New Mexico Environment Department
DOE Oversight Bureau

Federal Fiscal Year 2010
Second Quarter Report
Jan 01, 2010 to March 31, 2010

Environmental Oversight and Monitoring
At Department of Energy Facilities in New Mexico

Cover Photograph

Spring snowmelt flow behind the low-head weir in Los Alamos Canyon at the “Y” intersection of SR 502 and SR 4.

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LIST OF ACRONYMS

AIP	Agreement-In-Principle
AIRNET	Air Radioactive Particulate and Tritium Monitoring Network at LANL
AQB	Air Quality Bureau (NMED)
BMP	Best Management Practices
BSL-3	Bio-Safety Lab, Level Three
CCNS	Concerned Citizens for Nuclear Safety
CDC	Centers for Disease Control and Prevention
CEMRC	Carlsbad Environmental Monitoring and Research Center (WIPP)
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980 (also known as "Superfund")
CH Waste	Contact Handled Waste (WIPP)
CMRR	Chemistry and Metallurgy Research Replacement (facility)
COOC	Compliance Order on Consent
CRMG	Community Radiation Monitoring Group
CTAC	Carlsbad Technical Advisory Contractor
CWA	Clean Water Act
D & D	Decommissioning and Demolition
DARHT	Dual Access Radiographic Hydro Test Facility
DDT	DichloroDiphenylTrichloroethane
DOE	U.S. Department of Energy
DOE/NNSA	National Nuclear Security Administration of the DOE, operators of the LASO, SSO, and WSO
DOE OB	DOE Oversight Bureau (Bureau) of the NMED
DPR	Direct Penetrating Radiation
EA	Environmental Assessment
EMIG	Effluent Monitoring Improvement Group (WIPP)
EIS	Environmental Impact Statement
EES-6 Group	Earth and Environmental Sciences Division at LANL
EMSR	Environmental Monitoring, Surveillance and Remediation (Committee) (NNMCAB)
EPA	U.S. Environmental Protection Agency
EVEMG	Embudo Valley Environmental Monitoring Group
FFCA	Federal Facility Compliance Act
FFY	Federal Fiscal Year
GAP	Government Accountability Project
GIS	Geographic Information Systems
GNEP PEIS	Global Nuclear Energy Partnership Programmatic Environmental Impact Statement
GTCC LLW	Greater-Than-Class C Low-Level (Radioactive) Waste
HEPA	High Efficiency Particulate Air
HWB	Hazardous Waste Bureau (NMED)
IEER	Institute for Energy and Environmental Research
IWD	Integrated Work Document
LANL	Los Alamos National Laboratory, the physical location

LANS	LANS, LLC is the Los Alamos National Security, Limited Liability Corporation, the operators of the LANL facility
LANSCE	Los Alamos Neutron Science Center (LANL)
LASG	Los Alamos Study Group
LASO	Los Alamos Site Office (DOE)
LA-UR	Los Alamos – Unclassified Report (LANL)
LC/MS/MS	Liquid Chromatography/Mass Spectrometry/MS (Tandem MS)
LRRI	Lovelace Respiratory Research Institute (Formerly the Inhalation Toxicology Research Institute)
LVAS	Low-Volume Air Sampling
MDA	Material Disposal Area
MW	Monitoring Well
MWL	Mixed Waste Landfill (SNL)
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMDOH	New Mexico Department of Health
NMDOT	New Mexico Department of Transportation
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
NNMC	Northern New Mexico College
NPDES	National Pollutant Discharge Elimination System
NNMCAB	Northern New Mexico Citizens' Advisory Board
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
QAPP	Quality Assurance Project Plan
RAC	Risk Assessment Corporation
RACER	Risk Analysis Communication Evaluation Reduction
RCRA	Resource Conservation and Recovery Act
RH Waste	Remote Handled Waste (WIPP)
RSRL	Regional Statistical Reference Level
R-Well	Regional Aquifer Monitoring Well
Ri-Well	Intermediate Aquifer Monitoring Well
SAP	Sampling Analysis Plan
SEIS	Site Environmental Impact Statement
Sandia	Sandia Corporation, the operators of the SNL/NM facility
SNL	Sandia National Laboratories/New Mexico, the physical location of the facility in Albuquerque
SSC	Suspended Sediment Concentration
SSO	Sandia Site Office (DOE)
SWMU	Solid Waste Management Unit
SWQB	Surface Water Quality Bureau (NMED)
TA	Technical Area
TLD	Thermoluminescent Dosimeter

TMDL	Total Maximum Daily Load
UNM	University of New Mexico
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
WIPP	Waste Isolation Pilot Plant, the physical location southeast of Carlsbad
WQH	Water Quality and Hydrology (LANL)
WRES	Washington Regulatory and Environmental Services
WSO	WIPP Site Office (DOE)
WTS	Washington Tru Solutions (WIPP), operators of the WIPP facility

DOE OVERSIGHT BUREAU SUMMARY

ADMINISTRATION

Bureau staff prepared documentation to execute an Invitation To Bid (ITB) for analytical laboratory services and provided it to the Department Administrative Services Division, Procurement Manager for execution by the General Services Department (GSD), Purchasing Division. The GSD representative opened bids from four qualifying laboratories on March 18, 2010. The successful bidders include: Hall Environmental Analysis Laboratory, Summit Analytical Laboratories, TestAmerica in Phoenix, and Weck Laboratories. This contract replaces the contract expiring on April 22, 2010. (Awards to all four laboratories were executed on May 7, 2010.)

PERSONNEL

No new personnel were hired during this quarter, and no personnel left the Bureau.
All three staff members in the Carlsbad Oversight Section took initial physical examinations in Albuquerque.

FINANCE

Approximately 29% ($824,767) of the projected 2010 work plan amount has been obligated or spent by the end of the second quarter. Grant modification #052 obligated $750,000 on March 11, 2010. Third quarter expenditures for contracts are expected to increase following the relatively low sampling activity winter months.

TRAINING

During this quarter, numerous staff members participated in administrative and technical training. Several were certified or re-certified in Red Cross First Aid and CPR. Three administrative staff members became certified as Notary Publics. One completed the Defensive Driving Refresher course. Several completed technical/safety courses required by the various site protocols, and three were re-certified in hazardous waste handling through HAZWOPER.

OUTREACH

The January CRMG meeting was cancelled and agenda items were deferred to the next two meetings in February and March.

Bureau staff attended the Centers for Disease Control and Prevention (CDC) Los Alamos Historical Document Retrieval and Assessment (LAHDRA) Public Meeting at Ohkay Owingeh Pueblo.

Bureau staff attended a presentation at the Bradbury museum in Los Alamos sponsored by the NNCAB: “Environmental Remediation Challenges in the Russian Federation” by Sergey Mikheykin of FSU “RosRAO”. The talk addressed current areas of radiological contamination in the Russian Federation and the challenges associated with remediation of these areas.

Bureau staff attended the NMCAB EMSR/WM Combined Committee meeting in Santa Fe.

Bureau staff attended a public meeting update on the Chemistry and Metallurgy Research Replacement (CMRR) Project in Los Alamos.

Bureau staff made a short presentation at the 109th WIPP Quarterly meeting held in Santa Fe on January 21st.

Bureau staff attended the public hearing concerning the (WIPP) Class II Permit Modification Request to Revise Volatile Organic Compound (VOC) Contaminants of Concern (COCs).

Bureau staff participated in several meetings with storm water authorities and other affected entities in the Albuquerque/Bernalillo county metropolitan area to discuss findings of contaminants in storm water.

Bureau staff met with operators of the National Enrichment Facility (NEF) in Eunice, NM, and attended the NEF/LES (Louisiana Energy Services) performance review public meeting hosted by the NRC (Nuclear Regulatory Commission) in Eunice, NM.

LOVELACE RESPIRATORY RESEARCH INSTITUTE (LRRI) GROUNDWATER

Bureau staff continues to conduct groundwater sampling at the Lovelace Respiratory Research Institute (LRRI). This research facility, located at the southern border of KAFB, is not affiliated with SNL and is currently operated by the Lovelace Medical Group. Until recently, the facility was managed under the auspices of the DOE, and the transfer of ownership is being negotiated. Under these circumstances, the Bureau continues split samples with LRRI personnel. The most recent Groundwater Discharge Permit was signed with the NMED in 2008, and the only constituent of concern is Total Dissolved Solids._Bureau staff forwarded a final data submittal to DOE titled, "Groundwater Monitoring at Lovelace Respiratory Research Institute Conducted by NMED/DOE OB for FFY 2009 Q-3." The Bureau collected groundwater samples from Lovelace Respiratory Research Institute (LRRI) monitoring well ITRI-MW4. Samples were submitted to an independent analytical laboratory for analysis of total metals, isotopic uranium, and total dissolved solids (TDS). Under the current discharge permit, LRRI is only required to sample total dissolved solids at monitoring wells ITRIMW4, -MW17, and -MW19. Total uranium was detected above the WQCC standard of 0.03 mg/L at a concentration of 0.047 mg/L and the TDS concentration of 1400 mg/L exceeded the WQCC standard of 1000 mg/L at ITRI-MW4.

LOS ALAMOS NATIONAL LABORATORY OVERSIGHT

GENERAL ADMINISTRATION (LAD01)

Under this Activity ID, the Bureau manages, administers, and finances the overall activities of staff members in the LANL and Santa Fe offices. Staff provides assistance to the Bureau and DOE developing workplans, budgets and training requirements.

Quarterly Summary: During FFY10 Q-2, Bureau staff participated in formal training and underwent physical examinations to determine fitness for duty.

LANL section personnel completed required health and safety training at the White Rock Training Center (WRTC) for CPR and AED and Environmental Scientist Courtney Perkins completed the 8 hour HAZWOPER refresher.

Staff Manager Steve Yanicak attended the Managing Employee Performance (MEP) and Fundamentals of Supervision (FOS) training required under State Personnel Office (SPO) rules.

Courtney Perkins and Dan'l Martinez underwent baseline physicals and cardiac evaluations in accordance with the DOE OB HASP.

Courtney Perkins and Dan'l Martinez attended drilling seminars that described various drilling techniques applicable to environmental monitoring actives.

LANL staff participated in an Emergency Action Plan meeting specific to the new Los Alamos Oversight office with the NMED Health and Safety Officer, Mary Day.

LANL Section personnel assisted in preparing the Invitation to Bid (ITB) for analytical laboratories by reviewing and updating the analyte/method template and by providing guidance on the Electronic Data Deliverable (EDD) requirements.

PUBLIC OUTREACH (LPO02)

Under this Activity ID, Bureau staff interacts with the public through meetings, listening sessions, website development, consultations, and reports.

Quarterly Summary: During FFY10 Q-2, Bureau staff participated in several public meetings.

The January CRMG meeting was cancelled and agenda items were deferred to the next meeting on February 10th at NNNMC in Espanola.

Bureau staff attended the Centers for Disease Control and Prevention (CDC) Los Alamos Historical Document Retrieval and Assessment (LAHDRA) Public Meeting at Ohkay Owingeh Pueblo. The 6-hour meeting covered several highlighted topics:

- Perspectives of the Community
- History & Overview of the Project
- Comments on the Project

- Audience Questions
- Breakout/Discussion Groups that addressed chemical and radiation concerns through basic 6-points:
    - How did Los Alamos use chemicals and/or radionuclides?
    - Is there a period of most concern for releases?
    - Through what pathways were materials released and transported?
    - How can these materials affect the human body?
    - Are there important data gaps that make it hard to assess potential health effects?
    - Where in the draft final LAHDRA report can more information be found?

The specific Breakout/Discussion Group chemical and radiation concerns were:

- Beryllium
- Plutonium
- Tritium
- Uranium
- Trinity Test
- Explosive Testing
- Toxic Chemicals

Among the more mentionable data gaps noted were:

- **Beryllium:** Beryllium use and release data were not located for many years of Beryllium operations, and most of the available data are in the form of annual totals.
- **Toxic Chemicals:** Many documents discuss the presence of numerous metals, solvents, and acids in various LANL divisions; however, details regarding building locations, quantities used, or the operations involved are rarely provided.
- **Explosives/Dynamic Testing:** With the exception of the RaLa program, there is little documentation of early dynamic testing activities. The LAHDRA team relied on wide-ranging estimates of quantities of materials expended for prioritization. Estimates of the fraction of materials expended that became airborne are a source of uncertainty.
- **Plutonium:** There are no monitoring data for D-Building operations 1943-1953, and DP West Site central stack monitoring was spotty before 1949. LANL estimates of historical plutonium releases include none of the contributions from D-Building stacks, DP West central stacks before 1948, DP Site building vents, accidents and incidents involving plutonium, waste disposal and incineration activities, or burial ground fires.
- **Tritium:** Estimates of tritium releases before 1967 and accident/incident-related releases since then are uncertain.
- **Uranium:** There is a need for a more definitive compilation of historical release estimates from scattered monitoring records and operational data. Much of the effluent data used in LAHDRA prioritization calculations were reported by LANL as uranium or total uranium. Early stack releases from uranium facilities were reported in counts/minute or disintegrations/minute of alpha-emitting radioactivity, assumed to be uranium. Correction factors for sample line loss and

- **Trinity Test:** Monitoring teams could not measure or assess alpha-emitting radioactivity in the environment from the dispersal of about 4.8 kilograms of plutonium that remained unfissioned. No measures were taken to detect or assess internal deposition of radionuclides within members of the public from inhalation of radioactive particles or ingestion of contaminated water or food products. All studies of Trinity fallout published to date have not reflected internal radiation doses and have been based on field measurements that have not been subjected to the processes used in modern dose reconstruction studies for quality checking, cross-checking against other data sources, application of appropriate adjustments or corrections and uncertainty analysis.

Bureau staff hosted the March CRMG meeting at NNMC in Espanola. The agenda was an open format with no scheduled topics and attendance was limited to representatives from LANS LLC., Santa Clara Pueblo and the Bureau.

Bureau staff attended a presentation at the Bradbury museum in Los Alamos sponsored by the NNCAB: "Environmental Remediation Challenges in the Russian Federation" by Sergey Mikheykin of FSU "RosRAO." The talk addressed current areas of radiological contamination in the Russian Federation and the challenges associated with remediation of these areas.

Bureau staff attended the NMCAB EMSR/WM Combined Committee meeting in Santa Fe. In addition to the regular agenda items and review and discussion of draft NNMCAB recommendations, John McCann of LANL Environmental Programs Corrective Actions Program provided a "Presentation on the 260 Outfall." The presentation summarized the implementation of the CMI Plan for Consolidated Unit 16-021(c)-99 October 2009-January 2010 including the removal of RDX- and barium-contaminated soil and tuff from 16-260 drainage; the installation of controls to stabilize subsurface contamination and reduce stormwater infiltration; and the treatment of alluvial groundwater (PRB installation) and spring water (carbon filtration).

Bureau staff attended a public meeting update on the Chemistry and Metallurgy Research Replacement (CMRR) Project in Los Alamos. The current construction and budget status was discussed as well as the settlement that allowed air permitting to be segmented to match phased project-development as well as the opportunities for public involvement. The involved parties include: NMED, DOE, UC, CCNS, Nuclear Watch of NM, Peace Action of NM, Loretto Community, TEWA Women United, EVEMG, and the New Mexico Environmental Law Center.

The CMRR Mission Need Statement reads: "The CMRR Project seeks to relocate and consolidate mission-critical CMR capabilities at LANL to ensure continuous support of NNSA stockpile stewardship and management strategic objectives; these capabilities are necessary to support the current and directed stockpile work and campaign activities at LANL beyond 2010." The CMRR Overall Project structure involves two closely interrelated facilities in differing phases of development that will have a service life of 50 years;

1. Nuclear Facility (NF) currently in the design phase that will be a Nuclear "Hazard Category 2" facility and encompass 22,500 net square feet (NSF) of laboratory space

2. Radiological Laboratory/Utility/Office Building (RLUOB) that is substantially complete with operations planned to start sometime in 2013. The RLUOB encompasses 19,500 NSF of radiological Lab Space for handling up to (less than) 8.4g Pu-239 in addition to providing office space for 350 CMRR workers and hosting a facility incident command and emergency response center. Current budgetary status shows $97M for FFY 2010 and a President's request for FFY 2011 of $225M. The plan calls for the CMRR nuclear facility to be complete by 2020 and to begin operations in 2022.

Bureau staff Ralph Ford-Schmid gave a presentation at the 9th annual Española Basin Workshop at the Santa Fe Community College: "Understanding Water Quality in the Rio Grande at the Buckman Direct Diversion Site and Otowi Bridge." The presentation was based upon work by Englert Dave, Ford-Schmid Ralph (both of NMED), and Robert Gallegos and Amanda M. King of the Sangre de Cristo Water Division, Santa Fe, NM.

GENERAL ER/EM PROJECTS (LGE03)
Under this Activity ID, Bureau staff provides verification and validation of projects conducted by LANS to remediate environmental and human hazards from legacy waste and to monitor current activities for safe practices.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

DIRECT PENETRATING RADIATION PROJECT (LDP04)
Under this Activity ID, Bureau staff monitors the environment at LANL and in the vicinity for gamma radiation that could be LANL-induced or ambient. The on-going program reads electrets at the end of each quarter, records data in field books, converts readings into quarterly dose values, and submits quarterly results for DOE, LANS and the public.

