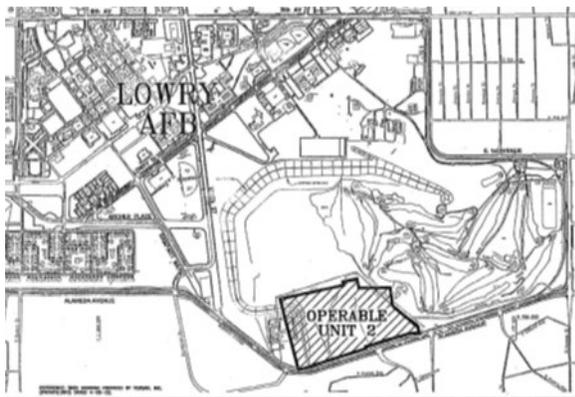


Electromagnetic (EM) Survey

April 2015

Background

The environmental condition of the former landfill (Operable Unit 2/OU2) was characterized through extensive investigation beginning in 1983. Garbage from the base and construction debris were disposed in trenches at the site and then covered in soil. Nature and extent of contamination at the landfill was determined by collecting samples of soil, sediment, soil gas vapor, surface water and groundwater during seven investigation programs prior to closure of the landfill. Closure of the landfill with a soil cap was designed in accordance with State and EPA requirements to isolate any waste from the environment.



Goal of Survey

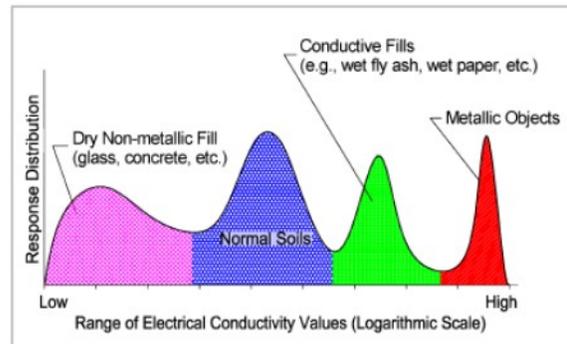
The goal of the electromagnetic (EM) survey is to identify the location and extent of as many individual waste-filled trenches as possible. Trench locations will be used to:

- help guide redevelopment plans in minimizing overlapping building footprints and
- scale back the Field Investigation Work Plan, particularly, in areas that are outside of development plans or within areas outside of building footprints such as parking.

Trench locations near contemplated building footprints will be targeted for boreholes used to verify the findings of the EM survey. Anomalies identified in areas away from building footprints will not be pursued to characterize the potential underlying trench or waste within the trench. Anomalies within potential building footprints will also not be pursued with respect to waste characterization.

Technical Basis of EM Survey

All materials, native (i.e. soil) or man-made (such as concrete, metal, and mixed trash), have differing EM properties. The success of the survey will hinge on the ability of the instrument used and the method applied to be able to distinguish the EM contrasts between the native and man-made materials.



Electrical conductivity is mainly related to the amount of water present in a material's pore space. This varies among differing native as well as man-made materials. Only in the case of metals and a few rare conductive native minerals will the solid material conduct the electricity.

Previous EM Work

A past EM survey performed on behalf of the Air Force in December 1990 was able to identify trench clusters in the south-central and northwest portions of the landfill area; however, individual trenches were only suggested in some areas and likely missed entirely in others. The survey was performed along transects, spaced 100-feet apart, using a Geonics EM-31 instrument.

Current Scope and Procedures

The current EM survey will be conducted over the entire OU2. The horizontal and vertical resolution of the data collected will be greatly enhanced from the earlier survey by decreasing the transect spacing from 100 to 20 feet and by use of a GF Instruments CMD-Explorer which uses 3-dipoles versus the one dipole available on the EM-31 tool.

The survey will be performed by two persons, each carrying a separate instrument and walking the site. The instrument is integrated with a global positioning system for real time accurate locational data. The field work is anticipated to be performed over a three day span during the spring 2015.



GF Instruments CMD-Explorer

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Selected OU2 Environmental Documents

(Full project bibliography is available in the Five Year Reviews and upon request.)

Lowry AFB Landfill Environmental Investigations/Chronology	
IRP Phase 1 records search	1983
IRP Phase II Confirmation/Quantification	1987
Remedial Investigation (RI)	1990
Supplemental RI for the Landfill Zone	1995
Focused Feasibility Study	1998
Proposed Plan	1998
Preliminary Closure Plan for OU2	2003
Phase 2 Corrective Action Plan	2003
Long-Term Monitoring for Radiological Parameters	2004-2005
Landfill Closure	2004-2005
Post-Closure Monitoring – (19 sampling events through January 2014)	2006–2014
Additional Radiological monitoring	2007
Closeout of Radiological study with No Further Action determination	2008
Five Year Review	2008
Second Five Year Review	2013

General Lowry Environmental Program Information:

www.lowryafbcleanup.com provides information on the environmental program, updates and document links.

Administrative Record - a compilation of significant environmental documents, correspondence and decision documents for Lowry's cleanup, available to the public at <http://afcec.publicadmin-Record.us.af.mil>

Colorado Department of Public Health and Environment maintains a website with information on the Lowry Environmental program at http://www.colorado.gov/pacific/CDPHE/lowry_afb

Information Repositories:

Environmental documents are available for public viewing at the following information repositories:

Lowry Assumption, LLC

7290 East 1st Avenue, Denver, CO 80230
 303.972.6633

Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division Records Center

4300 Cherry Creek Drive South, Denver CO 80246
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