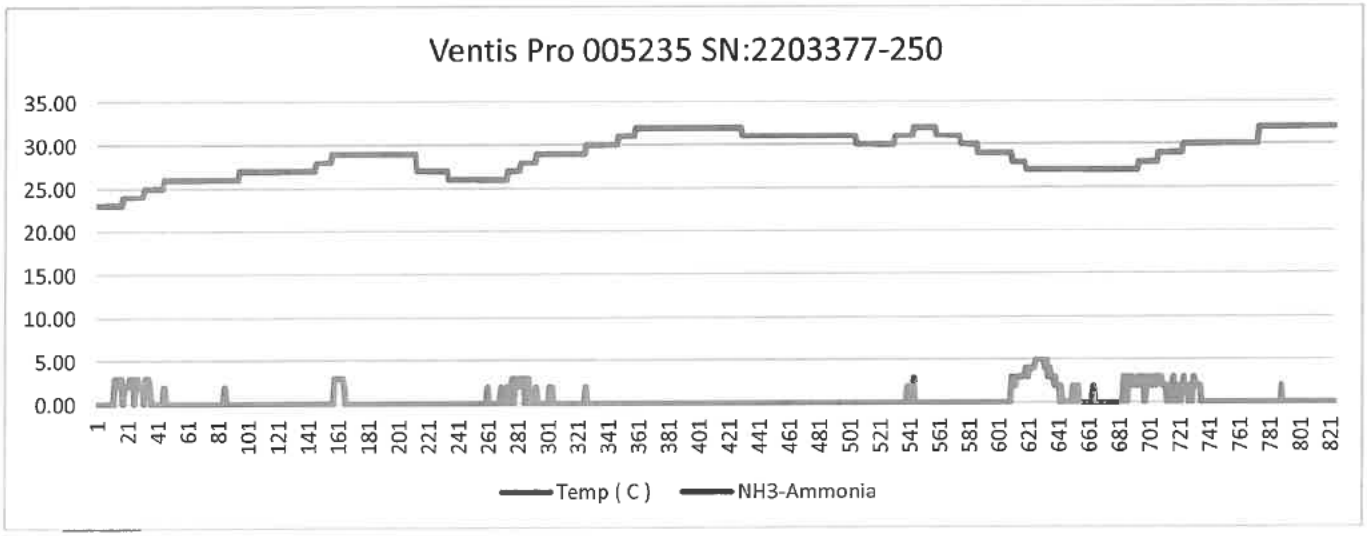
Date: 9/24/2025	Time: 1:32:51 PM	Location: 217AY-1 Tent

Device Information:

WRPS ID: 005235 SN:2203377-250

Last Calibration:	Last Bump:
9/4/2025 Result: Passed	9/23/2025 Result: Passed

Event Data Log:



Recommendations/Conclusions:

The Ventis Pro instrument was reported as being worn in conjunction with anti-contamination clothing.

An assessment of the instrument's performance, which encompassed a review of its full span reserve, alarm and data logs, and its calibration and bump test history has been completed. The instrument's sensor demonstrated healthy operation but was nearing the age where it should be considered for replacement. The alarm log recorded a peak concentration of 6 ppm, sustained for a duration of eight seconds, followed by a swift return to normal levels.

A physical inspection of the Ventis Pro 5 was performed to identify any potential damage or configuration anomalies that could have influenced the alarm event. The inspection revealed no evident damage. However, anomalous behavior was observed when covering the inlet. The instrument produced positive readings up to 2 ppm when covered for a few seconds. This suggests the sensor is more susceptible than normal and likely should be replaced.

Washington River Protection Solutions

INDUSTRIAL HYGIENE EQUIPMENT INVESTIGATION (IHEI) (Continued)

Recommendations/Conclusions:

The worker reported that the PAM alarmed outside of the AY Farm after he had been surveyed out and it was lying face down on a sweaty t-shirt. He stated that as soon as he picked up the instrument it stopped alarming. The sensor behavior during the physical inspection warrants a sensor replacement.

