

Event Investigation Report #EIR-2020-039: [WRPS-PER-2020-1438]		“Investigation of AOP-015 Between AY-1 & AY-2 Change Trailers Outside AY Farm”			
Date: 09/24/2020		Time: 0906		Location: Between AY-1 & AY-2 Change Trailers Outside AY Farm	
Number of Workers Involved: 3		Odor Response Card filled out: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> How many? [3]			
Symptoms: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> [1 of 3]		Sampling Results #: 20-06385			
Medical Evaluation Offered: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Medical Evaluation Declined: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Return to Work Status					
Number of workers returned to work without restriction				3	
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 checked="" type="checkbox"/> No <input type="checkbox"/>		Odor Description: Rotten Egg; Propane			
MSA Activities: Biological/Herbicide <input type="checkbox"/> Septic Service <input checked="" type="checkbox"/> Other: N/A		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):
0840	6	18 MPH, Gusts to 20 MPH	From the SW	62 °F	29.20" of mercury and rising (humidity @ 49%)
Event Summary & Timeline					
<p><i>*Words in italics for explanatory/example purposes only, delete upon completion of report.</i></p> <p>Initiating event:</p> <p>On September 24, at 0840, two employees encountered a "rotten egg smell" in between AY-1 and AY-2 Change Trailers (outside of access controls). No symptoms experienced, and medical evaluation resulted in workers being released without restriction.</p> <p>Additional event:</p> <p>A short time later, at 1000, a third worker walked through the restricted access boundary (installed as response to the initial odor response – TF-AOP-015) at 4th and Buffalo St. and encountered a "propane" odor. The individual complained of “dry mouth” symptom and was evaluated by HPMC – and was released to work without restriction.</p> <p>At the time odors were reported, the individuals were not working in an area requiring use of respiratory protection. IHT was not present during initiating event. The employees immediately exited the area upon smelling the odor and notified the Central Shift Manager (CSM). Access to the area was restricted after the CSM entered into TF-AOP-015, “Response to Reported Odors or Unexpected Changes to Vapor Conditions”. AOP-015 response actions commenced, and the area underwent air sampling as per RPF-TF-AOP-015. DRI sampling results found nothing above background levels, and a bagged grab-sample was taken to be further analyzed. Results of all sampling can be found in the following TF-AOP-015 Industrial Hygiene Investigation Report – no potential sources were identified.</p>					

An Event Investigation Meeting was not held for this event.

Event Timeline:

*See Attached IH Event Report

Immediate Actions Taken:

1. Workers exited the area
2. Notified CSM

Compensatory Measures:

None taken.

Readings from Sampling and/or Monitoring:

*See Attached IH Event Report

Facility Impact

The area was evacuated and barricaded while responding personnel performed samples. Sample results cleared the area for regular work <2 hours from AOP-015 initiation.

Discussion of Potential Source(s):

No potential sources identified.

Recommendations/Factors for Evaluation:

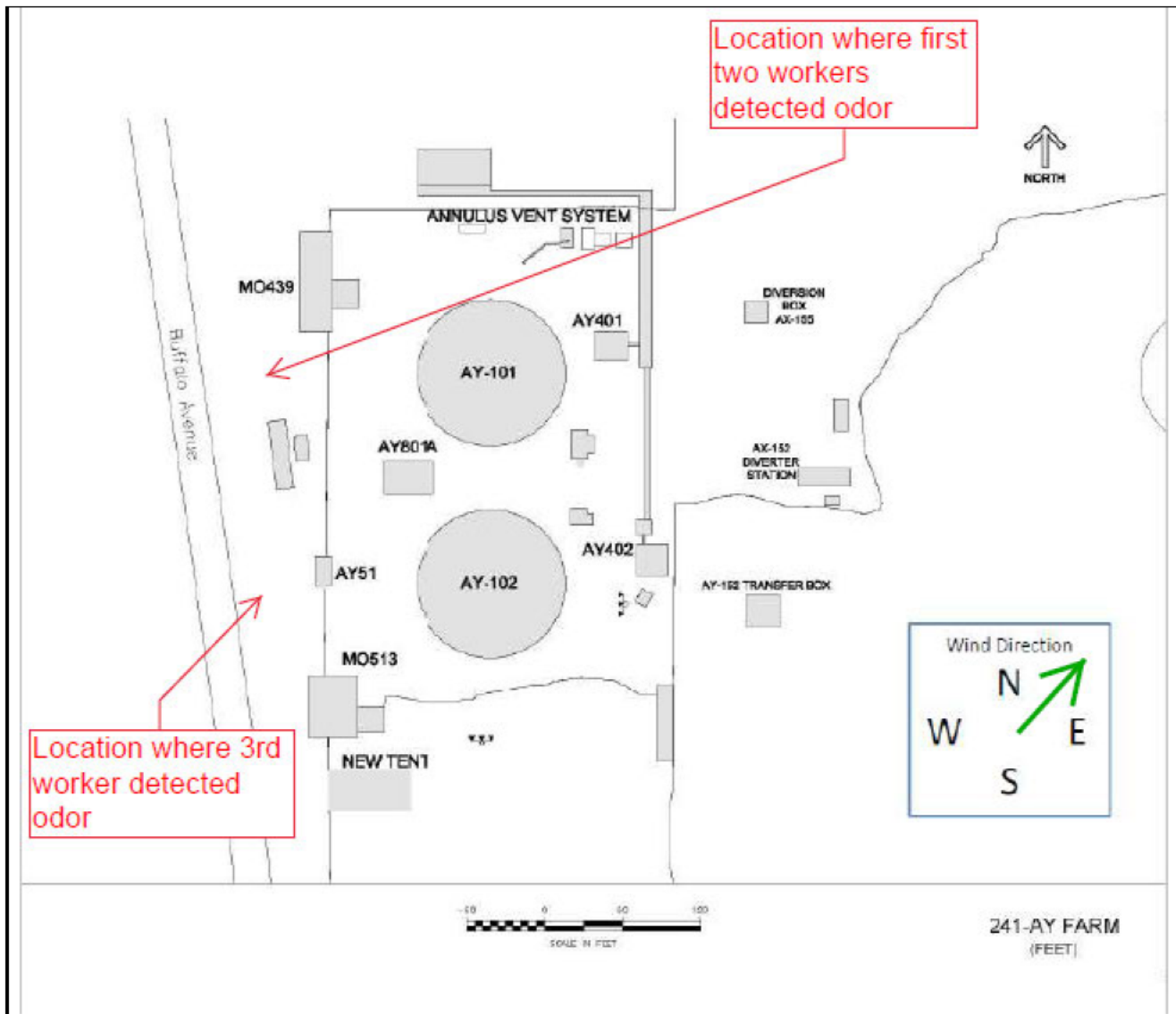
None at this time.

