Mr. John Dudley  
URS Corporation  
130 Robin Hill Road, Suite 100  
Santa Barbara, CA 93117  

Re: Del Amo Superfund Site, Administrative Order on Consent, Docket No. 92-13  
Draft Remedial Investigation Report  

Dear John:

EPA has issued its complete comment set to Shell and Dow regarding the draft Soil & NAPL RI Report, dated April 7, 2004. The comment set was provided as a comprehensive compilation of all EPA's comments. EPA had previously provided its early draft comments to URS, to enable you to begin working on responses. The complete comment set included some new comments that had not been previously provided to you. In order to enable you to distinguish the new comments from those previously provided, I am attaching to this letter each of the previously provided comment sets as well as the new comment set, as follows:

- **Attachment 1** contains EPA's draft comments dated June 9, 2004, first submitted to you via email on July 1, 2004. EPA's final comments contain some modifications to these original ones, as specified in Attachment 6.

- **Attachment 2** contains DTSC's comments, first submitted to you along with EPA's draft comments on July 1st. DTSC's comments have not changed from the version submitted on July 1st.

- **Attachment 3** contains EPA's set of additional draft comments dated November 3, 2004, provided to you via email on November 10, 2004. EPA's final comments contain some modifications to these original ones, as specified in Attachment 6.

- **Attachment 4** consists of text excerpts from a memorandum to J.Rosati and J.Dhont (EPA) from U.Singh (CH2M Hill), dated August 21, 1995, including pages 7 through 9, numbers 1 through 3. This memorandum is referenced in a comment in Attachment 3.

- **Attachment 5** consists of the text from a memorandum from Petersen (EPA) to Rosati (EPA), dated November 20, 1995. This memorandum is referenced in a comment in Attachment 3.

- **Attachment 6** contains EPA's second set of additional comments, which have not previously been provided to you. Some of these comments amend earlier comments. In such cases, the comment specifies that it is amending or adding to the earlier comment, tells which comment is being amended, and shows the change in redline/strikeout format.
Attachment 7 consists of text excerpts from a technical memorandum entitled "Comparison of Del Amo Study Area Site History Documents," from R. Kellerman (CH2M Hill) to D. Rodriguez (EPA), dated November 15, 2004. This memorandum is referenced in a comment in Attachment 6.

I hope this letter is useful for you in organizing and tracking the EPA comments. If you have any confusion about the comments, please contact me for clarification. You can reach me at (415) 972-3166, or via email at rodriguez.dante@epa.gov.

Sincerely,

Dante Rodriguez, P.E.
Del Amo Project Manager
ATTACHMENT 1

COMMENTS

on

"Draft Remedial Investigation Report
Soil and NAPL Operable Unit
Del Amo Superfund Site
Los Angeles, California"

April 7, 2004

Comments

1. **Section 3.5.1, 1st paragraph:** The paragraph references a hydrograph that shows data from one well in each water-bearing zone. Add a statement to the paragraph clarifying the Figure 11 shows selected wells that representative of all wells in each respective zone, or that groundwater elevations in all wells in each zone exhibit trends similar to example wells.

2. **Section 4.2.10, 1st two paragraphs:** Include in this report a copy of the final version of the 2003 sampling effort's “Summary of Sampling and Analytical Plan” table, and reference it somewhere in these two paragraphs. It very clearly describes the contaminants that we searched for at each former facility, and would fit well into this section's discussion.

3. **Section 4.2.10, 5th paragraph, 1st sentence:** Edit the sentence to read as follows, "... regarding the former rubber plant facilities present and chemicals known to have been used or stored therein." This change will help the paragraph read better.

4. **Section 5.2:** This section discusses the deep soil data evaluations in the present tense. Change these sentences to the past tense, as the evaluations occurred in the past, during our 2003 sampling work. This applies to the following sentences in this section:
   a. 1st paragraph - 1st sentence,
   b. 2nd paragraph - 1st, 2nd, 4th, and 5th sentences,
   c. 3rd paragraph - 1st, 4th, 6th, and 7th sentences.

5. **Section 5.4, 2nd paragraph:** As in the above comment regarding section 5.2, this sentence also discusses the data evaluation in the present tense, where it is more appropriate to be discussed in the past tense. Change this sentence to the past tense.

   In the table, 2nd line, 3rd column, put quotation marks around "Threshold values."

**Section 6.1.3, 3rd paragraph, 5th sentence:** The sentence states that the solvent contamination in the southwest corner of the copolymer plancor (the Pits & Trenches area) is more likely associated off-site facilities. Whereas EPA recognizes that there was no evidence in the historical records of TCE use at the former rubber plant, TCE is known to be used in the rubber products manufacturing industry (accounting for 2% of all TCE use nationwide). In addition, there is no historical information about what the Pits
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& Trenches area of the former rubber plant was used for. Therefore, delete this sentence. There is no evidence that TCE was not deposited in the Pits & Trenches. Stating a likelihood that it was or was not deposited therein is speculative and should not be included in the RI.

7. **Section 6.1.4, 1st paragraph:** Edit the 2nd sentence to read as follows, "Priority segments . . . were located adjacent to current plant site buildings and therefore . . ." As currently written, the sentence sounds as if there are former rubber plant facilities still in existence.

   Edit the 4th sentence as follows, to improve the clarity of the paragraph, "Non-priority transmission system segments were those located within . . ."

   Edit the 5th sentence as follows, to improve the clarity of the sentence, "A total of 100 randomly located shallow soil gas sampling points were completed along non-priority pipeline segments to statistically evaluate non-priority pipeline segments them for potential VOC contamination."

8. **Section 6.1.4, 3rd paragraph, 4th sentence:** The sentence states that the 5ppmv value was a conservative level at which further evaluation was appropriate. Add an explanation of how the value was derived and why it is conservative.

9. **Section 7.1.2:** This section discusses SVOC/PAH contamination in the northwestern area of the former copolymer planar. Perform an evaluation of the removal action conducted by the property owner, and determine which of our RI soil samples are no longer relevant to the property as it exists today (which samples were for soil that has since been removed). Incorporate the post-removal confirmation sampling into your database. Add a figure (and possibly a table too) to illustrate the removal of the soil where we had previously detected contamination. Then, in this section, discuss the situation, your findings, and the current state of any remaining contamination on the property. This assessment should enable us to remove the uncertainty from the descriptions of the property in this section. (Saying that something is "likely" or "unlikely" is portraying uncertainty).

10. **Section 7.1.3:** The 3rd sentence contains uncertainty in its description of the property (using the term "unlikely"). Upon addressing the comment for section 7.1.2, revise the property description in this section to remove the uncertainty. Presumably, you will be able to say that the RI soil samples were for soil that has since been removed by the owner, as confirmed by Geraughty & Miller.

   Reword the 4th sentence to state that it is possible that the DDT originated from the Montrose site. However, do not speculate as to the likelihood. Reference the wind pattern assessment that was performed, from which we know the prevailing wind patterns.

11. **Section 7.1.4, 1st paragraph, last sentence:** Upon addressing the comment for section 7.1.2, revise the property description for the northwestern copolymer area to remove the uncertainty (use of the term "unlikely"). State what is representative of the property’s current condition.
The sentence also expresses uncertainty regarding the characterization of southern butadeine plancor. Expand on this point and be more specific. State that formerly exposed surface soil, from which x out of the y surface soil samples in the southern butadeine plancor were taken, are now covered by buildings and landscaping, and thus the samples, which were composited, do not represent current exposed surface conditions. Also note that those samples do characterize the soil underlying those buildings.

12. Section 7.1.4, 2nd paragraph: Revise the first sentence to state that it can be conjectured that wind-blown dust from the Montrose site was carried and deposited on the Del Amo property, causing the elevated arsenic found on that portion of the Del Amo property directly downwind from the Montrose site. Add a sentence that cites wind-rose studies showing the prevailing winds to go from the Montrose property to the Del Amo property. Delete the last sentence, unauthorized soil dumping. Conjecturing that unauthorized dumping could have caused elevated arsenic levels in the soil in the northwest corner of the copolymer plancor is so unsubstantiated that it should not even be included in the report.

13. Section 7.2.1, last paragraph, 2nd sentence: Revise the sentence as follows, “TCE detections are concentrated in the vicinity of the “pits and trenches” feature at the former rubber plant, but the association between the detections and this rubber plant feature is tenuous due to the lack of known historical use of TCE at the rubber plant, and the proximity of the area is close to other possible source facilities that are unrelated to the former rubber plant, both on and off-site (see Section 6.1.3 for further discussion).” The purpose of the RI is to present facts, not to argue a case of liability. TCE is known to be used in the rubber products manufacturing industry, even though there was no evidence from the plant’s historical records of TCE specifically being used. Thus, I deleted the statement about the association being “tenuous” but still noted the fact about the proximity of off-site sources.

14. Section 7.2.3, last paragraph: Delete the first sentence. The purpose of an RI is to present facts, not present unsubstantiated conjecture or to build a case for liability. The PCB exceedances conceivably could have originated from on-site power transformers. You can reword the second sentence to note that the PCB hits were not located where historic plant facilities were located that could have contained PCBs, but do not use that fact to draw conclusions about the likelihood of the source being site related or not. The purpose of an RI is not to argue a case of liability, just to present facts.

Delete the third sentence, as there is no data to support the conjecture that the PCB and pesticide exceedances in the northwest corner of the copolymer plancor originated from illegal dumping. You can include a statement indicating that it appeared that some illegal dumping could have occurred in that area after the plant was dismantled, but do not conjecture that those sampling results are connected to those activities.

15. Section 8.0, table and 7th paragraph: The paragraph uses the table to make the statement that indoor air conditions are strongly linked to outdoor air conditions. This statement would be stronger if you can edit the table somehow to also show the magnitude of the screening criteria exceedances for both indoor and outdoor air. Consider making this
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16. Section 9.0, 4th sentence: The sentence states that portions of the benzene plume may extend downgradient beyond the plant boundaries, but that much of it is attributable to off-site sources. Delete this sentence, as it is unsupported by the groundwater remedial investigation, according to EPA’s groundwater team. You can reword the sentence to state factually that other off-site sources do exist that could be contributing to the distribution of VOCs downgradient from the former plant site boundaries.

17. Section 10.2, 2nd paragraph, 1st sentence: Edit the sentence as follows, to improve its clarity, “Methods of evaluating the presence of NAPL at the Del Amo site included laboratory measurements of hydrocarbon saturation (Dean/Stark testing) and a relatively sensitive . . .”

18. Section 10.2, 5th paragraph: The paragraph includes a description of four categories that into which the plant site areas have been separated. Category “B” consists of areas where dissolved concentrations are at a significant fraction of solubility limits. Add a table or figure (to those respective sections) that provides the dissolved concentrations that were used in determining these Category “B” areas. This will enable readers to check figure 38 against the data tables or figures and see the progression of information from primary data to the interpreted categories within this paragraph.

Category “C” is stated to consist of areas where NAPL is present at residual saturations, as evident from jar testing and laboratory measurements. Provide the jar test and saturation testing results in an appropriate section of the report, and reference it here. This will enable readers to see the primary data upon which this category is based.

Category “D” is stated to consist of areas where NAPL accumulations were observed or measured. Add a table or something that presents the observations or measurements of NAPL that were made. Add to this section a reference to that information.

