

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: Retrieval/Construction      Date: 11/30/2022

Area/Building/Location: 200E/241-A Farm      Approximate Time of Event: 1215

AR Number: WRPS-AR-2023-0388      Responsible Manager: [REDACTED]

EIR Number: EIR-2022-093      Event Investigator: [REDACTED]

**EVENT SUMMARY PART I**

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

Workers were performing snow removal within 241-A Farm. Snow removal is considered a Level 4 work activity, therefore, a work order number is not applicable.

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

- 3 American Electric Laborers performing snow removal along east side of 241-A Farm
- Another work crew consisting of 5 American Electric Laborers were performing snow removal along the west side of 241-A Farm

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

On 11/30/2022, a Retrieval Construction work crew was performing snow removal when a Ventis Pro personal ammonia monitor "Action Level" alarm initiated for a worker that was located between 241-A-701, 241-A-271, and 241-A-106. The Ventis Pro personal ammonia monitor displayed an ammonia concentration of 15 ppm at the time of the instrument alarm. One worker was within the immediate area of the individual and an additional worker was located near 241-A-103 when the Ventis Pro personal ammonia monitor alarmed. Neither of the other workers' Ventis Pro personal ammonia monitor alarmed or indicated elevated ammonia concentrations.

Five additional workers were within 241-A Farm performing snow removal along the west side of the farm. None of the five other workers' Ventis Pro personal ammonia monitors alarmed or indicated elevated ammonia concentrations.

Workers reported they did not smell an odor at the time of the Ventis Pro personal ammonia monitor alarm. In addition, they reported experiencing no symptoms and declined precautionary medical surveillance.

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

Workers were wearing FF-APR respiratory protection with combination chemical vapor/particulate 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 within a posted radiological Contamination Area (CA) and were wearing anti-contamination clothing as required by RWP AX-001.

The Data Fusion and Advisory System (DFAS) application, powered by SmartSite™, was utilized for outdoor weather details at the time of the Ventis Pro personal ammonia monitor alarm. The DFAS dashboard indicated the following weather conditions at 1215 on 11/30/2022:

- Wind Speed: 4.1 miles per hour (mph)
- Wind Direction: 226° (out of Southwest)
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

The DFAS dashboard provides a Exhauster Potential Exposure Zone (PEZ) Model of the exhaust plumes at the reported time of the event based on wind speed, wind direction, mixing height, and stability class. Evaluation of the PEZ Model indicates no exhaust plumes were within the work area location at the reported time of the event, thus determining the cause of the personal ammonia alarm was unlikely to be resultant of Tank Farms exhauster emissions (Refer to Attachment 1).

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EVENT SUMMARY (Continued)

Project: Retrieval/Construction Date: 11/30/2022

Area/Building/Location: 200E/241-A Farm Approximate Time of Event: 1215

AR Number: WRPS-AR-2023-0388 Responsible Manager: [REDACTED]

EIR Number: EIR-2022-093 Event Investigator: [REDACTED]

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

Access was restricted to 241-A Farm for approximately 1 hour and 45 minutes. No additional impacts to scheduled 11/30/2022 work evolutions occurred.

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

- Central Shift Manager (CSM) initiated TF-AOP-015 and restricted access to 241-A Farm.
- CSM reviewed the DFAS data and determined mixing height was >100 ft., therefore, no additional access restrictions were required.
- CSM made required TF-AOP-015 notifications.
- CSM offered precautionary medical surveillance to workers. Workers declined medical surveillance.
- CSM requested Odor/Vapor Response Card from affected worker.
- Production Operations shift Industrial Hygiene Technician (IHT) initiated TF-AOP-015 response actions and monitoring per IHP-09001. Direct reading instrument (DRI) area readings indicated a less than detectable (< 1 ppm) ammonia concentration, which is below background levels.
- Event Investigation EIR-2022-093 "TF-AOP-015 Event in A-Farm" was initiated.

