

**RESPONSES TO COMMENTS ON TECHNICAL MEMORANDUM NO. 4
REPORT ON SECOND PHASE EXTENDED SITE ASSESSMENT (ESA)
FOR THE NAVY EXCHANGE (NEX) GAS STATION
Naval Training Center (NTC), San Diego, California**

Theodore W Olson's Comments:

1. **COMMENT.** Page 2-9, Section 2.3.2.1. Why wasn't direct push or a similar technology used instead of hollow stem auger? Considerable savings could have been realized on drill time, drill rig expense, decontamination of augers, soil handling and disposal time etc. In the soils at this site, direct push technology will work.

Response: Since monitoring well installation was part of the work scope, a drilling subcontractor was required for the project. The costs associated with mobilizing both a direct-push subcontractor and a drilling subcontractor to the site were not justified. Also, water sample collection using direct push technology during previous investigations was found to be unreliable due to extremely slow recharge.

2. **COMMENT.** Page 2-14, Section 2.6. Why was the 96 hour bioassay test run? I know that TPS does not require this test, and it's doubtful that Crosby and Overton does either. A determination of non-hazardous can be done without this test.

Response: While TPS and Crosby and Overton may not actually specify that the 96 hour bioassay test be run, they do require proof that the waste being received is truly nonhazardous. The 96 hour bioassay test was run to assure that there would be no delays in the disposal process and that no questions as to the hazardous nature of the waste generated would be raised in the future.

3. **COMMENT.** Page 3-2, Section 3.1.1. An attempt should be made to address the possibility of the "fine grained sand lenses" acting as a migration pathway.

Response: Based on information obtained during advancement of soil borings, the sand lenses referenced in this section appear discontinuous and unlikely pathways for contaminant migration. This is shown on the geologic cross-sections presented as Figures 3-2 and 3-3.

4. **COMMENT.** Page 3-2, Section 3.1.2. When calculating groundwater gradients, monitoring wells with free product are generally not utilized, as a correction factor is not reliable. It doesn't take much to throw off a gradient where you're dealing with measurements to one hundredth of a foot. Using this "corrected data" throws your gradient into question.

Response: The groundwater gradient was calculated using correction factors for wells with phase-separated product to provide additional data points with which to further detail the groundwater gradient. However, as it happens, the approximate groundwater gradient is not that different if contoured without the wells with phase-separated product. The groundwater gradient

presented in the report on the first phase ESA was calculated without including wells that contained phase-separated product.

5. **COMMENT.** Page 3-3, Figure 3-1. The depth of soil contamination shown on Nimitz Blvd. in cross section E is approximately 6' to 8' which corresponds very closely to the depth and horizontal alignment of the sewer on Nimitz Blvd. A thorough evaluation should be done to address these facts.

Response: The sewer lines are indeed considered potential migration pathways. A geophysical survey was conducted to obtain additional information regarding subsurface structures and utilities.

6. **COMMENT.** Page 3-23, Section 3.2.1.1. You stated that contamination at MW-13 and MW-6 are from different sources. Really? Is this theory defensible or is it speculation. MW-16 is not without contamination.

Response: The trend of groundwater concentrations from MW-6 to MW-13 does not support the conclusion that contamination across this area is from the same source.

7. **COMMENT.** Page 3-23, Section 3.2.1.2. There once was a service station across from Vons on the corner of Keats and Rosecrans. Has it been checked out?

Response: The scope of this project was to evaluate the nature and extent of NEX Gas Station related contamination. The former bank property was investigated to help evaluate the extent of off-site contamination contributed by the NEX Gas Station. The NEX Gas Station ESA investigation findings support the conclusions that contamination found at the former bank property was not contributed by the NEX Gas Station and these findings meet the objectives of the investigation. An evaluation of a service station at Keats and Rosecrans would have been beyond the scope of this CTO.

8a. **COMMENT.** Page 3-23, Section 3.2.1.3. Using field instruments, i.e., the PID, is an indicator and is no substitute for lab analysis. The 16' sample at MW-6 should've been analyzed, especially with 9,800 mg/kg TPH at 11'!

Response: Comment noted. This well was installed during the first phase ESA for the site, the work plan for which indicated that two soil samples would be submitted for analysis, based on field observation, to meet the project budget. Although, in hindsight with receipt of laboratory analysis on the 11 ft sample, information at the 16 ft depth for this location would be useful, results from groundwater sample analysis support the conclusions that the saturated zone at this location is less impacted than the lower vadose zone.

8b. COMMENT. Also the ESA investigation did not “suggest” concentration highs, this is hard data. The 840 mg/kg at SB-11 was found at 13.5’ not 16’.

Response: Comment noted. The fact that the result for SB-11 was found at 13.5 ft is stated in Section 3.2.1.3. Also, a note similar to that found on the benzene figure (Figure 3-10) for this location will be included on the TPH figure (Figure 3-9).

9a. COMMENT. Page 3-24, Section 3.2.1.4. High concentrations at remote fills. This is an excellent candidate for releases of petroleum. As mentioned earlier a harder look should be taken at effect of water, sewer and whatever else is buried in Nimitz.

Response: Comment noted. The remote fills are indeed identified as a potential source of contamination in Section 4.

9b. COMMENT. Soil samples from MW-9 were not analyzed at 16’, doesn’t this make it hard to say that concentrations (of what?) increased at 16 feet bgs?

Response: Comment noted. Concentrations of benzene, which was analyzed at 16 ft at this location, increased from the 11 ft sample (non-detect) to 16 ft samples (850 µg/kg). Concentrations of toluene, ethylbenzene, and xylenes also increased from the 11 ft to 16 ft samples.