19. Section 10.2, 7th paragraph, 1st sentence: The sentence directs the reader to a summary of the NAPL saturation data in Table 17. Add the complete results of the saturation testing, in an appropriate location within the report, and reference it in this sentence. This will enable readers to see the data upon which Figure 38 is based.

20. Section 10.3, 1st paragraph, 2nd sentence: The sentence states that NAPL is expected to be present in only a small percentage of the area where the dissolved concentrations in groundwater exceed 5% of the saturation limit. Expand upon this sentence to explain why this is so. Explain that this is because chemicals spread out via diffusion from the NAPL as they dissolved into the groundwater.

21. Section 10.5.2, 1st paragraph, 3rd sentence: The sentence provides the inference that since high concentrations of the following chemicals are present in the nearby groundwater, they are inferred to also be components of the LNAPL: benzene, toluene, ethylbenzene, xylenes, and styrene. What about butadiene? Could it also be co-dissolved in the LNAPL?

22. Section 12.1.1, 1st paragraph, 3rd sentence: Edit the sentence as follows, to be more accurate, “An additional area of PCE and TCE . . . however, there is no known history of
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use of these compounds at the former rubber plant.”

23. **Section 12.1.2, 2nd paragraph, 1st sentence:** The sentence states that concentrations of SVOCs/PAHs in excess of screening criteria were not detected in deep soil. Note that we sampled for SVOCs/PAHs in deep soil in a limited number of locations. Expand your statement to indicate that only a limited number of deep soil samples were analyzed for SVOCs/PAHs, in only a limited number of locations. Also state that the shallow soil sampling effort (which examined the top 15 feet) only found PAHs in the top X feet.

24. **Section 12.1.3, 1st paragraph:** Reword the first sentence as follows, to improve clarity, “Detections of pesticides/PCBs screening criteria exceedances were primarily limited to the northwest and the southwest corners of the plant property, with a single exceedance in the Pits & Trenches area as well.” Delete the statement that these exceedances were unlikely associated with former rubber plant facilities, for the same reasons as stated in my comments on the body of the report.

Edit the last sentence as follows, to improve clarity, “Soil investigations and removal of contaminated soil were subsequently completed in this the northwest area . . .” Also, expand on this statement to explain the revised characterization after the property owner’s removal action.

25. **Section 12.1.3, 2nd paragraph, 2nd sentence:** Edit this sentence as follows, for the same reasons as stated in my comments on the body of the report, “This detection is unlikely to be associated with the target facility since Pesticides and PCBs were not detected at concentrations in excess of screening criteria in any of the other multiple soil samples . . .”

26. **Section 12.1.4, 1st paragraph:** Edit the fourth sentence as follows, for the same reasons as stated in my comments on the body of the report, “Arsenic was the most frequent and widespread of these metals, but an association with the former rubber plant is unlikely given the arsenic distribution and the plant site history.”

Revise the last sentence to state that there is a possibility of an off-site source of arsenic upwind from the southwest corner of the Del Amo plant site. The body of the report did not present “strong evidence,” so the conclusions cannot make such a statement either.

27. **Section 12.1.4, 2nd paragraph, 4th sentence:** Edit the sentence as follows, “Chromium and lead exceedances are limited to a single sample in the area of illegal dumping and are unlikely to be associated with plant site facilities and operations.” You could add another sentence stating that there is no known history of use of these chemicals in that area of the former rubber plant, and then say that it is possible that these chemicals came from illegal dumping. Do not, however, make statements as to the likelihood or probability of this theory being correct.

28. **Section 12.2, 3rd paragraph:** The second sentence states that the likely reasons for the very low VOC concentrations near the surface, even in areas of high VOCs at the water table zone, is the significant depth to groundwater and the fine-grained, low permeability soils in the vadose. Expand on this to explain how the significant depth means there is significant biodegradation and diffusion of the VOCs that migrate upward from the water.
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table zone.

The last sentence states that areas with elevated VOC concentrations in the shallow soil are the greater concern. This statement is unclear, since the previous two sentences stated that elevated VOC concentrations in shallow soil are uncommon. Clarify your intended message. I believe you intended to convey that there are some areas of elevated VOC concentrations in shallow soil, but you believe they originate from contamination sources within the shallow soil (as opposed to rising up from deeper sources).

29. **Section 12.3, last paragraph:** The second sentence references a potential chlorobenzene NAPL source area in the southwestern corner of the copolymer plancor. According to figure 38, this reference should be to the southwestern corner of the styrene plancor, not the copolymer plancor. Confirm the appropriateness of this change and revise the sentence accordingly.

30. **Section 12.4, table:** On the second line, third column, edit the entry as follows, “Pits & Trenches or Offsite properties to west.” Since there is no proof that the subject contaminants were not deposited in the Pits & Trenches, it must be retained as a possibility.

31. **Section 12.4, 2nd paragraph:** Edit the second sentence as follows, for the same reason as the above comment regarding the table, “Source area 2 is unique in that it is attributed potentially attributable to adjacent, offsite sources . . .”

Edit the third sentence as follows, “It is included in the above table because soil gas and soil data indicate the source area may extend onto partially located on the plant site.”

32. **Table 3:** In the headings, second column, there is a misspelling of the word “Physical” that needs to be corrected.

On the eleventh line, second column, there is a misspelling of the word “Specific.”

33. **Table 4:** The heading for the second column is “Dept (ft.).” Indicate whether this is feet below ground surface or feet above mean sea level.

34. **Table 5:** Add a legend or notes section at the end of the table that explains or references an explanation in the report body for the term “threshold value.” Also, define “PRG” and “MCL.”

35. **Table 6:** In the notes section at the end of the table, the second note refers to a “5 ppmv criteria.” Add a statement explaining how this 5ppmv was derived, or reference a location where the derivation can be found.

Also in the second note, the word “determine” was misspelled.

Add a note that references the figure where the “Site ID” and “Grid Location” can be found for each sample in the table.

36. **Table 7:** Add a note explaining the “Threshold Value,” and add a note explaining the “5ppmv Criteria.”

37. **Table 9:** Add a note that references the figure where the “Site ID” and “Grid Location”
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can be found.

38. **Table 10**: Add a note that explains the “Screening Criteria.”

39. **Table 11**: Add a note that references the figure where the “Site ID” and “Grid Location” can be found.

40. **Table 12**: Add a note that explains the “Screening Criteria.”

41. **Table 13**: Add a note that references the figure where the “Site ID” and “Grid Location” can be found.

42. **Table 14**: Add a note that explains the “Screening Criteria.”

43. **Table 15**: In the Notes section, add a statement explaining where the PRG comes from (EPA Region 9).

In the Notes section, add a statement explaining where the PEL comes from (OSHA).

44. **Table 16**: Add a note that explains the “Screening Criteria.”

45. **Table 18**: In the “Former Rubber Plant Area” column, line 12, edit the entry as follows, “Offsite source likely possible.”

In the same column, line 13, edit the entry as follows, “Pits and trenches and/or Offsite source likely.”
MEMORANDUM

TO: Safouh Sayed  
Project Manager  
Site Mitigation Cleanup Operations Branch

FROM: Frank Gonzales, C.Hg.  
Engineering Geologist  
Geological Services Unit

REVIEWER: Theodore R. Johnson III, C.E.G., C.Hg.  
Senior Engineering Geologist  
Geological Services Unit

DATE: June 2, 2004

SUBJECT: DRAFT REMEDIAL INVESTIGATION REPORT - SOIL AND NAPL OPERABLE UNIT, DEL AMO SITE, LOS ANGELES, CALIFORNIA

PCA: 11050 SITE: 400048-00 REQUEST: 20037199

As requested, the Cypress Geological Services Unit (GSU) of the Department of Toxic Substances Control (DTSC) reviewed the Draft Remedial Investigation Report - Soil and NAPL Operable Unit (the Report), dated April 7, 2004. The Report was prepared by URS.

The Report contains results of the Remedial Investigation (RI) at the Del Amo Superfund Site. Comments are provided below that should be addressed prior to finalizing the Report.

GENERAL COMMENTS

1. The Report mainly presents historical information and data relating to non-aqueous phase liquid (NAPL) both light-NAPL (LNAPL) and dense-NAPL (DNAPL) areas. Data from different investigations was compiled to provide key areas where NAPL and volatile organic compounds (VOCs) were identified. The Report does not present a discussion of recommendations or summarize the findings on what data gaps remain. The Report should include
recommendations depending on what data collection is still needed if the risk assessment or feasibility study are to be revised. Some issues concerning recommendations for future characterization work are discussed in the specific comments.

2. The Report contains two main areas that warrant further discussion: the shallow soils data collected during the 2003 addendum investigation and the current conditions groundwater conditions as they relate to upward vapor migration from NAPL. The soils data is not discussed in sufficient detail and should be integrated into the conceptual model. This would aid in site characterization, assessment of exposure pathways, and risk assessment modeling. The upward migration of vapors from NAPL areas is relevant to assessing potential exposure pathways at ground surface. It is unclear if supplemental data were collected to update current conditions within the known NAPL source areas. Information regarding water levels and groundwater elevation, potential NAPL accumulation or vapor monitoring would be helpful to supplementing the current condition in the RI. Specific concerns on the data needs to supplement the conceptual model are discussed below in the specific comments.

3. The inclusion of all potential constituents of concern or breakdown products in the previous sampling programs is a concern based on the historical plant operations. 1,3-butadiene and acrylonitrile can be expected as part of the manufacturing of synthetic rubber. Additionally, methane may be produced as part of the breakdown of VOCs associated with the NAPL trapped in the vadose zone and groundwater. Given the focused sampling efforts of previous investigations, the Report should identify if these constituents were included in the previous sampling and analysis plan and how this information was incorporated into the RI. If these constituents were not included, then additional sampling should be performed.

SPECIFIC COMMENTS

1. Page 12, 3.5.2 Current Conditions. This section indicates the groundwater table is between 40 and 56 feet below ground surface (bgs). This is based on data collected and presented for the year 2000. Current conditions should be based on 2004 data, especially because of historical changes in water elevations, the occurrence of NAPL below the water table, and spatial variations in hydrostratigraphy across the site. We recommend collecting water level data for updating the current conditions in the RI.

2. Page 18, 4.2.8 Shallow Soil Gas Investigation. It is difficult to understand when soil gas data was collected. Limited historical information was provided to understand the sequence of the sampling events, decisions made, or how the data was used to determine the nature and extent of contamination. The Report
should include detailed information regarding the shallow soil gas investigation(s) including, but not limited to: dates, regulatory oversight, sample collection procedures, quality assurance and quality control standards, and on-site analytical laboratory used.

3. Page 18, 4.2.8 Shallow Soil Gas Investigation. This section does not define shallow soil gas in terms of depth. Table 6 indicates most of the 848 sampling locations were between 5 to 6 feet bgs and only 1% extended deeper than 10 feet bgs (i.e., total of 13 feet in depth). The upper 5 feet would probably not be as representative of native materials because the material may contain fill or regraded native material. The Report should indicate the criteria for defining the depth of the shallow soil gas investigation.

4. Page 19, 4.2.10 2003 Addendum Investigation. This investigation primarily focused on the upper 15 feet of shallow soils. VOCs detected within this target depth were used for purposes of filling data gaps for the risk assessment. The Report should incorporate specific soil types in any updating of the risk assessment. Also, the Report should include lithologic cross-sections for this shallow soils based on the lithologic information collected during this investigation.

