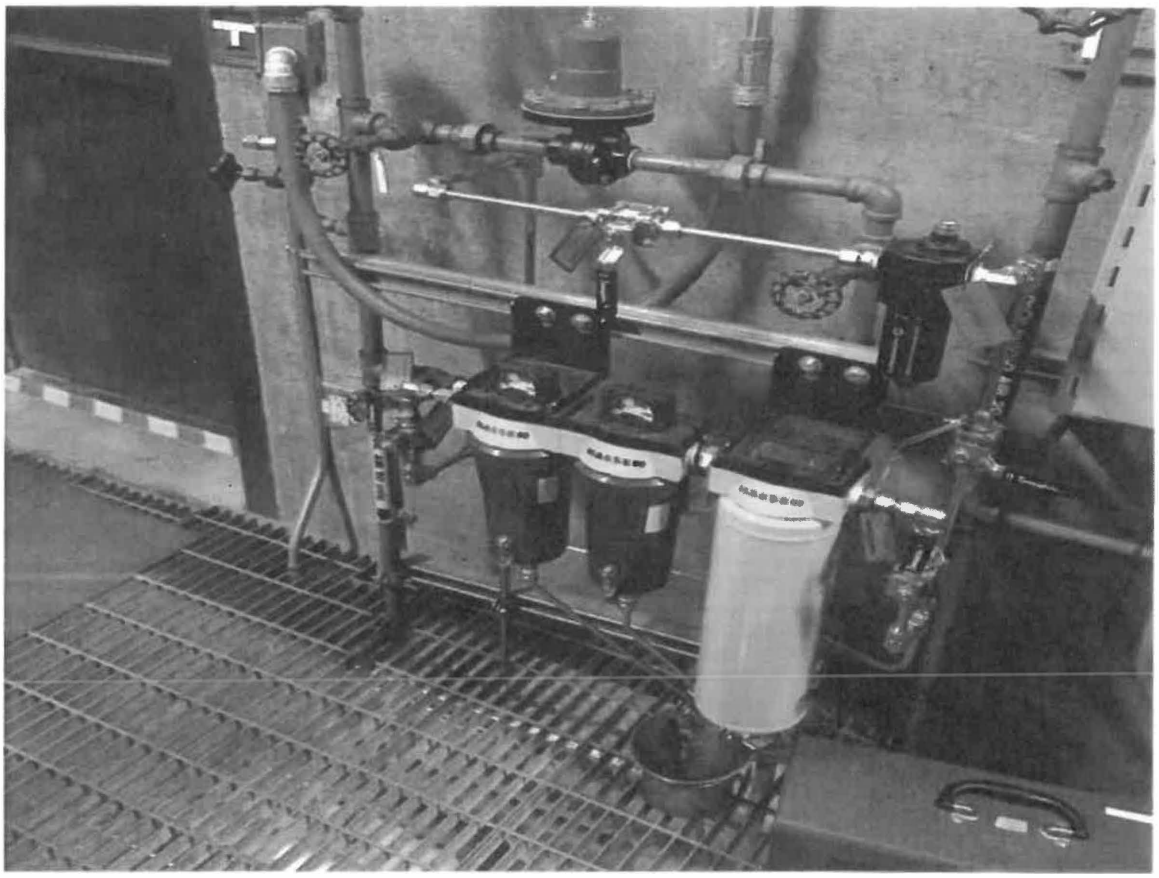
EVENT INVESTIGATION REPORT

TF-AOP-15 Event 242-A Condenser Room 12/03/2019

EIR-2019-050



[redacted]

[redacted] Event Investigation Team Lead, Under Instruction — Date: 12/23/2019

[redacted] Event Investigation Team Lead — Date: 12/23/2019

[redacted] PER Responsible Manager — Date: 12/23/19

TF-AOP-15 Event 242-A Condenser Room

Executive Summary

On Tuesday, December 3, 2019 at 1230, two work crews consisting of seven total workers reported unknown odors while performing work in the 242-A Condenser Room. Work was being performed under work order #381785, PSL-1A-2 air pressure switch calibration and work order #511835, 242-A FL5 annual fixed ladder inspection. After attempting to locate the source of the odor, the crews evacuated the Condenser Room at 1320. The 242-A Shift Manager (SM) was notified, and access was restricted to the Condenser Room. The Central Shift Manager (CSM) was notified, and TF-AOP-015 Response to Reported Odors or Unexpected Changes to Vapor Conditions was entered. Industrial Hygiene obtained direct readings and three bag samples from the Condenser Room and found no actionable levels of ammonia, hydrogen sulfide, nitrous oxide, mercury or other Volatile Organic Compounds (VOC).

Six of the seven workers did not experience any related symptoms, and declined medical evaluation at HPMC. One worker reported feeling dizziness/light-headed after evacuating the Condenser Room. The worker was transported to HPMC, assessed by HPMC professionals, and released to return to work without restrictions.

EIR-2019-050 was initiated and WRPS-PER-2019-2378 was written to document the issue.

No conclusive evidence to the source of the odors was identified.

Investigation Summary

On Tuesday, December 3, 2019 at 1230, two work crews reported encountering unknown odors while performing work in the 242-A Condenser Room. Crew-1 consisted of one Nuclear Control Operator (NCO-1), two Health Physics Technicians (HPT), and two Instrument Technicians, who were performing a calibration of PSL-1A-2 Air Pressure Switch per work order #381785 on level 5 of the Condenser Room. Crew-2, consisted of one NCO (NCO-2) and one HPT, who were waiting for riggers to arrive to perform ladder inspections per work order #511835 on level 2 of the Condenser Room.

