

Washington River Protection Solutions
EVENT SUMMARY

Check PART 1 box to hide that section of the form. Check PART 2 box it will show that section.

PART 1 (hide)* **PART 2 (show)***

NOTE: This form provides timely notification to management and documents preliminary information of an event that may require a more formal investigation. Details may change upon further examination and analysis. The following is a current status of available information:

Project: Production Operations Date: 08/16/2023

Area/Building/Location: 200E/AP Farm/AP-104 Approximate Time of Event: 0809

AR Number: WRPS-AR-2023-2188 Responsible Manager: [REDACTED]

EIR Number: EIR-2023-061 Event Investigator: [REDACTED]

EVENT SUMMARY PART 1

Activity in Progress (What activity was under way, include procedures and work order numbers, as applicable):

Workers supporting Work Order (WO) #968957 "AP-104 Double-Shell Tank Annulus Ultrasonic Testing."

Personnel Involved (Job positions, number of personnel, identify any support organizations or subcontractors directly involved):

Personnel located within AP Farm at time of VentisPro personal ammonia monitor (PAM) Response Level alarm:

- 6 Nuclear Chemical Operators (NCO)
- 1 WRPS Health Physics Technician (HPT)

What Happened (Provide a short discussion of what happened):

On 08/16/2023, at approximately 0809 hours, 7 workers (6 NCOs and 1 HPT) supporting the WO# 968957 work evolution were within AP Farm swapping ultrasonic test (UT) crawlers in the AP-104 annulus. While awaiting the calibration of the inbound UT crawler, one of the worker's Ventis Pro personal ammonia monitor "Response Level" alarmed, displaying an ammonia concentration of 6 ppm. All 6 of the additional workers were in the immediate area of the individual when the Ventis Pro personal ammonia monitor alarmed. None of the other workers' Ventis Pro personal ammonia monitors alarmed or indicated elevated ammonia concentrations.

All workers immediately evacuated the area where all 7 workers reported no symptoms. All 7 workers also declined to report to the on-site medical provider for precautionary medical surveillance. Access to the area around AP-104 was restricted and TF-AOP-015, "Response to Personal Ammonia Monitor Alarm" was entered.

An Industrial Hygienist Technician (IHT) was dispatched to the area to take Direct-reading instrument (DRI) readings. DRI readings were found to be below action levels. Upon receiving the DRI results, the Central shift manager (CSM) exited TF-AOP-015 at 0847 hours and the restricted area around AP-104 was down posted.

Review of the Ventis Pro data-log indicated a peak reading of 7 ppm.

Where Did It Happen (Description of work area and working conditions. Include information on weather conditions, PPE, Postings, etc.):

Work was being performed around the 241-AP-104 Annulus pit.

Workers were wearing FF-APR respiratory protection with chemical vapor cartridges as required by Standing Order SO-OPS-17-003 "Use of Respiratory Protection in Tank Farms" and TFC-PLN-173 "Use of FFAPR in Actively Ventilated Tank Farms".

Workers were wearing Personal Ammonia Monitors (e.g., Ventis Pro)

The Hanford Site Meteorological Station #6 and Data Fusion and Advisory System (DFAS) application were utilized for outdoor weather details at the time of the event. The Hanford Site Meteorological Station and DFAS dashboard indicated the following weather conditions at 0800 hours on 08/16/2023:

- Wind Speed: 6 miles per hour (mph), with gusts of 10 mph.
- Wind Direction: NW
- Mixing Height: 140 feet above grade.
- Stability Class: D(Neutral conditions)
- Barometric Pressure: 29.23 inches Hg

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EVENT SUMMARY (Continued)

Project: Production Operations **Date:** 08/16/2023

Area/Building/Location: 200E/AP Farm/AP-104 **Approximate Time of Event:** 0809

AR Number: WRPS-AR-2023-2188 **Responsible Manager:** [REDACTED]

EIR Number: EIR-2023-061 **Event Investigator:** [REDACTED]

Impact to Facility (Caused by the event or a description of known consequences):

The WO# #968957 work evolution was delayed, and access restricted to the area around AP-104 for approximately one hour. No additional impacts to scheduled 08/16/2023 work evolutions occurred.

Immediate Actions Taken (List immediate actions taken to stabilize the scene or respond to the event):

- IHT verified no workers were experiencing symptoms and offered precautionary medical surveillance. Workers declined medical surveillance.
- CSM initiated TF-AOP-015 response actions and restricted access to the area around AP-104.
- CSM requested Odor/Vapor Response Cards from affected workers.
- CSM made required TF-AOP-015 notifications.
- Production Operations shift Industrial Hygiene Technician (IHT) initiated TF-AOP-015 response actions and monitoring per IHP-09001. DRI area readings of the area around AP-104 indicated a less than detectable (< 1 ppm) ammonia concentration.
- CSM initiated Event Investigation EIR-2023-061 "AOP-015 Entry for AP-104"

Notifications Already Made (Time and personnel notified):

[0821 hours]- The CSM initiated TF-AOP-015, restricted access to the area around AP-104, provided radio announcement, and issued Shift Office Event Notification (SOEN), "Entering TF-AOP-015 for "Response to Personal Ammonia Monitor Alarm" at AP-104". On-call DOE Facility Representative called CSM following SOEN issuance and was provided summary of TF-AOP-015 event initiation.
[0840 hours]- CSM provided TF-AOP-015, Attachment 1- Initial Communication Template to email to distribution list "DL- WRPS Odor/Vapor Event Notification."
[0852 hours]- CSM exited TF-AOP-015 for "Response to Personal Ammonia Monitor Alarm" at AP-104. Confirmed all response actions had been completed and Access was restored to AP-104. SOEN sent.
[0908 hours]- CSM initiated Event Investigation EIR-2023-061 "AOP-015 Entry for AP-104"
[1106 hours]- CSM provided TF-AOP-015, Attachment 2- Follow-up Event Summary to email to distribution list "DL- WRPS Odor/Vapor Event Notification."

This event does not merit an Event Investigation meeting

This event merits an Event Investigation meeting

Basis for Determination:

Information gathered from interviews and documentation reviews have provided sufficient information regarding this event.

Responsible Manager:

[REDACTED] _____
Print First and Last Name

[REDACTED] _____
Signature / Date
*Per telecom for [REDACTED]
Digitally signed by [REDACTED]
Date: 2023.08.17 13:02:55 -07'00'*

CAS Manager:

[REDACTED] _____
Print First and Last Name

[REDACTED] _____
Signature / Date
*Digitally signed by [REDACTED]
Date: 2023.08.17 15:33:36 -07'00'*

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EVENT SUMMARY (Continued)

Project: Production Operations

Date: 08/16/2023

Area/Building/Location: 200E/AP Farm/AP-104

Approximate Time of Event: 0809

AR Number: WRPS-AR-2023-2188

Responsible Manager: [REDACTED]

EIR Number: EIR-2023-061

Event Investigator: [REDACTED]

EVENT SUMMARY PART 2

Key Elements of the Investigation (Key investigation points):

To summarize the conclusions of the Industrial Hygiene Event Investigation Report, IHIR-00079, "TF-AOP-015 Response 241-AP-104," the Ventis Pro personal ammonia monitor alarm was likely not indicative of an employee chemical exposure event or changing Tank Farm conditions related to Tank Farm vapors. Direct Reading Instrumentation monitoring performed during TF-AOP-015 response actions did not indicate further action was necessary with regard to a worker safety and health occupational exposure standpoint. As a result, the area was released from restricted access.

The following considerations support the IHIR-00079 conclusion:

(1) Review of the initiating Ventis Pro personal ammonia monitor (ID Number: 2203377-352) alarm history indicates six previous alarm events having occurred between 01/04/2023 and 08/15/2023, two of which occurring the previous day to the initiating event. Additionally, there were another two previous alarm events recorded prior to the initiating event on the morning of 08/16/2023. Furthermore, datalog review of the event initiating Ventis Pro personal ammonia monitor (ID Number: 2203377-352) indicated variability in ammonia readings, with fluctuations between -6 ppm to 4 ppm, starting on 07/31/2023. Further review determined three of the six previous alarm events that occurred between 01/04/2023 and 08/15/2023 were resultant of the sensor bump when the instrument was on the docking station. However, there is indication the instrument did not satisfy the desired calibration concentrations on 07/27/2023, yet the calibration information still reported the unit as "passed" and the unit remained in service. The bad calibration likely resulted in fluctuation of ammonia readings, in addition to the cause of the 08/16/2023 Ventis Pro "Response Level" alarm. The initiating Ventis Pro personal ammonia monitor (ID Number: 2203377-352) was removed from service and will be sent to the manufacturer for further diagnostic testing.

(2) Six additional workers were within the immediate area of the individual when the Ventis Pro personal ammonia monitor alarmed. The other workers' Ventis Pro personal ammonia monitors did not alarm. If the Ventis Pro personal ammonia alarm was resultant of changing Tank Farm conditions related to Tank Farm vapors, it is expected the Ventis Pro personal ammonia monitors of the additional workers within the immediate area would have also alarmed. Therefore, providing indication the cause of the personal ammonia alarm was unlikely to be resultant of changing Tank Farms conditions or exhauster emissions.

Review of the Ventis Pro personal ammonia monitor datalogs for five of the six additional workers within the immediate area when the "Response Level" alarm initiated did not indicate elevated ammonia concentrations, with peak readings of 0 ppm ammonia at the time of the initiating event. The Ventis Pro personal ammonia monitor (ID Number: 22033PF-015) worn by the 6th additional worker indicated a 3 ppm ammonia reading near the time of the initiating event. However, further datalog review identified variability in ammonia readings, with consistent fluctuations between 0 ppm to 4 ppm, starting on 08/03/2023. Therefore, providing question of increased sensitivity in the sensor performance. While the Ventis Pro personal ammonia monitor (ID Number: 22033PF-015) is operating in normal range, it has been removed from service until the units next scheduled calibration on 09/01/2023 due to the increased variability in the ammonia concentrations observed in the data log review.

