

MORASH, MELANIE

From: MORASH, MELANIE
Sent: Sunday, July 10, 2016 12:09 PM
To: Wes Hawthorne
Cc: Elizabeth Brown; Heather O'Cleirigh; Joseph Innamorati; Linda Niemeyer; Michele Yuen; Morgan Gilhuly; Nancy-Jeanne LeFevre; Peter Bennett; Peter Scaramella; Rebecca Mora; Shau Luen Barker; Shaun Moore; Todd Maiden; Wendy Feng; Cynthia Woo; Lawrence McGuire; Leslie Lundgren; Lora Battaglia; Rose Condit; Sabrina Morales; Wenqian Dou; DIAZ, ALEJANDRO; Estrada, Thelma; Harris-Bishop, Rusty; Lyons, John; Maldonado, Lewis; MORASH, MELANIE; Parker, Heather; Plate, Mathew; Shaffer, Caleb; Stralka, Daniel; Yogi, David
Subject: Triple Site - EPA Approval - RP Response to EPA Comments on RES084/085 Field Mitigation Activities
Attachments: Morash - RES084 & RES085 Response to Comments 2016-07-08.pdf

Good afternoon, Wes,

Thank you again for your consideration of EPA's comments on the mitigation system installation at the above-referenced residence. EPA appreciates your team's diligent efforts to design and install these systems to prevent the accumulation of TCE vapors in affected buildings.

This e-mail approves your response to EPA's comments and your planned action items. These planned activities include, but are not limited to, the following:

- Open, ongoing dialogue with EPA and EPA's contracting team to make appropriate on-site decisions based on best professional judgement and in consideration of the unique circumstances of each installation;
- Adding remote monitoring/dialer systems to immediately notify Locus of system failures;
- Provided owner approval, locating audible alarm systems indoors where they can best be heard by building occupants; and
- Coordination with licensed electricians and the City of Sunnyvale regarding electrical permits and required inspections.

We look forward to continuing to work with you on this important project.

Regards,

Melanie Morash

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From: J. Wesley Hawthorne [mailto:hawthornej@locustec.com]
Sent: Friday, July 08, 2016 5:17 PM
To: MORASH, MELANIE <morash.melanie@epa.gov>
Cc: Barker, Shau-Luen (ShauLuen.Barker@philips.com) <ShauLuen.Barker@philips.com>; Maiden, Todd O. <TMaiden@ReedSmith.com>; Nancy-Jeanne LeFevre <LeFevren@locustec.com>; Leslie Lundgren <leslie.lundgren@cbifederaleservices.com>; Linda Niemeyer <linda.niemeyer@ngc.com>; Heather O'Cleirigh <heather.ocleirigh@amd.com>
Subject: RE: Triple Site - EPA Comments on RES084/085 Field Mitigation Activities - Response & Corrective Action Plan Due by Friday, July 8th

Melanie:

Attached is a response to each of these comments, with follow-up activities as appropriate for each item. As we discussed yesterday, we are planning to complete additional mitigation-related activities at RES084/085 on July 19.

J. Wesley Hawthorne, PE, PG

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From: MORASH, MELANIE [mailto:morash.melanie@epa.gov]
Sent: Tuesday, June 28, 2016 9:58 PM
To: J. Wesley Hawthorne <hawthornej@locustec.com>
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Subject: Triple Site - EPA Comments on RES084/085 Field Mitigation Activities - Response & Corrective Action Plan Due by Friday, July 8th

Good evening, Wes,

This e-mail conveys EPA's observations, comments and recommendations for the trichloroethene (TCE) vapor intrusion (VI) mitigation system installation activities for the property referred to as Residence # 84/85 (RES084/085), located within the Offsite Operable Unit of the Philips, AMD 901/902 Thompson Place, and TRW Sites ("Triple Site") in Sunnyvale, CA.

We appreciate your considering these items and preparing a response letter and follow-up action plan by **Friday, July 8th, 2016. Please let me know if you would like to schedule a conference call or meeting to discuss these comments further. If you require more time to work with your subcontractor to prepare a response, please identify an alternate due date for EPA approval.**

Upon receipt of EPA approval of your response letter/follow-up action plan, please implement your plan as soon as possible, but no later than ten (10) calendar days of EPA's approval.

Please work with Wenqian Dou of CB&I Federal Services, EPA's contractor, to coordinate any necessary additional work days at the above-referenced property, and please incorporate the follow-up action plan into future mitigation system designs and installations.

Overall Installation Observations

EPA staff and contractors mobilized to the area on Monday, June 21, 2016. Mitigation system installation was to begin at 1:00 p.m. however the Locus subcontractor arrived approximately 30-45 minutes later. The materials and equipment specified in the Work Plan were delivered and installed at the site.

Overall the work plan was followed with a few deviations. The overall installation of the membrane followed the work plan, with the exception of the perforated piping not being installed first with the membrane subsequently being laid over the perforated piping. Rather, the membrane was partially installed and the perforated piping, in some instances, was slid under the membrane. In other instances these installation activities were done according to the work plan. EPA does not believe that this modification in work flow steps would affect the integrity or operation of the final system, however, field activities should closely follow the procedures spelled out in work plans. In general, the membrane installation appears to have been completed professionally and was installed to the standard level of practice among other professionals doing this type of work.

Due to time constraints the overall installation was not completed during the one and a half days allotted for the work. The exterior fan work was completed per the work plan and referenced guidance, however, care could have been taken to make the installation look more professional. For example, use of a level, mounting techniques, use of drain, waste, vent DWV fittings instead of pressure fittings, use of PVC primer prior to application of PVC cement, and use of premade system components (i.e. varmint guards) versus a screen attached to the top of the exhaust.

