EVENT INVESTIGATION REPORT

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

Event Investigation Team Lead

PER Responsible Manager

PER No. WRPS-PER-2018-1614

07/25/2018
Date

July 25, 2018
Date
## AOP-015 for Exterior AW Farm Entry

### AOP-015 Summary

| Date/Time of Event       | June 21, 2018  
<table>
<thead>
<tr>
<th></th>
<th>0750 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Outside AW farm fence</td>
</tr>
<tr>
<td><strong>Personnel Affected</strong></td>
<td>Three (3) personnel reported odors:</td>
</tr>
<tr>
<td></td>
<td>Transported to HPMC:</td>
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<tr>
<td></td>
<td>• Two (2) HPTs</td>
</tr>
<tr>
<td></td>
<td>Symptoms Experienced:</td>
</tr>
<tr>
<td></td>
<td>• One (1) Teamster</td>
</tr>
<tr>
<td><strong>Odor / Taste</strong></td>
<td>Sour</td>
</tr>
<tr>
<td></td>
<td>Musty</td>
</tr>
<tr>
<td></td>
<td>Smokey</td>
</tr>
<tr>
<td><strong>Symptoms</strong></td>
<td>Watery/Irritated Eyes/Trouble with Vision</td>
</tr>
<tr>
<td><strong>Industrial Hygiene (IH)</strong></td>
<td>Ammonia peak: 1 ppm</td>
</tr>
<tr>
<td>Direct Read Instrumentation</td>
<td>VOCs: 30 ppb</td>
</tr>
<tr>
<td>(DRI) Monitoring / Sampling</td>
<td>Hg: 5ng/m3</td>
</tr>
<tr>
<td></td>
<td>N2O: 3 ppm</td>
</tr>
<tr>
<td></td>
<td>All less than background</td>
</tr>
<tr>
<td><strong>Potential Source</strong></td>
<td>Odor source not suspected to be from tank waste based on odor descriptor.</td>
</tr>
<tr>
<td></td>
<td>AW farm safety shower, diesel generator, blue room, laundry storage container, and the AW farm construction access tent.</td>
</tr>
<tr>
<td><strong>Wind Speed / Direction</strong></td>
<td>Wind direction from North-West to East, 10 mph</td>
</tr>
<tr>
<td><strong>Waste Disturbing or Tank Work in Adjacent Area</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Other Work in Adjacent Area</strong></td>
<td>241-AW-03A Pump Flush/Replacement Prep</td>
</tr>
<tr>
<td></td>
<td>241-AW Inlet HEPA PDI CALS</td>
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<tr>
<td></td>
<td>Neither of these activities were identified as a potential odor sources.</td>
</tr>
</tbody>
</table>
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/smoky" odor
  1 HPT experienced a burning sensation to the eyes
0800 Projects FWS request ORC from IS/IH
0804 EV IS & COMS IH arrive @ CSD
0804 FWS calls CSD:
  Inform 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 IS & AH IHT Supervisor arrive at CSD
0805 PO S&H Manager arrives @ CSD
0805 COMS IH calls PO IHT Shift Supervisor:
  IHTs are grabbing instrumentation
  2704 HV IHT Lab Lead notified and HAPSITE is warming
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 CSD
0813 EV IS departs CSD 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 TT-AOP-015 ARP 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 @ CSD with RPE to receive briefing on response from EV, COMs, and AN IHCs:
  Ammonia & VOCs
  Sweep fence line from laundry storage to instrument building
  Sweep laundry storage, garbage, drums
  Pull one bag of general areas
  Second bag ready (pull if a source is found)
  Run the bag through the Lumes and Mitan prior to sending to 2704HV
0834 IHTs depart CSD to grab instrumentation and respond
0834 CSM 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 inquiries 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 CSD
0846 Projects IH arrives at CSD
0851 PO IHTs return from response
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
Attachment 2: Odor Response Plan

Response to Reported Odors or Unexpected Changes to Vapor Conditions

Attachment 1 - Odor Response Plan

DESCRIPTION OF EVENT (date, time, & description of odors detected, location, symptoms, etc.):
Wells O750 & O752 at HP H.1 were in the field location area. There was a strong odor of "sulfuric acid" detected.

