New Mexico Environment Department
DOE Oversight Bureau

Federal Fiscal Year 2010
Third Quarter Report
April 01, 2010 to June 30, 2010

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

Cover Photograph

WIPP Underground. Waste handling technicians of WTS emplacing transuranic (TRU) waste in Room 6 of Panel III. The “over pack” containers each hold 10 drums containing TRU or mixed wastes. The “pillows” on top of each stack are 4,200 pound bags of magnesium oxide (MgO). As the ceiling creeps in around the waste the bags rupture spilling their contents between the stacks and around the drums. The MgO is hydrophilic and attracts any moisture that might find its way into the waste disposal room. In addition the MgO creates an environment that traps radionuclides preventing any released material from migrating. Waste is currently being emplaced in Room 4 of Panel V.

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

State Purchasing Division staff executed contracts for analytical laboratory services and provided copies to the Department Administrative Services Division, Procurement Manager. On May 7, 2010 a no fixed-quantity price agreement contract was awarded to each of the four qualifying laboratories: Hall Environmental Analysis Laboratory; Summit Analytical Laboratories; TestAmerica Phoenix; and Weck Laboratories. This price agreement replaces the contract that expired on April 22, 2010.

Bureau staff hosted a meeting at the NMED District-1 office in Albuquerque, NM to discuss with representatives from the four laboratories to provide analytical services under the new contract. Protocols, processes and expectations were presented by the Bureau staff, and each laboratory presented its capabilities.

PERSONNEL

No new personnel were hired during this quarter and no personnel left the Bureau.

FINANCE

Approximately 53% ($1,480,563) of the projected 2010 work plan amount has been obligated or spent by the end of the third quarter. Within the three major budget groups, approximately 63% of budgeted labor expenses have been recorded; approximately 55% of budgeted contract expenses have been recorded; and approximately 30% of equipment expenses have been recorded. Contract expenditures were interrupted by the analytical laboratory award process. Fourth quarter expenditures for contracts are expected to increase following the heavier sampling activity anticipated during the summer months and the submittal of archived samples collected during the contract transition period. Equipment purchases were lower than expected because large ticket items such as additional solar power air sampling units were not ordered and other replacement equipment has not been necessary.

Grant modification #053 obligated $561,000 on July 28, 2010.

TRAINING

During this quarter several staff members participated in administrative and technical training.

Environmental Scientist Julia Marple (WIPP) completed the General Employee Training (GET) Refresher. This training provides all Waste Isolation Pilot Plant (WIPP) employees, contractors, and other stake holders with new information ensuring these individuals remain safe and in compliance with all WIPP regulations, orders, and policies.

Environmental Scientist Thomas Kesterson (WIPP) completed ELC-103A, Electrical Safety refresher, MED-101, First Aid/CPR training, and the CBFO Auditor/Lead Auditor training. The ELC-103A course covers the hazards associated with maintaining high-voltage equipment, and the general precautions to prevent injury to personnel or equipment damage. The MED-101A course trains personnel in the basics of first aid, CPR, and treatment for airway obstruction, meeting requirements in accordance with the National Safety Council and American Heart

Association. The CBFO Auditor/Lead Auditor Course meets the requirements for NQA-1 for Lead Auditor training, focusing on performing audits in the WIPP regulatory environment.

Hydrologist Dan'l Martinez (LANL) completed graduate course work in Physical Hydrology at the University of New Mexico.

Administrative Assistant Mia Ortiz attended degree course work in Introduction to Business Administration, Business Math and Accounting at Central New Mexico Community College.

Business Operations Specialist Jennifer Brokaw participated in additional Ergonomic Evaluation training as well as completing a course in Conflict Management and Resolution training.

Business Operations Specialist Jennifer Brokaw, Administrative Assistant Mia Ortiz and Office and Support Worker Krissie Adams completed training and each is now certified as a Notary Public.

Staff attended an ESRI GIS training seminar in Albuquerque. Highlights of the seminar included GIS techniques for building and deploying maps and expectations for the new ArcGIS 10.

Bureau staff completed fire extinguisher training at the White Rock Training Center. The hands-on course is required annually for all technical personnel who collect environmental samples or generally perform their work tasks outdoors on mesa tops or canyon bottoms of LANL.

OUTREACH

Bureau staff prepared a press release on April 19, 2010 for the NMED Communications Director on recent PCB findings in the Rio Grande north of Albuquerque titled "Environment Department Finds Elevated Levels of PCBs in the Rio Grande near Albuquerque during Storm Flows *Levels Do Not Pose Immediate Health Threats for Residents."* The Bureau subsequently released the formal results of the complete study documenting the results of samples collected in 2009 for Rio Grande water quality near the Santa Fe Buckman Direct Diversion and near the confluence of the North Diversion Channel of Albuquerque during storm flow conditions. Bureau staff attended several meetings in Albuquerque, Santa Fe, and Bernalillo County with interested public and federal agencies and Sandia Pueblo to discuss the results.

Bureau staff attended the 100th WIPP Quarterly in Carlsbad. Environmental Scientist Julia Marple presented a summary of the Bureau activities during the previous quarter.

Bureau staff attended a public information meeting during May conducted by the DOE and WTS to provide information on a permit modification request to the WIPP Hazardous Waste Faculty Permit.

Bureau staff participated in various public meetings including the Pajarito Plateau Watershed Partnership (PPWP) and the Community Radiation Monitoring Group (CRMG). Staff participated in activities of the 2010 Valles Caldera Summer Environmental Science program.

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 1,000 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-3, Bureau staff participated in various training exercises, procured field equipment to support the air and water programs and finalized documentation to close the expired contract for analytical laboratory services.

Staff attended an ESRI GIS training seminar in Albuquerque. Highlights of the seminar included GIS techniques for building and deploying maps and expectations for the new ArcGIS 10 version.

Bureau staff closed out the project books for analytical Laboratories on the expired analytical laboratory services contract for SFY10. The State price agreements for these laboratories closed on April 22, 2010. The NMED has finalized a new price agreement with four analytical laboratories that will be effective through May 2011.

Bureau staff completed fire extinguisher training at the White Rock Training Center. The hands-on course is required annually for all technical personnel who collect environmental samples or generally perform their work tasks outdoors on mesa tops or canyon bottoms of LANL.

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-3, Bureau staff participated in various public meetings including the PPWP and the CRMG. Staff participated in activities of the 2010 Valles Caldera Summer Environmental Science program.

Bureau staff attended the Pajarito Plateau Watershed Partnership (PPWP) meeting held at the LOS office on April 13, 2010. Topics discussed included:

- The LA County Utilities plan to install solar panels on the County landfill after it has been capped. Concern had been expressed about the potential to generate additional runoff into Sandia Canyon from this project.
- The LA County Utilities plan to remove the water storage tank from the Golf Course, west of Diamond Drive, and to install a radio tower at that location. Because access to the work site is a popular local recreational trail, participants wanted to discuss what practices might be feasible to minimize/mitigate landscape damage by traffic accessing the work site. Also, they wanted to know what techniques were available for accelerating soil/vegetation recovery after completion of this work, with minimal impacts to cost or schedule.

- Status of the County stormwater management program as compared to current NPDES discharge permits requirements. The participants held an open discussion of any potential issues and how the PPWP membership could be proactive in addressing them.

During the week of April 11-15 Bureau staff attended the *2010 Ground Water Summit and 2010 Ground Water Protection Council Spring Meeting in Denver, Colorado*. The meeting was attended by approximately 500 participants that specialize or practice as regulators, practitioners, natural resource managers, policymakers, municipal planners, banking industry representatives, remediation site owners, attorneys, climatologists, and those who supply knowledge and technology needed to address key water issues. The event sought to integrate cutting-edge science with the leading edge of practice and will focus on the theme "Groundwater for a Thirsty World."

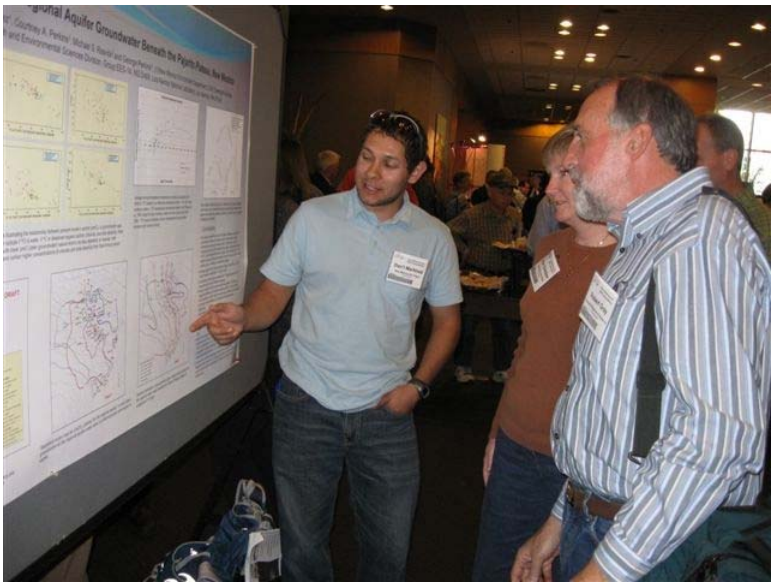


Figure LPO02-1: Kim Granzow (LOS Environmental Scientist) and a conference member look on as Dan'l Martinez (LOS Hydrologist) explains technical aspects of water age dating and associated water quality chemistry on the Pajarito Plateau from data figures on the joint LANL-NMED poster at the 2010 Annual NGWA Conference.

Bureau staff along with DOE headquarters officials, LANL Director Michael R. Anastasio and NMED Deputy Secretary Sarah Cottrell attended the signing of the Memorandum of Understanding (MOU) with the City of Santa Fe, County of Santa Fe, Buckman Direct Diversion Board, the Department of Energy, and Los Alamos National Laboratory. The MOU covers the protective measures planned and in-progress by LANS in the Los Alamos watershed that include an early warning system for stormwater flow into the Rio Grande. The MOU is a culmination of several years of coordination after Bureau investigators identified legacy contaminants along the Rio Grande and in stormwater leaving the Laboratory and flowing into the Rio Grande.

Bureau staff met with LANS representatives in May to determine new analytical gamma libraries that will reduce questionable detection reporting for isotopes that have similar energy peaks that had resulted in erroneous results in the past. Staff will coordinate with the contract analytical laboratories to incorporate the new libraries into the contract as separate line items. The

capability to request the old libraries from Bureau radiological laboratories will not be affected. All questionable data results that are already in the Bureau and RACER databases will be flagged as suspect data to be used for screening purposes only and not decision making.

Bureau staff met with the RACER steering committee to discuss progress in preparing the SWQB PCB data set for transfer into the RACER database. Staff updated the committee on progress on developing the new gamma analytical libraries. The HWB representative recommended that the committee develop a strategic plan and separate the steering committee into two entities. One entity would develop policy and the other would coordinate technical aspects only. Both functions are now combined and the change would facilitate public involvement and address concerns of the public about a perceived lack of transparency with the current system.

Bureau staff in June attended a RACER morning retreat in Santa Fe. The retreat provided a relaxed atmosphere for technical participants to work in small groups and re-cap events and successes of the past year and to plan ahead for the next phase of the project.

Bureau staff in May hosted the CRMG meeting held in Espanola at the Northern New Mexico College Administrative Building. The meeting was attended by representatives from HOPE, EVEMG, NMED, LANL, Pueblo de San Ildefonso and NMED.
Topics discussed included:

- Findings from Bureau air particulate samples collected from monitors at a private residence in El Valle and other locations. Staff noted a high bias for radionuclide detections using the new high volume (Hi-Vol) samplers regardless of their location. Staff assured members of the group that the Bureau would thoroughly evaluate the samplers, collection procedures, and review all the calculations and dimensional analysis involved with producing the results for comparison to other air particulate monitors.
- The LANS representative briefed the group on the TA-21/MDA B Open House on May 22nd at the site.

Suggestions for future meetings included:

- Bureau staff should provide an overview of the Invitation-to-Bid process for contracting with analytical laboratories for the NMED.
- Bureau staff should provide at a future meeting a summary of baseline AIRNET/NEWNET data at TA-21 including trend analysis.
- The LANS staff should provide at the October meeting an overview of the "Zone of Impact Study/Report" and an update on the "prescribed burn policy."
- The NMED staff should provide a status and update of the "Area 3 Exercise."
- The ChemRisk representative should provide an up-date on the LAHDRA Project.

Bureau staff attended the "LANL Energy Management Council's Energy Town Hall III On April 21 2010."
Topics discussed included:

- The introduction, delivered by Chris Cantwell (LANL LLC, EM Deputy), emphasized that community outreach was critical to his Division's mission. He emphasized that "this is a time of opportunity" and "LANL is changing for the future" and the theme of today's Town Hall III was "What can I do" with reference to Earth Day.

