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Department of Toxic Substances Control

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August 20, 2007

Mr. Gerald H. White, Chief
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HUMAN RISK ASSESSMENT, CALTRANS MODESTO SOIL STOCKPILES (STATE ROUTE 99/132 PROJECT), CALTRANS/DEPARTMENT OF TOXIC SUBSTANCES CONTROL INTERAGENCY AGREEMENT NO. 43A0184, DTSC NO. 06-T3105, TASK ORDER NO. 3

Dear Mr. White:

The Department of Toxic Substances Control (DTSC) has completed its review of the report titled "Human Risk Assessment, Caltrans Modesto Soil Stockpiles, Stanislaus County, California", dated May 14, 2007 which includes 1) "Site Investigation Report for the Characterization of Soil Stockpiles", dated May 14, 2007, and 2) "Surface Water Sampling Report", dated May 14, 2007; and supplemental reports titled 3) "Particulate Matter Test Report, Mowing Simulation", dated June 5, 2007, and 4) "Surface Water Sampling Report", dated June 9, 2007. DTSC reviewed these reports in accordance with the scope of work outlined in Interagency Agreement No. 43A0184; DTSC No. 06-T3105, Task Order No. 3. Additionally, DTSC has coordinated with the Regional Water Quality Control Board, Central Valley Region (RWQCB) to address potential water quality impacts from the soil stockpiles.

DTSC also previously (DTSC, April 8, 2005) reviewed reports titled 1) "Heavy metal Contamination, Preliminary Site Investigation Report, State Route 132 at State Route 99, Stanislaus County, California," dated June 1, 2004; and 2) "Remedial Action Options Report, SR 132/99 Stockpiles, Modesto California," dated July 27, 2004, in accordance with the scope of work outlined in Interagency Agreement No. 43A0142; DTSC No.03-T2641, Task Order 10-43A0142-03, EA 10-403500.

Collectively, the above documents are intended to provide information for a Preliminary Endangerment Assessment (PEA). A PEA is the initial step for determining whether there is a potential for a release of a hazardous substances that presents risk to human health or the environment, including water quality.

The soil stockpiles (Site) consist of three separate piles totally approximately 120,000 cubic yards on Caltrans owned property located south of Kansas Avenue, just east and west of North Emerald Avenue. The Site is fenced and posted as "State Property - No Dumping - No Parking - No Trespassing".

Mr. Gerald H. White, Chief
August 20, 2007
Page 2

The area is zoned as "Agricultural". The stockpiles reportedly originated from soil derived from evaporation ponds on the former FMC property. Caltrans acquired a portion of the former FMC property in the early 1960's for the construction of State Route 99. Excess soil from the former FMC property was generated during construction of the State Route 99 alignment resulting in the current stockpiles. Caltrans plans to build the State Route 132/99 interchange at the approximate location of the stockpiles. Because the reported source of soil in the stockpiles is from the former FMC evaporation ponds, Caltrans sampled and analyzed these stockpiles, surface water and groundwater to evaluate potential health risks to nearby residents, trespassers, and future Caltrans construction workers; and to evaluate water quality impacts.

Following are DTSC's Site Evaluation and Remediation Unit's (SERU) comments on the subject document. DTSC's Human and Ecological Risk Division (HERD) comments are included as an enclosure.

