

AOP-015 Event Investigation Reports (Redacted) EIR-2020-046 10212020

(Settlement Agreement Deliverable)

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC27-08RV14800



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Washington River Protection Solutions

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APPROVED
By Lynn M. Ayers at 3:23 pm, Dec 10, 2020

Release Approval

Date

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Title: EIR-2020-046, "Investigation of AOP-015 East of 272AW"					
Date: 10/21/2020		Time: 0800		Location: 272AW	
Number of Workers Involved: (2)		Odor Response Card filled out: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> How many? 2			
Symptoms: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Sampling Results #: SWIHD 20-07596			
Medical Evaluation Offered: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Medical Evaluation Declined: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Both individuals declined medical evaluation			
Return to Work Status					
Number of workers returned to work without restriction		2			
Number of workers returned to work with restriction		0			
Number of workers referred for further evaluation		0			
Transported to Site Occupational Medical Services (HPMC) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Odor Description: "rotten egg"			
MSA Activities: Biological/Herbicide <input type="checkbox"/> Septic Service <input type="checkbox"/> Other:		Waste disturbing activities or Tank work in adjacent area: Yes <input type="checkbox"/> Activity or work released _____ No <input checked="" type="checkbox"/>			
Meteorological Data:					
Time:	Weather Station #:	Speed: (MPH)	Direction: (N/S/E/W)	Temperature: F/C	Barometric Pressure (steady/rising/falling):
0745	6	6.3	299.1 NW	42.1	29.30 rising
0800	6	9.5	301.7 NW	42.7	29.28 steady
0815	6	12.5	304 NW	48.1	29.29 steady
Event Summary & Timeline					
<p>On October 21, 2020, at approximately 0800, two HPTs were moving equipment into 272AW when they experienced a "stronger than normal rotten egg type odor" in the alley east of the building. Neither individual reported symptoms and both of them declined medical evaluation.</p> <p>At the time odors were reported, the individuals were outside a zone requiring respiratory protection. There was not an Industrial Hygiene technician (IHT) present during the event. Upon encountering the odor, the employees immediately exited the area, returned to their office and notified their supervisor. Meteorological data collected at the time from Station #6, located approximately 1½ mile from 272AW indicates light winds from the NW at 1.6 MPH, 56°F, and a steady barometric pressure.</p> <p>Both employees completed Odor Response Cards. Notifications were made as required by TFC-OPS-OPER-C-57, and the Central Shift Manager (CSM) entered TF-AOP-015 for response to reported odors. Access to the area was restricted.</p> <p>IHTs responded to the area and took Direct Reading Instrument (DRI) readings for Ammonia (NH3), Volatile Organic Compounds (VOCs) and two bag samples. DRI results were below action levels and supported restoring access to the restricted area. After confirming the required actions were completed, the CSM exited TF-AOP-015 and access to the area was restored.</p> <p>In an effort to maintain COVID controls, interviews with affected personnel were conducted in lieu of an Event Investigation Meeting based on the limited number of individuals involved.</p>					