5. Page 19, 4.2.10 2003 Addendum Investigation. The pH results could not be located in the Report. According to the Workplan pH samples were to be collected at the former neutralization basin (and former dry well (SBL0263). Please clarify if the results of the pH analysis were included in the Report.

6. Page 28, 6.2 Deep Soil Gas. It is difficult to understand when soil gas data was collected. Limited historical information was provided to understand the sequence of the sampling events, decisions made, or how the data was used to determine the nature and extent of contamination. The Report should include detailed information regarding the deep soil gas investigation(s) including, but not limited to: dates, regulatory oversight, sample collection procedures, quality assurance and quality control standards, and on-site analytical laboratory used.

7. Page 28, 6.2 Deep Soil Gas. This section indicates that natural attenuation plays a role in the disparity between deep and shallow soil gas samples. Comparisons of shallow and deep soil gas results was based on limited deep soil gas data from one specific area. It is inconclusive whether any one mechanism is reducing upward vapor migration to the point of non-detect or an acceptable risk level. Shallow soil gas around MW-20 and the northeast corner of the butadiene plancor were elevated. Residual NAPL may still pose certain risk even though concentrations in soil gas are lower. Decreases in soil vapor concentrations may be influenced by the rising water table. Once the NAPL is submerged, volatilization may no longer be an important mechanism.
data supporting natural attenuation should be included such as, but not limited to: vertical profiles of soil gas within the vadose zone, oxygen and carbon dioxide concentrations, and air-water partitioning coefficients. Any evaluation of an attenuation mechanism should be performed separately as part of the risk assessment or feasibility study with adequate supporting technical data.

8. Page 32, 4th Bullet. Soil boring SBL0259 had an exceedance of benzene above the screening criteria. The benzene detected in this boring above the threshold was at 16 feet bgs. Samples from other borings in this area (SBL0260, SBL0323, and SBL0324) were either too shallow or did not include analysis for VOCs. Additionally, no deep soil gas was collected in this area that may aid in the characterization. We concur with the exceedance and identification as suspected residual NAPL. This area gives further evidence of the extent of NAPL area 8 and may warrant further consideration of remedial action to be assessed in the FS.

9. Page 36, 7.3 Deep Soil. This section indicates deep soil will be limited to VOCs. The previous section (Section 7.2.4 Metals) acknowledged deeper soil impacts from solutions containing metals. Most metals data associated with historical operations was only recently collected during the addendum investigation in 2003 and was limited to the upper 15 feet. Exceedances of metals were reported at three locations in the northeast corner of the butadiene plancor where solutions were handled in the unlined surface impoundments and former filtration tank. The potential exists for deeper impacts given the historical waste management and treatment history in this area. Because of the limited sampling and characterization the soil impacts at depth are be undefined. Could there be a localized metals impact to groundwater? If warranted, we may need to refer the issue to those involved with the groundwater operable unit remedial design.

10. Page 44, 10.2 NAPL Identification. The 5% solubility for LNAPL components is used as a criterion for identifying NAPL. Effective solubility may be more important since the NAPL is a mixture and not a pure product. The effective solubility equals the mole fraction times the solubility of a component in the mixture. Over time, the mixture changes in composition due to dissolution and vaporization and the effective solubility changes as the mole fraction of each component changes. Furthermore, dissolution rates may differ because of infiltration, groundwater flow rates, preferential dissolution, changes in the water table, etc. The 5% solubility used to identify NAPL should be considered preliminary evidence and not conclusive.

11. Page 48, 10.5.2 Butadiene Plancor Laboratory LNAPL. This section indicates "the lateral extent of residual LNAPL has not been fully evaluated." We acknowledge the lateral extent is not yet established, and would need to be addressed during remedial design if active remediation is selected in the record
of decision.

12. Table 11, Page 65 of 94. The sample depth in the table for soil boring SBL0382 appears does not match the boring log. Please confirm the depth sample depth and correct, if needed.

13. Figure 11. Hydrographs for select wells indicate a marked rise in groundwater elevation of approximately 5 to 20 feet in some water table wells. Groundwater elevation data for monitoring wells MW-4 and XBF-06 appears to have stabilized over the last two monitoring periods from 1999 to mid-2000. This may indicate the water table has stopped increasing at the rate of increase over the last 15 to 35 years. No additional groundwater elevation data was collected since 2000 at this wells to establish the current conditions or verify previous findings. We recommend collecting water level data to update hydrographs and evaluate current conditions.

If you have questions, please contact Frank Gonzales at 714-484-5410.

cc: Scott Warren, C.E.G., C.Hg.
Celsa Sanchez
ATTACHMENT 3

ADDITIONAL COMMENTS on “Draft Remedial Investigation Report Soil and NAPL Operable Unit Del Amo Superfund Site Los Angeles, California” April 7, 2004

1. Quality Control/Data Validation, Outstanding Phase 1 Issues: According to EPA/CH2M Hill review of the site file, the following are outstanding comments from the Phase 1 RI and Phase 2 scoping and planning process (comments originally documented in a memorandum entitled “Del Amo Study Area: Current Status of the RI,” from Julia Wagner, CH2M Hill, to Dante Rodriguez, EPA, and Gloria Conti, DTSC, dated May 5, 1998). Address these comments in the Final RI Report.

   a. C1: QA/QC on soil gas sampling and analytical procedures (method detection limit and accuracy, retention times, etc.) needs to be addressed prior to additional sampling. (See Attachment 4, page 9 number 2 through page 13 up to number 3. Also Attachment 5.

   b. C2: A discussion of the quality and usability of the previously collected data should be conducted to determine the appropriateness of using previously collected data. In the area where data cannot be validated, perform confirmation sampling.

   c. C6: Soil gas methodology: hyper purging, adsorption to the probe, quality control protocols, and evaluation of surface soil gas based on direct comparison to health risk need to be addressed. (See) Attachment 4, page 7 through page 9, number 3.

   [NOTE: 4/27/98 agenda with meeting notes, contained a note stating that RPs had agreed in 1997 to perform field work to address the hyper purging issue. 4/17/97 notes from an RI meeting regarding low flow soil gas, indicated that areas of low flow soil gas that need more density of sampling points were identified. The same notes also said that regarding hyper purging, RPs were to do a test.]

2. Forwarding Information from the Phase 1 RI Report into the Final RI Report (Part 1): As reflected in a letter from Jeff Dhont (EPA) to Chuck Paine (Shell) and Larry Bone (Dow) dated August 3, 1995, EPA did not approve many of the analyses and conclusions in the Phase 1 RI Report. However, EPA did not require the Respondents to revise the report, but required that all EPA comments be addressed in the draft Final RI Report. Pursuant to the AOC, EPA also required that the Phase I RI Report not be appended to or cited by other documents due to its unrevised status. Any data or information in the Phase 1 RI Report that is relevant to the draft Final RI Report must be carried forward and presented in the Final RI Report. The following is a list of locations where the draft Final RI Report cites the Phase I RI Report:
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a. Section 2.0, 1st paragraph, 2nd sentence: This sentence references the Phase 1 RI Report for a complete site history. Transfer the complete site history documented in the Phase 1 RI Report, into the Final RI Report.

b. Section 2.4, 3rd paragraph, 5th sentence: This sentence references the Phase 1 RI Report for a complete description of the chemical characteristics of the waste materials in the waste pits area. Remove the reference and replace it with the other approved references (Waste Pits Area data summary reports). Consider also referencing the Focused Feasibility Study (dated 12/10/96) for the Waste Pits Area, as that document also contains the desired descriptions.

c. Section 3.0, 1st paragraph, 1st sentence: This sentence references the Phase 1 RI Report for a complete presentation of stratigraphic and physical conditions. Remove the reference and use only the reference to the Groundwater RI Report.

d. Section 4.2, 1st paragraph, 2nd sentence: This sentence references the Phase 1 RI Report as the location where the early RI investigative elements were first documented. Either delete the reference to the Phase 1 RI Report (delete the last part of the sentence, after "... an intensive period of investigation," or add a statement that the Phase 1 RI Report was not approved by EPA, and all the information therein has been incorporated into the 1998 Groundwater RI report and this Final RI Report.

e. Section 4.2.2, last sentence: This sentence references the Phase 1 RI Report as a source of further information regarding the MW-20 Source Area investigation; transfer the full information referenced into the Final RI Report.

f. Section 4.2.4, last sentence: This sentence references the Phase 1 RI Report as a source of additional discussion of the southwest styrene plancor storage area. Transfer the information referenced into the final RI Report.

g. Section 4.2.5, last sentence: This sentence references the Phase 1 RI Report as a source of detail regarding the investigation of the southern copolymer plancor staining area. Transfer the information referenced into the Final RI Report.

h. Section 4.2.6, 3rd sentence: This sentence references the Phase 1 RI Report as a source of the results from the investigation of utility tanks in the southern end of the tank farm. Transfer the information referenced into the Final RI Report.

i. Section 4.2.7, last sentence: This sentence references the Phase 1 RI Report as a source of a more comprehensive documentation of the surface soil investigation. Transfer the information referenced into the Final RI Report.

j. Section 4.2.8, 2nd paragraph, 2nd sentence: This sentence references the Phase 1 RI Report as a location where shallow soil gas sampling results have previously been presented. Delete the reference to the Phase 1 RI Report.

k. Section 4.2.9, 5th sentence: This sentence references the Phase 1 RI Report as a source of the results from the 1993 “addendum investigation.” Delete the reference to the Phase 1 RI Report.
ATTACHMENT 3

1. **Section 4.2.14, last paragraph, 2nd sentence:** This sentence references the Phase 1 RI Report as a source of more comprehensive discussion of groundwater conditions. Remove this reference and keep the reference to the Groundwater RI Report.

2. **Section 13, 9th entry:** This reference source, Dames & Moore 1993f, is to the Phase 1 RI Report. Remove this as a reference source.

3. **Forwarding Information from Phase 1 RI Report into Final RI Report (Part 2):** The comments in #2 above identify the locations where the draft Final RI Report references the Phase 1 RI Report. However, the references do not identify where in the Phase 1 RI Report the referenced information is located. For this comment, I reviewed the Phase 1 RI Report and identified all its sections that are to be brought forward into the Final RI report in order to provide a sufficient level of detail. Bring forward this information in order to make the final RI report a comprehensive presentation of the Del Amo Soil & NAPL OU investigations and findings.

   a. **Table 1.4-1, Listing of significant documents:** Update this table listing the significant documents in the Del Amo RI process, and add it to the final RI report. The table was last updated in the Groundwater RI Report (Table 1.3-1).

   b. The following sections of the Phase 1 RI Report contain information to be brought into the Final RI Report. The adjacent sections of the draft Final RI Report contain similar information, but in less detail. I recommend placing the new information (from the Phase 1 RI Report) into these sections of the Final RI Report. If the authors rearrange the report, the exact section numbers could change, of course.