Condition(s) Adverse to Quality:

None at this time.

Discussion of Positive Aspects of the Event:

Workers notified management of the odor.



Personnel contacted:


1. [REDACTED]
2. [REDACTED]
3. [REDACTED]
4. [REDACTED]
5. [REDACTED]
6. [REDACTED]
7. [REDACTED]
8. [REDACTED]
9. [REDACTED]
10. [REDACTED]
11. [REDACTED]
12. [REDACTED]
13. [REDACTED]

Attachments (as they apply):

1. WRPS TF-AOP-015 Industrial Hygiene Investigation Report (*11 pages*)
2. TF-AOP-015 Communication Template
3. TF-AOP-015 Follow-Up Event Summary
4. Respiratory Protection Form RPF-TF-AOP-015; Rev. 7

Responsible Manager:


Print (First and Last)


Signature

11/10/2020
Date

Event Investigator:


Print (First and Last)


Signature

11/10/2020
Date

TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT**PER Number:**
WRPS-PER-1438**Time/Date & Event location:**

0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
EIR-2020-0391. **Event Summary** *(including number of workers involved and activity in progress):*

3 workers encountered "rotten egg smell" in between AY-1 and AY-2 change trailers, 2 of the 3 workers did not report symptoms. All 3 went to HPMC for evaluation.

Was an IHT Present during initiating event? [] Yes [X] No

IH Monitoring/ Sample Survey Reports:

Event response: 20-06385 Between AY-1 and AY-2 Change Trailers

Weather Conditions at Time of Event:

Ambient outside conditions:

- Weather station: 6 @ 0840
- Wind Direction and Speed: From the SW at 18 miles per hour, Gusts to 20 miles per hour
- Barometric Pressure *(steady/rising/falling)*: 29.20 inches of Mercury and Rising
- Temperature (F°): 62 degrees Fahrenheit
- Humidity: 49%

Field Response Timeline:

TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT**PER Number:**
WRPS-PER-1438**Time/Date & Event location:**

