



April 4, 1995

IT Project No. 409440

Caroline Kwan, Project Manager
New York/Caribbean Superfund Branch 2
U.S. EPA Region II
290 Broadway, 20th Floor
New York, NY 10007-1866

Comments on "Draft Feasibility Study"
Tutu Wells Site, St. Thomas, U.S. Virgin Islands

Dear Ms. Kwan:

Please find enclosed three copies of IT Corporation (IT) comments on the above referenced document. These comments are being provided on behalf of our client, L'Henri, Inc. These comments are also being transmitted to the TEIC Committee; however, there is no mechanism currently in place for these comments to be addressed by TEIC. We believe that these comments should be addressed before the document can be finalized.

We appreciate this opportunity to present our concerns on behalf of our client. If you have any questions, please feel free to call Attorney D'Anna at (809) 776-6533 or me at (615) 690-3211.

Sincerely,

Belinda Price

Belinda K. Price, R.P.G.
Project Manager

Enclosure

cc: N. D'Anna, Esq.
P. Martinez-Lorenzo, Esq.
Jack McBirney, de maximis, inc.

TUT 006 2168

**Comments on Geraghty and Miller, Inc. 1995,
Draft Feasibility Study Tutu Wells Site,
St Thomas, U.S. Virgin Islands**

Section 2.1.1.3. Groundwater flow direction is still not sufficiently well understood in the deep bedrock aquifer in the southern portion of the Tutu "site" ie south of the Esso station. No measured groundwater elevations were used between the locations SW-6, MW-21D, MW-22D and west of these wells, an area of 1,000 ft x 1,500 feet. Groundwater contours representing deep bedrock groundwater flow beneath the following properties should be dashed: O'Henry laundry, Liquor Barn, and Archies Welding. The map included in Graves and Gonzales 1988, used as justification for the "generalized regional flow" presented by Geraghty and Miller, indicates a lower level of detail (contours are shown at no less than ten foot intervals) than included on figure 2-4 (contours are shown at five foot intervals). It is not appropriate to use the 5 foot contour intervals. In addition, the Graves and Gonzales map uses "dashed" (indicating approximately located) and "queried" (indicating uncertain) contours over much of the area and particularly the area to the south and southeast of the O'Henry laundry. Further, the text included in Graves and Gonzales 1988 states "Several wells were being pumped, or had just terminated, when the water levels were measured ...These water levels reflect a pumping or recovery condition; therefore, static water-level conditions throughout the Turpentine Run basin at the time of measurement cannot be assumed". Because the flow map presented by Geraghty and Miller (figure 2-4) shows a non-unique solution, the positioning of the recovery wells RW-2, RW-3 and RW-5 may be inappropriate. Also, please explain why data from MW-22D is included on both the shallow and deep flow maps.

Section 2.2.2.1. First Paragraph. Since there is no such compound as "Total chlorinated VOC", the shape of each individual VOC compound plume should be discussed. The edges of the plumes should be defined as the drinking water standard (DWS) for each individual compound (where a DWS exists). What is meant by "The southern plume originates near the O'Henry Dry Cleaners"? Regardless of the current location of chlorinated VOCs in the groundwater, the origin of these chlorinated VOCs in groundwater south of the O'Henry property is unknown.

Third Paragraph. According to the shallow bedrock groundwater flow map presented in figure 2-3, monitoring well OHMW-04 is located sidegradient to the O'Henry Dry Cleaners not downgradient as stated in the text.

Section 3.4.2. The practicality of a centralized groundwater treatment system and use of POET systems on domestic and commercial wells is questionable. The use of a centralized groundwater treatment system will require piping from one end of the Tutu area to the other with associated problems due to the hilly nature of the site. This brings up questions of access, liability if pipes leak or are damaged, and maintenance. Likewise, future liability

is a potential issue if monitoring indicates that contaminants are present in the effluent water of a permitted domestic or commercial wells. These issues should be very carefully considered before including a centralized groundwater treatment system and POET systems on domestic and commercial wells as part of the site remedy.

Section 4.4. Since the FS apparently chooses two alternatives (SWRAs 4 and 7) which is the SWRA advocated?

Section 4.5. The following activities are recommended to be included in the pre-design activities (and costs):

Pre-design work plan and reports of work performed.

Placement of additional deep bedrock monitoring wells in the area identified in the comment on section 2.1.1.3 above and additional groundwater level monitoring including wells not currently included on the flow maps to determine whether the assumed groundwater flow south of the Esso station is correct.

Groundwater modeling should be conducted to explore the limits of contaminant movement and to demonstrate that the proposed groundwater extraction well scenario will effectively capture the plume. Because of the uncertainty in flow direction in the area south of the Esso station it is recommended that a sensitivity analysis be performed assuming a southwesterly flow direction to the Kentucky Fried Chicken property and a southeasterly flow direction thereafter to test the recovery well scenario if Geraghty and Miller are incorrect in their interpretation of flow direction.

