

APR 04 1991

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Anna Gloria Ramos, P.E.
Project Coordinator
Tutu Environmental Investigation Committee
G.P.O. Box 4269
San Juan, Puerto Rico 00936-4269

Re: Comments on the Tutu Service Station Investigation Work Plan
dated January 1991

Dear Ms. Ramos:

The U.S. Environmental Protection Agency (EPA) has completed a review of the above-referenced document. Enclosed please find general and specific comments on the work plan. Please resubmit the work plan for our review by April 29, 1991.

Please call Ms. Caroline Kwan if you have any questions.

Sincerely yours,

Carole Petersen, Chief
New York/Caribbean Superfund Branch II

GENERAL COMMENTS

1. The hydrogeological investigation, and groundwater sampling plan presented in the draft workplan go a long way towards addressing the aquifer contamination problem. The proposed list of analytes (limited to TCL VOAs) is sufficient to characterize areas of fuel and/or chlorinated hydrocarbon contamination. However, EPA believes that the number and locations of samples proposed are not adequate to characterize the site.

As was stated in the February 21 meeting, EPA regards the Tutu Wellfield area as a single site. It will be much more difficult to obtain cohesive investigation results if the various respondents address the site in a piecemeal fashion. The study should be comprehensive enough to investigate any contamination at all three PRP facilities, as well as provide information to determine whether other possible PRPs exist.

Additional sampling points are proposed on the attached map. These would further clarify the extent and origin of contamination around the Laga Building, Tillett Gardens, and the O'Henry facility, among others. Monitoring wells have been added to provide upgradient reference data. Also, to further define contaminant sources, wells have been inserted between PRP properties and existing production wells where VOC contamination has been reported. The additional suggested wells, in conjunction with data from existing wells, will give a clearer picture of groundwater flow and the extent of contamination. Deeper wells are also necessary at sampling locations to fully define the lateral and vertical extent of groundwater contamination.

The same analytes (petroleum and chlorinated volatiles) must be analyzed at all sampling points to provide a reliable assessment of the nature and extent of groundwater contamination.

2. Additional data will need to be collected to meet the data quality objectives of the baseline risk assessment to be performed by EPA. It will be most cost effective to collect this data during the current investigation. To assess health-based risks from fugitive dust inhalation and ingestion of surface soils, full TCL data must be provided from surface soil samples collected from any visibly contaminated, unpaved areas as well as from background locations. If groundwater discharges to surface water anywhere in the study area, water samples should be analyzed

from the discharge points.

3. This work plan does not address the site feasibility study. The feasibility study must be performed in accordance with the Order.

SPECIFIC COMMENTS

1. Page 1, Paragraph 3. The work plan must be amended here and elsewhere to include the investigation of chlorinated hydrocarbons at the site. It would be better just to refer to Volatile Organic Compounds (VOCs).
2. Page 1, Paragraph 4. The Geraghty and Miller Sampling Analysis Monitoring Plan (SAMP) has been identified as a guideline for monitoring of the well water supply in the area of concern. Since the work plan should be a stand-alone document, the SAMP should be incorporated into this work plan.
3. Page 2, Paragraph 2, Reference to Figure 2. The site should be better delineated on the map of existing wells.
4. Page 3, Paragraph 2, Reference to Figure 3. The locations of existing wells need to be superimposed onto this map.
5. Page 4, Paragraph 2. A list of the closed wells should be included in the work plan and these wells should be designated as closed on the maps.
6. Page 4, Previous work. This section should reference studies which determined the direction of groundwater flow. A generalized map of groundwater flow direction in the valley and Turpentine Run Basin should be included.
7. Page 4, Paragraph 4. This paragraph should be deleted.
8. Page 5, Paragraph 1. The VIHA-1 well should be referenced once specific comment #4 is incorporated.
9. Page 5, Paragraph 2. Summary maps showing the results of the soil gas surveys at both Texaco and Esso should be included in this section.
10. Page 6, Paragraph 1. The limited number (9) of soil gas sampling points should be specified and this paragraph should reference a figure showing survey results.
11. Page 6, Paragraph 2. Per EPA request, Esso also analyzed for several chlorinated hydrocarbons during its soil gas survey. Elevated levels of PCE and TCE were detected in

soil gas in the northwest and southwest corners of the ESSO service station.

