

EVENT INVESTIGATION REPORT

EIR-2018-021: Investigation of the AW Farm Exterior AOP-015 Entry

[Redacted]

Event Investigation Team Lead

07/25/2018

Date

[Redacted]

PER Responsible Manager

July 25, 2018

Date

PER No. WRPS-PER-2018-1614

AOP-015 for Exterior AW Farm Entry

AOP-015 Summary

Date/Time of Event	<ul style="list-style-type: none"> • June 21, 2018 • 0750 hours
Location	<ul style="list-style-type: none"> • Outside AW farm fence
Personnel Affected	<p>Three (3) personnel reported odors:</p> <p>Transported to HPMC:</p> <ul style="list-style-type: none"> • Two (2) HPTs <p>Symptoms Experienced:</p> <ul style="list-style-type: none"> • One (1) Teamster
Odor / Taste	<ul style="list-style-type: none"> • Sour • Musty • Smokey
Symptoms	<ul style="list-style-type: none"> • Watery/Irritated Eyes/Trouble with Vision
Industrial Hygiene (IH) Direct Read Instrumentation (DRI) Monitoring / Sampling	<p>Ammonia peak: 1 ppm VOCs: 30 ppb Hg: 5ng/m³ N₂O: 3 ppm</p> <p>All less than background</p>
Potential Source	<ul style="list-style-type: none"> • Odor source not suspected to be from tank waste based on odor descriptor. • AW farm safety shower, diesel generator, blue room, laundry storage container, and the AW farm construction access tent.
Wind Speed / Direction	Wind direction from North-West to East, 10 mph
Waste Disturbing or Tank Work in Adjacent Area	<ul style="list-style-type: none"> • None
Other Work in Adjacent Area	<ul style="list-style-type: none"> • 241-AW-03A Pump Flush/Replacement Prep • 241-AW Inlet HEPA PDI CALS <p>Neither of these activities were identified as a potential odor sources.</p>

Investigation Summary

Workers reported to AW farm around 0645hrs to assist in the construction led AW Stack Extension work activity. 3 workers, 2 Health Physics Technicians (HPTs) and 1 Teamster were moving equipment/materials from inside AW farm to outside the AW fence using a forklift. The team had completed 3 trips, around 0750hrs as the 4th trip was about to begin the 3 workers encountered a musty/sour odor. The Field Work Supervisor (FWS) was notified, and the Central Shift Office (CSO) was called. 2 HPTs requested to go to HPMC, however only 1 experienced symptoms. A SOEN was sent out instructing personnel to stay away from AW farm; TFC-AOP-015 was entered. The following intersections adjacent to AW Farm along 4th Street were barricaded at Canton Ave, Canton Pl, and Buffalo Ave. The responding Industrial Hygiene (IH) Professionals did not suspect the odor source to be from tank waste based on odors descriptors provided by the workers. The Central Shift Manager (CSM) concurred and conservatively required respiratory protection for response activities. The detailed timeline below was provided by the responding Industrial Health Technicians (IHTs).

