Hanford Tank Waste Operations & Closure

EVENT REPORT FORM

1. Project: Retrieval and Closure Construction **2. Report Date:** 11/11/2025

3. Investigation Title: TF-AOP-015 at S-109 work area, October 29, 2025

4. Investigation Report Number: EIR-2026-006

5. Responsible Manager: [redacted]

6. Event Investigator: [redacted]

7. Area / Building / Location: 200W/241-S Farm/Near Tank S-109

8. Date and Approximate Time of Event: Date: 10/29/2025 **Time *(military)*:** 1420 hours

9. Associated Action Request (AR) Number: ITDC-AR-2026-0297

10. Associated Occurrence Report Number *(if applicable)*: N/A

11. Event Learning Meeting Held: Yes [ ] or No [X] **Date:** N/A **Time *(military)*:** N/A

6. Brief Summary of Event: What Happened?

At approximately 1420 hours on 10/29/2025, Apollo Construction workers supporting WO# 1215709, *241-S-109 South Hatchway Equipment Removal and Cover Installation*, were nearing the end of their shift working on 241-S Farm to install ground cover for upcoming work activities removing a condenser pit demister assembly from 241-S-109 when a laborers' Ventis® Pro Personal Ammonia Monitor (PAM) response level alarm activated (≥ 6 ppm ammonia) when the worker was in the proximity of the job box where the previous day's event occurred. The laborer stated the Ventis® Pro PAM displayed 8 ppm ammonia at the time of the response level alarm. Two additional workers were in the work area at the time of the Ventis® Pro PAM response level alarm. The remaining two workers' Ventis® Pro PAMs did not alarm or have elevated readings above the response level (6 ppm ammonia).

Ground cover setup is classified as a Tank Vapor Work Category (WC) 1 (general farm entry) activity. Ground cover setup is not a tank intrusive or tank vapor containing system intrusive activity. As required for 241-S Farm entry, all workers were wearing full-faced air purifying respirators (FF-APRs) with chemical vapor cartridges in accordance with Management Directed Respiratory Protection Form MDRPF-STD-07. Workers reported no odors were encountered and no symptoms were experienced. The laborer wearing the Ventis® Pro PAM with the response level alarm did not elect to receive precautionary medical surveillance by the Site Occupational Medical Contractor (SOMC). The other two workers also declined precautionary medical surveillance.

The Ventis® Pro PAM was investigated at the clean air environment of the checkout station by temporarily covering the inlet. The instrument exhibited an abnormal sensor positive response up to 34 ppm which is not consistent with normal operating parameters. The IHEI investigation concluded the sensor may be experiencing increased sensitivity. The increased sensitivity condition indicates a reduced reliability and the report recommended replacement of the affected sensor.

To summarize the conclusions of Industrial Hygiene Event Investigation Report (IHIR), *IHIR-00128 TF-AOP-015 for S-Farm,* and Industrial Hygiene Equipment Investigation (IHEI) Report #00006; the Ventis® Pro PAM response level alarm was determined to be resultant of abnormal ammonia sensor response and increased ammonia sensor sensitivity that is not consistent with normal operating parameters. The Ventis® Pro PAM response level alarm was determined to not be resultant of changing 241-S farm tank vapor conditions, exhaust plume ground receptor emissions from the nearby actively ventilated 241-SY Farm tank farm exhauster, or other potential chemical vapor sources (e.g. contents within the job box located near S-109).

[Note: Refer to IHIR-00128 and IHEI #00006 for further detail/supporting evidence regarding these conclusions].

Direct Reading Instrument (DRI) monitoring performed during TF-AOP-015 response actions indicated less than detectable (<1 ppm) ammonia concentrations and did not indicate further action was necessary to protect workers' safety and health from an occupational exposure limit standpoint. As a result, the area was released from restricted access and work was allowed to resume.

13. What Should Have Happened?

PAM shouldn't have indicated increased ammonia concentrations or activated the response level alarm (≥ 6 ppm ammonia) unless changing tank vapor conditions were present (which includes the COPC sentinel indicator of ammonia).

14. Impact to Facility: *(Caused by the event or a description of known consequences)*

No impacts to facility safety status, operational capabilities, or facility reliability occurred.

The work crew was instructed to leave the work area and access was restricted for approximately 2 hours until TF-AOP-015 response actions were complete. Delays in completion of the WO# 1215709 work activities were encountered.

15. Problem Statements (Who, What, Where, When, Consequence/Impact):

At 01420 hours on 10/29/2025, Apollo Construction was performing WO# 1215709 work area preparations around 241-S-109 when a laborers' Ventis® Pro PAM response level alarm activated; resulting in 241-S Farm access restriction and WO# 1215709 work delays.

