

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

MAY 09 1996

DATE:

SUBJECT: Response to BTAG's Memo dated April 26, 1995 on the Tutu Wells Site

FROM: Caroline Kwan, Project Manager
ERRD-NYCSB2

TO: Shari Stevens, Coordinator
Biological Technical Assistance Group (ESD-SMB)

BTAG Comment 1

The terrestrial Ecological Risk Assessment (ERA) for this site was conducted utilizing results of soil samples collected from the top two feet of soil. Without a map of the soil sample and background sample locations, it is difficult to assess the appropriateness of the sampling locations in defining the extent of contamination. However, when conducting a terrestrial ERA, soil samples should be collected from the top one foot of soil, as this is the zone in which ecological receptors will most likely come in contact with soil contamination. Any future soil samples should be collected from the top twelve inches of the soil.

Response 1

A map of surface soil sampling and background locations was inadvertently omitted from the report, but you can refer to the soil sampling maps provided in the Geraghty and Miller's final Remedial Investigation Report which you have reviewed. The Tutu wells site is a commercial/residential site, which is largely covered by buildings and pavement. Surface soils were collected from stained soils on those properties having exposed soils, but sample data is sparse.

With respect to the sample interval, ideally, samples to evaluate ecological risk should be collected from the top one foot. However, this report had to rely on information collected for the remedial investigation. Surface soil samples were collected from the top two feet of soil by the PRP per their approved sampling plans, which was appropriate to address the data needs of a human health risk assessment.

BTAG Comment 2

When choosing the Chemicals of Concern (COCs) for the site, inorganic soil concentrations were compared to twice the background concentrations. This use of a multiplier is inappropriate when screening for ecological contaminants of concern. Maximum site contaminant levels should instead be compared to the average detected background concentrations. This is a more conservative approach for the initial screening of site contamination.

Response 2

In early 1993, EPA's oversight contractor, CDM Federal ecological risk assessor queried the EPA Region II biologist, Lawrence Tannenbaum, about EPA's policy on the use of background data in determining potential chemicals of concern (COCs) in ecological assessments. Mr. Tannenbaum noted that, although there was no written policy on this, a reasonable approach was to compare two to three times the background soil values for inorganics against the site soil concentrations. A comparison of site soils to twice background was appropriate for this site, especially given the small population of background samples (three) and the fact that for almost all inorganic analytes, with the notable exception of arsenic, maximum detected concentrations in site soils were less than the maximum background concentrations. This is not surprising since the native soils are derived from weathering of igneous rock, which tends to be enriched in metals relative to other rock types.

BTAG Comment 3

The assessment of terrestrial risk was conducted using the anole and the red-tailed hawk. There are some concerns regarding the "safety factors" used to derive reference toxicity values (RTVs) utilized in this ERA (Table 4-1). First, it may be inappropriate to use the conversion factor of 0.2 when converting an acute LD50 to an acute LOAEL, since this conversion is based on a USEPA pesticide reference developed for permitting purposes. Because the applications differ between programs, use of these factors as a standard may not be appropriate. Rather than relying solely on reference to use in another program, justification for the use of particular conversion/safety factors should be provided. Second, since there were no RTVs available for the anole, available RTVs for different species (e.g., mouse) were converted by using a different safety factor. Converting RTVs for one species based on a known RTV for a completely different species significantly increases the uncertainty associated with the analysis. Instead of the arboreal anole, it may have been more appropriate to select a small rodent species for the ecological receptor in the terrestrial ERA, since, there are available RTVs for these species, they comprise a much larger component of the red-tailed hawk's diet (70% compared to 6%), and they are expected to occur on site (page 13). This could significantly reduce the uncertainty associated with the ERA. Lastly, this ERA did not differentiate acute the chronic risk. All acute RTVs were converted to chronic RTVs. Both acute and chronic risk should be calculated separately.

Response 3

In the absence of other published safety factors, 0.2 safety factor was used in the 1986 Standard Evaluation Procedure, Ecological Risk Assessment (EPA 440/5-80-069), even though this guidance was developed for the Office of Pesticide Programs.

Concerning receptor species, it would be useful to evaluate a rodent as a receptor species in addition to the anole. Anole was

selected due to its observed presence and use of the site during a site visit.

Lastly, as stated on page 48, chronic toxicity data were preferentially used in this ERA. In instances where chronic values were not available, acute toxicity data were utilized, after the application of appropriate conversion factors.

