



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

NEW MEXICO  **ENPOWERED**
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 South St. Francis Drive
P.O. Box 5469, Santa Fe, NM 87502

www.nmenv.state.nm.us



DAVE MARTIN
Secretary

RAJ SOLOMON, P.E.
Deputy Secretary

Public Meeting

hosted by

The New Mexico Environment Department

Kirtland Air Force Base's Bulk Fuels Facility Spill

May 3, 2011

6:00 p.m. to 8:45 p.m.

Cesar Chavez Community Center
Albuquerque, New Mexico

AGENDA

Introductions (NMED)	6:00 – 6:10
Background (NMED)	6:10 – 6:20
Panelist Remarks (5 minutes each)	6:20 – 6:35
<ul style="list-style-type: none"> • Kirtland Air Force Base • City of Albuquerque • Albuquerque Bernalillo County Water Utility Authority 	
Revised Work Plans and Status (NMED)	6:35 – 7:30
<ul style="list-style-type: none"> • Interim Measures • Vadose Zone • Groundwater • LNAPL Containment 	
Questions and Answers (NMED and Panelists)	7:30 – 8:30
Next Steps (NMED)	8:30 – 8:45
Adjourn	8:45

KAFB3731

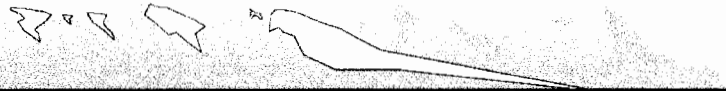


KAFB Bulk Fuels Facility Spill

**Revised Interim Measures and Characterization Plans
And
Site Status**

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

May 3, 2011



KAFB Bulk Fuels Facility

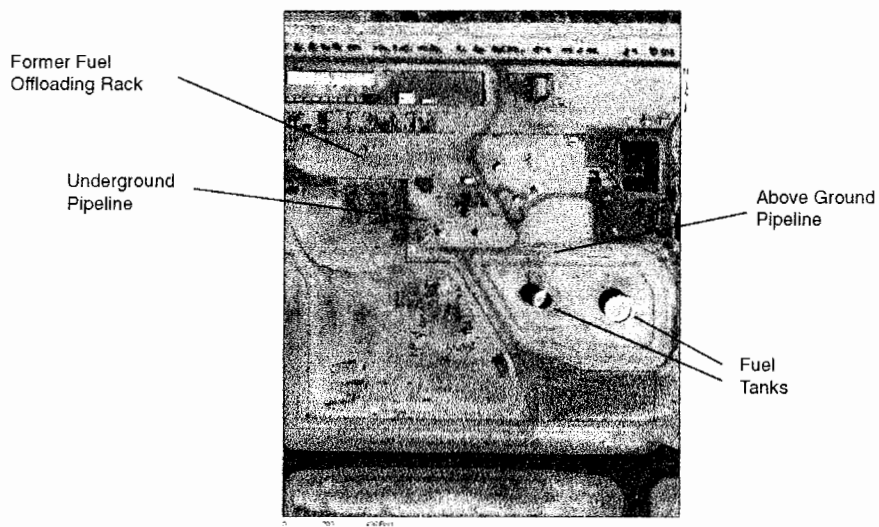
Fuel Storage and Distribution System

- Constructed ~ 1952
- Tank farm (2.1 and 4.2 MGal tanks)
- Ancillary piping (underground and above ground)
- Fuel Offloading Rack (removed)
- Fuels: aviation gas (in the past) and jet fuel (JP-4 prior to 1993, JP-8 since 1993)