16. Facts/Timeline:	17. Issues/Gaps	18. Causes (Why?) (Include Cause Code)	19. Safe Stable/Immediate Actions	20. Extent of Condition	21. Short Term Action(s)	22. Corrective Action(s)
10/29/2025 [01420 hours] Fact: Field Response and Notification of Ventis® Pro PAM Response level Alarm Near 241-S-109	N/A	N/A	Following the Ventis® Pro PAM response level alarm, the Apollo Construction FWS had work crew exit 241-S Farm and notified the CSM.	N/A	N/A	N/A
10/29/2025 [1424 hours] Fact: Precautionary Medical Surveillance by Site Occupational Medical Contractor (SOMC)	N/A	N/A	N/A	N/A	The CSM and FWS offered precautionary medical surveillance to the four workers within the 241-S-109 area when the PAM response level alarm initiated. The Apollo laborers including the worker wearing the PAM declined to receive precautionary medical surveillance from the SOMC.	N/A
10/29/2025 [1418 hours] Fact: TF-AOP-015 Entry	N/A	N/A	CSM dispatches Nuclear Chemical Operators (NCOs) to post restricted access boundary at S-Farm entry points. The restricted access boundary was down-posted/ normal S-Farm access restored at 1620 hours.	N/A	N/A	N/A
10/29/2025 [1455 to 1602 hours] Fact: TF-AOP-015 Response Actions	N/A	N/A	N/A	N/A	Industrial Hygiene Technicians (IHTs) performed TF-AOP-015 response actions around the affected area including the perimeter of the exclusion zone surrounding the S-109 breather filter. All DRI monitoring results were non-detectable (<1 ppm ammonia) and below anticipated background levels.	N/A
10/29/2025 [0800 to 1433 hours]	Ventis® Pro (004656/ SN 21091UB-090) Ammonia Sensor Performance/ Sensitivity	**Cause Code:** C Node: A2B6C01 *[Defective or failed part]* B Node:	N/A	N/A	Industrial Hygienist Equipment SME/ Program Owner evaluated calibration and bump test records, alarm/data	Ventis® Pro (005223/ SN 2203377-229) was removed from service for ammonia sensor replacement.

Fact: Inspection of the alarming Ventis® Pro (004656/ SN 21091UB-090)		B6 *[Defective, Failed or Contaminated]* A Node: A2 *[Equipment/Material Problem]*			logs, and performed physical inspection of the alarming Ventis® Pro (005223/ SN 2203377-229). Alarm logs indicated two previous atypical sensor behavior events that resulted in instrumentation alarm. The PAM exhibited abnormal sensor response when the inlet was temporarily covered. The device displayed positive readings up to 34 ppm in clean air environments which is not consistent with normal operating parameters. It was concluded the PAM sensor exhibited increased sensitivity and reduced reliability. *Note: Further detail provided in Industrial Hygiene Equipment Investigation (IHEI) Report #00006.*	
10/29/2025 Fact: Evaluation of Ventis® Pro PAMs dispatched to the temporary S-Farm issuance station	Ventis® Pro Ammonia Sensor Performance/ Sensitivity	**Cause Code:** C Node: A2B6C01 [*Defective or failed part]* B Node: B6 *[Defective, Failed or Contaminated]* A Node: A2 *[Equipment/Material Problem]*	N/A	Industrial Hygienist Equipment SME/Program Owner evaluated alarm logs of all Ventis® Pro PAMs dispatched to the temporary S-Farm issuance station (~50 instruments) due to the previous sensor replacements having occurred on the same day. Multiple PAMs displayed atypical sensor behaviour/ abnormal sensor response; indicating sensors were experiencing increased sensitivity not consistent with normal/ expected operating parameters.	N/A	All Ventis® Pro PAMs dispatched to the temporary S-Farm issuance station were removed from service for ammonia sensor replacement.

23. Signatures

Prepared By: *(Event Investigator)*

[redacted]

Name (First, Middle Initial, Last)

Responsible Manager Approval:

[redacted]

Name (First, Middle Initial, Last)

CAS Manager Approval:

[redacted]

Name (First, Middle Initial, Last)

[redacted]

INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT (IHIR)

Event Title:	IHIR Number:
TF-AOP-015 for S-Farm	IHIR-00128
	IHEI Number: IHEI-00006

Date:	Time:	Location:
10/29/2025	1418	S-109

Event Summary and Timeline:

Event Summary:

- Around 1418 on 10/29/2025, three workers were performing work at a job box at S-109 when one PAM (Personal Ammonia Monitor) began to alarm. Workers made proper notifications and exited the farm.
- Access was restricted to the farm and a response plan generated, results below.
- Monitoring was conducted in the area to investigate potential sources.
- Results of DRI (Direct Reading Instrument) monitoring:
  - Ammonia – less than detectable (>1 ppm)
- At the time of the event, winds were coming from the southwest, ruling out tank farm vapors.
- Access to the area was restored at 1620.