- The LANL goals to:
    1) Increase energy efficiency;
    2) Improve nuclear design/efficiency and safety; and
    3) Reduce the LANL overall footprint of operations.
- An overview was given on President Obama's Executive Order 13415 and how it applies to LANL. The Order generally mandates that Federal agencies take on more environmentally friendly practices including the reduction of green house gasses. In addition the order calls for attention to several existing points of legislation and reinforces several existing targets such as reducing the facility's overall building footprint by 28%, reducing its GSA vehicle fleet, and increasing the fleets' use of non-petroleum fuels (that was detailed in another discussion). A notable item from the alternative fuels discussion was that LANL is a chief research participant in the DOE-supported Algae studies – $69M ($49M from DOE and $29M from other sources) for research and development to develop algae as a biofuel source because it shows better potential than corn, soy, safflower, or sunflower etc.
- The LANL research in the area of developing algae-based fuel. It was noted that LANS was pursuing both traditional and genetic (engineering) development of algae growth.
- The green house gas emissions from bio-fuels versus petroleum based fuels. It was pointed out that the CO2 emissions are relatively the same for both but the process of making bio-fuels is more of a CO2 recycling process rather than the continued release of geologically stored CO2 (as seen with petroleum use). In theory no additional CO2 is added to the earth's carbon cycle from the production or use of bio-fuels.
- The LANS Smart Grid Research and NEDO Project. This included an overview of the nation's common electrical grid system with electrical power initially generated at a nuclear or coal-fired power plant. The voltage is next stepped up at a transformer station where it is distributed via transmission lines. It is then stepped down at sub-stations and transmitted via local transmission lines to additional step down transformers before delivery to end users. It was explained that as the country moves in a more green direction (wind and solar generation) certain stresses would come into play on the existing power grid that it was not designed to accommodate. For example, many customers may want to install residential photovoltaic generators in order to decrease their demand on the system or sell power back to the producer. In another scenario many customers of a given community may choose to drive all-electric vehicles and recharge their vehicles overnight. In each case the existing grid would be stressed to the maximum and probably fail. As more inputs are integrated into the current grid the situation can only get worse. The LANS project examines and hopes to develop solutions that cover these types of concerns as America's grid system is re-tooled to accommodate such scenarios. Specifically, the project will assess transmission expansion to include wind, solar and future fuel cell system input and assess the proximity of power failures with new inputs such as residential photovoltaic generation and increased electrical vehicle charging.

Bureau staff attended a presentation at the Bradbury museum in Los Alamos sponsored by the NNCAB. The presentation was titled "Environmental Remediation Challenges in the Russian Federation" by Sergey Mikheykin of FSU "RosRAO." The presentation addressed current areas

of radiological contamination in the Russian Federation and the challenges associated with remediation of these areas.

Bureau staff members, Ralph Ford-Schmid and Dave Englert participated in the 2010 Valles Caldera Summer Environmental Science program for middle and high school teachers of Native American students from Northern New Mexico. Teachers from the Jemez Day School, Tesuque Day School, Santa Fe Indian School, Santo Domingo School, Mescalero Apache School, Naaba Ani Elementary/Middle School (NM), Native American Community Academy, Sinte Gleska University (South Dakota) and Ramah High School also participated. This event lasted two full days and Bureau staff assisted in teaching watershed principles using the Rolling Rivers Watershed demonstration trailer. Staff also set up a "virtual stream" (a flowing stream aquarium) in the laboratory to demonstrate basic stream habitat principles and macroinvertebrate response to sedimentation. Aquatic insects collected the first day were displayed on the second day under dissecting microscopes along with aquatic insect identification keys, posters, and other literature. The teachers spent one day at Valles Caldera participating in hands-on environmental science activities involving data collection and field studies. The teachers spent the second day analyzing the data at the Valles Caldera Science and Education Center located in Jemez Springs. Bureau staff then assisted the Community Foundation in a presentation of the RACER database and its usefulness as a classroom resource.

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-3, Bureau staff continued to ship stormwater and groundwater samples to independent analytical laboratories for analyses.

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-3, Bureau staff continued to collect data from Electret devices and enter results into the database.

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-3, Bureau staff shipped AIRNET samples from FFY10 Q-2 to an independent analytical laboratory for analyses and replaced an air flow regulating panel that had malfunctioned during Q-1.

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 demolition and decommissioning operations. Filter samples are submitted and analyzed quarterly and results are provided for DOE, LANS and the public.

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-3, Bureau staff assisted Los Alamos County personnel installing perchlorate collection devices.

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-3, Bureau staff prepared public presentation documentation and collected and shipped groundwater samples from various networks for analyses.

Bureau staff attended NGWA and presented a poster entitled "Radiocarbon Dating and Paleohydrology of Regional Aquifer Groundwater Beneath the Pajarito Plateau, New Mexico." (Please see Activity ID LPO02 for more detail.)

Bureau staff sampled regional well R-48 for noble gases, R-50 for nitrates and chrome during a high-purge event, R-40 Screen 2 for an EPA purge study and field analysis of nitrate and sulfate, SCA-4 for oxalate, PCI-2 for noble gases, Buckman Wells 1 and 6, SF5-B well, and R-23i Screen 2 for oxalate, collected through a 0.2 micron filter.

Bureau staff continued to check on the perchlorate collection columns at PM-5 and O-4 and in May was accompanied by a representative of the Los Alamos County Utilities department to install a perchlorate collection column on the Los Alamos County production well, PM-1. The information will supplement existing data for the joint background perchlorate project being conducted by the Bureau and LANS.

Bureau staff shipped numerous samples to various analytical laboratories for analysis. . Samples included those from the perchlorate leachate project 670 and project 676, and the R-50 high purge test. Also shipped were EPA project 673 with 16 wells for oxalates (with 2 duplicates), EPA project 675 with 4 wells, EPA purge study project 677 with 2 wells, EPA project 676 with 2 wells, and EPA extended purge project 678 with 1 well.

Bureau staff discovered well/piezometer SB5 on the east bank of the Rio Grande (located almost directly east across the river from Sandia Canyon) while on a routine groundwater investigation. The SB5 site is an old and partially abandoned USGS piezometer that exhibits artesian flow conditions where groundwater surfaces without mechanical pumping. The well was sampled for stable isotopes and general chemistry. The data should help LANS decide the placement of a new R-Well near the Rio Grande in the vicinity of the Buckman Well Field. The Buckman production wells currently provide the City of Santa Fe with up to half of their potable water needs. During this event bureau staff also collected split-samples with LANL at Buckman wells B-1 and B-6 as part of their quarterly monitoring effort.

Bureau staff and a representative from HWB are collaborating on a soil column leachate project. The goal of the project is to determine potential contributions of naturally-occurring perchlorate to groundwater via snowmelt infiltration. The two staffs set up a laboratory experiment and will collect two leachate samples from different soil cores from the Canada Bonita area near Pajarito Mountain. Snow samples from the same area were allowed to melt and saturate the soil core. Leachate was collected after passing through the saturated soil cores and was shipped off for analysis during the last week of April.

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-3, Bureau staff collected samples to support an EPA project.

Bureau staff sampled White Rock Canyon (WRC) Ancho Spring, Spring 6, and Springs 9, 9A and 9B for the EPA project 679 and shipped the samples to an independent analytical laboratory for analysis. Photos of these activities were taken and sent to EPA.

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-3, during April or May 2010 an equipment box, solar regulator, solar panel, and ISCO sampler and associated equipment were stolen from a Rio Grande monitoring location in Lyden, NM. The automated sampling equipment was locked in an equipment box chained to a concrete anchor embedded in the ground. The concrete anchor was dug out of the ground and the entire assembly was removed. Loses included a Knaack 4830 Jobmaster storage chest; SunGuard 4-12V charge controller; solar panel (no declared value, surplus from SNL, 1995); ISCO 3700 automatic sampler with 12 bottle base assembly, bottle retaining ring, distributor arm, and cables. Approximate replacement costs will approach $4,000.

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-3, Bureau staff prepared equipment and surveyed potential locations for collection of stormwater samples during the upcoming rainy season.

Bureau staff and a representative of the HWB toured DP Canyon to locate the gage station where DP Canyon enters Los Alamos Canyon. The team investigated possible sites in preparation for stormwater sampling at that location during the upcoming rainy season. The team also surveyed the canyon to locate DP spring – a radionuclide-contaminated alluvial discharge expression located near the confluence with Los Alamos Canyon. Additionally, staff entered DP canyon from above to document the location of the new weir constructed in the upper portion of the canyon.

Bureau staff met with representatives of Los Alamos County, SWQB, and the U.S. Army Corps of Engineers to discuss plans to upgrade the road crossing in Pueblo Canyon. The county will be replacing the existing undersized culvert and providing additional bypass capacity for 50 and 100 year floods. This should reduce future plugging of the culvert and maintenance associated with repairs. This should also help direct and disperse flows into the wetland directly downstream from the culvert project during high flows.

Bureau staff attended a training session provided by Teledyne ISCO on the operation of ISCO flow meters and automatic sampling equipment. Staff has deployed several of these units and is working with LANS to develop sampling regimes to meet the requirements of the "Monitoring Plan for Los Alamos and Pueblo Canyons Sediment Transport Mitigation Project" as required by the Hazardous Waste Bureau. This was a cooperative working session among the Teledyne ISCO, LANS and the Bureau stormwater monitoring team members.

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-3, Bureau staff participated in Certified Inspector of Sediment and Erosion Control training, documented several release/discharge notifications at LANL and participated in site visits for evaluation of NPDES controls.

Bureau staff attended two live webinars hosted by the International Erosion Control Association (IECA), as follows:

1. Field Sampling and Analysis for Turbidity held on April 30th. This webinar focused on newly established EPA regulations that require a monitoring program to sample and

2. Elements of Construction Site Stormwater Management held on May 21st. This webinar focused on stormwater management at construction sites. It specifically looked at ways to change the management mindset on construction sites to address the elimination of everyday problems to better view compliance without anger, disgust, dread or resignation.

Bureau staff attended a 1½-day Certified Inspector of Sediment and Erosion Control (CISEC) training in Los Alamos. According to CISEC, Inc, (the governing body) the organization has a nationwide certification program that recognizes the abilities, skills, experience and knowledge of inspectors who have demonstrated their proficiency in observing, inspecting, and reporting on the implementation of Stormwater Pollution Prevention Plans. The training modules included:

- EPA Rules and Regulations, including the Clean Water Act (CWA) and details about the Construction General Permit (CGP) with state-specific information;
- Inspector background, including terms, hydrology, and site Best Management Practices (BMPs);
- Inspecting BMPs, including specific information related to different types of BMPs; and
- A detailed section and practice on conducting construction site inspections.

Only Bureau staff member Erik Galloway is a certified inspector and he is training to become a certified instructor, as well. In conjunction with other certified instructors, Mr. Galloway team taught the 1½-day course. Other Bureaus within NMED and the DOE Laboratories have benefitted from the expertise gained through these certifications.

Bureau staff conducted a site evaluation for sediment and erosion control at MDA-B, TA-21, under the General Construction Permit of the NPDES program. Demolition and Decommissioning (D&D) activities are currently underway at the site and are due to be completed by December 2010. Some suggestions and recommendations were made by the site evaluator, including the implementation of several check dams along the southern bermed area, repair of a inlet protection device south of trench area 4, and the installation of a swale on the north side of the haul road in order to maintain surface water flows from the eastside lay down area to the north side of the haul road drop inlet. Besides these few recommendations overall site conditions were good with most BMPs well implemented and maintained.

Bureau staff received two (2) 5/7-Day Release/Discharge Notification from LANS as follows:

1. #256 – Notifications for groundwater detection in excess of the WQCC standard for chloride at alluvial well SCA-1. The detection was measured at 263 mg/L. Following provisions of the Consent Order, it was reported to HWB within 24-hrs of the data review and additionally to the GWQB in accordance with the "Reporting of newly detected exceedances of Ground Water Standards at Los Alamos National Laboratory" dated February 10, 2010.

2. #257 – Notification for a potable water leak from a loose compression fitting to a roof-mounted swamp cooler serving TA-35-86. The water flowed across a paved parking surface and entered a storm drain in Ten-Site Canyon. Mitigation and corrective actions included shutting down the cooler line for repairs and assessing additional sources for continued water flow in the drain. It appears that the flow was associated with the potable water leak at 35-86.

Bureau staff also submitted six (6) letters recommending closure for spill/discharge reports, as follows:

1. #126 – "Spill Response Assessment and Suggestion for Closeout of Petroleum Soil Contamination at TA-16, Building 7, LANL Report # 126 on September 25, 2003." The letter noted that the site has now been moved from under LANL/LANS Water Quality/RCRA staff to LANL/LANS Environmental Remediation staff doing work at TA-16. Therefore, responsibility for the mitigation activities is administratively transferred from under the State of New Mexico WQCC regulation to the RCRA permit for remediation under the Upper Water Canyon Aggregate Investigation Work Plan. The Bureau concurred that the response and clean up under 20.16.2.1203 of the New Mexico Water Quality Control Commission was adequate and recommended no further action under the discharge notification.

2. #202 - "Spill Response Assessment and Suggestion for Closure of 3.9 Million Gallon Potable Water Spill Release at TA-21, Building 2, LANL Report # 202." After the Bureau review of the spill response action report received on July 18, 2008, it found the response and clean up complete and recommended that no further action is required under this discharge notification. Additional corrective actions were completed on June 13, 2009 when laboratory personnel completed sediment removal at the LA Canyon Weir.