Other: NA

Associated Reports:

iCAS Number: NA

PAM AIC Number: NA

Industrial Hygienist Equipment SME/Program Owner:

[redacted]

Print First and Last Name

[redacted]

Signature / Date

Industrial Hygiene Level 3 Manager

Print First and Last Name

[redacted]

Signature / Date

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 1330 9/24/25
- Check Applicable:
  - ☐ Odor ☒ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*:
- Your name and the work you were performing: [redacted] Resting upon leaving farm from walkdown
- Other Work Underway? Describe: Tent support
- Location of event *(mark area on map and wind direction)*: 217AY1
- Name(s) of others in or near the affected area: [redacted]
- Was Industrial Hygiene present, who? NO
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☐ Other *(describe)*:
- Is source known/likely? Describe: sweat off of t-shirt
- Your symptoms? ☒ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.

If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

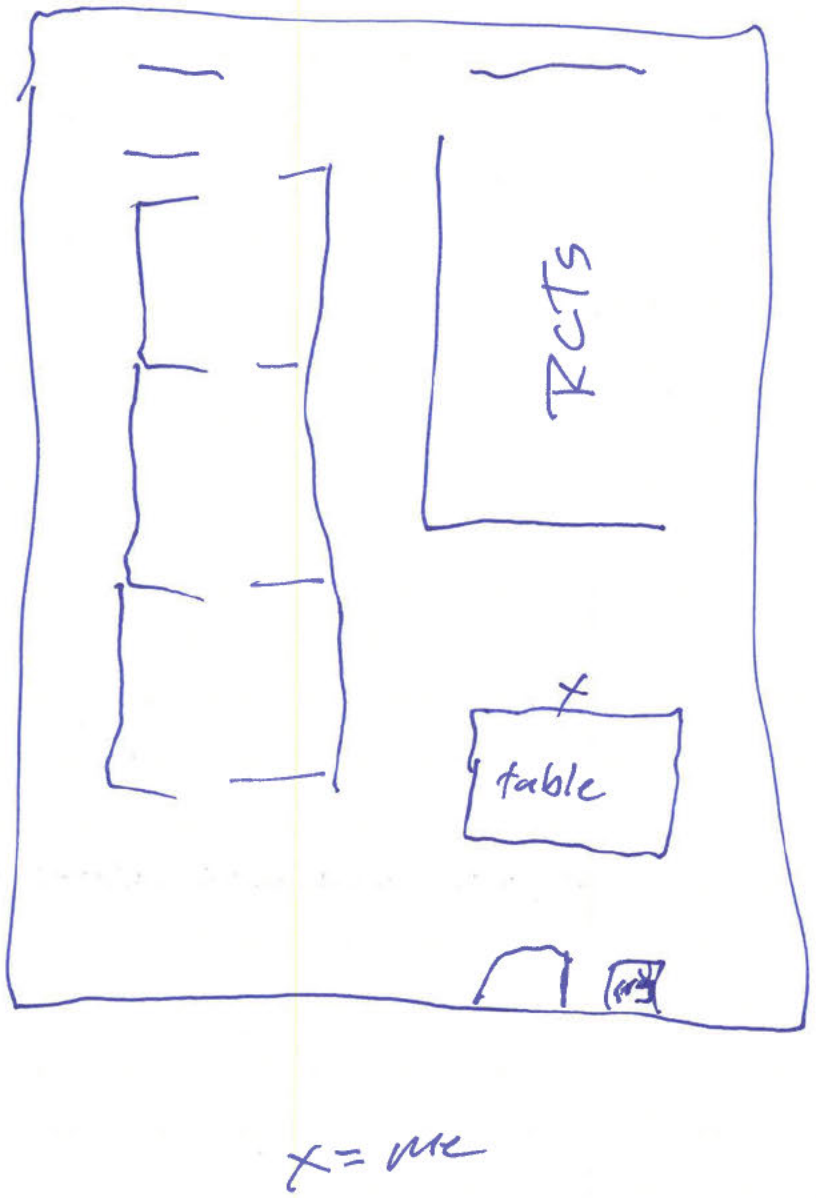
[redacted]

ODOR/VAPOR RESPONSE CARD

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
   a. Approximate location, see map at right;
   b. Wind direction, speed and description, such as stable or gusty wind;
   c. Environmental conditions, such as hot, cold, windy, rainy;
   d. Other work or contractors in the area;
   e. Anything else you think is relevant.
4. Provide the completed card to your Supervisor*, Industrial Hygiene*, Union Safety Representative* or the CSM.