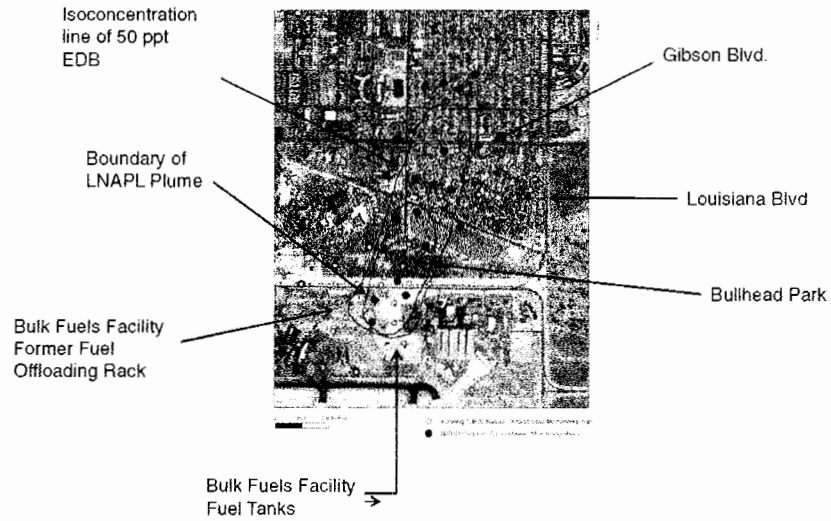
The Problem

- Millions of gallons of fuel have leaked into the ground, possibly for decades.
- Jet fuel floating on groundwater (500 ft depth) – known as “LNAPL” – extends north at least ½ mile
- Dissolved fuel constituents form groundwater contaminant plume extending north at least a mile.
- Contamination has migrated, and may still be migrating, off-site toward water-supply wells
- Contaminants in groundwater include fuel constituents such as EDB, benzene, toluene, xylene, naphthalene, 1-methyl naphthalene, 2-methylnaphthalene

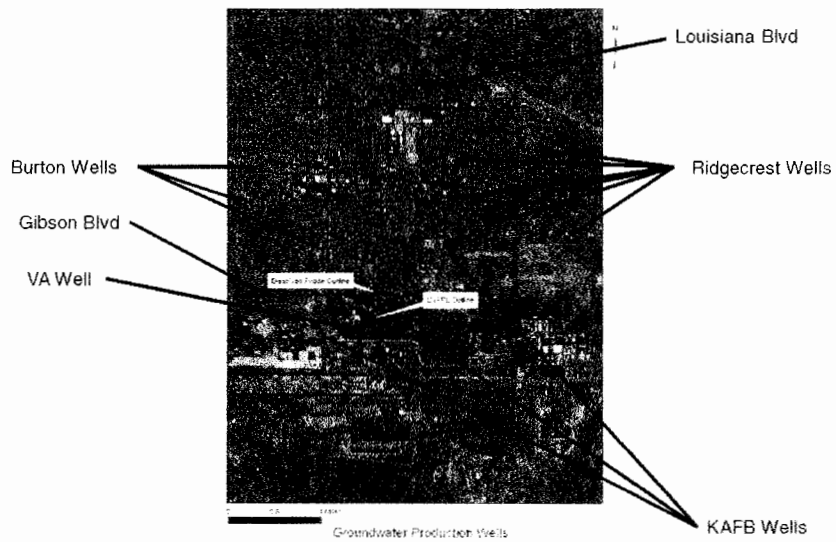
Primary Features of Bulk Fuels Facility



Historical Depiction of Contaminant Plumes



Historical Depiction of Contaminant Plumes Relative to Water-Supply Wells



Current Objectives

- **Accelerate and complete characterization of vadose zone (VZ) and groundwater (GW)**
 - Nature and extent of all contamination
 - Meet clean up levels in those areas above standards
- **Conduct Interim Measures (IM) to begin cleanup**
- **Conduct Corrective Measures Evaluation for selection of long-term remedy**
- **Four major plans have been submitted by KAFB to accomplish the first two objectives**

The Four Major Plans

- **IM Plan** – excavate former Fuel Offloading Rack area, complete shallow boreholes along ancillary piping, and conduct various tests.
- **VZ Investigation Plan** – complete soil borings and soil-vapor monitoring wells.
- **GW Investigation Plan** – install groundwater monitoring wells.
- **LNAPL Containment Plan** – proposal to stop migration of LNAPL and dissolved-phase plumes by extracting groundwater, treating the water, and re-injecting the water back into the aquifer.