<table>
<thead>
<tr>
<th>Phase 1 RI Report</th>
<th>Draft Final RI Report</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2.3, Subsurface Soil Investigations</td>
<td>Section 4.2</td>
<td></td>
</tr>
<tr>
<td>Section 2.4, Surface Soil Investigations</td>
<td>Section 4.2.7</td>
<td></td>
</tr>
<tr>
<td>Section 2.5, Shallow Soil Gas</td>
<td>Section 4.2.8</td>
<td>Update the information to include any soil gas investigations conducted after Phase 1.</td>
</tr>
<tr>
<td>Section 2.6, MW-20 NAPL Investigation</td>
<td>Section 4.2.2</td>
<td>Also, enhance the level of detail contained in Section 2.6 of the Phase 1 RI Report, using Section 2.6 (Phase 1 RI Report) as an example.</td>
</tr>
</tbody>
</table>

   c. **Table 2.2-1, Summary of data availability, hydrostratigraphic investigation:**
ATTACHMENT 3

Update this table as appropriate and add it to the final RI report. The draft final RI report does not appear to cover this information. Identify an appropriate location within the final RI report to place this information.

d. Table 2.3-1, Summary of sampling and . . . analyses: Update this table and add it to the Final RI Report. Alternatively, Respondents could add the information specifying the analytical tests to the table that reports the analytical results (such as Appendix E from Phase 1 RI Report).

e. Figure 2.3-2, Soil boring locations, southern copolymer plant area: Add the information depicted on this figure to Figure 15 of the Draft Final RI Report.

f. Figure 2.4-2, 3, and 4: Surface soil sample locations, southern styrene plant: Add the information depicted on this figure to Figure 15 of the Draft Final RI Report.

g. Figures 2.5-1, 2, and 3: Shallow soil gas sampling locations, styrene plant: The Draft Final RI Report has a figure with all boring locations and historic facility locations, but the historic facilities are not labeled or titled (as is done on Figures 2.5-1, 2, and 3). Add this information to the figure.

h. Section 3.1, Ownership and operations history: Add the information contained in this section to the Final RI Report, incorporating the detailed process descriptions from Appendix A.

i. Section 3.3, Potential source areas: Add the information contained in this section to the Final RI Report. For section 3.3.1.3, “Eastern Evaporation Pond,” include a statement that refers the reader to the FFS for additional information about the pond.

j. Appendix A, Site History Investigations: Add all the information from this appendix to the Final RI Report; incorporate the process descriptions into the body of the report.

k. Appendix B: Add all the soil borings documentation from this appendix, along with all the new soil boring documentation from the 2003 investigation, to the final RI report.

l. Appendix C: Add all the geophysical documentation from this appendix to the final RI report.

m. Appendix D: Add all the physical testing documentation from this appendix to the Final RI Report. The Draft Final RI Report contains a summary of such information in Table 3, but it also must contain the complete results from the appendices.

n. Appendix E: Update this appendix to present the complete results of all site laboratory analyses, including data qualifiers and non-detects. The Draft Final RI Report contains such results only on a CD (RI Attachment 1), in ascii text tab delineated format. This information must also be presented in hard copy to satisfy the NCP requirement to make information in the RI Report accessible to the public.
o. **Appendix F:** Add the air monitoring results from this appendix to the Final RI Report.

p. **Appendix H:** The first part of this appendix, “QA/QC Summary,” appears to be adequately presented in the Draft Final RI Report. The second part, “Technical Memorandum, Del Amo Soil Gas Confirmation Evaluation,” was not presented adequately in the draft final report and must be added to the appendices for the Final RI Report.

4. **Section 3, Stratigraphy and physical conditions:** This section of the draft final RI report must provide the same level of detail as presented in the Groundwater RI Report. To do so, make the following changes. In section 3.3 and its subsections, use the wording from the corresponding Groundwater RI Report. In section 3.4, use the corresponding introduction provided in the Groundwater RI Report. In section 3.5, use the more detailed information as provided in the corresponding section of the Groundwater RI Report.

**Section 4.2, Investigative elements:** Provide the sampling dates in the narrative discussions and explain why data collected in the early to mid 1990's, especially the workplace indoor air data, is still valid for use in the final RI analyses and health risk assessment.

6. **Sections 6-9, Results Description:** The report is lean on narrative descriptions of the investigation results and predominantly just refers to tables and figures. Currently, the text gives the locations where exceedances of screening levels were found, but does not further describe the levels found, the locations (in relation to current or historic facilities), the extent (areal, mass, volume), or the connection to chemicals used in the nearest historic facility. Whereas this may be sufficient for a solely technical audience, the audience of this report is the public. Therefore, expand the narrative descriptions of the investigative results to provide this level of detail. The narrative descriptions should provide an interpretation of data in the tables and figures. EPA recommends organizing these narrative descriptions in an area-specific manner by rearranging sections 6-9 as described below.

a. Combine the current sections 6-9 into one section, entitled “Site-Wide Data Presentation and Evaluation” (or equivalent). This new section 6 would provide readers an overview of the site as a whole and its screening level exceedances.

b. Create a new section 7 entitled “Area Specific Results Presentation,” to provide an area by area description that integrates and synthesizes the findings from the various media investigations with the site history for each area. EPA suggests defining these areas to be those where screening levels were exceeded in any of the media investigations. The draft RI presented all such areas in the context of the separate media investigations. Combining the information would create approximately 20 separate areas, based on the original facility or feature that was nearest to the current contamination that had exceeded an RI screening level. The area specific discussions will provide readers with a clear picture of the 20
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contamination areas, describing the historic facilities or features, the investigation results, and the various media that exceeded a screening level.

Based on the draft RI descriptions of the locations that exceeded screening levels in the various media, the 20 contamination areas are as described in Table 1 below. If the Respondents wish to propose an alternative approach to creating areas that exceed screening values, they should present it in a response to comments for EPA review before using it in the Final RI Report.
# TABLE 1: Areas of Contamination Exceeding RI Screening Levels

(This table was created by EPA to summarize the locations and media that exceeded RI screening levels.)

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Contaminant</th>
<th>Depth</th>
<th>Media Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>facility/area</td>
<td>plancor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>benzene feedstock pipeline</td>
<td>butadiene</td>
<td>voc</td>
</tr>
<tr>
<td>2</td>
<td>copper solvent tank</td>
<td>butadiene</td>
<td>metals</td>
</tr>
<tr>
<td>3</td>
<td>exposed soil, southern end</td>
<td>butadiene</td>
<td>metals</td>
</tr>
<tr>
<td>4</td>
<td>filtration tank, northern end</td>
<td>butadiene</td>
<td>metals</td>
</tr>
<tr>
<td>5</td>
<td>incinerator, northern end</td>
<td>butadiene</td>
<td>metals</td>
</tr>
<tr>
<td>6</td>
<td>laboratory/pipelines</td>
<td>butadiene</td>
<td>voc</td>
</tr>
<tr>
<td>7</td>
<td>wastewater treatment unlined impoundment,</td>
<td>butadiene</td>
<td>metals</td>
</tr>
<tr>
<td>northern end</td>
<td>wastewater treatment oil skimmer basin,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>northern end</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>exposed soil, northwest corner</td>
<td>copolymer</td>
<td>metals</td>
</tr>
<tr>
<td>9</td>
<td>laboratory</td>
<td>copolymer</td>
<td>metals, svoc/pah</td>
</tr>
<tr>
<td>10</td>
<td>laboratory/machine shop cafeteria</td>
<td>copolymer</td>
<td>svoc/pah, surface</td>
</tr>
<tr>
<td>11</td>
<td>wastewater treatment area, oil skimmer basin,</td>
<td>copolymer</td>
<td>voc</td>
</tr>
<tr>
<td>northern end</td>
<td>wastewater final effluent pit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>pits &amp; trenches</td>
<td>copolymer</td>
<td>svoc/pah, surface</td>
</tr>
<tr>
<td>13</td>
<td>stained soil, south/southwest</td>
<td>copolymer</td>
<td>svoc/pah, surface</td>
</tr>
<tr>
<td>14</td>
<td>exposed soil, south/southwest</td>
<td>styrene</td>
<td>metals</td>
</tr>
<tr>
<td>15</td>
<td>instrument/electrical machine shop</td>
<td>styrene</td>
<td>svoc/pah</td>
</tr>
<tr>
<td>16</td>
<td>laboratory</td>
<td>styrene</td>
<td>svoc/pah</td>
</tr>
<tr>
<td>17</td>
<td>pumps &amp; reactors, styrene production facility</td>
<td>styrene</td>
<td>voc</td>
</tr>
<tr>
<td>18</td>
<td>styrene finishing unit</td>
<td>styrene</td>
<td>voc</td>
</tr>
<tr>
<td></td>
<td>styrene finishing/benzene purification unit</td>
<td>metals</td>
<td>shallow</td>
</tr>
<tr>
<td></td>
<td>styrene finishing/benzene purification unit,</td>
<td>voc</td>
<td>shallow</td>
</tr>
<tr>
<td></td>
<td>sulfur tar &amp; slop oil tars</td>
<td>svoc/pah</td>
<td>shallow</td>
</tr>
<tr>
<td>19</td>
<td>styrene process areas &amp; propane cracking</td>
<td>styrene</td>
<td>svoc/pah</td>
</tr>
<tr>
<td>units</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>tank farm, mw20 area</td>
<td>styrene</td>
<td>voc</td>
</tr>
<tr>
<td></td>
<td>tank farm, voc storage, southern end</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tank farm, voc storage, mw20 area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tank farm, voc storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tank farm, voc storage, utility tank area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. **Parcel Specific Data Presentation:** In addition to data presentations and discussions previously mentioned, provide a parcel-specific data presentation and detailed description of former facilities. Include parcel-specific maps showing the features of the former facilities, parcel specific data tables, and parcel-specific history. Use the descriptions of the former facilities and features from the Phase 1 RI Appendix A.

The parcel specific presentations should have a narrative section that describes which plant areas the current parcel sits on or cuts into, and then names the former plant facilities/features that it sits on. The figure should show former facilities (with titles), current facilities, and sampling locations (with ID labels). The table(s) should provide the data for that parcel, clearly tied by location ID label. Tell which features were sampled for which chemicals in which media.

8. **Outstanding comments from Final Groundwater RI Report:** There were several comments on the Final Groundwater RI Report that were supposed to be addressed in the Draft Final RI Report. Address these comments in the Final RI Report, as presented below.

   a. **Second Installment EPA comments, #6, Plant Operations:** The response deferred addressing to a portion of the comment until the Draft Final RI Report. The outstanding issue was whether plant operations significantly changed or expanded over time, or whether all the units were present from the beginning. If there were changes, they were to be depicted in terms of production, chemical storage, and waste handling. The Respondents were to conduct further research in order to adequately address this portion of the comment. Conduct the research necessary to address this comment and include the results in the Final RI Report.

   b. **Second Installment EPA comments, #26, Appendix A:** There had been plans for a more detailed and verified operational history for the Final RI Report. The site history in the Phase 1 RI Report and the Groundwater RI Report provided a general background of the facility, but was not independently verified for accuracy and completeness by EPA. EPA approved the Groundwater RI Report, but did not approve Appendix A of the report.

EPA is now in the process of reviewing independent site history information and comparing it to the Respondents’ site history report, as presented in Appendix A of the Phase 1 RI Report. EPA will submit the results of its independent verification to the Respondents in a separate submittal. The submittal will provide any new or conflicting information to the Respondents and provide direction on how to incorporate this into the Final RI Report.