SERU Comments

1. The PEA for this Site consists of numerous reports with various titles as described above. DTSC requests that Caltrans prepare a final report titled "Final PEA Caltrans Modesto Soil Stockpiles, State Route 132/99 Interchange", Stanislaus County, California, following responses to our comments and prior to our concurrence with the Final PEA. The Final PEA may make references to various supporting reports but should summarize the supporting reports should include a section discussing recommendations for further action, including institutional controls (ICs) consisting of a land use covenant and soil management plan; and an operation and maintenance plan/agreement. As requested in DTSC's June 22, 2007 correspondence, all final documents should be submitted to DTSC in hard copy and in electronic format via DTSC's FTP server or on CDs in files no larger than ten mega-bites.
2. The Human Risk Assessment (HRA) and your cover letter concludes that the Site does not pose an unacceptable risk/hazard to offsite residents, trespassers, and future construction workers and recommends no further action with respect to current and future exposure during construction. DTSC can not make a final determination on these conclusions until comments from HERD on the HRA are addressed. Please refer to the enclosed HERD comments regarding risk input parameters and other requested information.
3. Although the Site may not pose an unacceptable risk/hazard to offsite residents, trespassers, and construction workers, it is not suitable for unrestricted use (e.g. residential and other sensitive uses). The risk assessment for offsite residents and trespassers is based on relatively low surface concentrations of contaminants of concern (COC), primarily barium, lead, and arsenic. However, there are elevated

concentrations of barium at depth in stockpiles No. 2 and 3 that would not be suitable for unrestricted use but are still protective of future construction workers and offsite residents during construction. Additionally, the elevated concentrations of barium at depth in Stockpile No. 2 and 3 would not be suitable for unrestricted uses at other locations with respect to sensitive uses, including potential RWQCB water quality concerns. To this end, DTSC concurs with your recommendation that Institutional Controls (ICs) consisting of a land use covenant restricting land use and a soil management plan; and an operation and maintenance plan/agreement to maintain the existing fence be implemented for this Site. The above ICs and operation and maintenance plan/agreement will be necessary conditions for DTSC's approval of the Final PEA

4. Per requirements of a land use covenant, Caltrans will need to 1) to prepare a soil management for DTSC's approval addressing the on site management of the soil stockpiles including characterization requirements for appropriate soil management for small quantities (to be defined) of soil from the stockpiles that are moved on site or removed from the Site; 2) notify DTSC prior to any future construction activities involving use of the stockpiles in the State Route 132/99 interchange project and prepare a Removal Action Work Plan or Remedial Action Plan for DTSC's approval; and 3) prepare an operation and maintenance plan/agreement for DTSC's approval for the maintenance of existing Caltrans fence(s).
5. The HRA, based on two sampling events, concludes that hypothetical use of shallow (approximately 35 to 40 feet below ground surface) groundwater does not present an unacceptable risk/hazard to a user. It also states that water for domestic use is provided from municipal wells from deeper zones and that no private well currently exist within a one mile radius of the Site. DTSC notes that a Site background monitoring well was not constructed and thus no Site specific groundwater background data was obtained for comparison to Site data. Instead, Site groundwater data was compared to maximum concentration limits (MCLs) for respective COC. However, groundwater background data is available from investigations conducted at the FMC Modesto site located a few hundred feet north of the Site. DTSC compared groundwater data from the stockpiles to background groundwater data at the FMC Modesto site; and based on this comparison, DTSC notes that barium in groundwater at stockpile No. 2 exceeds background for barium in groundwater at the FMC Modesto site. Therefore, it appears that stockpile No. 2 has impacted shallow groundwater. The groundwater flow direction appears to be from west to east. However, DTSC notes that this gradient is based on groundwater monitoring wells which are located along the west-east alignment of the stockpiles and it does not adequately account for northern or southern gradient components.

To address the above, DTSC recommends that Caltrans 1) evaluate the groundwater flow direction based on data from at least one monitoring well located to the north of the stockpiles; 2) compare Site groundwater data to background groundwater data collected at the FMC Site or a Site background monitoring well; and 3) continue

Mr. Gerald H. White, Chief
August 20, 2007
Page 4

quarterly groundwater sampling/analysis to evaluate seasonal variations of COC in groundwater. Also, due to the shallow depth of Site groundwater data and apparent release from stockpile No. 2, DTSC recommends that deeper Site groundwater monitoring be conducted to evaluate the concentration trends of COC at depths in which a hypothetical well would extract water; and to characterize the vertical extent of COC in groundwater under stockpile No. 2. An applicable land use covenant restricting the use of Site water would be necessary if COC in groundwater in deeper zones exceed MCLs.