Status of the Four Work Plans

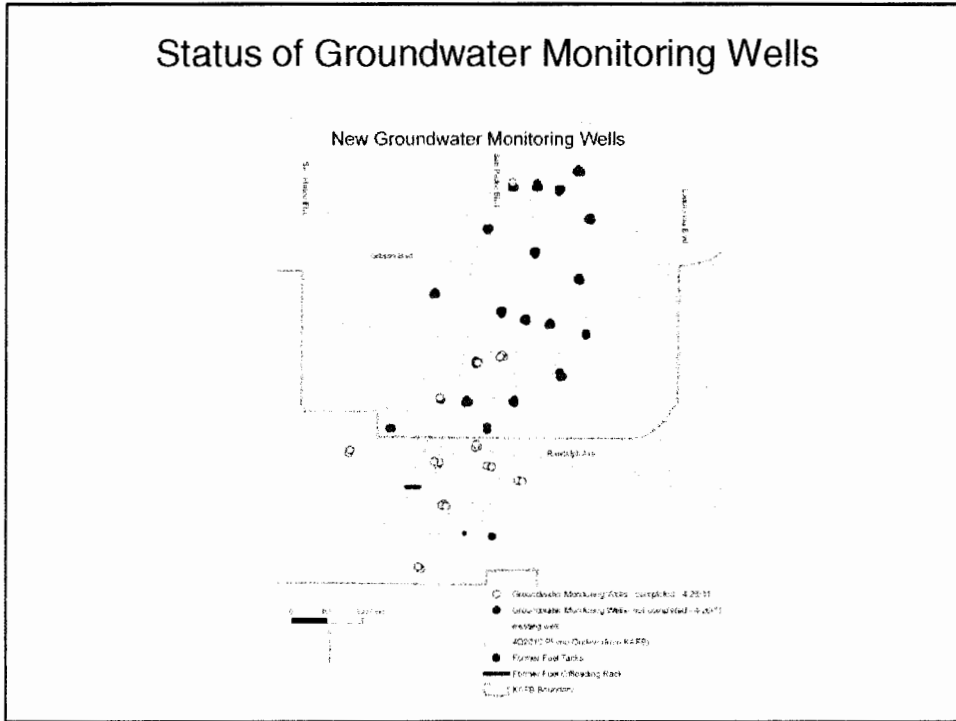
- March 31, 2011 – KAFB submitted revised IM, GW, and VZ Investigation Plans
 - Plans partially approved by NMED on December 10, 2010
 - Revisions under review by NMED

- March 31, 2011 – NMED disapproved LNAPL Containment Plan
 - Required characterization work plan to collect information crucial to system design – due June 15, 2011
 - Report on characterization due February 1, 2012
 - Design for pump and treat system due April 2, 2012