Quarterly Summary: During FFY10 Q-2, Bureau staff recorded end-of-quarter Electret data for the direct penetrating radiation project.

PARTICULATES LOW-VOLUME AIR PROJECT (LPL05)
Under this Activity ID, Bureau staff conducts continuous air monitoring for radioactive particles and tritium using low-volume air pumps. Filter samples and gel collectors are submitted and analyzed quarterly and results are provided for DOE, LANS and the public.

Quarterly Summary: During FFY10 Q-2, Bureau staff collected low-volume AIRNET samples and drafted reports.

Bureau staff, through this project, provides independent verification of approximately 3% of LANL AIRNET results each year. The Bureau collects air particulate samples at five co-located LANL-perimeter stations in close proximity to residences or workplaces and analyzes for a suite of radionuclides that is identical to those of the LANL AIRNET program. LANL and NMED air

particulate data generally track each other with some slight variation. To date, the Bureau's monitoring system has not verified or detected any radionuclides released by LANL at or above NESHAPS regulatory limits.

Bureau staff collected LANL perimeter AIRNET particulate samples for the 4th Calendar Quarter 2009, and the samples were sent to an independent analytical laboratory for radionuclide analysis. The Bureau's solar-powered monitor located at Los Alamos Airport continues to collect particulate data for radionuclides that will help to assess any potential concerns resulting from the demolition activities in-progress at TA-21.

Bureau staff compiled and provided a draft document to DOE titled: **"**NMED DOE-OB Data Submittal for AIRNET Radionuclide Particulate Results near Los Alamos National Laboratory, Fourth (4th) Calendar Quarter 2009." The document shows isotopic radionuclide results for plutonium, americium, uranium and gamma emitters at DOE-OB AIRNET locations in the vicinity of LANL. Tritium air concentrations are also included in this document. The samples were obtained using continuously operating air samplers at seven locations which collected airborne particulates on filters and atmospheric moisture with silica gel. With exception of one air sampler at El Valle, each station is co-located with a LANL AIRNET station. Filters are collected bi-weekly and combined into a single quarterly sample for each station and airborne concentrations are calculated from sample results. Silica gel samples are collected bi-weekly and are not composited. Tritium results are representative of the two week period during which each was collected. All results will be transmitted to the RACER database and also made available for public access and placed in bureau files upon final draft review.

PARTICULATES HIGH-VOLUME AIR PROJECT (LPH06)
Under this Activity ID, Bureau staff conducts continuous air monitoring for radioactive particles, metals and organic compounds using high-volume air pumps to independently monitor environmental restoration clean-ups and D&D operations. Filter samples are submitted and analyzed quarterly and results are provided for DOE, LANS and the public.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

DRINKING WATER MONITORING (LPW07)
Under this Activity ID, Bureau staff conducts annual sampling in a cooperative event with LANS Water Quality and Hydrology, Los Alamos County, and San Ildefonso Pueblo for supplemental and verification sampling of LA County and San Ildefonso Pueblo production wells. Generally, the analytes are substances not addressed under Safe Drinking Water Act.

Quarterly Summary: During FFY10 Q-2, Bureau staff continued its collaborative effort with LANL and Los Alamos County staffs, and installed a perchlorate collection column very similar to a unit that previously operated at well H-1 in the Valle Toledo and at Spring 9A in White Rock Canyon. Bureau personnel monitor the columns once every two weeks and have made adjustments to the calculated flow rates. The collection units are scheduled to continue operating through July 2010.

GROUNDWATER MONITORING (LMW08)

Under this Activity ID, Bureau staff conducts verification and supplemental sampling of the LANL Regional Wells in cooperation with LANS Water Quality and Hydrology, Los Alamos County, and Pueblos of San Ildefonso and Santa Clara.

Quarterly Summary: During FFY10 Q-2, Bureau staff collected samples from intermediate well LAOI-7 for PCB and Oxyanion analyses.

Bureau staff continued field and sampling activities for "Independent and Select Verification Monitoring of Ground Water Collected from Springs and Wells at and around Los Alamos National Laboratory." The activities cover five major groundwater projects funded by DOE within the timeframe between FFY 2009 and FFY 2010. The overall scope of the projects is a cooperative sampling effort with LANS Water Quality and Hydrology Group to focus on verification sampling of select constituents in groundwater and springs at and around LANL, as well as independent analysis for carbon 14, noble gasses, S/O (SO4) isotopes, oxyanions, oxalate, and ambient perchlorate. In addition, Bureau personnel are collecting supplementary water samples for tritium (2-samples) and PCBs (7-samples) at wells R-6i, LADP-3, LAOI-3.2a, R-12, and LAOI-7 (also see LPC13).

Oxalate Project: The oxalate project will help in evaluating the potential impact of drilling fluid additives on the ability for monitoring wells to provide representative data. Fourteen samples were shipped in November 2009 but the laboratory reported that it could not meet the Bureau MDL for oxalate. Analyses were put on hold as the Bureau and the laboratory determine appropriate methodology to improve accuracy of attaining desired MDL for oxalate.

Carbon 14 (C-14) Project: Carbon 14 data support a joint Bureau/LANS flow and pathway project. The Carbon 14 project will provide the relative ages of regional and perched aquifers below the Pajarito Plateau. In addition, the data will lend insight to recharge and water balance questions and help to evaluate young and old water mixing at depth that will help investigators assess flow pathways and flow rates that are valuable for assessing contaminant migration to the regional aquifer. Sample collection for this project is complete and all data results have been validated and tabulated. Bureau staff is collaborating with LANS researchers on the final report which is expected to be completed and published by end of FFY 2010.

Noble Gas Project: Data from the Noble Gas Project will be used to determine location and rate of recharge and contamination movement throughout the Pajarito Plateau ground-water system. The samples are analyzed by the USGS Laboratory in Denver, CO. Twelve samples collected at wells R-40 screen 2, R-39, and R-41 screen 2 were shipped on March 15th. Collaborative reports are planned with LANS concerning all project data collected between 2007 and 2010. Staff is pursuing a price agreement extension with USGS through FFY 2011 to fill data gaps and allow increased coverage of the Pajarito Plateau.

Sulfur-Isotope Project: The sulfur-isotope project is designed to measure trace man-made impacts to certain aquifers within the Los Alamos region, based on the premise that each aquifer ideally has its own unique sulfur-isotopic signature. Consequently, sulfur-isotope measurements may be an important geochemistry tool that can be used in conjunction with other tools such as age dating and chromium isotope work used by hydrologists to help delineate human-impact

plumes (contamination) or subtle changes in water-quality over time. Eight samples collected at wells R-43 screen 1, R-34, and R-1 were shipped on February 25th for analysis. The annual data release will be accompanied by the narrative of findings

Oxyanion Project: Oxyanion and oxalate data support a joint Bureau/LANS flow and pathway project that will also involve the use of supplemental data collected concurrently under several other joint groundwater projects. Nine samples collected at wells LAOI-7, TA-53i, LAOI-3.2a, R-43 screen 1, and R-43 screen 2 were shipped between January 10th and February 4th. Remaining samples will be collected and shipped during Q-3, and the annual data release will be accompanied by the narrative of findings.

Perchlorate Project: Perchlorate data collected at stations known to be at ambient or background conditions will help researchers determine potential sources or mechanisms for naturally-occurring perchlorate. Bureau and LANS personnel collected snow samples from the Canada Bonita area to use for low-level (background) perchlorate analyses of leachate from soil columns from the same area.

Bureau staff collected water samples from R-1 and R-34 for S/O isotopes and from R-39 and R-41 screen 2 for Noble Gasses. Staff shipped project 651 to Zymax for S/O isotope analysis (8 wells). Staff also completed the winter 2010 sampling phase of noble gas sample collections and shipped 12 samples for analysis to USGS in Denver.

WR SPRINGS MONITORING (LSM09)
Under this Activity ID, Bureau staff conducts annual sampling in a cooperative event with LANS Water Quality and Hydrology staff and environmental staff of San Ildefonso Pueblo. The sampling includes approximately 25 groundwater springs off-site from LANL and on San Ildefonso Pueblo in White Rock Canyon along the Rio Grande.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

STORMWATER BELOW SWMUS PROJECT (LSF10)
Under this Activity ID, Bureau staff conducts on-going sampling of storm water discharges from Solid Waste Management Units (SWMU) and Areas of Concern (AOC) for compliance with Federal Facility Compliance Agreement and the General Storm Water Permit.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

STORMWATER WATERSHED PROJECT (LSW11)
Under this Activity ID, Bureau staff conducts on-going sampling of LANL watersheds for water quality standards compliance verification. The focus is on post Cerro Grande fire plutonium inventory transport assessments in Pueblo and Los Alamos Canyons and cooperative watershed monitoring with San Ildefonso Pueblo.

Quarterly Summary: During FFY10 Q-2, Bureau staff participated in a field trip to view and discuss LANS plans to correct the cross vein structures in Pueblo Canyon. Staff also visited the LA-SMA-2 PCB cleanup site in Los Alamos Canyon and the area below the Los Alamos county

yard. Bureau staff visited the new low-head weirs in DP Canyon and lower Pueblo Canyon and began to plan for stormwater run-on/off monitoring needs for the spring and summer of 2010. Staff discussed stormwater monitoring goals and equipment needs with representatives from the Buckman Direct Diversion Project of the City of Santa Fe. Staff submitted the remaining stormwater samples from FFY09 Q-4 to analytical laboratories for analysis.

NPDES MONITORING ASSESSMENT PROJECT (LPN12)
Under this Activity ID, Bureau staff conducts on-going sampling of National Pollution Discharge Elimination System (NPDES) outfalls and outfall closure verification. The focus is on stormwater management assessment at construction and Environmental Restoration remediation projects. Staff verifies that LANS has proper spill action plans, and staff provides closeout assessment and recommendations.

Quarterly Summary: During FFY10 Q-2, Bureau staff investigated a perchlorate finding, prepared data analysis submittals, and provided status reports on numerous spills.

Bureau staff collected perchlorate confirmation samples at a TA-3 Outfall 001 with LANS staff. Recent results demonstrate higher-than-expected values for perchlorate. If the future results show out-of-ordinary levels the Bureau will consult with LANS staff to determine a path forward. It should be noted that the Bureau has conducted "mini" perchlorate studies in the recent past at LANL NPDES outfalls that demonstrated recycled or re-used wastewater used at some of the cooling tower outfalls appears to concentrate the substance to the point of showing higher concentrations in these waste streams (on average slightly above 1ppb). Bureau staff met with key contacts for LANL NPDES monitoring as Bureau oversight of the NPDES monitoring program increases.

Bureau staff reviewed federal government publications "Independence and Security Act of 2007 (EISA)" and the "Final Rule: Effluent Guidelines for Discharges from Construction and Development Industry" to better understand their implications on stormwater discharges from federal facilities in New Mexico.

Bureau staff received the EDDs for the first and second round of NPDES outfall sampling at LANL and is in the process of sorting and creating tables for transmittal to DOE and LANS management. In addition, staff reviewed and assessed 2009 NPDES outfall sampling discharge data at LANL and converted it to an electronic format that allows faster processing and evaluation. The PCB data results are still pending from the contract laboratory.

Bureau staff met with GWQB and LANS staff to discuss the 2009 end-of-year closeout for spills that have been reported under the Emergency Spill Hotline. Several issues were discussed along with the open spills that are pending. Topics included reporting in PDF form by email; a change of the spill coordinator at LANS from Mr. Mark Haagenstad to Mr. Jake Meadows; and the new NMED decision tree for response assignment, for report content, and for the notification process. As a result of this meeting two spill reports were updated and resubmitted for suggested closure:

1. RESUBMITTAL For Booking Purposes: Spill Response Assessment and Suggestion for Closure of Fire Suppression and Water mixture Release at TA-3, Building 38, LANL

2. RESUBMITTAL-Spill Response Assessment and Suggestion for Closure of Potable Water Release at TA-3, Building 29 (CMR), July 28, 2009, LANL Discharge Notification Report # 220.

The Bureau received six 5/7-Day Release/Discharge Notifications from LANL for:

1. #241 - A hydraulic fluid release occurred in an elevator shaft at TA-3-2327. Approximately 45-gallons of fluid released from a failed bleeder valve on the elevator system and entered the shaft. Fluid seeped around seams on a concrete pad at the bottom of the shaft and impacted soil beneath the pad. Hydraulic fluid did not escape outside the building. LANL took corrective action by replacing the bleeder valve on February 1 and are evaluating methods for sealing the pad in addition to assessing methods for preventing future releases.

2. #242 – A potable water line break occurred near the NW corner of TA-3-66 from January 29 until it was discovered on the morning of February 1st. An estimated 500,000 gallons of potable water was released and entered various storm water channels before entering upper Sandia Canyon. No heavy erosion impacts were observed. Follow up corrective actions by LANL included repairs to the water line and planned efforts at seeding to establish vegetative stabilization as well as installation of erosion control matting when conditions allow.

3. #244 – Notification for chromium detection in groundwater at Intermediate Well MCOI-6 in excess of New Mexico groundwater quality standards. The detection in intermediate well MCOI-6 was discovered and confirmed on February 16 by LWSP and ADEP personnel. Primary and duplicate samples showed detections of 51.8 and 51.5 µg/L, exceeding the groundwater standard of 50 µg/L.

4. #245 – Notification for a re-use water line break north of TA-3-233. Re-use water from the TA-46 sanitary waste water treatment plant flowed from a broken 6-inch line and entered the upper Sandia Canyon watercourse at a rate of approximately 20 gallons per minute. There appeared to be no noticeable erosion impacts. Mitigation and corrective actions included closing the line for repairs and monitoring it for future release potential.

5. #248 – Notification for a potable water release of approximately 4,000 gallons that was discharged by a line break northeast of 21-0257 on March 5. Water flowed across the vegetated and snow-covered canyon side and entered the DP Canyon watercourse. Erosion impacts were minimal where the water surfaced and were not apparent to the DP Canyon watercourse. Mitigation and corrective actions included closing the line for repairs on March 5th.

6. #250 – Notification for de-chlorinated potable water release of approximately 10,000 gallons from the TA36-216 potable water tank. A pressure reducing valve (PRV) for the

tank appeared to be failing slowly which led the water level in the tank to rise above the high level alarms on March 5 necessitating the controlled release to allow proper alarm function. There is regularly scheduled maintenance on the PRV and the incident seems to be isolated. There were no SWMU/AOC impacts and crews monitored the site for erosion as the water entered Pajarito Canyon. Mitigation and corrective actions included release at a controlled rate and monitoring the area for erosion. The PRV was adjusted, inspected, and appears to be functioning properly.

Bureau staff submitted three recommendation letters for spill response assessment and suggestion for closure to DOE management. The spill report numbers are:

1. #227 and #228 "Spill Response Assessment and Suggestion for Closure of Aquifer Communication due to Packer System Deflation atTA-36, Well R-20 and Possibly at several other Site-Wide Monitoring Wells during the Months of June, July, August, September and October, 2009, LANL Discharge Notification Reports # 227 and 228." The Bureau reviewed the spill response action report received in late 2009 and recommended no further action was required under the discharge notification. The specific events assessed concerned a notification on October 7, 2009 detailing potential cross screen aquifer contamination resulting from the accidental deflation of several monitor well packer systems at Technical Area (TA) 36 monitor well R-20 and several other monitoring wells located throughout the laboratory. The packer system deflations may have resulted in some cross contamination between the well screens but the amounts remain unknown. Samples taken from the R-20 cross contamination incident for organics on September 2nd and 3rd at screen levels 2 and 3 tentatively showed trace explosive compounds in the low ppb range (µg/L) had migrated between the two well screen levels. At the surface, the associated purge/discharge water did not flow over any Solid Waste Management Unit/ Potential Release Source (SWMU/PRS) and no erosion impacts were noted. The Associate Director of Environmental Programs and his staff are in the process of assessing the Baski packer system at R-20 and other monitoring wells throughout laboratory property to identify and implement remedial and long-term corrective actions to ensure performance of the system.

2. #250 - "Spill Response Assessment and Suggestion for Closure of Re-Use Water Release at TA-36, Building 216, March 5, 2010, LANL Discharge Notification Report # 250." The Bureau reviewed the spill response action report (see item #3 above) and recommended no further action was required under the discharge notification. Further review found that there was minimal impact from the unplanned discharge and the PRV has been repaired.

3. #245 – "Spill Response Assessment and Suggestion for Closure of Re-Use Water Release at TA-3, Building 223, February 26, 2010, LANL Discharge Notification Report # 245." The Bureau reviewed the spill response action report (see item #1 above) and recommended no further action was required under the discharge notification. The Bureau and LANS WQ/RCRA personnel performed a site visit on March 3rd and found impacts from the spill to be minimal and that the break had been repaired. The only suggestion made to LANS staff was for a small, semi-hardened, containment and

catchment drop pool below the area where the pipeline passed over the canyon to help mitigate any future spills from the exposed pipeline crossing.

REGIONAL PCB STUDY PROJECT (LPC13)
Under this Activity ID, Bureau staff conducts a special study to characterize PCB concentrations in stormwater on a regional basis (upper and middle Rio Grande) to put LANL and SNL contributions to the Rio Grande in perspective.

Quarterly Summary: During FFY10 Q-2, Bureau staff conducted and analyzed background and storm event PCB sampling along the Chama River and the Rio Grande from Otowi Bridge to just north of the North Diversion Channel in Albuquerque.