**Notifications Already Made** (Time and personnel notified):

[1233]- FWS contacted the CSM and informed them a Ventis Pro personal ammonia monitor alarm activated with a reading of 15 ppm ammonia when performing snow removal on the east side of 241-A Farm. There were two workers within the work area, one immediately adjacent to the worker, at the time of the Ventis Pro personal ammonia monitor alarm. The other workers personal ammonia monitor did not alarm. There were no reported odors or symptoms, and the workers declined medical evaluation. There was no IHT or alternate monitoring device present at the time of the Ventis Pro personal ammonia monitor alarm.

[1238]- The CSM initiated TF-AOP-015, restricted access, provided radio announcement, and issued SOEN "Entered TF-AOP-015 Response to Personal Ammonia Monitor Alarm for Ventis Pro alarm in A-Farm. All personnel exit A-Farm through the nearest change trailer. Access to A-Farm is restricted." CSM contacted the on-call DOE Facility Representative and informed them of TF-AOP-015 event initiation.

[1320]- CSM provided TF-AOP-015, Attachment 1- Initial Communication Template to email to distribution list "DL - WRPS Odor/Vapor Event Notification".

[1413]- CSM provided TF-AOP-015, Attachment 2- Follow-up Event Summary to email to distribution list "DL - WRPS Odor/Vapor Event Notification".

[1416]- CSM issued SOEN "Response actions for the TF-AOP-015 event have been completed and the results are at or below background levels. Exiting TF-AOP-015. Normal access to A-Farm is restored." CSM contacted the on-call DOE Facility Representative and informed them TF-AOP-015 response was exited.

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

per telecom approval for [REDACTED]  
[REDACTED] 12/01/2022  
Signature / Date

**CAS Manager:**

[REDACTED]  
Print First and Last Name

[REDACTED]  
Signature / Date

Washington River Protection Solutions  
EVENT SUMMARY (Continued)

Project: Retrieval/Construction Date: 11/30/2022

Area/Building/Location: 200E/241-A Farm Approximate Time of Event: 1215

AR Number: WRPS-AR-2023-0388 Responsible Manager: [REDACTED]

EIR Number: EIR-2022-093 Event Investigator: [REDACTED]

EVENT SUMMARY PART II

Key Elements of the Investigation (Key investigation points):

To summarize the conclusions of the Industrial Hygiene Event Investigation Report, IHIR-00058 "TF-AOP-015 Entry at A Farm", the Ventis Pro personal ammonia monitor alarm was not indicative of an employee chemical exposure event or changing Tank Farm conditions related to Tank Farm vapors.

The following considerations support the IHIR-00058 conclusion:

(1) The event initiating Ventis Pro personal ammonia monitor (#005162) indicated erroneous ammonia concentrations and alarm conditions when IH performed instrument testing in a controlled office environment. When the Ventis Pro personal ammonia monitor (#005162) was subject to abrupt physical movement and physical bumping near the instrument sensor, false ammonia readings of 16 ppm was able to be created. The physical movement and bumping created in a controlled environment would be similar to the physical force the Ventis Pro personal ammonia monitor (#005162) was subject to while the employee was performing snow shoveling activities. As a result, the Ventis Pro personal ammonia monitor (#005162) unit was removed from service.

(2) An additional worker was within the immediate area of the individual when the Ventis Pro personal ammonia monitor alarmed. The other workers' Ventis Pro personal ammonia monitor did not alarm or indicate elevated ammonia concentrations.

(3) Another worker was within ~120 feet southwest of the individual when the Ventis Pro personal ammonia monitor alarmed. The other workers' Ventis Pro personal ammonia monitor did not alarm or indicate elevated ammonia concentrations.

(4) An additional work crew consisting of five workers were within 241-A Farm, along the west side of the farm, when the Ventis Pro personal ammonia monitor alarmed. The other workers' Ventis Pro personal ammonia monitor did not alarm or indicate elevated ammonia concentrations.

(5) Evaluation of the weather details determined the cause of the odor source 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 1 for DFAS PEZ Model).

(6) 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 indicated a less than detectable ammonia concentration (<1ppm), 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.

