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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Ocean Resources Conservation and Assessment
Hazardous Materials Response and Assessment Division
Coastal Resources Coordination Branch
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Dear Sherrel:

Thank you for the opportunity to review the Draft Data Summary Report for the Virgin Island Chemical Site in St. Croix, U.S. Virgin Islands. The following comments are submitted by the National Oceanic and Atmospheric Administration (NOAA). The comments are broken into two sections which focus first on the Data Summary and then on the Ecological Assessment (Appendix L).

Data Summary:

The Draft Data Summary Report for the Virgin Island Chemical (VICHEM) Site provided results of the Remedial Investigation (RI) sampling required by the Final RI Work Plan. NOAA had the opportunity to review the Draft RI Work Plan in April 1994 and had expressed concern that the work plan only required soil and groundwater sampling onsite and did not require any sampling in the River Gut, the intermittent stream bordering the site to the northeast and southeast. NOAA felt that sampling the River Gut was essential for two reasons: 1) all surface runoff from the site as well as groundwater discharge drains into the gut and 2) sediment sampling in the River Gut conducted as part of the Site Investigation (SI) effort for the site and summarized in the RI Work Plan documented the presence of several metals at elevated levels, especially zinc, cadmium, copper and nickel. The BTAG submitted comments noting similar concerns. Though we had several conversations about this issue following the submission of our comments, specifically pertaining to the issue of the presence of metals in onsite soils which NOAA had referred you to review the data in the Draft RI Work Plan, to NOAA's disappointment the Final RI Work Plan did not require any



sampling in the River Gut. This is of great concern to NOAA as the River Gut drains into the Caribbean Sea approximately 1.4 kilometers downstream of the site. NOAA trust resources would be expected to utilize the Caribbean Sea near the mouth of the River Gut as well as areas closer to the site if mangrove or tidal habitats are present upstream from the Caribbean Sea.

The Draft Data Summary Report presents the results of the groundwater and onsite soil sampling completed to date. To evaluate groundwater quality, results were compared to Drinking Water Maximum Contaminant Levels (MCLs), RCRA Maximum Concentrations of Constituents for Groundwater Protection (RCRA MCCs) and RCRA Proposed Examples of Concentrations Meeting Criteria for Action Levels (RCRA ALs). According to the report, only five metals were detected at concentrations from filtered samples that exceeded one or more of the ARARs identified. These included antimony, beryllium, iron, manganese and selenium. No PCBs were detected in groundwater and the presence of pesticides were attributed to widespread use of them across the island. The report notes that the maximum concentrations for each of the substances detected in groundwater samples are presented with the ARARs on Table 5-3. No such table could be located in the report. Because several metals were detected above ARARs, as well as ethylbenzene, additional groundwater sampling is recommended.

To evaluate soil quality, results of soil samples were compared to RCRA Examples of Concentrations Meeting Criteria for Action Levels (RCRA ALs). In addition, results of work completed by USGS which included sampling of 127 soil samples from 1983 to 1988 were used to represent background metals concentrations for the island. The report notes that Table 5-2 presents a comparison of ranges of concentrations of metals in soil samples to the USGS results. No such table could be located in the report. The report noted that twenty TAL metals were detected in soil samples. Results for 13 of the metals detected were within or almost identical to ranges of concentrations reported by USGS. Three of the metals detected were not detected by the USGS sampling. These included aluminum, mercury and potassium. It was unclear whether soil levels for these metals exceeded their respective RCRA ALs. Of the twenty metals reported, zinc was reported at concentrations higher than those reported by USGS. Zinc was detected in all samples collected at the site at concentrations ranging from 35.1 to 5790 mg/kg (the RCRA MDL for zinc being 200 mg/kg). The report notes that on St. Croix, the soils are derived from volcanoclastics, which often contain heavy metals and that based on comparison with USGS data, the metals detected, with the exception of zinc, appear to represent background concentrations. The report further notes that elemental zinc was not reported on the available inventories of materials handled at the facility. Six pesticides and no PCBs were detected in the soil samples collected. The report concludes that the pesticides were detected sporadically and at

trace concentration and that based on widespread use of pesticides and the relatively low concentrations detected onsite, pesticides are not considered a concern. No additional activities relating to the soil are proposed.

Previous sampling during the SI for this site documented elevated levels of pesticides, lead, copper and zinc present in soil from the Above-Ground Storage Tank Farm, elevated levels of lead and zinc in sediment from the Former Process Pit, elevated levels of zinc, cadmium, copper and nickel from River Gut sediment and elevated levels of zinc, lead, copper, nickel and cadmium from sediment collected from storm drains onsite. It appears that the levels for pesticides noted in the SI were erroneously as mg/kg rather than ug/kg however, the pattern of elevated levels of metals in onsite soil, storm drains and the River Gut strongly suggests that migration of site related contaminants via surface runoff has occurred. The more recent data collected during the RI effort present in this report and in the Ecological Assessment (EA) report suggests there is the potential for metals, especially zinc, to migrate offsite and possibly accumulate in the sediment in the River Gut where they may be bioavailable to aquatic receptors present in the River Gut or where they may be acting as a source of contamination further downstream to the Caribbean Sea. Contaminants discharged to the River Gut during the rainy season, September to December, would be available to aquatic receptors and during the dry season would be available to terrestrial receptors. During subsequent rainy seasons, contaminants bound to sediments/soils would potentially be carried further downstream toward the Caribbean Sea.

