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MEMORANDUM

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DATE: June 4, 2009

SUBJECT: COMMENTS ON THE RISK ASSESSMENT SECTIONS OF GROUP 8 – WESTERN PORTION OF AREA IV RCRA FACILITY INVESTIGATION REPORT, SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY, CALIFORNIA
PCA: 22120 Site Code: 300381-33 MPC: 42

BACKGROUND

Aerospace-industry research, i.e., development, manufacture, and testing of spacecraft, propulsion units, and parts, has been conducted by Rocketdyne Propulsion and Power (currently owned by Boeing North American, Inc.) at the Santa Susana Field Laboratory (SSFL) since 1948.

The total area of the SSFL facility, located approximately 5 miles west of Chatsworth, is approximately 2850 acres. The facility has been divided into four administrative areas (Areas I – IV) plus a 1200-acre Buffer Zone.

The Group 8 Area RFI Report is the third in a series of RFI Group Area Reports that will ultimately provide coverage for the entire Santa Susana Field Laboratory (SSFL). The Group 8 Reporting Area is located in the western portion of Area IV and includes the following RFI sites: the Building 056 Land fill (SWMU 7.1), the Empire State Atomic Development Authority Area (ESADA, SWMU 7.9), the Former Sodium Disposal Facility (FSDF, SWMU 7.3), and the Building 009 Leach Field (Area IV Area of Concern).

DOCUMENTS REVIEWED

The Human and Ecological Risk Division (HERD) has reviewed the four volume set "Group 8 Western Portion of Area IV RCRA Facility Investigation Report Santa Susana Field Laboratory, Ventura County, California". These documents are dated September 2007 and were prepared by Montgomery Watson Harza (MWH), contractors to the Boeing Company and the United States Department of Energy.

Microsoft Excel® spreadsheets and electronic copies of Appendix F risk workbooks were provided to allow verification of risk and hazard calculations. These are available through DTSC.

Supplemental information has been provided by GSU, Laura Rainey (December 10, 2008) and Tom Seckington, (December 10, 2008) and the ecological sections of the risk assessment have been reviewed (Brian Faulkner, December 5, 2008).

GENERAL RISK ASSESSMENT COMMENTS (Volume I and Appendix F)

This memorandum reports a review of the risk assessment methodology and the calculations which were used for all Group 8 areas. The risk assessment cannot be approved until all sites are fully characterized and the risk assessment is compliant with the requirements of SB 990.

A. The parameters for the suburban residential and the recreational scenarios have been reviewed and are acceptable. SB 990 compliant parameters must be used in the final risk assessment. The formulas utilized for route-specific dosage calculation under the first two scenarios are consistent with those in the approved SRAM and are acceptable.

B. HERD notes that a new background/ambient data set is currently being developed for metals and organic chemicals with input from community members. This dataset will be used to evaluate the onsite data for identification of COPCs. HERD has previously recommended statistical analyses to establish the background data sets for identification of chemicals of potential concern.

C. The cumulative risk and hazard calculations will be re-verified after contaminant characterization has been completed as recommended in the GSU memorandum (Rainy, November 24, 2008). The addition of chemicals to the list of Chemicals of Potential Concern (COPCs) and/or changes in Exposure Point Concentrations (EPCs) may result in changes in the estimates of risk or hazard. The recommendations for remedial options must be based on final risk or hazard estimates.

D. Appendix F reports that ProUCL v 3.0 was utilized to calculate 95% upper confidence limits. This software has been updated (v 4.0) and utilizes a more robust method of calculation in situations where the frequency of detections (concentrations greater than the detection limits) is low. Spreadsheet F3-1 (Appendix F-disc) reports that most Volatile Organic Chemicals (VOCs), Semi-Volatile Organic Chemicals (SVOCs), and Poly-Chlorinated Biphenyls (PCBs) have low frequencies of detection (<25%). HERD recommends recalculating the EPCs using ProUCL v4.0.