9. **Additional Sections, Site Physical Characteristics:** EPA’s RI/FS Guidance requires the following information be included in an RI Report, to define a site's physical characteristics: (1) site surface features, (2) site geology, (3) soil and vadose-zone characteristics, (4) site hydrogeology, (5) surface water hydrology, (6) meteorological data, (7) human population, land, and water use data, and (8) ecological information. The
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extent to which the Draft Final RI Report needs to include more information on these items, is discussed below.

a. #1, Site Surface Features: The Draft Final RI Report does not include a description of the site surface features. Add such a description to the Final RI Report. Include both descriptions of the surface features when the former rubber plant was in operation, as well as current surface features. This section can be fairly brief since the land was fairly flat and graded at the time the former rubber plant existed, with some small natural surface drainage features, and remains so now.

b. #5, Surface Water Hydrology: The report does not contain a discussion of surface water hydrology. Add such a discussion to the final RI report, along with any necessary accompanying figures, presenting both historic and current surface water hydrology information. There was an August 1997 technical memorandum that assessed topography and historic run-off in the southern portion of the site that would be of some use for this task.

c. #6, Meteorological Data: The report does not contain a discussion or presentation of meteorological data. Add such a discussion to the Final RI Report, along with any necessary accompanying figures or tables, including both historic and current information.

d. #7a, Human Population: The report does not contain any information on human population. Add such a discussion to the final RI report, along with any necessary accompanying figures or tables, to describe the current human population that would be potentially impacted by the site.

e. #7b, Land Use: The report contains some discussion of current land use in section 1.2, 3rd through 5th paragraphs, Table 1, and Figure 3. However, a more detailed description is required. Tell how many buildings there are and their individual uses. The report provides a table specifying most of the current tenants and business types, but this information also needs to be in the narrative section. Describe the buildings and facilities present and the streets within the site, including their size and traffic usage. Use specific street names and addresses in your descriptions.

The discussion on surrounding land use, needs a more detailed narrative description of the types of facilities and uses of surrounding areas, both current and historic, dating back to the time of the rubber plant operation. Use a map to accompany this narrative description. Describe the surrounding streets, including their size and traffic usage. More specific items to address for the surrounding areas are described below:

i. In paragraph 5, the 2nd sentence states that the area immediately north of the site is an industrial zone. Indicate the size of the area, and types of buildings and businesses both presently and in the past. Mention the 405
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freeway and what is immediately on the other side of the freeway. Use specific street names in the descriptions.

ii. The 3rd sentence states that the remaining areas immediately surrounding the site perimeter are unincorporated LA County areas for which there is not zoning information. Describe the types of uses observed, now and past uses. Describe in more detail the size of the areas, west and east of the site, including the unincorporated heavy industrial strip to the west (mention the area size, extent, specific businesses or types of businesses now and in past, number of businesses, types of facilities now and in past), the redevelopment area across Normandie Avenue (former Boeing plant), the other Superfund site (Montrose), and the other existing heavy industry across Normandie Avenue (Jones Chemical, coffee plant, food processing/distribution business). To the east of the site, describe in detail the businesses and facilities, now and past, on the east side of Vermont Street (north of Knox), the north side of Knox (east of Vermont), and the east side of Hamilton Avenue. Mention the 110 freeway, and the land use immediately on the other side of the 110 freeway. Use specific street names in your descriptions. Describe specifically what types of businesses and facilities exist therein, now and in the past.

iii. The 4th sentence describes the observed land use south of the site as residential. Referencing a map, describe how much of it is residential, and what density the residential is. Was it always residential; what else happened there in the past. Describe the small businesses on Normandie Avenue just south of the site, especially the one bordering the Del Amo alley. Describe the Del Amo alley and road right of way immediately south of the alley. Describe the businesses on the south side of Del Amo Boulevard, east of Vermont Street. Describe specifically what types of businesses and facilities exist therein, now and in past.

f. #7c. Water Use Data: The report does not contain any information on water use. Add a description of water use within the site. This description can be brief, as there are no surface water resources at the site, and according to the Groundwater RI Report, the groundwater resources below the site are now currently used. Mention where the water supply, used within the site, comes from.

g. #8. Ecological Information: The report does not contain any ecological information. Add a description of the local urban ecology observed at the site.

10. Additional sections. Fate and Transport: The guidance requires that the information, discussed in the comment #9 above, be assessed, along with the nature and extent of contamination information, to determine the contaminant fate and transport. Add such a discussion in the Final RI Report. Whereas the health risk assessment report handles fate and transport in detail, this Final RI Report must present sufficient information and discussion of the contaminant fate and transport at the site for a reader to understand the
health risk assessment. This section of the Final RI Report should describe the potential exposure pathways, to introduce readers to the site specific concepts. Data to explain the potential existence of that pathway, and a description of the fate and transport mechanisms should be included. The Final RI Report can refer the reader to the risk assessment document itself for further assessment of the actual data and risk calculations.
"Memorandum to Rosati and Dhont from Singh," dated August 21, 1995.

Page 7 through 9, number 1 through 3:

"The Respondents are using analytical results of soil gas sampling as the basis of a number of key decision during the RI investigation. Although the data obtained from soil gas sampling can be valuable, a number of concerns need to be adequately addressed before these data can be considered valid. The proposed soil gas sampling procedures are likely to produce false negative results, and to significantly understate the concentrations of contaminants that are detected. This comment is based on the review of the soil gas sampling procedures described in the Phase I RI/FS Work Plan (February 25, 1993), the Draft Work Plan (October 29, 1993), and the Draft Phase II RI Work Plan (February 18, 1994).

The two principal flaws in the proposed approach relate to the limited-permeability lithology, specifically whether advective sampling in low permeability soil bears any relationship to deeper contamination, and excessive ventilation, or hyper purging, prior to sample collection are presented below. A third oversight, concerning preferential adsorption of volatiles to selected sampling materials is also presented.

1. **Limited-Permeability Lithology.** Advection samples (grab soil gas samples collected through active pumping) bear a direct relationship to deep contamination only to the extent that the sampling flow draws directly from the source in the deeper zone, or is compatible with the flux of contaminants between the source and the sampling point. This flux is dominated by diffusion in low permeability soil. Soil gas samples collected at higher flow rates than the rates at which diffusion restores vapor concentrations are biased to produce low or non-detect results. This is a concern over some of the site, and may be a concern over much of the site, based on two factors: 1) low permeabilities of units between the sampling and the groundwater, as well as 2) hyper purging (see below). This can lead to a misinterpretation of whether groundwater should be investigated based on the proposed 5 ppmv criterion (Phase II Work Plan, p. 8).

The Respondents need to demonstrate the reliability of the correlation between detected soil gas results and inferred groundwater concentrations. This should be accomplished through additional soil gas sampling adjacent to and groundwater sampling at existing monitoring wells. These wells should be selected to represent the range of concentrations and lithologies expected be encountered during the soil gas sampling, and should include enough locations to equal at least 10% of the proposed soil gas locations.

2. **Hyper purging.** The site is reported to be of variable, but generally low air conductivity. The lithology is described as fine-grained. In these kind of soil settings soil gas concentrations typically are at a maximum upon initial extraction, and rapidly decline if the rate of soil gas extraction exceeds the rate at which the
soil gas re-equilibrates. For fine-grained material and soil containing dissolved and sorbed phases, this decline is most significant after more than two to three well volumes extractions.

The soil gas sampling depths and flow volumes described on the Phase II Work Plan (pp. A-1, -2) indicate that the samples will be collected after a minimum of 5 probe volumes have been removed, and that the Summa canister contents will represent the soil gas collected after at least 20 probe volumes. These estimates are based on a 0.4 liter probe volume, a minimum sampling rate of 2 l/min, a minimum purge period of 1 minute, and a Summa canister volume of 6 liters (Phase II Work Plan, Appendix A).

These extremely high purge volumes can only represent gross underestimates of the actual soil gas concentrations. Project experience (USEPA, South Indian Bend Wash) has found that a specific, predictable response occurs during soil gas probe purging and that the acceptable range for collecting samples is site specific, and more characteristically in the range of one to two probe volumes. The expected response during soil gas sampling consists of a concentration rise (as the system is purged of atmosphere (a peak, a slight decay, a plateau, then a precipitous decline). This decline occurs as the VOC has been removed from the preferential pore spaces, and there is insufficient time for more VOC to diffuse out of the non-preferential pore spaces and restore the equilibrium. Similarly, if the soil gas sample is collected after this precipitous decline, the result will represent a purged, non-equilibrium soil gas concentration, and this will offer little reliability for detecting groundwater contaminants.

The Respondents need to demonstrate that the proposed sampling system, and especially the purging process, does not lead to hyper purging. Two methods are available for this demonstration. The first would be to conduct a purge test, in which several samples are taken prior to and four to five times during purging, over the range of 4 to 5 probe volumes (~1 min @ 2 l/min). This should be performed at a minimum of 10% of the proposed sampling locations, to assess variability in the acceptable purge range across the site, and to represent the range of influencing factors. If the acceptable range can be established as within the proposed range of purging flows, and if the field sampling proceeds with careful documentation that the purging did not exceed the acceptable range, the demonstration will be considered acceptable.

The second demonstration method would be to employ a number of passive soil gas sensors simultaneously with the proposed active soil gas sampling. The passive soil gas method selected should be one capable of functioning in moist, fine-grained environments, such as GORE SORBER™. The number of locations should be at least 10% of the proposed soil gas locations, distributed across the site. This demonstration will be considered acceptable if the correlation between the detected mass in the passive sensor and the measured concentration in the
3. **Preferential Absorption to Sample Train Materials.** The Draft Phase II RI Work Plan references using a 9-ft deep, 3/4-inch diameter steel pipe rod for extracting the representative soil gas samples. Project experience (USEPA, South Indian Bend Wash) has documented that preferential adsorption may occur in the soil gas sampling train if standard steel or PVC is used, and that this effect is most pronounced for benzene and the substituted aromatics.

A demonstration by the Respondents should be conducted in the field that elements of its sampling train do not prevent VOC, especially benzene, from being collected for analysis. This demonstration should take the form of side-by-side sampling, comparing the proposed sampling train with a Teflon\textsuperscript{TM} - lined sampling train. A minimum of four sample locations should be selected, representing the range of benzene concentrations and the variation in other VOC compounds.”

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**"Memorandum to Rosati and Dhont from Singh," dated August 21, 1995."**

**Page 9 to 13, number 2:**

“2. Evaluation of Existing Reports for QC Concerns with Soil Gas Data.

In order to assess the quality of the Del Amo Soil Gas Data, the following documents were reviewed:

- The RI Report (Sections 2 and 5)
- Technical memorandum, Del Amo Soil Gas Data Confirmation Evaluation
- Ambient Air Quality/Soil Gas Characterization report (April 2, 1995)
- Response to EPA Comments, Shallow Soil Gas Sampling Work Plan, Pipeline and Trench Transmission System, Del Amo Study Area
- Response to Comments from EPA and California DTSC on Work Plan for Shallow Soil Gas Sampling Pipeline and Trench Transmission System, Del Amo Study Area, October 29, 1994

The above noted documents did not present any laboratory quality control (QC) data related to the soil gas measurements. Ambient Air Quality/Soil Gas Characterization Report (April 2, 1995) notes that the confirmation analysis data was reviewed for a subset
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of the QC data (holding time, timing, calibrations, surrogate recoveries), not the full QC
data per referenced EPA guidelines (Functional Guidelines for Organic Data Reviews,
EPA 1991). Additionally, the report does not present any of the QC data or the reason for
the validation flags. For onsite soil gas measurements, no laboratory QC data or review
of the QC results is noted. In view of the current state of art in analytical methods, QC
data is essential rather than optional in evaluating environmental data from the field and
offsite methods used in analyses of the soil gas samples by Shell. Data quality cannot be
assessed solely on the basis of the comparisons between the onsite and offsite data. For
onsite soil gas measurements at a minimum, the following needs to be established prior to
assessing data usability:

- Detection limits - The laboratory needs to provide data obtained on pure standards
  of known concentrations per acceptable methodology (40 CFR Part 136,
  Appendix B) to establish laboratory specific method detection limits for this
  project. The laboratory detection limits should have been established prior to Del
  Amo analyses and not outdated (yearly or more frequent detection measurement
  are the norm). Without establishing laboratory specific detection limits, reported
  non-detect results are meaningless.