3. #229 - "Spill Response Assessment and Suggestion for Closure of Steam Condensate Water Line Release at TA-3, Building 40, October 20, 2009, LANL Discharge Notification Report # 229 and Request for Administrative Closure letter submitted to NMED on April 20, 2010." The Bureau review of the spill response action noted a cautionary advisory for the record stating that LANS actions in allowing this discharge or any unintended, unpermitted discharge to the New Mexico environment for the 144-day duration period as noted in the administrative request for closure under §20.6.2.1203 NMAC, without any attempt to mitigate the spill by the facility, may be deemed by the Department to be an unacceptable delay that could potentially result in further action(s) under this release/discharge notification by NMED.

4. #242 – "Spill Response Assessment and Suggestion for Closure of Approximately 500,000 Gallon Potable Water Spill Release at TA-3, Building 66 (Sigma Facility), LANL Report # 242." The Bureau review of the spill response action report received on February 16, 2010 found the response and clean up complete and recommends no further action is required under this discharge notification. During a site visit on 2/2/2010, by staff from the NMED, LANL/LANS ENV-RCRA observed moderate erosion near the waterline break adjacent to the Sigma Complex to a nearby Area-of-Concern (AOC) 3-

- Replace the round river rock rip-rap in the lower section of the channel with properly sized angular rock (4”-8”);
- Reconfigure the channel and compact the side slopes so that future flows would run down the center of the channel;
- Reconfigure the entrance to the rip-rap channel to ensure that the flow from the ditch enters the channel;
- Replace the upper section of the channel (below the gage station flume) with rock;
- Enlarge the channel to accommodate all storm flows from the Sigma Building culvert; maintain the line and grade it to the existing rip-rap;
- Seed and install erosion control matting on the disturbed ground upstream and in the area of the channel and in the lower section of the site; and
- Remove the pre-existing silt fence in order to prevent channelized flows through the site that is not protected.

5. #251 – “Spill Response Assessment and Suggestion for Closure of Potable Water Release at TA- 21, Building 257, March 5, 2010, LANL Discharge Notification Report # 248.” The Bureau review of the spill response action noted that no further action is required under this discharge notification. The release information in the original notification detailed a 4,000 gallon potable water line break release/discharge northeast of Technical Area (TA)-21, Building 257. The water flowed across a vegetated, snow-covered canyon, and then entered DP Canyon watercourse. The water line was shut down on 3/5/2010 and laboratory utilities completed repairs on 4/7/2010. The water line was not pressurized while repairs were pending and there were no additional releases to the environment. Minimal erosion impacts were noted where the water surfaced within the boundary of Potential Release Site (PRS) 21-021. The PRS 21-021, which was originally made-up of Areas of Concern (AOC) 21-019(a-m) and AOC 21-020(a and b), encompasses approximately 300,000 square meters and consists of all air stack releases and particulates of plutonium, strontium, and other possible chemical constituents at TA-21.

6. #257 - “Spill Response Assessment and Suggestion for Closure of Approximately 120-Gallon Potable Water Spill Release at TA-35, Building 86, LANL Report # 257.” The Bureau review of the spill response action report received on June 18, 2010 found the response and clean up complete and recommends that no further action is required under this discharge notification. The concern from this discharge was that during a site visit on May 3, 2010 by LANS staff, water was observed flowing at approximately one gallon

Bureau recommendations and site evaluations have resulted in several NMED file closure reports by SWQB staff to DOE/LASO and LANS-EP-RS.

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-3, Bureau staff continued collecting samples for the regional PCB study and expanded efforts to include the Albuquerque area. Staff shipped one snowmelt sample for analysis.

PCBs belong to a broad family of human-made organic chemicals known as chlorinated hydrocarbons and were manufactured domestically in the United States from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes and carbonless copy paper; and in many other industrial applications.

PCBs are ubiquitous in the environment and can be detected in very low concentrations in nearly everything from precipitation in remote areas to ultra clean laboratory glassware. PCBs cycle between air, water, and soil and can accumulate in the leaves and above-ground parts of plants and food crops. They are also taken up into the bodies of small organisms and fish.

PCBs have low solubility in water and tend to bind to organic matter in sediments with preference for finer grained material (fine sediments as opposed to coarse sediments such as sand). Surface water treatment plants are designed to be especially good at removing sediments from drinking water.

Previous studies conducted since 2003 by local storm water management agencies (AMAFCA, City of Albuquerque, NMDOT and UNM) have included testing for PCBs in Albuquerque storm water conveyances several times a year at five locations. Local agencies have not detected PCBs in stormwater using generally accepted, EPA methods. The NMED samples collected during this study were analyzed using a more recent test method that can measure significantly lower concentrations of PCBs to determine whether state surface water standards for wildlife habitat and human health have been met. NMED continues to coordinate with city, county, and other municipal agencies to determine the sources of PCBs so that source control measures can be implemented.

In 2009, NMED conducted a series of listening sessions throughout the state to help define environmental concerns of citizens. In response to specific concerns from residents in the Albuquerque area, NMED collected samples from five Rio Grande locations including the river upstream of the Albuquerque Bernalillo County Water Utility Authority surface water treatment facility inlet. The Albuquerque sampling location was included in the study to answer questions about the potential for LANL contaminants to impact the Rio Grande near the Albuquerque drinking water supply diversion. Sample collection reflected conditions representing normal river flow and flow following storm events in which more suspended sediments, and therefore more contaminants associated with sediments, could be present. The PCBs measured in water collected from the Rio Grande during high flow storm water events were below the maximum contaminant level (MCL) established in U.S. Environmental Protection Agency (USEPA) standards for drinking water but were above the state human health and wildlife habitat criteria for surface waters in New Mexico. The MCL for PCBs in drinking water is derived from determinations of increased cancer risks per million people consuming a specified amount of water per day over a 70-year timeframe. The state human health criterion is based upon human consumption of fish and other aquatic life that bio-accumulate contaminants over time. The wildlife habitat criterion is determined based upon health risk to aquatic life living in the surface water. Since the focus of the sampling events was river water, it is not known at this time if the contaminants were present in the stormwater itself or if the volume and velocity of the stormwater flow disturbed contaminants already present and bound in sediments. Regular testing of Albuquerque's municipal water supply using EPA authorized methods has not revealed the presence of PCBs.

In conjunction with the New Mexico Department of Health and the Department of Game and Fish, NMED publishes fish consumption advisories for the stretch of the Rio Grande between I-25 to the south and US 550 to the north specifically because of PCB contamination. The advisories indicate that white bass from this area should not be consumed, and channel catfish between 14 and 18 inches should not be consumed more than three times per month. Fish advisories may be found on the NMED website at: http://www.nmenv.state.nm.us/swqb/advisories/ and also in the New Mexico Department of Game and Fish fishing proclamation.

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-3, 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-3, 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-3, Bureau staff monitored activities associated with the D&D of structures at TA-21 and shipped one AIRNET sample for analysis.

Bureau staff continued radionuclide air monitoring efforts with its low-volume, solar powered stations at the Los Alamos County Airport. The Bureau's initial baseline samples were shipped to analytical laboratories for analysis as project 667. By late-May, the TA-21 MDA B Cleanup effort was underway with the construction of the mobile buildings that would encapsulate the cleanup process at the site. Additionally, many LANL demolishing projects are now in progress at TA-21 as well as some sponsored by Los Alamos County in the town site (near TA-21). As part of LANL emphasis to use ARRA funding to reduce the facility's skyline, both DP-West and East are scheduled for demolition by late 2011. During this phase of the MDA B cleanup, Bureau efforts will focus on increased air monitoring at a business directly across the street from the site as well as directly downwind through coverage by our solar-powered air monitor at Los Alamos County Airport.

Figure LDD16-1: This view looking east toward the Sangre de Christo Mountains shows current MDA B cleanup activity in the foreground and the TA-21 DP-West facility immediately behind and centered in the picture.

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-3, Bureau staff continued to update the RACER database with new sampling locations.

Bureau staff continues to format SWQB water quality data from the Pajarito Plateau in order to upload it into RACER. The large dataset represents samples from 22 new locations collected from surface water sources for a variety of contaminants, including PCBs, radionuclides, metals, explosives, VOCs, SVOCs and general water quality parameters.

Various maps have been created for staff use as well as preparations for poster presentations.

Bureau staff has exchanged sampling data results with representatives of the San Ildefonso Pueblo.

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

Quarterly Summary: During FFY10 Q-3, Bureau staff coordinated procedures with LANS personnel for collecting split samples at the TA-21 MDA B clean-up site.

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-3, Bureau staff attended a laboratory contract and data validation meeting.

Bureau staff hosted a meeting at the NMED District-1 office in Albuquerque, NM to discuss with representatives from the four laboratories to provide analytical services under the new contract. Protocols, processes and expectations were presented by the Bureau staff, and each laboratory presented its capabilities.

Bureau staff attended a data validation meeting with Sandia personnel lead by Analytical Quality Associates, Inc. (AQA) from Albuquerque, NM. The Bureau intends to have all PCB data validated from Level 4 Quality Control packages, and Sandia has agreed to support that effort in conjunction with its own independent validation program through AQA.

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-3, Bureau staff has updated the NMED website with periodic reports and data submittals (www.nmenv.state.nm.us/doe_oversight/)

Bureau staff prepared a press release on April 19, 2010 for the NMED Communications Director on recent PCB findings in the Rio Grande north of Albuquerque titled **"Environment Department Finds Elevated Levels of PCBs in the Rio Grande near Albuquerque during Storm Flows** *Levels Do Not Pose Immediate Health Threats for Residents."* The Bureau subsequently released the formal results of the complete study documenting the results of samples collected in 2009 for Rio Grande water quality near the Santa Fe Buckman Direct Diversion and near the confluence of the North Diversion Channel of Albuquerque during storm flow conditions.

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-3, Bureau staff collected split samples with Sandia from groundwater monitoring wells throughout KAFB and prepared data submittals for DOE review and release.

Bureau staff continues to attend monthly groundwater coordination meetings. Monthly meetings are attended by personnel from DOE, Sandia, KAFB and NMED/DOE OB. All parties were working to resolve the issue of data sharing in accordance with the Agreement in Principle between the DOE and the state of New Mexico.

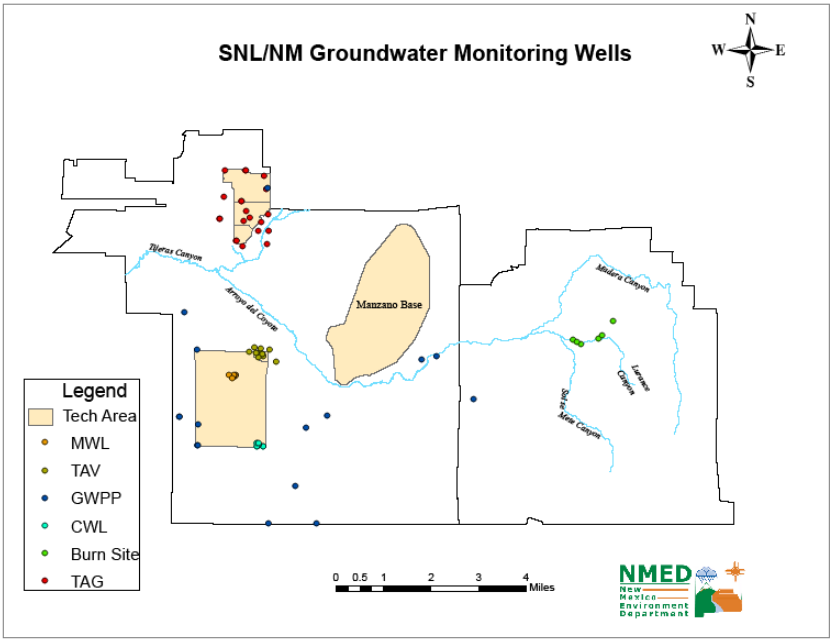


Figure SGE42-1: Map of SNL/NM monitoring wells at Kirtland Air Force Base. Each monitoring well group is separately depicted under the specific category.

Burn Site Groundwater:

Bureau staff collected groundwater samples from Burn Site monitoring wells CYN-MW1D, CYN-MW3, CYN-MW4, CYN-MW6, CYN-MW7, and CYN-MW8. Samples were shipped to the 4 new analytical laboratories on contract. Samples from Burn Site will be analyzed for total petroleum hydrocarbons, gasoline range organics.

Bureau staff delivered a draft data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Conducted by NMED/DOE OB for FFY 2010 Q-2."

