



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 129

MEMORANDUM

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DATE: September 19, 1995

SUBJECT: Chemical Warfare Meeting Minutes Summary

PROJECT: 110479.CW.ZZ

Introduction

On September 13, 1995, a meeting was held to discuss Chemical Warfare Material (CWM) issues as they relate to the currently proposed Remedial Investigation (RI) at the Defense Depot Memphis, Tennessee (DDMT). A copy of the meeting agenda is presented as Attachment 1. Significant issues discussed were responsibilities, strategy, public relations, CWM requirements, and special CWM requirements. The following sections present a summary of the meeting.

Responsibilities

Summarized below are the organizational responsibilities.

CEHND-OE

Responsible for conducting CWM investigations correctly within the context of government requirements and safety requirements.

MEMORANDUM

Page 3

September 19, 1995

1. Conduct an Initial Investigation focused on the known CWM sites at the facility, which include the following:

- The mustard bomb decommissioning site (Site No. 24)
- The ashes and metals burial site (Site No. 9)
- Chemical Agent Identification Sets (CAISs) burial site (Site No. 1)
- Food burial site (documented to contain CAISs, Site No. 86)
- Canister burial site (no Site No.)
- The chlorinated lime pits (no Site No.)
- The leaking mustard bomb train area (no Site No.)

The CAISs were buried in the 1940s and 1950s; therefore, nerve agent is not a contaminant of concern. Nerve agent was present in test kits manufactured in the 1960s. Also, all sites listed above are located on Dunn Field except the last. The last site has been documented (based on historic records) to be clear of mustard, but a confirmation is warranted. Details of the test methods, analytical procedures, and detection limits used for the site were not provided in the historical records.

Also, one of the objectives of the initial investigation is to identify the nature and extent of any potential CWM contamination. This is needed to establish contingency procedures for performing RI at HTW sites that are not expected to contain CWM (non-CWM sites). The end result of the investigation will become a report that documents the recommended action (Engineering Evaluation/Cost Analysis) for CWM sites.

2. Prepare a Site Safety Submission for review by the appropriate agencies. The CEHND-OE Division will take the lead because of their experience and capabilities. This Site Safety Submission is required to conduct removal actions at CWM sites. If removal of CWM does not occur, no Site Safety Submission is required. An applicable or relevant and appropriate requirements (ARARs) component will be incorporated into the Site Safety Submission. CH2M HILL will take the lead on the ARARs' component.

3. Conduct necessary CWM removal actions based on the results of the field investigations. Field monitoring and screening will occur during the field activities to document the occurrence of releases of CWM. A key component of the investigations will include field monitoring using quick turnaround methods for identifying contaminated media. These field activities can also be used during the HTW investigation; therefore, DDMT can realize some cost savings.

Action Items

Specific action items have been identified to begin the activities to complete the tasks identified under the strategy presented above. These action items are summarized below.

MEMORANDUM

Page 5

September 19, 1995

- Discuss and provide CWM ARARs' component with Earnest White at CEHND.
- Provide geophysical capabilities to CEHND-PM and CEHND-OE.
- Discuss potential effects of approach to OU-1 field investigations. Develop strategy to minimize cost and schedule effects.
- Develop a monitoring plan and incorporate the plan into the investigative strategy at Dunn Field (RI and Screening Sites) using Site Safety Submission. Also incorporate results of DDMT's Contingency Plan.
- Provide hospital contact to DDMT from project records.

Schedule

The schedule of the project was driven by the amount of time required to obtain approval of a Site Safety Submission. The CEHND-OE indicated that approximately 1 year is required. Other activities were scheduled around this time frame. All intrusive investigations at Dunn Field will be delayed until the field monitoring for the CWM removal actions is in place. A copy of the proposed schedule is provided as Attachment 2.

Other Issues

- An 81-mm round of ordnance (possibly unexploded) exists in the western half of Dunn Field. Because of the potential for unexploded ordnance (UXO) at Dunn Field, an "ordnance avoidance" strategy needs to be incorporated into intrusive investigation at sites in the western half of Dunn Field.
- DDMT, CEHND, and TEU will need to consider how contracting might occur for TEU to conduct field screening during the RI at Dunn Field. If a CWM removal does not occur, then CEHND-OE division will not require their field services; however, the RI (for non-CWM sites) in the western half of Dunn Field (where CWM is expected) will need field monitoring. Also, if the RI and CWM removal occur simultaneously, the HTW component may require a longer field effort, therefore requiring the field services for a longer period.