0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
EIR-2020-039

- 0908: Production Operations Industrial Hygiene Manager notifies Production Operations Industrial Hygienists of potential TF-AOP-015 entry
- 0909: Production Operations Industrial Hygienists arrive at Central Shift Office
- 0909: Central Shift Manager declares TF-AOP-015 Entry and requests resources to support response actions
- 0910: Central Shift Manager Provides Odor Response Cards to Production Operations Industrial Hygienists
- 0911: Production Operations Industrial Hygienist calls Production Operations Industrial Hygiene Technician Supervisor to acquire Hydrogen Sulfide sensor equipped Direct Reading Instrumentation
- 0912: Central Shift Manager Directs Shift Operations Nuclear Control Operators on desired Access Restrictions
- 0914: Production Operations Industrial Hygiene Manager arrives at Central Shift Office to support response actions
- 0916: SOEN: "Entered AOP-015 for odors reported between AY-1 and AY-2 change trailers. All personnel stay upwind and clear of this area unless authorized by Shift Manager. CSM"
- 0915: Production Operations Industrial Hygiene Technician Supervisor informs Production Operations Industrial Hygienists that MultiRAE PRO with Hydrogen Sulfide sensor is being function tested and delivered to Central Shift Office from Effluent Treatment Facility Industrial Hygiene Laboratory
- 0917: Central Shift Manager directs response actions as per TF-AOP-015 3.1.12
- 0919: Production Operations Industrial Hygienists contacts Industrial Hygiene Programs TF-AOP-015 Subject Matter Expert for direction on grab sample collection
- 0922: Production Operations Industrial Hygienists brief Production Operations Industrial Hygiene Technicians on response actions:
- Respiratory Protection Equipment as per RPF TF-AOP-015 Task 2
 - Monitoring as per Industrial Hygiene Sample Plan IHP-09001
 - Ammonia, Volatile Organic Compounds, Hydrogen Sulfide
 - 2 Grab samples at direction of AOP-015 Subject Matter Expert at location of odor indicated on odor response cards, and/or location where readings indicate
 - Analyze Grab samples with MIRAN SapphiRe for Nitrous Oxide and Ohio Lumex for Mercury
 - Deliver grab samples to 2704 HV for analysis by HAPSITE®
- 0924: Production Operations Industrial Hygiene Technicians depart Central Shift Office to acquire Respiratory Protection Equipment
- 0937: Production Operations Industrial Hygiene Technicians acquire Respiratory Protective Equipment
- 0940: Hydrogen Sulfide Sensor equipped MultiRAE PRO is delivered to Central Shift Office and taken to location of Production Operations Industrial Hygiene Technicians by Production Operations Industrial Hygienist
- 0942: Production Operations Industrial Hygiene Technician Supervisor is sent to Production Operations Industrial Hygiene Laboratory to direct Production Operations Industrial Technician to prepare MIRAN SapphiRe and Ohio Lumex to support Grab Sample Analysis
- 0943: Production Operations Industrial Hygiene Technicians depart Respiratory Equipment Issuing station to begin response actions
- 1000: Production Operations Industrial Hygiene Technician Supervisor contacts Production Operations Industrial Hygienist to report that MIRAN SapphiRe and Ohio Lumex are being initialized to support grab sample analysis
- 1001: Production Operations Industrial Hygiene Manager contacts Industrial Hygiene Programs to prepare HAPSITE® to support Grab Sample analysis

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EIR Number:
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- 1002: Production Operations Industrial Hygiene Technician contacts Production Operations Industrial Hygienist from access restriction boundary to report findings:
 - Ammonia: Less than Detectable
 - Volatile Organic Compounds: Less than detectable
 - Hydrogen Sulfide: Less than detectable
 - Two grab samples collected at location of odor as indicated on odor response card
 - Field response actions complete, returning to Production Operations Industrial Hygiene Laboratory to analyze grab samples
- 1004: Grab samples delivered to Production Operations Industrial Hygiene Laboratory
- 1006: Production Operations Industrial Hygiene Manager contacts Industrial Hygiene Programs to confirm that HAPSITE® is being initialized for response actions
- 1010: Production Operations Industrial Hygienist contacts Production Operations Industrial Hygiene Technician to ensure Hydrogen Sulfide sensor is transported to the Effluent Treatment Facility to be Post-Use Function tested
- 1011: Production Operations Industrial Hygiene Technician reports to Central Shift Office to update status on instrument Post-Use Function Test
- 1018: Central Shift Operations Shift Manager is notified that 3 workers who walked through restricted access boundary. One worker experienced propane odor, did not experience symptoms, and was being transported to onsite medical provider, odor response cards requested
- 1021: Industrial Hygiene Programs Industrial Hygiene Supervisor contacts Production Operations Industrial Hygiene Manager to confirm that HAPSITE® is being initialized to support grab sample analysis
- 1021: Production Operations Industrial Hygiene Technician contacts Production Operations Industrial Hygienist to notify that Ammonia, Mercury, Nitrous Oxide, and Volatile Organic Compound sensors have passed Post-Use Function test.
- 1040: Production Operations Industrial Hygienist contacts Production Operations Industrial Hygiene Technician to confirm that Hydrogen Sulfide sensor passed Post-Use Function test
- 1045: 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. CSM"

Field IH Author:

[Redacted]

Print First and Last Name

[Redacted]

[Redacted]

Phone No.

09/24/2020

Date

Washington River Protection Solutions
TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT

PER Number:
WRPS-PER-1438

Time/Date & Event location:
0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
EIR-2020-039

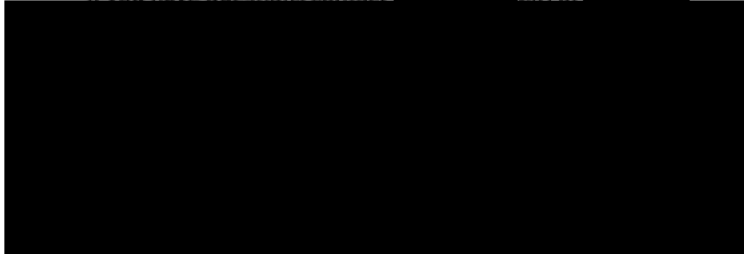
2. GCMS Sample Results:

HAPSITE GC-MS Bag Sample Survey 20-06385, September, 24, 2020

Two Tedlar™ bag samples were collected during an AOP-15 event on September 24, 2020 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]



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TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT

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Time/Date & Event location:
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EIR Number:
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3. Additional Information:

- Odor Response Cards received:

Odor Response Card

1. Contact CSM, [REDACTED] complete below bulleted information and map.

- Date and time odor was noticed 9/24/2020 8:40AM
- Your name and the work you were performing [REDACTED] PM3
- Location of odors (mark area on map and wind direction) AY-2 change trailer
- Name 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 Don't know
- 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.