Bureau staff compiled and evaluated surface water data collected along the Rio Grande and Chama River during the fourth quarter FFY 2009 and submitted a DRAFT report to DOE: "Storm Water Monitoring along the Rio Grande and Chama River New Mexico Conducted by NMED/DOE Oversight Bureau for FFY 2009 Q-4, February 15, 2009." The report evaluates twenty surface water samples from five locations (three upstream and two downstream locations) in the Rio Grande. Seventeen samples were collected during storm water flow events from four locations along the Rio Grande and one along the Rio Chama. All samples were collected during flow events where Los Alamos Canyon was not discharging to the Rio Grande. In addition, samples were collected from the Rio Grande at Otowi Bridge, Buckman Landing, and Lower Los Alamos Canyon during a flow event on October 13 where Los Alamos Canyon discharge was reaching the Rio Grande. These additional samples were sent to the analytical laboratory shortly after the report was released as draft and data from them will be incorporated in a subsequent data submittal.

During NMED "listening sessions" in several towns across northern New Mexico, members of the public asked if any LANL contaminants have been found in the intake waters for the City of Albuquerque San Juan-Chama Drinking Water Project or near the Buckman Direct Diversion Project. The Oversight Bureau committed to collecting Rio Grande water samples upstream from the City of Albuquerque intake (near the Alameda Bridge) and the proposed Buckman Direct Diversion and analyzing them for typical LANL contaminants such as radionuclides, PCBs, dioxin/furans, and metals.

This study focused on collecting water samples from the Rio Grande at locations that would provide insight to water quality upstream from the proposed Buckman Direct Diversion project and the City of Albuquerque San Juan-Chama Drinking Water project during wet weather events. Storm water flows were expected to produce the highest levels of suspended sediment and subsequently the highest levels of contaminants for those constituents that commonly bound to sediment particles (e.g., radionuclides, PCBs). Constituents typically found in storm water discharges from LANL were targeted to determine if past or current discharges from the Laboratory are detectible in the Rio Grande during storm flow events. Radionuclides were detected at levels that were indistinguishable from fallout "background" levels at both drinking water diversions and PCBs were found to be below surface water criteria upstream and near LANL, including the Buckman Direct Diversion location. However, PCBs near the Albuquerque Bernalillo County Water Utility Authority surface water treatment facility inlet

were significantly higher than water quality criteria and warrant further investigation. An addendum to the report will be provided when dioxin results and the late fall and winter samples data are available.

Bureau staff submitted an abstract to the 9th annual Española Basin Workshop held on March 4th at the Santa Fe Community College in Santa Fe, NM. Environmental Scientist Ralph Ford-Schmid delivered a presentation titled "Understanding Water Quality in the Rio Grande at the Buckman Direct Diversion Site and Otowi Bridge" coauthored with Bureau Hydrologist Englert Dave, and Robert Gallegos, and Amanda M. King of the Sangre de Cristo Water Division, Santa Fe, NM.

This presentation was prepared jointly by the City of Santa Fe and the Oversight Bureau as part of a study to assess water quality in the Rio Grande at the Buckman Diversion Site and above Otowi Bridge. At the request of the Buckman Direct Diversion Board, LANL initiated bi-monthly monitoring of the Rio Grande in July of 2008. The ongoing monitoring effort is to provide a characterization of contaminants in the Rio Grande across all seasons and flow regimes. Along with the bimonthly data this study incorporates storm event samples collected by the Department. Additional data sources include flow data from the USGS. The study builds on findings from an independent assessment by Dr. Kerry Howe of the ability of the City/County Water Treatment Plant (C/CWTP) to remove specific contaminants from Rio Grande water. Dr. Howe found the Rio Grande to be an acceptable source on an annual average basis though he recommended minimizing the impact of storm events on water treatment operations.

For the study, levels of gross alpha and beta were analyzed, along with alpha, beta and gamma emitters including americium, cesium, plutonium, radium, strontium and uranium. In addition, polychlorinated biphenyls (PCBs), suspended sediment concentration and turbidity were graphed against flows of Rio Grande at the Otowi Gauge. Evidence from this analysis confirms that the contaminant levels in the Rio Grande are nearly always below levels established by the Environmental Protection Agency (EPA). In the case of PCBs, detections above regulatory standards were explained by detections of congeners in field blanks, an issue that was later rectified by altering the source of blank water.

In order to understand the implications for water quality over time, definitions of storm events and their frequency are considered and the radionuclide constituents examined in more detail. Gross alpha and gross beta are shown to have a good correlation with suspended sediment concentration. These data suggest that while storm event flow accounts for a small percentage of annual flow conditions, additional storm event sampling is needed to determine the origins and identity of radionuclides in the Rio Grande during these particular events.

In the case of PCBs, data collected in an earlier study (2002 – 2003) show detections above the Human Health water quality criterion only during storm events. Detections during 2009 storm events were all below applicable criteria. These water quality dynamics may have important implications for the operation of water treatment facilities.

In comparison with LANL bimonthly data, samples collected by the Bureau during storm events indicate elevated gross alpha and beta activities. Plutonium detected in storm water from 2009 is indistinguishable from plutonium fallout from atmospheric testing of nuclear weapons.

Bureau staff collected samples for PCBs from Regional Well R-12 located in Sandia Canyon near production well PM-1.

FISH TISSUE PROJECT (LPC14)
Under this Activity ID, Bureau staff conducts annual sampling of fish tissue in the Rio Grande and reservoirs under a cooperative sampling plan developed with Santa Clara Pueblo. A primary result of this effort is the fish consumption advisory development. During this year, staff participated on the steering committee for the EPA 2007 contaminant in fish forum.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

MACROINVERTEBRATE PROJECT (LMI15)
Under this Activity ID, Bureau staff conducts LANL-area stream aquatic community assessment utilizing benthic macro-invertebrate population sampling and assessment methods. Macro-invertebrate populations are a long-term indicator of the chemical, biological and physical health of flowing waters. Density and diversity of species, numbers of individual within taxa, and overall population numbers reflect water quality stressors and/or water quality trends.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

DEMOLITION AND DECOMM PROJECT (LDD16)
Under this Activity ID, Bureau staff conducts site-specific monitoring of air quality downwind from ongoing demolition and decommissioning projects.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

BACKGROUND PERCHLORATE REPORT (LTM17)
Under this Activity ID, Bureau staff conducts a specialized study to evaluate perchlorate in groundwater in the northern Rio Grande Basin.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

GIS DATA AND REPORTS INFO PROJECT (LGD19)
Under this Activity ID, Bureau staff provides map generation, internal database management and RACER database support.

Quarterly Summary: During FFY10 Q-2, Bureau staff continues to work on the 2008 Data Reports to be submitted to Pueblo de San Ildefonso, DOE and LANS. After a 30 day review, the reports will be uploaded to the RACER database.

Bureau staff participated in a RACER meeting in Santa Fe and discussed efforts to help fine-tune the RACER gamma library. Staff recently worked with ALS Laboratory to determine which

values could be eliminated from the Oversight Bureau library. Staff also continues their correspondence with LANS personnel to determine specific recommendations to clean up the Bureau library. The Bureau will retain the current library configuration for future use but will add additional line items to the analytical contract to cover new libraries that report only specific radionuclides where measurements are considered reliable and accurate.

Bureau staff continues the Data Integration Project in order to format the SWQB Pajarito Plateau surface/stormwater data collected during past 5-years for upload into RACER. Bureau staff also developed a crosswalk between Bureau and SWQB locations as well as transforming SWQB analytical data into an EDD format compatible with the Bureau database. The data will then be uploaded to the RACER database. The project will contribute a large amount of LANL-related NMED data to RACER that will be publicly available via the RACER website.

Bureau staff maintained GIS updates to the Bureau database concerning well log and coordinate information. LANL base maps were also developed to aid new personnel, Courtney Perkins and Dan'l Martinez with their projects. GIS coverage for LANL informational maps normally include roads, drainages, canyons, watersheds, perennial flow reaches, outfalls, technical areas and SWMU boundaries.

Bureau staff worked on a collaborative research effort with LANL and produced a poster presentation "Radiocarbon Dating and Paleohydrology of Regional Aquifer Groundwater Beneath the Pajarito Plateau, New Mexico" to be displayed in April at the National Groundwater Association (NGWA) Spring Summit in Denver. Updates were made to the 14C age distribution of regional groundwater and the saturation index for CaCO3 (calcite) for the regional aquifer.

DIRECT LABOR CHARGE TO OTHER DEPARTMENT PROGRAMS:
Bureau Environmental Scientist Kim Granzow produced a series of informational maps for HWB to use during the TA-54 permit hearings that are scheduled for April and May 2010. Requests from other Bureaus include the development of diagrams, displays or maps generally indicating GIS coverage of drainages, canyons, watersheds, perennial flow reaches, outfalls and technical areas.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

TECHNICAL REVIEW (LMP23)
Under this Activity ID, Bureau staff provides technical support to DOE and LANS, other bureaus in NMED, state and federal entities, and public interest and oversight groups.

Quarterly Summary: During FFY10 Q-2, Bureau staff reviewed technical documents prepared by LANS and HWB staffs.

Bureau staff began reviewing the TA-53 RCRA Facility Investigation Report and TA-53 MDA L work plan to gather background information on site and borehole logs and to assess next steps in the RCRA process. Sampling conducted and results obtained were reviewed as part of investigation. Staff continues to research various ground water regimes beneath areas of LANL

in order to further develop understanding of site hydrogeological characteristics to better contribute to the multi-agency ground water review team (HWB, DOE, and LANS) at LANL.

Bureau staff continues to research information related to the Individual Stormwater Permit (draft NPDES NM0030759) and the Outfall discharge NPDES permit NM002855. Additionally staff is researching TA-21 to better understand site history to assist in and provide NPDES work plan reviews.

Bureau Staff met with LANS representatives prior to their submittal of Los Alamos and Pueblo Canyons Sediment Migration Monitoring Plan. Staff also provided comments to HWB on the Plan which they subsequently approved with modifications.

Bureau staff participated in a RACER meeting in Santa Fe and discussed their effort to fine-tune the RACER gamma library.

SANDIA NATIONAL LABORATORIES/NEW MEXICO OVERSIGHT

GENERAL ADMINISTRATION (SAD40)

Under this Activity ID, the Bureau manages, administers, and finances the overall activities of staff members in the Albuquerque office. Staff provides assistance to the Bureau and DOE developing workplans, budgets and training requirements.

Quarterly Summary: During FFY10 Q-2, Bureau staff Ryan Channell and Chris Armijo participated in training seminars in the areas of drilling techniques, First Aid, CPR, HAZWOPER refresher, and UXO recognition.

Bureau staff participated in training on unexploded ordnance (UXO) recognition in the field presented by a member of the Kirtland Air Force Base, Air Force Explosive Ordnance Demolition team. Many areas of the base have UXO remaining from exercises conducted years ago.

Bureau staff attended training seminars put on by WDC Exploration and Wells. During the first day staff attended one-hour (each) seminars that included Drilling Fundamentals, Sonic Drilling, Drilling Fluids Management, Direct Push Technologies, and Water Well Fundamentals. During the second day Bureau staff were trained and certified through the American Red Cross in First Aid and CPR. On the final day, staff members T. Skibitski, B. Birch and R. Channell were recertified for hazardous waste operations as part of the HAZWOPER 8-Hour Refresher Course.

PUBLIC OUTREACH (SPO41)

Under this Activity ID, Bureau staff interacts with the public through meetings, listening sessions, website development, consultations, and reports.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

GENERAL GROUNDWATER MONITORING (ER) (SGE42)

Under this Activity ID, Bureau staff evaluates groundwater parameters to determine if there is any change in groundwater contamination at SNL and also compares data results from the analytical laboratory used by Sandia to data results obtained by the analytical laboratory used by the Bureau as an independent verification.

Quarterly Summary: During FFY10 Q-2, Bureau staff collected groundwater samples from monitoring wells in Technical Area V (TA-V), the Burn Site, the Groundwater Protection Program wells (GWPP), the Mixed Waste Landfill (MWL), the Chemical Waste Landfill (CWL), and the Lovelace Respiratory Research Institute (LRRI). Samples were analyzed by a contract analytical laboratory for organic and inorganic compounds, metals, and radionuclides.

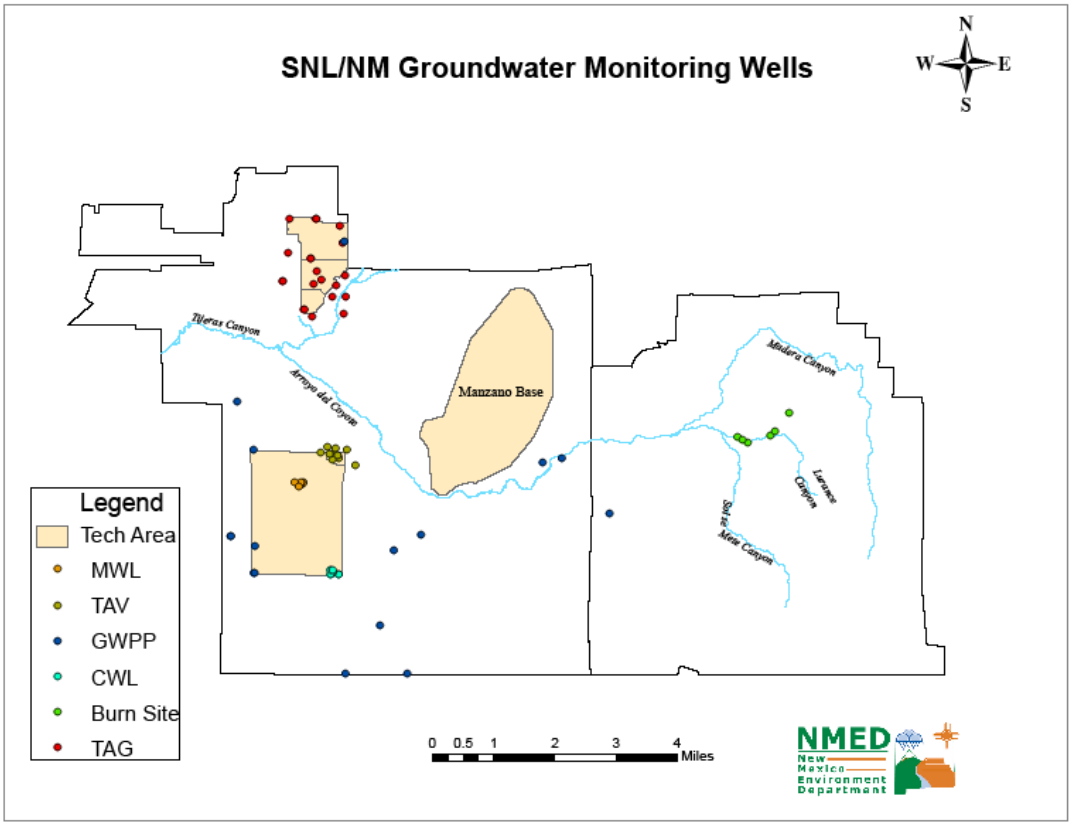


Figure SGE42-1: Map of SNL/NM monitoring wells at Kirtland Air Force Base. Each monitoring well group is separately depicted under the specific category.

Bureau staff continues to attend monthly groundwater coordination meetings attended by personnel from DOE, Sandia, KAFB and the Bureau. All parties were working to resolve the issue of data sharing in accordance with the Agreement in Principle.

Burn Site Groundwater:

Bureau staff collected groundwater samples from Burn Site monitoring wells CYN-MW3 and MW6. Samples were analyzed for NPN. Staff has begun the review and validation process prior to forwarding a draft data submittal to DOE.

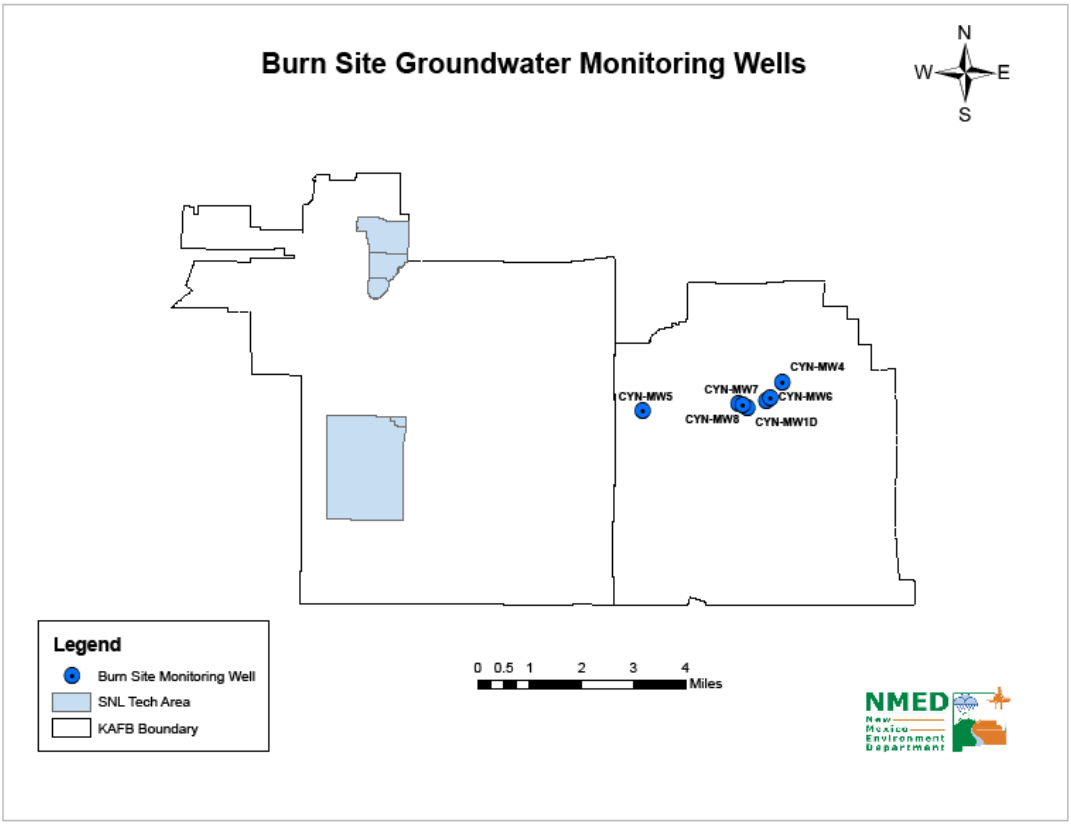


Figure SGE42-2: Map of SNL/NM Burnsite monitoring wells at Kirtland Air Force Base.