E. The use of data only from the last three years to calculate risks from indirect and/or direct exposure to contaminants in groundwater must be verified by GSU. HERD defers to the GSU as to adequacy of data collected during the last 3-years to accurately represent the current concentrations of contaminants in groundwater. Data for all other media must be comprehensive, unless valid reasons for omission of these data are provided in the text.

F. The report should allow verification of choices of COPCs, EPCs, and calculations of risk and hazard for the dioxin/furan congeners. It appears that some dioxin congeners may have been eliminated from the calculation of the sample TEQ because they were not detected above background levels or TEF-generated multiples of the TCDD level. HERD is concerned that these congeners may not have been included in calculation of sample TEQs.

G. Appendix F and Table F-10 report that RiskBooks and spreadsheets are located in Appendix F. However, these files cannot be identified in that appendix. Electronic copies of these spreadsheets have been provided to DTSC and are available upon request.

H. Indirect exposures to contaminants in groundwater have been analyzed; however direct exposures have not been included in cumulative risk and hazard estimates (Section F-1.0, page F-1, Appendix F). A deed restriction on use of groundwater consumption is not in place. The potential for consumption of groundwater exists until a deed restriction has been placed on use of groundwater. HERD recommends including all direct exposures in potential exposure estimates.

I. Risk Based Screening Levels (RBSLs) must be based on the requirements of SB 990 for purposes of contaminant characterization. The Risk Based Screening Levels, which have been submitted and revised address only residential and recreational scenarios. Risk Based Screening Levels, which are compliant with SB 990 may result in need for additional sample collection to validate contaminant and site characterization.

J. Each area (SWMU or AOC) has been divided into smaller operational units which may result in CMS recommendations of no further action for the smaller operational unit, while the cumulative effects of exposure to contaminants in the larger area (SWMU or AOC) may not be calculated appropriately. The result of the current approach may be that contamination in the operational unit is not included in the calculation of cumulative exposure and subsequent cumulative risk for the larger units (SWMUs or AOCs). Examples of this division into smaller operational units occur in both the Building 009 LF (Appendix A) and the FSDF (Appendix D) where, in each unit, nine separate areas have been evaluated. HERD does not think that contamination, which results in risks or hazards above target levels would be overlooked. However; contamination, which results in potential risks which are near or slightly below the target level, may result in excessive cumulative risks when potential exposures to other contaminants are included.

K. Field Action Levels (Table F-8, Appendix F) are incorrectly included as a column under OEHHA Screening Levels, and EPA PRGs. Field Action Levels were developed by the Responsible Party and may not be used as screening levels. Field Action Levels were intended to be used only to guide location of step out samples around potential source areas.

L. The SRAM requires that all non-detected dioxin congeners, with TCDD-like activity, that have been detected at least once (in any site media) be evaluated as chemicals of potential concern in the risk assessment at a concentration of one-half the detection limit. Table B.4-1 lists the congeners as chemicals of potential concern. Please verify that all of the appropriate congeners in a sample were included in the calculation of the Toxicity Equivalency Quotient (TEQ) for the sample. Potential risk associated with these congeners must be evaluated according to EPA methods. Appendix F and the tables in the report must clearly explain the potential risk estimates.

I. BUILDING 009 LEACH FIELD (APPENDIX A) - RISK ASSESSMENT COMMENTS:

A. SWMU and AOCs within the B 009 RFI site are identified in Section A.2.1, page 2-2. Table A.5-1 reports that this site has been divided into nine areas for evaluation. See General Risk Assessment Comment J.

B. The correct methodology (Table A.4-1, Appendix A) has been used to identify COPCs (Table A.4-1, Appendix A). However; the list of COPCs must be updated based on the results of additional characterization requested by GSU and on revisions of the background data set.

C. Utilization of the maximum detected concentration as the Exposure Point Concentrations (Table A.4-1, Appendix A) is acceptable, however, additional characterization as required by GSU may result in additional chemicals of potential concern as well as changes in EPCs.