(7) 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 ppm at the POR-126 exhauster, 0.320 ppm at the POR-127 exhauster, 0 ppm at the AW exhauster, 9.781 ppm at the 702-AZ exhauster, and 38.264 ppm at the AN exhauster. Conservatively utilizing the higher ammonia concentration observed in the AN exhauster, a predicted ground receptor ammonia concentration of 0.208 ppm (or 0.83% of the established Occupational Exposure Limit for ammonia) would be expected if AN, AY/AZ, AX tank, or AW farm exhauster emissions were

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EVENT SUMMARY (Continued)

Project: Retrieval/Construction Date: 11/30/2022

Area/Building/Location: 200E/241-A Farm Approximate Time of Event: 1215

AR Number: WRPS-AR-2023-0388 Responsible Manager: [REDACTED]

EIR Number: EIR-2022-093 Event Investigator: [REDACTED]

**Key Elements of the Investigation (Key investigation points):**

present. The exhauster high level alarm conservatively established for A farm is 160 ppm. According to the Vapor Monitoring and Detection System (VMDS), the ammonia concentration observed at the time of event occurrence was 2.430 ppm at the POR-518 exhauster and 1.839 ppm at the POR-519 exhauster. Conservatively utilizing the higher ammonia concentration observed in the POR-519 exhauster, a predicted ground receptor ammonia concentration of 0.038 ppm (or 0.15% 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.

(8) PI Vision was utilized to verify 241-A Farm maintained negative tank pressures at the time of event occurrence, with -0.863 inches water column at the POR-518 exhauster and -1.054 inches water column POR-519 exhauster.

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

The Ventis Pro personal ammonia monitor (#005162) unit was removed from service.

**Lessons Learned or Information That the Work Force Needs Immediately:**

None. Per TFC-OPS-OPER-C-28, "Operating Experience/Lessons Learned", this event did not meet the criteria requiring generation of a Lessons Learned.

- An Event Investigation will be completed per TFC-OPS-OPER-C-14
- This event will be managed by another process, i.e., Operability Evaluation, Engineering Technical Evaluation, etc.
- This event does not require continuation of the Event Investigation process

**Basis for Determination:**

This event does not require continuation of the event investigation process under TFC-OPS-OPER-C-14, "Event Investigation Process". The facts, findings, and comprehensive account captured under this Event Summary and the Industrial Hygiene Event Investigation Report, IHIR-00058 "TF-AOP-015 Entry at A Farm" form the basis that further investigation will provide no additional information or operational benefit.

**Responsible Manager:**

[REDACTED]  
Print First and Last Name

per telecom approval for [REDACTED]  
[REDACTED] 12/01/2022  
Signature / Date

**CAS Manager:**

[REDACTED]  
Print First and Last Name

[REDACTED]  
Digitally signed by [REDACTED]  
Date: 2022.12.01 15:52:02 -08'00'  
Signature / Date