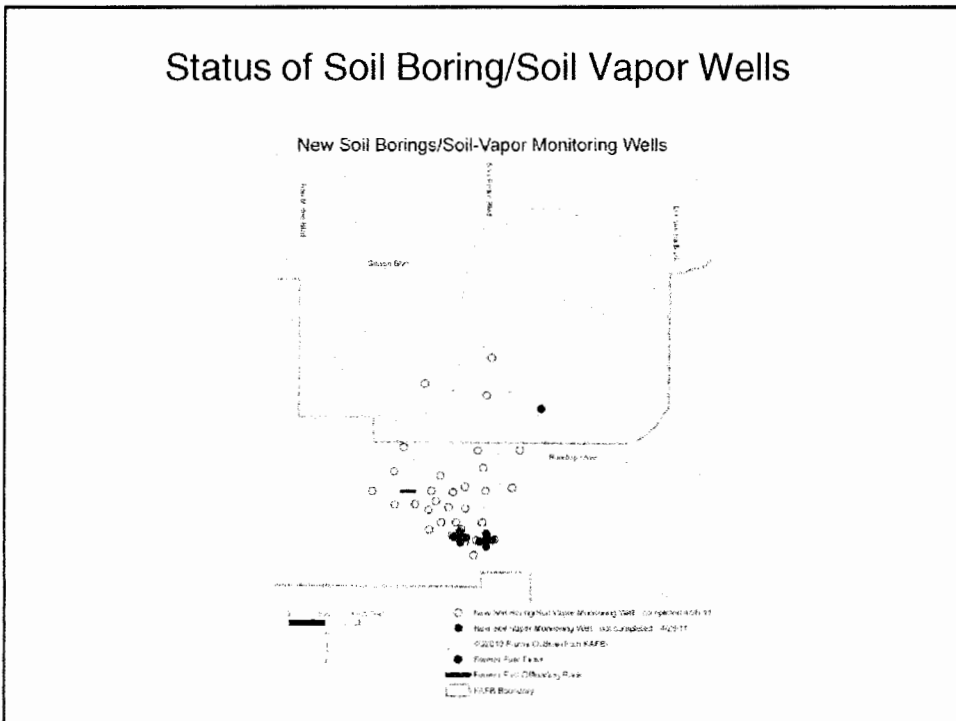
Characterization Work Completed

- Shallow Soil Borings: 5 of 5 completed
- Soil-Vapor Monitoring Wells: 26 of 35
- Groundwater Monitoring Wells: 25 of 78
 - Drilling has moved to neighborhoods north of KAFB
 - 6 drilling rigs in operation
 - Noise, vibration, disruption, air quality are among the neighborhood concerns

Status of Groundwater Monitoring Wells



Status of Soil Boring/Soil Vapor Wells



Relocation of Wells

- Locations for 4 groundwater wells along Gibson changed or to be changed
 - 3 alternative locations approved
 - 1 proposed alternative location requires access agreement
- Locations were moved to:
 - Lessen disruption of traffic flow
 - Improve safety for workers and the public

Indoor Air Quality

- January 28, 2011 – NMED disapproved *Screening Level Risk valuation for Petroleum Hydrocarbon Fuel Compounds in Subslab Soil Vapor*
- Report documents analysis of subslab soil-vapor samples collected at the Fuels Facility Office (Building 1032) and the 90-Day Hazardous Waste Storage Area (Building 1048)
- Additional investigation of soil vapor, and further risk evaluation required
- No air quality impacts from LNAPL plume or groundwater to residents, workers, or KAFB personnel

Hydraulic Properties

- February 21, 2011 – KAFB directed to collect samples at well locations during current drilling campaign
 - Analyze samples for key hydraulic properties
 - Samples were to be undisturbed and representative of aquifer

- No formal response received from KAFB to date, but NMED agreed to allow KAFB to:
 - Collect samples from cyclone of drilling rig, instead of undisturbed samples
 - Forego analysis of porosity and compressibility

A Fifth Work Plan

- January 27, 2011 – KAFB submitted a 5th Work Plan: *Pre-Remedy Monitoring and Soil-Vapor Extraction System Operation and Maintenance Work Plan*
 - Sampling and analysis plan for water, soil, and soil-vapor
 - Also a plan for operating and maintaining the existing soil-vapor extraction (SVE) units
- Under NMED review