6. Given that that Site is currently zoned as "Agricultural" and its future use will be for the construction of the State Route 132/99 interchange project and rezoned accordingly, the future habitat for ecological receptors will be very limited (e.g. the stockpiles will be used in the construction of the subject interchange project); and any existing habitat associated with the soil stockpiles will be dissipated. The existing Site habitat is also limited (e.g., the site is zoned for agricultural use, fenced with a chain link fence and is comprised primarily of soil stockpiles which are mowed by Caltrans periodically for fire protection). However, per DTSC's PEA Guidance Manual, June 1999, an ecological screening evaluation should be conducted for existing site conditions to qualitatively evaluate potential risk to ecological receptors. To this end, DTSC recommends that Caltrans discuss any existing Site habitat and potential risk to any existing ecological receptors in the Final PEA.

If you have any questions, please contact Mr. Randy Adams at (916) 255-3591.

Sincerely,



Steven R. Becker, P.G., Chief
Site Evaluation and Remediation Unit

Enclosure

cc: Mr. Richard Stewart, P.G.
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Mr. Gerald H. White, Chief
August 20, 2007
Page 5

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M E M O R A N D U M

TO: Randy Adams
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8800 Cal Center Drive
Sacramento, CA 95826-3200

FROM: Kimiko Klein, Ph.D. *Kimiko Klein*
Staff Toxicologist
Human and Ecological Risk Division (HERD)

DATE: July 17, 2007

SUBJECT: CALTRANS MODESTO SOIL STOCKPILES
PCA 11020 Site Code: 101732-00

Background

This site consists of three soil stockpiles located near Highway 99. Stockpile #1 covers about 2.5 acres. Stockpile #2 covers approximately 7.5 acres. Stockpile #3 covers about 2.5 acres. Stockpiles #1 and #2 are located on the western side of Highway 99 and are bounded by residential areas on the south and commercial/industrial areas to the north. Stockpile #3 is located on the eastern side of Highway 99 and is bounded by the highway and by industrial areas. These stockpiles were generated during the construction of Highway 99 through an area that contained a portion of one of the evaporation ponds of the FMC facility. The primary chemical present in these stockpiles is barium. There are somewhat elevated concentrations of other metals and semi-volatile organic chemicals also present. These stockpiles are intended for use as part of a future highway interchange. The Human and Ecological Risk Division (HERD) has been requested to provide technical support and has participated in an initial risk assessment kick-off meeting held on July 26, 2006, and provided informal consultation to the consultant for the responsible party since that time.

Document Reviewed

The HERD reviewed a "Human Health Risk Assessment Caltrans Modesto Soil Stockpiles", dated May 14, 2007, and prepared for the California Department of Transportation by Shaw Environmental, Inc. The HERD received this document on June 1, 2007.

General Comments

Most of the major human health risk assessment issues posed by these stockpiles have been discussed with the consultant for this report, and agreement has been reached and documented on those issues. The HERD confined its review to the human health risk assessment and did not review Appendix A Draft Site Investigation Report Characterization of Soil Stockpiles. The HERD assumes that other Department of Toxic Substances Control (DTSC) staff has reviewed the appendix, attachments, and data sets with respect to the adequacy of site characterization, appropriateness of sample locations, collection techniques, analytical methodology, and adherence to data quality and assurance objectives.

This clearly written human health risk assessment indicates that the soil stockpiles pose an insignificant risk and hazard to current off-site residents and on-site trespassers. The risk and hazard posed during the future construction of a highway interchange utilizing these stockpiles are similarly low for both the construction worker and off-site resident.

The HERD has the following specific comments.