(3) Evaluation of the weather details determined the cause of the Ventis Pro personal ammonia monitor "Response Level" alarm was unlikely to be resultant of Tank Farms exhauster emissions based on the wind direction, wind speed, mixing height, and stability class at the reported time of event (Refer to Attachment 3 for DFAS PEZ Model). Evaluation of the the Potential Exposure Zone (PEZ) model indicates exhaust plumes of the AN Exhauster, POR-126 exhauster, POR-127 exhauster, AW Exhauster, and AP exhauster were not within the work area at the reported time of the event. While AP-104 appeared to be within the Potential Exposure Zone of the POR-518/519 and 702-AZ Exhauster emission plumes at the reported time of the event, the approximate distance AP-104 is located from the POR-518/519 exhauster is 1,025 feet and 2,250 feet from the 702-AZ Exhauster, therefore,

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EVENT SUMMARY (Continued)

Project: Production Operations

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Area/Building/Location: 200E/AP Farm/AP-104

Approximate Time of Event: 0809

AR Number: WRPS-AR-2023-2188

Responsible Manager: [REDACTED]

EIR Number: EIR-2023-061

Event Investigator: [REDACTED]

Key Elements of the Investigation (Key investigation points):

determined unlikely to have contributed to the Ventis Pro "Response Level" alarm.

(4) Because nitric acid was utilized in nearly all production processes that generated tank waste, and the most common byproduct of those processes was reduction of nitrate ion to ammonia during the dissolution (oxidation) of irradiated fuel, ammonia is the most prevalent chemical of potential concern (COPC) found in all tanks. Therefore, ammonia is utilized as a sentinel indicator for Tank Waste Chemical Vapor COPCs, thus direct reading instruments (DRIs) equipped with an ammonia sensor are utilized at a minimum when monitoring for tank waste chemical vapors/COPCs. Field response DRI monitoring following initiation of TF-AOP-015 checked breather filters, general work areas, and extra time searching for potential sources around 241-AP-104. Field response DRI monitoring indicated less than detectable ammonia concentrations (< 1 ppm), which is below background levels. Providing additional indication the cause of the personal ammonia alarm was unlikely to be resultant of Tank Farms exhauster emissions.

(5) Memo WRPS-1904672.1, "TANK FARM EXHAUST STACK CONCENTRATION ALARM/ACTION LEVELS FOR AMMONIA," establishes ammonia concentration stack alarm/action set points for tank farm exhausters based on the predicated ammonia concentration at unspecified ground receptors utilizing the Quantitative Risk Assessment (QRA) model. The exhauster high level alarm was established at concentrations where the predicted ground receptor ammonia concentration of 2.5 ppm (or 10% of the established Occupational Exposure Limit for ammonia) could be observed.

The exhauster high level alarm conservatively established for A Complex (excluding A farm) is 460 ppm. According to the Vapor Monitoring and Detection System (VMDS), the ammonia concentration observed at the time of event occurrence was 0.0 ppm at the POR-126 exhauster, 1.216 ppm at the POR-127 exhauster, 15.853 ppm at the 702-AZ exhauster, and 27.531 ppm at the AN exhauster. The AP exhauster is not currently connected to VMDS and issues have been identified with the AW exhauster VMDS; therefore, readings are acquired once per calendar day in accordance with TF-OPS-IHT-037 when ammonia stack monitoring via VMDS is unavailable. The highest ammonia concentrations observed between 08/09/2023 and 08/15/2023 was 10.0 ppm at the AP Exhauster and 8 ppm at the AW exhauster. Conservatively utilizing the higher ammonia concentration observed in the AN exhauster, a predicted ground receptor ammonia concentration of 0.149 ppm (or 0.60% of the established Occupational Exposure Limit for ammonia) would be expected if AN, AY/AZ, AX, AW, or AP farm exhauster emissions were present.

The exhauster high level alarm conservatively established for A farm is 160 ppm. According to VMDS, the ammonia concentration observed at the time of event occurrence was 3.245 ppm at the POR-518 exhauster and 1.635 ppm at the POR-519 exhauster. Conservatively utilizing the higher ammonia concentration observed in the POR-518 exhauster, a predicted ground receptor ammonia concentration of 0.051 ppm (or 0.202% of the established Occupational Exposure Limit for ammonia) would be expected if A tank farm exhauster emissions were present.

Therefore, providing further indication the cause of the personal ammonia alarm was unlikely to be resultant of Tank Farms exhauster emissions.

(6) PI Vision was utilized to verify 241-AP Farm maintained negative tank pressures at the time of event occurrence, with pressures ranging from -2.33 inches water column (241-AP-106) to -0.61 inches water column (241-AP-107). Therefore, providing further indication the cause of the personal ammonia alarm was unlikely to be resultant of changing Tank Farm conditions.

Additional Compensatory/Remedial Measures (any additional measures taken if different from immediate actions):

The initiating Ventis Pro personal ammonia monitor (ID Number: 2203377-352) was removed from service and will be sent to the manufacturer for further diagnostic testing.

Lessons Learned or Information That the Work Force Needs Immediately:

Response to Personal Ammonia Monitor Alarm

Attachment 1 – Initial Communication Template

The following is example of detail to provide in the electronic form of Communication Template.

0 Hanford workers were taken to Site Occupational Medical Contractor (SOMC)/Kadlec or have declined precautionary medical evaluation after reporting unexpected changes to vapor conditions at AP-104. 0 workers reported symptoms.

The employees were performing UT Camera work at AP-104 at the time of reported personal ammonia monitor alarm and were in an area that requires use of respiratory protection.

Workers immediately left the area, and access to the area around AP-104 has been restricted.

The PAM in question alarmed at 6ppm. No other PAMs for the group of 6 went into alarm. The Supervisor immediately notified the CSM of the issue. Odor/Vapor Response cards were issued to the workers involved and all PAMs are being collected to have their data downloaded.

NOTE - This communication template is to be completed as soon as enough information is available.

Signature
Central Shift Manager

Print (First & Last)

1 8/16/23
Date

Response to Personal Ammonia Monitor Alarm

Attachment 2 - Follow-Up Event Summary

The following is example of detail to provide in the electronic form of Follow-Up Event Summary.

TF-AOP-015 Initial Report		
Date: 08/16/2023	Time: 0809 hours	Location: AP-104
Number of Workers Involved: 7	Sampling Results #: 23-05522	
Event Summary		
<p>At approximately 0809 hours 6 workers were performing UT Camera work at AP-104 when one of the Personal Ammonia Monitors alarmed at 6ppm. All workers immediately evacuated the area. Initially no workers reported symptoms and declined medical evaluations or were transported to SOMC or Kadlec via ambulance.</p> <p>At approximately 0846 hours provided updated information that the number of workers on the job was 7.</p> <p>At the time the Personal Ammonia Monitor alarm was reported, the individuals were working in an area requiring use of respiratory protection. All workers were instructed to leave the area. Access to the area was restricted.</p> <p>IHTs responded to the area and took DRI readings. DRI instrument readings were below action levels. Upon receiving the DRI results, we exited TF-AOP-015 at 0847 and the restricted area around AP-104 was down posted.</p> <p>An event investigation has been initiated. EIR-2023-061 "AOP"</p>		
Return to Work Status		
Number of workers returned to work without restriction	N/A	
Number of workers returned to work with restriction	N/A	
Number of workers referred for further evaluation	N/A	
<p>NOTE - Form is to be completed once event is stabilized and all details are known. - To learn more about chemical exposure evaluations see http://hanfordvapors.com/wp-content/uploads/2016/09/2a-SOMC-procedure.pdf</p>		
 Signature Central Shift Manager	Print (First & Last)	/ 8/16/23 Date

Attachment 3 - DFAS Exhauster Potential Exposure Zone Model provided in IHIR-00079

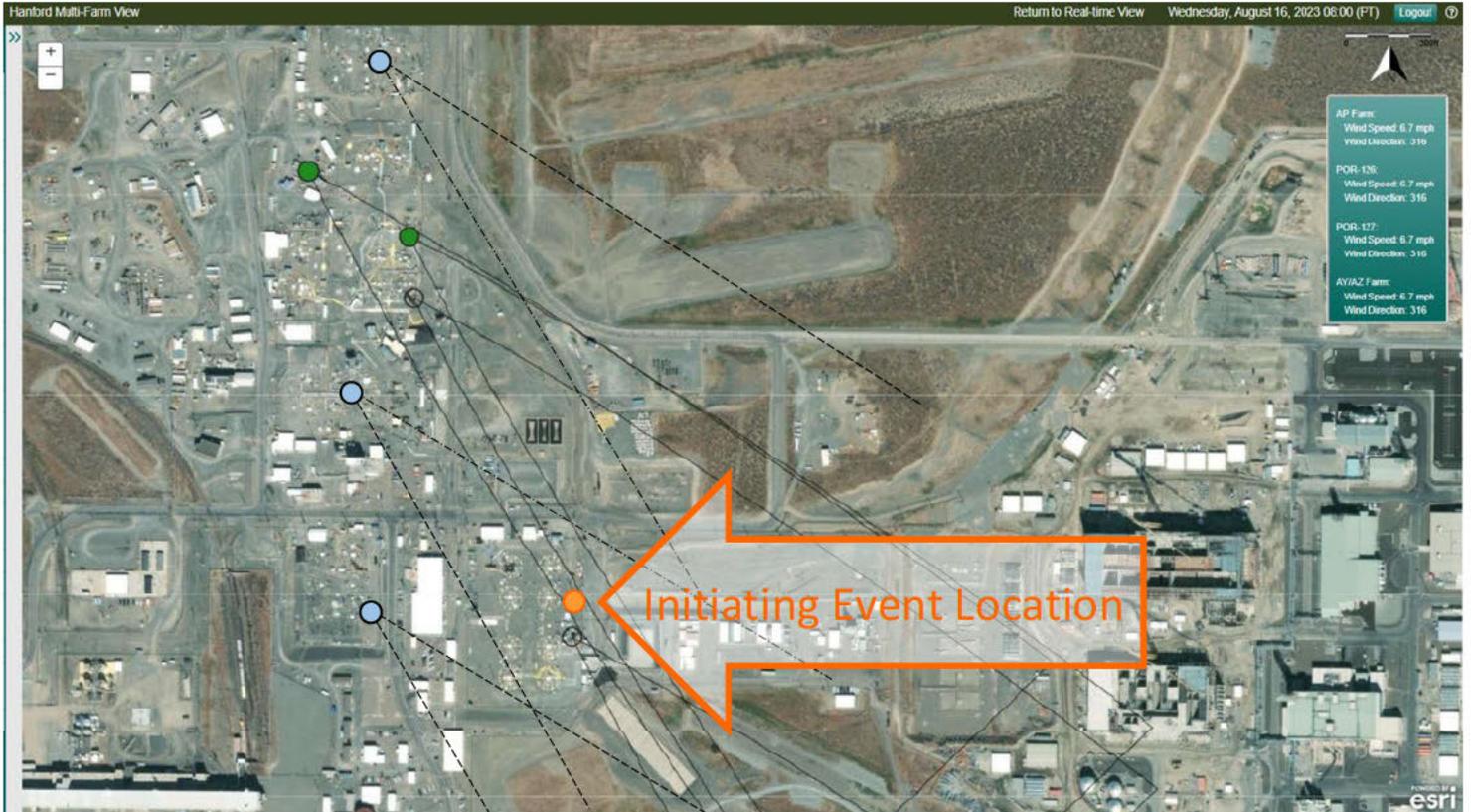


Figure 1. 200-East Area (with 241-AW, 241-AP, 241-AN, 241-AY/AZ, 241-AX, 241-A Farm projected plume models) at 0800 8/16/2023 from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™

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

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT

Event Title: <p style="text-align: center;">TF-AOP-015 Response 241-AP-104</p>	PER Number: <p style="text-align: center;">N/A</p>
IHIR Number: <p style="text-align: center;">IHIR-00079 R1</p>	

Date: 08/16/2023	Time: 0800	Location: 241-AP-104
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Event Summary and Timeline:

08/16/2023 R0: Initial Investigation.
 08/22/2023 R1: Revised Additional Information section to include IH Business Systems Analyst's findings during investigation of the Event Initiating PAM (Ventis Pro5 2203377-352). Added PAM calibration history to Attachment A. Based on the additional information, recommendations and conclusion were revised. Amendments will be identified in each section with "IHIR-00079 Revision 1" preceding the revised content.