Event Timeline

- 0750 2 HPTs and 1 Teamster detected a "musty/sour/smoke" odor
 - 1 HPT experienced a burning sensation to the eyes
- 0802 Projects FWS request ORC from IS/IH
- 0804 EV IS & COMS IH arrive @ CSO
- 0804 FWS calls CSO:
 - Informs CSM he is heading to get more information from the workers at the trailer
- 0805 CSM to Projects FWS:
 - Do not go to the change trailer. Going to enter AOP-015 and restrict access
- 0805 EV IH & AN IHT Supervisor arrive at CSO
- 0806 PO S&H Manager arrives at CSO
- 0806 COMS IH calls PO IHT Shift Supervisor:
 - IHTs are grabbing instrumentation
 - 2704 HV IHT Lab Lead notified and HAPSITE is warning
- 0810 CSM discusses placement of road blocks
Notified the two (2) HPTs are heading to medical, one (1) teamster declined
- 0810 CSM notifies MSA of road blocks
- 0812 PO IHT Lead and one (1) PO IHT arrive at CSO
- 0813 EV IS departs CSO for medical with ORC to be filled out
- 0813 CSM Issue All-Call announcement
- 0814 SOEN: "Entering AOP-015 for 4th and Canton Ave. All personnel stay clear of the area. CSM"
- 0821 TF-AOP-015 RPF Task 3 selected:
 - Odor source is not suspected to be from tank waste based on odor description
 - CSM requires RPE
- 0824 CSM receives update on road block placement:
 - 4th & Canton Ave- Placed
 - 4th & Canton Pl- Placed
 - 4th & Buffalo Ave- To be placed next
- 0829 Farm confirmed empty
- 0832 Two (2) IHTs arrive at CSO with RPE to receive briefing on response from EV, COMs, and AN IHTs:
 - Ammonia & VOCs
 - Sweep fence line from laundry storage to instrument building
 - Sweep laundry storage, garbage, drums
 - Pull one bag of general area
 - Second bag ready (pull if a source is found)
 - Run the bag through the Lumex and Miran prior to sending to 2704HV
- 0834 IHTs depart CSO to grab instrumentation and respond
- 0834 CSO requests expedited analysis
- 0835 NCOs still in change trailer. Directed to exit with an IHT escort
- 0836 COMs IH calls PO IHT Shift Supervisor to update on escort needed at change trailer
- 0836 Construction IS inquires if people can keep working in 242A parking lot
- 0839 PO IHTs receive update
- 0840 PO IHTs will monitor their way to the change trailer and escort personnel out
- 0843 EV IS informs PO S&H Manager ORCs have been scanned to CSO
- 0846 Projects IH arrives at CSO
- 0851 PO IHTs return from response

- 0852 PO IHTs updates EV, COMs, and AN IHs:
 - Ammonia peak: 1 ppm
 - VOCs peak: 30 ppb
 - Inquires if they should pull a second bag
 - Informs the change trailer and instrument building
- 0853 AN IH requests to walk down area without SCBA and is denied by CSM
- 0910 Bag en-route to HAPSITE. Grab Sample DRI:
 - VOC: 0 ppb
 - NH₃: 0 ppm
 - Hg: 5 ng/m³
 - N₂O: 0.3 ppm
 - DRI #18-05594
- 0923 2704HV IHT Lab Lead and PO IHT Shift Supervisor inquire about HAPSITE method
- 0926 COMs IH informs PO IHT Shift Supervisor to have the 2704HV IHT Lab Lead to use the long burn method (5 min).
- 1335 SOEN: "Sample Analysis for TF-AOP-015 event has been completed and results are at or below background levels. Exiting TF-AOP-015. CSM"
- 1340 AN IH, EV IH, COMs IH, PO IHT Shift Supervisor, IHT with MultiRAE, PO IHT Supervisor conduct visual and olfactory surveillance. Notable areas of odor producing structures/items directly upwind of the affected area were the AW farm safety shower (chlorine), Diesel generator, Blue Room just North of the AW construction access tent, and the construction access tent itself. Odors were noticeably stronger during gusts of wind. In addition, the laundry storage just South of MO-818 emanated a faint "musty odor."

Immediate Actions Taken

Notifications were made, CSO entered TFC-AOP-015 around AW Farm. Roads were blocked off at 4th street West of Canton Pl, and East of Buffalo Ave, and Canton Ave on North end of AW Farm. IH completed direct reading instruments (DRI) and bag samples.

Discussion of Potential Cause

IH provided the following statement for potential cause. "Various odor sources were observed in the area surrounding 4th and Canton near the AW change trailer. On the day of June 21, 2018 there was visible smoke from wildfires which likely account for the "smoky" odor identified by affected personnel. Field sample analysis identified several constituents of fuel components well below any action levels or occupational exposure levels. No constituents were found consistent with reported "musty/sour" odors and all DRI readings were below or near the limit of detection. Surveillances performed after release of the affected area identified the AW farm safety shower, diesel generator, blue room (portable restroom), laundry storage container, and the AW farm construction access tent as potential odor sources."

IH Programs commented on the HAPSITE Results, "The AOP sample does not contain any components that are dangerous. The peak that was observed was a long chain oxidized fuel component." After reviewing and comparing the results to the odor descriptors provided by the 3 employees, IH Programs was unable to identify any potential source/chemical in the HAPSITE analysis.