# EIR-2022-093 Attachment 1



**AN Exhauster**  
Estimated Potential Exposure Zone

**702-AZ Exhauster**

**POR-127 Exhauster**

**POR-126 Exhauster**

**POR-518/POR-519 Exhausters**  
Estimated Potential Exposure Zone

Location of Ventis Pro Instrument Alarm

**AW Exhauster**  
Estimated Potential Exposure Zone

**AP Exhauster**

**DFAS Exhauster Potential Exposure Zone Model**  
Actual weather conditions on 11/30/22 @1215:

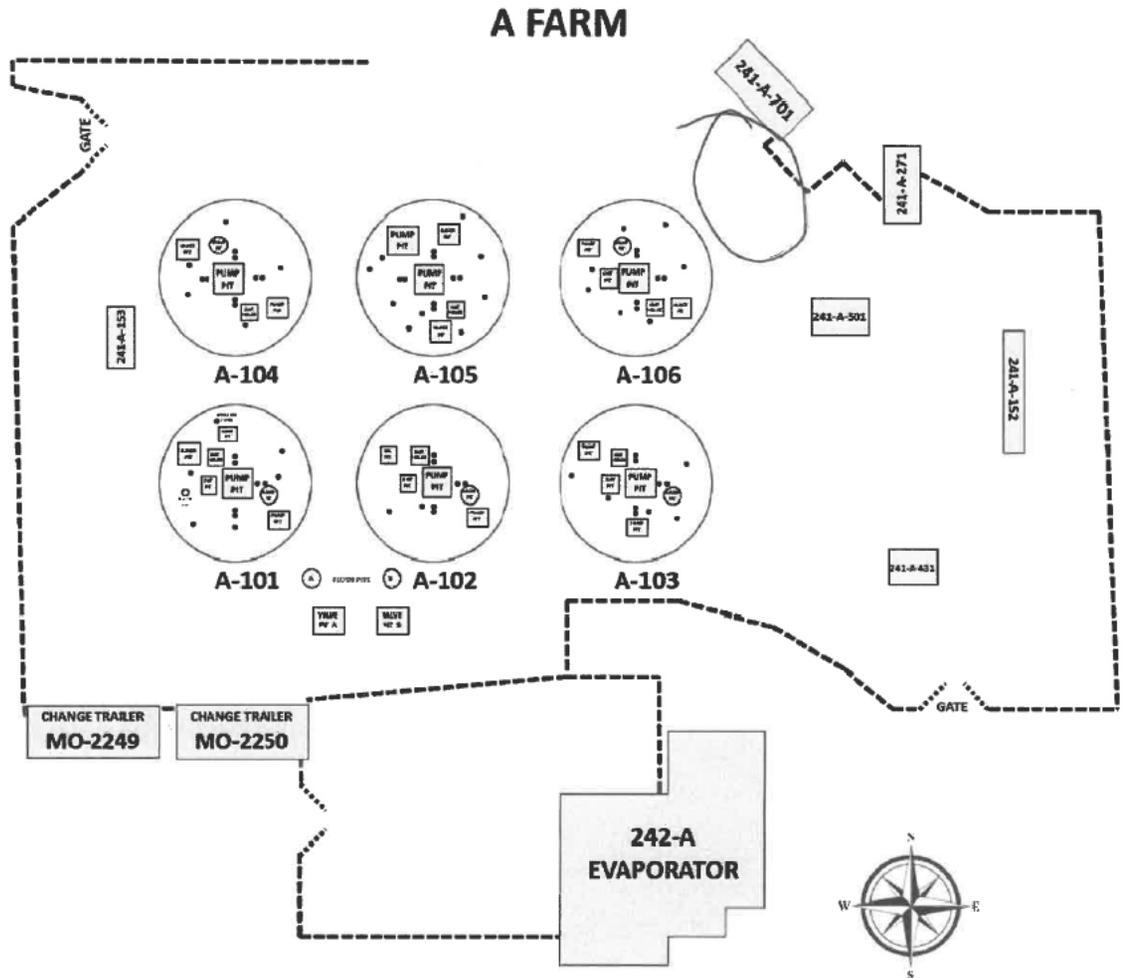
- Wind Speed: 4.1 miles per hour (mph)
- Wind Direction: 226° (out of Southwest)
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

## ODOR/VAPOR RESPONSE CARD - 241 A 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 A FARM

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

Date and time of event: 11/30/22 12:24 PM

Check Applicable:
 Odor  Ammonia Alarm (6 ppm)  Ammonia Alarm (12 ppm)  Alarm (other - describe):

Your name and the work you were performing:
[Redacted] - shoveling snow

Other Work Underway? Describe:
Same

Location of event (mark area on map and wind direction):
241-A-701

Name(s) of others in or near the affected area:
[Redacted]

Was Industrial Hygiene present, who?
No Present

Describe the odor:
 Sweet  Sour  Smoky  Septic/Sewer  Musty  Rotten
 Metallic  Onion  Earthy  Ammonia  Citrus  Solvent
 Other (describe):

Is source known/likely? Describe:
No smell

Your symptoms?  None
 Headache  Dizziness  Nausea  Cough  Fatigue
 Weakness  Sore Throat  Difficulty Breathing  Eye Irritation  Rash
 Itch  Tingling  Numbness  Taste
 Other (describe):

