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ADMINISTRATIVE RECORD
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AR File Number 537

MEETING SUMMARY **CH2MHILL**

DDMT Main Installation Risk Assessment Approach Meeting

ATTENDEES:	Ted Simon/USEPA	Scott Bradley/CEHNC
	Turpin Ballard/USEPA	John Martin/CH2M HILL
	Ruth Chen/TDEH	Vijaya Mylavarapu/CH2M HILL
	Jordan English/TDEC	Leslie Shannon/CH2M HILL
	Shawn Phillips/DDSP-FE	Greg Underberg/CH2M HILL
	Dorothy Richards/CEHNC	
COPIES	Sharon Thoms/USEPA	Sharon Belser/CH2M HILL
	Sue Freiberger/CH2M HILL	Betsey Garland/CH2M HILL
TO.	Project File	
FROM:	Leslie Shannon/CH2M HILL	
	Greg Underberg/CH2M HILL	
	Vijaya Mylavarapu/CH2M HILL	
DATE:	November 17, 1998	

A meeting was held at the U.S. EPA offices in Atlanta on November 16, 1998 to discuss and agree upon the risk assessment approach for the DDMT Main Installation. Topics discussed during the meeting are summarized below according to Action Items, Decisions Made, and Other Issues.

Action Items

- The meeting minutes and phone call logs will be included as an appendix to the RI Report. The purpose of including the minutes is to provide the EPA contractors that will review the report an understanding of the decisions made that influenced preparation of the report
- CH2M HILL will redo the RI Report outline, based on a functional unit rather than operable unit (OU) subdivision, and submit to EPA for a preliminary review. EPA and TDEC will determine what administrative changes, if any, need to occur to shift from OU to functional unit groupings
- The Natural Resource Trustees (e.g. U.S. Fish and Wildlife Service) will be notified in writing of all meetings and the proposed screening levels This needs to be accomplished now. Shawn Phillips and John Martin will contact the involved parties and prepare a letter of information necessary.

- CH2M HILL will involve Jordan English in the screening process to select the surrogate site for each functional unit and each exposure scenario, at his request.
- Dr. Vijaya Mylavarapu agreed to fax the new Interim Guidance on Toxicity Equivalency Factors to Drs. Simon and Chen, who will then have a conference call with Dr. Mylavarapu. Their decision on how to handle the PAHs will then be appended to the meeting minutes, and included in the RI Report.
- Dr. Simon will provide Drs. Vijaya Mylavarapu and Chen with a copy of the new draft national guidance on dermal toxicity criteria. Newer guidance modifies the intake estimates through adjustment of the adherence or adsorption factors, which will be implemented in the dose calculations. These three individuals will then hold a conference call and relay their decisions, which will be appended to these meeting minutes.
- The site lead target concentrations will be determined by an IEUBK model for an adult. Dr. Simon provided CH2M HILL with a copy of the guidance.
- Dr. Simon strongly urged CH2M HILL to submit the interim deliverables now from the ecological risk assessment, and get the agreement of the Natural Resource Trustees for the first Scientific Management Decision Point (SMDP), otherwise the RI process could be slowed down.
- Dr. Simon will send John Martin a copy of the latest guidelines or information regarding ecological soil benchmarks. These included the Canadian and Dutch soil values.
- Jordan English will determine who from TDEC will review the Ecological Risk Assessment, and provide this name to CEHNC.
- Shawn Phillips will send a copy of the base Reuse Plan to Vijaya Mylavarapu .
- CH2M HILL will send a copy of the Background Report to Dr. Chen
- Jordan English will provide a letter on TDEC letterhead that identifies the background levels of arsenic in western Tennessee. This letter will be provided to EPA to support selection of a DDMT-specific arsenic background level. If available, the analytical data will be provided which will be included the arsenic background statistics
- Greg Underberg will provide documentation of derivation of the existing 20 mg/kg of arsenic background value.

Issues Discussed and Decisions Made

General Issues

- EPA indicated that risk communication issues will be dealt with after the risk assessment is conducted. We will prepare the risk assessment following established guidelines and procedures and manage communication to the public later