Groundwater Protection Program (GWPP):

Bureau staff sampled GWPP monitoring wells CTF-MW2, SFR-2, and TRE-1 and also collected samples from Coyote Springs. Samples were analyzed for VOCs, high explosives, nitrate plus nitrite, total cyanide, major anions, TAL metals plus total U, mercury, gamma-emitting isotopes, gross alpha/beta, radium-226, radium-228, isotopic uranium, and radon-222. Results are pending.

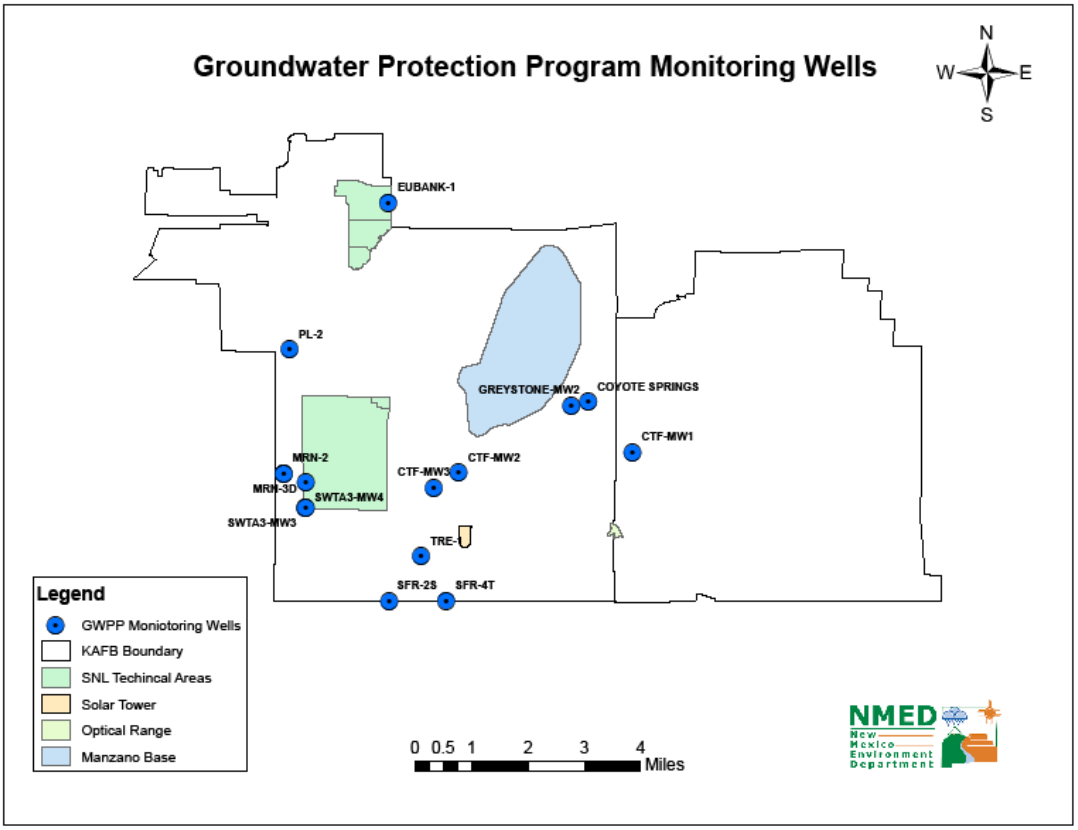


Figure SGE42-3: Map of SNL/NM Groundwater Protection Program monitoring (GWPP) wells at Kirtland Air Force Base.

Mixed Waste Landfill (MWL) Groundwater:

Bureau staff collected groundwater samples from Mixed Waste Landfill monitoring wells MWL-MW7, MWL-MW8 and MWL-MW9. Samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), total and dissolved TAL metals plus uranium, nitrate plus nitrite (NPN), major anions, gamma-emitting isotopes, gross alpha/beta, and low-level tritium. Bureau staff has received the groundwater data results. Review and validation has begun. Data results will be reported to DOE during the third quarter FFY 2010.

Bureau staff forwarded a final data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED/DOE OB for FFY 2009 Q-2." The Bureau collected groundwater samples from MWL groundwater monitoring well MWL-MW7 using standard Sandia sampling procedures and equipment. The samples were submitted to an independent analytical laboratory for organic, inorganic and radionuclide analyses. No anomalies were detected in the groundwater results from MWL-MW7.

Bureau staff submitted a final data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED/DOE OB for FFY 2009 Q-3." The Bureau collected groundwater samples from monitoring wells MWL-MW4, MWL-MW5, and MWL-MW6. Split samples were collected using standard Sandia

sampling procedures and equipment. Bureau samples were submitted to an independent analytical laboratory for analysis of metals, inorganics, radionuclides and organics. Corrected gross alpha activity was detected above the MCL of 15 pCi/L at monitoring well MWL-MW6. The original sample was retrieved from archives and re-counted in July 2009. The corrected gross alpha activity for the re-counted sample was below the MCL. The Bureau requested analysis of an additional aliquot, and the results indicated gross alpha activity was below the EPA MCL. No other anomalies were present.

Bureau staff forwarded a final data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED/DOE OB for FFY 2009 Q-4." The Bureau collected groundwater samples from Mixed Waste Landfill groundwater monitoring wells MWL-BW2, MWL-MW7, MWL-MW8 and MWL-MW9. Split samples were collected using standard Sandia sampling procedures and equipment. Bureau samples were submitted to an independent analytical laboratory for analysis of metals, inorganics, radionuclides and organics. No anomalies were detected during these sampling events.

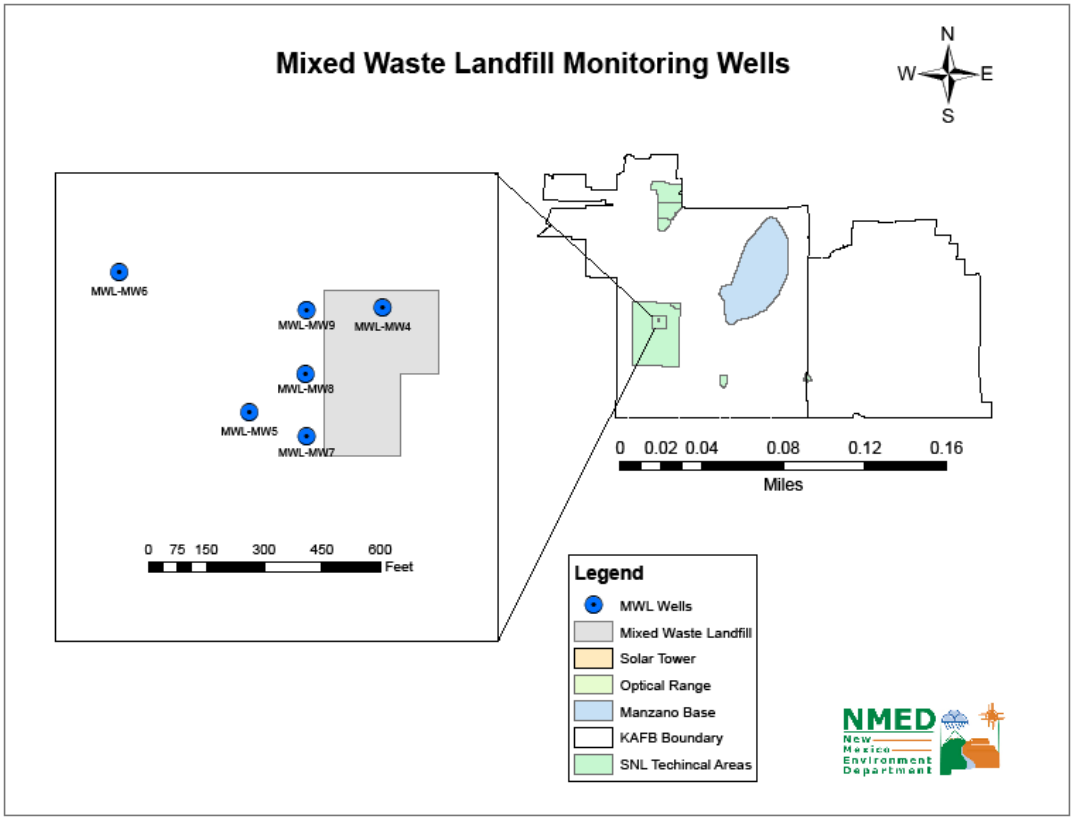


Figure SGE42-4: Map of SNL/NM Mixed Waste Landfill wells at Kirtland Air Force Base.

Technical Area-V (TA-V) Groundwater:

Bureau staff collected groundwater samples from Technical Area-V monitoring wells AVN-1, TAV-MW6, and TAV-MW10. Samples were submitted to an independent analytical laboratory for organic and inorganic analyses. Results are pending.

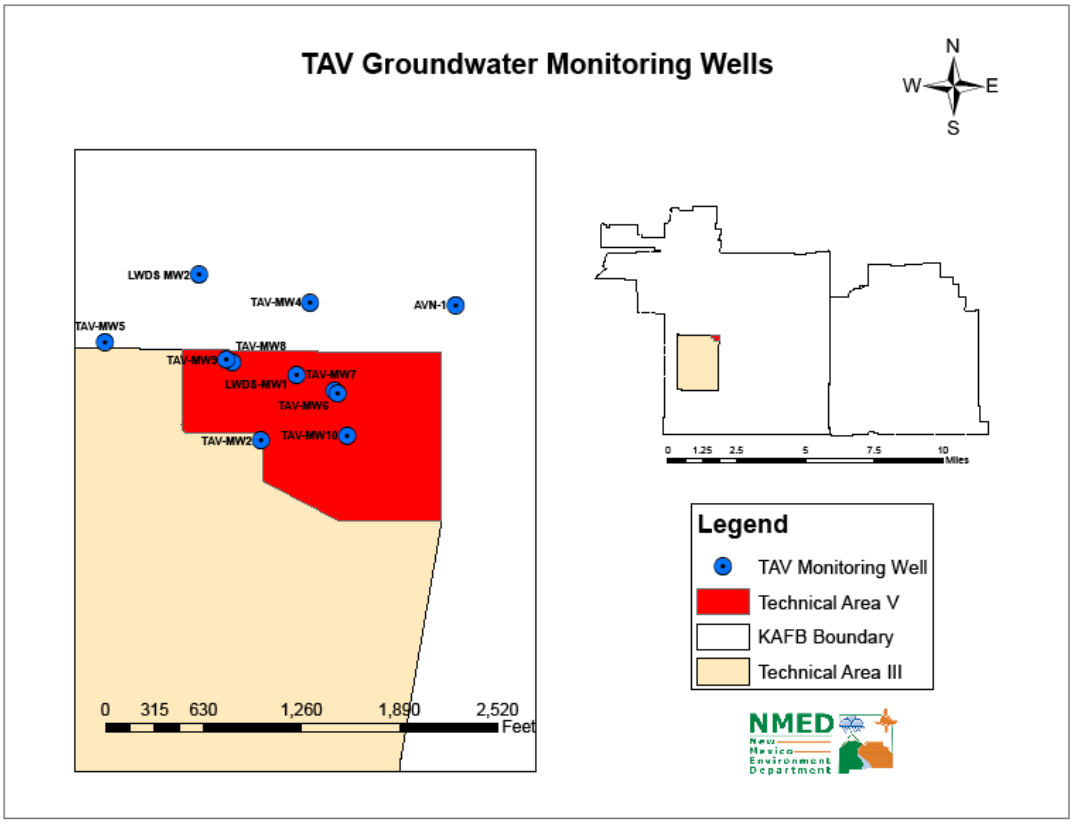


Figure SGE42-5: Map of SNL/NM TA-V wells at Kirtland Air Force Base.

Tijeras Arroyo Groundwater (TAG):

Bureau staff collected groundwater samples from Technical Area-V monitoring wells AVN-1, TAV-MW6, and TAV-MW10. Samples were submitted to an independent analytical laboratory for organic and inorganic analyses. Results are pending.

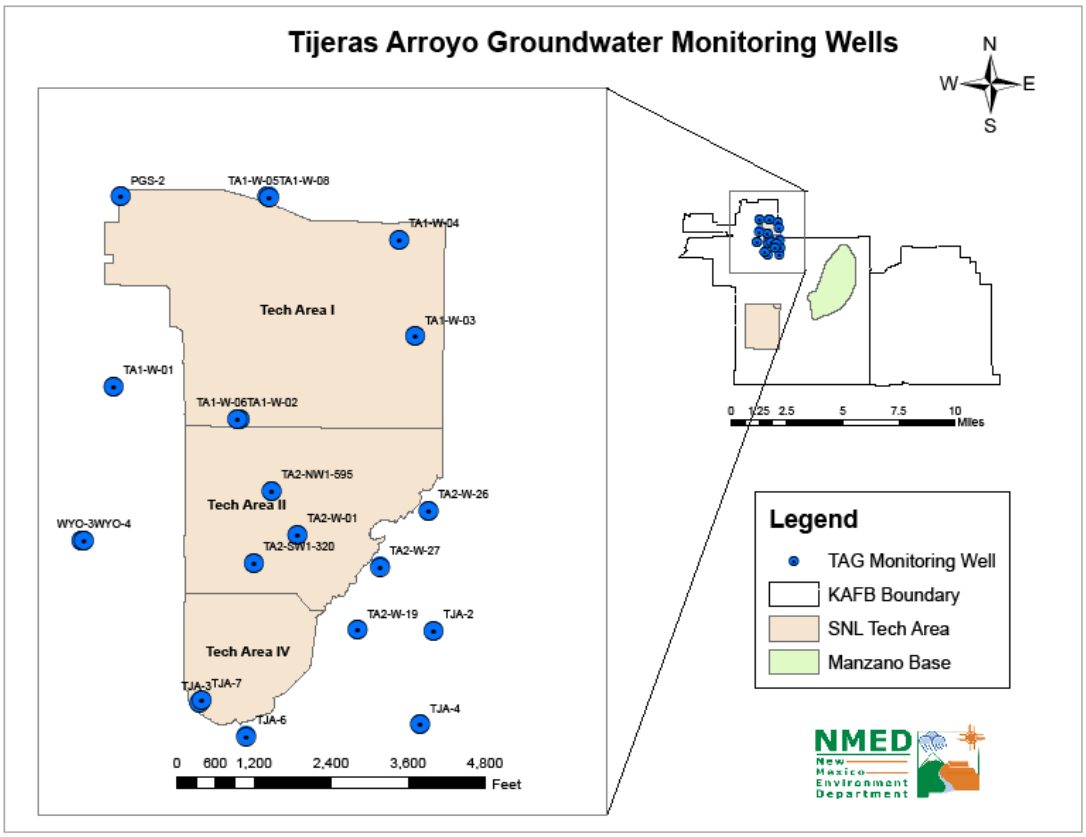


Figure SGE42-6: Map of SNL/NM Tijeras Arroyo wells at Kirtland Air Force Base.

Chemical Waste Landfill (CWL) Groundwater:

Bureau staff received groundwater data results from CWL sampling during FFY 2010 Q-1. Staff reviewed and validated the data collected from CWL-MW2BL, CWL-MW4, CWL-MW5L, and CWL-MW6L. Samples were analyzed for VOCs, SVOCs, TAL metals plus uranium, dissolved chromium, total cyanide, and PCBs. Staff submitted PCB data to an independent, third party validation group. This procedure is now standard for all PCB data. Data results will be reported to DOE during third quarter FFY 2010.