Attachment 1
CWM Meeting Agenda

Chemical Warfare Meeting Agenda

CEHND/Beville Center

September 13th, 1995

G. Strategy during field investigation(Control/Resp/Authority) 1300-1400

Initial investigations

Work Plan Scenarios

Recovered Mustard

Recovered CAISs intact

Recovered CAISs broken or damaged

H. Requirements for Site Safety Submission 1400-1415

I. Protective Action Plan (progress for DDMT) 1415-1430

Agreements and CAIRA Plan

J. CH2M HILL needs 1430-1445

USACDRA report

K. UXO Component 1445-1500

How to incorporate

L. Review 1500-1530

Understanding the Process/Scope

Understanding the Responsibilities

Schedule

Action Items

MEMORANDUM**CH2M HILL****Introduction**

CH2M HILL will be conducting Remedial Investigations and activities at Dunn Field, a part of the Defense Depot Memphis, Tennessee (DDMT). It is known that chemical warfare materials are present at Dunn Field. The Tennessee Department of Environment and Conservation (TDEC) and DDMT have expressed concerns over the public health and safety during RI activities.

From our recent discussions, I understand that CEHND will be evaluating the Downwind Hazard associated with the maximum credible event (MCE) for intrusive activities at Dunn Field. We also understand that the D2PC model (or other appropriate technique) will be used to evaluate the hazards associated with the intrusive activities.

There are two primary needs for the DDMT project when using this model: an evaluation of hazards prior to field activities using the MCE and continuous onsite evaluations during field activities to assess actual conditions. The initial evaluation is significant to understand what engineering controls might be implemented prior to field activities to minimize the adverse conditions that might be encountered.

The purpose of this memo is to pass along information from our files based on data obtained in the last year so that you will be able to develop the basis for the MCE during intrusive investigations and site remediation. The following paragraphs present the background and rationale to support the MCE development.

CWM Background***German Mustard Bombs***

In 1946, leaking German mustard bombs were decommissioned at the facility. The bomb bursters were set off by dynamite, holes were shot into the casing to drain the mustard, and the mustard and the shell casings were further decommissioned by burning in a pit in the southwestern quadrant of Dunn Field. The ash and refuse were removed and disposed of in a pit in the northwestern corner of Dunn Field. It is estimated that seven 500 Kg bombs and three 250 Kg bombs were decommissioned in this manner. Historical records indicate that these burial locations are known; however, many burials occurred at Dunn Field and the records are of questionable accuracy and completeness.

Chemical Agent Identification Sets

DDMT also stored Chemical Agent ID sets (CAISs). Several of the sets had been damaged and were disposed of by burying in Dunn Field. Disposal in the Dunn Field area occurred between 1952 and 1956, according to records. Some of the disposal records indicate that the exact location is known. Personnel interviews conducted regarding the disposal indicate that

MEMORANDUM

Page 3

September 19, 1995

recover German mustard. The mass recovered would be difficult to predict; however, it seems credible that a 3" long mass by 2" diameter portion of the spoon could be filled with German mustard intact. Using a density of 100 lbs/cf, the recovered mass would equate to an MCE of 0.54 lbs or 0.25 kg.

During drilling activities, it is unlikely that the glass vials would be extruded from the subsurface, brought to ground level, and then broken to expose the entire contents. Also, it is unlikely that a large number of the entire CAIS kits would be retrieved all at once. It is possible and realistic to retrieve materials that are severed during drilling or that have been broken in the past. The MCE should consider the following factors: total volume of agent in the CAIS, persistence of compounds in the environment (for historically broken items), soil adsorptive capacity, and drilling techniques (auger, split-spoon, or other type of core).

MCE During Removal Activities

- Burial pits that contain hazardous and toxic waste (HTW) are slated for early removal at Dunn Field. These pits are located in proximity to and were created during the same time frame as the CWM burial areas. It is possible that CWM may have been buried in the HTW pits, regardless of the disposal records generated by DDMT.

The MCE for German mustard that has not been adequately decontaminated should consider the volume of bombs that were decommissioned, the degradation rate of mustard in the subsurface, and the soil adsorptive capacity for mustard. The scenario should also consider that large scale excavation (using a backhoe or bulldozer) will occur to remove these sites.

Likewise, the MCE for the CAISs should consider that large scale excavation for HTW sites will occur. The MCE for the removal scenario should be larger than that for the drilling activities. It is conceivable that 1) the entire contents of a CAIS were damaged and released to the environment upon disposal, or 2) an entire CAIS will be damaged during excavation activities.

D2PC Modeling Considerations

Other factors used in the development of the model and the MCE evaluation should include the following:

- Year-round climatic conditions. However, if the model indicates that the no effect zone is unacceptable during certain climatic conditions, then this should be known so that contracting and field activities can be scheduled appropriately.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE