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March 13, 1996

ENSR Ref. No: 7218-001
ENSR Doc. No: 55-DPG-552

Ms. Caroline Kwan
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U.S. Environmental Protection Agency
26 Federal Plaza
New York, NY 10278

**RE: Comments on Draft Final FS
Tutu Wells Site, St. Thomas, U.S. Virgin Islands**

Dear Ms. Kwan:

At the request of Western Auto's attorneys, this letter provides comments on the Draft Final Feasibility Study (FS).

- **The use of Esso Tutu SSL values at Western Auto is inconsistent with the available geologic information.**

On page 2-15, paragraph 1 it is stated that the SSL values developed for Tutu Esso are used for all properties in the Tutu Site region, except those where site specific SSLs were developed, because "...the subsurface conditions at the Esso Tutu Service Station are representative of conditions throughout the Tutu Valley". This means that the SSL values developed for Esso Tutu have been used for the former underground storage tank (UST) area behind Western Auto. However, the geologic conditions behind Western Auto are not similar to those at Esso Tutu, or elsewhere in Tutu Valley. This is, in fact, stated in the FS on page 2-5 (paragraph 1, last sentence) as follows... "An exception to this condition was observed at Western Auto, where alluvial deposits were only saturated in a perched zone within a gravel layer overlying a clay layer".

The hydraulic conductivity of the clay at Western Auto is extremely low with measurements values of 1.2×10^{-9} and 4.3×10^{-9} (see enclosed Stephens and Associates report). The very low hydraulic conductivity and the continuous extent of this clay layer creates a condition unlike that elsewhere in Tutu Valley. These geologic conditions effectively isolate the overlying alluvial material from the groundwater. Since the intent of the SSL values is apparently to provide soil cleanup values that are protective of groundwater and appropriate for site specific conditions, it is clear that the Esso Tutu SSL values are inappropriate for Western Auto. Site-specific cleanup values that consider the extremely low transport in the clay layer at Western Auto should be calculated.

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- **SSL values for benzene should not be applied for other BTEX parameters.**

It is apparent from FS Table 2-4 that the same SSL values have been used for all of the BTEX parameters. Based on Table 1 included with EPA's comments on the draft FS, it appears as if the SSL values were determined from an analysis of benzene. Applying SSL values derived for benzene for the other BTEX parameters (toluene, ethylbenzene, and xylenes) is inappropriate and overly conservative.

The drinking water standard or Maximum Contaminant Level (MCL) value for benzene is 5 ppb, while MCL values for toluene, ethylbenzene, and xylenes are 1000 ppb, 700 ppb, and 10,000 ppb respectively. Since soil cleanup levels are a function of toxicity and mobility, the SSLs for BTEX parameters other than benzene are much too stringent. Based on toxicity alone, the SSLs for xylenes are at least 2000 times too stringent.

- **The proposed soil excavation at Western Auto is based on inappropriate data.**

The basis for the proposed soil excavation at Western Auto is presumably the comparison between the soil contaminant concentration data and SSL values presented in Table 2-4. The Western Auto soil contaminant concentration data is not appropriate for this comparison because the soil samples used in the comparison are from soil that was excavated and removed from the site. Also, as pointed out in our comments on the draft FS, the sample with the highest BTEX concentrations (SS-1) is not a soil sample. Sample SS-1 is presented as a soil sample (page 2-19; paragraph 3) but is actually a sample of product that leaked out of the waste oil vent pipe after the pipe was inadvertently ruptured during the tank removal.

In addition to the inappropriate soil data that has been used in the comparison, the SSL values are also inappropriate. As discussed above, SSL values derived for Esso Tutu are used for Western Auto, even though the geologic conditions that would determine site-specific cleanup values are significantly different for the two sites. As also discussed above, SSL values derived for benzene have been used for the other BTEX parameters, even though SSLs for the other BTEX parameters should be orders of magnitude higher than those for benzene.

- **The extent of the proposed excavation for Western Auto is not justified.**

A soil remediation option for Western Auto consisting of excavation is discussed in Section 4.6.2.5. A soil excavation volume of 181 cubic yards for Western Auto is developed in Table 4-5 and the estimated cost for the excavation option is developed in Table 5-6.

We have several concerns with this item. First, the amount of soil to be excavated should be justified. We made this comment on the draft FS and EPA apparently agreed to our comment

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since in their response to our comment they stated "... the FS should clearly explain how affected areas and depths were obtained for all sites." Table 4-5 provides the input values for the volume calculation, consisting of estimated depths and areas of impacted soils; however, no source or justification for these input parameters has been provided.

Second, the draft FS proposed a soil removal volume of 133 cubic yards and this value has somehow been increased to 181 cubic yards in the draft final FS. No justification was provided for the previous value in the draft FS, and no justification has been provided for the change in the value in the current version of the FS.

Finally, it is not clear that any soil at all should be removed from the site given the inappropriate soil contaminant concentration data and SSL values (as discussed above) used in the comparison that is the basis for the proposed excavation.

- **The value of the soil remediation credit is incorrect and the methodology of application of the credit is confusing.**

A "credit" for 35 cubic yards of soil previously removed and replaced with clean backfill has been included as part of the soil excavation option for Western Auto. This is stated on page 4-51 and reflected in the amount of soil to be disposed of, as indicated on Table 5-6.

The 35 cubic yard value is apparently incorrect. During soil removal associated with UST closure, 85 cubic yards of material were excavated and removed from the area. This is discussed in the ENSR June 1994 report on UST closure. In addition, Geraghty and Miller removed substantial amounts of material during the installation of monitoring well MW-24. The source of the incorrect 35 cubic yard value is not provided in the FS.

Also, the methodology for application of the credit is confusing. The proposed area of excavation at Western Auto shown on FS Figure 4-5 is largely encompassed by the area of soil removed during the tank closure activities. Figure 3 of the June 1994 UST Closure Report shows this area. Since the FS apparently proposes excavation of the same area as that previously remediated, it is not clear what is meant by a "credit" and how the credit is to be applied.

- **Discussion of remediation of the 4-inch PVC pipe should be included in an FS section on Four Winds, not Western Auto.**

Remediation of the 4-Inch PVC pipe is discussed in Section 4.6.2.5, the Western Auto soil remediation section. It is stated that the "...PVC pipe is not related to Western Auto operations. However, the further investigation and possible remediation of the PVC pipe should be coordinated with Western Auto due to the proximity of the PVC pipe and the former Western Auto USTs."



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that C18 measurements would be much lower than tridecane measurements, unless there were much greater concentrations of heavier weight petroleum hydrocarbons present. Since C18 compounds were measured at higher concentrations than tridecane, there must be significant concentrations of heavy weight petroleum hydrocarbons present under the Four Winds building.

In summary, the Gore-Sorber data indicate that both diesel and heavy weight petroleum hydrocarbons are present under the Four Winds building. This data and the other available information also indicate that the peak concentrations of this contamination are located under the building, upgradient of the former Western Auto UST location. This petroleum contamination was apparently transported into the former UST location via the 4-inch PVC pipe and the gravel layer, which acted as transport mechanisms.

- **In sum, the objective data pertinent to the soil condition behind Western Auto conclusively indicates that any contamination behind the Four Winds Plaza is an isolated condition unrelated to the Tutu Aquifer.**

The scientific data which has been gathered and analyzed pertaining to the area behind Four Winds Plaza points to the conclusion that any contamination present in the soil remained in the soil and could not have been transported to the Tutu Aquifer. The data which leads to this conclusion may be summarized as follows:

- The hydraulic conductivity of the clay soils in which the USTs were located has been measured at values of 1.2×10^{-9} and 4.3×10^{-9} , values which virtually preclude any transport. The lack of transport is demonstrated by the documented perched water table condition existing behind the Four Winds building.
- Groundwater testing and data from MW-24 conclusively demonstrates that there has been no contribution of contaminants to groundwater directly beneath the location of the former USTs.
- The area has historically been paved and, in fact, was recently largely capped with a thick layer of concrete. The only area remaining uncapped is a strip directly above the path of the 4-inch PVC pipe which was removed and capped at approximately the time of the tank removal.
- Western Auto has removed and disposed of 85 cubic yards of contaminated material near the location of the former USTs. This area was then lined with a plastic liner and backfilled with clean soil. Geraghty and Miller removed additional soil during the installation of MW-24.



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In addition, it should be noted that the most significant contamination concern at the Tutu site is the chlorinated VOC contamination of groundwater. Essentially all the discussion with respect to potential contamination at Western Auto is related to petroleum constituents. Chlorinated VOCs and, in particular, chlorinated VOC contamination of groundwater are not even an issue for Western Auto.

We appreciate the opportunity to provide EPA with comments on the FS. Please feel free to contact us with any questions that you may have on our comments.

Sincerely,

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