From: Wickham, Jerry, Env. Health
Sent: Friday, May 16, 2008 5:46 PM
To: 'Brown, Denis L SOPUS-OP-COR-H'
Cc: Drogos, Donna, Env. Health; Khatri, Paresh, Env. Health
Subject: Chemical oxidation work plan addendum
Denis,

Donna Drogos (510-567-6721) or Paresh Khatri (510-777-2478) will provide an initial review of the proposed work plan addendum for chemical oxidation in my absence. Please submit the work plan addendum to the Alameda County ftp site along with an email notification of submittal to both Donna Drogos and Paresh Khatri (addresses in cc). Submittal to the ftp site requires a signature and stamp from a California engineer or geologist. Donna or Paresh will provide comments on any significant issues which would affect implementation of chemical oxidation in the bottom of the excavation. After my return on June 3, I will provide more detailed comments.

Excavation is planned in the southeastern area of the site to remove vadose contamination beneath the former dispensers. In correspondence dated April 24, 2008, ACEH requested that the excavation be expanded to excavate highly contaminated soil encountered beneath the southwestern half of the former dispenser islands and increased in depth to remove highly contaminated soil present at about 25 feet bgs. Based on our phone conversation on May 16, we understand that expanding the excavation from a depth of 20 to 25 feet bgs is not feasible due to issues with shoring. Therefore, you are proposing to conduct chemical oxidation to treat soils below 20 feet bgs. The oxidant would be delivered in solution and spread over the base of the excavation for percolation. As we discussed during the phone call, application of oxidant in the base of the excavation is not a standard practice and will require detailed planning and monitoring due to the potential for the remediation to generate heat and vapors which potentially could affect the surrounding area. In addition, the normal ISCO health and safety issues are heightened due to the small size of the site and location within a densely populated area. Some of the major items we discussed include:

1) Vapor monitoring at the base of the excavation and ambient air outside the excavation. We concur with your suggestions for redundant monitoring systems to assure that off-gassing from the base of the excavation is not affecting air quality in this urban area.
2) Contingency plan for controlling vapor migration such as a vapor barrier applied to excavation if monitoring indicates off-gassing .
3) Real time monitoring of temperature and possibly other parameters in soils in the base of the excavation to monitor the rate of reaction and heat generation. The work plan should also provide some estimate of the rate of reaction and heat generation for comparison to observed.
4) How will distribution of oxidant laterally beyond the excavation be evaluated? The lateral distribution issue is quite significant since the size of the excavation is quite limited in comparison to the extent of the smear zone contamination. Expanded treatment by injection may be required for soils to the west and southwest.

Other design issues to be included in the work plan addendum include:

1) Rationale for oxidant mixture
2) Oxidant reactions expected

3) Oxidant dose per kg of soil
4) Total volume and pore volumes of solution to be discharged
5) Rate of discharge
6) Estimate of rate of reaction, longevity, and heat of reaction.

Regards,

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