Specific Comments

1. Page 3-2 Section 3.3 Chemical of Potential Concern for Soil. Criteria are presented here for choosing chemicals of potential concern (COPCs) in soil. It should be noted that only data from samples identified as from the stockpile were evaluated in this risk assessment. Samples taken from the stockpile but identified as representing native soil were not included.
2. Page 4-5 Section 4.1.3 Inhalation of Soil Particulates in Current Outdoor Air from Wind Erosion. To the table of parameters, add the dust level in $\mu\text{g}/\text{m}^3$ for each particulate emission factor (PEF) calculated for each soil stockpile.
3. Page 4-6 Section 4.1.3 Inhalation of Soil Particulates in Current Outdoor Air from Wind Erosion, and Table 9 Exposure Parameters: Change the inhalation rate for the construction worker from $2 \text{ m}^3/\text{hour}$ to $2.5 \text{ m}^3/\text{hour}$ as was listed in the draft table of exposure parameters submitted and approved as part of the table of contents, dated August 9, 2006. The inhalation rate of $2.5 \text{ m}^3/\text{hour}$ for the construction worker has

been recommended by the DTSC in the *Human Health Risk Assessment (HHRA) Note Number 1* (October 27, 2005).

4. Page 4-6 Section 4.1.4 Inhalation of Soil Particulates in Future Outdoor Air from Construction Activities, and Table 13 Estimated Particulate Emissions Based on Assumed Future Construction Activities. The method described by the U.S. Environmental Protection Agency (US EPA) in the *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (December 2002) is used to calculate site-specific respirable dust concentrations during construction of the highway interchange. The steps of this method and the results are summarized in Table 13. The on-site dust concentration is calculated to be $102 \mu\text{g}/\text{m}^3$. The dust concentration for the off-site resident is calculated to be $75.7 \mu\text{g}/\text{m}^3$. These values are much lower than the default respirable dust concentration of $1,000 \mu\text{g}/\text{m}^3$ used to derive a particulate emission factor (PEF) for the construction worker scenario recommended in the *Human Health Risk Assessment (HHRA) Note Number 1* (October 27, 2005)). A) The HERD requests that all spreadsheets used to calculate the results shown in this table be submitted as an appendix. B) The final PEF equations should be presented, and the PEFs calculated for the construction worker and the off-site resident should be included in Table 13. C) Part A of Table 13 is arranged in such a way to make it difficult to delineate the equations and parameters used to calculate on-site construction and off-site residential PEFs and associated respirable dust concentrations. The equations in this table should be augmented to make it easy for the reviewer to follow the calculations. D) There is one emission rate from dump trucks, J_t , calculated in Step 4, and another emission rate shown in Steps 6 and 8. Explain the difference, and/or correct the calculations. E) The Q/C term in Step 5 is identified as the off-site air dispersion factor and is identical to the on-site air dispersion factor shown in Step 6. Explain or correct. F) In Step 4, the factor converting a year to seconds is different in the equation and in the parameter list. Please correct.
5. Page 7-3 Section 7.3 Toxicity Assessment. This section discusses the uncertainty inherent in the toxicity criteria routinely used in health risk assessment and correctly states that these toxicity criteria are intended for the evaluation of long-term, chronic exposures. The section should be revised and expanded to point out that the application of such chronic toxicity criteria to evaluate the risk and hazards from the relatively short-term exposure during the future construction of the highway interchange is highly uncertain and conservative.

Conclusions

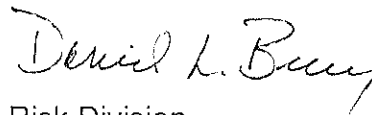
This human health risk assessment has a few deficiencies, as described above, which must be addressed, before the HERD can accept the document.

Randy Adams
July 17, 2007
Page 4

If you have any further questions, please contact me at (510) 540-3762, (916) 255-6643, or via electronic mail at kklein @dtsc.ca.gov.

Reviewed by:

David L. Berry, Ph.D.
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Human and Ecological Risk Division

A handwritten signature in black ink that reads "David L. Berry". The signature is written in a cursive style with a large, prominent "D" and "B".