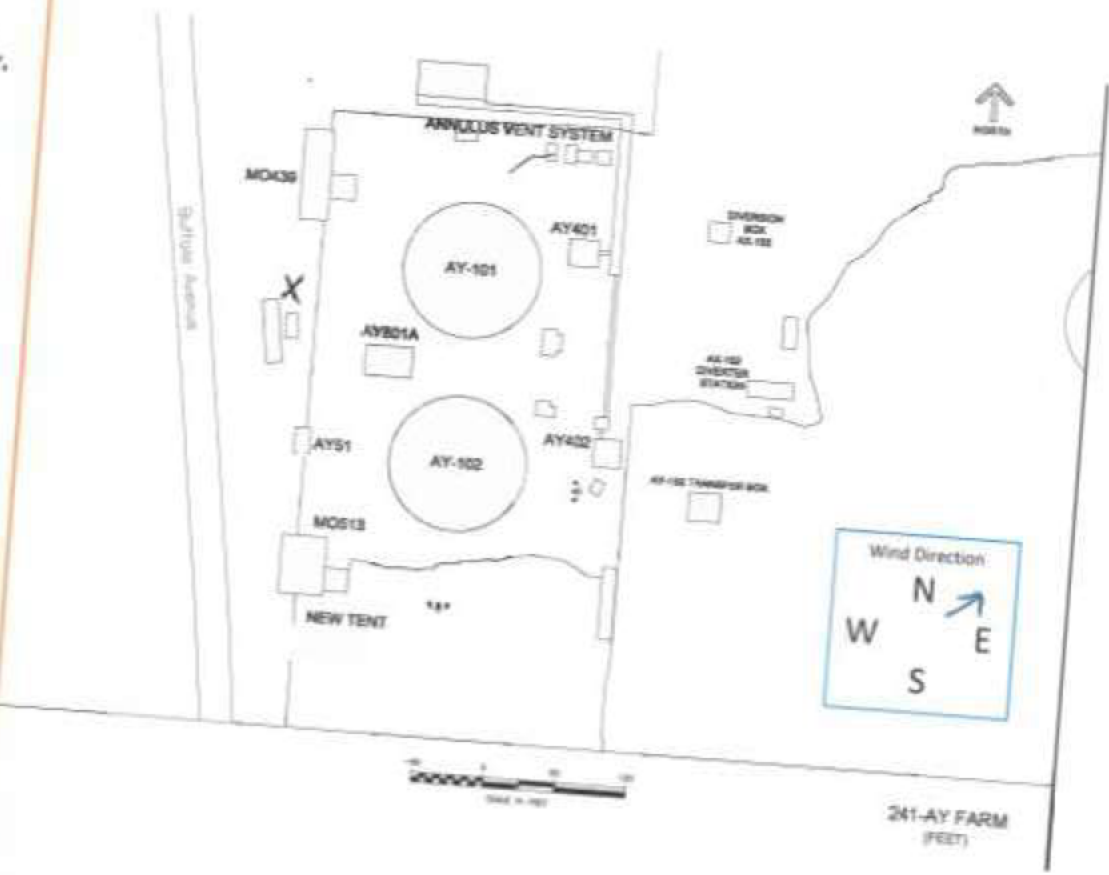
Revised 2/9/15

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TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT

PER Number:
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Time/Date & Event location:
 0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
 EIR-2020-039



Odor Response Card

Odors Detected with NO Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [REDACTED] Provide below bulleted information.
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 wind direction)
 - Describe the odor
 - Name of others 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.**

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PER Number:
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Time/Date & Event location:
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EIR Number:
EIR-2020-039

Odor Response Card

1. Contact CSM, [REDACTED] complete below bulleted information and map.

- Date and time odor was noticed 9-24-2020 0840
- Your name and the work you were performing [REDACTED] Elect
- Location of odors (mark area on map and wind direction) in between AY1 and AY2
Change trailers
- Name 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 egg smell
- Possible source Don't know
- 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 at this time

