A. Issues/Questions Concerning the Approach

Section 3

1. Section 3.4, Page 19, 2nd paragraph, 3rd sentence: The sentence states that only segments of streets where data are available are used to define the exposure areas of potential concern. Make sure that the whole street parcel is designated to be treated the same at the end of the risk assessment. It is not appropriate to ignore segments of the street that have no data.

2. Section 3.5.2, page 20, 2nd paragraph: The paragraph describes how the carcinogenic PAHs found in 15 surface soil composite samples were compared to background. However, these composite samples may or may not represent a reasonable worst case contamination situation for the site. The limited results for PAHs may indeed be consistent with background if non-impacted areas were sampled. Referring to Figure 4, the locations where surface samples were able to be taken appear to have been relatively "clean" areas, not in historic contaminant source areas (chemical facilities, storage tanks, and pipelines). This causes considerable uncertainty with respect to the concentrations of carcinogenic PAHs that may be present in soils at the Del Amo commercial/industrial park. Of special concern are the heavier (relatively non-volatile) PAHs that are suspected contact carcinogens. It is noted that the Del Amo Waste Pits contain high levels of PAHs (up to 19,000 mg/kg, Dames & Moore 1991), indicating that the historic activities on-site generated these compounds.

This presents us with significant data gap. Additional sampling and analysis must be conducted in areas where PAH contamination might be anticipated, either as part of this RI/FS or as part of an institutional control that prohibits future development of specific parcels without additional sampling.

Section 4

3. Section 4.2.4, page 31, table: Why was surface soil not considered as an exposure medium for the hypothetical resident receptor? It appears that shallow soil data is used for the surface soil exposure. Why was this done?

4. Section 4.3.1, page 33, 3rd paragraph: The paragraph indicates that only repairs to chemical pipelines were considered in determining exposure duration and frequency. The result was a very infrequent and short duration exposure. Given this, the pipeline
maintenance or repair worker does not appear to represent an RME. Higher exposure and risk could be associated with construction workers involved with redeveloping parcels in the commercial park. For the redevelopment construction worker, it could be assumed that most excavation activities would take a year or less, and therefore the default exposure frequency of 250 days per year is recommended for direct contact exposures that may result from digging into site soils.

5. Section 4.3.3.3, page 39, 1st bullet: The bullet states that the inhalation rate for commercial workers is 10.8 m³/day. Change the rate from 10.8 m³ per day to 20 m³ per day for the reasonable maximum exposure (RME) to be consistent with EPA default assumptions for this type of worker (OSWER Directive 0285.6-03, 1991).

6. Section 4.3.4, page 41, 1st paragraph: This paragraph states that a 50% vegetative cover was assumed when estimating the particulate emission factor (PEF). Change this to assume 0% cover. Although it is expected that this will not make a huge difference in risk estimates, the assumption of 0% cover is the default assumption to use in cases where both current and future scenarios are being evaluated. EPA prefers the 0% cover assumption because the current conditions at the site are changeable in the future.

7. Section 4.3.6, page 44, 2nd paragraph: This paragraph states that the focus of the Tier 2 DLM model (which incorporates biodegradation factors) is BTEX compounds. This gives the impression that DLM simulations are limited to these compounds. However, in the presentation of risk estimates in Table 21, it would appear that the Tier 2 DLM model was used to simulate biodegradation of non-BTEX VOCs as well. For example, Table 24 indicates that based on the Tier 1 JEM model, individual chemicals that contributed greater than 1 x 10⁻⁵ risk for EAPC 23 included methylene chloride, tetrachloroethylene (PCE), and trichloroethylene (TCE) in addition to benzene. However, when Tier 2 simulations were run for EAPC 23, the cumulative risk (see Table 21) is decreased from 4 x 10⁻¹ (Tier 1) to 8 x 10⁻² (Tier 2). For these results to be correct, biodegradation of not only benzene (and related TES compounds), but several other VOCs (including methylene chloride, PCE, and TCE) must have been assumed. For another example, refer to Table 26. In this Table the Tier 1 JEM model predicts a PCE-specific risk of 1.4 x 10⁻² at EAPC 20. When the Tier 2 DLM model is run, however, the cumulative risks for EAPC 20 is reduced to 2 x 10⁻³ (Table 21). Again, this reduction in the risk estimate would only be possible if PCE was included in the Tier 2 biodegradation simulations, otherwise the cumulative risk would be at least as high as the risk presented by PCE.