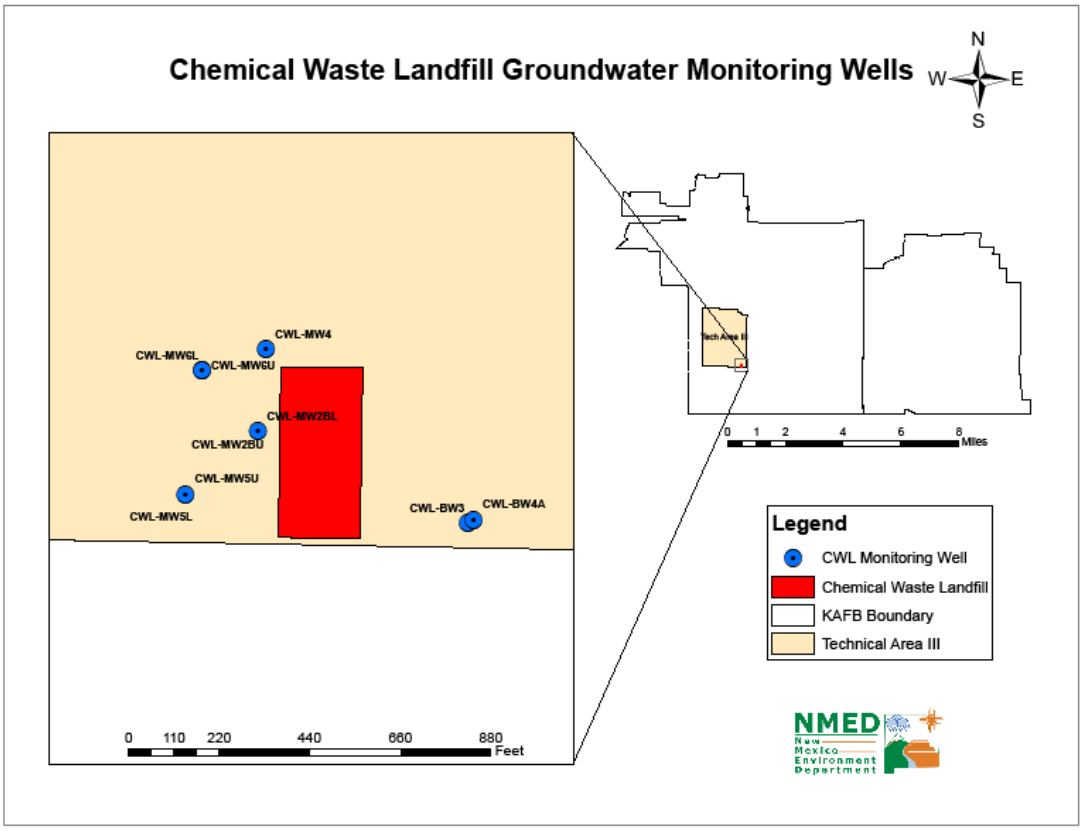


Figure SGE42-7: Map of SNL/NM Chemical Waste Landfill wells at Kirtland Air Force Base.

DIRECT PENETRATING RADIATION PROJECT (SDP43)

Under this Activity ID, Bureau staff uses electret passive ion chambers to evaluate the ambient gamma radiation at SNL. The Electret passive ion chamber functions on the principle of ion pair production resulting from gamma photons interacting with air molecules within an air- vented "S" type chamber of predetermined volume to reduce the voltage of a charged Teflon™ disk. The voltage drop is proportional to the amount of gamma photons passing through the chamber. By using the change in voltage, a dose in units of milliRem (mrem) at a particular location can be determined with the use of a pre-prepared software algorithm.

Quarterly Summary: During FFY10 Q-2, Bureau staff conducted direct penetrating radiation measurements from all 12 electret stations located on-site and off-site.

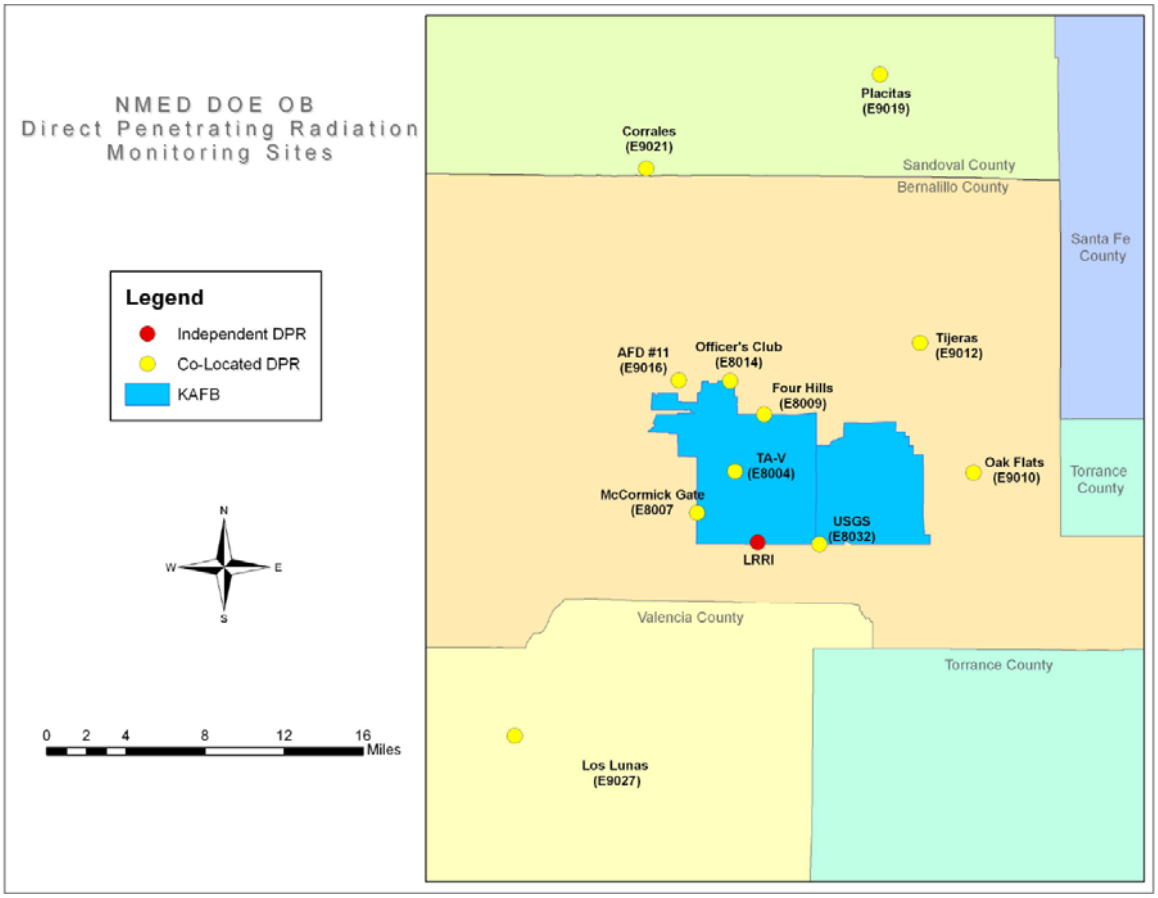


Figure SPD43-1: KAFB and surrounding area including the 12 on-site and off-site DPR monitoring sites

Bureau staff conducted direct penetrating radiation measurements from all 12 electret stations located on-site and off-site. All except one site at the LRRI are co-located with Sandia environmental radiation dosimetry monitoring units (TLDs). A data review including Sandia results is expected to be completed in the next quarter.

Bureau staff received Sandia TLD results from CY09 Q-4. Results were consistent when compared to NMED DPR results from the co-located sites.

PARTICULATES LOW-VOLUME AIR PROJECT (SPL44)

Under this Activity ID, Bureau staff evaluates the ambient air concentrations of gross alpha/beta, isotopic americium, isotopic plutonium, isotopic uranium, gamma-emitting isotopes, and tritium at the SNL. The Bureau operates air monitoring stations to collect airborne particulate matter and water vapor at SNL using NMED sampling protocols and procedures. Air particulate matter consists of minute "dust" particles collected on a polypropylene particulate filter. Water vapor is collected by passing a known volume of air through a silica gel-filled cartridge, a hydrophilic compound that traps ambient air moisture.

Quarterly Summary: During FFY10 Q-2, Bureau staff continued to collect bi-weekly air particulate filters from 3 perimeter monitoring stations and 1 on-site station located at the Mixed Waste Landfill. In addition to collecting particulate filters, the Bureau collected silica gel

samples that are used to trap environmental moisture that is analyzed for the presence of tritium. Silica gel samples taken from the perimeter stations are collected bi-weekly and composited for the quarter. Silica gel samples taken from MWL are also collected bi-weekly, but they are analyzed separately.

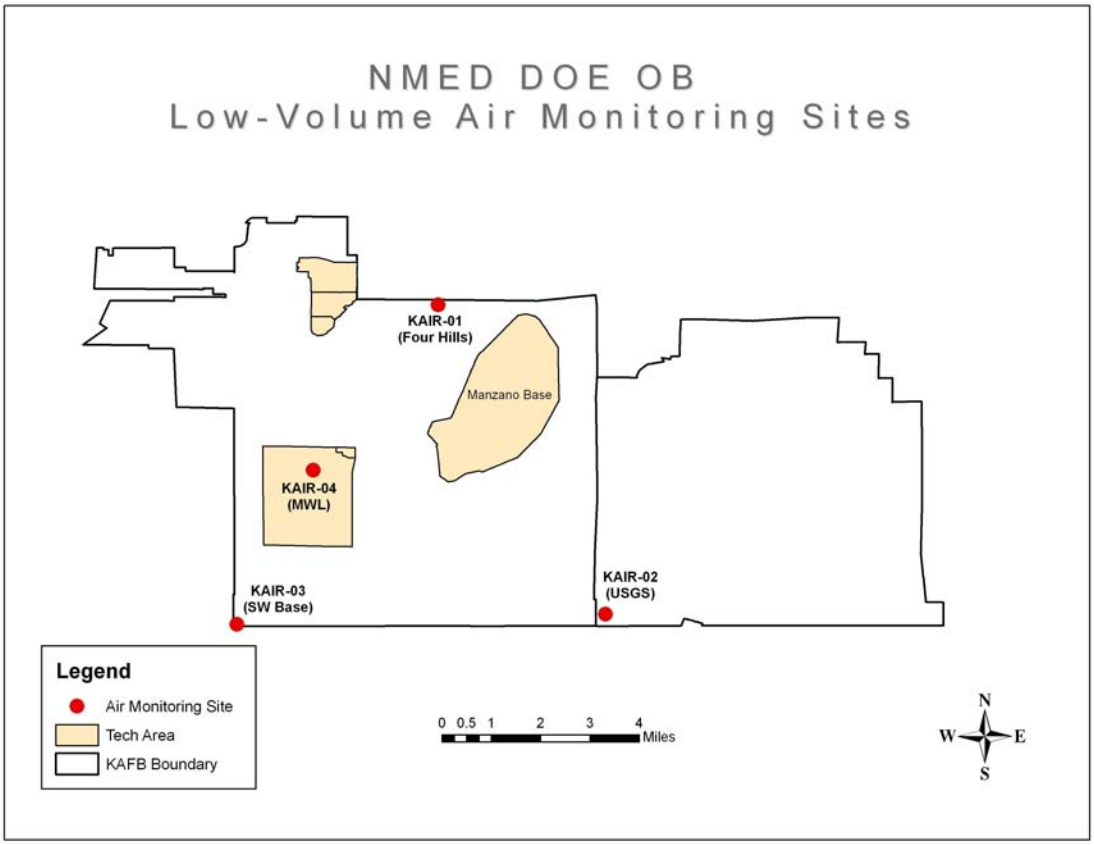


Figure SPL44-1: Perimeter and MWL low-volume Air monitoring stations at KAFB.

Bureau staff shipped CY 2009 Q-4 samples to an independent laboratory for analysis. Particulate filters will be analyzed for gross alpha/beta, gamma-emitting isotopes, and isotopic americium, plutonium and uranium. Silica gel samples will be analyzed for the presence of tritium. Data results have since been received and staff is currently reviewing and validating data.

STORMWATER PROJECT (SSW45)

Under this Activity ID, Bureau staff conducts stormwater monitoring at stations generally co-located with Sandia monitoring stations down gradient from Areas of Concern or Solid Waste Management Units.

Quarterly Summary: During FFY10 Q-2, Bureau staff reviewed data results and prepared the draft data submittal for stormwater FFY2010 Event 1.

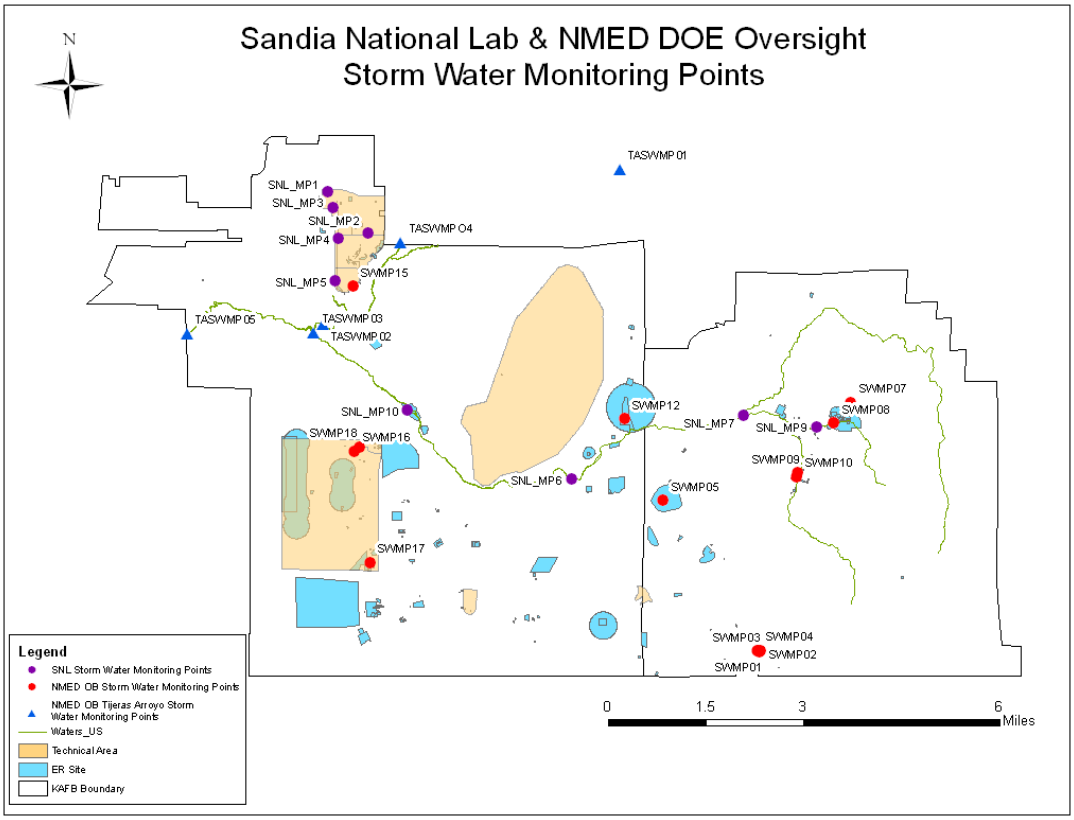


Figure SSW45-1: Sandia and NMED/DOE OB stormwater monitoring points on KAFB.

Bureau staff inspected all stormwater monitoring stations on the 28th of January after collecting 0.6" of rain at building 803; no samples were collected.

Bureau staff collected one stormwater sample on the 8th of March from SWMP-05. The sample was transferred to a one gallon poly container for transport to the laboratory. The stormwater sample was analyzed for TAL dissolved metals (filtered), TAL total recoverable metals (unfiltered), gross alpha/beta (filtered & unfiltered), gamma-emitting isotopes (filtered & unfiltered), isotopic uranium (filtered & unfiltered), hardness (filtered & unfiltered), sediment load, total dissolved solids, and total suspended solids. Analytical results will be posted in the FFY2010 Q-3 report.

Bureau staff completed data tables, cover letter, and report for stormwater FFY2010 Event 1. This event occurred during the week of October 21, 2009. Samples were collected from SWMP-01 and SWMP-05. The samples were analyzed for Target Analyte List (TAL) total recoverable metals (unfiltered), gross alpha/beta (filtered & unfiltered), isotopic uranium (unfiltered), gamma-emitting isotopes (unfiltered), sediment load, and total dissolved solids. Unfiltered, adjusted gross alpha activity was 73 pCi/L at SWMP-05, which exceeds the livestock watering criterion of 15 pCi/L (see Figure SSW45-1). No other analyte concentrations exceeded established criteria. Bureau staff intends to collect additional data to establish a trend for each monitoring station.

Location	Gross Alpha Unfiltered (pCi/L)	Adjusted Gross Alpha Unfiltered (pCi/L)	Gross Alpha Filtered (pCi/L)	Rainfall (inches)	Sediment Load (mg/L)	Total Dissolved Solids (mg/L)
SWMP-01	15	12	6.7	1.1	470	69
SWMP-05	78	73	1.9	1.1	3300	300

Figure SSW45-2: Sediment Load, TDS, and Gross Alpha Activity from Stormwater FFY2010 Event 1.

Bureau staff received GIS information (CD-R) from the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). Along with the GIS data AMAFCA provided several PDF files depicting the flood control systems in Albuquerque. Bureau staff requested information from City of Albuquerque regarding the stormwater drainage patterns and connections from the northern extent of Kirtland Air Force Base to the City of Albuquerque. The information will be used in supporting the regional PCB sampling.

TIJERAS ARROYO STUDY (STA47)

Under this Activity ID, Bureau staff conducts stormwater monitoring by collecting samples from single-stage one-gallon containers and one multi-stage unit located down gradient from Areas of Concern or Solid Waste Management Units along the Tijeras Arroyo.