2. Send this card to the Central Shift Office.

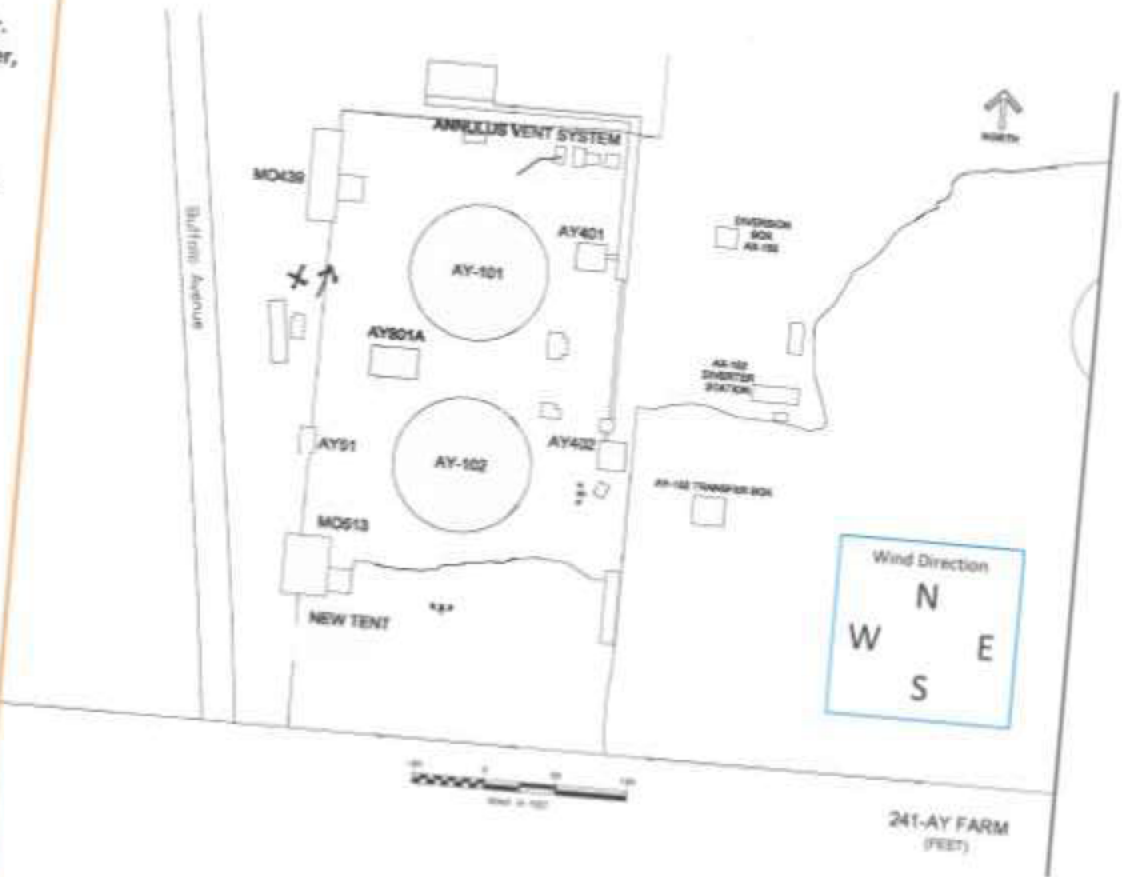
Revised 2/9/15

Washington River Protection Solutions
TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT

PER Number:
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Time/Date & Event location:
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EIR Number:
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Odor Response Card

Odors Detected with NO Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [REDACTED] Provide below bulleted information.
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 wind direction)
 - Describe the odor
 - Name of others 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.

Time/Date & Event location:
0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

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ODOR RESPONSE CARD - 241-AY FARM

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

- Date and time odor was noticed 09-24-20 1000
- Your name and the work you were performing [REDACTED] - Clean & Inspect A-farm
- Location of odors (mark area on map and wind direction) AY-1
- Name(s) of others in or near the affected area N/A
- Was an IHT present? NO
- Describe the odor Sweet Sour Musty Earthy Metallic Smoky Rotten Onion
 Cleaning Solution Ammonia Other: Propane
- 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: DRY MOUTH

2. Send this card to the Central Shift Office.

Time/Date & Event location:
0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
EIR-2020-039