* If received by Supervisor, IH, or Union Safety Representative, the Supervisor/IH/ Union-SR will ensure card it is provided to the CSM.



[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 9/24/25 1330
- Check Applicable:
  - ☐ Odor ☐ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*: No alarm
- Your name and the work you were performing: [redacted] Safety walkdown
- Other Work Underway? Describe:
- Location of event *(mark area on map and wind direction)*: 217 AY-1
- Name(s) of others in or near the affected area: [redacted]
- Was Industrial Hygiene present, who?
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☐ Other *(describe)*:
- Is source known/likely? Describe:
- Your symptoms? ☒ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.

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[redacted]

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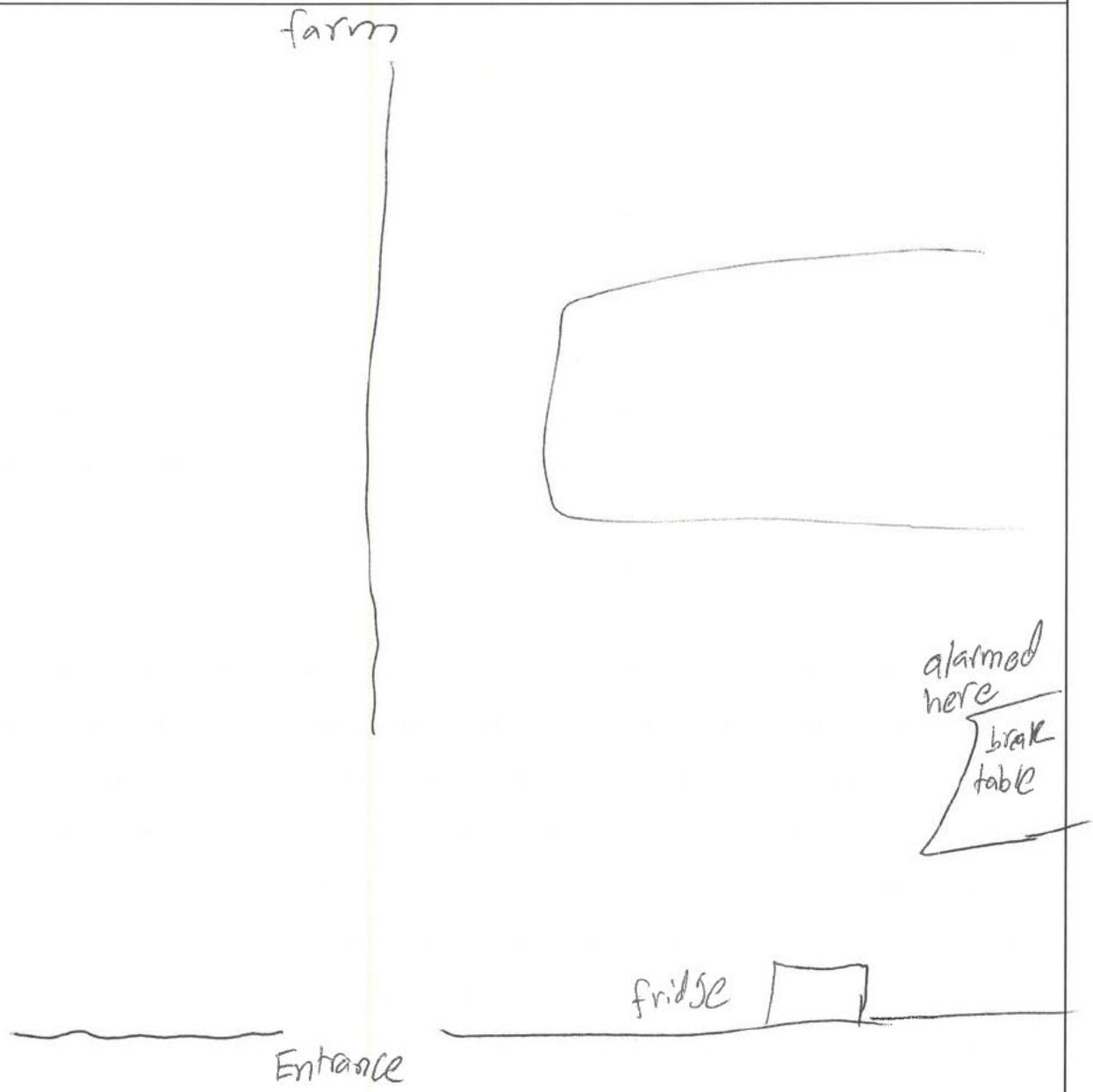