Event Summary:

At approximately 0800 on 08/16/2023, one Personal Ammonia Monitor (PAM) alarmed and indicated greater than 6 ppm ammonia but less than 12 ppm ammonia inside 241-AP Farm, near 241-AP-104. Seven workers were present at the time of the PAM alarm. The Affected Worker was a Nuclear Chemical Operator (NCO) performing Ultrasonic Testing (UT) camera work. The other six workers checked their PAM and verified they did not alarm. All workers reported no odors were encountered, and no symptoms were experienced. All workers declined precautionary medical surveillance.

Field Response Timeline:

0806 Production Operations East (POE) Industrial Hygiene Technician (IHT) informs POE IHT Supervisor of PAM alarm

- POE IHT Supervisor instructs POE IHT to contact Central Shift Manager (CSM)

0807 POE IHT Supervisor notifies POE Industrial Hygienist (IH)-1 of PAM Alarm and possible TF-AOP-015 entry

0808 UT Field Work Supervisor (FWS) notifies CSM of PAM Alarm

0809 POE IHT Supervisor notifies POE Shift IHT Supervisor of possible TF-AOP-015 Response

0809 POE IH-1 arrives at Central Shift Office (CSO)

- CSM communicating with UT FWS:
 - UT FWS → CSM: One PAM alarmed at 6 ppm
 - UT FWS → CSM: 6 Workers in area
 - UT FWS → CSM: UT camera work being performed at AP-104 annulus
 - CSM → UT FWS: Responding per TF-AOP-015

0811 POE IH-1 notifies POE IH-2 of TF-AOP-015 Response

0811 POE IH-2 arrives at CSO

0811 CSM requests Odor Vapor Response Cards (OVRC) from Affected Workers

0812 CSM discusses restricted access area with UT FWS

- CSM → UT FWS: Restricted Access area is around 241-AP-104
- UT FWS → CSM: Affected Workers report no symptoms
- UT FWS → CSM: Workers declined precautionary medical evaluation
- CSM → UT FWS: PAM needs to be delivered to CSO

0814 POE Shift IHT Supervisor requests POE IHT to transport alarmed PAM to CSO

0815 CSM confirms area restriction with Level 2 Operations Manager

0816 POE IH-1 checks Data Fusion & Advisory System (DFAS), powered Smart Site™, for current weather details:

- Wind Speed: 6.7 mph
- Wind Direction: 316° (out of Northwest)
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

0816 POE IH-1 relays mixing height to CSM

0816 Affected Worker and PAM arrive at CSO

Field Response Timeline continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Event Summary and Timeline:

Field Response Timeline (continued):

- 0816 POE Shift IHT Supervisor observes PAM displays peak reading of 8 ppm
- 0818 POE IH-1 checks Vapor Monitoring Detection System (VMDS) exhauster ammonia readings (current):
- POR518 (241-A): 3.023 ppm
 - POR519 (241-A): 0.920 ppm
 - 241-AN: 28.956 ppm
 - 241-AW: 0 ppm
 - POR126 (241-AX): 0 ppm
 - POR127 (241-AX): 1.465 ppm
 - 702AZ (241-AY/AZ): 15.903 ppm
 - 241-AP: N/A
- All available readings << High Alarm set point
- 0820 POE IHT arrives at CSO
- 0820 POE IH-1 briefs POE IHT on Response Actions:
- Monitor as per IHP-09001 "Response to ammonia monitor alarm":
 - Sweep Affected Area with Direct Reading Instrument (DRI) equipped with an ammonia sensor
 - Respiratory Protective Equipment (RPE) per Respiratory Protection Form (RPF) "TF-AOP-015" Task 5: Voluntary Use when personal ammonia monitor alarm is greater than or equal to 6 ppm but less than 12 ppm
 - Therefore, RPE required in accordance with Management Directed RPF "MDRPF-PLN-173" Task 1: RC 1 (general farm entry) and RC 2 (work with validated controls) work activities without particulate hazard
- 0820 Shift Office Event Notification (SOEN): "Entering TF-AOP-015 for "Response to Personal Ammonia Monitor Alarm" at AP-104. Access is restricted to the area around AP-104, all personnel are required to remain out of the area until further notice. CSM"
- 0822 POE IHT departs CSO
- 0822 CSM notifies Department of Energy (DOE) Facility Representative (Fac. Rep.) of TF-AOP-15 entry
- 0822 POE Shift IHT Supervisor departs CSO to perform PAM datalog download
- 0825 Performance Assurance (PA) contacts CSM
- PA assigns PA Technical Specialist Point-of-Contact
- 0827 POE IH-2 contacts Hanford Meteorological Station for weather information for Station #6 at 0800 on 08/16/2023:
- Temperature: 85°F
 - Relative Humidity: 24%
 - Wind Speed: 5 mph
 - Wind Direction: from Northwest
 - Barometric Pressure: 29.23 inches of mercury and rising
- 0827 POE IHT Supervisor notifies Level 1 Environmental, Safety, Health, & Quality (ESH&Q) Manager, Level 2 IH Manager, and POE Level 3 Safety & Health (S&H) Manager on TF-AOP-15 Response Actions
- 8 ppm alarm
 - No symptoms reported
 - Workers declined precautionary medical evaluation
- 0829 Affected Worker submits OVRC to POE IHs for review
- 0831 CSM inquires about on-going work activities at the time of the PAM alarm with UT FWS
- UT FWS → CSM: UT camera work in the AP104 annulus
- 0841 POE Shift IHT Supervisor provides Event Initiating PAM downloads to POE IH-1 and POE Level 3 S&H Manager:
- PAM datalogged peak was 7 ppm
- 0846 POE IHT and POE Shift IHT Supervisor informs POE IH-1 that Affected Area readings were less than detectable (< 1 ppm) and DRI passed the post-use function test

Field Response Timeline continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Field Response Timeline (continued):

0850 POE IH-1 informs POE Shift IHT Supervisor and POE IHT that UT FWS requested POE IHT collect and deliver remaining OVRCs to CSO

- POE IHT → POE IH-1: OVRCs for all workers?
- POE IH-1 → POE IHT: Yes, from all workers present at the time of the alarm
- POE IH-1 → POE IHT: Should be five cards as one has been submitted
- POE IHT → POE IH-1: There were six workers in addition to the Affected Worker, total of seven present at the time of the alarm
- POE IH-1 → POE IHT: Please deliver OVRC to CSM

0851 POE IH-1 updates CSM on number of workers and status of OVRCs

0852 SOEN: "Exiting TF-AOP-015 for "Response to Personal Ammonia Monitor Alarm" at AP-104. All response actions have been completed and Access is restored to AP-104. CSM"

0854 POE IHT Supervisor updates Level 1 ESH&Q Manager, Level 2 IH Manager, and POE Level 3 S&H Manager that Response Actions complete, all readings were less than detectable

Field Response Timeline Acronyms:

CSM	Central Shift Manager	OVRC	Odor/Vapor Response Card
CSO	Central Shift Office	PA	Performance Assurance
DFAS	Data Fusion & Advisory System	PAM	personal ammonia monitor
DOE	Department of Energy	POE	Production Operations-East
DRI	direct reading instrument	ppm	parts per million
ESH&Q	Environmental, Safety, Health, & Quality	RPE	respiratory protection equipment
FWS	Field Work Supervisor	RPF	Respiratory Protection Form
IH	Industrial Hygienist	S&H	Safety & Health
IHT	Industrial Hygiene Technician	SOEN	Shift Office Event Notification
mph	miles per hour	UT	ultrasonic testing
NCO	Nuclear Chemical Operator	VMDS	Vapor Monitoring Detection System

Sampling/Monitoring Results:

Direct Reading Instrument Monitoring Results- Field Response:

- Monitoring performed in and around Affected Area
 - o Comments by Responding IHT- "At approximately 0800 an NCO, that was inside the farm at AP104, ventis pro started alarming. He walked over to the IHT that was currently outside the farm to check what was happening. During that time, the IHT was observing the ventis numbers fluctuation (sic) from -2 to 4 ppm for [ammonia]. The IHT made notification that employees instrument alarmed and read 6 ppm to him at that time. The crew was instructed to leave the farm. No abnormal smells or symptoms were reported. Ventis pros were collected from all crew members and downloaded. One other crew member had a reading of 3 ppm near the time of the occurrence after viewing the downloaded data. The IHT on the job was [briefed for TF-AOP-015 Response Actions to perform] a farm sweep before [TF-AOP-015 could be exited and] work could proceed.

The IHT entered AP farm at 0827 to begin the farm sweep monitoring for [ammonia]. The IHT walked around checking breather filters and general work areas. Extra time was spent checking for sources at AP104. All reading were below detectable. The IHT exited the farm at 0840. Instrumentation passed bump test and notification was given to management so access could be restored."

- Peak readings during response at or below background.