Initially, the odor, which was described as burnt rubber, was believed to be the result of equipment failure. NCO-2 attempted to locate the source of the odor by traversing up and down all five levels of the Condenser Room several times. When unable to locate the source of the odor, NCO-2 asked the remaining workers if they smelled anything. They all agreed that there was an odor present, and that it smelled like burnt rubber, burnt ballast, or burnt solder. NCO-1 informed the A1 Board Operator of the odor. As the source of the odor was unknown, the A1 Board Operator instructed the crews to evacuate the Condenser Room immediately. The A1 Board Operator then notified the SM. The SM sent an NCO (NCO-3) up to the K1-5-1 ventilation system room to investigate the potential source of the odor. No odors were detected in or around K1-5-1. The 242A SM posted the Condenser Room as Restricted Access and notified the CSM of the odor event.

The CSM declared an AOP-015 event per SOEN notification, contacted the On-Call Facility Representative and initiated an Event Investigation. See WRPS-PER-2019-2378. Industrial Hygiene technicians (IHT) arrived at 242A Evaporator entered the Condenser Room wearing self-contained breathing apparatus (SCBA). See attached respiratory Protection Form. The IHTs performed direct readings on each level of the Condenser Room, but found no detectable levels of VOC, Ammonia, or Mercury. Oxygen levels were 20.9%. The IHT also obtained three grab bag samples from Condenser Room at levels 5, 3, and between levels 1 and 2. The grab

bag samples were analyzed for VOCs, Ammonia, and Mercury with the results well below actionable levels. See the IH Response Team Sample Results in the table below. At 1530, the CSM exited TF-AOP-015 and the 242-A Shift Manager later restored access to the 242-A Condenser Room

Six of the seven workers declined medical evaluation at HPMC. NCO-2 reported feeling dizziness/light-headed after evacuating the Condenser Room. NCO-2 was transported to HPMC, assessed by HPMC professionals, and released to return to work without restrictions.

The event investigation identified three potential sources of the odors encountered. The Condenser Room system was not breached during the scheduled calibrations; therefore, it is likely that the odor came through the K1 ventilation system. The K1 ventilation enters through a vent that is located on the east side of 242-A and deploys inside the Condenser Room one foot below the grating of level 5 on the south wall. The ventilation exhaust is located on the northwest side of 242-A and is pulled from 5 feet above the floor on level 1 of the Condenser Room, north wall.

Potential source 1: Production Operations was performing a waste disturbing activity (241-AP-106 was in recirculation mode) in proximity to the 242-A ventilation intake. AP-106 is located south-east of 242-A approximately two hundred yards away. Based on meteorological data at the time of the event, when the crews entered the Condenser Room, wind was blowing from west to east (away from 242-A) at approximately 3 miles per hour. The AP Farm Manager was contacted to verify the presence of odors, but no odors were reported in AP farm on December 03, 2019. Vapors from the recirculation of AP-106 does not appear to be a likely source.

Potential source 2: At the time of the event a water tender vehicle was operating in A-farm, just north of 242-A. The exhaust from the vehicle could have created vapor/odors that had the potential to reach the Condenser Room through the K-1 ventilation, but the description of the odor as burnt rubber or burnt ballast does not match the odor profile of diesel exhaust.

Potential source 3: On 12/02/2019, the day prior to the Condenser Room odor event, a work crew was removing rubber matting from the work deck of 241-AX-103 when they encountered a burning smell near the tank. The result was a TF-AOP-015 event (WRPS-PER-2370), which resulted in EIR-2019-049. The investigation found that the odors were the result of burnt wiring on a job box heating element. The box was removed from the farm. While the odor created by the electrical event was similar in profile to the odors encountered in the Condenser Room, it is unlikely that the odors created would have lingered until the following day.

No conclusive evidence to the source of the odors was identified.

Event Timeline

12/03/2019

1230: Two work crews entered 242-A Condenser Room (entrance is on level 2) and noticed a faint odor—burnt rubber. Crew 1 (1 NCO, 2 HPT, and 2 Instrument Techs) entered to perform instrument calibrations (WO# 381785). Crew 2 (1 NCO, 1 HPT) entered to perform ladder inspections (WO# 511835).

1240: NCO-2 investigates location of odor by traversing from level 5 to level 1 several times

1310: NCO-1 reported burning rubber smell in Condenser Room to A1 Board Operator

1320: The workers evacuated the Condenser Room and notified the SM of the odor. The SM restricted access to the Condenser Room and notified CSM).

1325: CSM entered TF-AOP-015 Response to Reported Odors or Unexpected Changes to Vapor Conditions.

1325: CSM notified On-Call Facility Rep of AOP-015 event at 242-A.

1347: NCO 2 reported dizziness/light headed to 242A SM. NCO-2 was transported to HPMC. 242A SM notified CSM.

1350: 242A SM instructs NCO-3 to inspect K1-5-1 supply system in HVAC room for potential source of odor. No potential sources of odors found.