[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page [redacted])*

- Date and time of event: 9-24-25 ~~1400~~ 1330 [redacted] 9-24-25
- Check Applicable:
  - ☐ Odor ☐ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☒ Alarm *(other - describe)*: Sweaty shirt
- Your name and the work you were performing: [redacted] Laungry
- Other Work Underway? Describe: RCT
- Location of event *(mark area on map and wind direction)*: 217AY-1
- Name(s) of others in or near the affected area: ~~after~~ [redacted] 9-24-25
- Was Industrial Hygiene present, who?
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☐ Other *(describe)*:
- Is source known/likely? Describe:
- Your symptoms? ☒ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

No device in Tent

did not hear the other people leave the tent left after someone called me a few minutes later

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.
If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

[redacted]

ODOR/VAPOR RESPONSE CARD

Instructions:

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2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
   a. Approximate location, see map at right;
   b. Wind direction, speed and description, such as stable or gusty wind;
   c. Environmental conditions, such as hot, cold, windy, rainy;
   d. Other work or contractors in the area;
   e. Anything else you think is relevant.
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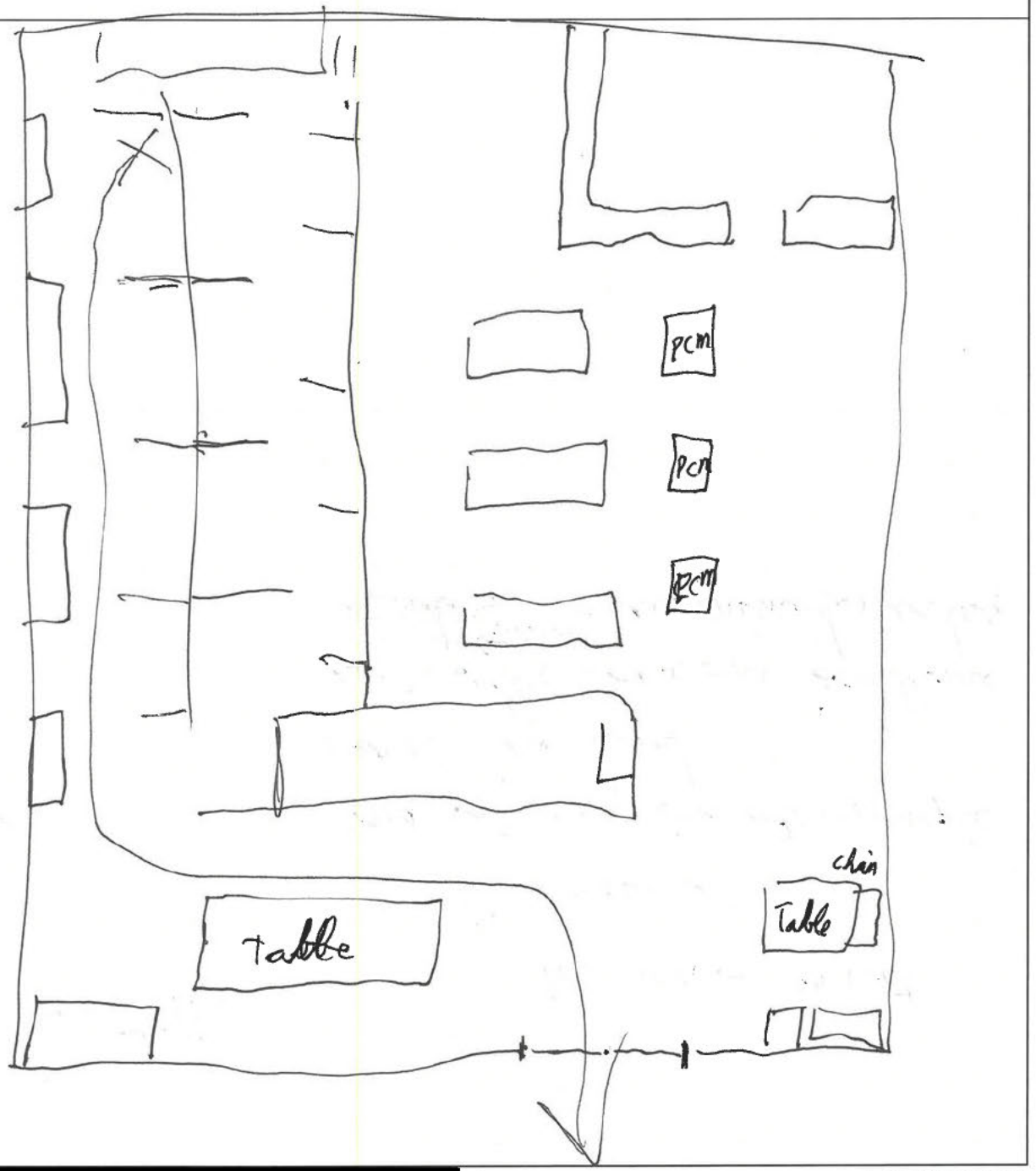