Location	Ammonia

241-AP-104 Area	< 1 ppm
241-AP Farm General Area	< 1 ppm

Sampling/Monitoring Results continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Sampling/Monitoring Results:

Sampling/Monitoring Results (continued):

Direct Reading Instrument Monitoring Results- PAMs:

- Ventis Pro5- Serial Number 2203377-352 (Event Initiating PAM) Alarm History:

Location	Time	Ammonia Peak Reading	Duration
AP Farm	08:00:15	6 ppm	5 sec
AP Farm	08:00:32	6 ppm	1 sec
AP Farm	08:00:34	6 ppm	3 sec
AP Farm	08:00:38	6 ppm	1 sec
AP Farm	08:00:41	6 ppm	1 sec
AP Farm	08:00:49	7 ppm	6 sec
AP Farm	08:01:05	6 ppm	1 sec
AP Farm	08:01:12	6 ppm	1 sec
AP Farm	08:01:22	6 ppm	1 sec
AP Farm	08:01:26	6 ppm	3 sec
AP Farm	08:01:46	6 ppm	1 sec
AP Farm	08:01:52	6 ppm	1 sec
AP Farm	08:02:04	6 ppm	1 sec

Around the time of the Initiating Event, from 07:59:13 to 08:03:55, readings (10 second average) fluctuated between 3 ppm and 5 ppm ammonia. Prior to the Initiating Event, 06:13:29 to 07:59:03, readings (10 second average) fluctuated between 0 ppm and 4 ppm ammonia.

- Ventis Pro5- Serial Number 22033PF-015 (present during Initiating Event) Datalog:

Location	Time	Ammonia Reading
AP Farm	08:00:17	2 ppm
AP Farm	08:00:47	2 ppm
AP Farm	08:01:27	3 ppm
AP Farm	08:02:07	3 ppm

Around the time of the Initiating Event, from 07:57:07 to 08:00:37, readings (10 second average) fluctuated between 2 ppm and 3 ppm ammonia. Prior to the Initiating Event, 06:13:20 to 07:56:57, readings (10 second average) fluctuated between 0 ppm and 3 ppm ammonia.

Refer to IHIR-00079 Attachment A for SmartSite™ Summary, VMDS Summary, & PAM Datalog.

SWHD References:

Event Response Site Wide Industrial Hygiene Database Direct Reading Instrumentation (DRI) Survey:

- # 23-05522 "TF-AOP-015 Response AP104"

Additional Information:

At the time of the initiating event, the Affected Workers were wearing RPE in accordance with Standing Order Number SO-OPS-17-003: Management Directed RPF "MDRPF-PLN-173" Task 1: RC 1 (general farm entry) and RC 2 (work with validated controls) work activities without particulate hazard. The Affected Workers were performing UT activities in 241-AP Farm at 241-AP-104 annulus (Riser #30).

Respiratory Protection for Response Actions, per TF-AOP-015 RPF, was Task 5: Voluntary Use when personal ammonia monitor alarm is greater than or equal to 6 ppm but less than 12 ppm. Therefore, for Response Actions, RPE was worn in accordance with Standing Order Number SO-OPS-17-003:

"MDRPF-PLN-173" Task 1: RC 1 (general farm entry) and RC 2 (work with validated controls) work activities without particulate hazard.

08/16/2023

1059 Remaining Affected Workers' OVRs submitted POE IHs for review

- OVRs consistent with verbal account provided to CSM

Additional Information continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Additional Information:

Ventis Pro5 2203377-352 (Event Initiating PAM):

- Setup Date: 03/30/2022
- Datalog Recording Interval: 10 seconds
- Datalog TWA Interval: 8 hours
- Bump Test Due Interval: 7 days
- Calibration Due Interval: 45 days
- Low Alarm: 6 ppm
- High Alarm: 12 ppm

Ventis Pro5 22033PF-015 (present during Initiating Event):

- Setup Date: 03/31/2022
- Datalog Recording Interval: 10 seconds
- Datalog TWA Interval: 8 hours
- Bump Test Due Interval: 7 days
- Calibration Due Interval: 45 days
- Low Alarm: 6 ppm
- High Alarm: 12 ppm

Monitoring for Tank Waste Chemical Vapors:

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.

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

08/16/2023 @ 0800 (approximate time of Initiating Event):

- Wind Speed: 6.7 mph
- Wind Direction: 316.60° (out of Northwest)
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

Review of the DFAS application, powered by SmartSite™, Weather Details dashboard for current conditions during response actions, per TF-AOP-015 3.1.8:

08/16/2023 @ 0816 (current weather data for Response actions):

- Wind Speed: 6.7 mph
- Wind Direction: 316° (out of Northwest)
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

Meteorological information from the Hanford Weather Station for Station #6 on 08/16/2023 @ 0800:

- Temperature: 85°F
- Relative Humidity: 24%
- Wind Speed: 5 mph
- Wind Direction: from Northwest
- Barometric Pressure: 29.23 inches of mercury and rising

Additional Information continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Additional Information (continued):

VMDS Exhauster Ammonia Readings on 08/16/2023 @ 0800:

- POR518 (241-A): 3.155 ppm
- POR519 (241-A): 0.294 ppm
- 241-AN: 27.861 ppm
- 241-AW: 0 ppm
- POR126 (241-AX): 0 ppm
- POR127 (241-AX): 1.155 ppm
- 702AZ (241-AY/AZ): 15.946 ppm
- 241-AP: N/A

VMDS Exhauster Ammonia Readings on 08/16/2023 @ 0816:

- POR518 (241-A): 3.023 ppm
- POR519 (241-A): 0.920 ppm
- 241-AN: 28.956 ppm
- 241-AW: 0 ppm
- POR126 (241-AX): 0 ppm
- POR127 (241-AX): 1.465 ppm
- 702AZ (241-AY/AZ): 15.903 ppm
- 241-AP: N/A

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		

VMDS Exhauster Ammonia Readings 08/09/2023 @ 1000 to 08/16/2023 @ 1000:

Tank Farm	Exhauster	Minimum*A	Maximum*A
241-A	POR518/POR519	0 ppm	14.683 ppm
241-AN	Primary	4.024 ppm	52.425 ppm
241-AW	Primary	0 ppm	0 ppm
241-AX	POR127	0 ppm	17.981 ppm
241-AY/AZ	702AZ	6.400 ppm	43.934 ppm*B

*A VMDS Alternate Real Time Monitoring performed 08/09/2023 to 08/15/2023 for 241-AP & 241-AW.

*B Maximum reading excludes maintenance activities. The 702AZ VMDS UV-DOAS was undergoing calibration the morning of 08/09/2023, as confirmed by the AZ Team Instrument Technician FWS.

Additional Information continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Additional Information (continued):

The 241-AP Primary Exhauster is not currently connected to the VMDS software. 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, in accordance with ARP-T-041-00002 and are acquired in accordance with TF-OPS-IHT-037.

VMDS Alternate Exhauster Ammonia Readings 08/09/2023 to 08/15/2023:

Tank Farm	Exhauster	Minimum	Maximum
241-AP	Primary	3 ppm	10 ppm
241-AW	Primary	3 ppm	8 ppm

Refer to IHIR-00079 Attachment A for SmartSite™ Summary, VMDS Summary, & PAM Datalog.

Additional Information Acronyms:

CSM	Central Shift Manager	ppm	parts per million
DFAS	Data Fusion Advisory System	RC	Risk Classification
FWS	Field Work Supervisor	RPE	Respiratory Protection Equipment
IH	Industrial Hygienist	RPF	Respiratory Protection Form
OVRC	Odor/Vapor Response Card	TWA	time-weighted average
PAM	personal ammonia monitor	VMDS	Vapor Monitoring Detection System
POE	Production Operations East		
UV-DOAS	Ultraviolet-Differential Optical Absorption Spectrometer		

IHIR-00079 Revision 1:

The IH Business Systems Analyst updates the PA Technical Specialist and POE IH-1 on findings during their investigation into the Event Initiating PAM (Ventis Pro5 2203377-352) on 08/21/2023 at 1630:

Event Initiating PAM (Ventis Pro5 2203377-352) History:

Between 11/29/2022 and 02/01/2023, the Event Initiating PAM had three alarm events at the Low Alarm (6 ppm) setting. Upon investigation it was concluded that these events were caused by the docking station and the alarms were not experienced by the User.

On 07/27/2023, the Event Initiating PAM underwent its monthly calibration. The calibration was automatically performed. Calibration results:

Cumulative Response Time: 414 seconds
Full Span Reserve: 52%
Passed/Failed: Passed

While the device passed its calibration, the cumulative response time was 49% longer than the average cumulative response time of the ten previous calibrations (187 seconds - 342 seconds). Additionally, the full span reserve was 72% lower than the average full span reserve of the ten previous calibrations (140% - 216%). The IH Business Systems Analyst determined that this was a "bad calibration" and "that it caused the instrument to start showing signs of variability."

On 07/28/2023, the Event Initiating PAM had one alarm event at the Low Alarm (6 ppm) setting. The location of the alarm was 241-A Farm and the alarm duration was 1 second. The device did not capture a datalog. Subsequently, there was not enough information for the IH Business Systems Analyst to determine the cause.

On 08/01/2023, the Event Initiating PAM had one alarm event at the Low Alarm (6 ppm) setting. During investigation, the IH Business Systems Analyst noted that the unit showed fluctuations between 4 ppm and 6 ppm and that this was the "first real sign that [Event Initiating PAM] was prone to act up". The unit should have been removed from service at this time.

Additional Information continued on next page.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Additional Information (continued):

Event Initiating PAM (Ventis Pro5 2203377-352) History (continued):

On 08/15/2023, the Event Initiating PAM had three alarm events, two at the Low Alarm (6 ppm) setting and one above the Low Alarm setting (7 ppm). The first alarm event was caused by the docking station. Following this, the unit fluctuated between -3 ppm and 5 ppm during operation. The IH Business Systems Analyst noted that the unit should have been removed from service at this time "as it was the second confirmed Alarm Event (after 8/1/2023)".

On 08/16/2023, the Event Initiating PAM had multiple alarm events, 14 at the Low Alarm (6 ppm) setting and one above the Low Alarm setting (7 ppm). Additionally, the datalog showed fluctuations between -2 ppm and 5 ppm leading up to the TF-AOP-015 entry.

The IH Business Systems Analyst notes that the "unit would not have been identified as an issue prior to 8/1/2023" as the system indicated the unit had passed its calibration on 07/27/2023. However, the IH Business Systems Analyst has concluded that this was a "bad calibration... that would have led to the issues that were found. Unit should have been identified and pulled on 8/1/2023. [TF-AOP-015] event was most likely caused by bad calibration of device and missed identifiers by IH [Business Systems group that oversees the maintenance and deployment of the WRPS PAMs]". The Event Initiating PAM (Ventis Pro5 2203377-352) was pulled from service on 08/16/2023 "to be sent to the manufacturer for diagnostics".

