



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

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HUNTERS POINT
SSIC NO. 5090.3

75 Hawthorne Street
San Francisco, Ca. 94105-3901

APR 10 1994

William Radzevich (T4A1BR)
Remedial Project Manager, Parcel A Hunters Point Annex
Western Division
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, CA 94066-2402

Subject: **Preliminary Summary of Findings, Parcel A Groundwater Investigation**

Dear Mr. Radzevich:

Thank you for the opportunity to review the Navy's preliminary findings as related to the groundwater investigation in Parcel A. U.S. EPA staff have discussed the findings as they were presented in our meeting with the Navy and its contractors on April 6, 1994 and we offer the following observations and recommendations.

Observations

1. Parcel A is largely underlain by fractured bedrock. As such, it is difficult to obtain groundwater samples which are representative of groundwater quality through traditional means. Instead, U.S. EPA generally recommends that surface expressions of groundwater be sampled as a means of evaluating groundwater quality in a bedrock aquifer controlled by fracture flow.
2. Of the five groundwater monitoring wells developed on the Parcel A hilltop, only two exhibited any detectable quantities of petroleum. Unlike a traditional aquifer scenario, however, this information does not allow one to conclude that the groundwater contamination is only an insignificant or limited phenomenon. Some wells may simply not intersect the most contaminated fracture structures, while other wells may intercept several fractures, only some of which accommodate contaminant transport.
3. Groundwater samples collected from the parking lot spring at the bottom of the Parcel A hilltop exhibited both detections of petroleum and Semivolatile Organic Contaminants (SOC).

One SOC was detected at levels above U.S. EPA's Preliminary Remediation Goal (PRG) for that contaminant.

4. Detections of petroleum in groundwater across the Hunters Point Annex (HPA) appear to be fairly widespread. The Navy theorizes that petroleum may have been used for dust suppression prior to the pavement of HPA roads. Similarly, petroleum may have been used as a carrier for pesticides--or as a pesticide itself. Further, in the case of the parking lot spring, the Navy supposes that detections of petroleum may reflect seepage from the parking lot of motor oil. Under any one of these scenarios, the petroleum of concern is most likely a waste petroleum product, perhaps containing other contaminants, such as heavy metals and/or solvents.
5. Only Total Petroleum Hydrocarbons (TPH) and SOCs were analyzed in this round of groundwater sampling.
6. During the Parcel A Site Inspection, petroleum was detected in the surface soils at the Gardener's Shed on the Parcel A hilltop. Similarly, pesticides, herbicides and heavy metals were also detected at the Gardener's Shed. While the surface soils have since been removed, subsurface contaminants were also discovered which were assumed to present no appreciable risk and consequently left in place.
7. Slug tests were performed on the five wells on the Parcel A hilltop, but an understanding of groundwater flow rate, direction and volume is still very limited. The hilltop wells, for example, do not appear to contain enough water to qualify as a drinking water source. The parking lot spring, on the other hand, may flow at a rate which qualifies it for such a designation.
8. Currently, the parking lot spring provides the only known pathway from which a potential risk to human health and the environment is posed by Parcel A groundwater. A structure noted behind Building 813 (e.g., a spring box or Hydroauger), however, may also provide a pathway of potential risk by exposure to Parcel A groundwater.
9. A Risk Assessment of exposure to Total Petroleum Hydrocarbons (TPH) requires a chemical analysis of the TPH constituent parts. Different TPH constituents will migrate through soil and groundwater at different rates, thereby becoming separated and perhaps concentrated into different fractions. In addition, these constituents are individually subjected to different biological, chemical, and physical forces along the migration pathways.

Recommendations

Based on the observations above, we have formed the following analysis and recommendations. The parking lot spring appears to represent a surface expression of groundwater flowing from the Parcel A hilltop. While a tracer study would be necessary to prove whether or not this is the case, the physical geology of the area suggests this conclusion. Given that herbicides, pesticides, heavy metals and petroleum were detected on the Parcel A hilltop and petroleum has been detected in the groundwater both on and below the Parcel A hilltop, we conclude that other contaminants may very well have migrated to the groundwater from areas of contamination on Parcel A. Even should the Navy prove that the spring is not connected to the fractured bedrock and the petroleum is in fact related only to seepage from the parking lot itself, we postulate that other contaminants associated with waste petroleum products may very well have migrated to the groundwater from the parking lot source.

As such, we recommend that a groundwater monitoring well be properly designed and installed at the parking lot spring and a sample collected for a full suite of chemical analyses. Should the analysis determine that there are, besides petroleum, no other detectable contaminants at the spring, we would recommend that a monitoring schedule be devised which would require samples to be collected after periods of rain. This would ensure that nondetections do not simply reflect the flushing of contaminants from bedrock fractures by recent winter and spring rains. Cleanup under such a scenario should be designed and implemented at the direction of the State of California.

Should the analysis determine that other contaminants besides petroleum are present at the spring, we would recommend that a more rigorous evaluation of Parcel A groundwater flow rate, direction and volume be implemented, including a tracer study. Further, we would recommend that other potential surface expressions of groundwater (i.e., behind Building 813) be investigated for their potential use as additional sampling locations.

In any event, given that levels of petroleum and SOCs have been detected in the parking lot spring, we believe it prudent to conduct a screening level risk assessment to ensure that the levels do not pose a risk to human health and the environment. Such an assessment requires that the TPH constituent parts be analyzed individually. Thus, the recommended installation and sampling of the parking lot spring should address this need.

It is our intention to work with the Navy to determine a schedule of action which would accommodate the current plans regarding transfer of Parcel A to the City and County of San Francisco. If you have any questions regarding this matter, please contact me at (415) 744-2409.

Sincerely,



Alydda Mangelsdorf
Remedial Project Manager

cc: C. Shabahari, Cal-EPA DTSC
B. Smith, RWQCB
A. Brownell, SFPD
B. Rhett, SFRA
J. Cooper, City Attorney's Office
M. McClelland, WESTDIV
R. Ramos, WESTDIV