RESPONSE STEPS:
- Attach additional pages as needed.
- SEE ATTACHED TIMELINE.
- Responding H1's were directed to confirm Direct Reading Instrument (DRI) monitoring for ammonia, sulfur compounds (VOC). Monitor the DRI for 15 minutes.
- All department buildings, emergency, fire, marshals along the DRI line to WHP. Solid state battery (SSB) test.
- Pull out any other DRI's, pull in second test battery. Run box to WHP.

III. Sampling Plan:
- N/A - Per IN direction

DIA: N/A

OTHER TF-AOP-015 RPF Task 3

REQUIRED APPROVAL SIGNATURES

Industrial Hygiene: [Signature] Print (First & Last) 6/31/2018

Shift Manager: [Signature] Print (First & Last) 6/31/2018

ADDITIONAL SIGNATURES

Radiation:

Environmental:

Engineer:

Industrial Safety:

Odor Response Plan Notes (monitoring data, results of actions taken, etc. Use more sheets as necessary):
DEI survey at 18-05599. See survey for reading details. HAPSITE results all DEI monitoring results were less than action levels. Operations released affected area near restricted access at 6/30/2018.

RESPONSE PLAN COMPLETED:

Safety & Health Rep: [Signature] Print (First & Last) 6/31/2018

Type: REFERENCE Document No.: TF-AOP-015 Page: 8 of 10

Reviewer: G-6 Release Date: 03/22/2018
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]
   - Location of odor (mark area on map and wind direction):
   - Name(s) of others in or near the affected area: 2
   - Was an IHT present? Yes
   - Describe the odor: Sweet, Sour, Musty, Earthy, Metallic, Smoky, Rotten, Onion
   - Possible Source: [redacted]
   - Your symptoms (if any): Headache, Dizziness/Light-Headed, Nausea, Cough
     - Fatigue/Drowsiness/Weakness, Sore/Burning Throat, Difficulty Breathing
     - Watery/Red/Itched Eyes/Trouble with Vision, Tingling/Numbness/Paresthesia, Rash/Itching
     - Other: [redacted]

2. Send this card to the Central Shift Office.
ODOR RESPONSE CARD - 241-AW FARM

1. Contact CSM, Complete below bulleted information and map.
   - Date and time odor was noticed
   - Your name and the work you were performing [Redacted]
   - Location of odors (mark area on map and wind direction)
   - Name(s) of others in or near the affected area [Redacted]
   - Was an HTR present? [Redacted]
   - Describe the odor □ Sweet □ Sour □ Musty □ Earthy □ Metallic □ Smoky □ Rotten □ Onion □ Cleaning Solution □ Ammonia □ Other
   - Possible source
   - Your symptoms (if any) □ Headache □ Dizziness/Light-Headed □ Nausea □ Cough □ Fatigue/Crowedess/Weakness □ Sore/Burning Throat □ Difficulty Breathing □ Watery/filmed Eyes/Trouble with Vision □ Tingling/Numbness/Paralysis □ Rash/Vitching □ Other

2. Send this card to the Central Shift Office.
ODOR RESPONSE CARD - 241-AW FARM

1. Contact CBM, Complete below bulleted information and map.
   • Date and time odor was noticed: 0750 6-11-19
   • Location of odor (mark area on map and wind direction)
   • Name(s) of others in or near the affected area
   • Was an HMT present?

2. Possible Source
   • Describe the odor: □ Sweet  □ Sour  □ Musty  □ Earthy  □ Metallic  □ Smoky  □ Rotten  □ Onion
   □ Cleaning Solution  □ Ammonia  □ Other:__________________________

3. Your symptoms (if any):
   □ Headache  □ Dizziness/Light-Headed  □ Nausea  □ Cough
   □ Fatigue/Drowsiness/Weakness  □ Sore/Burning Throat  □ Difficulty Breathing
   □ Watery/Irritated Eyes/Troubles with Vision  □ Tingling/Allexness/Paralysis  □ Rash/Witching
   □ Other:________________________________________

2. Send this card to the Central Sh Sh Office.