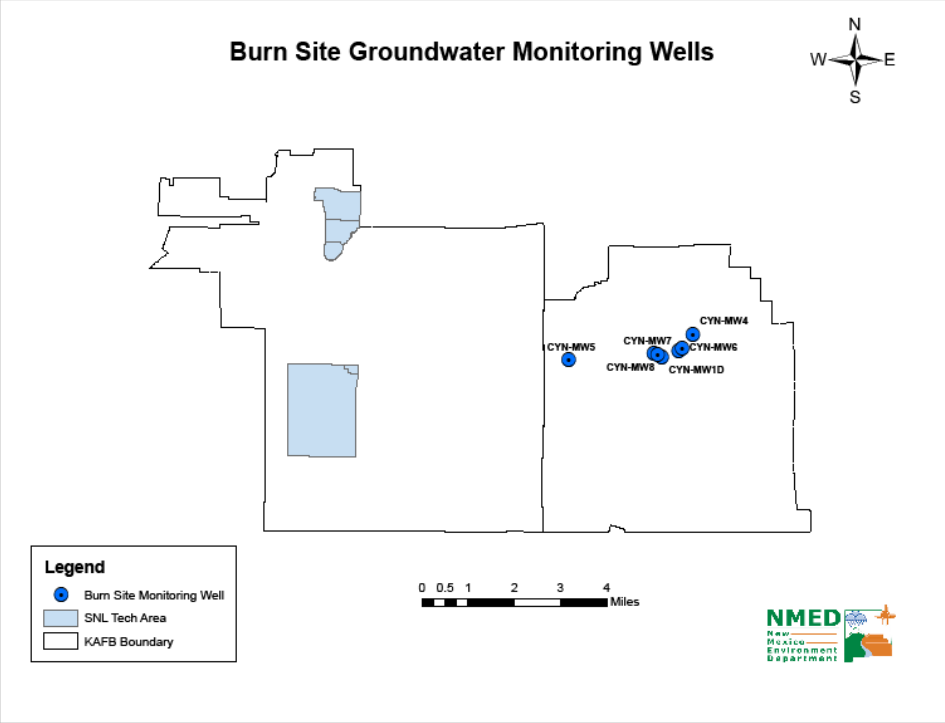


Figure SGE42-2: Map of SNL/NM Burnsite monitoring wells at Kirtland Air Force Base.

Groundwater Protection Program (GWPP):

Staff is currently reviewing and validating data from analyses of samples collected from Groundwater Protection Program monitoring wells SFR-2S, TRE-1, CTF-MW2 and Coyote Springs during March 2010. Samples were analyzed for Target Analyte List (TAL) metals plus uranium, VOCs, high explosives, Rd-222, Ra-226/228, gross a/b, gamma-emitting isotopes, isotopic uranium, NPN, total cyanide, and major anions.

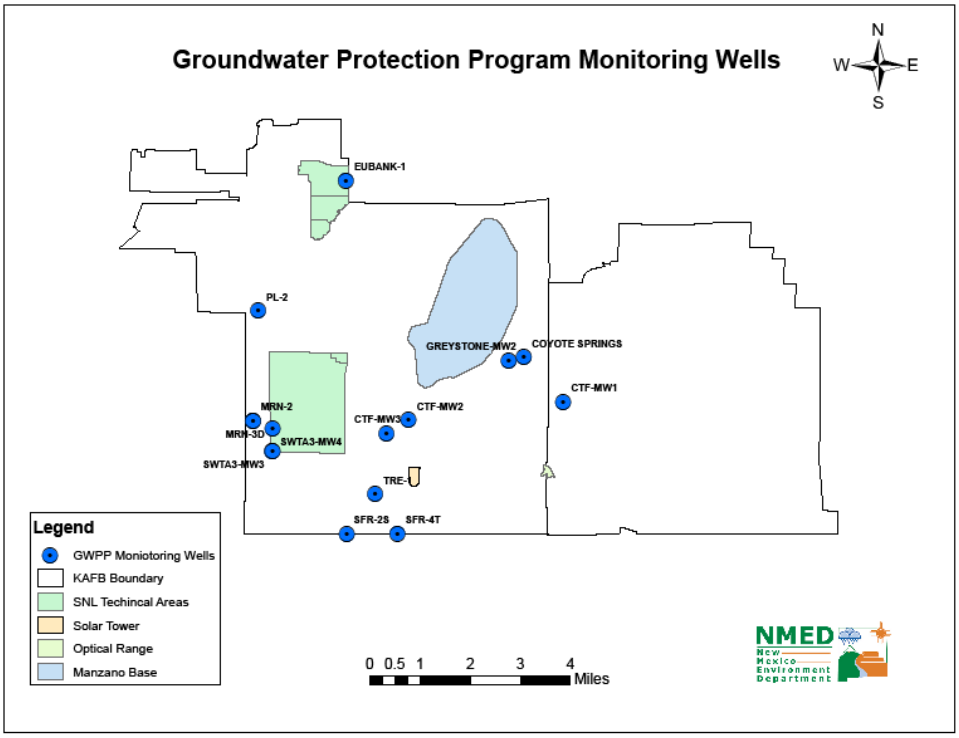


Figure SGE42-3: Map of SNL/NM Groundwater Protection Program (GWPP) monitoring wells at Kirtland Air Force Base.

Mixed Waste Landfill (MWL) Groundwater:

Bureau staff collected groundwater samples from Mixed Waste Landfill monitoring wells MWL-MW4, MWL-MW5, MWL-MW6, MWL-MW7 and MWL-MW9. Samples were shipped to an independent analytical laboratory to be analyzed for total and dissolved TAL metals plus uranium, gross alpha/beta, gamma-emitting isotopes, low-level tritium, and nitrogen compounds.

Bureau staff delivered a draft data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico MWL Conducted by NMED/DOE OB for FFY 2010 Q-2."

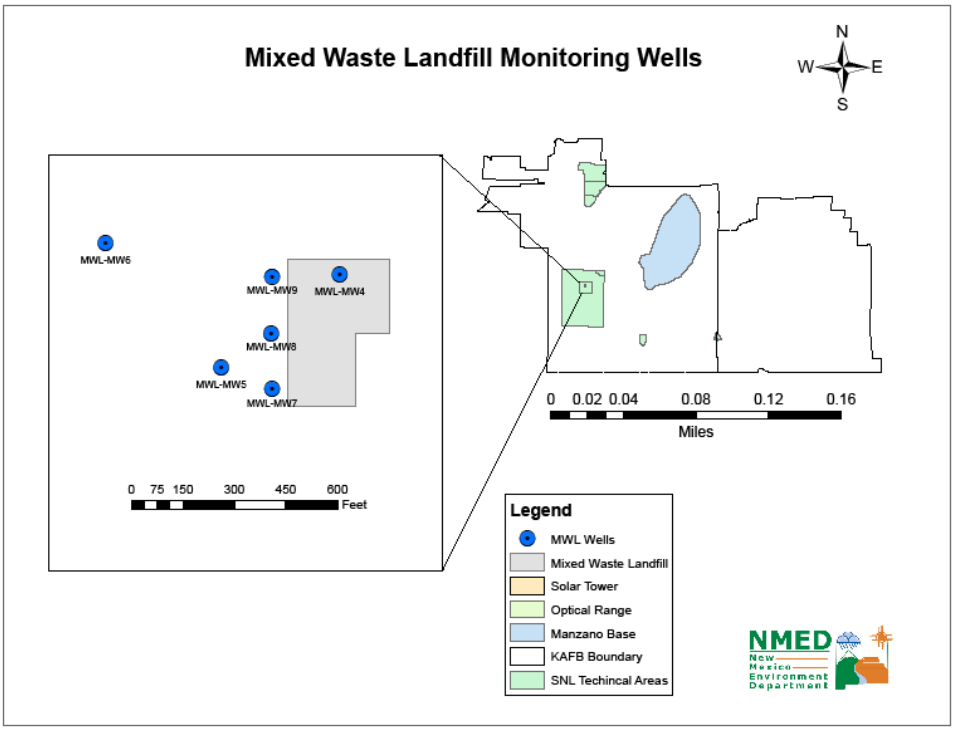


Figure SGE42-4: Map of SNL/NM Mixed Waste Landfill monitoring wells at Kirtland Air Force Base.

Technical Area-V (TA-V) Groundwater:

Bureau staff collected groundwater samples from Technical Area-V (TAV) Groundwater monitoring wells AVN-1, LWDS-MW1, LWDS-MW2, TAV-MW2, TAV-MW6, TAV-MW7, and TAV-MW10. Samples were shipped to all four new laboratories on contract. Samples were analyzed for Target Compound List Volatile Organic Compounds and nitrate plus nitrite. The four laboratories are being evaluated to determine if they can adhere at all contract obligations, including on-time deliverables in proper formats.

Bureau staff forwarded a final draft data submittal titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Technical Area-V Conducted by NMED/DOE OB for FFY 2010 Q-2."

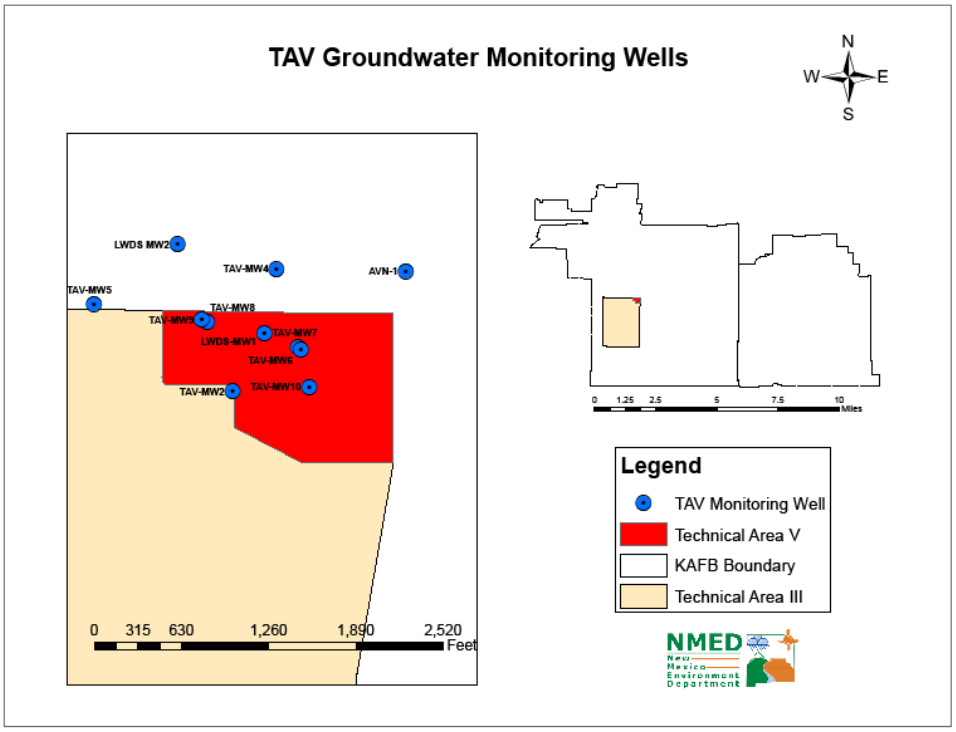


Figure SGE42-5: Map of SNL/NM TA-V monitoring wells at Kirtland Air Force Base.

Tijeras Arroyo Groundwater (TAG):

Staff collected groundwater samples from Tijeras Arroyo Groundwater (TAG) monitoring wells TA1-W-01, TA1-W-03, TA1-W-06, TA1-W-08, TA2-W-01, TA2-W-27, TA2-SW1-320, TA2-W-26, TA2-W-19, WYO-4, TJA-2, TJA-4 and TJA-7. Samples were sent to four new laboratories on contract. Samples from TAG were analyzed for Target Compound List Volatile Organic Compounds, nitrate plus nitrite, and perchlorate. The laboratories are being evaluated to determine if they can adhere to all contract obligations, including on-time deliverables in proper formats.

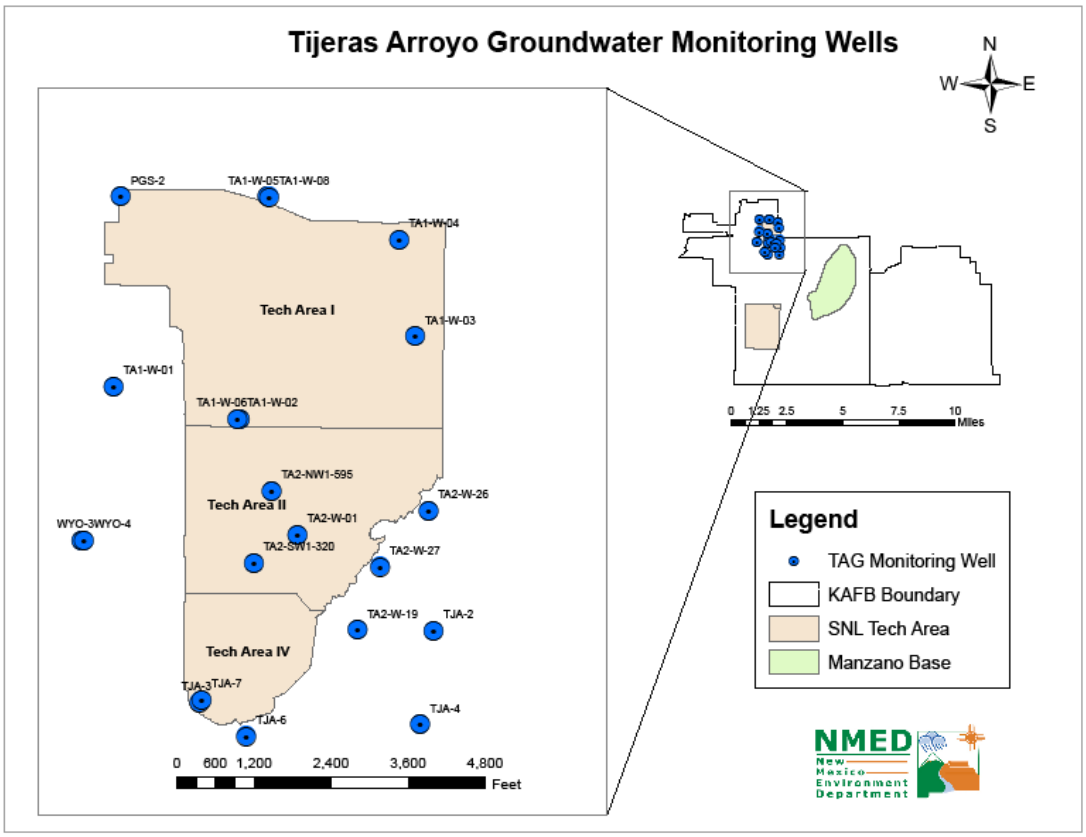


Figure SGE42-6: Map of SNL/NM Tijeras Arroyo monitoring wells at Kirtland Air Force Base.