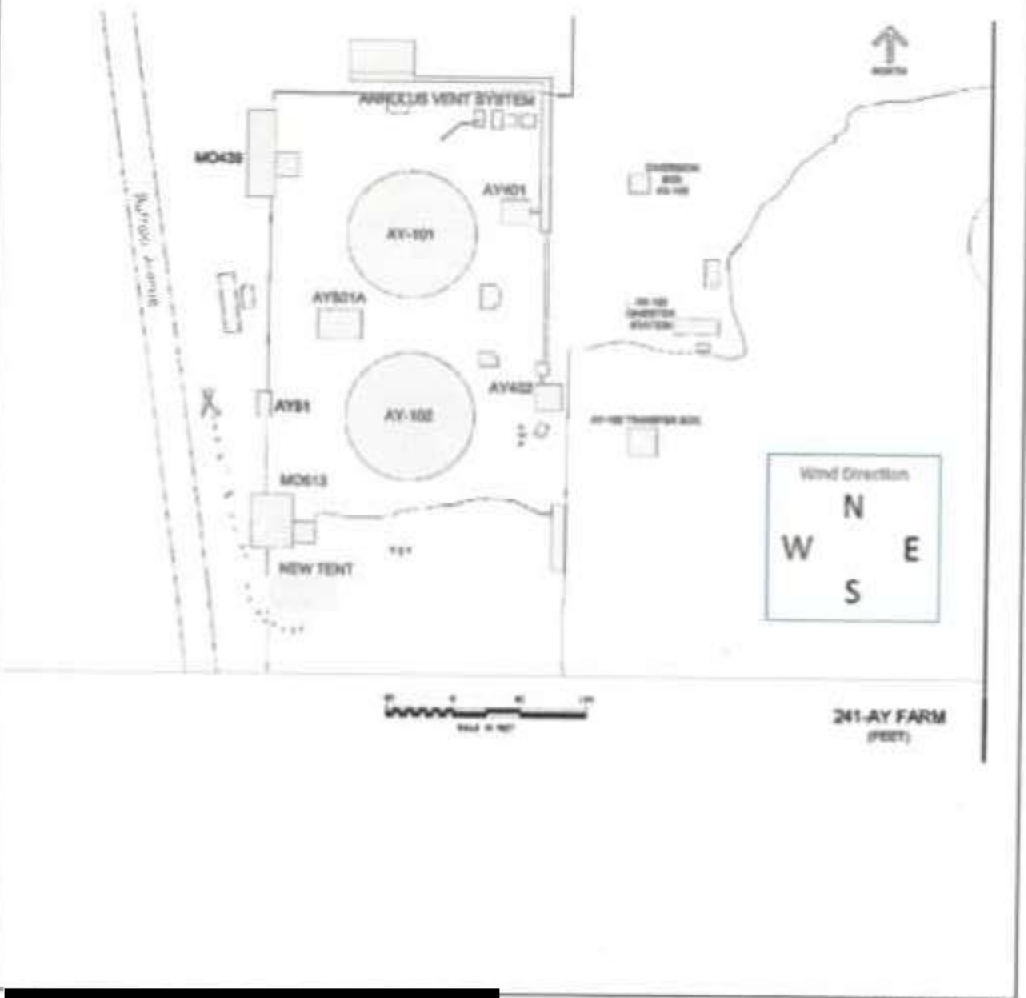
ODOR RESPONSE CARD - 241-AY FARM

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.**



TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT

PER Number:
WRPS-PER-1438

Time/Date & Event location:
0840 09/24/2020 Between AY-1 and AY-2 Change Trailers

EIR Number:
EIR-2020-039

- Summary of IH Monitoring and Sampling Data:

a. Monitoring:

Event Response: 20-06385 Between AY-1 and AY-2 Change Trailers

Grab samples:	Results	Action limit
VOC:	<DL	2 ppm
NH ₃ :	<DL	12 ppm
Hg:	5.000 ng/m ³	0.01 mg/m ³
H ₂ S	<DL	0.5 ppm

b. Sampling:
N/A

4. **Summary of Employee Reported Information (e.g., symptoms)**

3 workers encountered "rotten egg smell" in between AY-1 and AY-2 change trailers, 2 of these workers did not report symptoms. All 3 went to HPMC for evaluation. At approximately 12:50 pm on 9/24/2020, all 3 were released to return to work,

5. **Recommendations/Conclusions:**

Identification of Source of the Concern: [] Yes [X] No

6. **Other:**

S&H Program Management:

[Redacted Name]

Print First and Last Name



Digitally signed by [Redacted Name]
Date: 2020.11.10 09:11:43 -08'00'

Signature

Phone No.

Date

Response to Reported Odors or Unexpected Changes to Vapor Conditions

Attachment 2 - Communication Template

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

2 Hanford workers were taken to HPMC for medical evaluation after reporting odors between AY-1 and AY-2 Change Trailers. No workers reported symptoms.


The employees were performing preventative maintenance at the time of reported odors and were not in an area that requires use of respiratory protection.

Workers were instructed to leave the area, and access to the area has been restricted.

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

Central Shift Manager


Signature

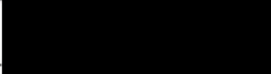
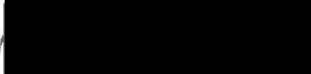

Print (First & Last)

9/24/2020
Date

Response to Reported Odors or Unexpected Changes to Vapor Conditions

Attachment 3 - 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: 9/24/2020	Time: 1045 hours	Location: AY Farm
Number of Workers Involved: 3	Sampling Results #: #20-06385	
Event Summary		
<p>At approximately 0906 hours 2 workers reported a rotten egg odor between AY-1 and AY-2 Change Trailers outside of AY Farm, and a third individual reported a propane odor in the same area at approximately 1000 hours. 2 of the 3 workers did not report symptoms and were transported to HPMC for evaluation</p> <p>At approximately 1250 hours the 3 individuals were released from HPMC to return to work.</p> <p>At the time odors were reported, the individuals were not 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 and a bag sample. DRI instrument readings were below action levels. Analytical results for bag samples are being analyzed and will be posted upon receipt.</p> <p>An event investigation has been initiated.</p>		
Return to Work Status		
Number of workers returned to work without restriction	3	
Number of workers returned to work with restriction	NA	
Number of workers referred for further evaluation	NA	
<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-HPMC-procedure.pdf</p>		
Central Shift Manager:	 _____ Signature	 _____ Print (First & Last)
		19/24/2020 Date

RESPIRATORY PROTECTION FORM

1. Work Control Document: TF-AOP-015

2. RPF No.: N/A 3. Form Rev No.: 7 4. Form Expiration Date: 09/24/2021

5. Work Location:

200 East Area, 200 West Area, and 600 Areas controlled by WRPS except at the 222-S Laboratory Complex

6. Task Description:

Task 1: *Minimum required respiratory protection* Response to reported odors or unexpected changes to vapor conditions INSIDE OF TANK FARM BOUNDARIES when odor is suspected to originate FROM TANK WASTE. (TF-AOP-015 3.1.11.3)