Preliminary Extent of Condition Review

Over the past 24 months, only one previous AOP-015 was identified around AW Farm, WRPS-PER-2017-2651, AOP-015 Entry at 271AW Instrument Building. This entry occurred in November of 2017. However, the odor descriptor and the potential source which was identified as the flame retardant coating inside a storage box do not relate to this event.

Recommendations/Proposed Corrective Actions

There are no recommendations for corrective actions.

Attachments:

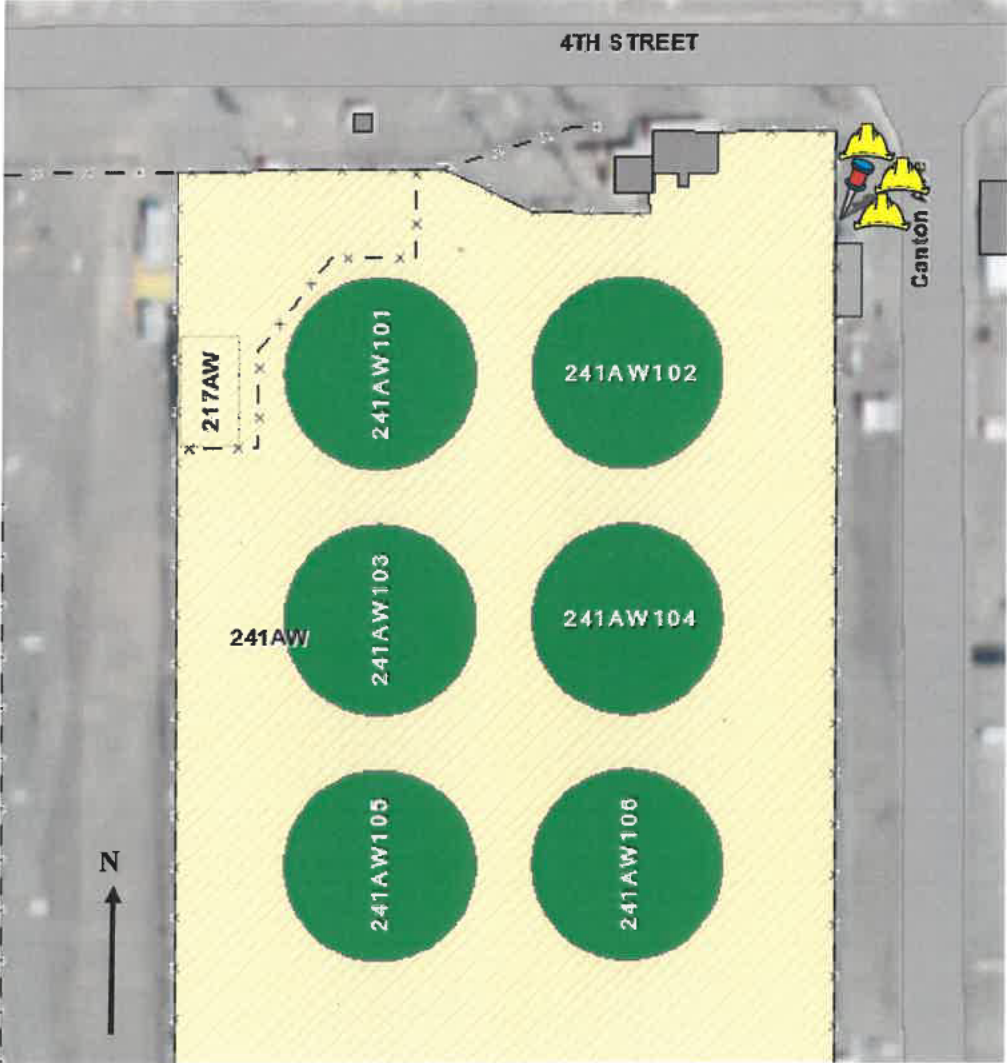
Attachment 1: Location of workers who reported Odors