Chemical Waste Landfill (CWL) Groundwater:
Bureau staff collected groundwater samples from Chemical Waste Landfill monitoring wells CWL-MW4, CWL-MW2BL, and CWL-MW5U. Samples were shipped to an independent analytical laboratory to be analyzed for Target Analyte List metals and Appendix IX Volatile Organic Compounds (VOCs).

Bureau staff submitted a draft data submittal titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Chemical Waste Landfill Conducted by NMED/DOE OB for FFY 2010 Q-1."

Staff is currently reviewing and validating data from analyses of samples collected from Chemical Waste Landfill monitoring wells CWL-MW4, CWL-MW5U, and CWL-MW2BL during April 2010. Samples were analyzed for TAL metals and appendix IV VOCs.

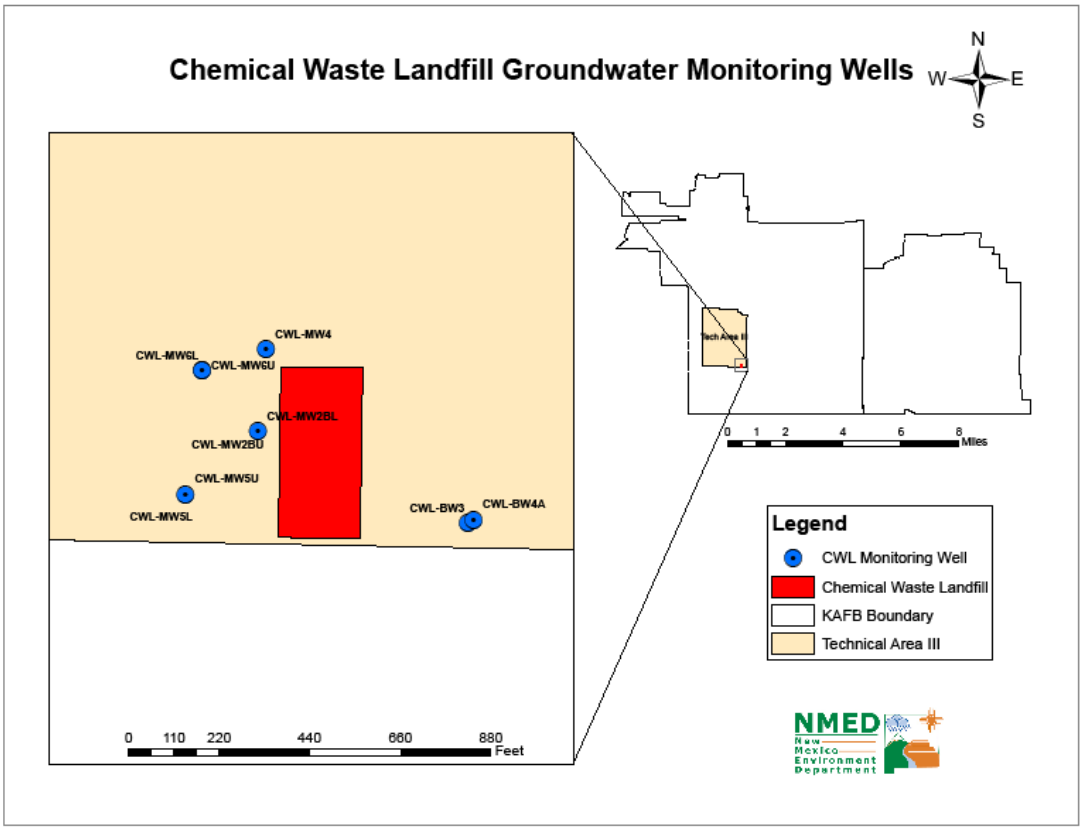


Figure SGE42-7: Map of SNL/NM Chemical Waste Landfill monitoring wells at Kirtland Air Force Base.

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-3, Bureau staff collected quarterly measurements and drafted data submittals for DOE review.

Bureau staff conducted direct penetrating radiation measurements from all 12 electret stations located on-site and off-site. Results will be reported to DOE once data results have been received from Sandia.

Bureau staff received Sandia environmental radiation dosimetry results from CY10 Q-1. Results were compared to NMED DPR results from co-located sites, and a data submittal is being drafted.

Bureau staff forwarded a draft data submittal to DOE and SNL titled "Direct Penetrating Radiation Monitoring at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for CY 2009 Q-4."

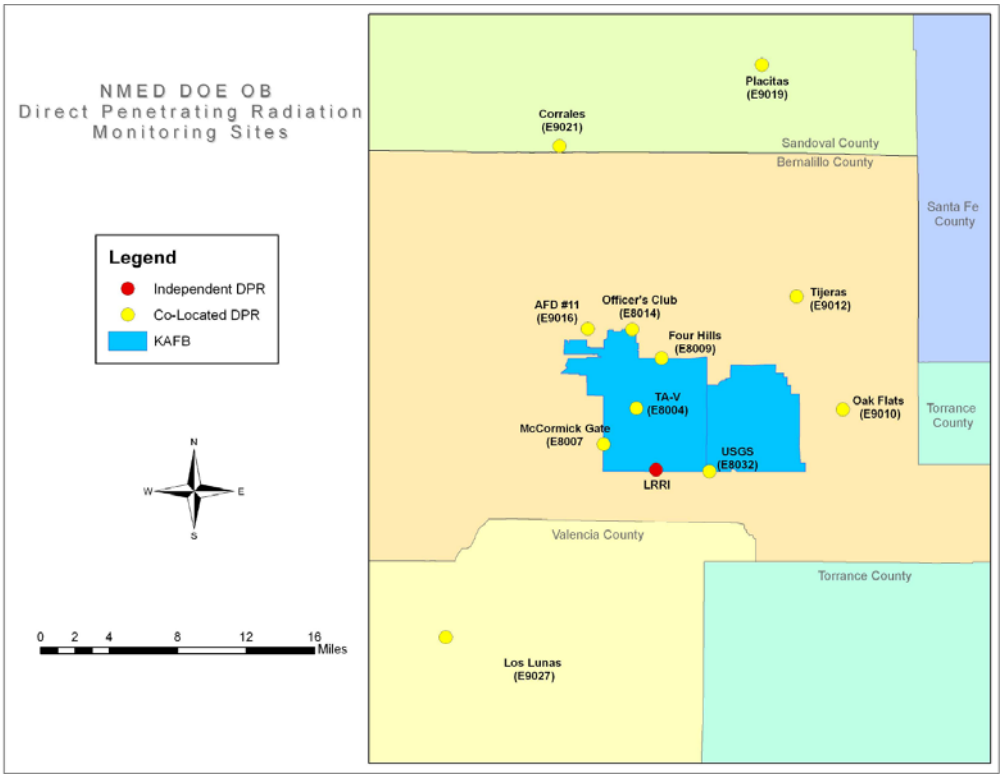


Figure SPD43-1: KAFB and surrounding area including the 12 on-site and off-site DPR monitoring sites

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-3, Bureau staff continued to collect bi-weekly low-volume air filters and silica gel samples and performed routine maintenance on field monitoring equipment.

Bureau staff continues 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 collects silica gel samples that are used to trap environmental moisture that is analyzed for the presence of tritium. Silica gel samples taken from perimeter stations are collected bi-weekly and composited for the quarter. Silica gel samples taken from

MWL are also collected bi-weekly, but are not composited. Staff repaired and serviced several motors.

Bureau staff completed bi-weekly inspection of all monitoring stations. On May 3rd, staff observed the monitoring station pump motor at the SW fire station was not operating. The incident was recorded and the motor was re-started. It is suspected that the high winds during the last week caused the sensitive ground fault circuit interrupter to trip. Bureau staff repaired and serviced several motors.

Bureau staff shipped out CY 2010 Q-1 air filters and silica gel samples to an independent analytical laboratory. Filters will be analyzed for gross alpha/beta, gamma-emitting isotopes, isotopic Am, Pu, and U. Silica gel samples will be analyzed for tritium. Bureau staff received back the air monitoring data from the contract laboratory, and it is preparing a data submittal for DOE review.

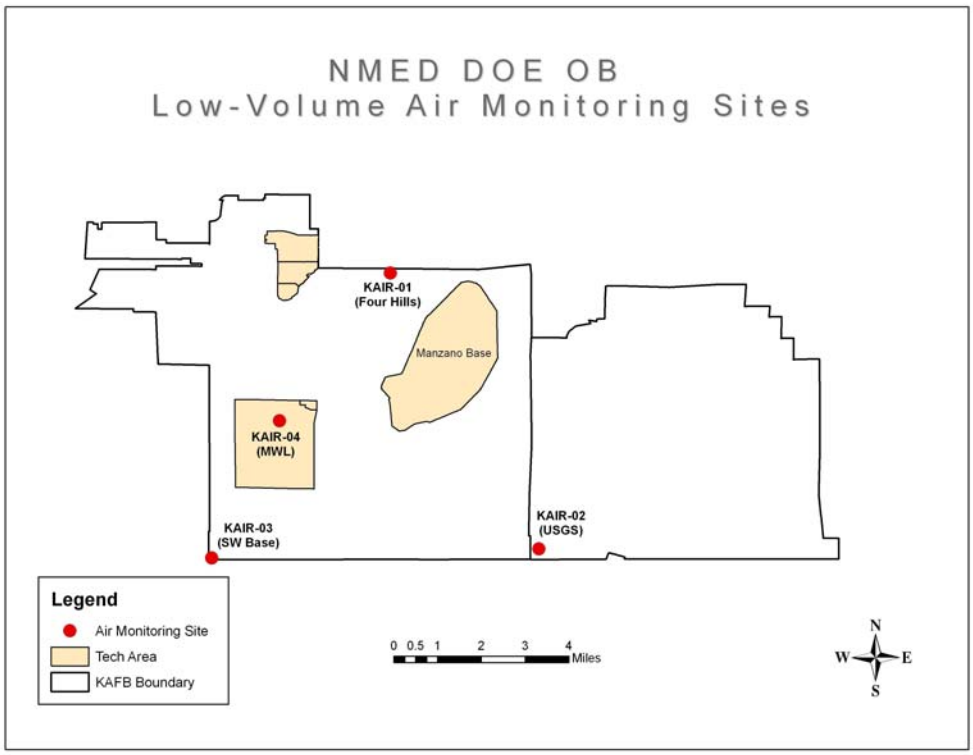


Figure SPL44-1: Perimeter and MWL low-volume air monitoring stations at Kirtland Air Force Base.

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-3, Bureau staff completed a data submittal for stormwater FFY 2010 Event 2.

Bureau staff inspected all stormwater monitoring stations on the 19th of April after collecting 0.4" of rain at building 803. No stormwater samples were collected.

Bureau staff collected two stormwater samples on the 29th of June from SWMP-01 and SWMP-05 (Event 3). The stormwater samples will be analyzed for TAL dissolved metals (filtered), gross alpha/beta (filtered), gamma-emitting isotopes (filtered), isotopic uranium (filtered), hardness (filtered), total dissolved solids, and total suspended solids. Analytical results will be posted in the FFY2010 Q-4 data submittal.

Bureau staff completed a data submittal for stormwater FFY 2010 Event 2. This event occurred during the week of March 8, 2010 and included one sample collected from SWMP-05. The sample was analyzed for Target Analyte List (TAL) total recoverable metals (unfiltered), TAL dissolved metals (filtered), gross alpha/beta (filtered & unfiltered), isotopic uranium (filtered & unfiltered), gamma-emitting isotopes (filtered & unfiltered), hardness (filtered & unfiltered), sediment load, total suspended solids, and total dissolved solids. No analyte concentrations exceeded established criterion.

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-05	14	11.15	0.52	0.7	650	160

Figure SSW45-1: Sediment Load, TDS, and Gross Alpha Activity from Stormwater FFY10 Event 2.

Bureau staff received two new ISCO 3700 units along with six batteries for power supplies. The ISCO multi-stage sampling devices will be deployed to enhance the stormwater project.