12. Page 7, Paragraph 3, second bullet. Previous site investigations by EPA should be reviewed as well.
13. Page 8, last paragraph, last sentence. See the attached map of additional proposed boring and well locations.
14. Page 9, Paragraph 1. See comment 1.
15. Page 9, Paragraph 2, second sentence. As stated on page 15, the portable gas chromatograph (GC) should be calibrated to scan for select chlorinated hydrocarbons as well (PCE, TCE, DCE).
16. Page 9, Paragraph 3. Additional surface soil samples will be necessary to assess risks from fugitive dust inhalation and soil ingestion pathways. See General comment #3.
17. Page 10, Groundwater investigation. Due to the complexity of determining groundwater hydraulics in fractured bedrock such as underlies the Tutu site, all available information on structural geology must be used to locate the monitoring wells along fracture zones wherever possible. Fracture-trace analysis of air photos is a critical first step. Beyond that, core and borehole geophysical information should be obtained from each bedrock well. Geophysical logs such as caliper and sonic logs can provide information about fracture zones in open holes. Final well locations must be determined, with EPA/DPNR approval, based on all available field information.
18. Page 10, Paragraph 4, Depth of monitoring wells. Local production and private wells where volatile organic contamination has been detected are screened at depths ranging from 100 to greater than 300 feet below the ground surface. At least half of the new monitoring wells should be installed deep enough to monitor the same horizons tapped by the drinking water wells. A thorough inventory of existing well construction data is needed to determine the appropriate elevations for the new well screens.
19. Page 10, Paragraph 4, line 5. Where organic contamination is a concern, as at the Tutu site, current EPA protocol is that monitoring well screens and casing should be constructed of stainless steel. PVC may react with volatile organic compounds, especially chlorinated solvents. This should be corrected here and throughout the document.
20. Page 11, Paragraph 2. See comment 15. Contamination has been detected at depths greater than 100 feet. Deep wells

must be deep enough to monitor that horizon.

21. Page 11, Paragraph 4. The pumping schedules of any existing wells must be taken into account during the water level measurements and pump tests. DPNR should close any pumping wells prior to and during these events.
22. Page 11, Paragraph 5. It is not sufficient to take continuous water-level measurements in only one observation well during the pump test. As many observation wells as possible (a minimum of 3) must be continuously monitored. Furthermore, two pump tests are recommended to more accurately determine aquifer characteristics like hydraulic conductivity and flow boundaries. Disposal of pump test water should be sent to an air stripper and discharged accordingly.
23. Page 12, Paragraph 1, line three. Wells should sit a minimum of two weeks following development before sampling.
24. Page 12, Free Product Investigation. The cut off level of three inches is arbitrary. There is no such cut off in 40 CFR 280.65. Moreover, 40 CFR 280.64 states that free product must be removed to the maximum extent practicable as determined by the implementing agency. In addition, there is no reason to stop sampling of wells during this time period.
25. Page 13, Paragraph 1, line 1. This sentence should read "The exact locations of additional monitoring wells to be drilled as part of the free product investigation will be selected with EPA/DPNR approval...."
26. Page 14, Paragraph 4, well-screen specifications. As noted in comment 16, well screens should be stainless steel construction, not schedule 40 PVC. EPA's "Compendium of Superfund Field Operational Methods" notes that "manufacturers do not recommend the use of threaded schedule 40 PVC well casing because of potential mechanical failure."

Also, 0.20-inch slot is too large. The unconsolidated sediments in the area contain a high proportion of clay and silt sized particles which would pass through a 0.20-inch slot. Screen size should be determined based on local grain size.
27. Page 16, Paragraph 2. If a sheen is detected in any of the wells, the well must be sampled.
28. Page 21, Paragraph 1, Line 5. The sentence should read "...if free product occurs in the vicinity of the former storage tank locations or elsewhere...."

29. Page 22, Paragraph 1, The investigation report must also include interpretation and discussion of the results of the field investigation.
30. Page 22, Paragraph 1, line 4. Typo "minimum."
31. Page 22, Paragraph 1, line 5. A structure map of the elevation of the bedrock surface should be prepared based on all available data. However, this reference to a structure map appears to refer to a topographic contour map of the ground surface.
32. Page 22, Paragraph 2. The raw chemical analytical data (Form 1 sheets) must be submitted in report appendices. Other raw field data such as water level measurements, pump test data, boring logs, etc. should also be included in appendices.
33. Table 1. The work plan proposes a trip blank for each day soil samples are collected. Current data validation QA/QC protocol requires trip blanks for aqueous samples, but not for soils.
34. Table 2, number 10. Typo. Should be 1,2-Dichloroethene (total).
35. Table 4. Maximum holding times are from validated time of sample receipt (VTSR) by the lab.

APPENDIX A

36. Page A-5, Section 6.0. Following decontamination, equipment should be wrapped in aluminum foil, shiny side out.
37. Page A-6, Section 7.9. Typo second line - "of" should be "or."

APPENDIX D

38. Page D-2. Core depth should be recorded inside and outside each core box, and if possible on the core itself.

APPENDIX E

39. Page E-1, Section 2.0. Stainless steel screen and casing should be installed. Screen-slot size and filter-pack size should be proposed with the right to change them based on actual field conditions.

APPENDIX F

40. EPA recommends borehole geophysical logging (caliper and sonic) of the bedrock portion of wells to identify fracture zones.
41. Page F-2, Section 1.8. Stainless steel, not PVC.

APPENDIX G

42. Page G-1. It should be noted that wells should sit a minimum of 2 weeks after development prior to purging and sampling.

SYMBOL ---->	ENYCS-II	ENYCS-II	NYCSB-II 30					
SURNAME -->	KWAN	HAUPTMAN	PETERSEN					
DATE ----->	4/4/61	4/4/61	4/4					