- Dr. Simon mentioned that there is a new document in progress entitled "Process for Ecological Assessments at Federal Facilities in Region IV", but it is not yet available
- Regarding ecological risk, Dr. Simon mentioned that the COPCs are typically negotiated at the second SMDP (in Step 3).
- EPA indicated that the purpose of the OU is to facilitate risk reduction. CH2M HILL proposed using Functional Units (FUs) in place of OUs to represent the contaminant nature and extent and risk evaluations from BRAC parcels, and individual RI and SS sites. Therefore, the RI Report will be reorganized around functional units as chapters.
- The RI sites within a functional unit will be evaluated and prioritized in terms of human health risk using the Preliminary Risk Evaluation (PRE) methodology reported in the *Final Preliminary Risk Evaluation* (CEHNC; April, 1998). CH2M HILL will evaluate the site(s) with the highest PRE risk that also cover the contaminants of concern identified by the PRE methodology for all sites within the functional unit. To reduce the number of site-specific risk assessments, baseline risk assessment will be performed only on the worst site(s) thus providing a conservative surrogate risk for the remaining sites.
- PRE results will be included as an appendix to the RI Report.
- The Exposure Point Concentration (EPC) will be calculated for a functional unit, and for the site listed as highest priority in the PRE for scenario-specific intake estimated.
- A residential scenario should be evaluated. Institutional controls will not be invoked during the risk assessment. Region IV and TDEC assume that there are no institutional controls in place
- At sites that have already been remediated, CH2M HILL will conduct a residual risk assessment using post-remediation sampling data only. The report will clearly state that this risk assessment represents post-removal conditions.
- Groundwater at the site will be evaluated as one site with multiple plumes. Organic chemicals will be evaluated as plumes and inorganic chemicals, if they do not occur as plumes, will be evaluated as one site and estimate the 95% UCL for exposure quantitation.
- EPA Region IV and TDEC both agree that the RAGS Part D format <u>will not be</u> implemented in this Baseline Risk Assessment or RI Report
- Since lead has no toxicity factor, it will be screened against the screening criteria for residential and industrial receptor protective values. High lead sites will be evaluated using IEUBK model for adult receptors.
- The new dermal guidance scheduled to be out shortly lowers some of the dermal exposure factors such as the adherence factor, resulting in lower intake through dermal exposure pathway. EPA recommends using this newer guidance at DDMT. After CH2M HILL reviews the guidance, a conference call may be scheduled to discuss.
- CH2M HILL will add a child exposure scenario to the Exposure Factor Table 3.

Conceptual Site Model

- The conceptual site model will be a flow chart similar to the one presented at the meeting. An example of the flow chart will be included with the Example Functional Unit document.
- The CSM will present the potentially complete pathways based on the information available on a site to date. EPA suggested adding/keeping the incomplete pathways on the figure to indicate all the pathways have been considered in the evaluation. Ecological and human receptors will be presented in the same flow chart.

Guidance to be followed for RA

- The latest available guidance will be followed.

- No Tennessee risk assessment guidance exists. Tennessee follows the EPA Region IV guidance. TDEC indicated that the project should follow the EPA risk assessment guidance.

Data Evaluation

- All the analytical data collected by CH2M HILL will be used for COPC selections and quantitative evaluations.
- Historical data collected in 1990 by Law Engineering will not be used in the risk assessment due to the lack of supporting QA/QC data. Also because CH2M HILL could not confirm the previously reported concentrations by Law through resampling.

Exposure Assessment

- Exposure pathways to be evaluated include a worker scenario for the current land use, evaluating a current maintenance worker exposure. Future exposure scenarios will include a default worker and resident.
- When exposure factor exposure time (ET) is modified for smaller sites, EPA suggested using the fraction ingested (FI) term for ingestion, provided an explanation of how the number was derived is given in the text. Other similar terms will be included for dermal and inhalation pathways with proper explanation.
- The dermal exposures should be estimated using the latest adherence/adsorption factors which results in dermal intakes lower than oral intakes The new draft national guidance on dermal exposure will be used in this risk assessment, as soon as it is available.
- Exposures will be evaluated for a maintenance worker from a FU, and from a site listed with high potential risks from PRE results. Future worker and residential scenarios will also be evaluated for the FU and 'worst-case' site. This selected site conservatively represents the worst-case exposures from a FU, to account for potential higher concentration areas within the FU. Dr. Chen expressed concern that the risk assessment

should consider multiple exposures – for example, a golfer at DDMT may also be an employee that works in one of the parcels. Other multiple exposure scenarios include the worker/resident or resident/ballplayer scenarios. The exposure assessment discussion should include these scenarios.

- The site management decisions will be based on future land use, which is likely to be industrial. The proposed future land use will be documented using the existing Base Reuse Plan
- A future residential land use will also be evaluated and included in the report. The narrative should state that this scenario was included for comparison purposes only. Fugitive dust exposure to offsite residents will be evaluated for sites near the perimeter of DDMT
- Exposure point concentrations are the UCL95% concentration on the mean For groundwater, the EPCs are the average the well concentrations from center of the plume (i.e., well with the highest total contamination) for organic constituents and UCL95% estimates of all well concentrations within the aquifer for the inorganic chemicals. Each contaminant plume will be evaluated separately.

Toxicity Assessment

- Toxicity factors will be obtained from EPA databases (EPA Region IV does not prefer the values from EPA Region III RBC Tables).
- PAHs are proposed to be evaluated by applying the TEF factors to the concentrations, pending EPA's final decision on this issue.