7. Select ONLY One: N/A

Radiological Industrial Hygiene/Chemical Radiological and Industrial Hygiene/Chemical

8. Select Appropriate Respirator(s):

1/2-APR FF-APR FF-PAPR PAPR-HOOD E-Z Flo Airline SAR
 SKA-PAK SAR Carri-Air SCBA PremAire SAR w/Vortex Cooler
 Other: N/A

9. Required Cartridge(s) (if applicable) P100/HE Other N/A

10. Cartridge Change Out Schedule(s): N/A

11. Special Instruction(s): N/A

6. Task Description:

Task 2: *Respiratory protection use when required* Response to reported odors or unexpected changes to vapor conditions OUTSIDE OF TANK FARM BOUNDARIES when odor is suspected to originate FROM TANK WASTE. (TF-AOP-015 3.1.12.3)

7. Select ONLY One: N/A

Radiological Industrial Hygiene/Chemical Radiological and Industrial Hygiene/Chemical

8. Select Appropriate Respirator(s):

1/2-APR FF-APR FF-PAPR PAPR-HOOD E-Z Flo Airline SAR
 SKA-PAK SAR Carri-Air SCBA PremAire SAR w/Vortex Cooler
 Other: N/A

9. Required Cartridge(s) (if applicable) P100/HE Other N/A

10. Cartridge Change Out Schedule(s): N/A

11. Special Instruction(s): N/A

6. Task Description:

Task 3: *Respiratory protection use when required by management* Response to reported odors or unexpected changes to vapor conditions OUTSIDE OF TANK FARM BOUNDARIES when odor is NOT suspected to originate FROM TANK WASTE. (TF-AOP-015 3.1.13.3)

7. Select ONLY One: N/A

Radiological Industrial Hygiene/Chemical Radiological and Industrial Hygiene/Chemical

RESPIRATORY PROTECTION FORM (Continued)

1. Work Control Document: TF-AOP-015

2. RFP No.: N/A 3. Form Rev No.: 7 4. Form Expiration Date: 09/24/2021

8. Select Appropriate Respirator(s):

- 1/2-APR FF-APR FF-PAPR PAPR-HOOD E-Z Flo Airline SAR
 SKA-PAK SAR Carri-Air SCBA PremAire SAR w/Vortex Cooler
 Other: N/A

9. Required Cartridge(s) (if applicable) P100/HE Other N/A

10. Cartridge Change Out Schedule(s): N/A

11. Special Instruction(s): N/A

6. Task Description:

Task 4: *Voluntary Use* Response to reported odors or unexpected changes to vapor conditions OUTSIDE OF TANK FARM BOUNDARIES. (TF-AOP-015 3.1.14.3)

7. Select ONLY One: N/A

- Radiological Industrial Hygiene/Chemical Radiological and Industrial Hygiene/Chemical

8. Select Appropriate Respirator(s):

- 1/2-APR FF-APR FF-PAPR PAPR-HOOD E-Z Flo Airline SAR
 SKA-PAK SAR Carri-Air SCBA PremAire SAR w/Vortex Cooler
 Other: N-95

9. Required Cartridge(s) (if applicable) P100/HE Other N/A

MSA 1/2APR: N-95 for nuisance dust	815394
	818357
	818346
N-95 nuisance level dust w/nuisance Level OV removal	818347
P-95 for low level dust	818354
p-95 for low level dust w/nuisance level OV removal	818355
P-100 for particulate	818342
	818369
	10123079
	10146939
P-100 for particulate w/nuisance level OV and O3 removal	818343
P-100 for particulate w/nuisance level AG, HF removal	818344
GMA for organic vapor (OV)	815355
GMA/P-100 for particulate and organic vapor (P-100,OV)	815362
GMB for acid gas (CL,SD,CD,HC,HS)	815356
GMB/P-100 for particulate and acid gas (P-100,CL,SD,CD,HC,HS)	815363
GMC for organic vapor and acid gas (OV,CL,SD,CD,HC,HS)	815357

RESPIRATORY PROTECTION FORM (Continued)