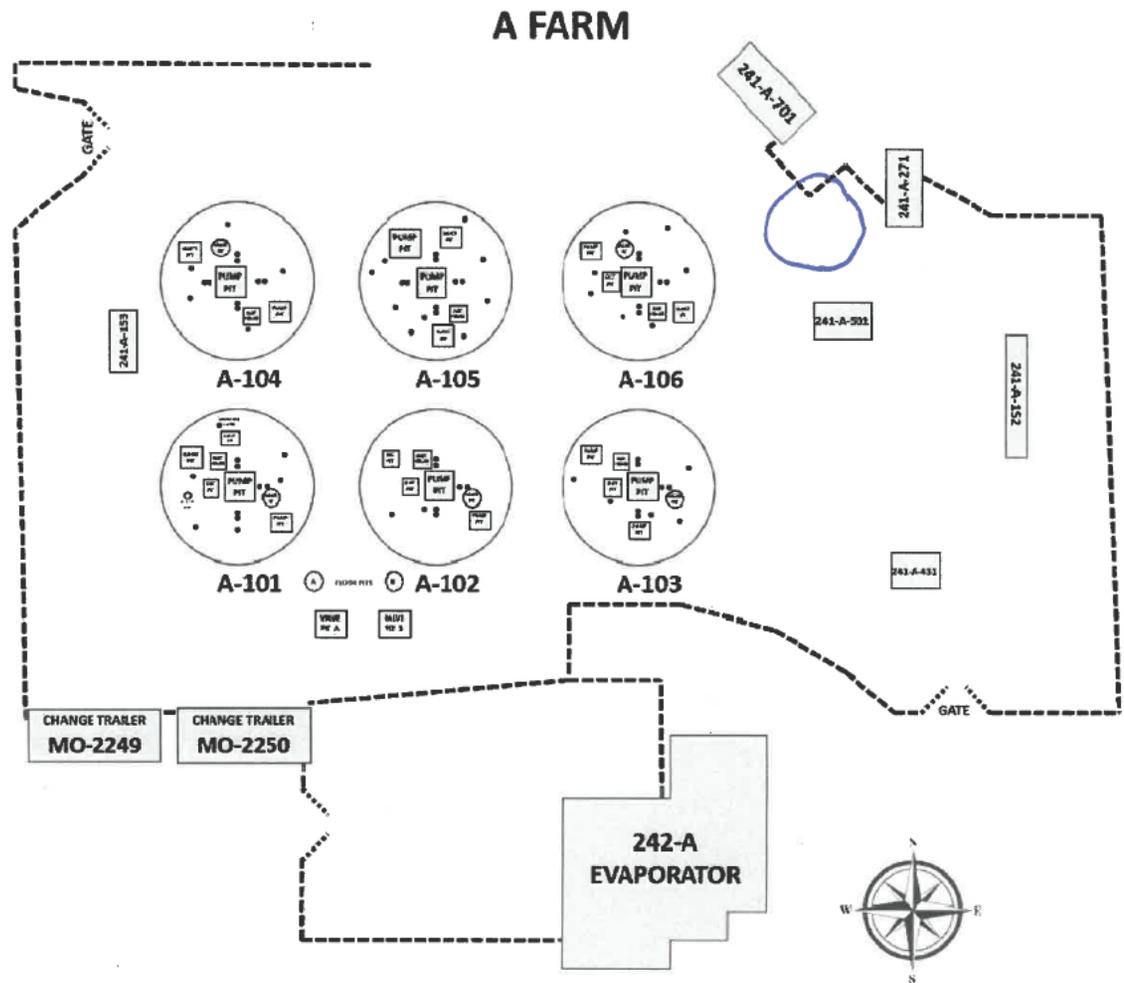
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM.
If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