[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 9-24-25 1:30
- Check Applicable:
  - ☐ Odor ☐ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☑ Alarm *(other - describe)*: NO alarm
- Your name and the work you were performing: [redacted] Safety walkdown, dressing down
- Other Work Underway? Describe: Rad con doing their work inside the tent.
- Location of event *(mark area on map and wind direction)*:
- Name(s) of others in or near the affected area: [redacted]
- Was Industrial Hygiene present, who?
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☑ Other *(describe)*: NO odor
- Is source known/likely? Describe: [redacted] believes it was the sweat on his shirt.
- Your symptoms? ☑ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.

If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

[redacted]

ODOR/VAPOR RESPONSE CARD

Instructions:

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2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
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   b. Wind direction, speed and description, such as stable or gusty wind;
   c. Environmental conditions, such as hot, cold, windy, rainy;
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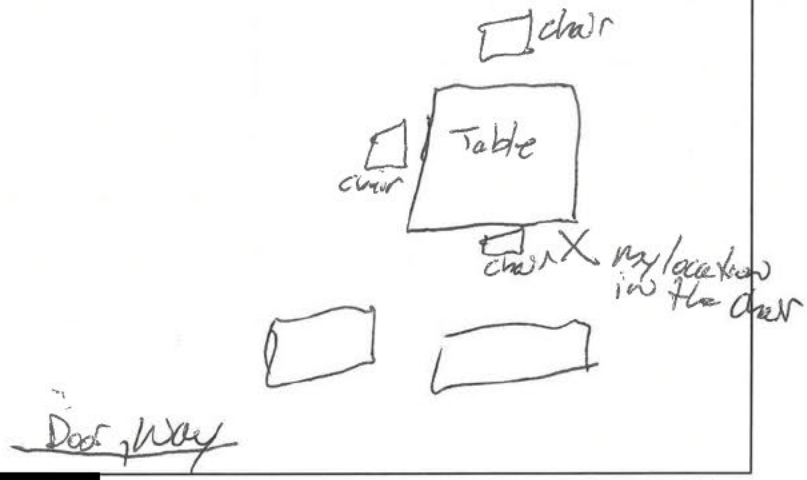