Remedial Goal Options

RGOs will be calculated for both industrial and residential scenarios following the EPA Region IV guidance.

Ecological Risk Assessment

- CH2M HILL will use exclusively the EPA Ecological Risk Assessment Guidance for Superfund· Process for Designing and Conducting Ecological Risk Assessments, June 1997 Interim Final for preparing the ecological risk assessment.
- Steps 1, 2, and 3 will be conducted as necessary for the RFI. Steps 4 through 8 will not be conducted.
- An environmental checklist will be completed that is based on a site visit and existing site-specific information.
- The screening benchmark levels proposed for the ecological risk assessment are:

  -Surface Water – EPA Region IV, TN Surface Water Quality Standards

  -Sediment – EPA Region IV guidelines

  -Surface Soil – Canadian Soil Quality Criteria, Dutch Soil Cleanup Criteria

- The Screening Level Risk Calculation Results include: COPCs with HQs $\geq$ 1 will be considered in Step 3; COPCs with HQs < 1 will no longer be considered COPCs, and COPCs without benchmarks will be considered in Step 3. If the screening benchmarks were based on detection limits, these COPCs will also be carried forward into Step 3.
- Step 3 allows for risk management decisions to be made regarding COPCs, whereas in Steps 1 and 2 risk management is not involved.
- The group is in general agreement that there is minimal ecological habitat at the facility.

General Site-wide Issues Discussion and Decisions Made

- The site PAHs are widely distributed at the Main Installation and appear to be from non-point sources. The documentation and site management decisions should be based on PAH levels in background and potential source material such as asphalt.

- Railroad tracks and general low levels along the roadways are considered non-point sources.
- Based on PAH levels in the asphalt sample and railroad ties wood samples from other sites, PAHs detected at the site may not be site-related. It was decided that the occurrence of PAHs at railroad yards will be included in the risk assessment uncertainty discussion to provide a perspective for the risk managers. New samples collected for asphalt will be used to determine if the site PAH data appear to be similar to these source material PAH contents.
- PAHs in the background comparisons should be included as part of nature and extent and possibly in the uncertainty section of the RA
- Arsenic is a naturally occurring inorganic typically observed in the background above health-based criteria. Single background concentration value comparisons may be exceeded at some of the sampling location, thus selecting arsenic as a COPC for the site. CH2M HILL proposed to evaluate the distribution of the arsenic data and identify elevated concentrations that are associated with a suspected arsenic source or are indicative of a release as identified via spatial co-location of elevated concentrations above background. These values will be removed from the onsite population of arsenic values. This trimmed onsite and the background arsenic population will be tested statistically to determine if the onsite population, less elevated concentrations associated with specific CERCLA sites, is significantly different from background. If the test does not show that the onsite dataset is statistically different from background, then risk assessment will not be included as arsenic at that location is not a COPC.

  EPA (Dr. Simon) suggested to consider using two tests to conduct the onsite to background statistical evaluation. For each COPC, both the Gehan test (a version of the Wilkoxson test corrected for nondetects) and a nonparametric tolerance interval of the lower concentration level at the 5th percentile lower confidence limit of the 0.9 quartile would be used. If either of these tests is positive, then it cannot be shown that the onsite data are from the same distribution as the background data. Outliers could be discussed in the uncertainty section of the risk assessment.

- Dr. Simon indicated he could accept a population test for arsenic, provided an adequate documentation of the decisions made was maintained, particularly documenting the elevated levels of arsenic due to pesticide applications across the west Tennessee region Dr. Simon requested that TDEC provide a letter, on TDEC letterhead, documenting the background levels of arsenic found in western Tennessee. He also requested that if the analytical data was available, it be tested against the 22-sample DDMT dataset and, if the populations were determined to be the same, they be combined into one background dataset to improve the power of the background to onsite population tests.
- The derivation of the arsenic background value developed by CH2M HILL will be attached to these meeting minutes.
- The following decisions regarding sitewide **dieldrin** were either made or reiterated:

  -The Region III industrial land use criteria of 360 ug/kg (ppb) is essentially a surrogate background value for dieldrin derived from the BCT evaluation of the dieldrin population testing.

  -Any detected dieldrin concentration above 360 ppb is a COPC and subject to risk assessment, anything below 360 ppb is a not a COPC.

  -With regard to functional units and pesticide management sites, if the UCL is greater than 360 ppb, then more risk assessment or other investigation is needed. If the UCL is less than 360 ppb, this site is finished and may go to No Further Action. Text describing this issue should be placed in the RI Report.

  - Because of its ubiquitous application at DDMT, dieldrin will be evaluated as a site-wide constituent with the exception of those sites where dieldrin was specifically handled or stored.

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