D. Risk drivers were not identified at any operational areas within this unit.

E. Risk calculations are located in electronic copies of Attachment F-1-5 to F-1-9 and in Table A.4-2. These calculations have been verified, and have been calculated according to formulae from the approved SRAM.

F. The CMS recommendations (Appendix A, Table A-5.2) for all areas must be reevaluated following adequate responses to the comments by the GSU.

II. BUILDING 056 LANDFILL (Appendix B) - RISK ASSESSMENT COMMENTS

A. The correct methodology has been used to identify chemicals of potential concern. However; the list of COPCs must be updated based on the results of additional characterization requested by GSU and on revisions of the background/ambient data set, and development of SB 990 compliant RBSLs. Table B.5-1 reports that this site has been divided into six areas for evaluation. See General Risk Assessment Comment J.

B. Exposure Point Concentrations (Table A.4-1, Appendix A) are acceptable as maximum detected concentrations; however, additional characterization as required by GSU may result in additional chemicals of potential concern as well as changes in EPCs.

C. Identified risk drivers include Arochlor 1254, PAH, and dioxins.

D. Risk calculations are located in electronic copies of Appendix F-1-5 to F-1-9 and in Table B.4-2. These calculations have been executed according to approved formulae in the SRAM.

E. The CMS recommendations (Appendix B, Table B-5.2) for all areas must be reevaluated following adequate responses to the comments by the GSU.

III. EMPIRE STATE ATOMIC DEVELOPMENT AUTHORITY (Appendix C) - RISK ASSESSMENT COMMENTS

A. The correct methodology has been used to identify chemicals of potential concern. However; the list of COPCs must be updated based on the results of additional characterization requested by GSU and on revisions of the background/ambient data set and development of SB 990 compliant RBSLs. Table C.5-1 reports that this site has been divided into five areas for evaluation. See General Risk Assessment Comment J.

B. Exposure Point Concentrations (Table A.4-1, Appendix A) are acceptable as maximum detected concentrations, however, additional characterization as required by GSU may result in additional chemicals of potential concern as well as changes in EPCs.

C. Risk drivers included in this area are identified in Table C.5-1 as lead, arsenic, and antimony.

D. Risk calculations are located in electronic copies of Appendix F-1-5 to F-1-9 and in Table C.4-2. These calculations have been executed according to approved formulae in the SRAM.

E. The CMS recommendations (Appendix C, Table C-5.2) for all areas must be reevaluated following adequate responses to the comments by the GSU.

IV. FORMER SODIUM DISPOSAL FACILITY (Appendix D) - RISK ASSESSMENT COMMENTS

A. The correct methodology has been used to identify COPCs; however the list of COPCs must be updated based on the results of additional characterization requested by GSU and on revisions of the background data set. Table D.5-1 reports that this site has been divided into nine areas for evaluation. See General Risk Assessment Comment J.

B. Exposure Point Concentrations (Table A.4-1, Appendix A) are acceptable as maximum detected concentrations; however, additional characterization as required by GSU may result in additional chemicals of potential concern as well as changes in EPCs.

C. Identified risk drivers include TCE and arsenic.

D. Risk calculations are located in electronic copies of Appendix F-1-5 to F-1-9 and in Table D.4-2. These calculations have been spot-checked and have been calculated according to the formulae in the approved SRAM.

E. The CMS recommendations (Appendix D, Table D.5.2) for all areas must be reevaluated following adequate responses to the comments by the GSU.

CONCLUSION AND RECOMMENDATIONS

HERD recommends that site characterization be completed and fully approved by the Geological Services Unit and that adequate responses to HERD comments relative to the human health and ecologic risk assessments be approved prior to final approval of the risk assessments for the four areas within the Group 8 RFI area. All complete pathways and all identified chemicals of potential concern and acceptable EPCs must be included in the risk assessment. Final recommendations for areas that will be evaluated in the Corrective Measures Study cannot be approved until all sites are fully characterized relative to human and ecological risks and hazards. Compliance with the requirements of SB 990 is required in the final risk assessment.

Reviewed by: Gerald A. Pollock, Ph.D.
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