Additional Information

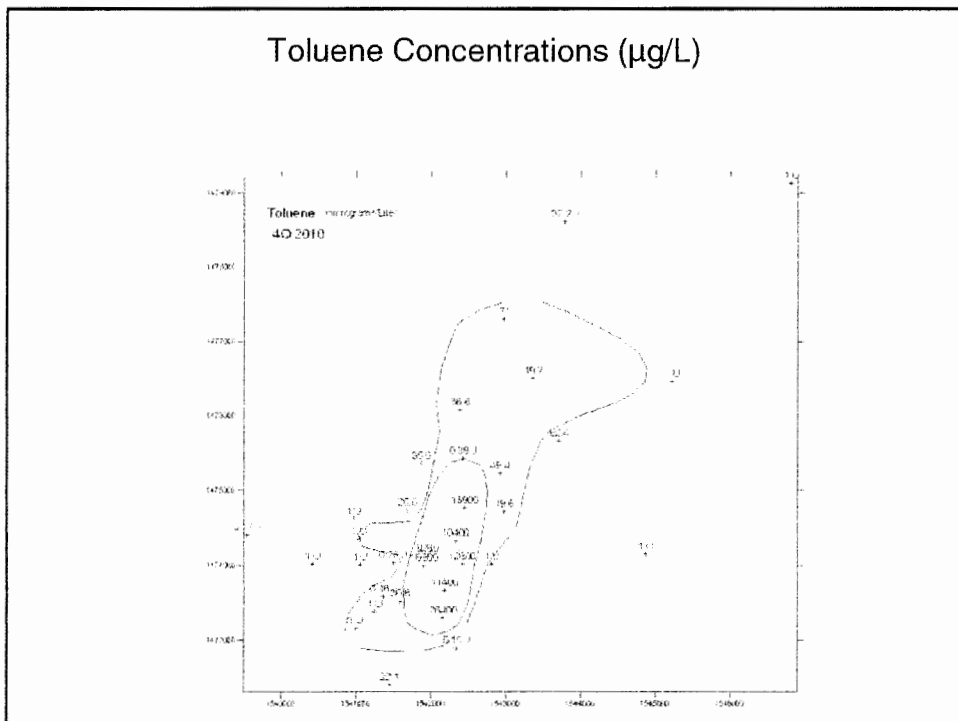
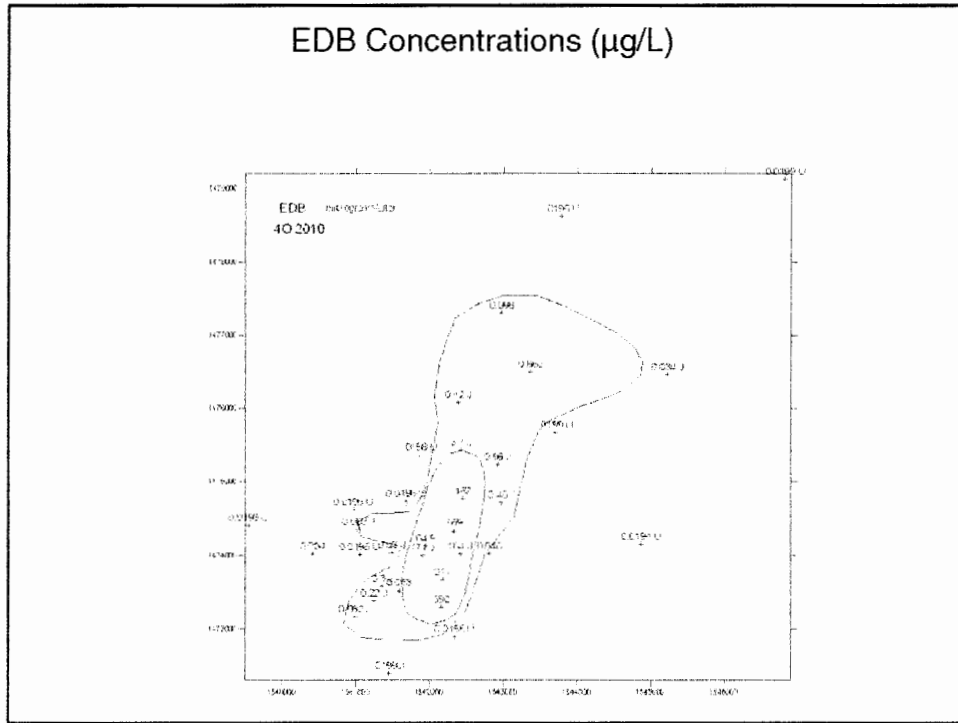
- Quarterly Reports (last February 25, 2011)
- Weekly activity reports
- Memoranda prepared by INTERA Corp. for Water Utility Authority (WUA) concerning various plans
- KAFB response to WUA memorandum on LNAPL Containment Plan
- Laboratory reports on KAFB 10625 and 10626