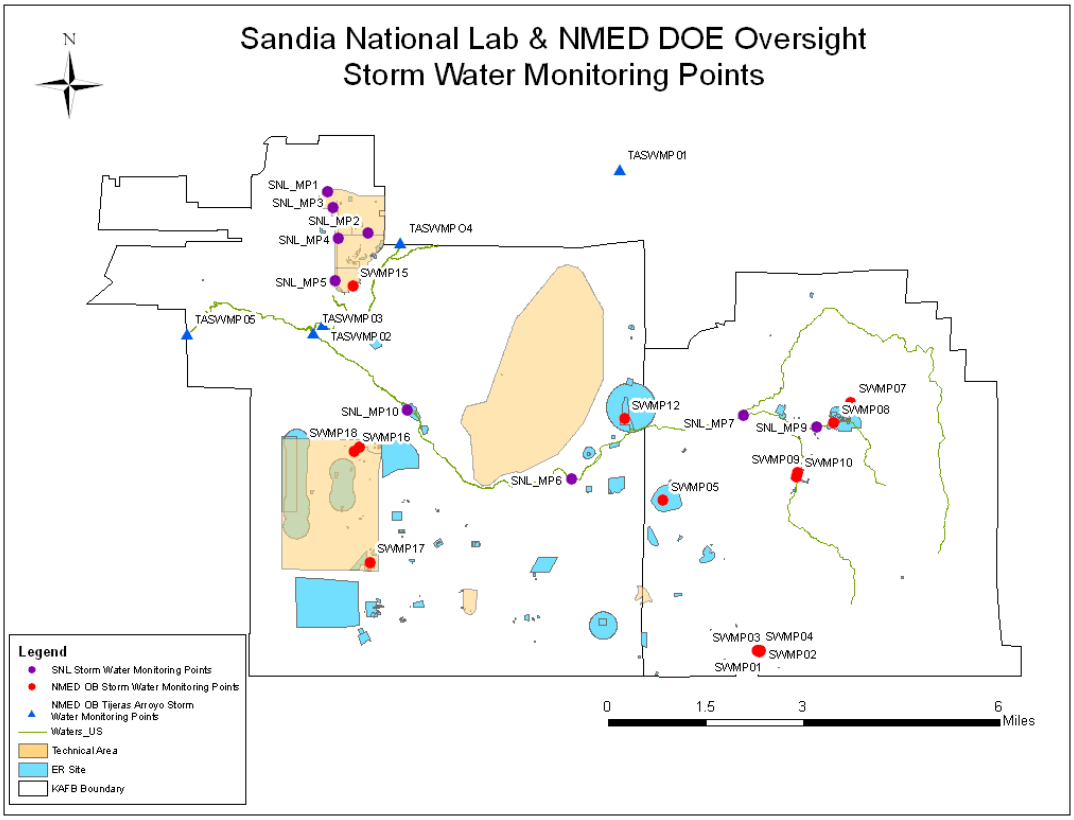


Figure SSW45-2: Sandia and NMED/DOE OB stormwater monitoring points on Kirtland Air Force Base.

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-3, Bureau staff has forwarded the data submittals for Tijeras Arroyo stormwater FFY 2010 Event 3 and Event 4 to DOE for review and release, and staff prepared the data submittal for stormwater FFY 2010 Event 5. Samples were collected from stormwater FFY 2010 Events 6, 7, and 8.

Bureau staff collected two stormwater samples on the 19th of April at SWMP-TA2 and SWMP-TA3 (Event 6). Bureau staff collected one stormwater sample on the 26th of April at SWMP-TA3 (Event 7). Bureau staff collected four stormwater samples on the 29th of June at SWMP-TA1, SWMP-TA2, SWMP-TA3, and SWMP-ISCO (Event 8). The stormwater samples will be analyzed for Target Analyte List (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-4 report.

Bureau staff completed data tables, cover letter, and report for Tijeras Arroyo stormwater FFY2010 event 3. This event occurred during the week of January 19, 2010 and included two samples; SWMP-TA2 and SWMP-TA3. The samples were analyzed for TAL total recoverable metals (unfiltered), TAL dissolved metals (filtered), gross alpha/beta (filtered & unfiltered), isotopic uranium (filtered & unfiltered), gamma-emitting isotopes (filtered & unfiltered), hardness (filtered & unfiltered), sediment load, total suspended solids, and total dissolved solids. Copper exceeded the criteria for Acute Aquatic Life (0.0091 mg/L) at SWMP-TA2 with a concentration of 0.011 mg/L. No other analyte concentrations exceeded established criterion.

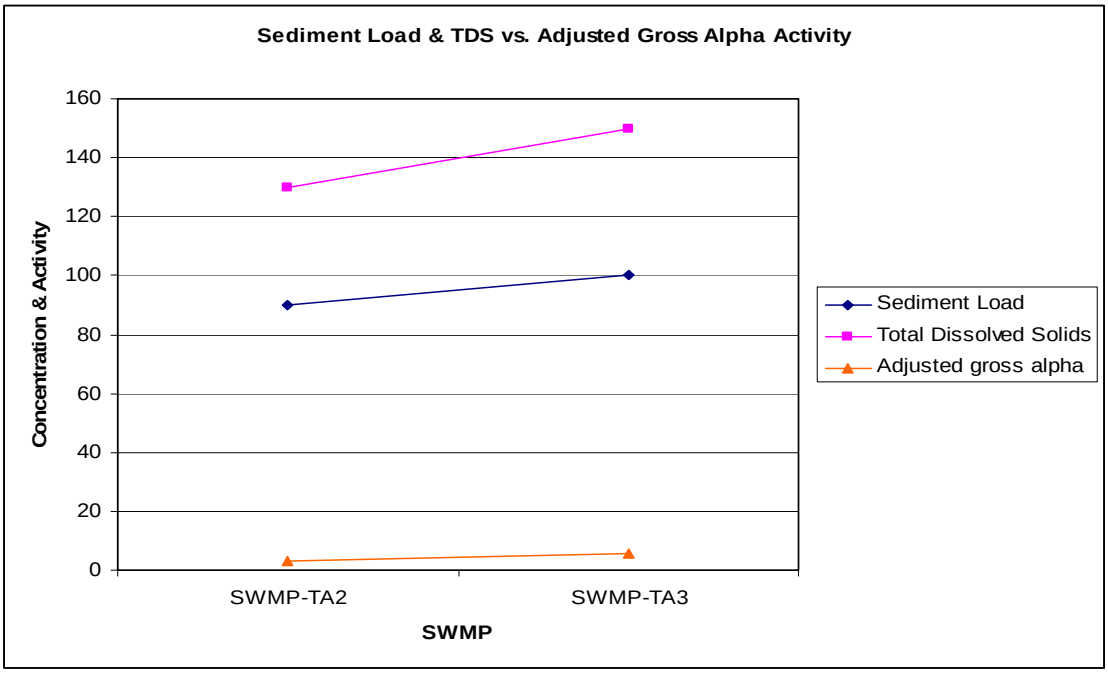


Figure STA47-1: Sediment Load & TDS vs. Adjusted Gross Alpha Activity from Tijeras Arroyo Stormwater FFY 2010 Event 3.

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-TA2	3.5	3.057	0.68	0.4	90	130
SWMP-TA3	6.6	5.626	1.6	0.4	100	150

Figure STA47-2: Sediment Load, TDS, and Gross Alpha Activity from Tijeras Arroyo Stormwater FFY2010 Event 3.

Bureau staff drafted a data submittal of Tijeras Arroyo stormwater FFY 2010 Event 4 for DOE review. This event occurred during the week of January 25, 2010 and included two samples at SWMP-TA2 and SWMP-TA3. The samples were analyzed for Target Analyte List (TAL) total recoverable metals (unfiltered), TAL dissolved metals (filtered), gross alpha/beta (filtered & unfiltered), isotopic uranium (filtered & unfiltered), gamma-emitting isotopes (filtered &

unfiltered), hardness (filtered & unfiltered), sediment load, total suspended solids, and total dissolved solids. Copper[1] exceeded the criteria for Acute Aquatic Life (0.0114 mg/L) at SWMP-TA2 with a concentration of 0.014 mg/L. Unfiltered, adjusted gross alpha activity exceeded the criteria for Livestock Watering (15 pCi/L) at SWMP-TA2 and SWMP-TA3 with activities of 38.47 pCi/L and 29.77 pCi/L respectively. No other analyte concentrations exceeded established criterion.

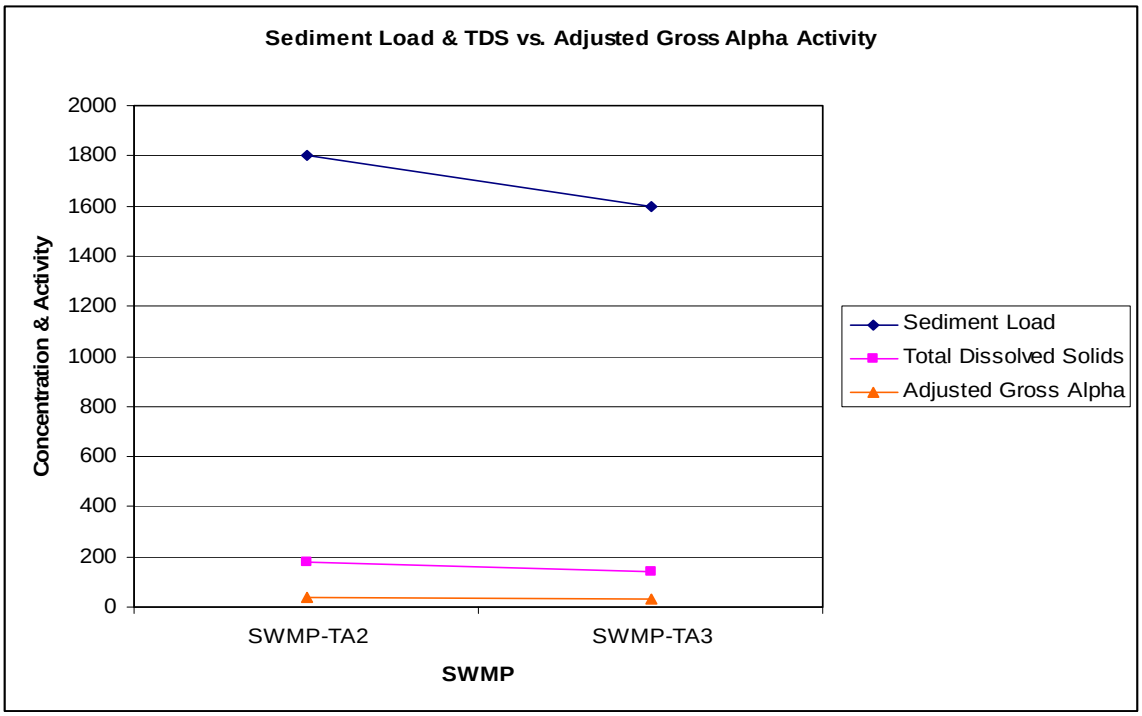


Figure STA47-3: Sediment Load & TDS vs. Adjusted Gross Alpha Activity from Tijeras Arroyo Stormwater FFY 2010 Event 4.

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-TA2	44	38.47	1.6	0.94	1800	180
SWMP-TA3	33	29.77	0.83	0.94	1600	140

Figure STA-4: Sediment Load, TDS, and Gross Alpha Activity from Tijeras Arroyo Stormwater FFY 2010 Event 4.

[1] Certain metals have numeric criterion dependent upon water hardness (as mg $CaCo_3$/L) of the sample taken. The harness-dependent formulae for metals shall be valid only for hardness values of 0-400 mg/L. For values above 400 mg/L, the value for 400 mg/L shall apply. 20.6.4.12.G, H NMAC.

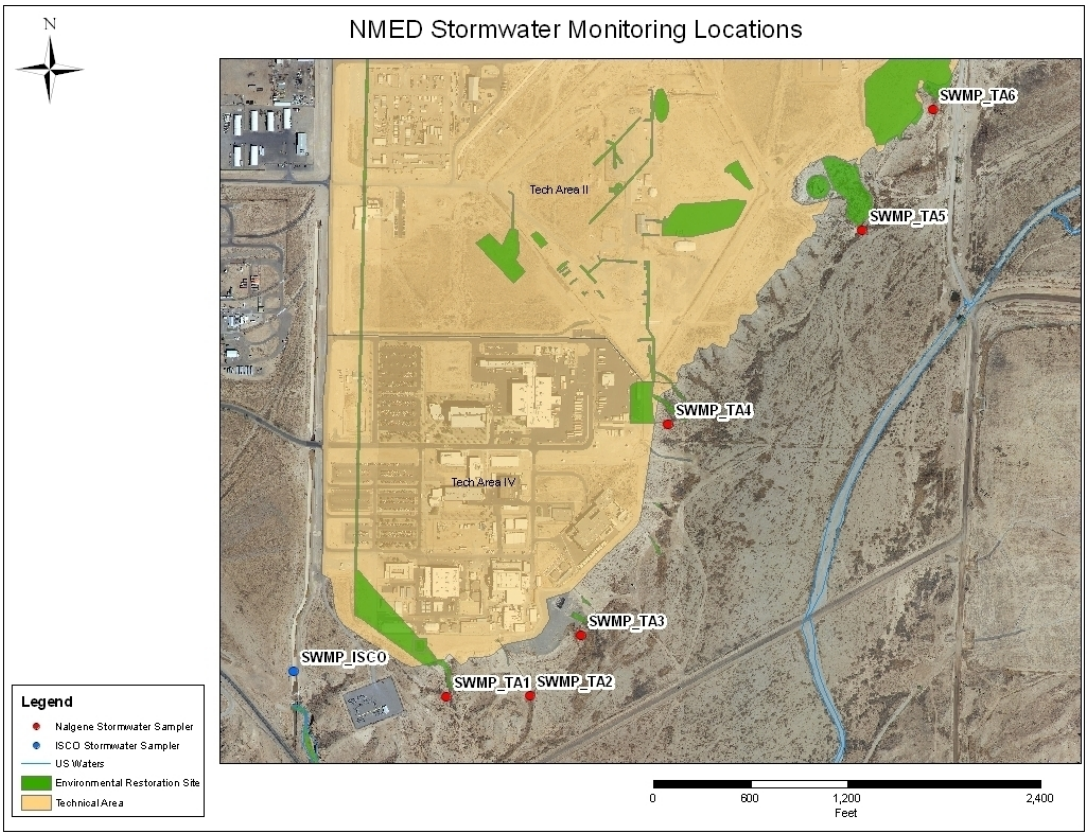


Figure STA47-5: Tijeras Arroyo stormwater monitoring sites on Kirtland Air Force Base.