[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 9/24/25 1330
- Check Applicable: Near didn't have PAM [redacted] 24/25
  - ☐ Odor ☒ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*:
- Your name and the work you were performing: [redacted] Surveying and Supporting egress
- Other Work Underway? Describe:
- Location of event *(mark area on map and wind direction)*: 217 AY-1
- [redacted]
- Was Industrial Hygiene present, who? No
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☒ Other *(describe)*: No odor
- Is source known/likely? Describe: N/A
- Your symptoms? ☒ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.
If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

[redacted]

ODOR/VAPOR RESPONSE CARD

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2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
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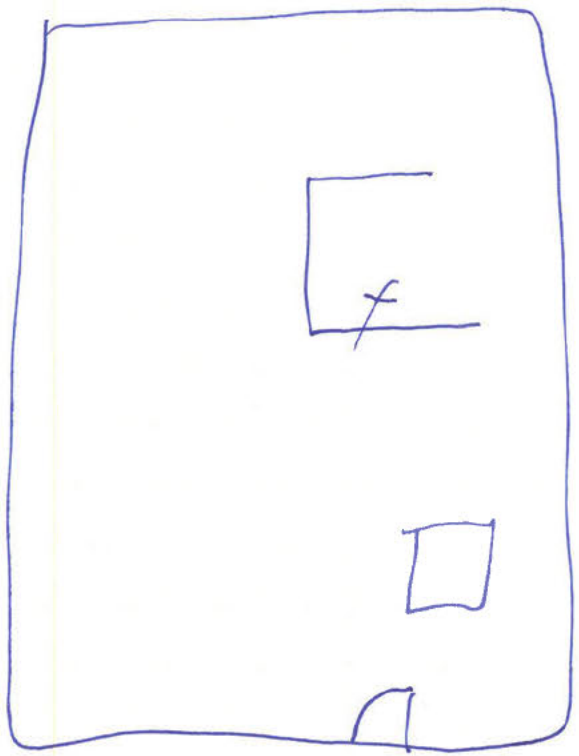

[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 9/24/25 1330
- Check Applicable: near Didn't have PAM [redacted] 9/24/25
  - ☐ Odor ☒ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*:
- Your name and the work you were performing: [redacted] SOP support (RCT)
- Other Work Underway? Describe:
- Location of event *(mark area on map and wind direction)*: 217-AY-2
- Name(s) of others in or near the affected area: [redacted]
- Was Industrial Hygiene present, who? NO
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☑ Other *(describe)*: Didn't smell an odor
- Is source known/likely? Describe: NO
- Your symptoms? ☑ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.

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[redacted]

