

# EVENT INVESTIGATION REPORT

**SY Farm TF-AOP-015 Response**  
EIR-2014-029

\_\_\_\_\_  
Event Investigation Team Lead

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Date

\_\_\_\_\_  
PER Responsible Manager

\_\_\_\_\_  
Date

PER No. WRPS-PER-2014-1626

## SY Farm TF-AOP-015 Response

### Investigation Summary

On August 27, 2014, while in the process of setting up the Core Sampling System (per TFC-WO-14-3133, SY-102 Setup Core Sample Platform) in 241-SY Tank Farm by installing grounding and power feeds and installing linebacker and cords, an employee noticed an unusual smell and a taste in his mouth, followed by dizziness, a headache, and dry mouth, making it hard to swallow. The taste was metallic and the smell was sweet.

At 1310, the Central Shift Manager was notified of the event and also informed of a second worker in the area that did not smell an unusual odor and had no symptoms. No other workers were in the Tank Farm at the time of the event. At 1313, the Central Shift Manager entered TF-AOP-015, Response to Reported Odors or Unexpected Changes to Vapor Conditions, for SY Tank Farm. A Shift Office Event Notification (SOEN) was sent out and a radio announcement completed.

At 1428, an Industrial Hygiene Technician (IHT) reported that all direct reading instruments taken in the area of 241-SY-102 were all at background levels. At 1803, TF-AOP-015 was exited for SY Tank Farm. Sample results were at or below background levels. An SOEN was sent, a radio announcement was complete, and notifications were made.

An event investigation was initiated on August 27, 2014. Workers were interviewed, a facility walk down was completed, and logbooks and sample results were reviewed.

### Event Timeline

#### August 27, 2014

- 1310 Tank Farm Projects Maintenance Field Work Supervisor (FWS) reported to the Central Shift Manager that an electrician working near the Core Sampling Platform being installed at 241-SY-102 smelled odors and felt dizzy with a metallic taste in his mouth. A second electrician was also working in the area and did not smell odors and was not symptomatic. FWS took the first electrician to the Onsite Medical Provider. The second worker, who did not experience symptoms, was offered medical evaluation but declined. No Industrial Hygiene sampling was occurring at the time and no respiratory protection was in use by the workers. The location of the event was reported to be at or around the 02B Annulus Pump Pit, with a wind speed of 0-2 miles per hour (mph) at the work location (5-15 mph from the southwest as reported from the Hanford Metrological Station).
- 1313 The Central Shift Manager entered TF-AOP-015, Response to Reported Odors or Unexpected Changes to Vapor Conditions, for SY Tank Farm. A Shift Office Event Notification (SOEN) was sent out and a radio announcement completed. Access to SY Tank Farm was restricted due to odors being reported near 241-SY-102 and direction was provided to stay clear and upwind.
- 1414 Industrial Hygienist and second Tank Farm Projects Maintenance FWS completed the Odor response card with information from second electrician.

- 1428 Industrial Hygiene Technician (IHT) reports to the Central Shift Manager that all direct reading instruments for 241-SY-102 were reading at background levels.
- 1527 Electrician was released from the Onsite Medical Provider without restriction.
- 1532 Event investigation initiated for SY Tank Farm TF-AOP-015 entry.
- 1605 Washington River Protection Solutions issued an all employee message informing the workforce of the event, concluding with that access to SY Farm remains restricted pending sample results.
- 1719 Preliminary Industrial Hygiene results of the two (2) bag samples taken indicated no concentration of volatile organic compounds (VOCs) or ammonia (NH<sub>3</sub>). Nitrous Oxide (N<sub>2</sub>O) and Mercury (Hg) were also found to be zero.
- 1803 The Central Shift Manager exited TF-AOP-015 for SY Tank Farm. Sample results were at or below background levels. An SOEN was sent, a radio announcement was complete, and notifications were made.

### **Compensatory Measures**

Vapor exposure as low as reasonably achievable principles:

- 241-SY Tank Farm access restricted minimizing number of workers at risk by administrative and physical control. Complete 8/27/14
- TF-AOP-015 response actions implemented. Complete 8/27/14
- Respiratory use for post event vapor sampling. Complete 8/27/14
- All employee communication sent informing them of the vapor event. Complete 8/27/14

### **Discussion of Potential Extent of Condition**

A review of prior (recent) vapor events in S-complex was conducted for similarities, such as potential vapor sources/potential causes, weather conditions, and response actions.

### **Discussion of Potential Causes**

A review of possible Waste Information Data System (WIDS) site locations near the event scene that could have affected the event area was conducted. The WIDS site UPR-200-W-127 is the closest to the event scene (spill area east of the 242-S Evaporator), however it is downwind of the event scene so was most likely not a contributor.

Waste tank level readings were reviewed for the three (3) double-shelled tanks in SY Tank Farm for a possible indication of a gas release event. There does not appear to have been a level drop in tank's waste level which would provide an indication of a possible gas release event.