BTAG Comment 4

Both 2-hexanone and 2-methylnaphthalene were removed from consideration as potential COCs "due to the lack of ecotoxicity data for these chemicals, and thus their expected lack of contribution to the risk at this site..." (page 29). It is inappropriate to exclude potential COCs on this basis since a lack of available toxicity information does not preclude the associated risk. Although there are no soil guidance for these contaminants, available sediment guidelines show effects at much lower levels than the reported concentrations of these contaminants in site soils. Therefore, further investigation of these two compounds is warranted. Further information is necessary to determine whether these two contaminants are located in areas of "hot spot" contamination, such that remediation for other contaminants at this site may in addition remove 2-hexanone and 2-methylnaphthalene from the site. This information should be included in the RI.

Response 4

The wording of the sentence on page 29 will be changed so that it does not imply that the absence of data indicates a lack of risk. However, please note that these compounds were not detected in any of the surface soil samples collected during the RI. A single detection of 2-hexanone (55 J ug/kg) and only two detections of 2-methylnaphthalene (750 J and 6100 ug/kg) were reported for surface soil samples collected in previous investigations. Thus, we did not consider these two compounds significant chemicals of concern for this site.

BTAG Comments on Phase RI - Request additional sediment sampling of storm sewer for inorganics, identification of groundwater discharge points to wetland, wetland characterization, sediment and surface water sampling, info regarding link between wetlands and Mangrove Lagoon.

Response: We understand BTAG's concern. NOAA reports severely degraded water conditions in Turpentine Run and notes that "the habitats of the inner [Mangrove] lagoon are severely degraded from approximately 1.7 million liters of treated sewage effluent that are discharged into the inner lagoon each day." During preparation of the site environmental risk assessment, EPA's oversight contractor, CDM Federal contacted local ecological experts, who also described degradation of the Turpentine Run over the past decade, attributing it to the wastewater treatment plant discharge.

NOAA's main concern appears to be inorganic concentrations in

water. Their report indicates that "five trace elements were measured infrequently in groundwater [from Tutu supply wells] at concentrations exceeding [ten times the ambient water quality] screening criteria." No organic compounds in groundwater exceeded the screening criteria. However, the contaminants released to groundwater from the PRP facilities under investigation are organic compounds - petroleum constituents and chlorinated solvents. Groundwater in this region contains naturally elevated concentrations of inorganics due to the volcanic rocks. Metal samples were periodically analyzed during the quarterly sampling of area supply wells between 1990 and 1993 (see the Eight Sampling Report, March/April 1993, prepared for EPA by Geraghty and Miller). Virtually all sampled wells, many of which were outside the Tutu "plumes" had detections of metals (cadmium, copper, lead or silver) that exceeded NOAA's screening criteria at one time or another.

Care must be taken not to confuse environmental degradation caused by urbanization with that caused by site contaminant releases. The Tutu valley is a highly developed residential/commercial area; both the storm sewer and the treated effluent from the sanitary sewer discharge into the Turpentine Run. These sources, along with precipitation runoff, comprise the major component of flow in the Run and the wetland. Groundwater baseflow into the part of the Run under consideration is reported to be low, and at times nonexistent. The leading edge of the Tutu groundwater plume (TVOCs = 29 ppb) has recently reached wells in the vicinity of the wetland. However, no information on vertical hydraulic gradients is available for this location, so it is not currently known whether any of this groundwater potentially discharges to the Run.

Please note that on a site visit to the wetland in Turpentine Run in March 94, EPA and CDM Federal's ecological risk assessor noted no signs of vegetative stress.

BTAG Comment on Draft FS - Concern with reduction of wetland due to drawdown from remedial pumping. Also concerned that discharge of treated water to storm sewer could impact wetland. Wants federal wetland ARARs included as well as wetland delineation, wetland assessment and restoration plan if any remedial activities will affect the wetlands.

Response: Extraction well placement and pumping rates will not be determined till the Design Phase. EPA suggests that federal wetland regulations be included as potential location-specific ARARs, but that no further action be taken unless modeling indicates a potential drawdown in the wetlands due to remedial pumping. Performance criteria for the design should include that the wetland hydrology not be adversely impacted. The volumes of groundwater withdrawal currently anticipated for the southern groundwater plume are relatively small, probably on the order of 30 to 50 gpm to contain the heart of the plume near the Matthias and Smith wells. If an extraction well is placed to contain the toe of the plume, the pumping rate will be less.

I hope your concerns have been addressed. If you have any additional questions and comments, please feel free to contact me at (212) 637-4275. Thank you for input.

cc: Carole Petersen, NYCSB2
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