Quarterly Summary: During FFY10 Q-2, Bureau staff reviewed data results and prepared the draft data submittals for Tijeras Arroyo stormwater FFY2010 Events 1 and 2. Samples were collected from storm events 3, 4, and 5.

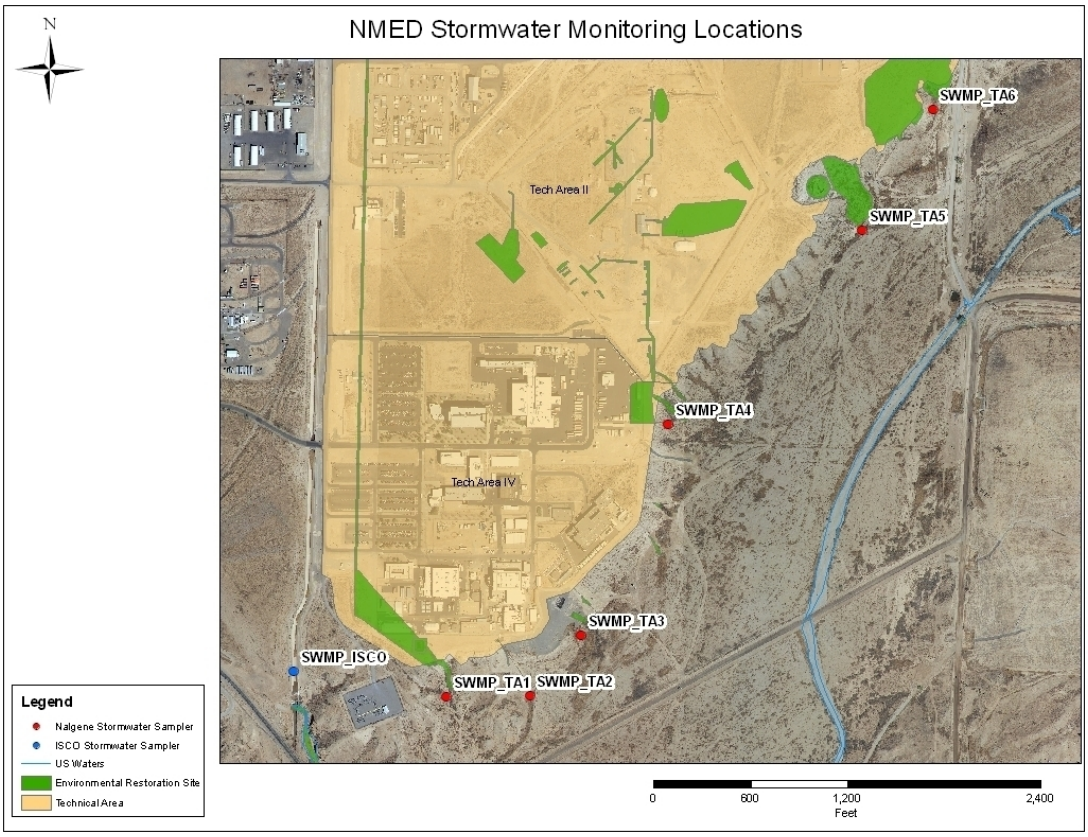


Figure STA47-1: Tijeras Arroyo stormwater monitoring sites.

Bureau staff collected two stormwater samples on the 19th of January (FFY 2010 Event 3) and the 25th of January (FFY 2010 Event 4) at SWMP-TA2 and SWMP-TA3. Bureau staff collected three stormwater samples on the 8th of March (FFY 2010 Event 5) at SWMP-ISCO, SWMP-TA2, and SWMP-TA3. A one-gallon sample of stormwater was collected at SWMP-TA2 and SWMP-TA3 and a sample of 1.5 gallons of stormwater was collected at SWMP-ISCO. Bureau staff transferred the stormwater samples to one-gallon poly containers for transport to the independent analytical laboratory. The stormwater samples will be analyzed for TAL dissolved metals (filtered), TAL total recoverable metals (unfiltered), gross alpha/beta (filtered & unfiltered), gamma-emitting isotopes (filtered & unfiltered), isotopic uranium (filtered & unfiltered), hardness (filtered & unfiltered), sediment load, total dissolved solids, and total suspended solids. Analytical results will be posted in the FFY2010 Q-3 report.

Bureau staff reviewed data results and prepared the draft data submittal for Tijeras Arroyo stormwater FFY 2010 Event 1. This event occurred during the week of October 21, 2009. Three samples were collected at SWMP-TA2, SWMP-TA3, and SWMP-TA6. The samples were analyzed for Target Analyte List (TAL) total recoverable metals (unfiltered), gross alpha/beta (filtered & unfiltered), isotopic uranium (unfiltered), gamma-emitting isotopes (unfiltered), perchlorate (unfiltered), nitrate-nitrite (unfiltered), sediment load, and total dissolved solids. Unfiltered, adjusted gross alpha activity was recorded at 29.69 pCi/L at SWMP-TA2 and 219.30 pCi/L at SWMP-TA6 (see Figure STA47-2). No other analyte concentrations exceeded established criteria.

Location	Gross Alpha Unfiltered (pCi/L)	Adjusted Gross Alpha Unfiltered (pCi/L)	Gross Alpha Filtered (pCi/L)	Rainfall (inches)	Sediment Load (mg/L)	Total Dissolved Soilds (mg/L)
SWMP-TA2	31	29.69	0.89	1.1	2800	150
SWMP-TA3	8.5	7.82	2.1	1.1	1500	150
SWMP-TA6	230	219.3	2.3	1.1	11000	310

Figure STA47-2: Sediment Load, TDS, and Gross Alpha Activity from TA Stormwater FFY 2010 Event 1.

Bureau staff reviewed data results and prepared the draft data submittal for Tijeras Arroyo stormwater FFY 2010 Event 2. This event occurred during the week of October 29, 2009. Samples were collected from SWMP-TA2, SWMP-TA3, and SWMP-TA6. The samples were analyzed for Target Analyte List (TAL) total recoverable metals (unfiltered), gross alpha/beta (filtered & unfiltered), isotopic uranium (unfiltered), gamma-emitting isotopes (unfiltered), perchlorate (unfiltered), nitrate-nitrite (unfiltered), sediment load, and total dissolved solids (See Figure STA47-3). No analyte concentrations exceeded established criteria.

Location	Gross Alpha Unfiltered (pCi/L)	Adjusted Gross Alpha Unfiltered (pCi/L)	Gross Alpha Filtered (pCi/L)	Rainfall (inches)	Sediment Load (mg/L)	Total Dissolved Soilds (mg/L)
SWMP-TA2	3.2	2.69	2.3	0.35	230	130
SWMP-TA3	8.4	8.01	2.8	0.35	110	170
SWMP-TA6	6.6	5.51	2.6	0.35	240	120

Figure STA47-3: Sediment Load, TDS, and Gross Alpha Activity from TA Stormwater FFY 2010 Event 2.

DEMOLITION AND DECOMMISSIONING PROJECT (SDD48)
Under this Activity ID, Bureau staff conducts site evaluations and media monitoring during decommissioning and demolition operations.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

BIOTA AND TERRESTRIAL PROJECT (STE49)
Under this Activity ID, Bureau staff conducts annual sampling of soils and plants in a cooperative effort with Sandia on KAFB and the surrounding area.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

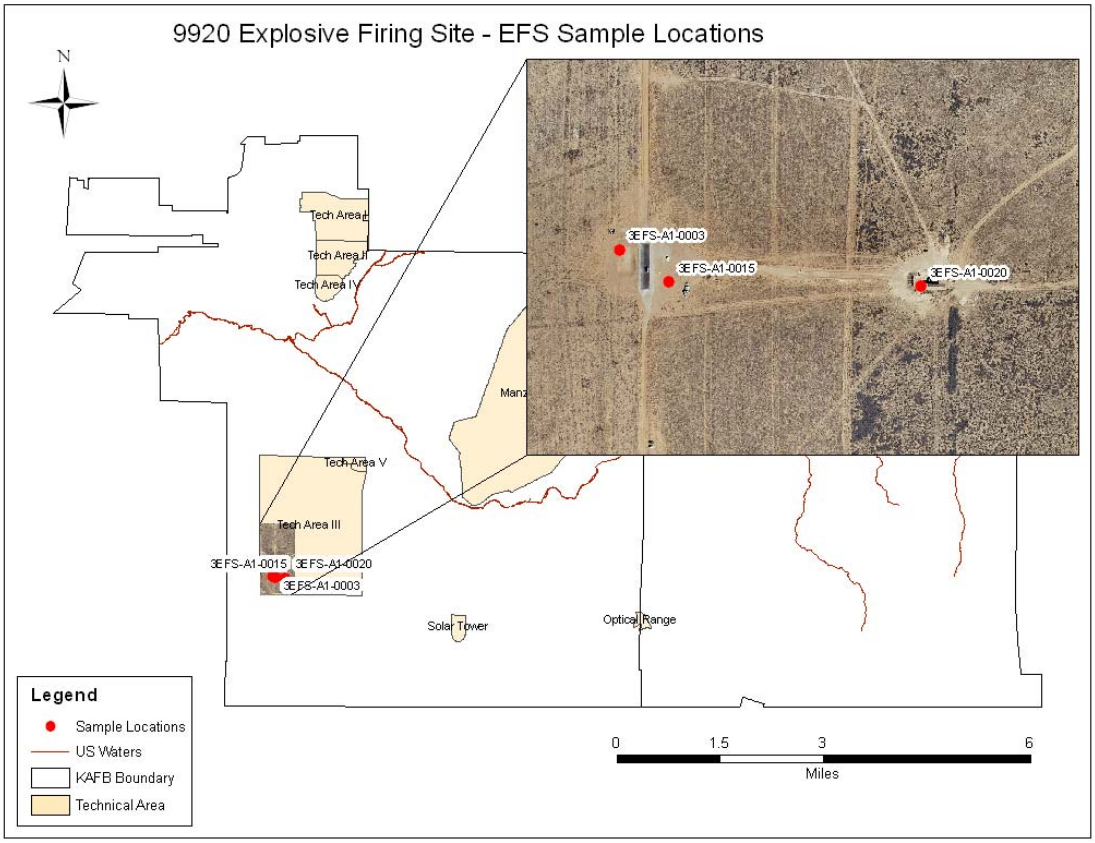
WASTEWATER PROJECT (SWW51)
Under this Activity ID, Bureau staff conducts annual sampling of wastewater discharges from SNL operations in a cooperative effort with Sandia and the City of Albuquerque.

Quarterly Summary: During FFY10 Q-2, Bureau staff reviewed data results and prepared the draft data submittal for Waste Water FFY 2010 Event 1.

Bureau staff reviewed data results and prepared the draft data submittal for Waste Water FFY 2010 Event 1. This sampling event occurred during the week of October 27, 2009. The staff split waste water samples with Sandia and the City of Albuquerque. Samples were collected from wastewater monitoring stations WW001 (City of Albuquerque permit number 2069A), WW006 (City of Albuquerque permit number 2069F), WW007 (City of Albuquerque permit number 2069G), and WW0011 (City of Albuquerque permit number 2069K). The samples were submitted to an independent analytical laboratory for analysis of total metals, total cyanide, fluoride, gamma-emitting isotopes, gross alpha/beta, and tritium. The waste water results were all below criteria set by both the Albuquerque Bernalillo County Water Utility Authority Sewer Use and Wastewater Control Ordinance and the Sewer Release standards of the 20.3.4 NMAC.

SOIL AND SEDIMENT PROJECT (SSS53)
Under this Activity ID, Bureau staff conducts annual soil sampling in a cooperative effort with Sandia to evaluate clean-up efforts by Sandia after open-air explosive experiments.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.



TECHNICAL REVIEW (STR54)
Under this Activity ID, Bureau staff provides technical support to DOE and Sandia, other bureaus in NMED, state and federal entities, and public interest and oversight groups.

Quarterly Summary: During FFY10 Q-2, Bureau staff reviewed periodic and activity area documents for publication.

NPDES MONITORING (SNP55)
Under this Activity ID, Bureau staff conducts site evaluations in consultation with Sandia to determine compliance with facility-generated Stormwater Pollution Prevention Plans, and to monitor activities after reportable spills on SNL.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.

WASTE ISOLATION PILOT PLANT OVERSIGHT

GENERAL ADMINISTRATION (WAD70)

Under this Activity ID, the Bureau manages, administers, and finances the overall activities of staff members in the Carlsbad office. Staff provides assistance to the Bureau and DOE developing workplans, budgets and training requirements.

Quarterly Summary: During FFY10 Q-2, Bureau staff completed required and voluntary training, observed mining operations, and monitored seismic events in the area.

Staff Scientist Julia Marple completed Defensive Driver Training in Albuquerque on January 26. Defensive driving training is required of all state employees.

Staff Scientists Julia Marple and Thomas Kesterson completed their Radiological Worker II Refresher this quarter. Staff reviewed the core radiological material as part of the refresher training. As part of the instruction, class members gained the knowledge to work safely in areas controlled for radiological purposes, and how to use ALARA (As Low as Reasonably Achievable) techniques in accordance with WIPP radiation safety procedures.

Staff Scientist Thomas Kesterson completed Safety – 504, which provides CPR (cardio-pulmonary resuscitation) Basic Life Support technique, during the week of March 1st. Staff was trained to administer Basic Life Support CPR to adults, children, and infants in accordance with standards set forth by the American Heart Association.

Staff Scientists Julia Marple and Thomas Kesterson traveled to Albuquerque this quarter to obtain the NMED base-line medical exam.

The Office Administrator, Krissie Adams, attended notary public training in Alamogordo on March 16th.

During the week of January 11, staff toured the underground with Dan Ferguson of the DOE to look at mining accomplished during the recent maintenance outage. Staff observed mining activities in progress in Panel VI, Room 1. During this visit, the rough cutting of Panel VI was nearing completion. This phase will be followed by additional finish mining to lower the floors throughout the panel. Staff observed the newly constructed ventilation barrier and expanded VOC monitoring station at Panel IV.

Staff visited the new Salt Storage Evaporation Basin (SSEB) 2 during the week of February 8th. Construction on this facility was complete at this time, and at 0730 Wednesday, February 10th, water was pumped from SSEB 1 into the new basin at a rate of 1500 gpm. The new basin is located east of the North Access Road, west of the salt pile and north of the WIPP.

During the week of March 15th two separate seismic events were recorded at the WIPP. Facility personnel responded to both alarms which were subsequently determined to be false alarms. In both events, Recorder #2 showed what was described as a "significant spike." Had this spike been a "real" event earth movement would have been felt by individuals at the site. Recorder #1

showed minor background noise consistent with oil field work. Underground recorders did not detect the events.

Data results were sent to a vendor, Kinemetrics, which concluded that the events documented on the recording devices were caused by radio frequency (RF) interference. In response to this determination WTS is trying to identify the cause of the RF interference and is replacing the recorder panel. This seismic recorder panel will be temporarily out of service and WIPP will utilize data from New Mexico Tech and the USGS for seismic event monitoring.

On March 27th at approximately 6:03 PM another seismic event occurred near Carlsbad registering 4.1 on the Richter scale. Operators at the Site were contacted following the earthquake and no alarm sounded underground. The epicenter of the earthquake was located about 18 miles northwest of Carlsbad.

Numerous secondary oil recovery operations or water-flooding activities are being conducted in the Dagger Draw field located in the Indian Basin – the approximate epicenter of the seismic event northwest of Carlsbad. A large number of very minor seismic events have been recorded in this area however none were as large as what was observed on Saturday, March 27th. The large volumes of fluid withdrawal and injection may have been responsible for minor shifts or movement along the fractures of the reservoir rocks resulting in these minor seismic events.

Staff visited the underground during the week of February 15th and photographed the new granulated activated charcoal (GAC) filter installed by WIPP (see Figure WAD70-2). This filter is located in the exhaust drift of Panel IV near its intersection with S (South)-3310. Installation was completed and the filter was placed in-service the previous weekend. The GAC air filter is an effort to capture carbon tetrachloride emissions in the panel and resolve the issue of increasing concentrations of volatile organic compounds (VOC) in air over the last few months. The increasing concentration could lead to a regulatory exceedance of the running annual average.

Figure WAD70-1: Staff Scientist Thomas Kesterson (right) observing the new GAC filter installation.

PUBLIC OUTREACH (WPO71)
Under this Activity ID, Bureau staff interacts with the public through meetings, listening sessions, website development, consultations, and reports.

Quarterly Summary: During FFY10 Q-2, Bureau staff participated in the WIPP Quarterly meeting and observed permit modification request proceedings.

Bureau staff made a short presentation at the WIPP Quarterly meeting held in Santa Fe on January 21st. Proper management of carbon tetrachloride emissions was a focus of the meeting. Management objectives include minimizing shipments of suspected containers containing the substance, filtering the air in the active panels through granulated activated charcoal, and monitoring air concentrations to evaluate effectiveness of mitigation efforts.