Available on NMED's web site

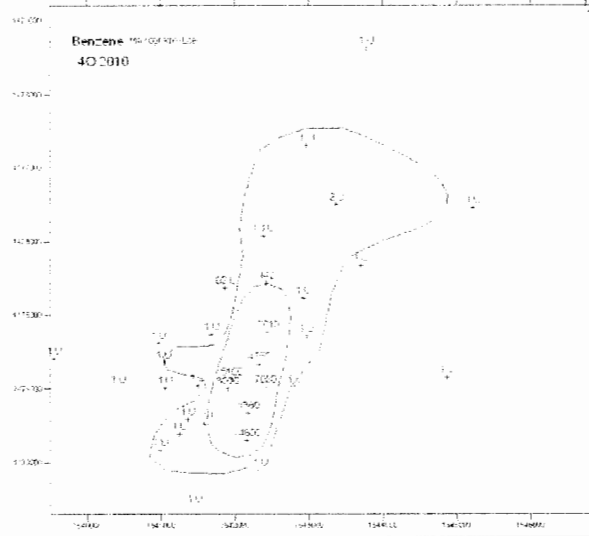
Groundwater Quality

(As Represented by Q4/2010 Data)

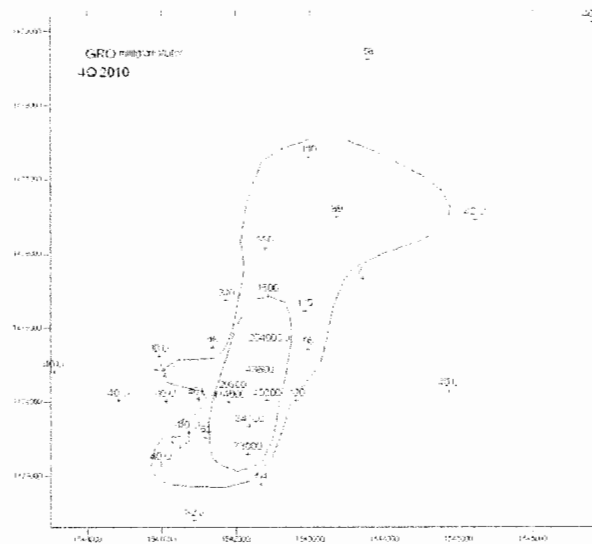
- Next 6 slides show the distribution of various contaminants
- Data are from Table 5-2 of the last quarterly report (February 2011)
- For comparison purposes, the "plume boundary" is that depicted in the quarterly report
- The quarterly report is available on NMED's web site



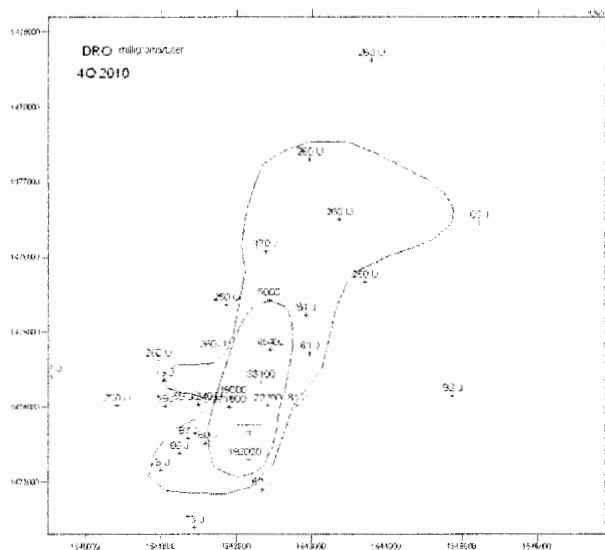
Benzene Concentrations ($\mu\text{g/L}$)



Gasoline Range Organics (GRO) Concentrations (mg/L)



Diesel Range Organics (DRO) Concentrations (mg/L)



Data Quality Issues

- NMED evaluating the data validation plan for the project. Significant concerns include:
 - Transcription errors
 - High laboratory reporting limits
 - Data qualifier use
- NMED is evaluating data quality and whether data quality objectives are being met