The Event Initiating PAM is not the only device showing suspect calibrations. The IH Business Systems Analyst believes there may be an "issue with the bottles/regulators or the docking stations rather than the device themselves."

Recommendations/Conclusions:

Recommendations:

IHIR-00079 Revision 1:

- Evaluate PAM docking stations and bottles/regulators to identify the potential cause of calibration issues.
- Evaluate the PAM software capabilities to identify PAMs whose calibrations are borderline and may be prone to fluctuations.
- Evaluate the need to create/implement a report/notification mechanism to identify PAMs that need to be removed from service based on performance issues.

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.

Washington River Protection Solutions (WRPS) Industrial Hygiene Department has established a conservative, reasonable, and data-derived response level (RL) 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, checking breather filters and general work areas. Additionally, extra time was spent searching for potential sources around 241-AP-104. 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.

IHIR-00079 Revision 1:

Based on the IH Business Systems Analyst's review of the Event Initiating PAM (Ventis Pro5 2203377-352), and the conclusions above, the cause of Personal Ammonia Monitor alarm is likely due to a bad calibration. The Personal Ammonia Monitor's over response, combined with the field response's results, indicate the Personal Ammonia Monitor alarm was not representative of changing conditions nor an employee chemical exposure event.

Washington River Protection Solutions
INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT(Continued)

Other:

- No symptoms reported and all Affected Workers declined precautionary medical surveillance.
- Event Investigation Report (EIR) #2023-061.

08/16/2023 R0: Initial Investigation.

08/22/2023 R1: Revised Additional Information section to include IH Business Systems Analyst's findings during investigation of the Event Initiating PAM (Ventis Pro5 2203377-352). Added PAM calibration history to Attachment A. Based on the additional information, recommendations and conclusion were revised. Amendments will be identified in each section with "IHIR-00079 Revision 1" preceding the revised content.

Industrial Hygienist:

Print First and Last Name

Signature / Date

Digitally signed by _____

Date: 2023.08.23 07:45:17 -07'00'

Industrial Hygiene Level 2 Manager:

Print First and Last Name

Signature / Date

Digitally signed by _____

Date: 2023.08.23 12:55:04 -07'00'

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

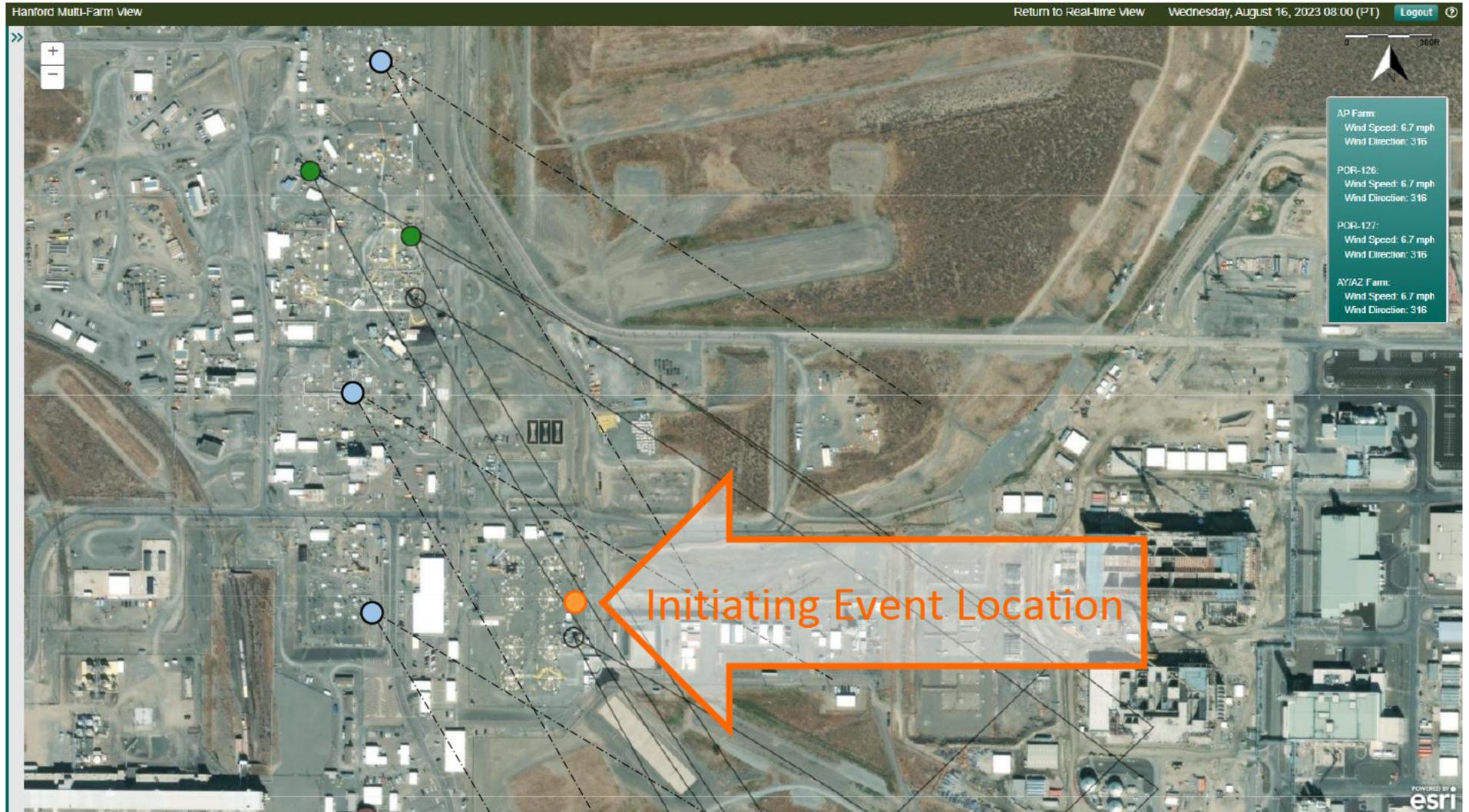


Figure 1. 200-East Area (with 241-AW, 241-AP, 241-AN, 241-AY/AZ, 241-AX, 241-A Farm projected plume models) at 0800 8/16/2023 from Data Fusion and Advisory System (DFAS) application, powered by SmartSite™

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

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog



Figure 2. DFAS application, powered by SmartSite™ Weather Data (Wind Direction) from 0800 08/16/2023.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog



Figure 3. DFAS application, powered powered by SmartSite™ Weather Data (Wind Speed) from 0800 08/16/2023.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

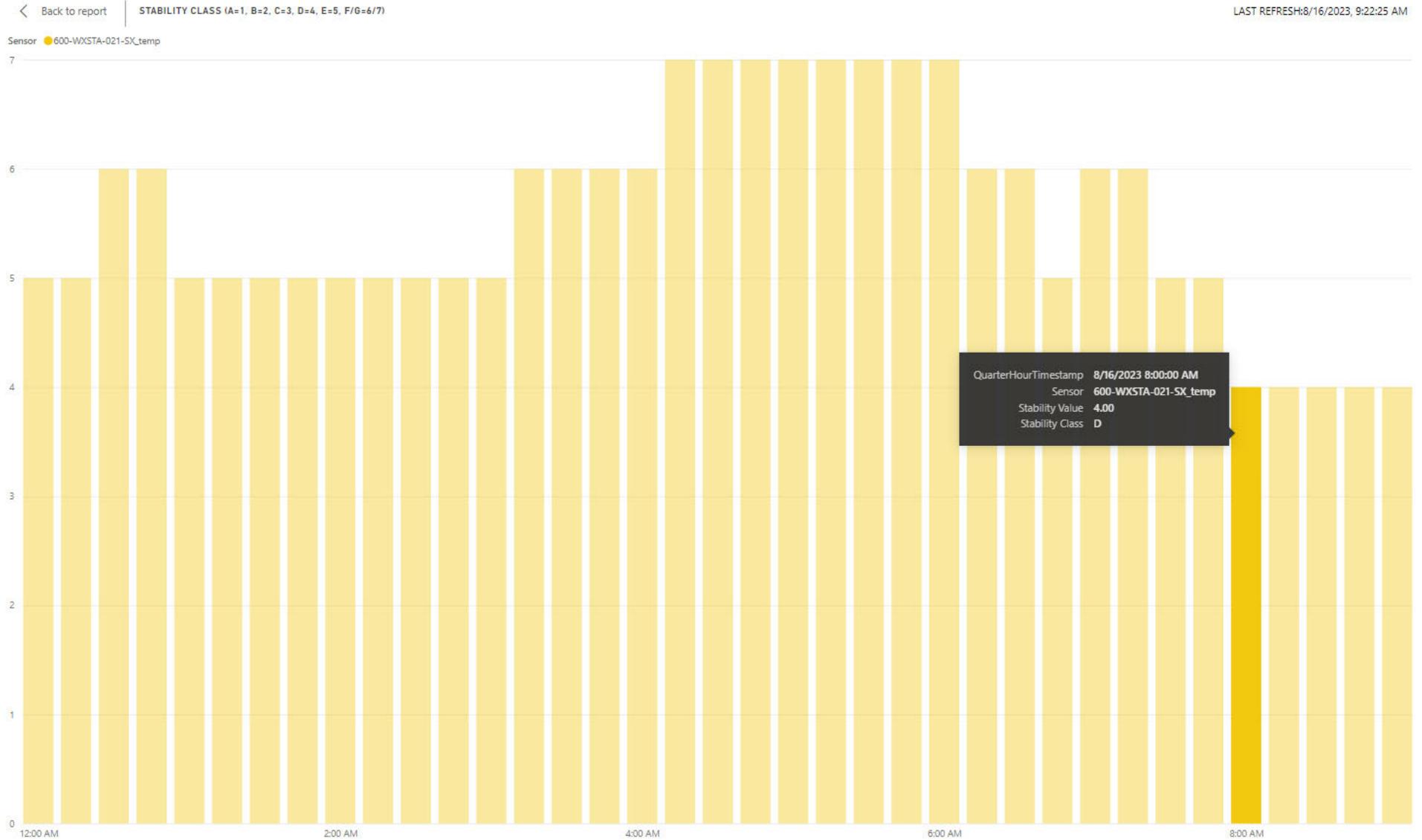


Figure 4. DFAS application, powered by SmartSite™ Weather Data (Stability Class) from 0800 08/16/2023.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