1. Work Control Document: TF-AOP-015

2. RFP No.: N/A 3. Form Rev No.: 7 4. Form Expiration Date: 09/24/2021

	GMC/P-100 for particulate, acid gas, and organic vapor (P-100,OV,CL,SD,CD,HC,HS)	815364
	GMD for ammonia and methylamine (AM,MA)	815358
	GMD/P-100 for particulate, ammonia and methylamine (P-100,AM,MA)	815365
	GME for chemical vapor (OV,CL,HC,SD,AM,MA,CD,FM,HF)	815359
	GME/P-100 for particulate and chemical vapor (P-100,OV,CL,HC,SD,AM,MA,CD,ND,FM,HF)	815363
	GMI for particulate and iodine vapor (P-100,OV)	815641
	Mersorb/P-100 for Mercury vapor (P-100,MV,CL)	815368
3M FF-APR:	P-100 for particulate (P-100)	P-100
	Organic Vapor (OV)	6001
	Acid Gases (CL,HC,SD,CD,HS)	6002
	Organic Vapor/Acid Gases (OV,CL,HC,SD,CD,HS,HF)	6003
	Ammonia/Methylamine (AM,MA)	6004
	Formaldehyde/Organic Vapor (OV,FM)	6005
	Multi-Gas/Vapor (OV,CL,HC,SD,CD,HS,HF,AM,MA,FM)	6006
	Mercury Vapor/Chlorine Gas (MV,CL,SD)	6009
	Organic vapor and particulates (P-100,OV)	6092
	Organic vapor, acid gases and particulates (OV,CL,HC,SD,CD,HS,HF)	60923
	Particulate and chemical vapor (P-100,OV,CL,HC,SD,CD,HS,HF,AM,MA,FM)	60926
MSA FF-APR:	R95 for Oil Aerosols	816287
	P-100 for particulate (P-100)	815175 815176 815177
	GMA for Organic vapor (OV)	464031
	GMA/P-100 for particulate and organic vapor (P-100,OV)	815178 815186
	GMB for Acid Gas (CL,SD,CD,HC,HS)	464032
	GMB/P-100 for particulate and Acid Gas (P-100,CL,SD,CD,HC,HS)	815179
	GMC for acid gas and organic vapor (OV,CL,SD,CD,HC,HS)	464046
	GMC/P-100 for particulate, acid gas, and organic vapor	815180

RESPIRATORY PROTECTION FORM (Continued)

1. Work Control Document: TF-AOP-015

2. RFP No.:

N/A

3. Form Rev No.: 7

4. Form Expiration Date: 09/24/2021

(P-100,OV,CL,SD,CD,HC,HS)	815188
GMD for ammonia and methylamine (AM,MA)	464033
GMD/P-100 for particulate ammonia and methylamine (P-100,AM,MA)	815181
GME for chemical vapor (OC,CL,SD,CD,HC,HS,AM,MA,FM,HF)	492790
GME/P-100 for particulate and chemical vapor (P-100,OC,CL,SD,CD,HC,HS,AM,MA,FM,HF)	815182
GMI/P-100 for particulate and iodine vapor (P-100,OV)	815184
Mersorb for particulate and mercury vapor (P-100,CL,MV)	815185
 SCOTT FF-APR:P-100 for particulate (P-100)	 7422-FP1
Particulate and Mercury Vapor (P-100,CL,MV)	7422-MB1
 MSA FF-PAPR: OptiFilter HE (P-100)	 10080455
OptiFilter OV/CL/CD/HC/HS/SD/HE/HF (OV,CL,CD,HC,HS,SD,HE,HF)	10080454
OptiFilter AM/CL/CD/FM/HC/HS/MA/SD/HE/HF (AM,CL,CD,FM,HC,HS,MA,SD,HE,HF)	10080456
 MSA Optimair TL PAPR-HOOD: OptiFilter HE (P-100)	 10080455
OptiFilter OV/CL/CD/HC/HS/SD/HE/HF (OV,CL,CD,HC,HS,SD,HE,HF)	10080454
OptiFilter AM/CL/CD/FM/HC/HS/MA/SD/HE/HF (AM,CL,CD,FM,HC,HS,MA,SD,HE,HF)	10080456
 3M Breathe Easy PAPR-HOOD: HE(P3) (P-100)	 450-00-01R12
OV/HE (AP3) (P-100,OV)	453-00-01R06
OV/AG/HE (AEP3) (P-100,OV,CL,HC,SD)	453-03-01R06
OV/AG/HF/HE (ALP3) (P-100,OV,SD,HF)	453-07-01R06
AG/FORM/HE (EP3) (P-100,CL,HC,SD,SD,FM)	453-01-01R06
AMM/HE (KP3) (P-100,AM,MA)	453-02-01R06
FR-57 (P-100,OV,SD,CL,HC,AM,MA,HF,CD,FM)	453-03-02R06

10. Cartridge Change Out Schedule(s):

N/A

RESPIRATORY PROTECTION FORM (Continued)

1. Work Control Document: TF-AOP-015

2. RFP No.:

N/A

3. Form Rev No.: 7

4. Form Expiration Date: 09/24/2021

3 Hours

11. Special Instruction(s):

N/A

Voluntary use is NOT prescribed, only approved. Be cognizant of physical limitations, visibility limitations, and communication limitations created by respirator use. Voluntary respiratory use is appropriate for most activities. When a job, task or work assignment includes scaffolding, hoisting and rigging, ladders, or use of personal fall protection equipment, arc-flash protection equipment, and/or limited work space; a safety evaluation and approval is needed before issuance.

12. Radiological Engineer/Radiological Work Pla

[Redacted Signature]

Print First and Last Name

09/24/2020

Date

[Redacted Phone Number]

Phone Number

13. Industrial Hygienist:

[Redacted Signature]

Print First and Last Name

09/28/2020

Date

[Redacted Phone Number]

Phone Number

*Both signatures are required for form to be valid