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-3, Bureau staff participated in meetings for the initial stages of the demolition of Building 605 (the steam plant) by contractors for Sandia.

On May 26, 2010, Bureau staff conducted the first Site Evaluation in the company of two Sandia Staff members. This site evaluation was conducted prior to any physical D&D activities by the Sandia contractors and for the purpose of reviewing the submission of all required documentation, such as the Notice of Intent, the General Construction Permit with Amendments, and the Site Information Assessment Report. Results of the Site Evaluation are documented in the report titled, "Demolition & Decommissioning (D&D) Monitoring at Sandia National Laboratories/New Mexico by NMED/DOE OB for Building 605, Site Evaluation 1, May 26, 2010." Actual building demolition and subsequent environmental sampling was scheduled to begin shortly after the Site Evaluation, taking into account the recommendations made by the Bureau Site Evaluator.

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-3, Bureau staff completed the annual biota & terrestrial sampling FFY 2010 Event 1. Analytical results will be posted in the FFY 2010 Q-4 report.

Bureau staff collected soil, sediment, and vegetation samples with SNL personnel from 32 different locations both on-site and off-site. Bureau staff collected samples for four different contract laboratories. Hall Environmental Analytical Laboratory received 35 samples for TAL total recoverable metals, gamma-emitting isotopes, and tritium analysis, 8 samples for perchlorate analysis, and 4 samples for analysis of high explosive compounds. Summit Environmental Technologies received 10 samples for analysis of TAL total recoverable metals. Weck Laboratories received 10 samples for TAL total recoverable metals and 4 samples for high explosive compounds. TestAmerica Phoenix Analytical received 10 samples for TAL total recoverable metals, 4 samples for perchlorate and 4 samples for high explosive compounds.

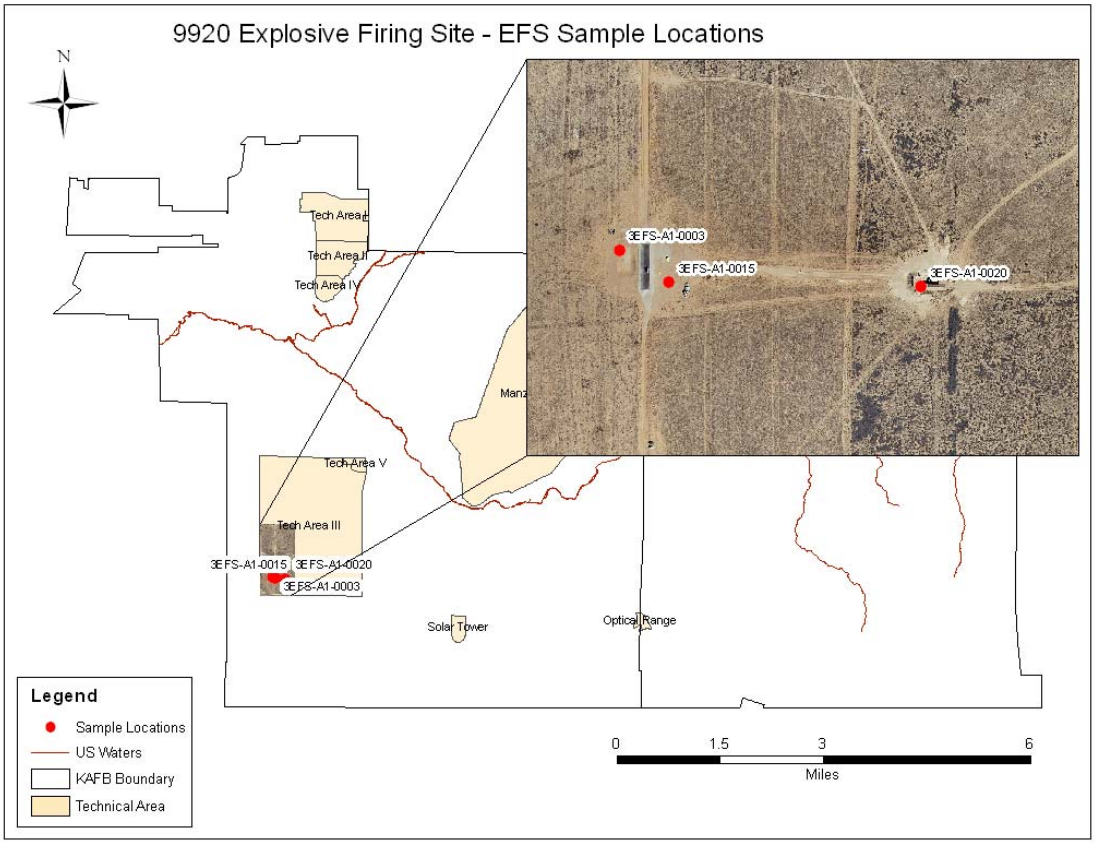
WASTEWATER PROJECT (SWW51)
Under this Activity ID, Bureau staff conducts annual sampling of wastewater discharges from SNL operations in a cooperative effort with Sandia and the City of Albuquerque.

Quarterly Summary: During FFY10 Q-3, Bureau staff drafted a data submittal of Wastewater FFY 2010 Event 2 for DOE review and release.

Bureau staff drafted a data submittal of Waste Water FF Y2010 Event 2. This sampling event occurred during the week of April 20, 2010. The Bureau collected split wastewater 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), and WW0011 (City of Albuquerque permit number 2069K). Station WW007 was not sampled during this event due to a lack of proper sample containers from the contract laboratory. 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 results indicate that contaminant concentrations from wastewater samples collected by the Bureau were below 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-3, 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-3, Bureau staff continued efforts to review draft submittals and reports for DOE review and release.

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-3, 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-3, Bureau staff completed training courses to meet DOE and NMED requirements and attended federal audit proceedings of WIPP operations.

Staff Scientist Julia Marple completed the General Employee Training (GET) Refresher. This training provides all Waste Isolation Pilot Plant (WIPP) employees, contractors, and other stake holders with new information ensuring these individuals remain safe and in compliance with all WIPP regulations, orders, and policies.

Staff Scientist Thomas Kesterson completed his ELC-103A, Electrical Safety refresher, MED-101, First Aid/CPR training, and the CBFO Auditor/Lead Auditor training. The ELC-103A course covers the hazards associated with maintaining high-voltage equipment, and the general precautions to prevent injury to personnel or equipment damage. The MED-101A course trains personnel in the basics of first aid, CPR, and treatment for airway obstruction, meeting requirements in accordance with the National Safety Council and American Heart Association. The CBFO Auditor/Lead Auditor Course meets the requirements for NQA-1 for Lead Auditor training, focusing on performing audits in the WIPP regulatory environment.

During the week of April 5, it was reported that all mining in Panel VI was completed. Mining began in Panel VII on April 24. Waste emplacement was reported complete in Panel V, Room 5 as of April 14, and waste emplacement was begun in Panel V, Room 4 the following day.

On May 4-6, staff attended the Carlsbad Field Office (CBFO) audit of the *CBFO Quality Assurance Program Document* and applicable CBFO implementing procedures related to NQA - 1 criterion 1 through 18, plus the National Environmental Policy Act (NEPA).

The audit team concluded that the QAPD and its implementing procedure are adequate relative requirements from applicable NQA-1 criteria and that the CBFO Quality Assurance (QA) Program implementing procedures are also adequate relative to the requirements from the CBFO QAPD. The audit team concluded that the defined CBFO QA program is effective and satisfactorily implemented.

Twelve concerns were identified during the audit with four corrective action reports (CARs) issued. CAR 10-030 related to the lack of proper implementation of the orders compliance program; CAR 10-031 related to the need to revise the Master Quality Level Determination Form; CAR 10-032 related to records management; and CAR 10-033 related to records Inventory and Disposition Schedules.

On May 10-13, staff attended an audit of Washington TRU Solutions Quality Assurance Program as related to the Waste Isolation Pilot Plant Biota / Land Management,

VOC/Hydrogen/Methane Monitoring, Groundwater Monitoring, and Delaware Basin Drilling programs. The audit team concluded that the overall status of the WTS Monitoring program is adequate, satisfactorily implemented, and effective. One concern was identified that resulted in Corrective Action Report (CAR) 10-035.

Description of Adverse Conditions: "Attachments 3 through 12 of the WIPP Groundwater Detection Monitoring Semiannual Report are not completed as required. Certain sections lack entries (Y/N to indicate yes or No) as required and justifications are not provided for N/A responses as required."

During the week of May 24th, staff attended the annual RCRA inspection of WIPP by staff of the Hazardous Waste Bureau. At the close out conference HWB staff reported there were no issues arising from this inspection.

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-3, Bureau staff participated in the WIPP Quarterly meeting and attended hearings on a permit modification request.

On April 20, Bureau staff attended the 100th WIPP Quarterly in Carlsbad. Environmental Scientist Julia Marple presented a summary of the Bureau activities during the previous quarter.

Bureau staff attended a public information meeting during the week of May 17th, conducted by the DOE and WTS to provide information on a permit modification request to the WIPP Hazardous Waste Faculty Permit. The permit modification request proposes to revise Table IV.F.2.c, Concentration of Concern for the following organic compounds:

- carbon tetrachloride;
- chloroform;
- methylene chloride; and
- 1, 1, 2, 2-tetrachloroethane

The permit initially assumed 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 of the VOCs at WIPP. The 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 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 letter dated April 14, 2010 to David Moody, Carlsbad Field Office, Department of Energy, the New Mexico Environment Department, Water and Waste Water Division 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 over packed 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-3, Bureau staff continues to monitor mine exhaust air flow and salt corrosion on nozzles and shrouds.

Air quality emissions monitoring:
Bureau staff continued NESHAP (National Emissions Standards for Hazardous Air Pollutants) air filter collection at WIPP Station A (both primary and back-up) and Station B. Filters are collected from the Station A Primary, and Back-up each morning. Primary filters are compiled by month and shipped to the contract laboratory. Back-up filters are archived for future analysis, if required. Filters from Station B are collected on Wednesday mornings.

Station A filters for the first calendar quarter of 2010 were shipped to the contract lab on June 4th. Results are pending.

During April, staff forwarded a data submittal to the DOE, entitled "Station A Exhaust Monitoring at the Waste Isolation Pilot Plant / New Mexico Conducted by NMED / OB, July – December 2009." The report cited no detection above the sample Minimum Detectable Concentrations for any of the requested analytes. Requested analytes included Am-241, Cs-137, Pu-238, Pu-239/240, Sr-90, U-234, U-235, and U-238.

During this quarter, staff updated the NMED/DOE OB *Procedure: Routine fixed Air Sampler Protocol, Station A.*

Salt accumulation on nozzles and shrouds monitoring:
Bureau staff observes 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. At the beginning of this quarter, the preventative maintenance probe-pull was performed every Tuesday, but this operation was modified to a maintenance schedule of every two weeks starting the week of May 3. The local

weather conditions had resulted in lower salt accumulation on the probes, and maintenance requirements were reduced.

Personnel from WTS, CEMRC, 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 is photographed for documentation and the images are forwarded to the Bureau staff in Carlsbad and to the EPA Region Six in Dallas, Texas. An occlusion of 66.7% percent or more on the nozzle indicates that a representative air sample cannot be obtained from the effluent air stream, and therefore, the nozzle fails. No failures were reported during this quarter.

Occasionally preventative maintenance must be performed at unscheduled times. For example, wind speeds exceeding 20 mph extended the maintenance interval to three weeks after the April 20th inspection. Safety concerns prohibit use of the crane needed for the probe pull during excessive wind conditions. When conditions moderated, the normal maintenance was conducted.

