



Department of Toxic Substances Control



Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

M60050.003113
MCAS EL TORO
SSIC NO. 5090.3

GOVERNOR

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

October 1, 2003

Mr. F. Andrew Piszkin
BRAC Environmental Coordinator
Base Realignment and Closure
Marine Corps Air Station El Toro
7040 Trabuco Road
Irvine, California 92618

DRAFT PRE-DESIGN INVESTIGATION TECHNICAL MEMORANDUM, OPERABLE
UNIT (OU) 2C, LANDFILL SITES 3 AND 5, FORMER MARINE CORPS AIR STATION
(MCAS) EL TORO, EL TORO, CALIFORNIA

Dear Mr. Piszkin:

The Department of Toxic Substances Control (DTSC) has reviewed the subject document dated August 5, 2003 and received by our office on August 7, 2003.

The Office of Military Facilities staff and Mr. David Murchison of DTSC's Geologic Services Unit (GSU) reviewed the report and have provided comments with this transmittal. Mr. Murchison's comments are included in Enclosure A.

We believe that data presented in this technical memorandum is not sufficient to support the reduction of volume of the wastes in the landfill areas. If Navy's recommendation is based on the data included in the Remedial Investigation (RI) report dated April 1997, then we recommend that data be included in the technical memorandum and that an opportunity be provided for discussion of this issue at the next Base Closure Team (BCT) teleconference. The recommendation that no engineering controls and institutional controls are required for Sites 3 and 5 seems premature without the discussion of the RI data and the evaluation of risk to human health and the environment. Also, we understand that historically no data has been collected and/or available for Site 5. Based on our review, we have the following comments:

Section 4, Waste Placement Boundaries

1. Waste Area A: What is the basis of the estimated limits towards the northwesterly direction?

2. Waste Area B: We are not sure if sufficient data is available to estimate the limits of the waste found. The data towards the north, south and the west of the estimated limits is either limited or not available. Therefore, it is difficult to agree on the estimated limits of the waste as presented in the report.
3. Waste Area C: The limits have been shown to end towards the southern portion of Irvine Boulevard. We do not see any basis for ending the limits of this portion of the landfill at this location. More explanation is needed to convince our staff that the northeasterly boundary ends towards the southern end of Irvine Boulevard. Additionally, is there any data to support that the waste was not dumped in the area to the north and west of Irvine Boulevard?
4. Waste Area D: We did not see any data to support the western and eastern limits as shown in the report. More data/explanation is needed to justify these limits.
5. We recommend that the groundwater contours (flow direction) should be included in the report. Additionally, we believe that a discussion of potential changes in the groundwater flow direction during winter months will be useful.

Findings and Recommendations:

6. In the first bullet point, it is stated that volume of the landfill is significantly reduced from 163,000 to 243,000 cubic yards to 30,000 cubic yards. We do not believe that sufficient data is available to support this statement.
7. We do not agree with the recommendation that engineering and institutional controls are not required at Site 3. There are only 4 soil gas monitoring wells around the western portion of Site 3. If additional data is available from the RI report, those data points should be included in this report. Additionally, we are unsure about the potential impact the leachate can have to surface water and groundwater. The RI report indicates that no significant impact is expected, but fails to address this issue in case there is heavy winter rainfall. We believe that during such time a more significant impact can be expected since the hydraulic connection between the Agua Chion Wash and the underlying waste in the landfill can be significant. The potential impact may include migration of soil gas and contaminated groundwater within and outside the original boundaries of the landfill. Erosion of stream banks of the Agua Chion Wash is also considered to be a significant issue at Site 3. Therefore, erosion control measures will be needed and it is premature to state that engineering and institutional controls are not required at Site 3.
8. We realize the scope of this investigation is limited to further defining the boundaries of the landfills, however, we believe that the summary of groundwater data should be included in this report if conclusions and

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QUESTIONS MAY BE DIRECTED TO:

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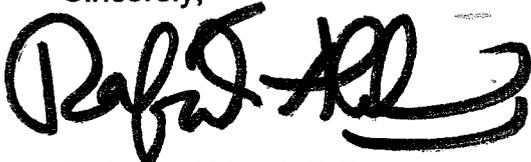
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recommendations regarding the overall remedial design strategy for these sites are included in Section 5.

9. A review of remedial action alternatives presented in the Feasibility Study report may be needed, but only after further discussion with the regulatory agencies. The issues associated with this report must first be addressed before such a review can be performed.