1419: IH Techs report to 242A to perform sampling in Condenser Room. Direct Reading monitoring was performed on levels 1-5 of the Condenser Room using a MultiRAE Pro RAE. NH3, VOC, LEL, O2, and CO were monitored for; all direct readings were less than detectible for NH3, VOC, LEL and CO. O2 levels were 20.9%. Grab bag samples were taken on levels 5, 3 and 1.

1439: CSM initiated EIR-2019-050, Investigation of AOP-015 entry in 242-A condenser room.

1530: CSM response actions for the TF-AOP-015 event at 242-A condenser room have been completed and the results are at or below background levels. Exiting TF-AOP-015.

1530: NCO-2 released by HPMC to return to work without restriction

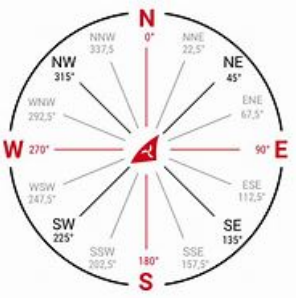
1546: Event Investigator notified On-call Facility Rep.

1610: Condenser Room access restored.

Meteorological Data

Event	TF-AOP-015 242-A Condenser Room
Date/Time of event	12/03/2019 @ 1230
Location	242-A Condenser Room
Odor	Burnt rubber, burnt ballast, solder
Symptoms	One of seven workers reported dizziness/light headed after evacuating area
DRI results during event	All direct readings were less than detectible for NH3, VOC, LEL and CO. O2 levels were 20.9%.
Possible source(s)	• AP-106 recirculation • Water tender vehicle • A Farm electrical box

Weather conditions on December 03, 2019 1230 (data from weather station 6)



Time	Wind Direction (from)	Wind Speed (mph)	Average Temp (fahrenheit)	Barometric Pressure	Relative Humidity
1230	**264.8 (W)**	**1.8-3.4**	**29.3**	**29.496 in/Hg**	**93.9%**
1300	**59.0 (ENE)**	**1.7-4.3**	**29.5**	**29.490 in/Hg**	**93.1%**
1330	**23.9 (NNE)**	**2.0-3.7**	**29.7**	**29.464 in/Hg**	**93.0%**

Waste disturbing or tank work in adjacent area: AP-106 recirculation in progress.

IH Response Team Sample Results (242A Condenser Room)

Agent	Result
NH_3	< 1 ppm (actionable hazard level 12 ppm)
H_2S	< IDL
N_2O	< IDL
Hg	< 20 ng/m³ (actionable hazard level 12,500 ng/m³)
VOC	< 10 ppb (actionable hazard level 2 ppm)

*Instrument Detection Limit (IDL)

Actions Taken

- HVAC room investigated for potential source of the odor.
- The CSM made SOEN notifications and contacted On-Call Facility Representative
- IH performed Direct Readings for VOC, LEL, NA3, CO, and O2 throughout Condenser Room and obtained Grab Bag samples at multiple levels.

Preliminary Extent of Condition Review

- No extent of condition exists for this investigation since the event was isolated to the Condenser Room at 242-A.

Facility Impact

- Condenser Room was posted as Restricted Access.
- All work in the condenser room was suspended upon worker evacuation and continued on 12/04/2019.

Discussion of Potential Causes

- AP-106 was in recirculation mode. AP-106 is located south-east of 242-A.
- A water tender vehicle was operating in A-farm, just north of 242-A.
- Burnt electrical boxes were removed from A farm the previous day.

Discussion of Positive Aspects of the Event

- Appropriate safety measures were taken immediately.
- Event response was well coordinated from the CSO.

Recommendations/Proposed Corrective Actions

- No recommendations or proposed corrective actions

Attachments:

1. Industrial Hygiene Investigation Report
2. Respiratory Protection Form

Attachment 1
Industrial Hygiene Investigation Report

EIR-2019-050

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):
12/03/2019 at approximately 1250 seven Hanford workers reported odors at 242A on all floors of the condenser room while performing instrument calibrations. Odors were reported to the Central Shift Office (CSO) at 1325. Odors detected included burnt rubber, electrical burn, metallic, musty, smoky, and something burning. Workers listed the possible source as "unknown" and "ventilation". Six workers experienced no symptoms and declined precautionary medical evaluations. One worker reported experiencing "dizziness/light-headed" and was taken to HPMC for a precautionary medical evaluation.

RESPONSE STEPS: *Attach additional pages as needed*
Industrial Hygiene Technicians (IHTs) monitor their way into 242A Condenser Room using direct reading instrumentation following IH Sampling Plan. Perform DRI monitoring for VOCs on all floors of the condenser room. Collect three (3) grab air samples, one grab air sample on floors 1, 3, and 5. Collect an additional grab air sample if DRI monitoring indicates a possible source. Send grab air samples for HAPSITE analysis.

IH Sampling Plan # IHP-09001 RWP # TF-102

JHA: N/A Other TF-AOP-015 RPF Task 3 (TF-AOP-015 3.1.13)

REQUIRED APPROVAL SIGNATURES

Industrial Hygiene:	[redacted]	[redacted]	12/03/2019
	Signature	Print (First & Last)	Date
Shift Manager:	[redacted]	[redacted]	12-3-19
	Signature	Print (First & Last)	Date

ADDITIONAL SIGNATURES (as determined by Shift Manager or Safety & Health Rep; N/A if not applicable)

RadCon :			
	Signature	Print (First & Last)	Date
Environmental:	N/A		
	Signature	[redacted] st & Last)	Date
Engineer:	[redacted]		
	Signature	Print (First & Last)	Date
Industrial Safety:			
	Signature	Print (First & Last)	Date

Odor Response Plan Notes (monitoring data, results of actions taken, etc. Use more sheets as necessary)
Refer to SWIHD #19-11148
DRI Monitoring Results: VOCs < Detection Limit (<10ppb)
DRI monitoring on Grab air Samples
- VOC <10ppb
- Ammonia <1 ppm
- Mercury <20 ng/m³

All DRI passed post-use Function Test.