Sentry Well Issue

- Contaminants reported in groundwater samples from well KAFB-10626:
 - Toluene
 - GRO (Gasoline Range Organics)
- GRO points to a fuel source
- Additional investigation needed
- Data must be closely examined for errors and quality
- The drilling campaign underway and subsequent quarterly monitoring events should provide some answers
- While the investigation continues, WUA monitors drinking-water quality to protect public

Independent Sampling of Groundwater

- NMED splitting water samples at 12 wells
 - Analyzing for EDB, VOCs, PAHs, DRO, GRO, and Pb
 - Also general chemistry and redox parameters: major anions, major cations, alkalinity, dissolved Fe and Mn, nitrate, ammonia, and sulfide
- To date, sample splits collected at 7 wells
- NMED split water samples with KAFB at sentry well on April 28, 2011

Looking Ahead: Next 6 Months

- Approval of revised IM, VZ, and GW Investigation Plans
- Complete drilling campaign and geophysical logging
- Collect water and soil-vapor samples from all wells
- Prepare 3D models of geology, hydrology, soil and soil-vapor contamination, and groundwater contamination
- Identify and work to close data gaps
- Implement workplan to collect data for LNAPL containment system design
- Proceed with indoor air quality investigation
- Plan excavation of any contaminated soils in source area(s) that exceed a screening level
- Continue SVE

Contact Information

- **James P. Bearzi**
 - 505.476.6016
 - james.bearzi@state.nm.us

- **William Moats**
 - 505.222.9551
 - william.moats@state.nm.us

- <http://www.nmenv.state.nm.us/hwb/>



CITY OF ALBUQUERQUE
AIR QUALITY PERMITTING PROCESS TIMELINES
5/3/2011

Worst-Case Scenario – public information hearing requested and granted

- Process can take up to 7 months (210 days).
- Key Steps
 - 30 days to rule air quality permit application package administratively complete
 - 90 days for technical review and to make decision on the air quality permit application package
 - Includes a 45 day federally required public comment period
 - Includes technical review of air dispersion modeling
 - 90 days to conduct a public information hearing if a hearing is requested during the public comment period and the Environmental Health Department Director grants the request for the public information hearing

Common Scenario – no public information hearing requested

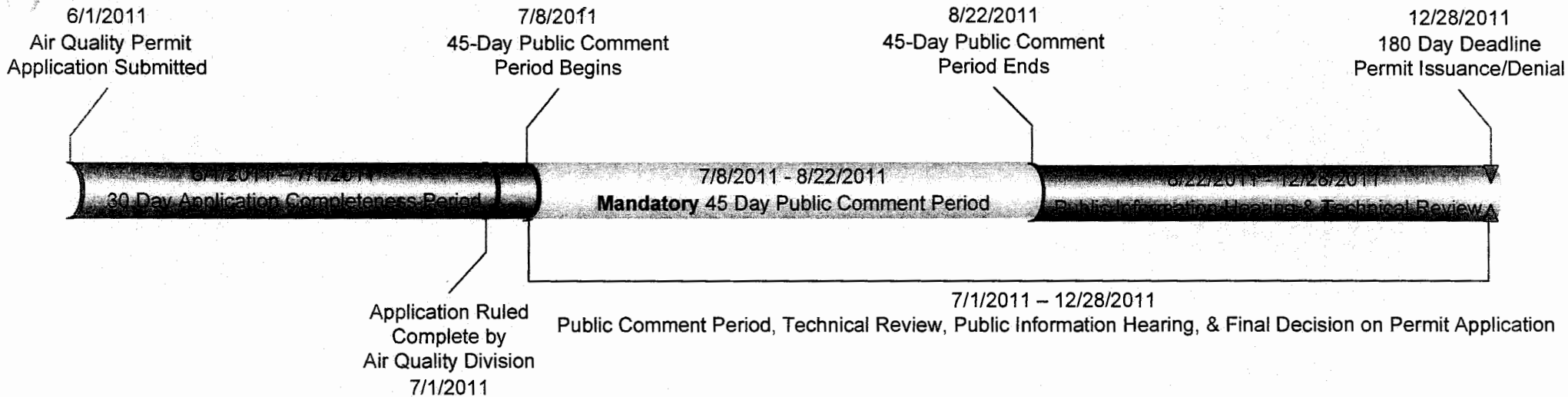
- Process can take up to 4 months (120 days).
- Key Steps
 - 30 days to rule air quality permit application package administratively complete
 - 90 days for technical review and to make decision on the air quality permit application package
 - Includes a 45 day federally required public comment period
 - Includes technical review of air dispersion modeling