Clarify whether non-BTEX VOCs were included as part of the Tier 2 DLM simulations or whether these tables and/or discussion are in error. If they were included, this deviates from discussions that were held with State and federal agencies prior to the preparation of the draft BRAR.

8. Section 4.3.6.1, page 45, 2nd paragraph, 3rd sentence: The sentence states that the model used 7.5 feet as the depth below ground surface to the top of contamination. This represents the middle of the shallow soil layer (0-15 feet). Why was the middle of the layer used and not the top? It is unclear what (if any) relationship this depth has to actual contamination below buildings. Unless additional site-specific information is provided
supporting these assumptions, EPA wants you to use the shallowest depth to model indoor air exposures.

9. **Section 4.3.6.1, page 45, 3rd paragraph, 2nd sentence:** The sentence states that the model used 30 feet as the depth below ground surface to the top of contamination. Why not use 15 feet, which would be the dividing line between the shallow soil layer and the deep soil layer? Unless additional site-specific information is provided supporting your assumptions, EPA wants you to use the shallowest depth as the top of contamination in this zone, rather than 30 feet.

10. **Section 4.3.6.1, page 45, 3rd paragraph, 2nd and 3rd sentences:** These sentences also indicate that a 10 foot thickness was assumed for the commercial exposures modeling, and an infinite thickness was assumed for residential exposures. Why is there a difference between the two assumptions?

Section 6

11. **Section 6.1.2, page 58, 1st paragraph:** The paragraph states that indoor air exposures were evaluated using either indoor air monitoring data or vapor model results (for those parcels without indoor air monitoring data). Although the use of indoor air monitoring data is useful for estimating indoor risks to workers under current conditions, this does not address future workers in the event that the property is redeveloped. Moreover, it is difficult to rank different Exposure Areas (EAPCs) across the business park in terms of potential risk to workers by using two different “yardsticks” to estimate indoor air risks. To estimate risks to future workers for each EAPC and to provide a consistent approach for estimating risks across the site, all EAPCs should include a future risk estimate for workers, using subsurface contamination data in conjunction with the Johnson and Ettinger Model (1997).

Section 7

12. **Section 7.1.2, page 69, 3rd paragraph:** This paragraph describes the uncertainty introduced when the risk assessment combined composite samples and discrete samples in calculating EPCs. This method of combining composite surface soil samples with individual surface soil samples when calculating EPCs should not be done. As noted in the paragraph, combining composites with individual samples can yield a non-conservative bias in the estimation of a 95% upper confidence limit (UCL).

Given the paucity of surface soils data for the site, one of the following two approaches should be used, both of which are better than the existing approach: (1) the highest reported concentrations (per each EAPC) could be used as an RME exposure point concentration (EPC), or (2) if the highest reported concentration occurs with composite samples, then estimate an RME EPC by multiplying the composite sample concentrations by the number of locations represented by the composite. The latter approach is suggested for sites where relatively few composite samples are intended to represent a large area.

13. **Section 7.2, page 75, 4th paragraph, 5th sentence:** The sentence states that only the higher of the two resulting EPCs (shallow vs. deep) for indoor air was used to estimate risk.
Revise the report to calculate indoor risk estimates from both shallow and deep soils contamination sources. Risk information for both potential sources of contamination will be important for decision-makers charged with the cleanup of the site. One way to incorporate this information in the existing tables is to present risks based on deep soils (and groundwater) contamination in parentheses alongside the shallow-soil-based risk estimates.

B1. Comments Requiring Presentation of Additional Information

Section 2

14. Section 2.3.6, page 12, 1st paragraph, 1st sentence: There is a reference to Dames & Moore, 2001, but this document was not listed in the References (Section 9). Add this document to the References section.

Section 3

15. Section 3.4, Page 19, 3rd paragraph, 1st sentence: The sentence states that a criteria for selecting a parcel as an exposure area of potential concern was whether it included a soil sample in which any VOCs (among other things) was detected above its PRG. However, the referenced figures do not show whether any VOCs exceed PRGs, as they do for SVOCs, PCBs, and metals. Include a figure that shows locations where VOC samples exceeded a VOC PRG (as figures 4-6 show for other constituent classes). It is very important to provide such illustrations for readers.