Figure 4-7. Areas marked as suspected to contain DNAPL do not appear to be consistent with the contaminant plumes drawn. For the area drawn near the O'Henry Dry Cleaners, the DNAPL plume extends outside the 10 ppb "total VOCs" contour. Please explain the rationale for the extent of the suspected DNAPL areas shown.

The locations of recovery wells should take into account the presence of individual compounds of concern (not just the "total VOC plume"). By considering just the "total VOCs" the recovery wells may not be appropriately located. Individual compound maps should be presented and an analysis as to the appropriateness of the recovery well network to recover the individual compounds of concern should be addressed.

Why does the map list only selected data for selected wells. Explain the rationale for only presenting certain data. In addition, it appears that not all of the available data has been used to construct the "total VOC" plume, for example data for MW-15 has not been incorporated. Please explain.

Comments on Cost Estimates Provided. Note that a detailed review was performed of the cost estimate for SWRA 4 (Table 4.9) because this was the (assumed) preferred alternative. Comments on this cost estimate are also applicable to other SWRA cost estimates.

The following are comments on the Groundwater Treatment Capital Cost:

The unit cost for Deed Restrictions seems low.

Explain what is included in Site Preparation/Mobilization. How many locations are included? (ie does it include site prep for the treatment system location, piping locations and recovery well locations?)

Clarify how many wells are included in Well Abandonment. How will the wells be abandoned. Does the cost include work plan and reporting requirements?

Does Site Acquisition mean purchase or lease? Is it for the site for the groundwater treatment system only or does it include piping locations and recovery well locations? If land is to be purchased, what will be final disposition after the end of the remediation. Also does the O&M costing include any taxes to be paid.

A detailed breakdown of the Groundwater Extraction System costs should be provided. Does this also include the trenching and filling for underground piping installation for piping to the centralized treatment system? If so, how will leak detection be accomplished?

What is included in Pre-Treatment? A scale inhibitor and metals treatment should be included. In addition, a bench-scale test will be required to estimate the chemical dosage so that adequate pre-treatment is performed.

Does the cost for the Low Profile Air Stripper include installation? The cost provided seems low for two air strippers in series.

Does the Liquid Phase Carbon Treatment System include one or two beds?

How many Process Pumps are included and are these Process Pumps and Piping and Discharge Pumps and Piping just for the treatment system? State how many pumps and the length of piping.

What is the assumed size of the Aboveground Storage Tank? Does the unit cost include shipping and installation?

Make sure that the cost for the Treatment Building includes cost for a foundation.

Is Electric for just the central treatment system or for the

Each of the POET systems may need individual design. For individual design for electrical work and housing.

The following are comments on the Soil Treatment Capital Cost:

The cost of Excavation/Disposal, Site Restoration and E. Analysis is much too low. Will individual Corrective Action Does the cost include preparation of reports? How will the would be much more practical to build soil venting piles or to treatment of excavated soils. How many samples will be collected analyses will be performed? Does the cost include data validation should be broken down on an individual site basis.

Why is the cost for the SVE system at the Curriculum Center the other sites? Detail should be provided for each site such as blowers, number of extraction wells, piping details, treatment installation cost.

Does Engineering include detailed design, material balance preparation of specifications and bid packages?

Does Construction Supervision include installation of the systems a Health and Safety Officer at the site during construction?

The following are comments on the Operations and Maintenance Cost:

Where is the cost included for an Operations and Maintenance P

O&M cost should be included for the domestic and commercial POET systems. This should include scheduled maintenance, sampling

How many and which wells are included in Groundwater Monitoring wells, monitoring wells, domestic and commercial wells)? Does the semi-annual reports? Does the cost include Quality Control sampling validation?

The Electricity will supply approximately 30 Hp. Is this just for the treatment or does it include recovery wells also?

Does the cost for carbon replacement include the disposal of spent carbon?

Does Treatment System Monitoring include both air and water sampling

and effluent)? What will they be analyzed for? Does the cost include Quality Control samples and data validation? Does the cost include reports?

Does Administration include data reporting or is it just project management?

Does Equipment Replacement include installation cost?

In addition the following observations are made concerning the cost buildup:

Pre-design activities as described in Section 4.5 have not been included in the cost estimates. For example SVE pilot test, bioventing pilot test if appropriate, air stripper pilot test, and metals removal pilot test should be included in the cost. This appears to significantly underestimate the final cost of remediation.

Cost does not appear to include: preparation of plans, O&M manuals and reports; start up costs; licenses, permits and legal fees; insurance and bonds.

Shipping and travel may be underestimated.

Demobilation and decommissioning of recovery wells, SVE systems and the groundwater treatment plant should be included. In addition, closure and post-closure activities should be included in the cost.

Cost should be included for air emissions evaluation and permit application.