RESPONSE PLAN COMPLETED:

Safety & Health Rep:	[redacted]	[redacted]	12/3/19
	Signature	Print (First & Last)	Date

ODOR RESPONSE CARDS

EIR-2019-050

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12-03-19
- Your name and the work your were perfoming [redacted] HPT
- Location of odors (mark area on map and wind direction) INDOORS / CONDENSER ROOM
- 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: ELECTRICAL BURN ?
- 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: NOT AT THIS TIME

2. Send this card to the Central Shift Office.

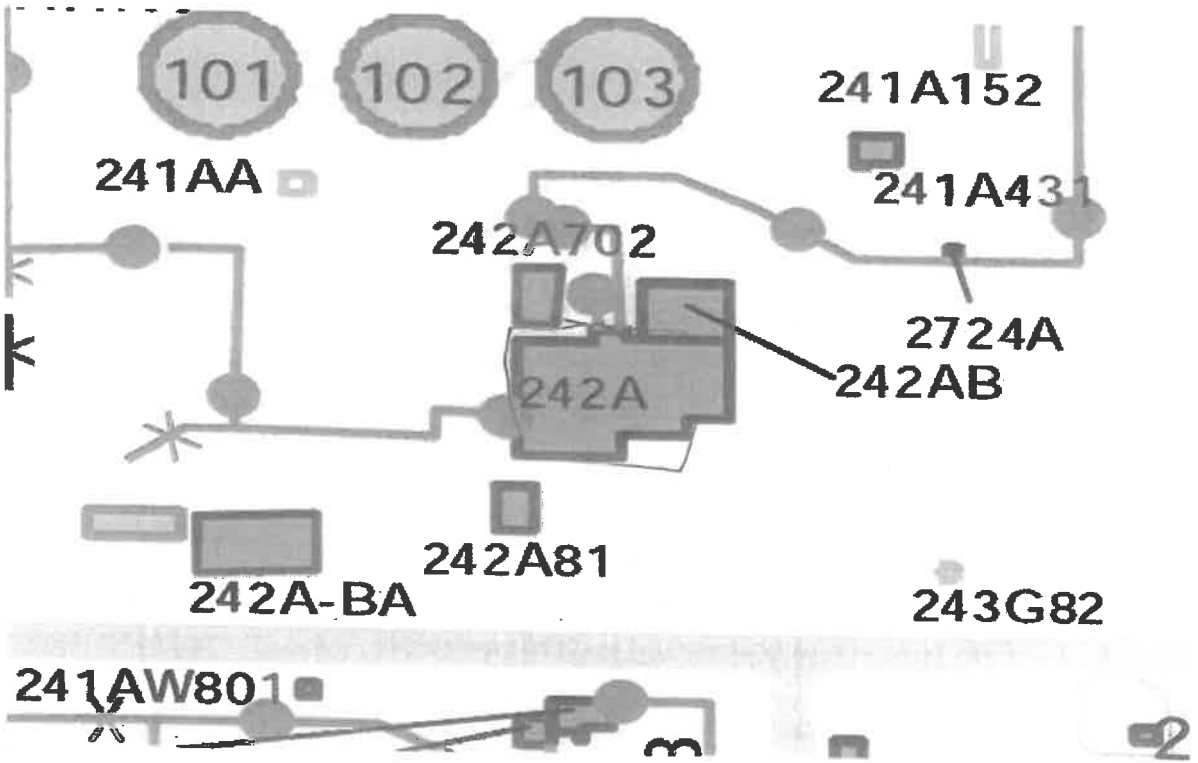
ODOR RESPONSE CARD - 242-A

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.



Wind Direction
N
W E
S

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12.3.2019
- Your name and the work your were perfoming [redacted] / Instrumentation Cals
- Location of odors (mark area on map and wind direction) 242-A Evap
- 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: Burnt Rubber
- 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:

2. Send this card to the Central Shift Office.

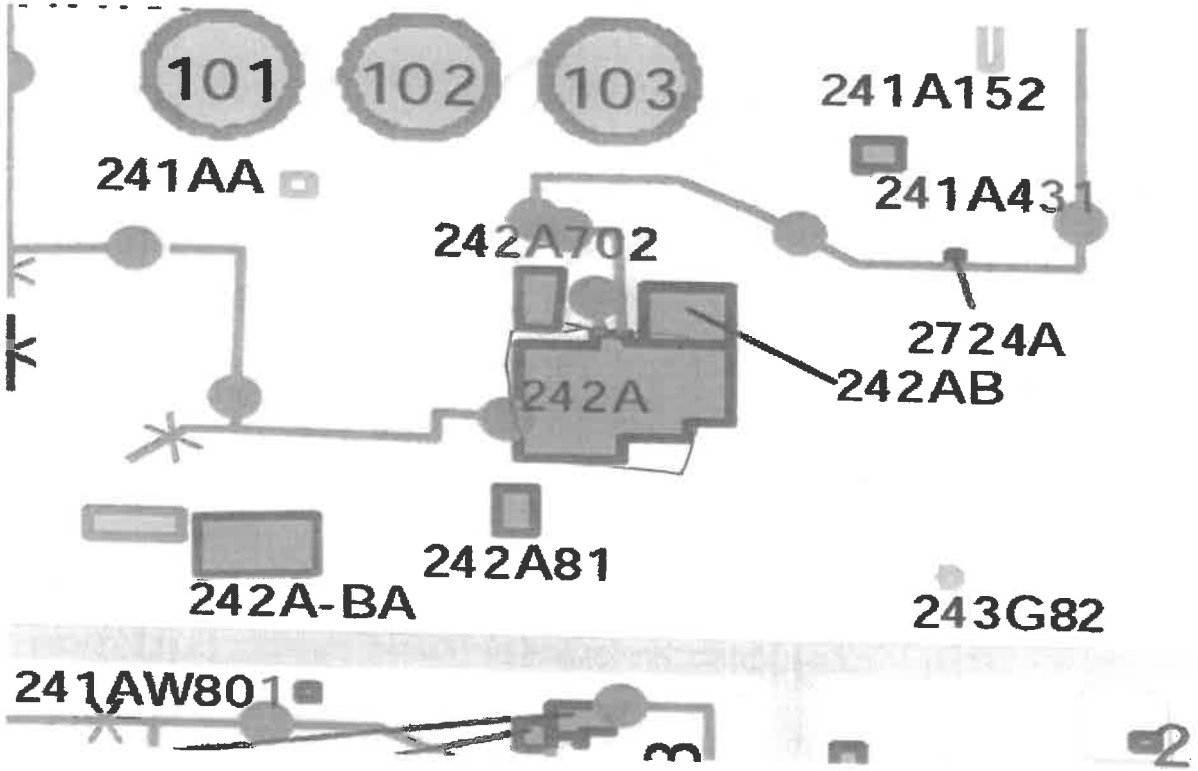
ODOR RESPONSE CARD - 242-A

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.**



Wind Direction
N
W E
S

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12/3/18 @APROX 1250
- Your name and the work your were perfoming [redacted] – COVERING MAINTENANCE, CONTAMINATION CONTROL.
- Location of odors (mark area on map and wind direction) 242-A (ALL CONDENSER ROOM FLOORS)
- 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: SOMETHING BURNING SMELL
- 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.

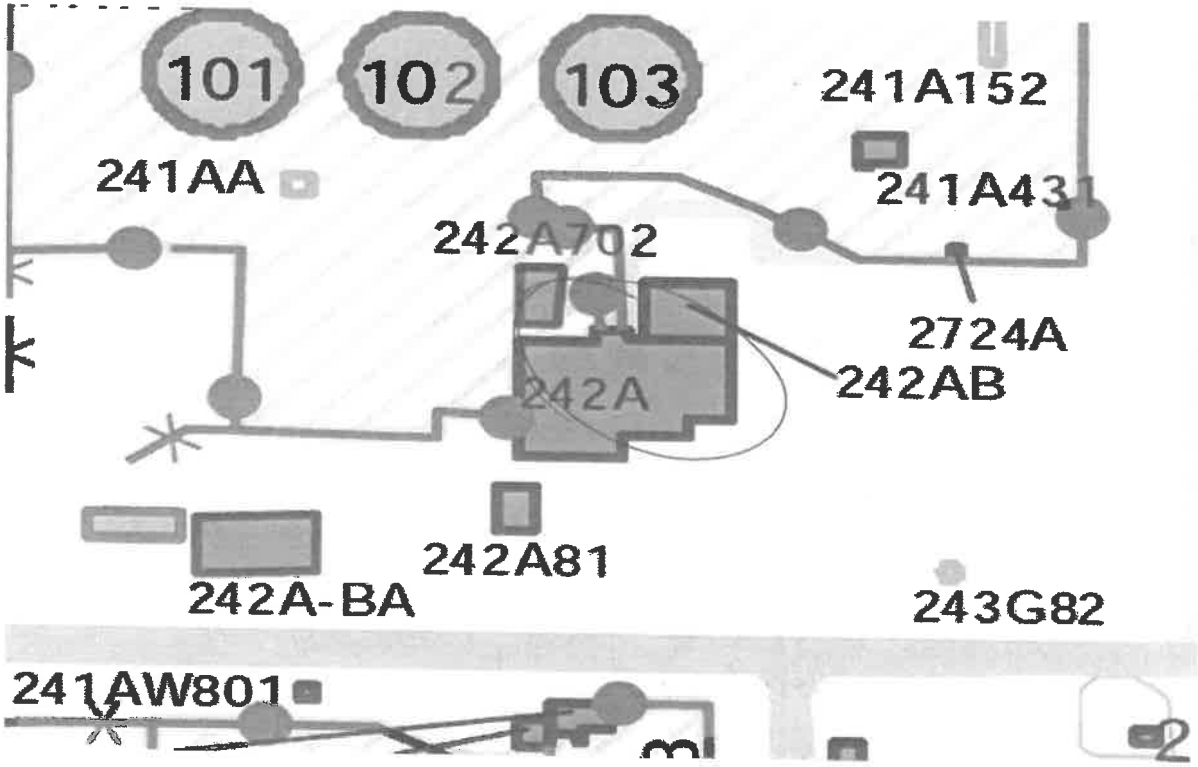
ODOR RESPONSE CARD - 242-A

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.**



Wind Direction
N
W E
S

A-6006-975 (REV 0)

