EVENT INVESTIGATION REPORT

C-Farm AOP-015 Event of July 18, 2014
Event Investigation Report Number EIR-2014-025

PER No. WRPS-PER-2014-1317 (Trend only as a roll-up to Significant PER WRPS-PER-2014-0602)
Investigation Summary

At approximately 1515 hours on Friday, July 18, 2014, two SST Retrievals Nuclear Chemical Operators (NCOs) experienced odors while approaching MO-522 at the southeast side of 241-C-Farm. The two NCOs then proceeded towards another entry point (MO-512, middle C-Farm change trailer) when one of them started to feel light headed/dizzy. The NCOs notified their Retrieval Operations Engineer (OE) and the Central Shift Manager (CSM) who properly entered TF-AOP-015, *Response to Reported Odors or Unexpected Changes to Vapor Conditions*. The NCOs stated that the odor was strong (turpentine/ammonia) but not pungent nor repulsive.

On Saturday, July 19, 2014, fact finding interviews were held with those involved who were present.

Event Timeline

07/18/2014

1150 C-102 slurry pump was started
1206 AN-101 supernate pump was started
1515 NCOs (2) experience an unusual strong odor near MO-522

Additional Information – Hanford Site Weather Station Report. Winds from the NW at ~ 20 miles per hour.

<table>
<thead>
<tr>
<th>Tower Information</th>
<th>Sat Jul 19 00:02:20 PST 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>yr</td>
<td>mo</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>

1520 NCO develops symptoms (light headed, dizziness) and reported this information to the Retrieval OE
1530 Retrieval OE contacts CSM and informs him of the situation and that the NCO who was experienced symptoms was being taken to HPMC. Note the other NCO who did not experience symptoms also went to HPMC.
CSM enters TF-AOP-015 for the C-Farm event

241-C-102 retrieval shut down with flush (both slurry and supernate pumps)

Guidance was given to the Production Operations shift Industrial Hygiene Technicians (IHTs) to respond to the event using Sample Plan IHP-09001 and to perform iTX and ppbRAE direct reading monitoring. The SST Retrievals IHTs were assigned to assist.

CSM contacted Hanford patrol to establish road blocks to maintain the area secure

CSM received confirmation the Production Operations OE had established road blocks at the Buffalo and 7th street intersection and on 7th Street west of C-Farm and that patrol could remove their road blocks.

IHTs obtain three bag samples from the area of concern and perform direct reading monitoring.

Employees were released from HPMC. The one NCO who had symptoms will remain on restriction until chemistry work is completed. The other NCO was released with no restriction.

IH reports preliminary Hapsite analysis of 0 ppb VOCs, 0 ppm Nitrous oxide and 8ng/m³ mercury. Total analytes were <20 ppb.

SOEN message sent with regards to Event investigation being initiated

Actions required from TF-AOP-015 were complete and the AOP was exited for the C-farm event.

241-C-102 retrieval was restarted

07/19/2014

0800 Fact Finding interviews were conducted. (NCO, OE, IHT Lead)

07/22/2014

0500 Interviewed the other NCO who had been on scheduled days off.

Compensatory Measures

1. 7/18/2014 Area REA was placed near MO-522.
2. 7/19/2014 Ventilation valving was re-positioned to provide additional vacuum on C-102 which would increase air flow from that tank.
3. SST Retrievals IH established increase personnel sampling for those working on C-102 retrieval.
4. 7/21/14  All Employee message

TO:  All WRPS Employees
     (Please pass this message on to those who did not receive it.)

ISSUED:  July 21, 2014

FROM:  External Affairs

SUBJECT:  Vapor event update

Late Friday afternoon two WRPS employees smelled abnormal odors near the change trailer south of C Tank Farm. Access to the area where the odors were detected was restricted.

One of the workers reported symptoms; the other did not. Both were sent to the Hanford Site medical provider for a medical evaluation and were later released to return to work.

Preliminary Extent of Condition Review

The area where this event occurred was an established vapor reduction zone. The extent of condition for this event indicates that downwind positions from active retrieval operations should be a possible vapor reduction area.

Discussion of Potential Causes

The probable cause for this event was vapors coming from the POR-107 exhauster that was transported via the light wind in to the area.

Discussion of Barriers That Could Have Impacted the Cause

1. Operations Equipment Configuration. During the time of this event, the POR-107 exhauster was operating at approximately 1400-1500 cubic feet per minute (cfm). This exhauster has the capacity to operate over 2000 cfm. This higher air flow would help dilute the vapors being released during retrieval operations.

2. Operations Procedures. TF-AOP-015 process was followed as designed with no issues. One opportunity for improvement that was noted during the interviews is to have the IH communication report sent to the responsible shift organization (in this case the Retrieval OE) for their information and communication to the shift workers.

3. Operations Procedure. The C-102 retrieval was stopped once AOP-015 was entered and due to the location of the issue of concern. The timing was that this shut down occurred before the IHTs responded to the area to obtain samples and direct reading monitoring and therefore the condition had changed and the resultant information gathered was not under the same conditions as to when the event had occurred.

Recommendations/Proposed Corrective Actions

1. Establish and maintain a higher flow rate through POR-107 during C-102 retrieval waste disturbing activities.

2. Establish the process to distribute the results from AOP-15 sampling/monitoring to the affected groups as well as the Central Shift Office.
3. Remind Retrieval personnel that during certain weather conditions the best entry point into C-Farm maybe from the upwind direction which would normally be MO-512.
4. Also see WRPS-PER-2014-0602, Significant; AOP-15 Entries.

Lessons Learned

To be addressed, if required by the causal analysis via a corrective action under WRPS-PER-2014-1317.

Also see WRPS-PER-2014-0602, Significant; AOP-15 Entries.

Attachment:

1. Photos/Sketches

Attachment 1 – C Farm and location of detected odors