16. Section 3.5.2, page 20, 1st paragraph: This paragraph describes how benzo(a)pyrene equivalents (BAP-eq) were calculated for carcinogenic PAHs (cPAHs) detected at the site. Show these calculations somewhere in the report, preferably the appendix. It is important to show your work in reports like this.

Section 4

17. Section 4.3.3, page 35, 2nd paragraph, last sentence: The sentence states that the chemical-specific intake factors for each EAPC can be found in Appendix C, but I was unable to locate the intake factors in Appendix C. Where are the intake factors presented? Revise the sentence to correctly state where their presentation is located, or add the intake factors if they had been left out.

Section 5

18. Section 5.1, page 51, 4th paragraph, last sentence: The sentence states that in the absence of toxicity factors specific to the dermal route, the oral factors are used for the dermal route. State why this is an appropriate substitution.

19. Section 5.2, page 52, 1st paragraph of section, last sentence: The sentence states that in the absence of RfDs specific to the dermal route, the oral RfDs are used for the dermal route. State why this is an appropriate substitution.

20. Section 5.3, page 53, last sentence: The sentence states that in the absence of CSF’s and
RfDs specific to the dermal route, the oral CSFs and RfDs are used for the dermal route. State why this is an appropriate substitution.

Appendices

21. Appendix D, Tables D-1 through D-3: Show the equations that use these parameters to calculate the resultant indoor air concentrations.

22. Appendix E, page E-8, 3rd paragraph, 1st and 2nd sentences: If available, provide additional data in support of the DLM, including presenting soil concentration profiles for TCE and PCE. These halogenated VOCs are expected to be relatively recalcitrant to biodegradation as compared with benzene. Providing soil concentration profiles for TCE/PCE would give EPA more confidence that the decreases in concentration with decreasing depth are indeed a function of biodegradation and not some other potentially important factor (e.g. differences in diffusive properties of soil with depth).

In addition, explain how you selected a particular biodegradation factor to apply to other EAPCs across the site. Given the orders-of-magnitude differences in DLM predictions that are suggested for benzene from the three pilot test locations where deep sources were evaluated, explain how was it determined which modeling results would be extrapolated to other EAPCs?

B2. Comments Requiring Clarification or Correction of Statements/Information

Section 3

23. Section 3.4, page 18, 2nd paragraph, 2nd sentence: The sentence states that exposure areas for the construction worker are defined by specifying the typical trench size located anywhere on exposed soil at the site. I disagree that the typical trench would have to be located on exposed soil - it could be cut into asphalt on the street or in a parking lot. Change the sentence to read “Exposure areas... typical trench that could be located in any outdoor areas anywhere on exposed soil at the site.”

24. Section 3.6, page 25, 3rd paragraph, 2nd sentence: The sentence states that “for the hypothetical resident and trench worker, the maximum value selected through the process described below was used as the EPC.” This is unclear but it seems to imply that the highest reported concentrations for each EAPC were used as the EPCs. Clarify whether this is meant by the statement. If so, provide a footnote in Table 12 that indicates this.

Section 4

25. Section 4.1, page 28, 2nd paragraph, 1st and 2nd sentences: Edit the sentences as follows in order to more precisely state the situation: “Current land use zoning precludes pure residential development within the Del Amo site, although some parcels are zoned to allow live-work uses. Additionally, the possible application of other institutional control
mechanisms that could enhance existing controls and prevent inappropriate land uses
inconsistent with current zoning at the site in the future are being evaluated as part of the
feasibility study.

26. Section 4.3.1, page 33, 4th paragraph: This paragraph speculates on future remedial
actions, which is inappropriate for this report. Delete this paragraph.

Section 6

27. Section 6.0, page 54, 2nd paragraph: This paragraph discusses EPA's "acceptable risk"
range. This is more relevant to risk management than it is to risk assessment.
Furthermore, the discussion presented is not quite correct. The 10⁻⁴ level is not always the
acceptable risk level; the acceptable risk level is selected by EPA to be somewhere
between 10⁻⁴ and 10⁻⁶, chosen on a case-by-case basis during the remedial action
objectives process. Delete this paragraph.