## ODOR/VAPOR RESPONSE CARD - 241 A 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 A FARM

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

- Date and time of event: 11/30/22 12:40 pm
- Check Applicable:
  - Odor
  - Ammonia Alarm (6 ppm)
  - Ammonia Alarm (12 ppm)
  - Alarm (other - describe): \_\_\_\_\_
- Your name and the work you were performing: \_\_\_\_\_
- Other Work Underway? Describe: Shoveling Snow
- Location of event (mark area on map and wind direction):  
241-A-701
- Name(s) of others in or near the affected area: \_\_\_\_\_
- Was Industrial Hygiene present, who? NONE Present
- Describe the odor:
  - Sweet
  - Sour
  - Smoky
  - Septic/Sewer
  - Musty
  - Rotten
  - Metallic
  - Onion
  - Earthy
  - Ammonia
  - Citrus
  - Solvent
  - Other (describe): \_\_\_\_\_
- Is source known/likely? Describe: NO Smell
- Your symptoms?  None
  - Headache
  - Dizziness
  - Nausea
  - Cough
  - Fatigue
  - Weakness
  - Sore Throat
  - Difficulty Breathing
  - Eye Irritation
  - Rash
  - Itch
  - Tingling
  - Numbness
  - Taste
  - Other (describe): \_\_\_\_\_

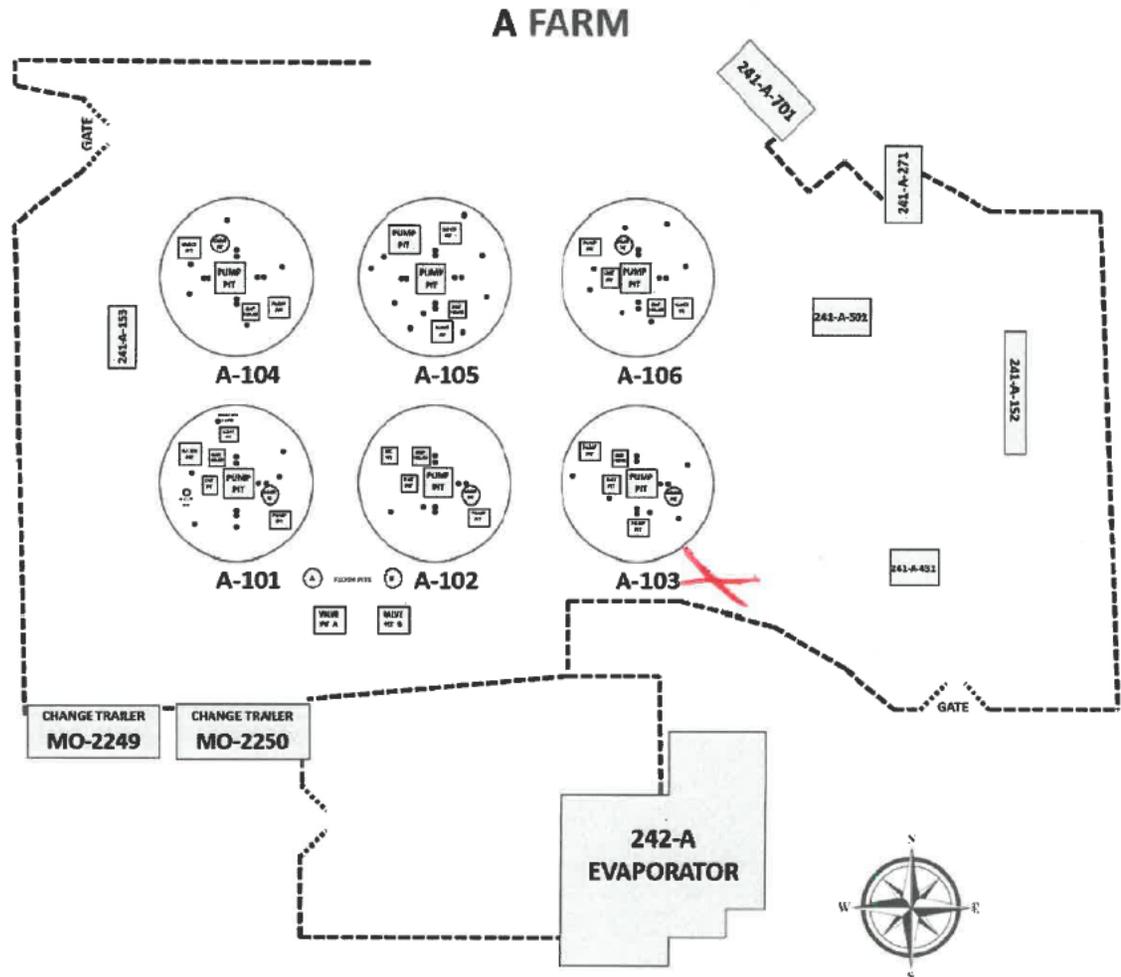
2. Provide this completed card (Page 1 & 2) to Supervisor, Industrial Hygiene, your Union Safety Representative or the CSM. If received by Supervisor/IH/U-SR, Supervisor/IH/U-SR will ensure card is provided to the CSM.