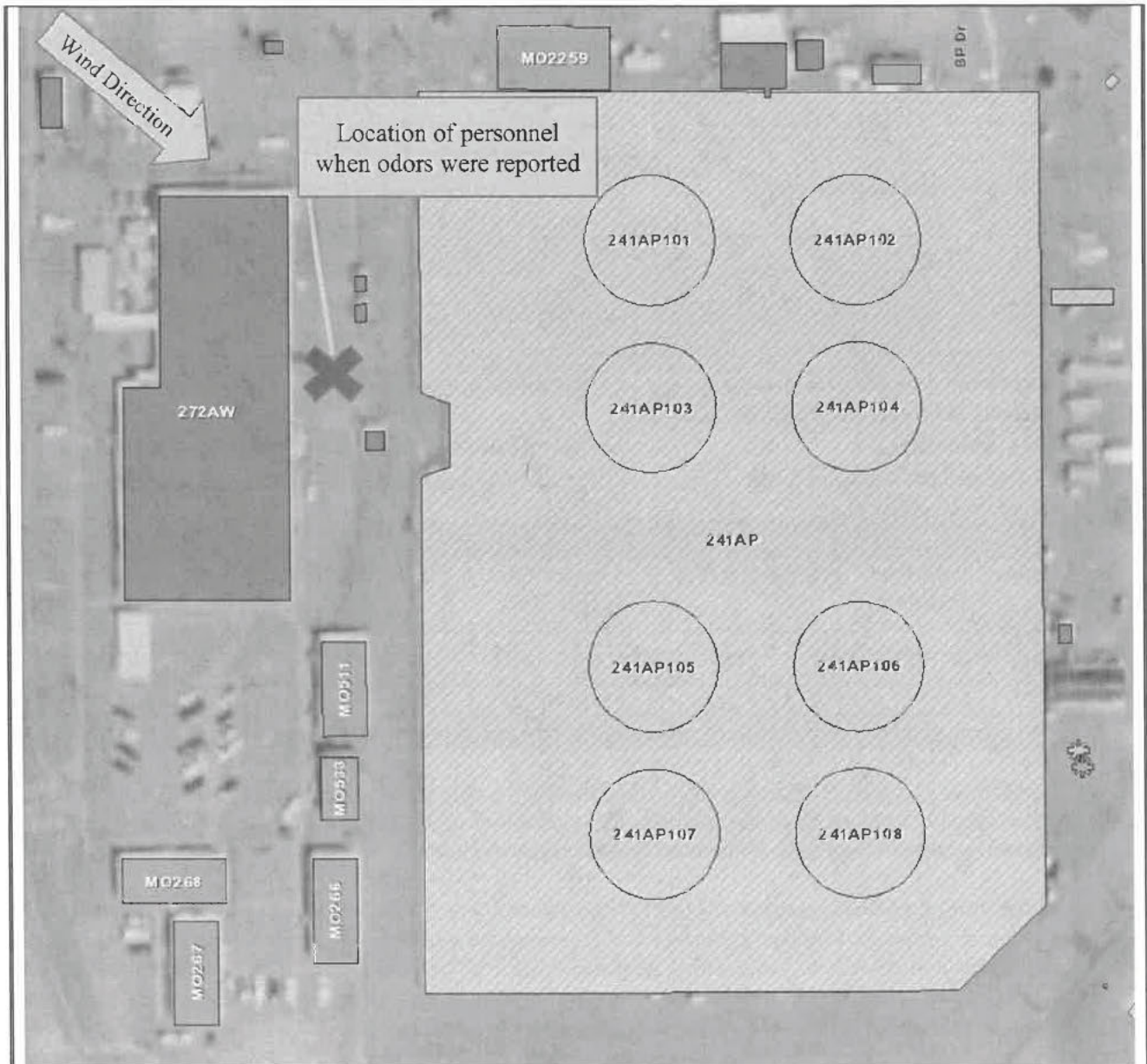


Figure 1: This figure shows the relative location of the personnel and the wind direction when odors were reported.

Event Timeline:

10/21/2020

0755: Radiological First Line Manager reported to IH Manager that employees experienced an odor (rotten eggs) outside of the 272AW building. IH Manager referred Radiological First Line Manager to Central Shift Office

0759: Responding IH contacted ETF IH to prep the MultiRAE equipped with hydrogen sulfide sensor

0800: Responding IH and IHT Supervisor proceed to Central Shift Office to assist with response to stronger than normal odors

Listing of IH Program(s) to Consider:

None

Facility Impact

None

Discussion of Potential Source(s):

IHT monitoring results for NH₃, VOC, and H₂S were all at or below detection levels. The grab/bag samples were analyzed and compounds found were consistent with sample bag contaminants. No compounds were found at concentrations of concern. Upon evaluation of plausible sources, meteorological conditions, industrial hygiene sampling and interviews, no readily identifiable cause of the odors was determined.

Recommendations/Factors for Evaluation:

None

Condition(s) Adverse to Quality:

None

Discussion of Positive Aspects of the Event:

None

Attachments:

1. List of personnel contacted
2. Redacted Odor Response Cards (4 pages)
3. TF-AOP-015 Attachment 1, Odor Response Plan
4. Industrial Hygiene Sample Plan (IHP-09001 R6) for TF-AOP-015
5. HAPSITE Results
6. Log Book Entries

Responsible Manager: _____ / _____

Responsible Manager

Signature

Date

12/9/20

Event Investigator: _____ / _____

Event Investigation Team Lead

Signature

Date

Digitally signed by _____
Date: 2020.12.08 06:43:54 -08'00'

Event Investigator: _____ / _____

Event Investigation Team (under instruction)

Signature

Date

12/08/2020

0803: Responding IH converses with employees who had odor concern. Gets detailed description of where the odor was observed
0806: SOEN: "Entering AOP-015 for stronger than normal odors for the area between AP farm and 272AW. All personnel stay clear of the east side of 272AW." CSM
0812: IHT Supervisor contacts Shift IHTs to help respond to AOP
0816: IHTs arrive at Central Shift Office for briefing from responding IH
0819: IH contacts IH Program Manager to initiate HAPSITE.
0825: IH contacts IHT Supervisor in Programs group to ensure HAPSITE is running
0833: ETF IHT arrives with MultiRAE with hydrogen sulfide sensor
0834: IHTs receive MultiRAE from ETF IHT and head out to respond per odor response plan
0835: IH contacts Met Station for station 6 readings around the time the odor was observed

