Response to DOH Review Comments
Remedial Investigation Report (Draft) Red Hill Oily Waste Disposal Facility

Reviewer: Frank Peterson

Item No.	Review Comment Reference	Response to Comment
1	General Comment	Originally, it was proposed that ground-water monitoring wells would be installed to monitor the basal aquifer during the current phase of the RI. However, based upon comments received from the Hawaii Department of Health, it was decided that monitoring wells would not be installed into the basal aquifer until more information related to site contamination was obtained. The HDOH was concerned that the investigation could possibly result in degradation of the basal aquifer and suggested not to drill the wells as a precaution until more information related to on site contamination was obtained. The Navy currently analyzes ground-water samples from nearby wells, including the Red Hill shaft (the closest drinking water extraction point to the site). To date, no site-related contaminants have been observed in samples obtained from these wells.
2	General Comment	Dense non-aqueous phase liquids (DNAPLs) are generally not a concern at the site; however, 1,1-DCE was tentatively identified (flagged "N" during data validation) in a routine sample and its duplicate from the ground-water sample obtained from RH-MW04, at concentrations of 0.44 µg/l and 0.46 µg/l, respectively. If present in its pure state, 1,1-DCE would behave as a DNAPL based on its density of 1.2 g/cm^3. It is very unlikely that large quantities of 1,1-DCE are present in its pure state because it is not expected based on historical site activity. Results from the sampling which occurred on January 24 and 25, 1995 prior to monitoring well abandonment indicated that no 1,1-DCE or other VOCs were detected; however, RH-MW04 was not sampled due to insufficient ground water present in the well. The Navy is aware of the possibility that DNAPLs may be present at the site, and will consider this possibility during the next phase of investigation at the site.
4	Appendix C	It is possible that the tuff and the confining layer represent stream-laid deposits. As noted, stream-laid deposits may be more localized in the subsurface associated with past and current stream beds. This may indicate a greater risk of site contaminants migrating through the subsurface unimpeded by the confining clay layer evident in the borings located in proximity to the former Stilling Basin. This is additional rationale for installing the monitoring wells into the basal aquifer at the site (as recommended in the RI Report) and implementing a long-term sampling and analysis program during the next phase of work. It should be noted that the four soil borings drilled for the construction of the four replacement wells also encountered the perched water system and confining clay layer at varying depths. These borings were placed outside the former Stilling Basin removal action excavation. Their locations are given on Figure 3-1 of the *Closure and Removal of the Red Hill Stilling Basin RVR [Remediation Verification Report]*, December, 1995.
5-1	Page 5-22	Comment acknowledged. A range of attenuation factors was given to provide a qualitative feel for the calculations given. It is assumed that a good estimate of the attenuation probably falls somewhere between these two factors. As such, it is advisable to view the most conservative number as the worst case scenario.

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5-2	Section 5.4.1.1	Comment acknowledged. It is more likely; however, that additional attenuation will occur as the leachate migrates through the approximately 60 feet of subsurface material which lies between the perched water system and the basal aquifer.
5-3	Section 5, Surface Water Pathways	Comment acknowledged. Unfortunately, the construction details of the South Halawa Stream (the "Stream") channel make the impact of surface water run-off from the site on the Stream very difficult to quantify with any acceptable degree of accuracy. There currently exists a raised concrete curb ranging from three to six inches along the southern bank of the stream that acts as a barrier to surface water flowing into the stream. Water may pond in low spots along the Stream banks, percolate down through the aggregate liner placed between the concrete channel wall and the earthen stream bank and ultimately be dispelled into the concrete channel through weep-holes placed in the lower edges of the channel wall. During extremely heavy rains, surface water may run down the edge of the concrete curb until it reaches a low spot in the curb and flow over the wall into the channelized stream bed. Methods to quantify these effects are not well established, therefore confidence in values derived from such calculations is unacceptable. Qualitatively, these effects can be seen to lessen the impact of potentially contaminated surface water on the Stream. Whether surface water run-off from the site currently impacts the Stream through the transport and deposition of contaminated sediment into the lower portions of the Stream is the point of concern. Based on the professional judgment of the investigator, this does not appear to be a significant problem for the following reasons. 1) Low concentrations of surface soil contamination onsite. 2) The ground surface is generally covered with asphalt or grassy vegetation, both which act to inhibit the transportation of surface soil. 3) The Stream is channelized from above the site to about a quarter of a mile below the site. The curb which runs along the southern bank of the channelized portion of the Stream acts as a barrier to water and sediment entering it. In addition, it is difficult if not impossible to determine the source of potential chemicals which might be detected in sediment traps downstream because of the numerous non-point sources that exist both above and below the site, including Halawa Prison and H-3 construction. A potential sampling plan may include collecting actual surface water run-off flowing into the Stream during the infrequent flooding events.

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5-4	Section 5.4.11.4	Two factors add to the overall assessment of the significance of the impact of TFH and dieldrin detected at the Proposed Coast Guard site on the underlying drinking water aquifer. First, leachate potential was calculated from maximum detected concentrations, and therefore are inherently conservative. The average TFH concentration from 25 samples was 227 mg/kg versus a maximum of 3,000 mg/kg. Dieldrin was only detected in two samples out of 23. In addition, maximum concentrations for both compounds were detected in surface soil while subsurface soil samples showed much lower concentrations of TFH (maximum of 32 mg/kg) and dieldrin was not detected. This indicates that these compounds originated from a surface release and are tightly sorbed to surface and near surface soil particles
7-1	Section 7 Page 7-65, 7-70	In the Superfund context, the regulatory levels of concern are the risk levels typically used as trigger levels of remediation. These are a cumulative excess cancer risk of 1E-04 and a cumulative hazard index (HI) of 1. In the paragraph noted, the regulatory level of concern is the noncarcinogenic risk associated with an HI of 1. As stated, the calculated cumulative HI of 1.3 is unrealistically high when the non-additive characteristics of the chemical risk drivers are accounted for. Subtracting the health risks posed by arsenic and thallium, which are expected to be representative of background, the remaining excess cancer risk and HI under the residential scenario is 3E-05 and 0.6 (contributed by benzo(a)pyrene, Aroclor-1260 and others), respectively. These risk levels do not warrant a remediation for the soils, although benzo(a)pyrene and Aroclor-1260 may be present at low concentrations at the site.

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