Although it might be argued that presenting the "acceptable risk" range concept in the risk
assessment provides a context for the risk numbers; in this case, the comparison with
"acceptable risk" range (presented in the body of the report) takes the place of presenting
the actual risk estimates themselves. The problem with this approach is illustrated by
element. On page 64, the authors state "maximum benzene concentrations in
groundwater resulted in an estimated risk above the upper bound of the risk range (10⁻⁴)."
This description is not informative. It begs the question: "what is the risk"? It is unclear
whether the excess lifetime cancer risk is 2 x 10⁻⁴ or 1 x 10⁻⁴. Therefore, this method of
presenting risks is not acceptable to EPA.

28. Section 6.0, throughout: Modify the wording throughout this section where risks are
compared to an "acceptable risk range." As stated in the comment above, present the
actual risk number in any discussion of the risks calculated by this risk assessment. Do not
compare the risks to an "acceptable risk range.

29. Section 6.1.2, page 58, 2nd paragraph of section, 4th sentence: The sentence states that the
risk for EAPCs 13 and 23 were 4 x 10⁻³ and 8 x 10⁻³ respectively, per table 20. According to
my reading of table 20, the values for EAPCs 13 and 23 were 3 x 10⁻³ and 3 x 10⁻²
respectively. Check this and correct the sentence appropriately.

30. Section 6.1.2, page 58, 3rd paragraph of section: This paragraph indicates that Tier 2
modeling was performed to predict indoor air concentrations for certain EAPCs, but it
does not indicate whether risks were calculated using these model results. Table 20 does
not indicate that such risks were calculated. Clarify whether risks were calculated using
these tier 2 model results, and if not, why not.

31. Section 6.1.2, Page 59, 1st paragraph, 1st sentence: The sentence states that CT exposure
risk estimates for EAPCs 13 and 23 were 4 x 10⁻⁴ based on Tier 1 modeling. Table 20
indicated that the CT risk estimates for these EAPCs were 2 x 10⁻⁴ and 1 x 10⁻³ respectively.
Check this and correct the sentence appropriately.

32. Section 6.4.1, page 65, 2nd paragraph of section, 6th sentence: The sentence states that all
CT risk estimates are within the risk range and below the threshold value. According to
my reading of table 20, EAPC 15 has an HI of 1.5, thus this sentence is not accurate. Check this and correct the sentence appropriately.

Section 7

33. Section 7.1.5, page 71, 2nd paragraph, 4th sentence: The sentence states that the Tier 2 modeling confirmed the conservative bias in the Tier 1 results for BTEX. EPA disagrees with this statement because the Tier 2 modeling that was done has not been validated. Revise the statement accordingly.

34. Section 7.5, page 80, 2nd paragraph, 3rd sentence: The sentence is unclear. It states that the risk is overestimated so that it characterizes a 99.9% or higher risk for the population. What is the intended meaning of this sentence? Reword the sentence to make it clearer.

Section 8

35. Section 8.0, throughout: Modify the wording throughout this section where risks are compared to an 'acceptable risk range.' As stated in the Section 6 comments, present the actual risk number in any discussion of the risks calculated by this risk assessment. Do not compare the risks to an 'acceptable risk range.'

36. Section 8.0, page 83, 1st paragraph, last sentence: Edit the sentence to read: "The findings of the supplemental ecological screening evaluation indicated that exposures to sensitive ecological receptors is insignificant; therefore . . ." 

Appendices

37. Appendix E, page E-8, 3rd paragraph, 1st and 2nd sentences: The sentences state that the JEM, which ignores biodegradation, does not match the observed soil gas concentration profiles, but the DLM, which incorporates biodegradation, results in an excellent match with the observed soil gas concentrations. If we are not mistaken, however, the figures that are presented in support of this statement appear to be the very figures that were used to calibrate the DLM model. Thus, it is not surprising that the figures would show excellent agreement with the DLM model - the data in the figures were used to calibrate the model. The statement implies that the model predicted the concentrations rather than stating that the data were used to calibrate the model. Clarify or correct this statement.

B3. Comments Requiring Spelling, Wording, or Grammatical Corrections

Section 2

38. Section 2.2, page 6, 1st paragraph, 2nd sentence: This is a run-on sentence that does not make sense as written. Edit as shown and it will make sense: "Data for soil ingestion, dermal contact, and particulate inhalation pathways were collected in areas where historical information indicated a potential for chemical releases. The data was collected through surface and shallow soil (0–15 feet below ground surface) sampling, and shallow soil gas sampling.” Was this the intended meaning of this sentence?
Section 4

39. Section 4.0, page 28, 1st paragraph, 2nd sentence: There is a misspelling of the word “parameters” in the last word of the sentence.