- Met Station #6 Data
- 41° F
- Wind out of NW at 3MPH
- Relative humidity 53%
- Barometric Pressure 29.27in. Hg and slightly rising trend

0929: Responding IHTs contact IH to report readings from the field; VOCs 0ppm; NH3 0ppm, H2S 0ppm; SWIHD #20-07596
0934: Responding IHTs take bag samples to be analyzed on the HAPSITE
0957: Report readings to the shift manager from the field
1009: SOEN: "Response actions for the 272AW TF-AOP-015 event have been completed and the results are at or below background levels. Exiting TF-AOP-015."

Immediate Actions Taken:

- Stopped Work
- Notified CSM
- Access to area restricted
- Odor Response Cards completed
- Entered TF-AOP-015, "Response to Reported Odors or Unexpected Changes to Vapor Conditions"
- IHTs responded to the area and took direct instrument (DRI) readings and 2 bag samples. DRI readings were below action levels

Compensatory Measures:

None

Readings from Sampling and/or Monitoring:

Monitoring: DRI Field Readings

- Ammonia- Less than detectable levels
- VOCs- Less than detectable levels
- Hydrogen Sulfide- Less than detectable levels

Sampling: Grab Sample Results

- VOC < DL

Attachment 1: List of personnel contacted:

- [REDACTED] Industrial Hygiene AOP-015 Reporting SME
- [REDACTED] Central Shift Manager
- [REDACTED] Industrial Hygienist
- [REDACTED] Industrial Hygienist
- [REDACTED] Radiological Control First Line Supervisor

Attachment 2: Odor Response Cards (Redacted) Page 1 of 4

ODOR RESPONSE CARD - 241-AP FARM

Odors Detected with *NO* Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [REDACTED]. Provide the bulleted information below.
3. Complete map, return to Central Shift Office as soon as practicable.

Odors Detected *WITH* Symptoms

4. Notify Immediate Supervisor.
5. Contact CSM, [REDACTED], complete below bulleted information and map.
 - Your name and the work you were performing
 - Your symptoms (if any)
 - Date and time odor was noticed
 - Location of odors (mark area on map and the wind direction)
 - Describe the odor
 - Name of other in or near the affected area
 - Was an IHT present?
 - Possible source
6. Provide information on the back of card.
7. Send this card immediately to the Central Shift Office.

The map shows a rectangular area labeled '241-AP FARM' at the bottom. At the top, there are buildings labeled '241AP271', '241AP273', and 'MO-813'. A north arrow is in the top left. On the left side, there is a structure labeled 'AP-272'. In the center, there are several rectangular structures labeled 'FLUSH PVT', '371-AP-01', 'CYTRIF', and 'CYTRIF'. A '371-AP VALVE PVT' is also shown. On the right side, there are 'VENT PVT 4', 'VENT PVT 2', 'ANIMALS EQUINE STATION', and 'PRIMARY EQUINE STATION'. Eight circular areas are labeled 'AP-101' through 'AP-108' arranged in two columns. A wind direction indicator in the bottom right shows 'W', 'N', 'E', and 'S'. A scale bar at the bottom left is labeled 'SCALE IN FEET'.

Attachment 2: Odor Response Cards (Redacted) Page 2 of 4

ODOR RESPONSE CARD - 241-AP FARM

1. Contact CSM, Complete below bulleted information and map.

- Date and time odor was noticed 10/21/2020 0800A
- Your name and the work your were performing [REDACTED] moving equipment
- Location of odors (mark area on map and wind direction) Alleyway between 272 Ave and AP Farm
- Name(s) of others in or near the affected area [REDACTED]
- Was an IHT present? NO
- Describe the odor Sweet Sour Musty Earthy Metallic Smoky Rotten Onion
 Cleaning Solution Ammonia Other: Sulfur / Rotten Egg
- Possible Source N/A
- Your symptoms (if any) Headache Dizziness/Light-Headed Nausea Cough
 Fatigue/Drowsiness/Weakness Sore/Burning Throat Difficulty Breathing
 Watery/Irritated Eyes/Trouble with Vision Tingling/Numbness/Paralysis Rash/Itching
 Other: _____

2. Send this card to the Central Shift Office.

Attachment 2: Odor Response Cards (Redacted) Page 3 of 4

ODOR RESPONSE CARD - 241-AP FARM

Odors Detected with *NO* Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [REDACTED], Provide the bulleted information below.
3. Complete map, return to Central Shift Office as soon as practicable.

