Kirtland AFB - Bulk Fuels Facility Spill: Regulatory Authority under RCRA and History

New Mexico Environment Department
University of New Mexico School of Law
Kirtland AFB
Bulk Fuels Facility Spill

Regulatory Authority under RCRA and History

New Mexico Environment Department
http://www.nmenv.state.nm.us

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Regulatory Authority: Statutes and Regulations

  - Established permitting, manifest system, and other administrative mechanisms to track and manage waste from "cradle-to-grave."
  - 1984 Hazardous and Solid Waste Amendments
    - Waste minimization and land disposal
    - Releases of hazardous waste or constituents subject to corrective action

- NM Hazardous Waste Act (HWA), NMSA 1978, §§ 74-4-1 to 74-4-14
  - Includes requirements for corrective action, including releases extending beyond a facility's boundaries

- HWA authorized promulgation of Hazardous Waste Management Regulations (HWMR), 20.4.1 NMAC

- New Mexico authorized as the administrative authority for corrective action under RCRA by EPA on January 2, 1996
Regulatory Authority: Imposed through Permit

- Kirtland AFB Hazardous Waste Facility Permit
  - Renewed on June 15, 2010; effective July 16, 2010

- Permit Part 6 contains extensive provisions for corrective action as required pursuant to 20.4.1.500 NMAC incorporating 40 CFR § 264.101
  - Primary driver for corrective action at the Facility
  - Must protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the Facility
  - Schedules of compliance
  - Must implement corrective actions beyond the Facility boundary, where necessary
Regulatory Authority: Corrective Action for SWMUs

- Corrective Action required by regulations (20.4.1.500 NMAC incorporating 40 CFR § 264.101) and imposed through Permit (Permit Part 6)

- Collectively, the "Bulk Fuels Facility Spill“ made up of:
  - Solid Waste Management Unit (SWMU) ST-106 - Bulk Fuels Facility Former Fuel Offloading Rack
  - SWMU SS-111 - Light Non-Aqueous Phase Liquid ("LNAPL") plume

- ST-106 and SS-111 listed in Permit as being subject to corrective action
  - Attachment I, Table I-3
Water Quality Regulations and Requirements

- **State Drinking Water Regulations, 20.7.10 NMAC**
  - Federal Safe Drinking Water Regulations, 40 CFR 141 through 143

- **Ground and Surface Water Protection Regulations, 20.4.2 NMAC**
  - NM Water Quality Act, NMSA 1978, Sections 74-6-1 through 74-6-17

- **Hazardous Waste Permit Condition**
  - Permit Section 6.2.3.1, *Cleanup Levels for Contaminants in Groundwater*
Water Quality Standards

• **Ethylene Dibromide**
  – EPA Maximum Contaminant Level (MCL) 0.05 µg/L (ppb)
  – New Mexico WQCC Standard (WQCC) 0.10 µg/l

• **Benzene**
  – EPA MCL 5 µg/L
  – NM WQCC 10 µg/L

• **Toluene**
  – EPA MCL 1 mg/L (ppm)
  – NM WQCC 0.750 mg/L

• **Xylenes (total)**
  – EPA MCL 10 mg/L
  – NM WQCC 0.620 mg/L
KAFF Bulk Fuels Facility
What it is or was?

Fuel Storage and Distribution System

• Constructed ~ 1952
• Tank farm (2.1 and 4.2 MGal tanks)
• Ancillary piping (underground and above ground)
• Fuel Offloading Rack (removed)
  – surface portion completed prior to excavation in 2010
  – underground portion complete in 2011
  – New fuel storage and distribution system has been constructed
    • state of art leak detection
KA_FB Bulk Fuels Facility
What it is or was?

• Fuel detected in subsurface 1999
• Fuels: aviation gas (in the past) and jet fuel (JP-4 prior to 1993, JP-8 since 1993)
  – Avgas - Aviation Gas with tetraethyl lead (TEL)
  – Jet Propellant-4 (JP-4) 50-50 kerosene-gasoline
  – Jet Propellant-8 (JP-8) kerosene-based
Primary Features of Bulk Fuels Facility

- Former Fuel Offloading Rack
- Underground Pipeline
- Above Ground Pipeline
- Fuel Tanks
KAFB Bulk Fuels Facility Spill

• **Current primary focus:**
  – Install/operate new SVE Unit (on 2 wells)
  – Characterize northern-eastern extent of EDB plume in groundwater
  – Extension approved for installation of wells through November 30, 2012
    • Well drilling at two locations began in July 2012

• **Secondary focus:**
  – LNAPL Containment System:
    • Implement down-hole technologies at hot spots
      – Air stripping and air sparging in addition to SVE
  – LNAPL Containment Well:
    • Well completed - implementation on hold to see how contamination responds to SVE
Characterization of EDB Plume

• Current data confirms northern part EDB plume undefined
• EDB exceeds MCL (0.05 µg/L) in shallow, intermediate, and deep wells. Full vertical extent not known
• KAFB to complete 9 wells at 3 locations north of where EDB has been found
• NMED initially proposed additional 24 wells at 8 locations (edge and core of EDB plume)
• KAFB proposing iterative process to select new well locations
• NMED’s current estimate groundwater velocity 120-360 ft/year
Existing and Proposed Ground Water wells
New SVE Unit

• Design stage
• 2 purpose-built wells completed and ready to be employed when SVE Unit constructed
• In the meantime, older ICE units installed ST-106 (manifold), KAFB-106149, KAFB-106160, and KAFB-106161
Total VOCs (in ppmv) at 450 ft bgs.
Current Status and Looking Ahead

• Project currently in investigation phase
  • Final remedy cannot be determined until investigation is complete
  • Interim measures have been required while investigation continues
    — Enough is already known to begin cleanup of vadose zone and groundwater

• Interim measures
  • Implement SVE
  • Implement down-hole technologies to address hot spots

• Issue Remedial Action Plan (RAP) ASAP to treat groundwater generated by LNAPL Containment System (should system be deployed)

• Corrective Measures Evaluation (CME) Report required 180 days after NMED approves site characterization (Investigation Report)

• Revise RAP to incorporate final remedy based on CME Report and public input
  • Public notice to be issued to seek public input
  • A public hearing may be held

• Approve Corrective Measures Implementation (CMI) Plan for implementing final remedy

• Implement and complete final remedy
Contact Information

James H. Davis, Ph.D.
Director, Resource Protection Division
jim.davis@state.nm.us
(505) 827-1758

John E. Kieling, Chief
Hazardous Waste Bureau
john.kieling@state.nm.us
(505) 476-6035

Further information:

Environment Department
http://www.nmenv.state.nm.us/HWB/kafbperm.htm

Kirtland Air Force Base
http://www.kirtland.af.mil/environment.asp