John,

At your request, I have summarized Stan's more "big picture" comments for your team to start thinking about during the holiday period. From my recent conversations with DTSC, it is my understanding that they will focus their review on areas for which Stan did not comment significantly. This way the reviewers minimize duplication of effort. DTSC does not have their comments at this time, but will submit them to EPA in early January for inclusion in a comprehensive agency comment submittal that will come from EPA.

I will be in the office on December 26 and 27 of next week, then January 2-4 of the following week. If you have any questions, feel free to call me at (415) 972-3166.

-Dante Rodriguez

Summary of draft “Big Picture” comments

1. Polycyclic Aromatic Hydrocarbons (PAHs). There appears to be 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. Although it may (or may not) be true that the 15 composite samples obtained from surface soils contain background levels of PAHs (page 20), EPA’s concern is that the sampling locations themselves do not represent a reasonable “worst-case” contamination situation at 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 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.

2. Current Versus Future Risks for Workers. On page 58, the authors state that “indoor air exposure 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).
3. Inhalation Rate for Commercial Workers. It is recommended that the inhalation rate for commercial workers (page 39) be changed from 10.8 m$^3$ per day to 20 m$^3$ 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).

4. Excavation Scenario. To evaluate risks associated with excavation type activities, the authors focused on a trench worker who maintains the subsurface pipelines. However, based on the “preliminary pipeline survey” results presented in the BRAR (page 33), it appears that pipeline repairs occur infrequently (less than one repair per 10 year period). The authors have also assumed that pipeline repair would be of relatively short duration (two weeks or less). Given these exposure duration/frequency assumptions, the pipeline worker does not appear to represent an RME. EPA believes that higher exposure/risks could be associated with a construction worker that is involved with redeveloping various parcels of the commercial/industrial park. Because most excavation activities associated with redevelopment are expected to take a year or less, an assumption of one year duration, and the default exposure frequency of 250 days per year for workers, is recommended when evaluating direct contact exposures that may occur as the result of digging into site soils.

5. Estimation of a Particulate Emission Factor. Please assume 0% cover (versus 50% cover assumption in the draft BRAR, page 41) when estimating a particulate emission factor (PEF). 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 subject to change in the future.

6. Selection of Depths to Model Indoor Air Impacts. For modeling indoor air impacts from shallow soil layer contamination, the authors chose a depth of 7.5 feet (page 45), which is the midpoint of depths defined as shallow soil (i.e. 0 to 15 feet below ground surface). However, it is unclear what (if any) relationship this depth has to actual contamination below buildings. What was the justification for using these depths? Unless additional site-specific information is provided supporting these assumptions, EPA recommends that the shallowest depth be used to model indoor air exposures. Likewise, for deep soils (defined as greater than 15 feet bgs), EPA would recommend that the shallowest depth be assumed as the top of contamination in this zone, not 30 feet (page 45).

7. Tier 2 Indoor Air Model. The authors state (page E-8) “A review of the vapor transport analysis conducted for the Waste Pit Area clearly shows that the JEM, which ignores biodegradation, does not match the observed soil gas concentration profiles. Rather, the DLM, which incorporates biodegradation, results in an excellent match with the observed soil gas concentrations.” If we are not mistaken, the figures that are presented in support of this statement appear to be the very figures that were used to calibrate the DLM model. It is not surprising that the figures would thus 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.
Additional data in support of the DLM would be helpful, 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, the authors should clarify how they 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, how was it determined which modeling results would be extrapolated to other EAPCs?

8. Biodegradation of TCE/PCE? Referring to the discussion of Tier 2 analysis (page 44), the authors state 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^-7 (Tier 2). For these results to be correct, biodegradation of not only benzene (and related TEX 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^-5 (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.

Please 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.

9. Surface Soil Samples. Composite surface soil samples should not be combined with individual surface soil samples. As noted on page 69, 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, the highest reported concentrations (per each EAPC) could be used as an RME exposure point concentration (EPC). Alternatively, if the highest reported concentrations occur with composite samples, a conservative approach could be to 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 screening sites where relatively few composite samples are intended to represent a large area. Both of these suggested methods for handling individual and composite samples are better than the approach in the draft BRAR.
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