9c. COMMENT. Last sentence on page 3-24: HP-14 was not analyzed. If this location had been analyzed it would’ve helped fill in the picture. It is foolish to go to the expense of putting in borings and not taking or analyzing soil samples. You cannot rely on field instruments. Even if you run the analyses and get non-detects you have another data point to help paint the picture. A lot is said in this report about different sources. Be careful of this, albeit you probably do have different sources here, but not as many as you think. A lot can change in gasoline as it moves through the ground.

Response: Comment noted; however, the information obtained supports the identification of at least two different sources of contamination between MW-8 and MW-9.

10a. COMMENT. Page 3-35, Section 3.2.1.4. Nimitz Blvd. One would not expect benzene at 25 feet bgs. Different sources again. Not necessarily, you have a great pathway, sewer lines, to spread gasoline. And MW-13 is generally downgradient from MW-6 and MW-16.

Response: Comment noted; however, please see response to Comment 6 above.

10b. COMMENT. You say that MW-17 was not impacted at 11 foot. 22 mg/kg at 11’ in MW-17 is non-detect? MW-16 had 440 mg/kg at 11’ this is significant.

Response: Cross-section E-E’ presents soil impacted at levels above 50 µg/kg benzene. Location MW-17 is therefore relatively unimpacted at 11 feet with a reported benzene concentration of 33 µg/kg.

11a. COMMENT. Page 3-50, 3.3.3. Several subjective field observations are noted here. They're good to know, but the cause may be due to a number of things. There are many subsurface variables.

Response: Comment noted.

11b. COMMENT. Fuel finger printing in MW-18: did this match fuel from Chevron site.

Response: Access to Chevron wells for sampling and fuel fingerprinting could not be obtained.

12. COMMENT. Page 4-1, Section 4.1.2. "...suggesting off-site sources." Were potential migration pathways adequately addressed? Water lines were mentioned, but locations were not pinpointed.

Response: As mentioned in Section 4.1.2, the locations of the water lines are shown on Figure 2-1.

13a. COMMENT. Page 4-2, Section 4.1.2.1. First bullet: Again you are relying on visual observation. MW-8 and MW-14 are about 200 feet apart. A lot can change after product travels in the ground.

Response: Comment noted; however, the visual observation of different product types indicated in this section was further confirmed by the results of fuel fingerprinting analysis.

13b. COMMENT. Second bullet: EDB not found in MW-14. Different source, or different age of product? EDB was used in leaded gasoline.

Response: EDB was indeed found above the sample quantitation limit in MW-14 as indicated in this section.

13c. COMMENT. Third bullet: What about the Navy Fuel Line. There have been three recent releases from the line. This should be investigated. Organics found in diesel range did not match diesel pattern. What did they match?

Response: The Aviation Fuel line runs along Rosecrans Street, several hundred feet away from the locations of MW-4, HP-5, HP-6, SB-10, and SB-11, and not a likely source for contamination at these locations.

14. COMMENT. Page 4-3, Section 4.1.2.1. Sixth bullet: What is effect of historical groundwater fluctuations on contamination distribution?

Response: It is not believed that groundwater fluctuations have significantly contributed to contaminant distribution. The general trend of site contamination reported since the first investigation conducted in 1986 has been confirmed by subsequent investigations.

15. **COMMENT.** Page 4-3, Section 4.1.2.2. First bullet: With presence of free product, concentration of TPH in soil should be higher than 19 mg/kg at 11'.

Response: Comment noted; however this would not necessarily be the case if the actual source of contamination was located some feet away and has merely impacted the saturated zone at MW-8.

16. **COMMENT.** Page 4-4, Section 4.1.2.4. Second bullet: Possible interface probe error?

Response: It is more likely that a thin layer of sheen, not readily apparent to the human eye, exists at this location and was detected by the interface probe.

17. **COMMENT.** Page 4-4, Section 4.1.2.5. Visual observation is not a quantifiable parameter and can be misleading.

Response: The visual observation of different product types indicated in this sections was further confirmed by the results of fuel fingerprinting analysis.

18a. **COMMENT.** Page 4-5, Section 4.1.2.5. It doesn't seem like a big stretch of the mind to extend or interpolate the Chevron plume to SB-15, MW-14 and MW-17.

Response: While the possibility that contamination at these locations is related to the Chevron release cannot be completely ruled out, the results of sample analysis for groundwater at MW-2 and MW-4 do not suggest that groundwater at these locations are impacted by the same contaminant source.

18b. **COMMENT.** Where was the nearest "repair" location on the fuel line.

Response: The nearest repair location to the NEX Gas Station was at the southern corner of the Rosecrans Street/Nimitz Boulevard intersection. This repair consisted of the installation of full encirclement sleeves around the defects; however, this location is not on NTC property and no samples were collected. The nearest repair location that was sampled was on Rosecrans Street between Macaulay and Newell Roads, approximately a half block north of the NEX Gas Station. None of the constituents that were analyzed were reported at concentrations above the detection limit.

19. **COMMENT.** Page 4-5, Section 4.1.2.6. Chevron product using sewer and water lines to get to MW-2, then why not to MW-17, MW-14, and SB-15, all down gradient from Chevron?!

Response: Please see response to Comment 18a above.

20. **COMMENT.** Page 4-6, Section 4.1.2.6. What about the service station at Keats and Rosecrans?

Response: Please see response to Comment 7 above.

21. COMMENT. Page 4-6, Section 4.1.3. 4,000 cubic feet of TRPH impacted soil. That's a lot. It may not need to be excavated if it is not a health risk and isn't moving.

Response: Comment noted.