ODOR/VAPOR RESPONSE CARD

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2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
   a. Approximate location, see map at right;
   b. Wind direction, speed and description, such as stable or gusty wind;
   c. Environmental conditions, such as hot, cold, windy, rainy;
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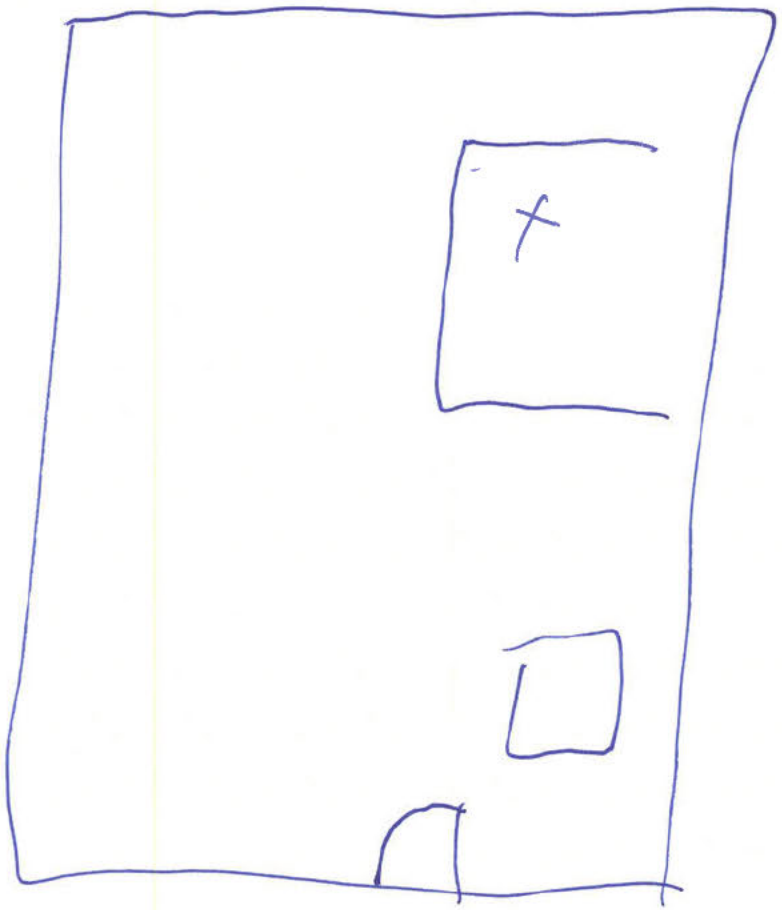


[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 8-24-25 1320
- Check Applicable: Near Didn't have PAM [redacted] 4/25
  - ☐ Odor ☒ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*:
- [redacted] you were performing: / ingress, Eggress
- [redacted] Describe:
- Location of event *(mark area on map and wind direction)*: AY Tent
- Name(s) of others in or near the affected area: [redacted]
- Was Industrial Hygiene present, who? no
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☒ Other *(describe)*: Didnt smell anything
- Is source known/likely? Describe: no
- Your symptoms? ☐ None
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☒ Other *(describe)*: none

2. Provide this completed card *(Page 1 & 2)* to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.
If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

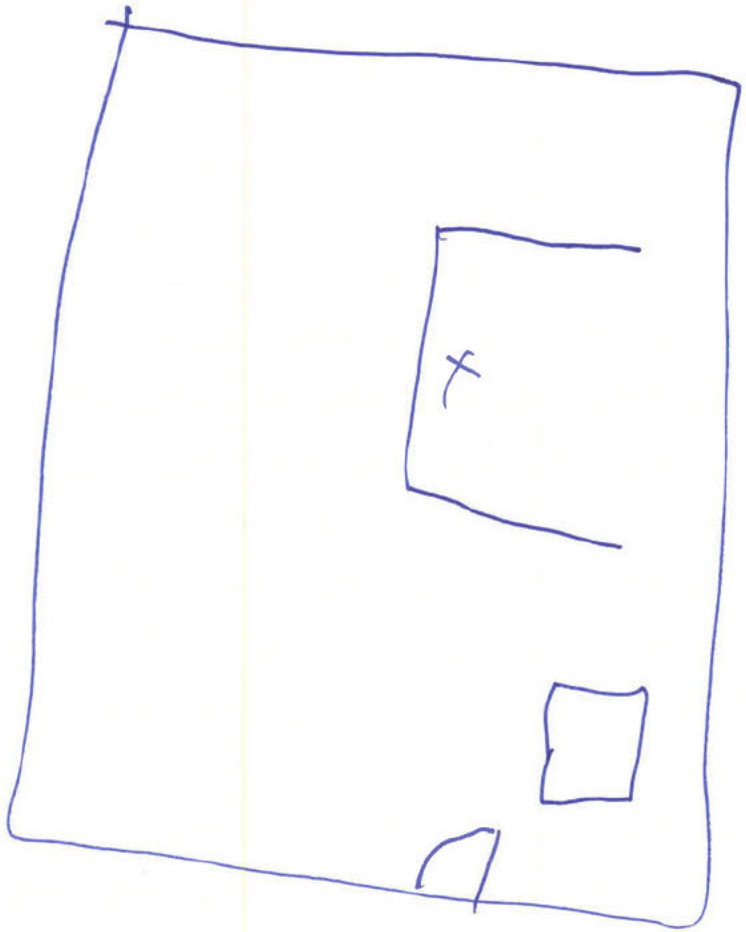
[redacted]