Odors Detected *WITH* Symptoms

4. Notify Immediate Supervisor.
5. Contact CSM, [REDACTED], complete below bulleted information and map.
 - Your name and the work you were performing
 - Your symptoms (if any)
 - Date and time odor was noticed
 - Location of odors (mark area on map and the wind direction)
 - Describe the odor
 - Name of other in or near the affected area
 - Was an IHT present?
 - Possible source
6. Provide information on the back of card.
7. Send this card immediately to the Central Shift Office.

AP-FARM

241-AP FARM

Attachment 2: Odor Response Cards (Redacted) Page 4 of 4

ODOR RESPONSE CARD - 241-AP FARM

1. Contact CSM, Complete below bulleted information and map.

- Date and time odor was noticed 10-21-20 8:00 AM
- Your name and the work you were performing [REDACTED] moving equipment
- Location of odors (mark area on map and wind direction) Alleyway next to AP
- Name(s) of others in or near the affected area [REDACTED]
- Was an IHT present? NO
- Describe the odor Sweet Sour Musty Earthy Metallic Smoky Rotten Onion
 Cleaning Solution Ammonia Other: _____
- Possible Source Ventilation?
- Your symptoms (if any) Headache Dizziness/Light-Headed Nausea Cough
 Fatigue/Drowsiness/Weakness Sore/Burning Throat Difficulty Breathing
 Watery/Irritated Eyes/Trouble with Vision Tingling/Numbness/Paralysis Rash/Itching
 Other: N/A

2. Send this card to the Central Shift Office.

Attachment 3: TF-AOP-015 Attachment 1, Odor Response Plan

TF-AOP-015 Attachment 1- Odor Response Plan Response Timeline

<u>Time</u>	<u>Note</u>
0755:	Radiological First Line Manager reported to IH Manager that employees experienced an odor (rotten eggs) outside of the 272AW building. IH manager referred Radiological First Line Manager to Central Shift Office.
0759:	Responding IH to odor concerns contacted ETF IH to prep the MultiRAE equipped with Hydrogen Sulfide sensor.
0800:	Responding IH and IHT Supervisor proceed to Central Shift Office to assist with response to stronger than normal odors
0803:	Responding IH converses with employees who had odor concern. Gets detailed description of where odor was observed.
0806:	TF-AOP-015 entered for stronger than normal odors not associated with tank waste
0812:	IHT Supervisor contacts Shift IHTs to help respond to AOP
0816:	IHTs arrive at Central Shift Office for brief from responding IH
0819:	IH contacts IH Program Manager to initiate HAPSITE
0825:	IH contacts IHT Supervisor in programs group to ensure HAPSITE is running
0833:	ETF IHT arrives with MultiRAE with a Hydrogen Sulfide sensor.
0834:	IHTs receive MultiRAE from ETF IHT and head out to respond per odor response plan.
0835:	IH contacts Met Station for station 6 readings around the time the odor was observed: <ul style="list-style-type: none">• Met Station #6 data:• 41°F• Wind out of the NW at 3MPH• Relative Humidity 53%• Barometric Pressure 29.27 in. Hg and slightly rising trend
0929:	Responding IHTs contact IH to report readings from the field VOCs 0 ppm; NH3 0ppm; H2S 0ppm. SWIHD #20-07596
0934:	Responding IHTs take bag samples to be analyzed on the HAPSITE
0957:	Report readings to shift manager from the field
1009:	Exit AOP-015