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12/3/19 13:30
- Your name and the work your were perfoming [redacted]
- Location of odors (mark area on map and wind direction) Condensor Room
- 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 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: _____

2. Send this card to the Central Shift Office.

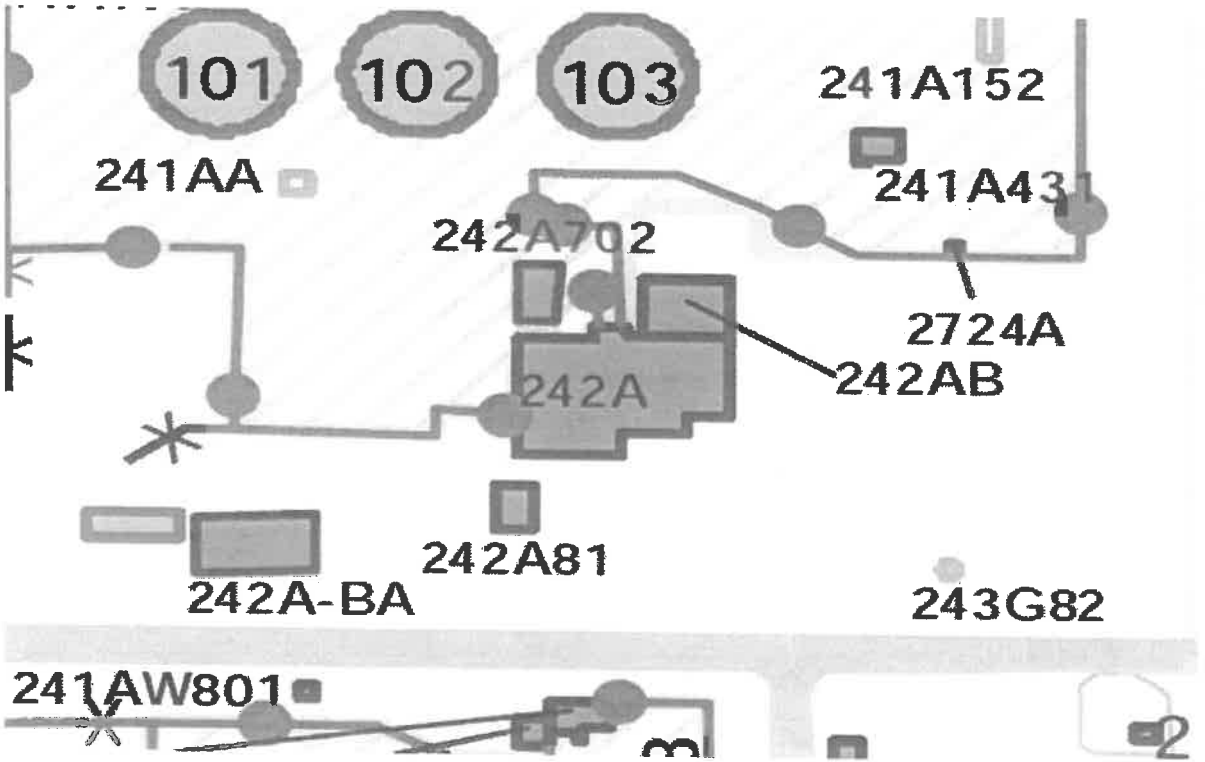
ODOR RESPONSE CARD - 242-A

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.**



Wind Direction
N
W E
S

A-6006-975 (REV 0)

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12.3.19 @ 13:30
- Your name and the work your were perfoming [redacted] Instrument Cal's
- Location of odors (mark area on map and wind direction) Condenser Room
- 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: Burnt Rubber
- 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:

2. Send this card to the Central Shift Office.

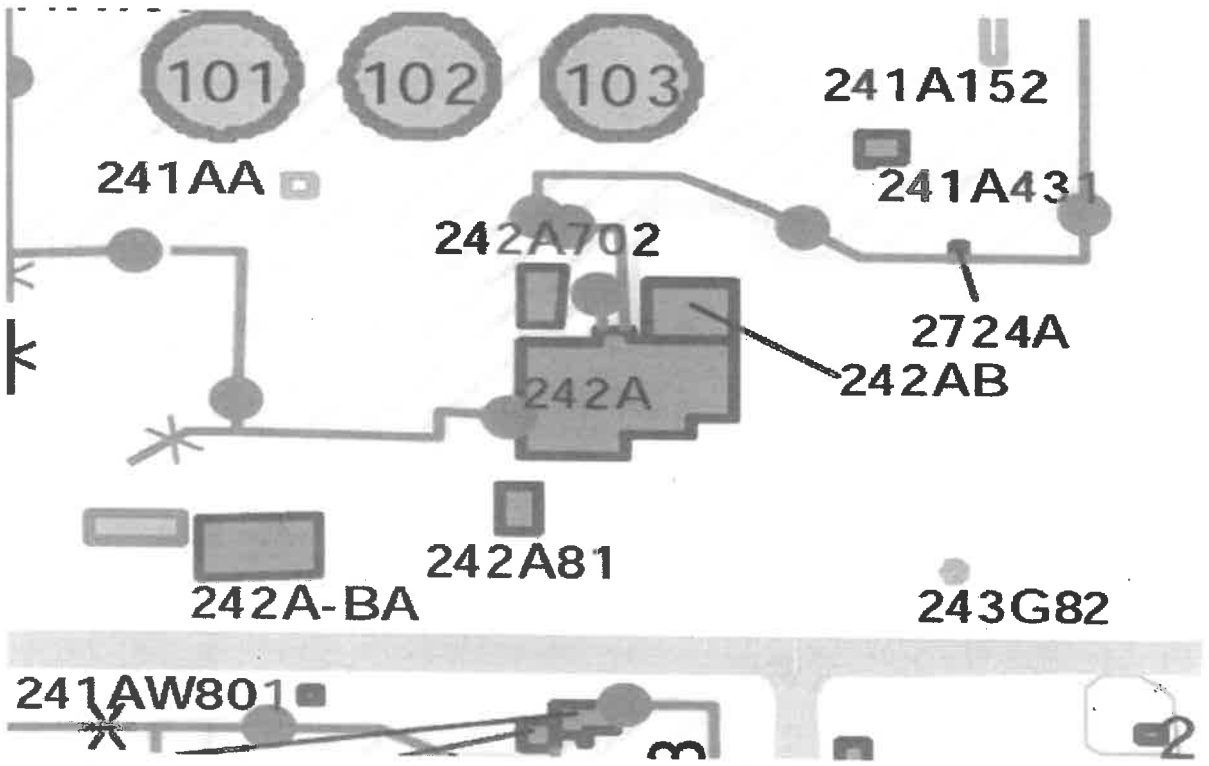
ODOR RESPONSE CARD - 242-A

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.**



Wind Direction
N
W E
S

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12-3-19 1330
- Your name and the work your were perfoming [redacted] JOB COVERAGE W/ INSTRUMENT TECHS
- Location of odors (mark area on map and wind direction) MULTIPLE FLOORS OF CONDENSOR RM Z42A EVAPORATOR
- 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: BURNT RUBBER
- 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: NOT AT THIS TIME

2. Send this card to the Central Shift Office.

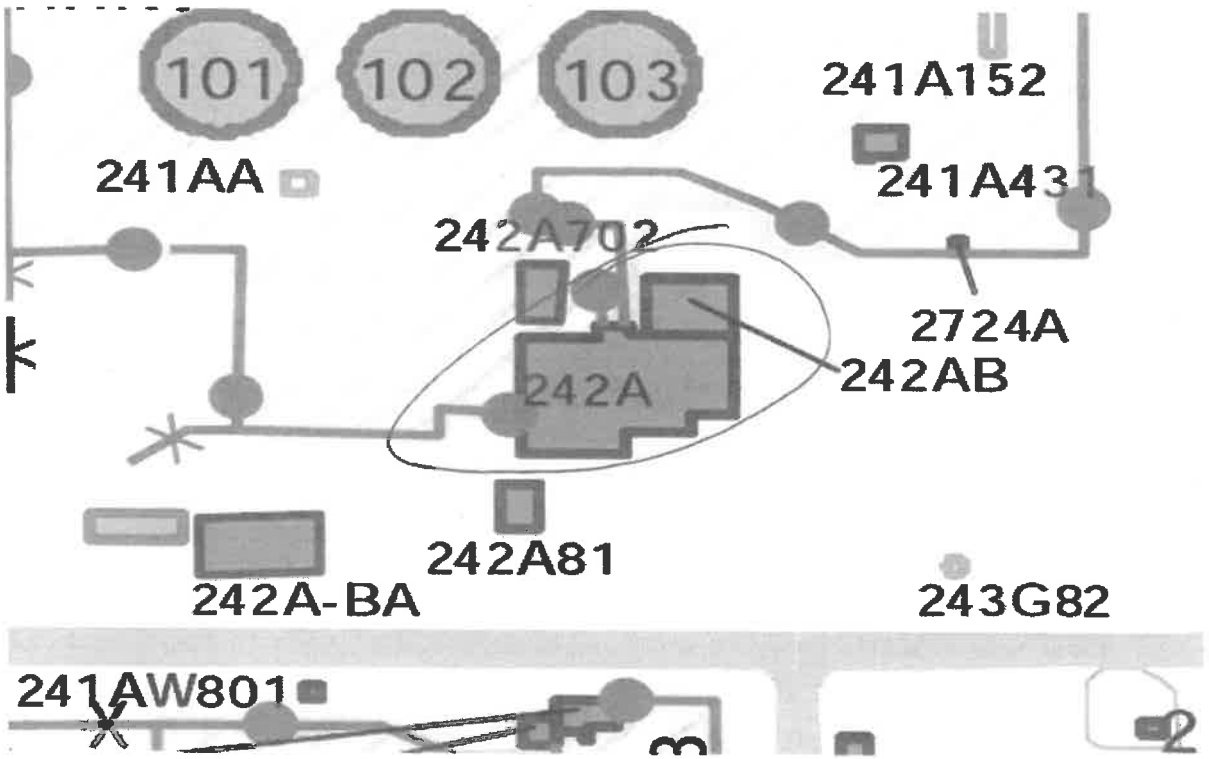
ODOR RESPONSE CARD - 242-A

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.**



Wind Direction
N
W E
S

ODOR RESPONSE CARD - 242-A

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

- Date and time odor was noticed 12-3-19 1330
- Your name and the work your were perfoming [redacted]
- Location of odors (mark area on map and wind direction) Indoors condenser room
- 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: Burning
- Possible Source
- 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.