The Christmas tree buttons were not installed and will be done at a later date. The water intrusion remedy for the exterior sealing of the concrete was not completed during the two days on-site, therefore could not be inspected or evaluated.

Specific items that deviated from the work plan are as follows:

- The alarm installed was only audible from the back yard. It could not be heard inside the residence.
- No labels were applied to any of the system components, which is a deviation from the stated reference of ASTM E2121.
- No Dwyer series 2000 magnahelic was installed.

- Screen mesh used as a varmint guard was smaller than the stated opening. Page 2 of the work plan stated that no smaller than ½” opening would be used however the mesh used had ¼” openings. While this may not make a significant difference operationally, it is a deviation from the work plan that should be addressed.
- A fan shroud was not installed as per the work plan. While this would not make impact the system operation, it is a deviation from the work plan that should be addressed.
- The alarm was not installed under the fan shroud as the shroud was not used, rather the alarm was installed in a smaller weather resistant box with a hinged clear front door. Again, while this may not make a significant difference operationally, it is a deviation from the work plan that should be addressed.
- No placards were available for inspection

Upon demobilization from the site the depressurization system was operational and residents that were home were given a tour/demonstration and brief explanation of the system and alarm.

Corrections and/or Modifications

For future mitigation installations, EPA recommends allotting adequate time to complete the entire installation per the work plan in one visit rather than returning at a later date to finish, as will be the case with the installation at this site. Continuity of work and considering the burden to the residents of multiple trips should be considered.

During the installation activities the EPA team also discussed with Locus the recommendation to install remote monitoring systems, as discussed in the work plan, as a standard way to notify Locus of a system failure, especially given the multiple language barriers and tenant turnover in this neighborhood. If this is to be a standard feature, then one could argue that alarm and magnahelic gauges may not be necessary at all. However, EPA recommends that these mitigation systems should have a device that clearly shows occupants, building owners, property managers or others (such as prospective buyers) that the system is operational. Additionally, the telemetry system should have back-up power (such as a battery backup), so that if the system fails Locus will regardless be notified via the remote monitoring system.

System Improvements & Recommendations

There are several options that could make the overall installation better:

- Scheduling ample time to complete all phases of the system installation during one visit is recommended, rather than multiple back-and-forth mobilizations to the site on different weeks.
- Adding a telemetry unit to notify Locus and EPA of a system failure, as described in the work plan, as a critical enhancement to the system.
- Using DWV (drain, waste vent) fittings instead of pressure fittings, as the DWV fittings are better for systems with higher air flow. The installation contractor should also be using a PVC pipe cleaner prior to the application of PVC glue to pipe joints and fittings.
 - System labels should be applied during the installation and not at a later date, so the components are clearly labeled and identifiable by the tenants, building owner, property manager, or any other contractors called to the property.

- Labels should be pre-determined and available during the installation or very shortly thereafter so the system is not confused or damaged by tenants, building owners or other contractors that visit the building before appropriate labels can be applied.
- The labels should be clearly legible from 3 feet away and state “Active Soil Depressurization System, Do Not Disturb or Damage”, or something to that effect.
- Labels shall be placed on the membrane, membrane piping in crawlspace, exterior piping, fan, alarm box and appropriate circuits.
- The alarm should be connected to a different circuit than the fan, so that if the circuit for the fan gets turned off, then the alarm will sound. If they are both on the same circuit and the circuit is turned off, neither the fan nor alarm will work.
- The alarm should be mounted where residents can hear it from inside the home. Based on the current location of the alarm, it can barely be heard directly inside the building. The alarm can be heard outside, but is muted where tenants enter the building.
- The installation contractor installed the electrical service (outlet and switch) for the fan and the alarm. The electric supply was pulled off one of the main circuit panels on the rear of the home. There was no electrical permit pulled for this project, and there will be no electrical inspection to ensure that electrical connections meet all international, state and local code requirements and do not pose a life safety risk for occupants.
- Based upon EPA’s observations of this mitigation system installation, adding specific language to the work plan would be of benefit to better define what materials are used and how they are to be installed, such as:
 - Piping shall be 4” schedule 40 PVC pipe and fittings (ASTM D-2665), white.
 - All elbows and fittings should be drain/waste/vent (DWV). Tee fittings should be sanitary fittings and installed in the direction of air movement to reduce friction losses. Double sanitary tee cleanout fittings should be used in manifold piping when air movement is from opposite directions.
 - Vertical pipe runs shall be supported at least every 8’ and at every penetration through floors, ceilings or roof decks. Horizontal runs shall be supported, with code approved hangers, every 6 feet and within 2 feet of any fitting.
 - All PVC pipe connections shall be solvent cemented using a primer that complies with ASTM F-656 and PVC cement that complies with ASTM D-2564.
 - Joints will be made while solvent is wet and shall be in accordance with ASTM D-2885 and ASTM F402.
 - A licensed electrician should be consulted to determine the appropriate wire sizes for the fan based on their electrical requirements and distance to the panel. Each fan will have a service disconnect within 6 feet of the fan for servicing. Dedicated breakers are recommended, but may not be strictly required. Breakers should be appropriately labeled to deter and prevent the fan power from being disconnected.
 - All electrical work should have a permit, if required by the state, city or local jurisdiction and subsequent inspection prior to fully commissioning the system.
 - Alarms or telemetry devices should be powered by an alternate circuit to ensure that the alarm will sound if the fan power is inadvertently turned off.

Regards,

Melanie Morash

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