If you have any questions, please contact me at (714) 484-5449.

Sincerely,



Rafat A. Abbasi, P.E.,
Senior Engineer
Southern California Branch
Office of Military Facilities

Enclosure

cc: Ms. Nicole Moutoux
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10/1/03 10:00 AM

ENCLOSURE A

BRAC OFFICE

2003 OCT 16 A 7:50



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Edwin F. Lowry, Director
5796 Corporate Avenue
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Gray Davis
Governor

MEMORANDUM

TO: Rafat Abbasi
Senior Hazardous Substances Engineer
Base Closure/Reuse Unit

FROM: Dave Murchison, R. G. 
Engineering Geologist
Cypress Geological Services Unit

CONCUR: Scott Warren, C. E. G., C. Hg. 
Senior Engineering Geologist
Cypress Geological Services Unit

DATE: September 22, 2003

SUBJECT: Geologic/Hydrogeologic Review of the
Draft Pre-Design Investigation Technical Memorandum
Operable Unit 2C, Landfill Sites 3 and 5
Marine Corps Air Station
El Toro, CA
Prepared by Earth Tech, Inc. Dated August 2003

PCA: 18040 Site Code: 400055-18 Request No. 20037059

As requested, Geological Services Unit (GSU) staff performed a review of the Draft Technical Memorandum (Memorandum) described above. The Memorandum details the results of a Pre-Design Investigation (Investigation) that will be used to support remedial design for the two landfills designated the Original Landfill (IRP Site 3) and the Perimeter Road Landfill (IRP Site 5).

Specific comments regarding details of the Memorandum follow. Questions regarding the memorandum should be directed to Dave Murchison at (714) 484-5484.

Introduction

The purpose of the Memorandum is to present the data gathered in the subject Investigation, intended to support remedial design efforts at Site 3 and Site 5.

The scope of work was installation and logging of a large number of trenches and potholes to determine the vertical and lateral extent of waste, and the installation and sampling of perimeter soil vapor monitoring wells. Soil vapor and soil matrix samples were collected and analyzed during this effort, and field screening for methane, VOCs and landfill gases was performed during the trenching and potholing work. No groundwater sampling or analysis is reported.

Soil vapor wells were installed at Site 3, but deferred at Site 5.

The objectives of the Investigation were to; verify the boundaries of the landfills by means of exploratory trenching, collect soil matrix samples for geotechnical testing, revise landfill boundaries where previous investigations differ, install perimeter soil gas monitoring wells, and monitor soil gas samples quarterly for one year.

The Investigation also gathered data on Aerial Photographic Anomaly 46, and Miscellaneous Refuse Area 2, two areas adjacent to, or overlapping Site 5, and identified during a previous aerial photograph investigation and an environmental baseline survey.

History of the Sites

Site 3 comprises about 11 acres in the eastern portion of MCAS El Toro. It adjoins Irvine Boulevard on the north, and is dissected by the channel of Agua Chinon Wash, an intermittent stream. The landfill was reportedly active between 1943 and 1955, and was operated as a cut-and-fill landfill operation. Burnable waste was burned in a nearby incinerator prior to landfilling. The landfill probably received all types of waste generated at the base. The waste streams probably included metals, ash, solvents, paint, hydraulic fluid, coolants, oily waste, construction materials, municipal waste, and other materials.

Site 3 is subdivided into 4 units designated Unit 1 through Unit 4. Unit 1 is the main landfill area. Unit 2 is the unlined channel of Agua Chinon Wash, which dissects Unit 1 and does not contain waste. Unit 3 is a 'solvent spill' area, that was investigated ending in 1996, and reportedly does not contain solvents at concentrations above risk criteria. Unit 4 is the area of the former incinerator, and contains landfill waste.

Site 5 comprises slightly less than 2 acres in an elongated area just north of Perimeter Road within the Base. The landfill is apparently about 1200 feet long, by 60 feet wide. The landfill was reportedly active from about 1955 to the late 1960s, and was operated as a cut-and-fill operation. The landfill probably received all types of waste generated at the base. The waste streams probably included burnable waste, municipal waste, cleaning fluids, metals, paint, fuels, oils, and solvents.