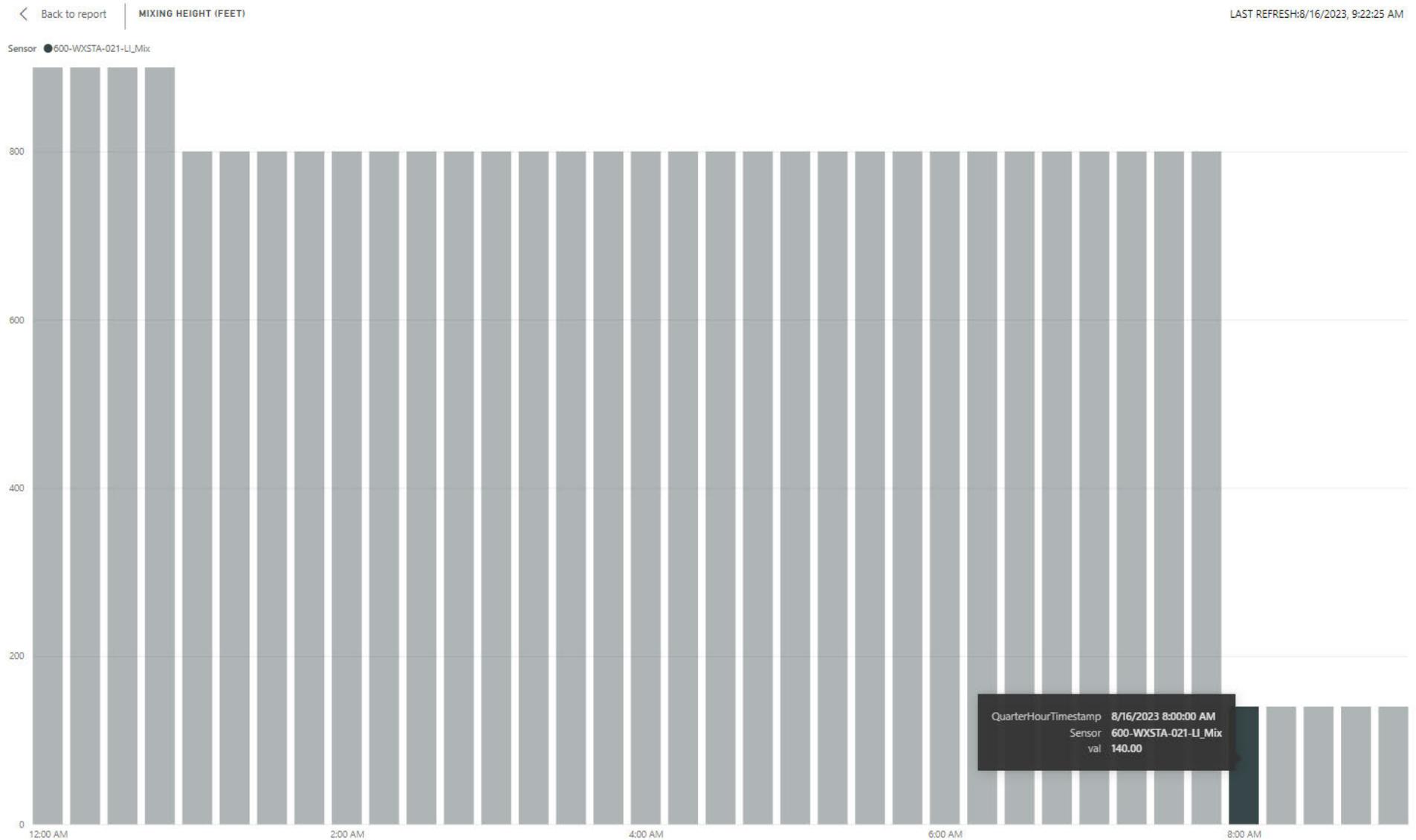


Figure 5. DFAS application, powered by SmartSite™ Weather Data (Mixing Height) from 0800 08/16/2023.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

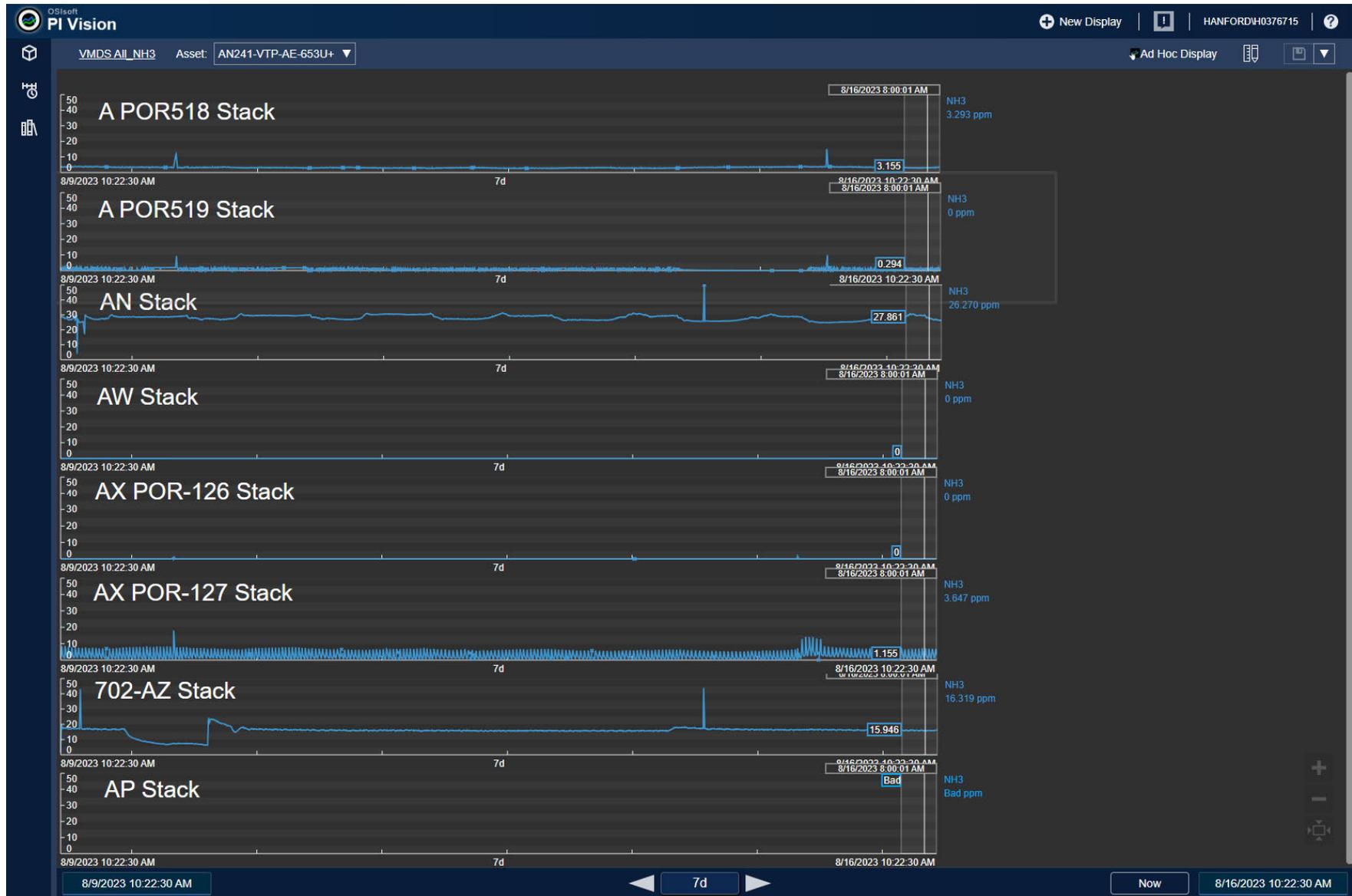


Figure 6. OSisoft Pi Vision VMDS Ammonia Concentrations for 0800 08/16/2023.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

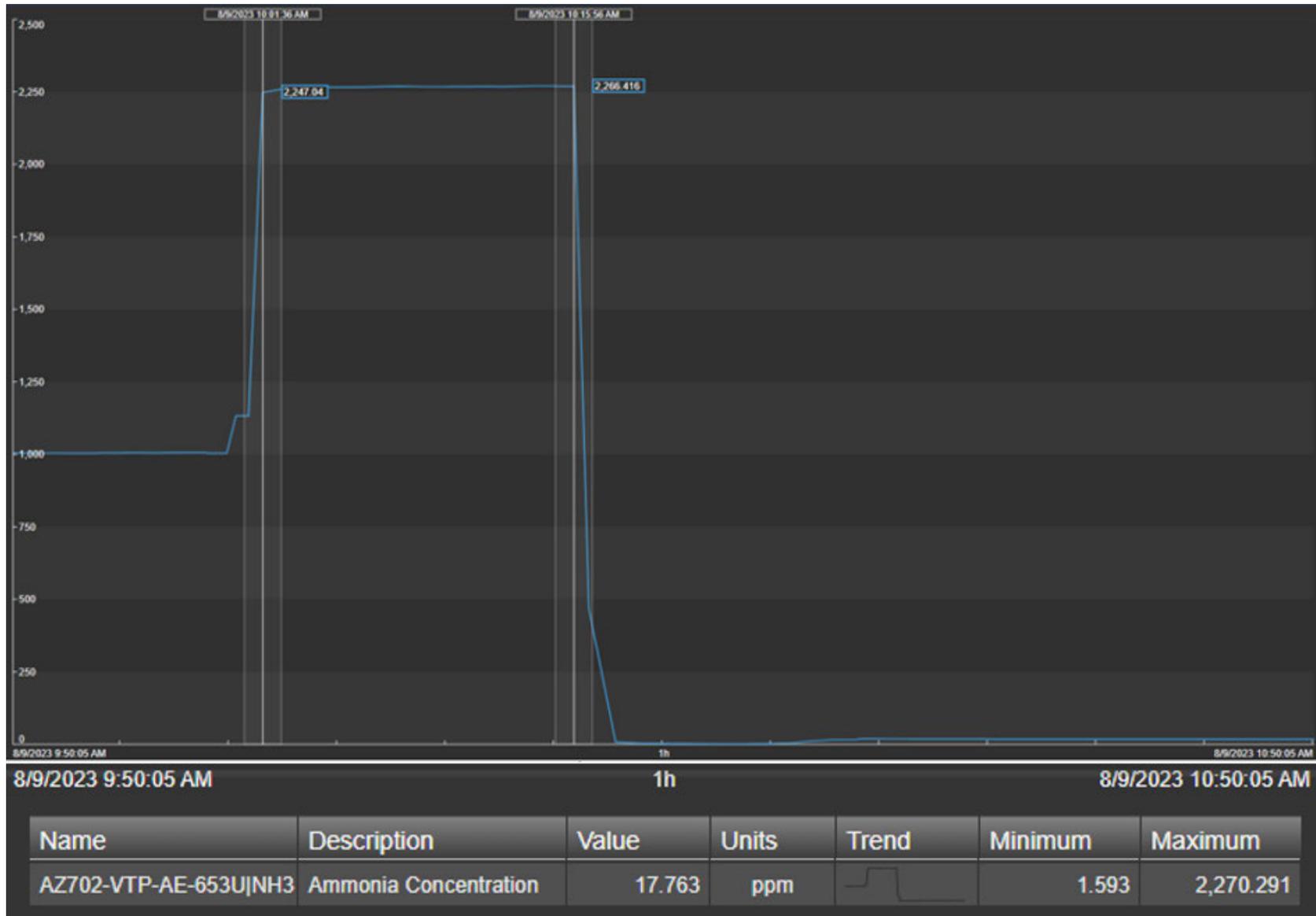


Figure 7. OSIsoft Pi Vision VMDS Ammonia Concentrations for 702AZ on 08/09/2023 from 0950 to 1050. The 702AZ VMDS UV-DOAS was undergoing calibration at this time, as confirmed by the AZ Team Instrument Technician FWS.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