Data tables from Ambient Air Quality/Soil Gas Characterization (e.g., Tables 3-3)
Quarterly Reports (July 28 report for April 1, 1994 to June 30, 1004, Table 1), and
Phase I Remedial Investigation Reports (e.g., Table 5.3-1) provide insufficient
information and inconsistent units with regards to detection limits. For all
nondetect results, a sample and parameter/compound specific detection limit
needs to be shown. Detection limits will vary for the different samples due to
sample dilutions; also, different compounds may have different detection limits.
Data comparisons need to be based on detection limits determined as described
above (40 CFR Part 136 Appendix B) and identical units.

- Compound identification - For gas chromatography (GC), the soundness of
  compound identification needs to be shown by establishing and monitoring on an
  ongoing basis ‘retention time windows.’ GC analyses depend on the time of
  elution for a component for the identity of the compound of concern. Instrument
  responses shift with time, thus acceptable time windows need to be established.
The laboratory needs to provide retention time data for this. Instrument shifts can
lead to false nondetects as well as misidentification of detects. Additionally, for
reliable detects identification a secondary confirmation such as a second column
run or GC/MS identification is needed. For health risk evaluation a secondary
confirmation of detects is advisable. Misidentification in field GC analyses is
commonly observed.

- Quantitative reliability - Calibration data (both initial and continuing) needs to be
  provided along with procedural details (e.g., Source of standard, concentrations
  used). The data tables referenced above under detection limits show inconsistent
  units, laboratory calibration procedures and quantitation algorithms need to be
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looked at.

- Accuracy/precision - Laboratory control standard results and laboratory duplicate results need to be provided to assess the quantitative usability of the reported concentrations, particularly for health risk evaluations. Laboratory control standard (LCS) data reported as percent recovery would assist in assessing the quantitative accuracy of the measurements. LCS data would not be indicative of sample specific matrix effects. Sample matrix effects on accuracy can be obtained through sample spike measurements; however, for onsite soil gas measurements, this may be difficult to achieve. LCS recovery data would suffice as a guide. For precision relative percent deviation obtained from laboratory and field duplicate measurements need to be looked at. Section 2.3 - 1.3 of the Ambient Air Quality/Soil Gas Characterization Report notes analyses of field duplicate; however, the report does not present quantitative analyses of these duplicate measurement in terms of relative percent deviation.

- Laboratory blank results - Needed to identify detects introduced through laboratory contamination.

The above described minimal QC data is essential to establishing usability of field gas soil measurement. It is advisable to request that the laboratory provide the above information."
ATTACHMENT 5


"QAMS reviewed the following:

- CH2M Hill Memorandum from Uday Singh to Janet Rosati and Jeff Dhont dated August 21, 1995;
- Appendix H of the Phase I RI Del Amo Study Area (QA/QC Summary);
- Dames and Moore Letter to Janet Rosati Dated October 24, 1995 regarding the Shallow Soil Gas Investigation at the Del Amo Study Area;
- Technical Memorandum on the Del Amo Soil Gas Data Confirmation Evaluation.

The following issues are of concern regarding the soil gas data being used to evaluate the site:

1. [Method Detection Limits and Accuracy] Use of PE samples at the detection limit and at the action level should be addressed. Compounds not being assessed (e.g., vinyl chloride, 1,1-dichloroethene) may also be included in the PE samples to review potential for false negatives. This assessment could also evaluate compound identification concerns (i.e., the retention time issues noted by CH2M Hill). Matrix specific concerns could be assessed by spiking key samples in the field.

2. A. [Representativeness] Concerns about when to collect the sample of soil gas during extraction from the ground seems to suggest the need to monitor soil gas effluent during sampling. Measuring the pump exhaust with a PID over time may possibly address those concern.

B. The use of methanolic extractions could be used to evaluate the degree of bias introduced by the imperfect soil sampling techniques.

C. The evaluation of near surface soil gas conduits does not appear to have been directly addressed. All previously disturbed near-surface soil zones will serve as conduits for the migration of soil gas, especially the more volatile compounds, which are often the more toxic compounds (e.g., benzene, vinyl chloride, and 1,1-dichloroethene).

3. [Action Levels] The action levels in soil gas must have some fate and transport assumptions. Further evaluation of site specific fate and transport assumptions may help to re-establish soil gas action levels in the air pathway and in groundwater (such as PRGs) in air and groundwater."
ATTACHMENT 6

ADDITIONAL COMMENTS (Part 2) on “Draft Remedial Investigation Report Soil and NAPL Operable Unit Del Amo Superfund Site Los Angeles, California” April 7, 2004

1. **Section 1.0**: Add the following statement to the first page of both the executive summary section and the main report body: "Following EPA approval of this Report, EPA, at some future date and at its sole discretion, may issue subsequent supplements or addenda to this Remedial Investigation Report if EPA believes that significant information needs to be added to the Report concerning the operational history of facilities at the Site, the nature and extent of contamination, or other relevant information deemed significant by EPA." (dr-jl)

2. **Section 1.1**: The RI/FS objectives defined in the AOC Statement of Work, p.2-3, and in the RI/FS Work Plan dated 2/25/93, Section 1.1, were as follows: (1) determine the nature and extent of and evaluate remedial alternatives for Non-Aqueous Phase Liquid (NAPL) at and emanating from the Del Amo Plant site; (2) determine the nature and extent of and evaluate remedial alternatives for vadose zone contamination (including soil and soil gas) beneath the Del Amo Plant site; (3) determine the nature and extent of and evaluate remedial alternatives for groundwater contamination at and emanating from the Del Amo Plant site; and (4) gather sufficient data to perform a Risk Assessment for the Del Amo Plant site. Use this definition of RI/FS objectives as the basis of your description of the RI objectives, unless the RI objectives were specifically defined otherwise in a separate correspondence. If they were defined elsewhere, cite the source. (mb)

Add a sentence to this section stating that the RI report provides a screening of the environmental data, as discussed in sections 6-9, but the data is then fed into a risk assessment to ascertain where remedial actions may be necessary. The risk assessment is a separate document. It is not the purpose of this RI to determine whether remedial actions are needed in any particular locations. (Jd)

3. **Section 1.2, 4th paragraph, 5th sentence**: Define the acronym “LADWP” and briefly state that the subject parcels are used for high voltage power transmission lines. (mb)

4. **Section 1.3, 2nd paragraph**: Edit the first sentence as follows, “An RI, FS and ROD have been previously issued for the groundwater operable unit at the site Dual Site Groundwater Operable Unit; Montrose Chemical and Del Amo Superfund Sites (D&M, 1998a; CH2M Hill, 1998; USEPA, 1999).” (Jd)
ATTACHMENT 6

Edit the last sentence as follows: “... and the associated human health risk as well as the use of such data as an indication of NAPL presence.” (Jd)

5. **Section 2.0:** EPA’s own site history and PRP search investigation has discovered some information that was not included in this section or in the site history section of the Phase 1 RI Report. The information is summarized and original sources are footnoted in Attachment 7, excerpts from a technical memorandum from CH2M Hill to EPA dated 11/15/04. The excerpts constitute two sections of the memo, entitled “Facts Presented in the PRP Documentation and Contradicted by the EPA Documentation,” and “Facts Presented in the EPA Documentation Only.” Incorporate this new information into this Site History section of the Final RI Report.

6. **Section 2.0, 3rd paragraph, last sentence:** The sentence says that Figure 4, showing operational areas of the former plant and individual features within, was based on plant documents and maps received from Shell. Shell needs to insert a declaration that the operational history is complete and not limited by the contractor having not received any pertinent documents. (Jd)

7. **Section 2.1:** Improve the descriptions and provide more explanation of the industrial processes, using the following questions as guidelines. (Jd)

   a. **1st paragraph:** (1) Explain fractionation. (2) Why was purification needed? (3) What was done with the ethylbenzene that could not be purified? (4) What happened to contaminants removed during purification? (5) Was steam involved in the purification? If so, what happened to the resulting water fraction?

   b. **2nd paragraph:** (1) What is in “tar” and “coke”? (2) What is the composition of the “heavy oils”? (3) How did these products come about in the process? (4) What were the chemical reactions that occurred, and what kinds of vessels, tanks, pipelines, etc. were involved? (5) Was there temperature control (brine lines to cooling towers)? If so, where? (6) How were the feedstocks fed into the reaction? By pipeline? By truck? Was it pumped or decanted? (7) From which units did the products leak? (8) What happened if a product was off-spec? Was it reworked or disposed? (9) Is the list of waste products complete? (10) How were the acids stored and how were they involved in the process?

   c. **3rd paragraph:** (1) How is styrene produced? (2) How were raw materials handled and moved? (3) How was product handled and moved? (4) What exactly is cracking and how does it work? (5) What is styrene “finishing”? What were the components to this finishing? (6) Were other chemicals used than those already identified? (7) What vessels, pipelines, tanks, and processes were involved in propane cracking and styrene finishing? (8) What were the waste products and how did they come about? (9) How were the waste products disposed of? (10) Identify any and all wastes that went to the waste pits. (11) Can we see a schematic of the process and equipment?

   d. **4th paragraph:** (1) From what stock were the tanks replenished? How did the
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feedstock arrive - train, truck, pipeline, etc.? (2) Where did this activity occur? (3) What procedures were used to fill the tanks? (4) Are there any records of leaks, spills or releases? (5) How were the feedstocks carried to the processing areas? (6) Show on a map where this occurred.

e. 5th paragraph: (1) Steam was needed for what? (2) What changes did the steam bring about in the chemicals at the plant? Did it distill off volatiles? (3) What was left behind after the steam processing? Where did it go? (4) What was alcohol ethylene needed for? (5) What did the lab do - evaluate quality of product? Conduct research? (7) What chemicals did the lab handle? (8) What disposal methods did the lab use? (9) Did the lab use TCE?