40. Section 4.3, page 32, 4th paragraph, 1st sentence: This sentence appears to be the first place that the acronym “RME” is used, so it needs be spelled out in this sentence.

41. Section 4.3, page 32, 4th paragraph, 4th sentence: This sentence appears to be the first place that the acronym “CT” is used, so it needs be spelled out in this sentence.

Section 7

42. Section 7.0, page 67, 2nd paragraph, last sentence: The sentence appears to have an error. Edit the sentence as follows to correct the error: "Uncertainty may also exist... but was not evaluated in this risk uncertainty assessment."
Comments from
California Department of Toxic Substances Control (DTSC)
Southern California Cleanup Operations


Specific Comments

1. Page 4, Section 2.1 Site Background, fourth paragraph: Nearly all the parcels making up this site have been redeveloped as part of a business park. It would be useful to include either a figure or a table identifying the current owners/occupants of each parcel, since some data and information previously reviewed and used in this assessment is identified with the current owner/occupant name.

2. Page 14, Section 3.1 Data Validation and Selection: This section provides a discussion of the validation of the data collected at this site. However, there is no discussion or description of the collection and analytical methods used. A summary discussion of the methods used should be included along with a table of those methods with their detection limits.

3. Page 16, Section 3.3.1 Composite Samples: This section describes how composite sample results were utilized in calculating exposure point concentrations. Composite sample data are not usually acceptable to the Human and Ecological Risk Division (HERD). The HERD accepts them at this site only because of the paucity of site soils data and the stringent data evaluation procedures that were followed for choosing the data used in the assessment.

4. Page 17, Section 3.3.3 Soil Gas and Matrix Conversion: Soil gas results were converted to soil matrix concentrations to calculate the risk via direct exposure, and soil matrix concentrations were converted to soil gas concentrations to calculate the risk via inhalation using the same equation. This approach was previously presented and agreed upon by the regulating agencies. However, a discussion should be added either here or in the Assessment of Uncertainty section on the results of these conversion. A table should be included comparing the results of these conversions.

5. Page 19, Section 3.4 Selection of Exposure Areas of Potential Concern, third paragraph; Figures 2 through 10; and Table 10: In this paragraph, the criteria are presented that were used to include a parcel as an exposure area of potential concern. These criteria have been previously approved. The figures show the soil and soil vapor sample locations. It appears from the figures that there are virtually no soil sample data for the semi-volatile organic compounds (SVOCs) or inorganic chemicals in those parcels that were excluded as exposure areas of potential concern. If there are no such soils data for excluded parcels, there should be discussed early in the text. If there are soils, another figure should be
included in the document that shows the location of samples taken in excluded parcels. Table 10 lists the data types and sampling rationale for the parcels chosen as exposure areas of potential concern. A similar table should be included for those parcels not chosen that lists the rationale for exclusion.

6. Page 33, Section 4.3.1 Exposure Parameters, fourth paragraph: Covered by EPA comment #26.

7. Page 67, Section 7.1 Chemicals of Potential Concern (COPC) Selection and Estimation of Chemical Concentrations: The former facility on this site used 1,3-Butadiene as part of the rubber manufacturing process. It has not been detected in six soil samples where it was called out as a target analyte and only once in groundwater. The HERD continues to be concerned that this extremely volatile and toxic chemical has not been adequately tested for and that it could be tied up in the non-aqueous phase liquids (NAPLs) in the subsurface. A sub-section should be added to this uncertainty section discussing this chemical, with emphasis on the fact that the detection limit for 1,3-Butadiene is well above its Preliminary Remediation Goal.

8. Appendices: There are seven appendices submitted as part of this health risk assessment. These appendices provide supporting material for data review, background concentrations, modeling results, risk calculations, etc. A) Numerous technical memoranda on specific risk assessment issues have been reviewed prior to the submission of this health risk assessment document. Those memoranda that have not been folded into the body of this document should be included in the appendices. The HERD particularly recommends the inclusion of the memoranda addressing nitrosamines and 1,3-Butadiene. B) The subject of Appendix E is the Dominant Layer Model proposed for use in evaluating vapor transport of benzene, toluene, ethylbenzene, and xylene (BTEX). This appendix should also include the comments on this model made by the USEPA and the DTSC and responses to those comments made by Shell Oil Company.