Field Response Timeline:

1418 Workers notify Central Shift Office (CSO) of PAM alarm at S-109
- Three workers at job box, one PAM alarm at 8 ppm and other two PAMs reading 0 ppm

1420 Production Operations (PO) Industrial Hygienist (IH) and POIH Manager arrive at CSO

1423 POIH checks Data Fusion Advisory System (DFAS):
- Mixing Height: 700 ft
- Wind direction: 270°
- Wind Speed: 7.7 mph

1424 POIH Manager and Retrievals & West Operations (RWO) communicate:
- Workers offered and declined medical
- PAM and RWO IH en route to CSO

1429 RWOIHs arrive at CSO

1434 PO Industrial Hygiene Technician (IHT) arrives at CSO

1436 PAM arrives at CSO (PAM #004656)

1437 PAM taken for data download

1445 POIH briefs POIHT on response
- IHSP-TI-MULTI-TF-AOP-015
- RPF-TF-AOP-015, Task 5
  - Voluntary use due to reading ≥6 ppm and <12 ppm
- MDRPF-STD-07, Task 1

1446 POIHT departs CSO to acquire RPE and head to S Farm

1451 RWOIHs depart for response

1557 IHT sweeps were all below background, IHT performing post-use function testing of DRI and RWOIHs report back to CSO

1602 Instrument pass post-use function test, all sensors in range

1620 Exited TF-AOP-015 and normal access to S Farm is restored.

Sampling/Monitoring Results:

Field Response Area Readings:

- Ammonia: less than detectable (<1 ppm)

The responding IHT entered S Farm to perform DRI monitoring with a MultiRAE Pro. Monitoring was performed around the area where the PAM alarmed for potential sources of ammonia and/or tank vapors, including the perimeter of the exclusion zone surrounding the S-109 breather filter. DRI monitoring and observations made by the IHT demonstrated that no ongoing conditions which could result in PAM alarm.

PAM Datalog:

Review of the datalog reported that there were measurable readings for approximately one minute, with a maximum of 6 ppm. PAM data is recorded in 10 second increments, so it did not capture the actual peak reading of 8 ppm that occurred outside of the 10 second interval reading on the datalog.

INDUSTRIAL HYGIENE EVENT INVESTIGATION REPORT (IHIR) (Continued)

SWIHD References:

SWIHD survey "25-07413 TF-AOP-015 Response S Farm"

Additional Information:

At the time of the PAM alarm, the worker whose PAM alarmed was wearing respiratory protection equipment in accordance with the Management Directed Respiratory Protection Form, "MDRPF-STD-07" Task 1: Full Face Air Purifying Respirator (FF-APR) with Gas/Vapor cartridges (MSA GME Chemical Vapor).

The only active exhauster in the area is found in nearby SY Farm, to the northeast. The Vapor Detection Monitoring System (VMDS) reports that at 1418 on 10/29/2025 stack readings for ammonia were 5.61 ppm. The event occurred southwest of the exhauster.

Review of DFAS at the approximate time of the PAM alarm event on 10/29/2025 @1418:

- Wind Speed: 7.7 mph
- Wind Direction: 270°
- Mixing Height: 700 feet above grade
- Stability Class: A (extremely unstable conditions)

Exhauster stacks have enhanced monitoring, VMDS, that can be used to detect elevated readings and provide further warnings of unexpected conditions. As a more conservative approach, Memo WRPS-1904672.1, TANK FARM EXHAUST STACK CONCENTRATION ALARM/ACTION LEVELS FOR AMMONIA establishes stack alarm/action set points for Tank Farm Exhausters. The alarm/action set points are based on a linear extrapolation of the Quantitative Risk Assessment model prediction resulting in various ammonia concentrations at an unspecified ground receptor.

241-SY:

- High Alarm was conservatively established at 310 ppm Ammonia
  - Ammonia concentration of 2.5 ppm at an unspecified ground receptor
- High High Alarm was conservatively established at 620 ppm Ammonia
  - Ammonia concentration of 5 ppm at an unspecified ground receptor

Furthermore, the review of VMDS data concludes that there was very low potential for ground level exposure from exhausters.

Recommendations/Conclusions:

Conclusions:
Based on the event investigation and reviewing environmental conditions related to worker location and available monitoring data when the events occurred, it is unlikely that the PAM alarm was caused by Tank Farm vapors. Thus, the PAM that alarmed has been pulled from the field and is having it's sensor replaced due to being more sensitive than normal.

Others:

The workers did not report any symptoms and were offered and declined medical surveillance.

Associated Documents:

iCAS Number: N/A

EIR Number: EIR-2026-006

Industrial Hygienist:

[redacted]

Print First and Last Name

[redacted]

Signature / Date

Industrial Hygiene Level 3 Manager

[redacted]

Print First and Last Name

[redacted]

Signature / Date

Industrial Hygiene Level 2 Manager:

[redacted]

Print First and Last Name

[redacted]

Signature / Date