8. Section 2.2: Improve the descriptions and provide more explanation of the industrial processes, using the following questions as guidelines. (Jd)

a. 1st paragraph: (1) What is butadiene's solubility? Can it be present in recharge water? (2) Show the pipeline carrying the purified butadiene product. (3) What were all the other materials used for (absorption oil, acetic acid, acetone, etc.)?

b. 2nd paragraph: (1) What is "extraction" of butadiene? Paragraph above seemed to indicate that it arrived as a raw material. (2) What was the butadiene "purification"? (3) Where did the impurities go? (4) Show exact locations on map of the wastewater treatment area discharge basins that received the liquid wastes. (5) Show the Knox Street drain and connecting conveyances to the basins. (6) What were the basins lined with, if anything? (7) Did they ever overflow? (8) What process did the caustic come from? (9) What else did the water contain? (9) What is "slop oil?" What does it contain? (10) What process did the "slop oil" come from? (11) Show where the "slop oil" was used.

c. 3rd paragraph: (1) What gas was recovered in the gas recovery unit? (2) What impurities were removed in the solvent extraction unit for purification, and where did they go? (3) What water was treated in the water treatment - toilets, lab, wastewater, what? And how? (4) Show all the railroad loading and offloading areas.

d. 4th paragraph: (1) What is isobutylene dimer or toluosol? (2) What was the "skimmed oil" skimmed from? (3) What was the composition of this waste oil?

e. 5th paragraph: (1) By what means was the wastewater conveyed to the treatment area? (2) What was the conveyance system lined with or made from? (3) Were there any leaks in the conveyance system? (4) What was the aqueous cupric ammonium acetate used for in the process, and where did it come from? Was it a waste product?

9. Section 2.3: Improve the descriptions and provide more explanation of the industrial processes, using the following questions as guidelines. (Jd)

a. 1st paragraph: Where were the pipelines, sumps, tanks, vessels and waste streams
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located, and how did materials flow between them?

b. 2nd paragraph: (1) What did the laboratory do? What wastes did it generate, and how were they disposed? (2) What was the effluent pit used for? What went into it? (3) When did the disposal occur? (4) What was the size of the effluent pit?

10. Section 2.4: Expand this section to explain and show in figures the movement and disposal routes of all chemicals and wastes. (Jd)

11. Section 2.4, 2nd paragraph: The 5th sentence describes the constituents of the “process waste streams.” What process(es) did these streams come from? (Jd)

The last sentence states that separated wastes and effluent were partially distilled prior to the waste stream being discharged to the Knox Street drain. What happened to the residuals? Are there any records of leaks or spills in the system? (Jd)

12. Section 3.1, 2nd paragraph: The paragraph discusses contamination beneath buildings. Add an explanation of our approach for dealing with this problem, which included sampling immediately adjacent to buildings where potential sources existed, and using water table contamination to indicate potential soil contamination. Let’s show how diligent and reasonable we were, without saying it specifically. (Jd)

13. Section 4.2: Add a figure that shows visually the functional relationships and dates of the investigations. The objective is to show the comprehensiveness of the investigations. (Jd)

Cite the original RI Work Plan and subsequent addenda thereof, in the context of the investigations described in the following subsections. Explain what activities were covered in each work plan/addenda. (Jd)

Explain what information led to each area or media investigation described in the subsections. (Jd)

14. Section 4.2.3, 2nd paragraph: The paragraph cites the MW-20 Pilot Program Summary Report as the location of the comprehensive presentation of findings. Bring the actual field and lab data results from the MW-20 report into the Final RI Report. Things to bring in include (but are not limited to) sudan red test results, jar test results, lab saturation test results, etc. Leave out the modeling data, and don’t repeat the geologic, soil, vapor, etc data that is being included elsewhere in the Final RI Report. (Jd)

15. Section 4.2.9, 1st sentence: The sentence discusses the “1993 Addendum Investigation.” Explain why it is called “Addendum” Investigation. What was is an addendum to, and what brought it about? (Jd)

16. Section 4.2.10, 3rd paragraph: Edit the 2nd sentence as follows, to help clarify the reason we targeted only the upper 15 feet of soil, “Sample collection was limited to the upper 15 feet of soil, where contaminant exposure via direct contact with soil would be most likely to occur.” (Jd)
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The last sentence refers to the “original guiding principals” of the RI. Clarify which guiding principles this refers to by citing them (from earlier in the report, or from a workplan?). (Jd)

17. Section 4.2.14, 1st paragraph, 2nd sentence: The sentence states that the groundwater data are relevant to the Soil and NAPL RI only with respect to the potential for VOC migration from the water table to the surface. The water table results are also being used to help identify the locations of sources of groundwater contamination. Add this to the paragraph. (Jd)

18. Section 5.2, last paragraph, last sentence: The sentence states that EPA approved the use of non-PRG screening criteria for arsenic and iron during the course of the evaluation of the 2003 investigation data. Be more specific with your citation of EPA’s approval by citing the document or meeting/call where the approval occurred. (mb)

19. Section 5.3, 2nd paragraph: The second sentence seems to say that (USEPA) ambient air PRG values do not account for site-specific mitigating factors, as do (OSHA) PELs. This is unclear. Do PELs consider site-specific mitigating factors? (Jd)

Improve the clarity of the last sentence by editing as follows, “... from contamination associated with the former rubber plan as other sources of the same contaminants exist within buildings associated with present business activities.” (Jd)

20. Section 5.4, 1st paragraph, 2nd sentence: Edit the sentence as follows, to improve clarity, “These data are evaluated in the RI report with respect to . . .” (Jd)

21. Sections 6 and 7: These sections discuss areas where contaminants exceeded screening criteria. In order to clearly describe the location of each such area, give the number(s) of the parcels upon which the contamination exceeding screening criteria was found. Below is a list of the sections and paragraphs where this addition is needed: (mb)

   a. Section 6.1.2, 1st paragraph, bullet list: VOCs
   b. Section 7.1.1, 3rd sentence: VOCs (at boring B-26)
   c. Section 7.1.2, 1st paragraph: SVOCs/PAHs
   d. Section 7.1.3: pesticides/PCBs
   e. Section 7.1.4: metals
   f. Section 7.2.1, 1st paragraph, bullet list: VOCs
   g. Section 7.2.2, 2nd paragraph: SVOCs/PAHs
   h. Section 7.2.3, 1st paragraph: pesticides/PCBs
   i. Section 7.2.4, 2nd paragraph, bullet items: metals
   j. Section 7.3.1, 1st paragraph, bullet items: VOCs
   k. Section 7.3.4: metals
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22. **Sections 6, 7 and 8:** The introductory paragraph of each of these sections, and some subsections, provides an overview of the different sampling media, including soil gas, surface soil, shallow soil, deep soil, and indoor air. In each of these introductory paragraphs, cited below, state the range of dates when the sampling occurred. (mb)
   a. Section 6.1.1, 1st paragraph: VOCs
   b. Section 7.1, 1st paragraph: surface soil
   c. Section 7.2, 1st paragraph: shallow soil
   d. Section 7.3, 1st paragraph: deep soil
   e. Section 8.0, 1st paragraph: indoor air

23. **Section 6.1.3, 1st paragraph:** After the first sentence, insert the following sentence, “The data are also useful for modeling contaminant transport and exposure for use in risk assessments.” Then, edit the next sentence as follows, “For this first purpose, the soil gas data . . .” (Jd)

24. **Section 6.1.3, 2nd paragraph, 1st sentence:** The statement states that areas where VOC concentrations were found to be 5 ppmv or greater were frequently found to be associated with groundwater contamination source areas. Add a qualifying statement to this paragraph. Whereas positive hits did often correlate to groundwater source locations, there were also negative hits that correlated with source locations too. Hence, a non-detect in shallow soil gas does not equate with a lack of VOC contamination at depth. This needs to be explained. (Jd)

25. **Section 6.1.3, 3rd paragraph:** Add a statement to the end of the paragraph, saying that it is possible that this RI would be amended in the future based on any new information learned from the groundwater operable unit remedial design investigatory work. (Jd)

26. **Section 7.1.4, 2nd paragraph:** [This comment was originally provided in the draft comment submittal dated 6/9/04, and is now being amended as indicated]. The paragraph discusses a possible source of arsenic contamination from the Montrose site. EPA’s response to the 1995 technical memo referenced was that the theory that the elevated arsenic was attributable to Montrose did not appear supportable conclusively, although it is possible in theory. (Jd) Revise the first sentence to state that it can be conjectured that wind-blown dust from the Montrose site was carried and deposited on the Del Amo property, causing the elevated arsenic found on that portion of the Del Amo property directly downwind from the Montrose site. Add a sentence that cites wind-rose studies showing the prevailing winds to go from the Montrose property to the Del Amo property.

Delete the last sentence, unauthorized soil dumping. Conjecturing that unauthorized dumping could have caused elevated arsenic levels in the soil in the northwest corner of the copolymer planco is so unsubstantiated that it should not even be included in the report.
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27. Section 7.2.1, last paragraph, 2nd sentence: [This comment was originally provided in the draft comment submittal dated 7/1/04. An additional comment about this paragraph is provided in the next paragraph]. Revise the sentence as follows, “TCE detections are concentrated in the vicinity of the “pits and trenches” feature at the former rubber plant, but the association between the detections and this rubber plant feature is tenuous due to the lack of known historical use of TCE at the rubber plant, and the proximity of the area is close to other possible source facilities that are unrelated to the former rubber plant, both on and offsite (see Section 6.1.3 for further discussion).” The purpose of the RI is to present facts, not to argue a case of liability. TCE is known to be used in the rubber products manufacturing industry, even though there was no evidence from the plant’s historical records of TCE specifically being used. Thus, I deleted the statement about the association being “tenuous” but still noted the fact about the proximity of off-site sources.

Update the statement about TCE use at the site, as appropriate, based on historical information provided in the EPA Site History Investigations and PRP Search reports.

(mb)

28. Section 7.2.3, 1st paragraph, 2nd sentence: This sentence mentions “non-RI investigations.” It appears that this sentence is the first appearance of the term “non-RI investigation” in the report. As this is an important term to understand, add an introduction and discussion of the term at an earlier location within the report. I recommend placing such a sub-section in Section 4.0, possibly making it subsection 4.3. Then, create a table that lists the “non-RI” data sources, and reference it in the discussion.

(mb)

29. Section 7.3, 1st paragraph: The last two sentences of the paragraph state that the remaining area of exposed surface soil at the site is fenced and therefore not publicly accessible, greatly reducing the potential for contaminant exposure therein. Delete these sentences, as they (a) do not fit with the main message of the paragraph, and (b) it is arguable whether the current fence keeps people off the subject area.

(mb)

30. Section 7.3.2, last sentence: The sentence states that the lack of significant detections of SVOCs/PAHs is consistent with the relatively low mobility of these compounds relative to VOCs. Be more specific and descriptive in your use of the concept of “low mobility.” Do you mean retardation by soils in the vertical vadose zone column? Mobility will also depend on whether there was head present to drive the chemicals down, either head of product or of water.

(Jd)

31. Section 8.0, 2nd paragraph: The third sentence states that monitoring at several buildings was canceled because on-site business practices and building configurations precluded meaningful interpretation of the data. Be more specific and descriptive. What were the business practices and building configurations, and why did they preclude meaningful interpretation of the data?

(Jd)

The fourth sentence states that responsibility for obtaining access to the remaining
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buildings within the butadiene plancor was transferred to EPA. What happened after that? Did EPA obtain the access? If not, delete the reference to transferring access responsibility to EPA, as there does not appear to be any reason to mention it. (mb)

32. Section 8.0, 3rd paragraph: Expand the evaluation discussion. Tell about each building, its indoor sources, its sampling results, and subsurface contamination found nearby (that led to targeting the particular building). Be chemical-specific in your discussions. (Jd)

33. Section 8.0, 4th paragraph: Refer to the date range for when the sampling and comparison to PELs was made. Refer to the current risk assessment as the place where the indoor air data is being further evaluated. (mb)

34. Section 8.0, 5th paragraph, table and 7th paragraph: [This comment was originally provided in the draft comment submittal dated 6/9/04. An additional comment about this item is provided in the next paragraph]. The paragraph uses the table to make the statement that indoor air conditions are strongly linked to outdoor air conditions. This statement would be stronger if you can edit the table somehow to also show the magnitude of the screening criteria exceedances for both indoor and outdoor air. Consider making this change.