Attachment 4: Industrial Hygiene Sample Plan (IHP-09001 R6) for TF-AOP-015

INDUSTRIAL HYGIENE SAMPLE PLAN		Contractor:	IHSP Number
Exposure Assessment: <input checked="" type="checkbox"/>	Job Specific: <input type="checkbox"/>	Washington River Protection Solutions	IHP-09001 R6
Brief Job Description and Type of Area: TF-AOP-015: This sample plan will be implemented at the direction of the shift manager for IHT field response to odor event. Continuous IHT coverage is required during evolution of event.			
INSTRUCTIONS			
Action Limit (Direct reading instrument results)			
Ammonia: 12 ppm VOCs: 2 ppm			
Monitoring			
<ul style="list-style-type: none"> Source: Possible odor source if noticeable increase in intensity Area: General area where employees identified the odor and. Personal: N/A 			
Sampling			
Bag sampling is conducted at the direction of the industrial hygienist, collect a minimum volume of 20L in grab air samples with polypropylene (or equivalent) bags:			
<ul style="list-style-type: none"> Source: If possible odor source if noticeable increase in intensity Area: General area where employees identified the odor Personal: Personal sampling will not be conducted as an immediate response action unless directed by the responsible <u>IHT</u>. 			
Process the grab air samples using the Hapsite, Miran and Lumax.			
MONITORING			
<ul style="list-style-type: none"> Area monitoring will be performed for ammonia and VOCs. General area where employees identified the odor and. Possible odor source if noticeable increase in intensity or positive reading 			
If odor source is readily apparent, e.g. vehicle exhaust, septic systems, animal odors, discontinue monitoring and inform shift office that source has been identified.			
Pre-Job Briefing Information N/A			
Other			
<ul style="list-style-type: none"> IHT to monitor their way in, moving from an upwind location if possible. If collected, a minimum volume of 20L in grab air samples with polypropylene (or equivalent) bags. If collected, deliver grab air sample(s) to IHT Lab at 2704-HV for Hapsite analysis. If grab samples are collected: Ensure ammonia and VOC levels are denoted on the polypropylene bag(s) when air samples are delivered to the IHT Lab at 2704-HV for Hapsite analysis. Sample plan may be modified per written direction from the project IHT in accordance with field deviation guidelines of TFC-ESHQ-S_IH-C-48. Record comments in field log. Transfer comments from field log to SWHD Comments field. Provide copy of field notes to project IHT. Additional direction for access control may be provided by the Shift Manager based upon monitoring and sampling results. A EZ may be established or farm access restricted if air monitoring levels reach and remain above an action level. 			
Did IHT Lead Review?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Signature: [Redacted]	IHT INITIAL: SB
IH Author	Print: [Redacted]	Phone: [Redacted]	DATE: 10-4-2018
IH Peer Review	Print: [Redacted]	Phone: [Redacted]	Date: 10/4/2018
IH Mgmt	Print: [Redacted]	Phone: [Redacted]	Date: 10/4/2018

Attachment 5: HAPSITE Results

HAPSITE GC-MS Bag Sample Survey 20-07596, October 21, 2020

Two Tedlar™ bag samples were collected during an AOP-15 event on October 21 and analyzed for VOC's on that same day using an Inficon HAPSITE GC-MS. Data from that analysis was interpreted and reported on November 9, 2020.

Traces of compounds typical of the sample bag matrix were detected in both samples, but no other compounds were detected above background concentrations in any sample.

If you have questions contact [REDACTED] CIH at [REDACTED]

Attachment 6: Central Shift Office Logbook Entries (Page 1 of 2)

Date -- Time	LogBook Entry	Log Entry By	Latest Status	
Filter by D	Filter by Description	Filter b	Filter by Status	
10/21/2020 -- 08:00	Entered TF-AOP-015 Response to Reported Odors or Unexpected Changes to Vapor Conditions. Two HPT's (Emmerich Milton and Logan McPherson) were moving equipment into 272AW when they experienced a stronger than normal "rotten egg" type odor. Neither of the individuals were experiencing symptoms and both have declined medical surveillance. Dispatched NCOs and Shift OE to block the north and south ends of the roadway between 272AW and AP Farm, NCOs and Shift OE were also directed to post the eastern 272AW exterior doors, from the inside of the building. Personnel were to remain with the barricades/postings to ensure that unauthorized personnel did not enter the restricted area. TFC-OPS-OPER-C-57 notifications complete.	[REDACTED]	Approved on 10/21/2020 -- 09:11 by [REDACTED]	Σ ✎
10/21/2020 -- 08:34	Odor response plan (AOP-015 Attachment 1) has been developed, IHT's briefed, and dispatched to investigate odors.	[REDACTED]	Approved on 10/21/2020 -- 09:17 by [REDACTED]	Σ ✎
10/21/2020 -- 09:00	IHT reports that monitoring is complete, all readings at or below background. Post check of instruments is still required.	[REDACTED]	Approved on 10/21/2020 -- 09:18 by [REDACTED]	Σ ✎

Attachment 6: Central Shift Office Logbook Entries (Page 2 of 2)

10/21/2020
-- 10:03

Closing TF-AOP-015. Odor response plan has been completed for the 272AW AOP-015 entry, DRI results were at or below background. Exiting AOP-015. SOEN complete. Left voicemail for ORP On-Call FR.



Approved
on
10/21/2020
-- 10:11 by



Σ 