Interview with the Mission Support Alliance Biological Controls group provided that no herbicide was being sprayed on 8/27/14 near the S-Complex work area, but a work crew was outside of the tank farms removing tumbleweeds when the event occurred. They vacated the area after receiving the SOEN and reported to their supervisor that they had smelled nothing.

Interview with the Manager of Construction confirmed that the construction crew performing demolition of the pump pad in SY Tank Farm east of the event scene were not in the tank farm at the time of the event and they too did not smell anything (TFC-WO-14-2849, Remove Pump Laydown Area from NE 241-SY).

Although the worker was standing near an annulus pump pit, the pit is actively ventilated (confirmed ventilation was running) and therefore it is not likely that this was a possible source of emission.

Based on interviews and the above information, the assumed source of the odors is from the SY-Farm (A-Train) exhaust stack.

### **Recommendations/Proposed Corrective Actions**

1. S-Complex consists of three (3) tank farms. Odor Response Cards for each tank farm were placed at all egress points (change trailers) to ensure that the correct Odor Response Card(s) are available to support event reporting. Complete 8/28/14.
2. Evaluate the communication of the Odor Response Card(s) for timely use during event response (ensure card is completed, ensure timely communication to the effected Industrial Hygiene representative for use during odor response, etc.).

### **Lessons Learned**

To be addressed, if required, by the causal analysis via a corrective action under WRPS-PER-2014-1626.

### **Attachments**

- A. Listing of Personnel Interviewed/Contacted
- B. Shift Manager's Logbook Entries

**Attachment A**  
**Listing of Personnel Interviewed/Contacted**

1. Electrician
2. Electrician
3. Operations Field Work Supervisor
4. TFP Electrical Field Work Supervisor
5. TFP Electrical Field Work Supervisor
6. HAMTC Safety Representative
7. ST Area Day Shift Manager
8. TFP Safety and Health
9. TFP Industrial Hygiene Technician Supervisor
10. MSA Biological Controls
11. Construction Manager
12. Electrical Field Work Supervisor.

**Attachment B  
Shift Manager's Logbook Entries**

8/26/14 D-SHIFT

1558 - New Red Arrow. No transfer allowed into or out of 241-AP-08-A through SN 418, 241-AP Valve #1 nongyle 22, and ACP-08-V-418 until all components are leak checked with water.  
 1615 - Late entry, Admin locks installed at 1524 for C105 D AM-106 retrieval. SOEW sent  
 1631 - Not: Prod DOE FR [redacted] and J. [redacted] entry @ 1558, 1535, and 1514

1714 - Relieved as CSU by

1714 - Assumed duties as CSU.

8/27/14 C-SHIFT

0410 - Air lift circulators in AW Farm have been secured. SOEW sent.

0446 - Relieved as CSU by

0446 Relieved as CSU

1148 IHT completed flamm gas readings for T Farm.

- All read 0% LFL.
- Next T Farm SR 3.2.1 due NLT 8/27/14
  - Next T-201 SR 3.2.1 due NLT 12/26/14
  - Next T-203 & T-204 SR 3.2.1 due NLT 2/25/15

1310 reports that was working near S4-102 near core sample Platform. smelt color and is feeling dizzy w/ metallic taste in mouth. also working in the area & did not smell color and has no symptoms. is taking to HPIUC.

1313 Entering ACP-015 for SP Farm. All personnel clear. is field lead. SOEW & Radio Announcement complete.

1331 notified Safety & DOE FR

1428 IHT reports all direct reading instruments for S4-102 were at background levels.

8/27/14  
0

8/27/14 D-Shift

1500 Engineering reported a crane at C102 is parked on an inactive waste transfer line. This should have been identified on the route map as prohibited. [redacted] recommends having the crane moved ASAP. Notified FWO's and he will relocate crane in the morning.

1523 Notified Env.

1525 Temp Monitors PP-59 & PP-60 were installed in support of S4 Farm outage.

1527 [redacted] was released from HPME without restriction.

1532 Initiated event investigation for S4 Farm AOP-015 event. FCC [redacted]

1555 Exited time monitoring for ALO Farm Standby VTP O/S

1658 Relieved as CSU by

1678 - Assumed duties as CSU

1803 - Exited AOP-015 for S4 Farm. Sample results are at or below background levels. SOEN sent, radio announcement complete, notified (FACEEP) and (Sr. Manager).

2235 - Entered AOP-008 for winds > 60 mph. SOEN sent and radio announcement complete.

8/28/14 C-Shift

0205 - [redacted] reported that during the AT-101 Run 85 annulus videos there were 3 spots of crystals on the dome. These are abnormal and not previously documented. She will be attempting to obtain still shots and additional video to provide to engineering. No abnormalities noted on the annulus floor.

0402 - reports additional (cont.)

B-28-14  
0754