Move the table to the Tables section of the report. Nowhere else in the report are tables included in the text, so this one feels out of place. Provide a narrative description, in the paragraph, of the technical point that was being made by the data table (which then ties in with paragraph #7). (mb)

35. Section 9, 1st paragraph: Incorporate a reference to the Groundwater RI and ROD early in the paragraph. I recommend adding a sentence immediately following the first sentence, stating that the majority of the available groundwater data was reported in the Groundwater RI Report of 1998. (Jd)

In the first sentence, add to the end of the sentence as follows: “... surface exposure from upward migration of vapor and the existence of contamination sources.” We are also using the water table data in our analysis of groundwater contamination source locations. (Jd)

36. Section 9, 2nd paragraph, 2nd sentence: The sentence states that the most recently completed groundwater monitoring event (at the time of this report) were in the year 2000. Update the tables and figures in the report to use the groundwater data from 2004. Since there has been a recent groundwater sampling and analysis event (2004), it is best to update the report to use this most recent data. (Jd)

37. Section 10.2, 4th paragraph, item #5: Edit the first sentence as follows, “NAPL at the plant site is appears to be largely present at residual saturation...” Due to the limitations of our investigations, we can’t know definitively that the NAPL at the plant site is largely at residual saturation. (Jd)

Edit the last sentence as follows, “Residual saturation levels were found at select locations to correspond with...” (Jd)
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38. **Section 10.3**: Add to this section a detailed description of the water table elevation rise over time, a phenomenon described only generally in Section 10.1. Provide data or references to the data. (Jd)

39. **Section 10.5.1, 2nd paragraph**: The 5th sentence mentions experimentally derived equations published by independent researchers. Provide a citation for this reference. (mb)

The last sentence states the conclusion that hydraulic extraction was not judged to be an effective NAPL remediation method (at the MW-20 area). Cite the report where this conclusion was documented. (mb)

40. **Section 10.5.2, 2nd paragraph, 2nd sentence**: Edit the sentence as follows, "... details regarding the use of these of these facilities and their waste products are not known at this time." (mb)

41. **Section 10.5.2, 3rd paragraph, 4th sentence**: The sentence states that the lateral extent of residual LNAPL has not been fully evaluated. Add a statement indicating that we do have the groundwater contaminant concentrations that we will be using to indicate the lateral extent of residual LNAPL for purposes of the FS. (mb)

42. **Section 11.0, 2nd paragraph**: The paragraph discusses 12 source areas identified. My comment regarding Sections 6-9 “Results Description” directed you to expand the narrative descriptions of the investigative results, and it identified 20 areas where contamination exceeded screening levels. For consistency within the report, tie these 20 areas into the 12 source areas discussed in Section 11.0. Describe which of the 20 areas fall within which of the 12 source areas, and which of the 20 do not. (mb)

43. **Section 11.0, 5th paragraph, 4th sentence**: The sentence discusses why the fourth area was judged not to be a source area. Enhance your description of the meaning of this statement. You could say “this means that this area does not appear to be contributing contamination to the main groundwater contamination plume.” (mb)

44. **Section 12.1.1, 2nd paragraph, last sentence**: Edit the sentence as follows, to be clearer about the source of the PELs, "... based on the lack of VOC detections in excess of OSHA PELs..." (mb)

45. **Section 12.3, 5th paragraph, bullet items**: The bullets refer to source area numbers. Add a reference to Figure 39 in the paragraph, as that shows the location of each numbered area. Also, indicate which parcels each area lies within or partially intersects. (mb)

46. **Figures, Historic Rubber Plant Facilities**: The following figures present the historic rubber plant facilities, but do not provide the source of the information or the date of the depiction. Add a reference to the source of this information, and provide the date of the information for the following figures: 4, 13, and 15. (mb)

47. **Figures, Base Map Depicting Current Buildings**: Figure 2 shows two aerial photographs of the site, one during operation of the former rubber plant and one showing the area in its
“current” state. At the time of the “current” aerial photograph, parcel #7351-33-40 on Hamilton Avenue was undeveloped, but today it is completely developed, rendering the photograph an incorrect picture of the complete area today. It appears that a base map, depicting the current buildings at the site overall, was based on this aerial photograph, and used throughout the figures to depict current conditions. Unfortunately, this is now an incorrect depiction of current conditions. Obtain an updated aerial photograph and use it in Figure 2 to show current conditions. Then, use it to update the base map that is used in the figures listed in the following paragraphs. (mb)

The figures listed below utilize a base map presumably based on the aerial photograph that depicts a now outdated view of parcel #7351-33-40. Update the base map along with an updated aerial photograph, depicting the new buildings on parcel #7351-33-40, and apply the update to the following figures: 10, 16-20, 21 (overview part), 22-34, 39, and 40. (mb)

The following figures utilized a base map that includes not only the outdated view of parcel #7351-33-40, but also an outdated view of the 204th Street “buy-out” area: figures 3, 12, 13, 15, and 35-38. Revise these figures using an updated base map of current buildings. The base map used in the figures listed in the above paragraph correctly depicts the current view of 204th Street. (mb)

Figure 11 (upper left corner) utilizes an extremely outdated map of the site in depicting the locations of some groundwater wells. Use the updated base map of current buildings for this figure. (mb)

48. Figure 3: The figure shows land use zoning designations. Add a reference to the source of this information, including the date of the information. (mb)

49. Figures. Date Range of Data Depicted: The following figures present data but do not provide the dates or range of dates for the data. Add the date range of the data depicted for each of the following figures: 8-10, 16-33. For Figure 34, add the date range of the sampling activities that were to be conducted at the locations depicted on the figure. (mb)

50. Appendix E: [This comment was originally provided in the draft comment submittal dated 7/1/04, and is now being amended as indicated]. Update this appendix to present the complete results of all site laboratory analyses, including sampling dates, data qualifiers and non-detects. The Draft Final RI Report contains such results only on a CD (RI Attachment 1), in ascii text tab delineated format. This information must also be presented in hard copy to satisfy the NCP requirement to make information in the RI Report accessible to the public. (mb)
Excerpts from "Technical Memorandum, Comparison of Del Amo Study Area Site History Documents," from R. Kellerman (CH2M Hill) to D. Rodriguez (EPA), dated November 15, 2004.

Facts Presented in the PRP Documentation and Contradicted by the EPA Documentation

The following information was presented in the document prepared by the PRPs and contradicted by information in one or both of the EPA documents.

1) Both PRP and EPA documentation report the previous existence of a dry well at the Amoco Chemical Company facility, and both consider the facility a potential source of groundwater contamination. However, the PRPs report that a single dry well existed on the property until 1969, and its abandonment is documented. The Calhoon memorandum, on the other hand, reports that there were "two different dry wells, one replacing the other in about 1986." The Calhoon memorandum indicates that the specific location and the abandonment of these two dry wells are not documented.

Facts Presented in the EPA Documentation Only

The following information was presented in one or both of the documents prepared by EPA, but was not reported by the PRPs.

1) The SAIC report provides background information on the initial leasing and contracting of the property from the U.S. government that is not present in the PRP documentation.

2) The SAIC report provides detailed chain-of-title information that is not available in the PRP documentation.

3) The SAIC report describes right-of-way agreements and easement grants for pipelines.

4) According to the SAIC report, the Air Pollution Control District, County of Los Angeles, received odor complaints in 1963 due to the wastewaters disposed into the Dominguez Channel. The County Engineer stated that there did not appear to be a critical problem.

5) Several complaint reports and effluent violations from 1947 to 1972 are recorded in the SAIC report, including suspended solids, oil, oily rubber latex, brownish oil, oily water, foam, and reddish discharge containing ferric iron. No reports are included in the PRP documentation.

6) Unlined pits possibly used for liquid waste were identified at the butadiene plant in an aerial photograph at the north end of the Plancor in the SAIC report.

7) Dumping of dark liquids was identified in aerial photographs of the copolymer plant in the SAIC report.
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8) Mobil Chemical was identified as potentially disposing wastes at the Del Amo Hazardous Waste Site in the SAIC report.  

9) Certain properties in the immediate vicinity are reported by EPA as potential contributors to groundwater contamination, but are not reported by the PRPs. These include American Chemical & Solvent Recovery, Inc. (19630 S. Normandie), Lawson Enterprises (19500 S. Normandie), The State Chemical Company (920 Francisco Street), and the Gardena Sump (401 W. 208th Street).

10) The Calhoon memorandum reported the following information not included in the PRP documentation:
   
   a) Mercury is reported in the polymer storm drains along with other heavy metals in the effluent discharge to the Dominguez Channel in 1970. This is not mentioned in the PRP document.

   b) An offsite dump was located at Main and Moneta/Lot 115. The dump was used by Shell. This dump was not identified in the PRP documentation of landfills.

   c) The Elastomers Technical Center (ETC) was noted on a plot plan in Area 2600 within the styrene plant. In deposition testimony, the ETC was placed at the Administration Building within the butadiene plant. The ETC was not referenced in either location in the PRP document. Additional chemicals were present at the ETC including chloroform, carbon tetrachloride, and ethylene dichloride. The Calhoon memorandum recommended acquiring from Shell a complete history of this "unique" facility's operations, and considered this a potential source of TCE/PCE.

   d) TCE was detected in storm drains at a value of 0.18 milligrams per liter (mg/L) according to a wastewater parameter report.

ENDNOTES


ATTACHMENT 7


Los Angeles County Department of Public Works (LACDPW) Waste Management Division. 1963. Letter from S. Smith Griswold, Air Pollution Control District, County of Los Angeles, to John L. Partin, County Engineer, Department of Industrial Waste. July 24.

LACDPW Waste Management Division. 1963. Memorandum from T. T. Otteson to J. W. Henderson regarding a complaint received by the Air Pollution Control District. July 29.


LACDPW, Waste Management Division. 1967. Inspector's Report from the County of Los Angeles, Department of County Engineer, Industrial Waste Division, regarding inspection at Shell Chemical Co. March 16.


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LACDPW, Waste Management Division. 1970. Memorandum from Joe R. Knight to Thomas T. Otteson regarding follow-up to complaint regarding odors and discharge in Dominguez Channel. February 6.


EPA Region 9. Aerial Photographic Analysis of the Del Amo Site, Torrance, CA, developed by the Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.


EPA Region 9. Aerial Photographic Analysis of the Del Amo Site, Torrance, CA, developed by the Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.


EPA Region 9. 1945. Memorandum to the directors from G.B. Hadlock, Associate Director of the Office of Rubber Reserve, regarding the joint operation of Standard Oil Co. of California's El Segundo Plant and Shell Chemical's Torrance plant. December 20.
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County of Los Angeles, Office of County Engineer, Division of Industrial Waste, Industrial Waste Disposal Permit. April 17, 1957.


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County of Los Angeles, Office of County Engineer, Division of Industrial Waste., Industrial Waste Disposal Permit. November 30, 1956.


Shell Chemical Corporation. 1957. Inventory of Research Laboratory Chemicals. May 23.