Bureau staff attended by telephone the public hearing concerning the Class II Permit Modification Request to Revise Volatile Organic Compound (VOC) Contaminants of Concern (COCs). Highlights of the hearing include:

- It was initially assumed in the permit that the apportionment of carcinogenic risk associated with each VOC of interest at WIPP was equal. It has since been determined that carbon tetrachloride (CCl4) is the major contributor to the carcinogenic risk from VOCs at WIPP.
- The permit modification request sought to reapportion the risk for carbon tetrachloride, chloroform, methylene chloride, 1,1,2,2-tetrachloroethane and 1,1-dichloroethene while maintaining the environmental performance standard as a whole.
- The permittees had proposed to raise the COC for CCl4 from 165 ppbv to 630 ppbv and lower the COCs for chloroform, methylene chloride, 1,1,2,2-tetrachloroethane and 1,1-dichloroethene according to the actual distribution of VOCs found within the waste. The overall cumulative carcinogenic risk would remain unchanged.

In a subsequent letter dated April 14, 2010 to David Moody, DOE Carlsbad Field Office, the Department granted Temporary Authorization (TA) allowing the proposed changes with the following additional requirements:

- The TA is effective only until NMED completes the administrative process for the Class 2 PMR (Permit Modification Request), or 180 days, whichever is shorter.
- During the effective period of the TA, the Permittees shall not receive or emplace any containers from waste streams ID-RF-S3114, ID-RF-S3150-A, ID-SDA-Sludge, and ID-SDA-Soil unless they are placed in overpack containers and managed as specified on page 7 of the Class 2 PMR.

EXHAUST AIR MONITORING PROJECT (WEA72)
Under this Activity ID, Bureau staff monitors the air exiting the underground of the WIPP site. Staff collects air filters daily and attends weekly or bi-weekly preventative maintenance probe pulls.

Quarterly Summary: During FFY10 Q-2, Bureau staff continued to monitor air quality from the underground and to examine air intake nozzles and shrouds for corrosion or salt accumulation.

Air quality emissions monitoring:
Bureau staff continued daily NESHAP air filter collection at WIPP Station A and Station B. Station A (the EPA compliance point) sits atop the fourteen-foot diameter exhaust air shaft where it turns 90-degrees toward the blowers which pull air through the mine at an average of 144,000 cubic feet per minute.

The monitor at Station A samples unfiltered air from the underground. Station A contains three skids, identified as A-1, A-2, and A-3. Two of these skids are in service at any one time, with one serving as the "Primary" and the other serving as "Back-up." The third skid is usually secured or out-of-service for scheduled preventative maintenance or repairs.

Two Gast vacuum pumps, Model G561X are found at each skid. One pump operates continuously while the other remains in stand-by mode engaging automatically in a low-flow condition. These pumps pull air through three legs; one each assigned to Carlsbad Environmental Monitoring and Research Center (CEMRC), WIPP, and to the Bureau. Filters are collected from the Station A Primary skid and the Back-up skid each morning. Primary filters are compiled by month and shipped to the contract lab for analysis. Back-up filters are archived for future use, if required. Station B filters are routinely collected on Wednesday mornings.

During this quarter, Bureau staff received the results for Station A for July through December 2009. The data report showed results for selected analytes indicating the results in both pCi/composite and $nBq/m^3 \pm 2TPU$ (Total Propagated Uncertainty). The graphs below indicate values expressed in the latter units as they are customarily used at the WIPP. For this time period, there were no detections for any of the selected analytes above MDC (Minimum Detectable Concentration).

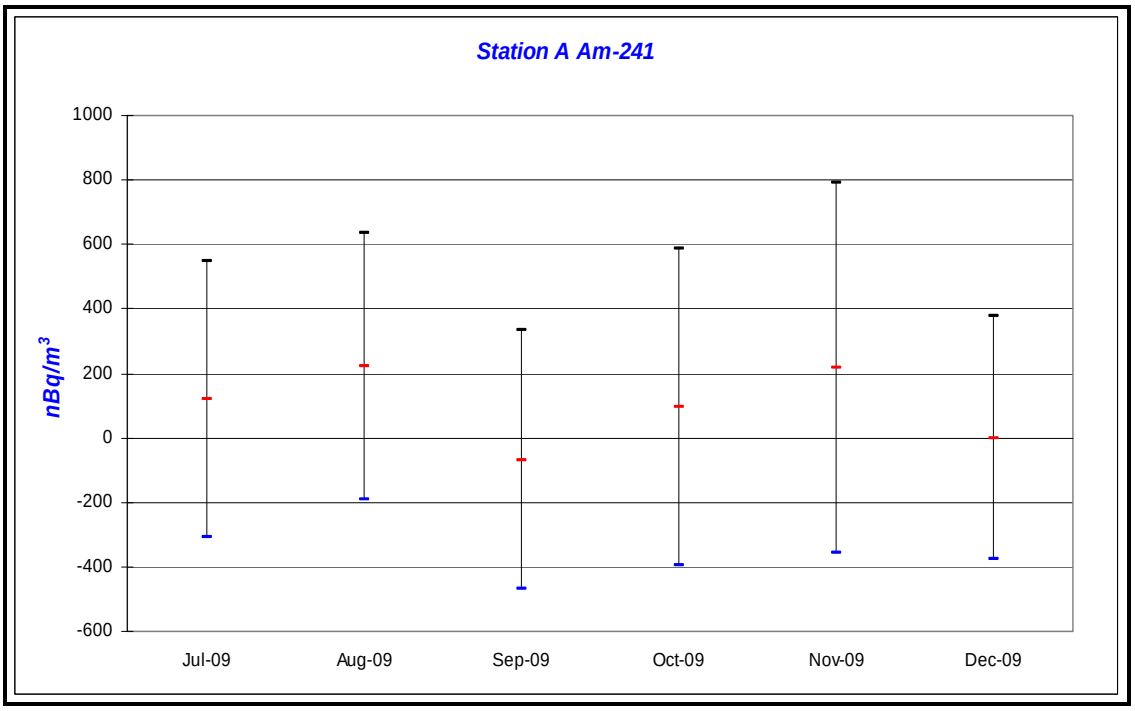


Figure WEA72-1: Am-241 from Station A, July - December, 2009.

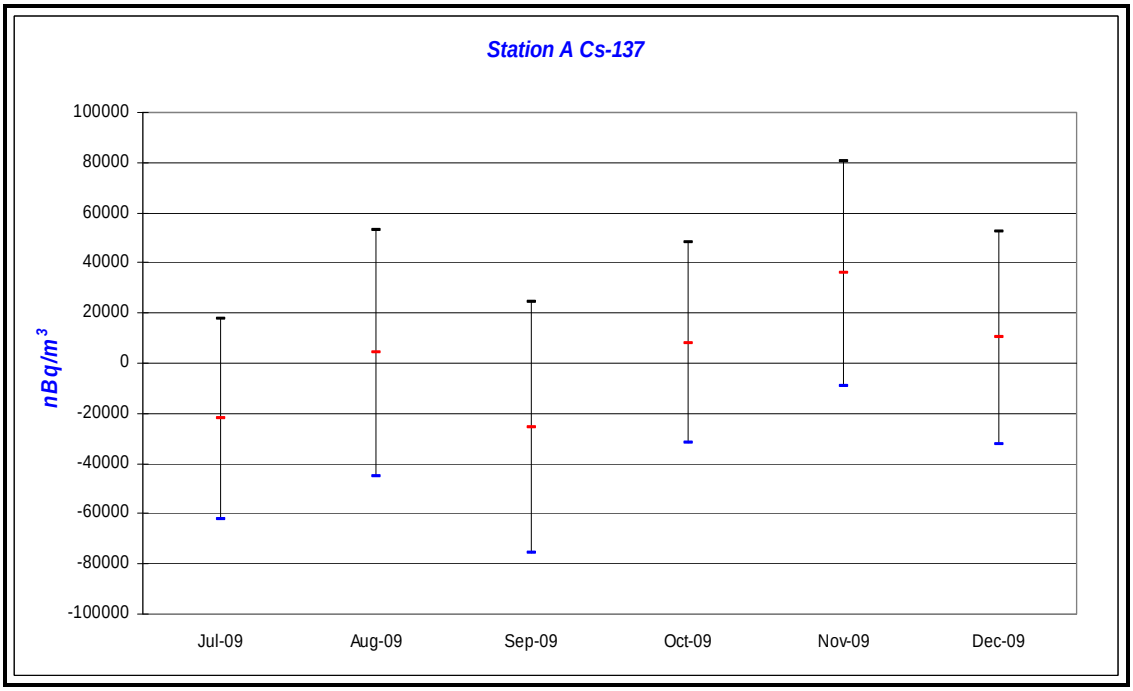


Figure WEA72-2: Cs-137 from Station A, July - December, 2009.

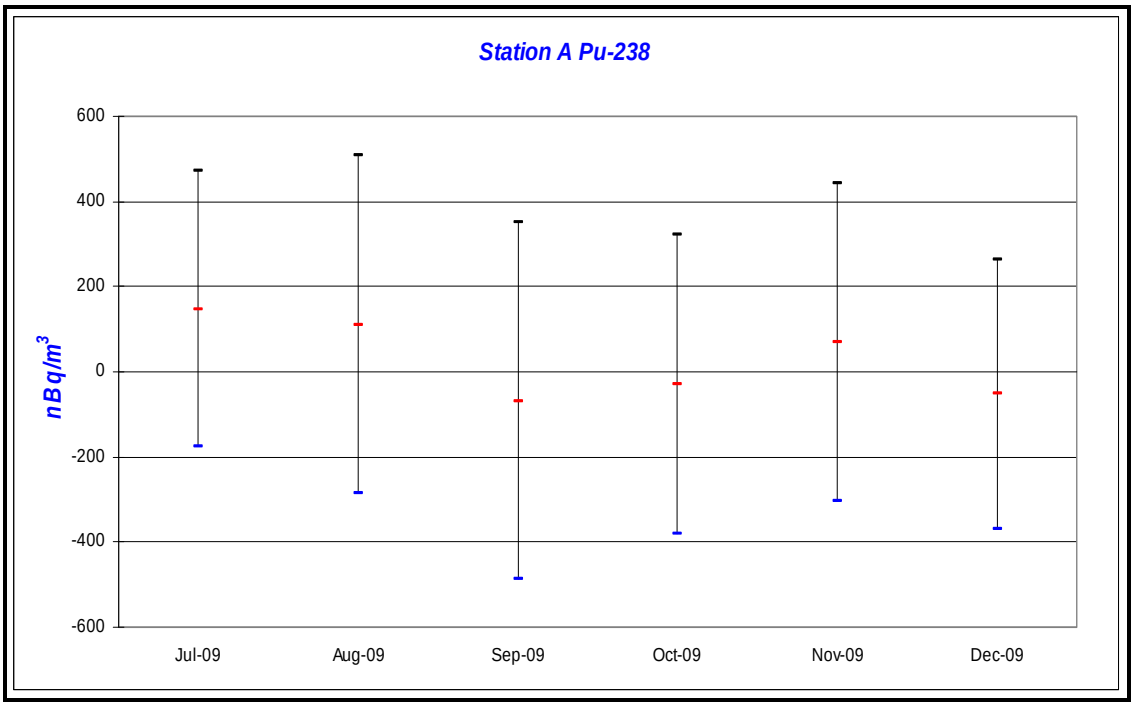


Figure WEA72-3: Pu-238 from Station A, July - December, 2009.

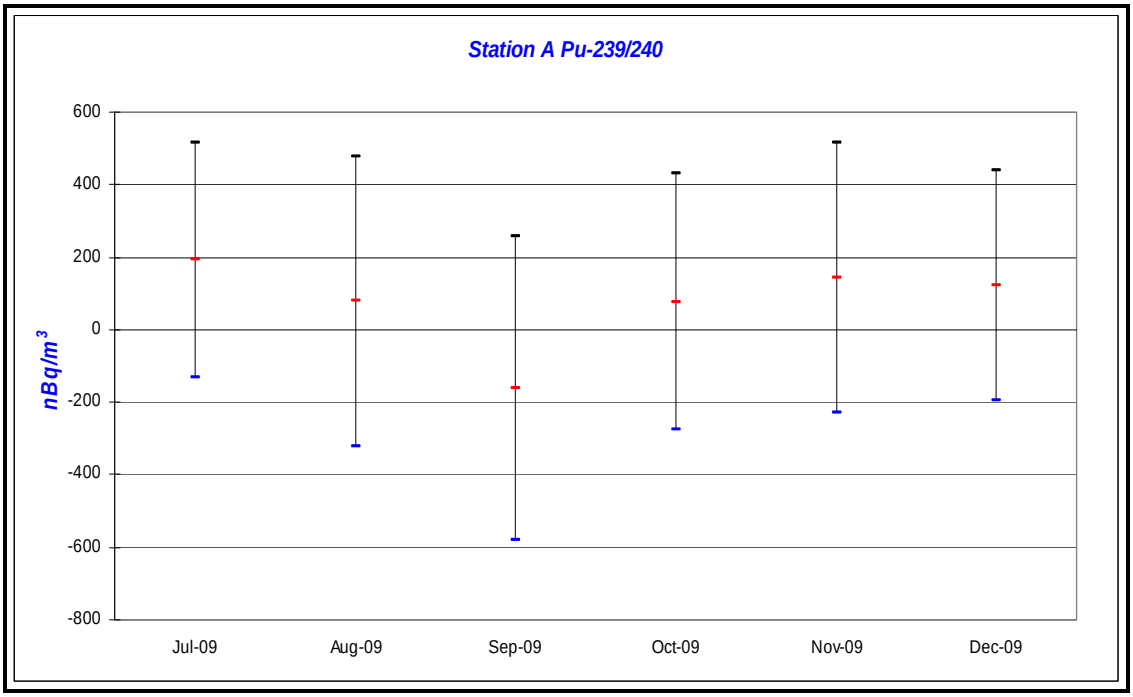


Figure WEA72-4: Pu-239/240 from Station A, July - December, 2009.

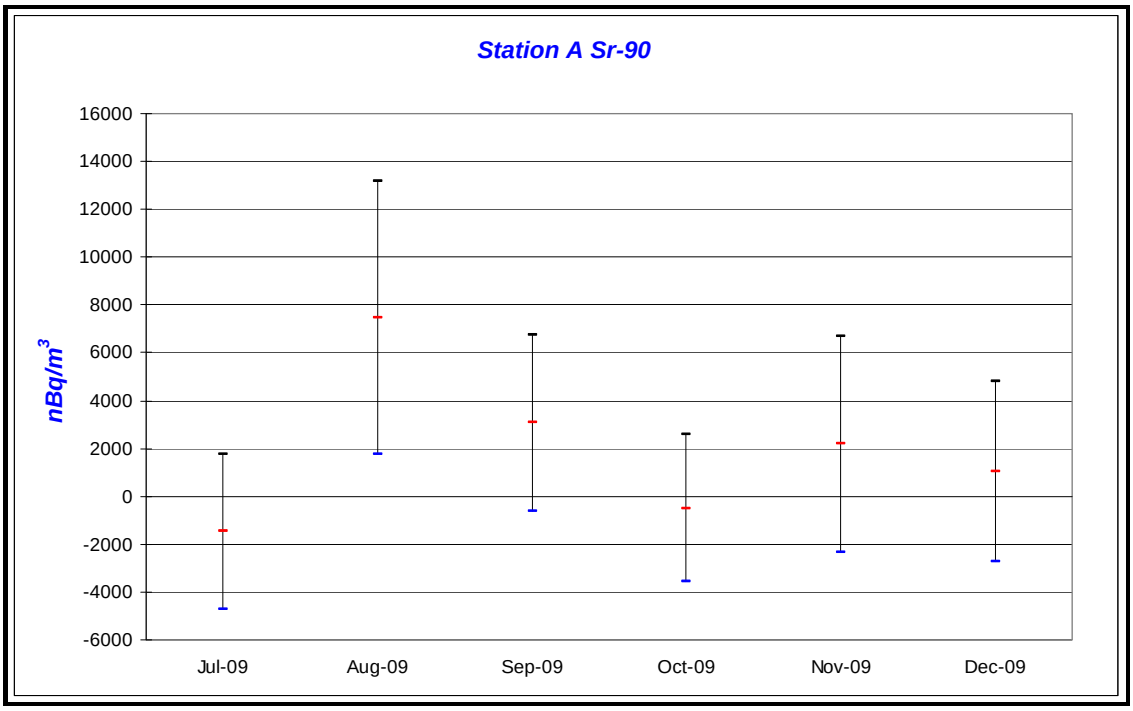


Figure WEA72-5: Sr-90 from Station A, July - December, 2009.