ODOR/VAPOR RESPONSE CARD

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at (509) 373-2689.
3. Complete both pages of this form and include as many details as possible, including:
   a. Approximate location, see map at right;
   b. Wind direction, speed and description, such as stable or gusty wind;
   c. Environmental conditions, such as hot, cold, windy, rainy;
   d. Other work or contractors in the area;
   e. Anything else you think is relevant.
4. Provide the completed card to your Supervisor*, Industrial Hygiene*, Union Safety Representative* or the CSM.

* If received by Supervisor, IH, or Union Safety Representative, the Supervisor/IH/ Union-SR will ensure card it is provided to the CSM.



[redacted]

ODOR/VAPOR RESPONSE CARD

1. Complete below information and map *(Page 1)*.

- Date and time of event: 09/24/2025 1330
- Check Applicable: near Didn't have a PAM [redacted] 9/24/25
  - ☐ Odor ☑ Ammonia Alarm *(6 ppm)* ☐ Ammonia Alarm *(12 ppm)* ☐ Alarm *(other - describe)*:
  - ~~their unit didn't alarm~~ [redacted] 9/24/25
- Your name and the work you were performing: [redacted] - RCT surveying equipment
- Other Work Underway? Describe: none
- Location of event *(mark area on map and wind direction)*: AY tent
- Name(s) of [redacted]
- Was Industrial Hygiene present, who? no
- Describe the odor:
  - ☐ Sweet ☐ Sour ☐ Smoky ☐ Septic/Sewer ☐ Musty ☐ Rotten
  - ☐ Metallic ☐ Onion ☐ Earthy ☐ Ammonia ☐ Citrus ☐ Solvent
  - ☐ Other *(describe)*: no ~~odor smelled~~ odor smelled
- Is source known/likely? Describe: unknown
- Your symptoms? ☑ ~~None~~
  - ☐ Headache ☐ Dizziness ☐ Nausea ☐ Cough ☐ Fatigue
  - ☐ Weakness ☐ Sore Throat ☐ Difficulty Breathing ☐ Eye Irritation ☐ Rash
  - ☐ Itch ☐ Tingling ☐ Numbness ☐ Taste
  - ☐ Other *(describe)*:

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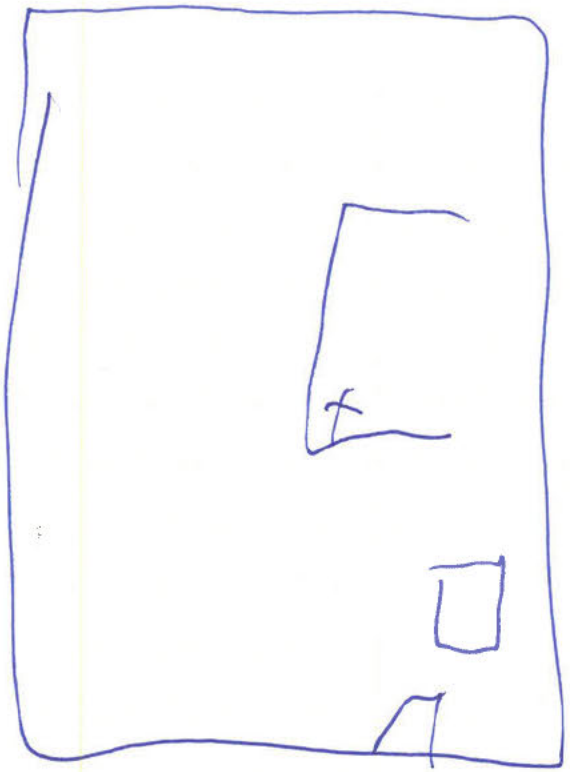

[redacted]