The report appears to have eliminated the need to further evaluate any risk associated with the presence of zinc and its' potential for migration offsite simply due to the fact that elemental zinc was not reported on the available inventories of materials handled by the facility. It is obvious from the sampling conducted at the site during the SI and the RI that this contaminant is site-related and that additional sampling of any migration pathways from the site (including storm drains and the River Gut) is required. By restricting the ecological investigation to onsite is ignoring the greatest potential pathway for contaminant migration to ecological receptors.

Appendix L Phase I Baseline Ecological Assessment

Three of the four potential sources of site-related contaminants proposed were later eliminated as threats to onsite ecological receptors. More information is needed about sources 2, 3, and 4 before eliminating them as potential threats. For example, it was determined that turning off the leaking valve of tank #5 (source #2) eliminated the source of contamination. However, no information was provided about the contents of tank #5, how long it had been leaking, the depth of contaminated soils, or whether an attempt was made to

remove the residual contamination. Secondly, the elimination of contaminated soils (source #3) as a potential threat because of the limited distribution of contamination is inappropriate. In the event of localized hotspots of contamination, where contamination exceeds screening criteria, a source of exposure exists. Lastly, the elimination of the concrete settling tank (source #4) as a source of contaminants without more detailed description of the contents and condition of the tank, is premature. Therefore, from the information provided in the EA, sources 1, 2, 3, and 4 should all be included as potential sources of contamination.

Of the three potential pathways for contaminant availability identified, the second one, transfer of contaminated soils or sediment via surface runoff, would more accurately be described as a source of contamination rather than a pathway of availability. Regardless, elimination of pathways #2 (runoff) and #3 (foodchain) was not appropriate. It is unclear how it was concluded that the distribution of contaminants by stormwater runoff was minimal. It was described on page 5 of the EA that a 4-hour rainstorm created stormwater flow "across the site" from 6 inches to 2 feet deep. Stormwater runoff of such magnitude would potentially transfer a significant amount of soils and sediments. Secondly, the foodchain as a pathway for availability of contaminants can not be eliminated without measuring tissue concentrations of potentially contaminated food sources and applying them to the appropriate foodchain models. Therefore, it is highly probable that surfacewater runoff could carry contaminants from their source to other areas on and offsite and that contaminants could be transferred through the foodchain.

The three potential ecological receptors identified, ingestion of contaminated vegetation, ingestion and inhalation of contaminated soils, and ingestion of contaminated water, would more appropriately be included as additional pathways for availability of contaminants rather than potential ecological receptors. In the Environmental Resource Inventory (Attachment A) a few bird and mammal species present onsite were identified, but no information was provided regarding potential threats to these species or how they were related to ecological risks. Of particular concern is the herd of free roaming domestic goats "... observed regularly grazing [onsite] and drinking water from the open drainage channels around the process area."

Regardless of the inaccurate categorizing of assessment terminology, the elimination of all three potential receptors was premature. It was simply stated that vegetation growing in contaminated soils (receptor #1) is removed "occasionally", but it was not stated how frequent the removal occurs or how quickly the vegetation reinvades the removal areas. Without this information, it is impossible to determine if contaminated vegetation provides a source of contaminants to ecological receptors. Secondly, the incidental ingestion or inhalation of contaminated soils (receptor #2) can not be eliminated as a threat due to a

limited distribution of contaminated soils. Localized hotspots of contamination may pose a threat to ecological receptors, particularly those with a limited home range. Lastly, the elimination of ingestion of contaminated water and vegetation from the process pit area (receptor #3) can not be justified without current sampling of the water and sediment in the drainage channels. It was stated in the EA that historic contaminants of the process pit had been "flushed" out of the system several times since a 1985 sampling event showed elevated concentrations of several metals. This argument supports sampling sediments in River Gut, the receptor for "flushed" contaminants.

Conclusion

From the information provided in the Data Summary report and the EA, the potential for offsite migration of contaminants, particularly zinc, is highly probable. Therefore, sediment sampling in the River Gut downstream to the Caribbean Sea is needed to determine the extent of contaminant migration. At that time, the need for a full scale off-site ecological risk assessment would be evaluated to determine the potential risks to ecological receptors downstream of the site. In addition, based on the information presented in the EA, it can not be concluded that on-site ecological risks are minimal. The onsite ecological assessment was incomplete and, therefore, inconclusive.

NOAA would appreciate being kept informed as additional information becomes available at the VICHEM site. Should you have any questions regarding these comments, please feel free to contact either Jennifer Scott or me at (212) 637-3259.

Sincerely,

Diane E. Wehner
NOAA Coastal Resource Coordinator

cc: Carole Petersen, NYCSB
Shari Stevens, BTAG