DS2/DSX Local Server - Industrial Scientific Corporation 8/16/2023 8:35:52 AM - Alarm Events Report

Instrument 2203377-352

Start Date 1/1/2023

End Date 8/16/2023

Sensor	Gas Type	Time	Duration	Peak Reading	Alarm Low	Alarm High	User	Location
21090N1216	Ammonia	8/16/2023 8:02:04 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:01:52 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:01:46 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:01:26 AM	00:00:03	6	6	12		AP-Farm
		8/16/2023 8:01:22 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:01:12 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:01:05 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:00:49 AM	00:00:06	7	6	12		AP-Farm
		8/16/2023 8:00:41 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:00:38 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:00:34 AM	00:00:03	6	6	12		AP-Farm
		8/16/2023 8:00:32 AM	00:00:01	6	6	12		AP-Farm
		8/16/2023 8:00:15 AM	00:00:05	6	6	12		AP-Farm
		8/16/2023 7:51:29 AM	00:00:01	6	6	12		Non Farm
		8/16/2023 6:15:05 AM	00:00:02	6	6	12		Non Farm

Figure 9. Ventis Pro5 #2203377-352 (Event Initiating Device) 08/16/2023 Alarm History.

IHIR-00079 Attachment A: SmartSite™ Summary, VMDS Summary, & PAM Datalog

IHIR-00079 Revision 1

Instruments / 2203377-352 / Calibrations

Type : Ventis Pro5 Multi-Gas Monitor

Serial Number : **2203377-352**

Part Number : VP5-06001000111

Software Version : 4.30.45

Location Last Docked : 272-AW Room 8



Calibrations

Start Date:

End Date:

Show Last

25

Serial Number	Time	Gas Type	Passed/Failed	Cumulative Response Time	Full Span Reserve	Automated/Manual	
21090N1216	7/27/2023 12:54:04 PM	Ammonia (25)	Passed	414	52%	Automated	Print
21090N1216	6/6/2023 8:24:50 AM	Ammonia (25)	Passed	278	164%	Automated	Print
21090N1216	5/3/2023 9:14:54 AM	Ammonia (25)	Passed	292	204%	Automated	Print
21090N1216	4/1/2023 6:31:14 PM	Ammonia (25)	Passed	293	188%	Automated	Print
21090N1216	2/26/2023 7:28:21 AM	Ammonia (25)	Passed	342	200%	Automated	Print
21090N1216	2/1/2023 6:37:01 AM	Ammonia (25)	Passed	252	176%	Automated	Print
21090N1216	1/4/2023 7:37:25 AM	Ammonia (25)	Passed	340	200%	Automated	Print
21090N1216	11/29/2022 8:26:06 AM	Ammonia (25)	Passed	187	140%	Automated	Print
21090N1216	10/26/2022 7:43:56 AM	Ammonia (25)	Passed	250	204%	Automated	Print
21090N1216	9/26/2022 7:54:47 AM	Ammonia (25)	Passed	278	216%	Automated	Print
21090N1216	8/28/2022 7:12:26 PM	Ammonia (25)	Passed	270	196%	Automated	Print

Showing 1 to 11 of 11 entries < 1 >

Figure 11. Ventis Pro5 #2203377-352 (Event Initiating Device) Calibration History.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8-16-23 0800
- Check Applicable:
 Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe):
- Your name and the work you were performing: [REDACTED] UT in farm activities
- Other Work Underway? Describe: NA
- Location of event (mark area on map and wind direction): AP 104 Rise #30
- Name(s) of others in or near the affected area: [REDACTED]
- Was Industrial Hygiene present, who? Yes. [REDACTED]
- Describe the odor:
 Sweet Sour Smoky Septic/Sewer Musty Rotten
 Metallic Onion Earthy Ammonia Citrus Solvent
 Other (describe):
- Is source known/likely? Describe: NA
- 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.

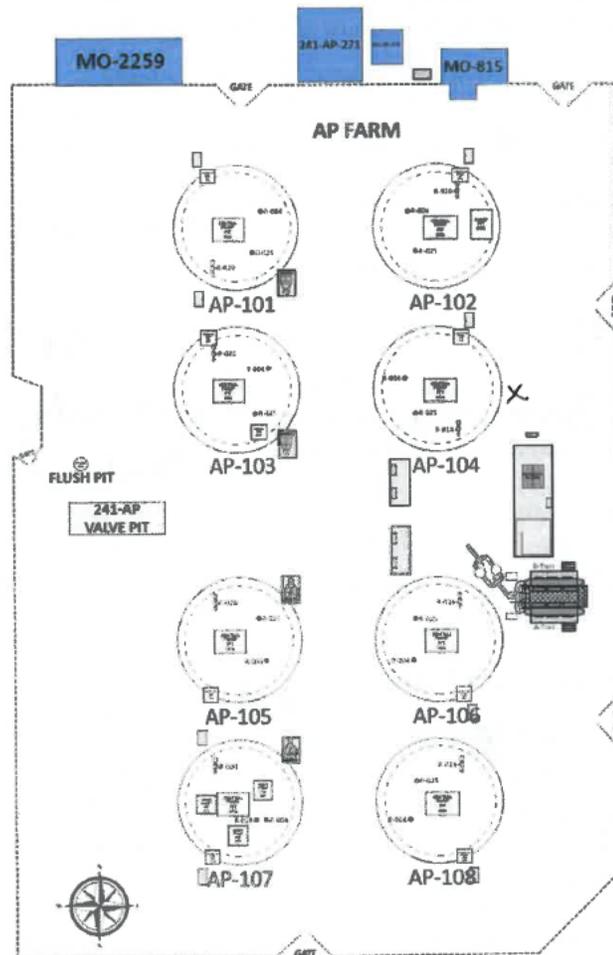
Note: Did not smell odors only alarm
AH 8-16-23

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM),
a. [REDACTED]
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.



ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8-16-23 0800
- Check Applicable:
 Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe): _____
- Your name and the work you were performing:
[REDACTED] WT
- Other Work Underway? Describe:
N/A
- Location of event (mark area on map and wind direction):
AP
- Name(s) of others in or near the affected area:
N/A
- 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: N/A
- Your symptoms? None
 Headache Dizziness Nausea Cough Fatigue
 Weakness Sore Throat Difficulty Breathing Eye Irritation Rash
 Itch Tingling Numbness Taste
 Other (describe): _____

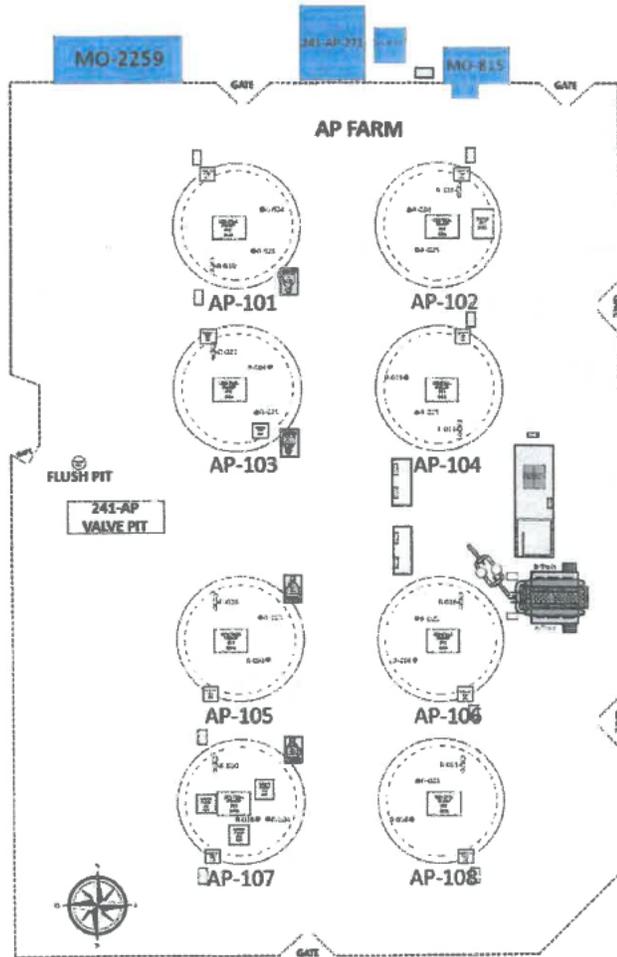
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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.



ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8/6/23 0800
- Check Applicable:
 - Odor
 - Ammonia Alarm (6 ppm)
 - Ammonia Alarm (12 ppm)
 - Alarm (other - describe): 0
- Your name and the work you were performing: [REDACTED] JT WORK
- Other Work Underway? Describe: NA
- Location of event (mark area on map and wind direction): AP
- Name(s) of others in or near the affected area: [REDACTED]
- Was Industrial Hygiene present? YES
- Describe the odor:
 - Sweet
 - Sour
 - Smoky
 - Septic/Sewer
 - Musty
 - Rotten
 - Metallic
 - Onion
 - Earthy
 - Ammonia
 - Citrus
 - Solvent
 - Other (describe): NA
- Is source known/likely? Describe: NA
- Your symptoms? None
 - Headache
 - Dizziness
 - Nausea
 - Cough
 - Fatigue
 - Weakness
 - Sore Throat
 - Difficulty Breathing
 - Eye Irritation
 - Rash
 - Itch
 - Tingling
 - Numbness
 - Taste
 - Other (describe):

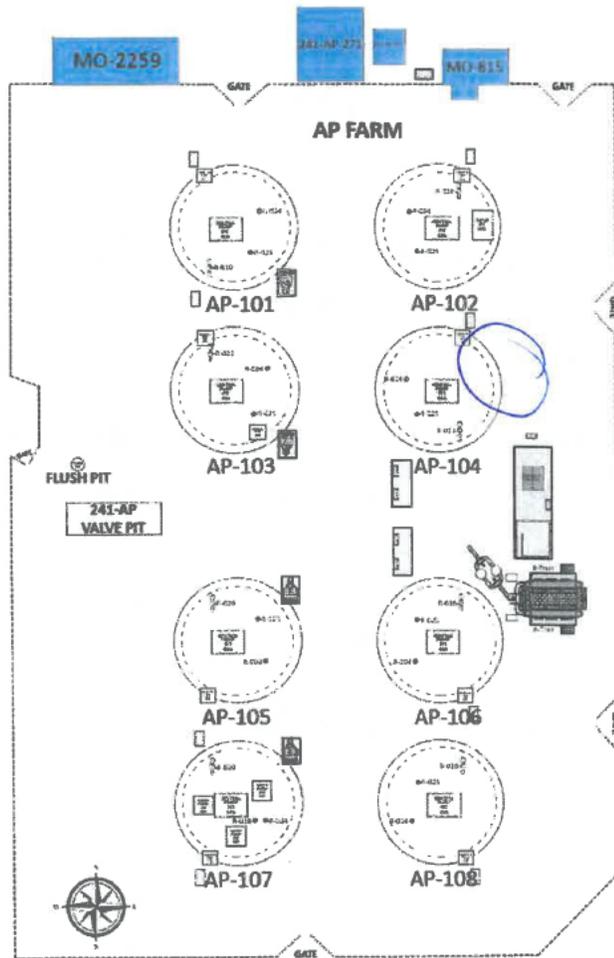
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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.



ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8-16-23 0800
- Check Applicable:
 Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe): 0 ppm
- Your name and the work you were performing: [REDACTED] UT work
- Other Work Underway? Describe: _____
- Location of event (mark area on map and wind direction): AP 104
- Name(s) of others in or near the affected area: [REDACTED]
- Was Industrial Hygiene monitoring conducted? [REDACTED]
- Describe the odor:
 Sweet Sour Smoky Septic/Sewer Musty Rotten
 Metallic Onion Earthy Ammonia Citrus Solvent
 Other (describe): NA
- 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): NA

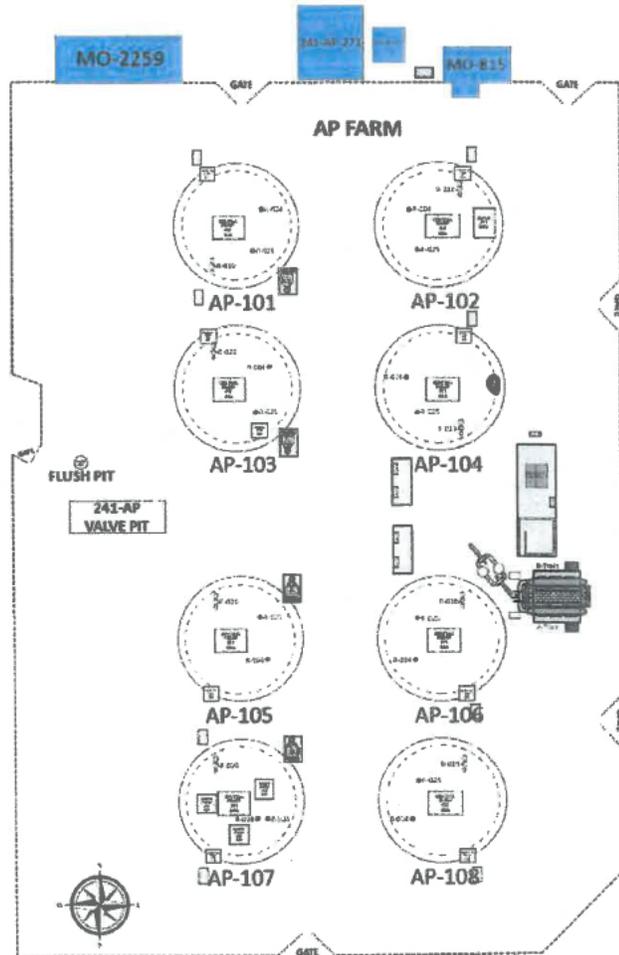
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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.



ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8/16/23 @ 8:00 a.m.
- Check Applicable:
 Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe): 0 ppm
- Your name and the work you were performing: [REDACTED] UT
- Other Work Underway? Describe: NO
- Location of event (mark area on map and wind direction): AP 104
- Number of employees affected: [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): N/A
- 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):

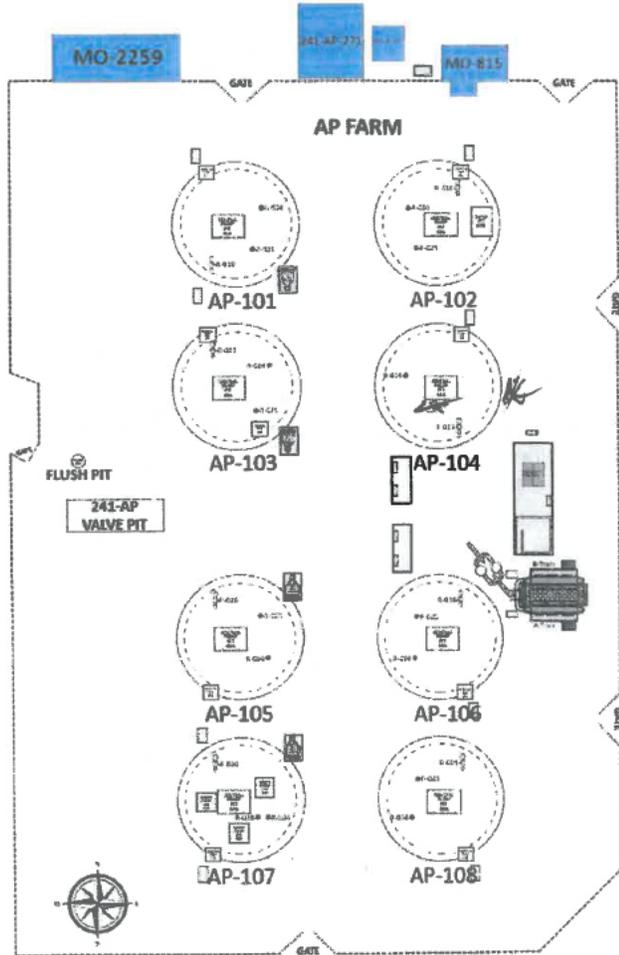
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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.



ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 08/16/23 08:00
- Check Applicable:
 Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe): _____
- Your name and the work you were performing: UT Inspection [Redacted]
- Other Work Underway? Describe: NO
- Location of event (mark area on map and wind direction): AP: Farm (AP 104) Dist #30
- Name(s) of other workers involved and their work: [Redacted]
- Was Industrial Hygiene present, and if so, describe: [Redacted]
- Describe the odor:
 Sweet Sour Smoky Septic/Sewer Musty Rotten
 Metallic Onion Earthy Ammonia Citrus Solvent
 Other (describe): N/A none
- 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): _____

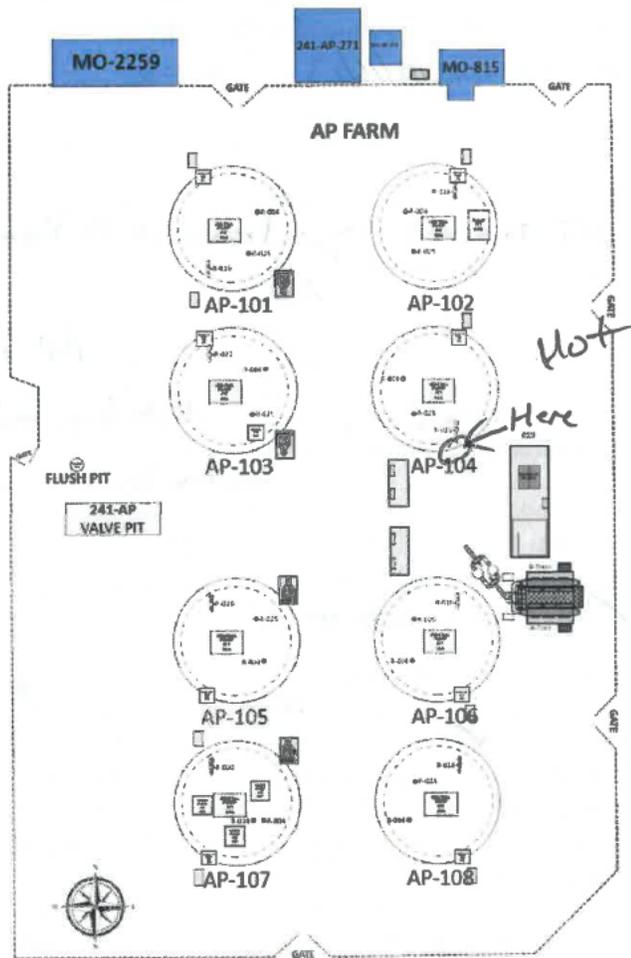
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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.

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ODOR/VAPOR RESPONSE CARD - 241 AP FARM

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

- Date and time of event: 8.16.23 0800
- Check Applicable: Odor Ammonia Alarm (6 ppm) Ammonia Alarm (12 ppm) Alarm (other - describe): 0 ppm
cc 8.16.23
- Your name and the work you were performing: [REDACTED] HPT coverage of UT work
- Other Work Underway? Describe: NA
- Location of event (mark area on map and wind direction): AP-104
- Name(s) of others in or near the affected area: [REDACTED]
- Was Industrial Hygiene present, who? [REDACTED] Yes
- Describe the odor:
 Sweet Sour Smoky Septic/Sewer Musty Rotten
 Metallic Onion Earthy Ammonia Citrus Solvent
 Other (describe): NA
- Is source known/likely? Describe: NA
- 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.

ODOR/VAPOR RESPONSE CARD - 241 AP FARM

Instructions:

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager (CSM), at [REDACTED]
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;
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