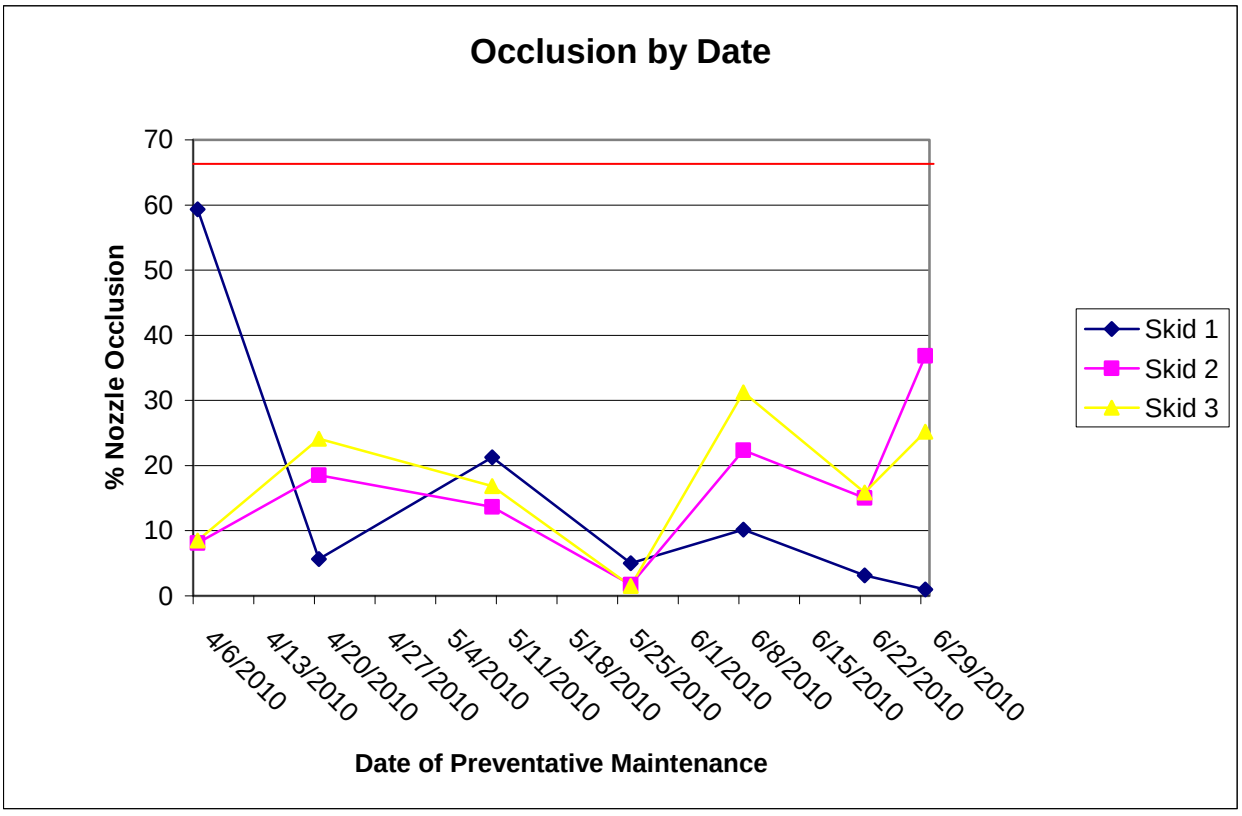


Figure 1: Occlusion Rates of the Nozzles this Quarter. The horizontal red line represents 66.7% occlusion of the nozzle, which indicates the nozzle has failed.

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-3, Bureau staff recorded quarterly DPR readings from 18 stations

The Bureau deploys Electret Ionization Chambers (Electret Gamma Monitors) to measure direct penetrating radiation in the environment surrounding the WIPP site. This is to verify that activity at WIPP does not result in external radiation doses exceeding historical background. Readings are taken quarterly.

Bureau staff recorded DPR measurements ranging from a minimum average quarterly dose of 22.6 mRem at WIPP 2 (adjacent to the WIPP) to a maximum average quarterly dose of 32.8 mRem at WIPP 16 (at the rest area on US 285 between Carlsbad and Loving). WIPP 15 serves as a control for quality assurance, and it is located in the Bureau office in Carlsbad. The second quarter 2010 average quarterly dose for WIPP 15 was 25.4 mrem.

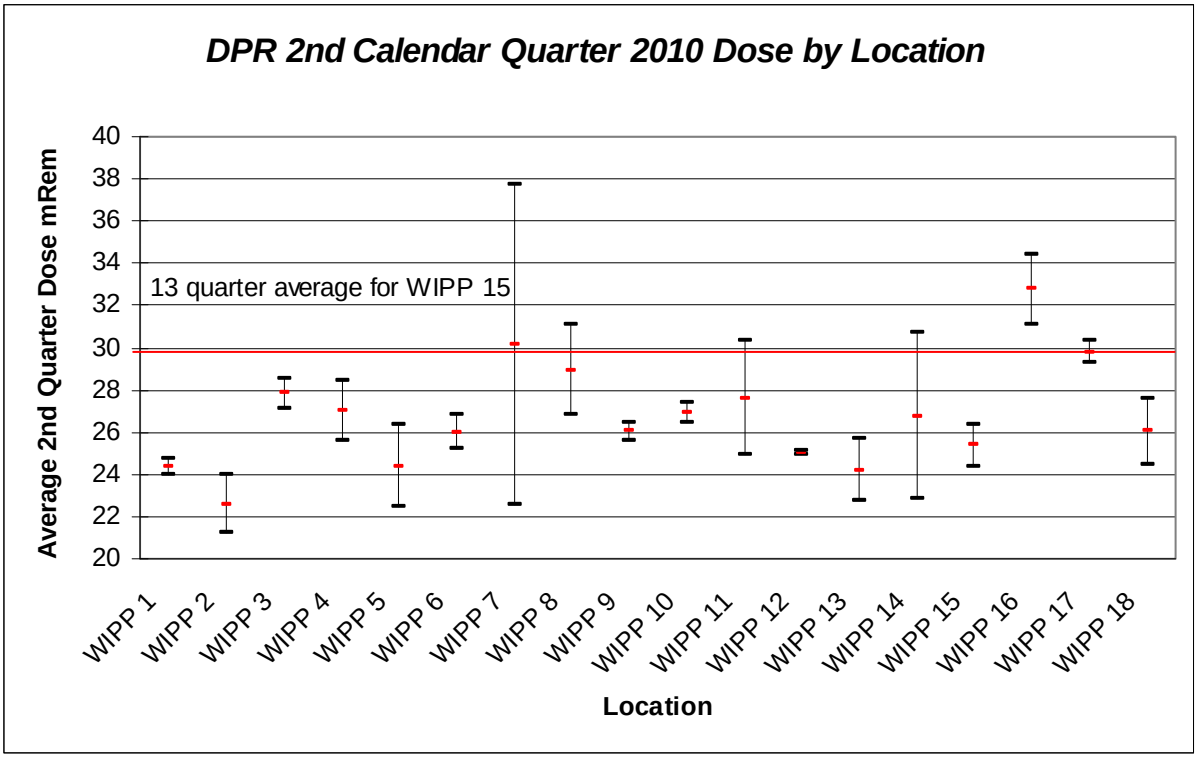
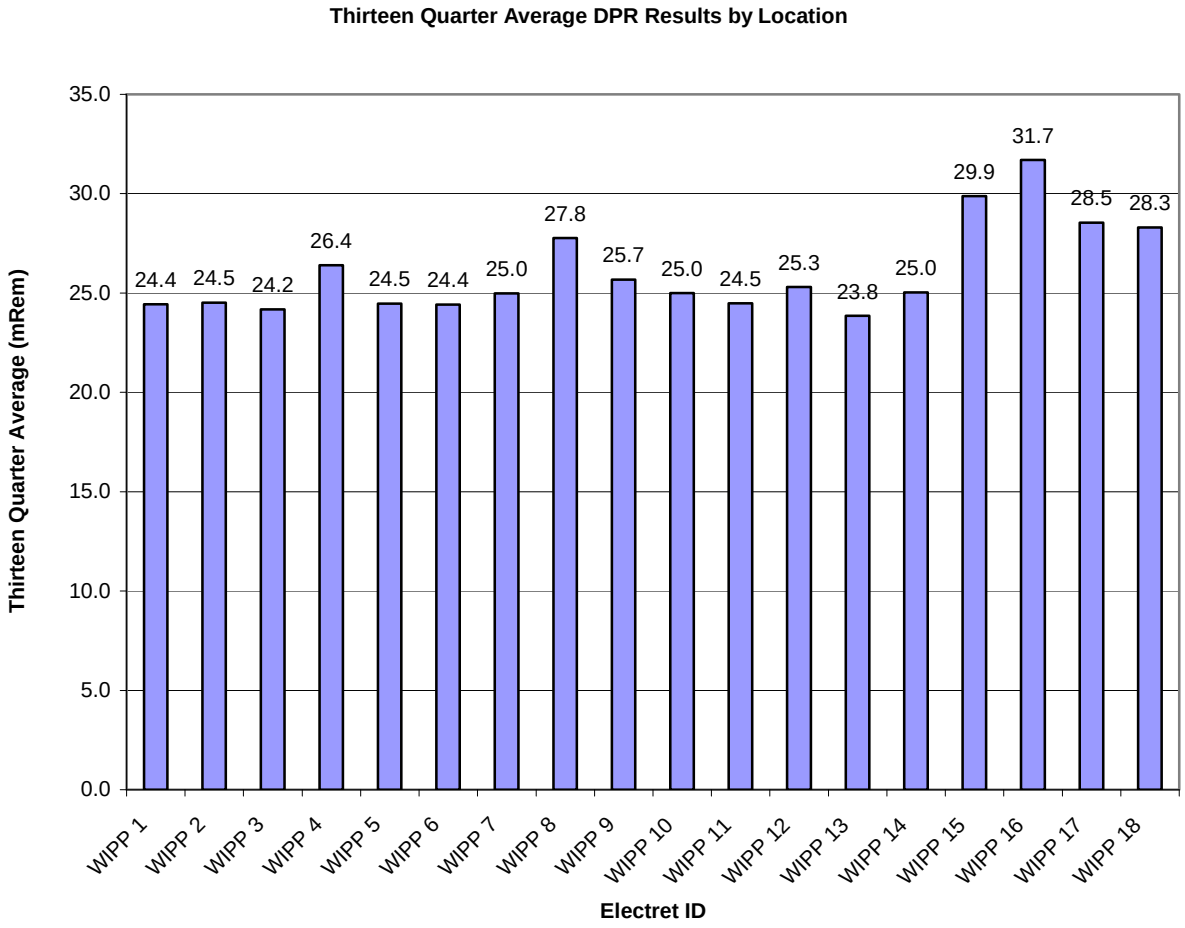


Figure WPD73-1: DPR 2nd Calendar Quarter 2010 Dose by Location



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.

Ambient air is sampled through the use of continuously running low-volume air samplers at the rate of 2 cubic feet per minute. The filters are collected bi-weekly and composited by location quarterly. This quarter there were seven low-volume air samplers in operation. Five air sampling stations at the WIPP site and one at the Carlsbad office provide the reportable data. There is an additional co-located sampler at the WIPP site that is employed in a filter media study. The filters are analyzed for the presence of Am^{241}, Cs^{137}, Pu ^{238}, Pu $^{239/240}$ and Sr^{90}.

Quarterly Summary: During FFY10 Q-3, Bureau staff shipped ambient air filters to an independent laboratory for analyses, provided data submittals to DOE for review and release and continued monitoring and maintenance of equipment.

During this quarter, Bureau staff shipped CY 2010 Q-1 filters to an independent laboratory for analysis of the presence of specific radioparticulates. Staff also forwarded two data submittals to DOE for review prior to release as final. The documents were titled: "Ambient Air Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for the Third Calendar Quarter 2009" and "Ambient Air Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for the Fourth Calendar Quarter 2009." No findings were reported above the minimum detectable concentrations.

Final versions of draft reports for each of the first 3 quarters of 2009 were submitted to DOE and posted on the NMED website. No findings were reported above the minimum detectable concentration of any of the radionuclides of interest.

Staff updated the standard operating procedure "Environmental Monitoring of Radioparticulates in Ambient Air Using Low-Volume Air Samplers" and the associated Job Hazard Analysis.

Maintenance on the low-volume air sampling equipment is continually in process. This quarter pumps were maintained and replaced as needed, and most of the air sampler housing fans were replaced in anticipation of the hot summer weather.

GENERAL ER/EM PROJECTS (WGE75)

Under this Activity ID, Bureau staff conducts sampling of soils and sediments, vegetation, groundwater and surface water, and any other biota or special request environmental media on a periodic basis, and provides technical review services to the DOE, WIPP and public interest groups.

Quarterly Summary: During FFY10 Q-3, Bureau staff collected soil samples from four sites near the WIPP at three sampling depths. These were sent to an independent laboratory for analysis of specific radionuclides.

Analytical results indicated no radionuclides of interest above the requested minimum detectable concentration except for uranium which is a common element in soil. The analytical results of U^{235} were below the minimum detection concentration. The results for U^{234} ranged from a minimum of 4.81 mBq/g at WIPP East (2 – 5 cm depth) to a maximum of 17.76 mBq/g at Smith Ranch (0 -2 cm depth). The results for U^{238} showed a minimum of 5.55 mBq/g at both WIPP South Duplicate and WIPP East (both at the 2 – 5 cm depth) and a maximum of 19.24 mBq/g at Smith Ranch (0 - 2 cm depth).

All uranium results were within the historical range of reported results around the WIPP site prior to emplacement of the first waste (Waste Isolation Pilot Plant 1999 Site Environmental Report) and within the average range expected for uranium found naturally in soils worldwide.