Previous Investigations

At Site 3, previous investigations include an Initial Assessment Study (1986), and Phase I and Phase II Remedial Investigations (1996). Groundwater samples reportedly contained benzene above MCLs, which the Memorandum suggests may be from a UST site to the southwest. Some emissions of methane and VOCs from the surface of the landfill were documented, but are reportedly low, and similar to concentrations found in soil vapor samples.

Site 5 was included in the Phase I and Phase II RI for Site 3, above, reportedly with similar results. While soil vapor monitoring wells were not installed, the Memorandum indicates that some soil vapor testing was done. Six soil borings and 3 lysimeter borings were reported.

Current Investigation

Four soil gas monitoring well pairs were installed at Site 3, with dual completions as 1-inch PVC wells, one screened at 5-6 feet below ground surface (bgs) and one screened at 19-20 feet bgs. No soil gas monitoring wells were installed at Site 5, although they had been proposed in the Workplan.

Two rounds of soil gas sampling are reported, in December 2002 and March 2003. In round 1, 8 soil gas samples and 1 duplicate were collected from Site 3 wells, and 3 soil gas samples were collected from the lysimeters at Site 5. In round 2, Soil gas samples were collected from 8 soil gas samples and 1 duplicate were collected from Site 3 wells, and 3 soil gas samples and 1 duplicate were collected from the lysimeters at Site 5.

Soil gas data indicated the presence of several VOCs in wells around Site 3. These include a number of species probably related to fuels such as benzene, toluene, trimethylbenzene, and similar compounds, plus three Freons, small amounts of chlorinated solvents including PCE, TCE, methylene chloride, and carbon tetrachloride, and oxygenated solvents including 2-butanone and tetrahydrofuran.

Tetrahydrofuran (THF) was present in the highest concentrations of any VOC reported, appearing in all 8 Site 3 screens at least once, and in at least trace amounts in every sample. The maximum concentrations appeared in vapor well PG04 northeast of Site 3. THF was present at concentrations as high as 72 µg/L in the shallow sample and 24 µg/L in the deep sample. Concentrations declined significantly in round 2, to 4.3 and 0.4 µg/L respectively. The Memorandum attributes the THF and the 2-butanone to well construction materials.

Waste placement boundaries were determined by digging a number of trenches and potholes by means of a backhoe. GSU notes 59 trenches and potholes were dug at Site 3, and 8 trenches and potholes at Site 5. The data was used to calculate the volumes of waste at the respective sites. The data appear to be adequate for delineating the bodies of waste materials.

General Comments

1. There appears to be a data gap with respect to groundwater conditions at the two Sites. GSU requests that the contractor include a more detailed discussion of groundwater depths, groundwater depth below base of the landfills, gradient directions, and a review of the available groundwater contamination data for upgradient and downgradient wells. The discussion should pay particular attention to data relating to VOCs.
2. The Workplan for this investigation included provision for four rounds of quarterly soil gas monitoring at Site 3. Only two rounds are included in the Memorandum. The contractor should include a discussion of this variance, including any regulatory correspondence relating to the reduced monitoring schedule, or complete the originally approved monitoring schedule and include the data in the Memorandum.
3. The Workplan for this investigation included provision for installation of soil vapor monitoring wells at Site 5, and four rounds of quarterly soil gas monitoring. Two rounds of soil vapor data are included, taken from piezometers rather than wells designed to monitor landfill gases. The contractor should include a discussion of this variance, including any regulatory correspondence relating to the reduced monitoring schedule, or complete the originally approved wells and monitoring schedule and include the data in the Memorandum.
4. The contractor should discuss the rationale for attributing THF and 2-butanone concentrations in soil vapor to well construction materials rather than landfill contents. If documentation of THF and 2-butanone in well construction is available it should be included in the Memorandum, and the reasons for the use of the materials discussed.
5. GSU is concerned that intermittent base flow in Agua Chinon Wash during the rainy season may saturate part of the waste in Site 3, and tend to mobilize contaminants. The Contractor should prepare a cross section traversing the main bodies of waste and the channel of Agua Chinon Wash, and showing the relative positions and elevations of the channel and the waste so that this concern can be evaluated.

Specific Comments

1. Section 2.2 Site 3 Perimeter Gas Monitoring Well Installation, page 2-2. The text states that Figure 2-1 shows the locations of the perimeter gas wells. The figure lacks this information. The contractor should correct the figure.
2. Figures 4-1, and 4-2, the set of symbols in the Legend does not match the symbols used in the main body of the Figure. Contractor should correct the Legend or the Figure to use consistent symbols.