Air Quality Permit Applicants

- Conducting a pre-application meeting with the City of Albuquerque Air Quality Division is highly recommended
- The air dispersion modeling can be a challenge for projects for which the public has close access to release points of air emissions.

City of Albuquerque Air Quality Permitting Process Timelines Scenario with Public Information Hearing

Minor Source Air Quality Permitting Process Timelines
Defined in Authority-to-Construct Regulation 20.11.41 NMAC



Air Quality Permitting Process can take ~ 7 months (210 days)

This timeline assumes:

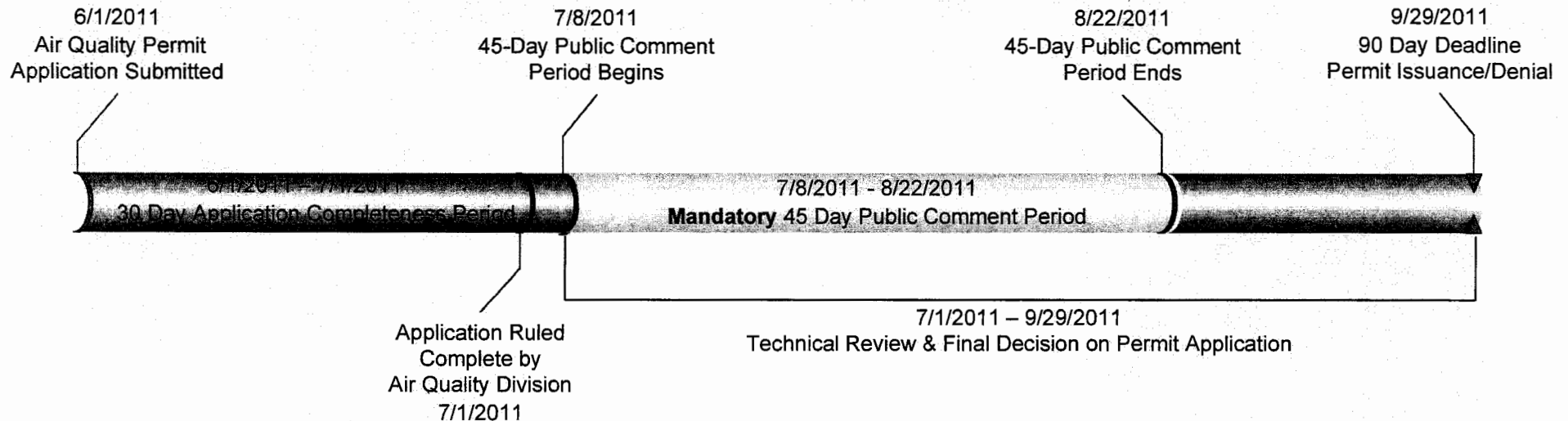
- A public information hearing has been requested, granted & conducted
- Takes the full 30 days to make a completeness determination
- Takes the full 180 days for technical review, public information hearing, and to make decision on application (includes the 45 day public comment period)

City of Albuquerque

Air Quality Permitting Process Timelines

Common Scenario

Minor Source Air Quality Permitting Process Timelines
Defined in Authority-to-Construct Regulation 20.11.41 NMAC



Air Quality Permitting Process can take ~ 4 months (120 days)

This timeline assumes:

- No public information hearing has been requested
- Takes the full 30 days to make a completeness determination
- Takes the full 90 days for technical review and to make decision on application (includes the 45 day public comment period)
- Additional time would be needed if public request a public information hearing (180 days for application decision)