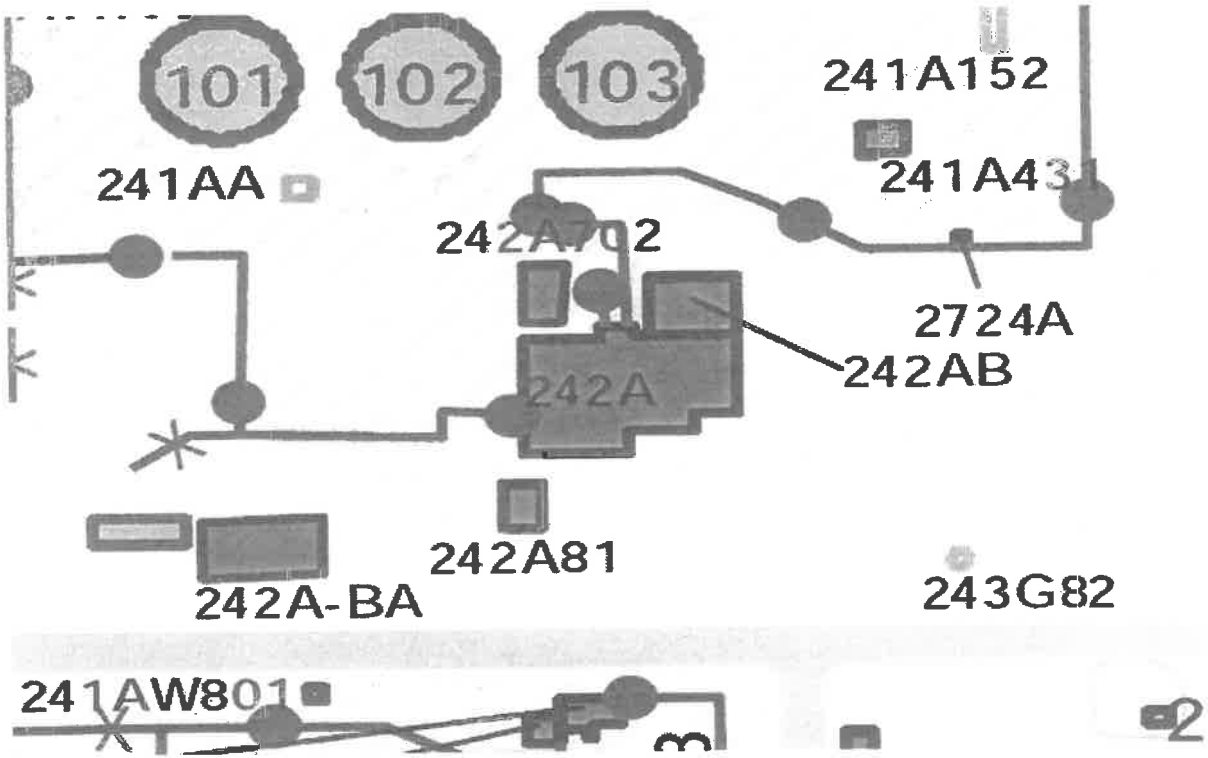
ODOR RESPONSE CARD - 242-A

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.**



HAPSITE/GC-MS Results

12-03-2019

EIR-2019-050

HAPSITE GC-MS Bag Sample Results Survey 19-11152, 242-A Evaporator Condenser Room:

Three bag samples were collected in response to odors reported in the 242-A Evaporator Condenser Room. These samples were collected on December 3, 2019 and analyzed that December 4, 2019 using an Inficon HAPSITE GC-MS. Sample data was interpreted on December 9, 2019, and reported the same day. The sample collection bag matrix typically contains methyl methacrylate, toluene, xylenes, D-Limonene, C9 – C15 alkane hydrocarbons, and silicone compounds. Results for the System and Bag Blank Samples were satisfactory.

Traces of compounds typical of the sample bag matrix were detected in all three bag samples, but no other compounds were detected above background concentrations in any sample. [redacted]

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

Attachment 2
Respiratory Protection Form

RESPIRATORY PROTECTION FORM

1. Work Control Document: TF-AOP-015

2. RPF No.: ☒ N/A 3. Form Rev No.: 6 4. Form Expiration Date: 05/08/2020

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.: 6 4. Form Expiration Date: 05/08/2020

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.: 6 4. Form Expiration Date: 05/08/2020

	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	815175
	(P-100)	815176
		815177
	GMA for Organic vapor (OV)	464031
	GMA/P-100 for particulate and organic vapor	815178
	(P-100,OV)	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.: 6 4. Form Expiration Date: 05/08/2020

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

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.: 6 4. Form Expiration Date: 05/08/2020

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 Planner:

[redacted] (Print First and Last Name) [redacted] (Signature) 5/8/19 (Date) [redacted] (Phone Number)

13. Industrial Hygienist:

[redacted] (Print First and Last Name) [redacted] (Signature) 05/08/2019 (Date) [redacted] (Phone Number)

*Both signatures are required for form to be valid

A-6005-593 (REV 6)