Attachment 2: Odor Response Plan

Attachment 3: Odor Response Cards

Attachment 4: HAPSITE Analysis

Attachment 1: Location of workers who reported Odors



-  Location of odor
-  Worker

 Wind direction

Attachment 2: Odor Response Plan

Response to Reported Odors or Unexpected Changes to Vapor Conditions

Attachment 1 - Odor Response Plan

<p>DESCRIPTION OF EVENT (date/time & description of odors detected, location, symptoms, etc.) 6/21/2018 0750 2 HPTs and 1 Treasurer detected a musty/ester/smoky odor outside and North of the MW farm change trailer HD 218. 1 HPT reported symptoms of "irritated eyes". Both HPTs were sent to HSE for evaluation. The treasurer checked medical evaluation. Odors were not reported by other personnel in the vicinity.</p>		
<p>RESPONSE STEPS: Attach additional pages as needed SEE ATTACHED TIMELINE Responding HPTs were directed to perform Direct Reading Instrument (DRI) monitoring for Benzene, Toluene and Total Volatile Organic Compounds (VOC). Monitor along the DRI-AW fence line from the nearby storage to instrument building. Check around land storage & drums & garbage. Pull one bag from general area. If a source is identified mark DRI, pull & record by Standard. Run bag through tank.</p>		
<p>III Sampling Plan # N/A - Per IH Direction MIA: N/A</p>	<p>RWP# N/A Other TF-ADP-015 RPF Task 3</p>	<p>DATE</p>
<p>REQUIRED APPROVAL SIGNATURES</p>		
<p>Industrial Hygiene:</p>	<p>Signature: [Redacted]</p>	<p>Print (First & Last): [Redacted] Date: 6/21/2018</p>
<p>Shift Manager:</p>	<p>Signature: [Redacted]</p>	<p>Print (First & Last): [Redacted] Date: 6/21/18</p>
<p>ADDITIONAL SIGNATURES (as determined by Shift Manager or Safety & Health Rep; N/A if not applicable)</p>		
<p>RadCon:</p>	<p>Signature: _____</p>	<p>Print (First & Last): _____ Date: _____</p>
<p>Environmental:</p>	<p>Signature: _____</p>	<p>Print (First & Last): _____ Date: _____</p>
<p>Engineer:</p>	<p>Signature: _____</p>	<p>Print (First & Last): _____ Date: _____</p>
<p>Industrial Safety:</p>	<p>Signature: _____</p>	<p>Print (First & Last): _____ Date: _____</p>
<p>Odor Response Plan Notes (monitoring data, results of actions taken, etc. Use more sheets as necessary) DRI survey # 18-05594. See survey for reading details. HAPSITE results All DRI monitoring results were less than action levels. Operations released indicated no chemical concentrations above action limits. Operations released affected area from restricted access at 1335 6/21/2018.</p>		
<p>RESPONSE PLAN COMPLETED:</p>		
<p>Safety & Health Rep:</p>	<p>Signature: [Redacted]</p>	<p>Print (First & Last): [Redacted] Date: 6/21/2018</p>

Type	Document No.	Revised	Release Date	Page
REFERENCE	TF-AOP-015	G-4	03/22/2018	8 of 10

Attachment 3: Odor Response Cards

ODOR RESPONSE CARD - 241-AW FARM

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

- Date and time odor was noticed 6-21-18 08:05
- Your name and the work you were performing [Redacted] Tractor
- Location of odors (mark area on map and wind direction)
- Name(s) of others in or near the affected area 2 HPEs
- Was an H-T present? Yes
- Describe the odor Sweet Sour Musty Earthy Metallic Smoky Rotten Onion
 Cleaning Solution Ammonia Other: _____
- Possible Source Unknown
- 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: None

2. Send this card to the Central Shift Office.

Attachment 3: Odor Response Cards (Cont.)

ODOR RESPONSE CARD - 241-AW FARM

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

- Date and time odor was noticed 11-2-11 12:50
- Your name and the work you were performing [REDACTED] [REDACTED]
- Location of odors (mark area on map and wind direction) _____
- 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 Tank
- 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 3: Odor Response Cards (Cont.)

ODOR RESPONSE CARD - 241-AW FARM

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

- Date and time odor was noticed 0750 6-21-18
- Your name and the work you were performing Andriana/Survey
- Location of odors (mark area on map and wind direction) _____
- Name(s) of others in or near the affected area _____
- Was an IHT present? NO
- Describe the odor Sweet Sour Musty Earthy Metallic Smoky Rotten Onion
 Cleaning Solution Ammonia Other: _____
- Possible Source AW Farm
- 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.

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Attachment 4: HAPSITE Analysis