# ODOR/VAPOR RESPONSE CARD - 241 A 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 A FARM

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

- Date and time of event: 1240 11-30-22
- Check Applicable:
  - Odor
  - Ammonia Alarm (6 ppm)
  - Ammonia Alarm (12 ppm)
  - Alarm (other - describe): NA
- Your name and the work you were performing:  
[REDACTED]
- Other Work Underway? Describe:  
snow removal
- Location of event (mark area on map and wind direction):  
A down
- 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:  
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.

Washington River Protection Solutions  
**INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT**

<b>Event Title:</b>  <p style="text-align: center;">TF-AOP-015 Entry at A Farm</p>	<b>PER Number:</b> <p style="text-align: center;">N/A</p>
<b>IHIR Number:</b> <p style="text-align: center;">IHIR-00058</p>	

<b>Date:</b> 11/30/2022	<b>Time:</b> 12:15	<b>Location:</b> 241-A Farm
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**Event Summary and Timeline:**

1213 Personal ammonia monitor alarmed at 15 ppm on a laborer performing snow removal in the east end of A Farm

1224 The Central Shift Office was notified of the alarm

1238 SOEN notification: Entered TF-AOP-015 Response to Personal Ammonia Monitor Alarm for Ventis Pro alarm in A-Farm. All personnel exit A-Farm through the nearest change trailer. Access to A-Farm is restricted. CSM

1242 Production Operations East Industrial Hygienist arrives at Shift Office

1245 Workers arrive at Central Shift Office and fills out Odor Response Cards

1248 DFAS consulted and mixing height determined to be 140 feet at time of alarm

1252 Industrial Hygiene Technician Supervisor arrives at Shift Office to retrieve personal ammonia monitor for data download

1312 Industrial Hygiene Technician Supervisor confirms peak reading of 15 ppm from data log

1313 Industrial Hygiene Technician briefed with Industrial Hygiene Sampling Plan and Respiratory Protection Form that will be used for field response

1313 Retrieval Closure Industrial Hygienists arrive at Shift Office

1321 Industrial Hygiene Technician and Industrial Hygienist en route to A Farm

1347 Industrial Hygiene Technician Supervisor tests personal ammonia monitor and achieves a false response of 16 ppm and OR (over-ranged)

1348 Responding Industrial Hygienist and Industrial Hygiene Technician exit A Farm and report results of less than detectable amounts of ammonia and volatile organic compounds during sweep

1400 Responding Industrial Hygienist returns to Shift Office

1404 Industrial Hygiene Technician reports that the direct reading instrument used for farm sweep passed the post-use function test

1416 SOEN notification: Response actions for the TF-AOP-015 event have been completed and the results are at or below background levels. Exiting TF-AOP-015. Normal access to A-Farm is restored. CSM

**Sampling/Monitoring Results:**

Field Response area readings:

- Ammonia: Less than Detectable (< 1 ppm)

Ventis Pro V 005162 (Event Initiating Personal Ammonia Monitor) readings above 6 ppm ammonia:

- 11/30/2022 11:57:03 6 ppm ammonia for three seconds in a Non Farm
- 11/30/2022 11:57:16 11 ppm ammonia for six seconds in a Non Farm
- 11/30/2022 11:57:31 8 ppm ammonia for four seconds in a Non Farm
- 11/30/2022 12:13:16 14 ppm ammonia for five seconds in A-Farm
- 11/30/2022 12:13:28 15 ppm ammonia for six seconds in A-Farm
- 11/30/2022 12:13:52 12 ppm ammonia for five seconds in A-Farm
- 11/30/2022 12:14:14 8 ppm ammonia for four seconds in A-Farm

- Data was collected from the DSX-L database that maintains the Ventis Pro data logs.

**SWIHD References:**

- Event Response Site Wide Industrial Hygiene Database Direct Reading Instrument Survey #22-07262

**Additional Information:**

At the time of the initiating event, the employee wearing the personal ammonia monitor that alarmed

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

**Additional Information:**

was shoveling snow in the east end of A-Farm. At the time of the alarm, the worker was wearing FFAPR with chemical cartridges. The worker reported that they did not smell odors. Two other workers wearing personal ammonia monitors were near the worker at the time of the initiating alarm, neither of which alarmed.

Additionally, in an attempt to recreate the alarm on the instrument and test the quality of the ammonia sensor, the personal ammonia monitor was subjected to physical force as might have been present in the field during shoveling activities. A false reading of 16 ppm was able to be recreated in the Central Shift Office by physically thumping the ammonia sensor.

**Additional Information on the Personal Ammonia Monitor (Ventis Pro V):**

Ventis Pro V 005562 (event initiating instrument):

- Put into service on 04/18/2022
- Sensor ID: 220337D014
- Unit Serial Number (SN): 22033PE-028
- User ID: 005562
- Datalog Interval: 10 seconds
- Passed Daily Function Test for Ammonia (Bump Test): 11/30/2022
- Last Successful Calibration of Unit for Ammonia: 11/16/2022

11/30/2022 @ 1213

- Wind Speed: 4.1 mph
- Wind Direction: 226° SW
- Mixing Height: 140 feet above grade
- Stability Class: D (neutral conditions)

11/30/2022 @ 1215 Vapor Monitoring Data System (VMDS) ammonia readings:

- POR 518: 2.4 ppm ammonia
- POR 519: 1.6 ppm ammonia
- POR 126: 0 ppm ammonia
- POR 127: 0 ppm ammonia
- 702 AZ: 9.8 ppm ammonia

Review of the Data Fusion and Advisor System (DFAS) application, powered by SmartSite™, Weather Details and Chemical Details dashboards, and the VMDS ammonia readings at farm exhausters around the reported time of the event indicate the cause of the Personal Ammonia Monitor alarm is unlikely to be from Tank Farm Exhauster emissions.

**Recommendations/Conclusions:**

The Personal Ammonia Monitor alarm event was the result of the Ventis Pro sensor having an intermittent internal short resulting in erroneous concentration indication and alarm condition. IH recreated the erroneous alarm condition by abrupt physical movement in an office environment and the alarm report in the farm is not an indication of changing conditions or an employee chemical exposure event. Two other collocated units corroborate the absence of a changed tank chemical gas/vapor condition in farm. The damaged unit has been removed from service.

Review of the Data Fusion and Advisor System (DFAS) application, powered by SmartSite™, Weather Details dashboard for the reported time of the Event, and the Vapor Monitoring Detection System (VMDS) further corroborate the conclusion that the cause of the Personal Ammonia Monitor alarm is unlikely to be from Tank Farm Exhauster emissions.

**Other:**

All personnel present at the alarm event were offered voluntary medical examination, but declined.

**Industrial Hygienist:**

\_\_\_\_\_

*Print First and Last Name*

\_\_\_\_\_

*Signature / Date*

Digitally signed by \_\_\_\_\_  
Date: 2022.12.01 12:46:21 -0800

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

Industrial Hygiene Level 2 Manager:

[Redacted]

*Print First and Last Name*

[Redacted]

*Digitally signed by*

[Redacted]

*Signature / Date*