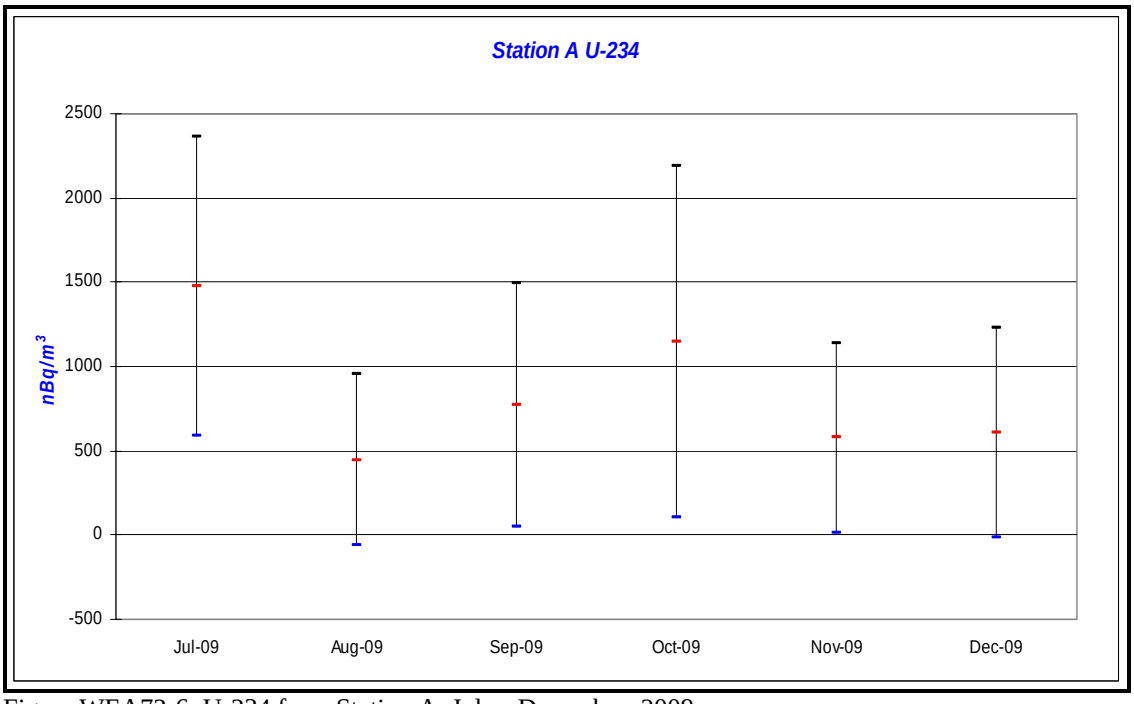


Figure WEA72-6: U-234 from Station A, July - December, 2009.

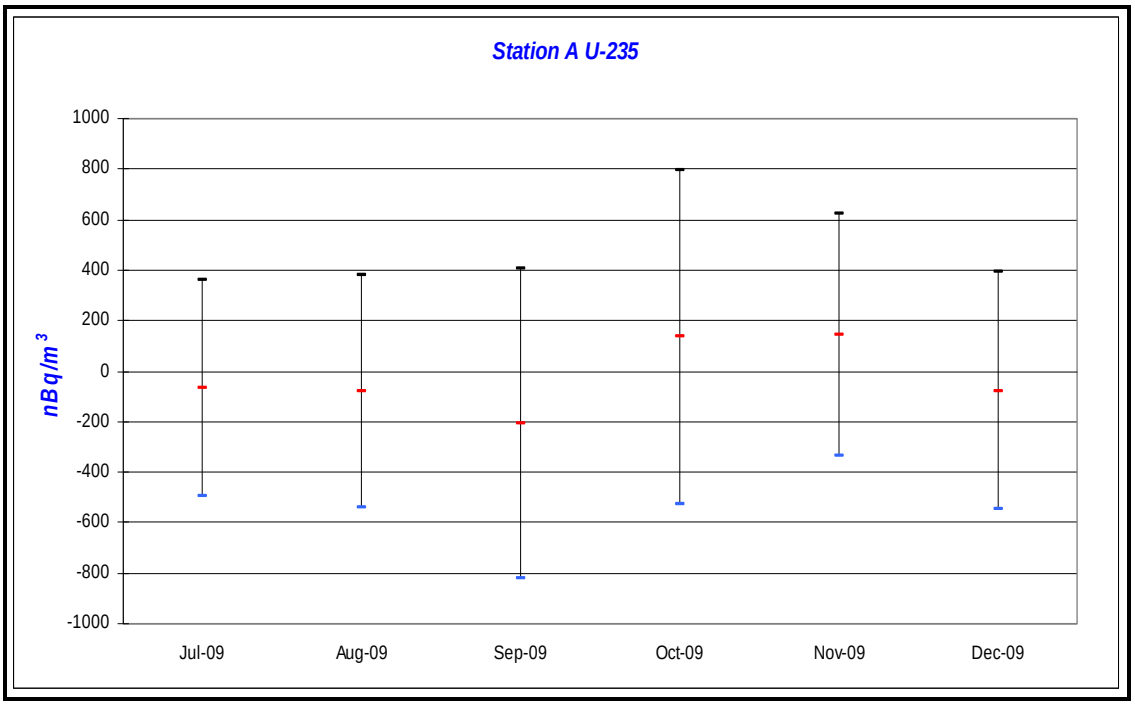


Figure WEA72-7: U-235 from Station A, July - December, 2009.

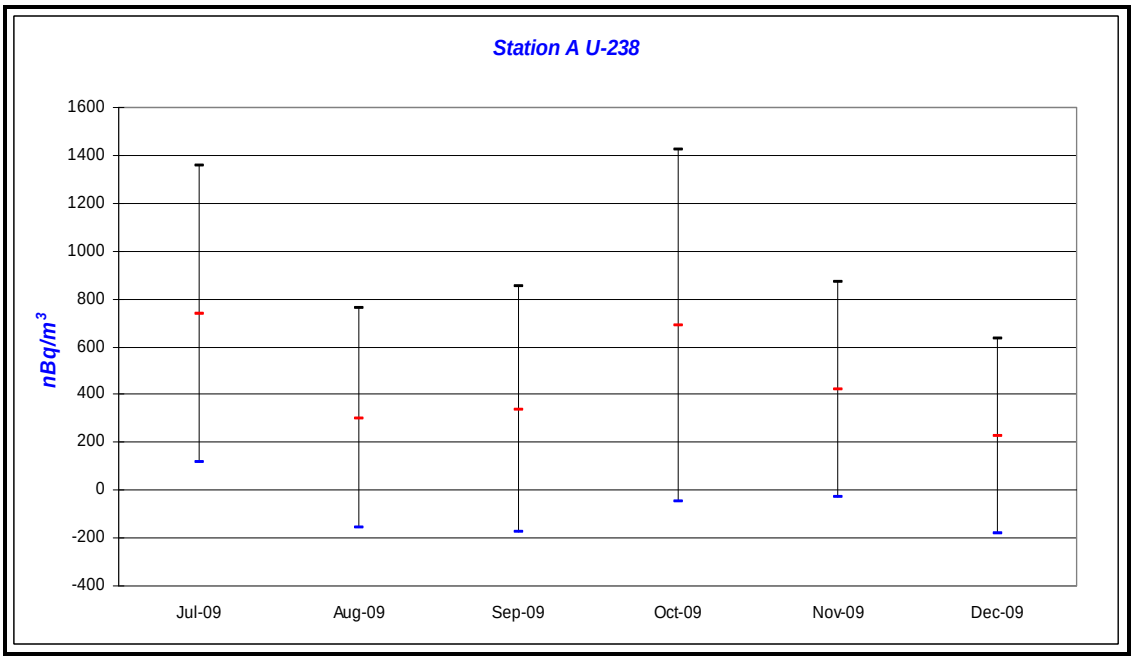


Figure WEA72-8: U-238 from Station A, July - December, 2009

Salt accumulation on nozzles and shrouds monitoring:

Staff members observe probe pulls at Station A when they are removed for preventative maintenance and cleaning of shrouds and nozzles (the probe). Maintenance and cleaning is usually conducted weekly although this operation may be scheduled bi-weekly during the summer or holiday periods as conditions permit. Personnel from WTS, CEMRC, US DOE, and CTAC are present along with Bureau personnel. Regular maintenance of the nozzles and

shrouds minimizes the accumulation of salt and ensures the collection of representative samples of particulates on the filter. During shroud removal, the condition of the probes are photographed for documentation and the images are forwarded to the EPA Region Six in Dallas, Texas.

The amount of salt occlusion on the probes is measured by WTS personnel and reported to the Bureau and the EPA (See Figure WEA72-12). An occlusion of thirty percent or greater on the nozzle indicates that a representative air sample cannot be obtained from the effluent air stream. During this quarter, the nozzle from Skid A-1 exceeded thirty percent occlusion multiple times. However, this skid did not serve as a skid of record at any time this quarter.

Figure WEA72-9: Shroud showing salt accumulation, with nozzle clear.

Figure WEA72-10: Shroud showing no salt accumulation.

Figure WEA72-11: External view of the probe.

Date	Skid A-1 (% Occlusion)	Skid A-2 (% Occlusion)	Skid A-3 (% Occlusion)
01/05/10	23.03	12.56	10.36
01/12/10	20.03	24.27	18.82
01/19/10	7.59	15.82	13.88
01/26/10	16.33	15.44	14.29
02/02/10	16.06	9.37	10.41
02/09/10	11.95	17.94	18.21
02/16/10	19.06	10.65	10.85
02/24/10	20.15	12.73	12.77
03/02/10	32.77	8.75	8.32
03/12/10	8.95	13.81	16.88
03/23/10	55.00	10.31	12.84
03/30/10	57.75	16.57	15.76

Figure WEA72-12: Occlusion rates as measured at each probe pull.

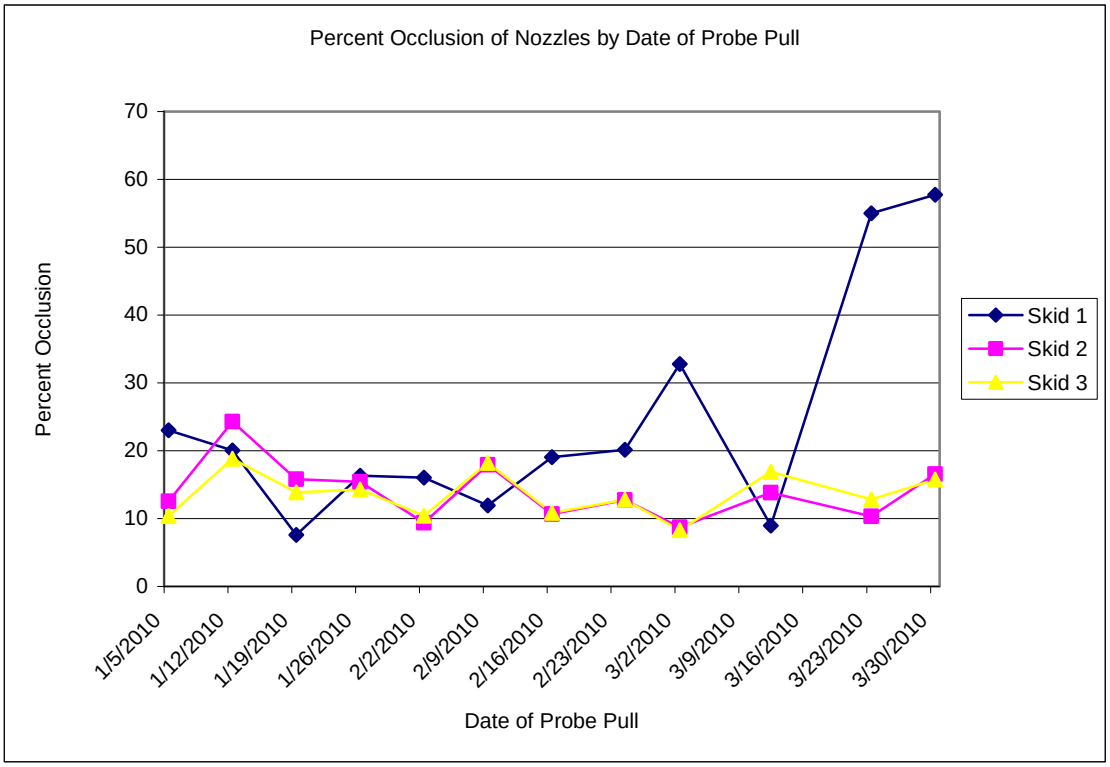


Figure WEA72-13: Percent Occlusion of Nozzles by Date of Probe Pull

DIRECT PENETRATING RADIATION PROJECT (WDP73)

Under this Activity ID, Bureau staff uses electret passive ion chambers to evaluate the ambient gamma radiation at WIPP.

Quarterly Summary: During FFY10 Q-2, Bureau staff continued to monitor direct penetrating radiation from 14 stations at WIPP and at background locations.

The Electret passive ion chamber functions on the principle of ion pair production resulting from gamma photons interacting with air molecules within an air- vented ("S" type) chamber of predetermined volume to reduce the voltage of a charged Teflon™ disk. The voltage drop is proportional to the amount of gamma photons passing through the chamber. By using the change in voltage, a dose in units of milliRem (mrem) at a particular location can be determined with the use of a proprietary software algorithm.

Fourteen E-Perm® System Electret Gamma Monitors are placed along the fence line of the WIPP site, with 3 monitors placed directly behind the waste handling bay. Additional Electrets are placed southwest of WIPP at the Malaga Volunteer Fire Department, one at the rest area between Carlsbad and Loving, and another at the intersection of the North Access Road and the Hobbs Highway. One, serving as a control, is inside the Bureau office in Carlsbad. Readings are taken from the Electret Gamma Monitors quarterly.

For the first quarter of calendar year 2010, direct penetrating radiation (DPR) results at the WIPP site ranged from a minimum average quarterly dose of 23.9 mRem at WIPP 2 (adjacent to the WIPP) to a maximum average quarterly dose of 32.9 mRem at WIPP 8 (on the northeast corner of the Exclusive Use Area fence). Electret number SFC 064 at WIPP 14 showed an anomalous high voltage drop and was not included in the calculations. WIPP 15 serves as a control for quality assurance and is located in the Bureau Office in Carlsbad. The first quarter 2010 average quarterly dose for WIPP 15 was 30.9 mRem as indicated by the red line in Figure WPD73-2.

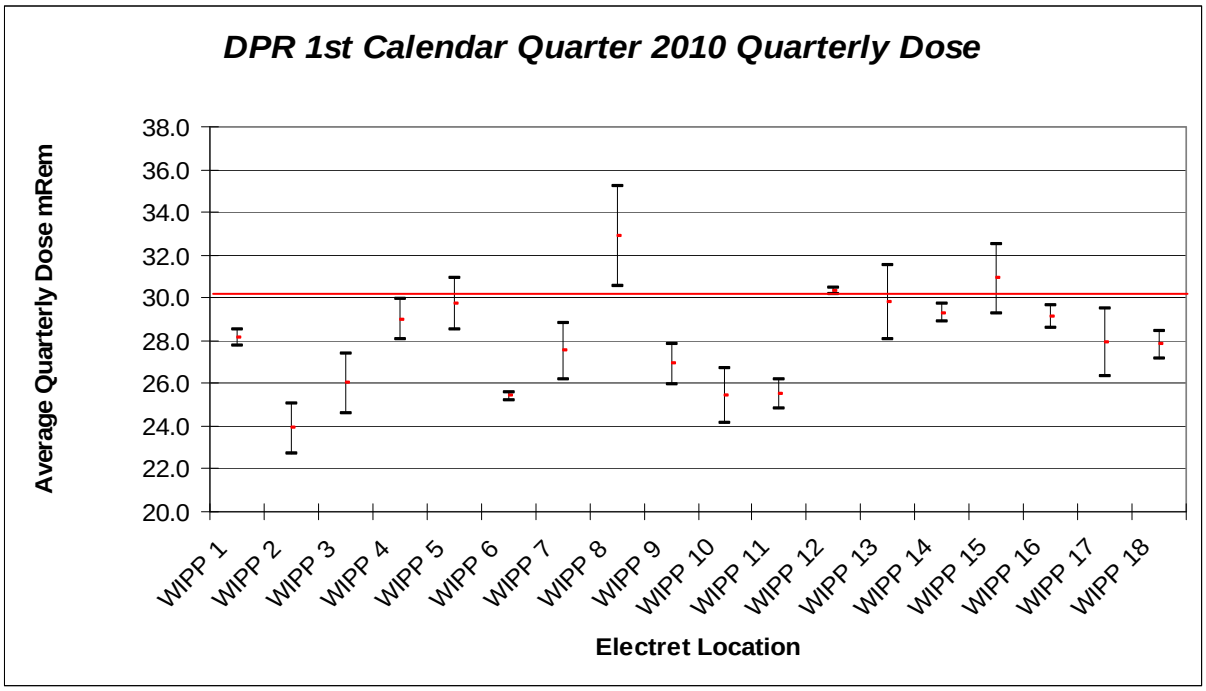


Figure WPD73-2: DPR (gamma) measurements for CY 2010, Q-1

PARTICULATES LOW-VOLUME AIR PROJECT (WPL74)
Under this Activity ID, Bureau staff evaluates the ambient air concentrations of gross alpha/beta, isotopic americium, isotopic plutonium, isotopic uranium, gamma-emitting isotopes, and tritium at the WIPP and surrounding area. The Bureau operates air monitoring stations to collect airborne particulate matter and water vapor using NMED sampling protocols and procedures. Air particulate matter consisting of minute "dust" particles collected on a polypropylene particulate filters from each location are composited by quarter and sent to a commercial laboratory for analysis. Water vapor is collected by passing a known volume of air through a silica gel-filled cartridge that captures ambient air moisture. from which atmospheric tritium may be extracted and measured.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report other than routine preventative maintenance on the pumps performed as needed and collection of filters every two weeks.

GENERAL ER/EM PROJECTS (WGE75)
Under this Activity ID, Bureau staff conducts multi-media environmental sampling on a periodic basis, and provides technical review services to the DOE, WIPP and public interest groups.

Staff collected and split soil samples with WRES from four sites identified as WIPP East, WIPP South, Mills Ranch, and Smith Ranch. The samples were shipped to the contract laboratory for analysis and staff is waiting for results to be returned.

Quarterly Summary: During FFY10 Q-2, Bureau staff had no activity to report.