New Mexico Environment Department
DOE Oversight Bureau

Federal Fiscal Year 2011
First Quarter Report
October 1, 2010 to December 31, 2010

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

Cover Photograph

A new groundwater monitoring well is being drilled in Technical Area Five (TA-V) at Sandia National Laboratories in order to help determine the extent of contaminants of concern released from liquid waste disposal systems used during operations from 1967 to 1971

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LIST OF ACRONYMS

AIP	Agreement-In-Principle
AIRNET	Air Radioactive Particulate and Tritium Monitoring Network at LANL
AQB	Air Quality Bureau (NMED)
BMP	Best Management Practices
BSL-3	Bio-Safety Lab, Level Three
CBFO	Carlsbad Field Office (DOE)
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)
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 operator 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)
LOS	Los Alamos Oversight Section (NMED/DOE OB)
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
SCADA	Supervisory Control and Data Acquisition
SEIS	Site Environnemental Impact Statement
Sandia	Sandia Corporation, the operator of the SNL/NM facility
SNL	Sandia National Laboratories/New Mexico, the physical location of the facility in Albuquerque
SOS	Sandia Oversight Section (NMED/DOE OB)
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
WOS	WIPP Oversight Section (NMED/DOE OB)
WQH	Water Quality and Hydrology (LANL)
WRES	Washington Regulatory and Environmental Services
WTS	Washington Tru Solutions (WIPP), operators of the WIPP facility

DOE OVERSIGHT BUREAU SUMMARY

ADMINISTRATION

A review of LANL and SNL Site Specific Protocol (SSP) is on-going. The SSP was last revised in 2005, just before the operational management of LANL was relinquished by the University Of California (UC) and assumed by Los Alamos National Security, LLC (LANS, LLC).

A Letter of Agreement (LOA) between the DOE and the USAF at Kirtland AFB has been finalized and implemented. In addition to clarifying protocol for communication between agencies, the document's scope was expanded by the Air Force to include aspects more akin to property permit requirements.

PERSONNEL

An environmental scientist position was transferred from Carlsbad to Los Alamos. The position will require at least half time dedication to technical writing and report editing.

FINANCE

Administrative staff updated and revised budget spreadsheets to accommodate the new 2011 State and Federal Fiscal Years.

Approximately 20% ($494,991) of the projected 2011 work plan amount has been obligated or spent by the end of the first quarter. Within the three major budget groups, approximately 22% of budgeted labor expenses were recorded; approximately 20% of budgeted contract expenses were recorded; and approximately 12% of equipment expenses were recorded.

Grant modification #054 obligated $1,408,000 on October 1, 2010.

TRAINING

Bureau staff continued attendance of the Environmental Radioactivity course taught by LANS staff, Mike McNaughton. The discussion through late November was on the concepts of radionuclide decay rates or activities per media volume or mass versus concentration amounts per media volume or mass. The class did not meet in December, but it is scheduled to end after several more sessions in January 2011.

All LOS staff holding a "Q" Clearance completed the DOE annual security training.

Bureau staff completed Rad Worker II Training at the White Rock Training Facility.

Bureau staff attended the 3-day Essentials of Hazardous Materials Management course in Albuquerque. The course covered basic information about hazardous materials management and spent time on all of the relevant federal regulations. Various professionals taught each of the 29 different modules. The objective was improved understanding of hazardous materials

management and preparation for the Certified Hazardous Materials Manager (CHMM) national certification examination.

On November 22nd, Bureau Managers met with DOE LASO staff to tour the new CMRR laboratory/office facility. The group saw detailed aspects of this state-of-the-art laboratory/office facility that is approaching completion. The CMRR laboratory/office is scheduled to begin operations during October or November 2011. The second phase of construction for the CMRR Level II Rad facility will take place over the next 10 years, and it is targeted to commence operations sometime before 2021.

Administrative staff in the Sandia section are participating in continuing education. Ms. Mia Ortiz is pursuing a degree program and attending classes in business law, accounting, and management and Ms. Jennifer Brokaw is taking a course in mediation.

Administrative staff in the WIPP section is also participating in continuing education. Ms. Krissie Adams is taking classes in business and psychology.

OUTREACH

Bureau staff participated in the MOA signing ceremony of the Memorandum of Agreement between the New Mexico Environment Department and Santa Clara Pueblo (SCP).

Staffs from the Bureau, LANS and Los Alamos County attended several of the Pajarito Plateau Watershed Partnership (PPWP) meetings.

Bureau staff joined others from the City of Santa Fe, County of Santa Fe, the Buckman Direct Diversion Board, the DOE (headquarters and local) and LANS for the signing of the MOU covering the protective measures planned and in-progress by LANL in the Los Alamos Watershed and Rio Grande.

Bureau staff met with members of the Pueblo de San Ildefonso environmental data section and RACER staff for a data release discussion as well as a demonstration of the Pueblo data storage and display capability.

Bureau staff presented two posters at the Annual Geological Society of America (GSA) meeting in Denver Colorado in early November. One poster showed LANL, NMED and EPA stormwater data collected over time (since 1967) measured in flow events at a single sampling location or point in DP Canyon at the confluence with Los Alamos Canyon.

The second poster showed recent Bureau results from an independent study to determine if naturally occurring perchlorate could be leached from mountainous soils with melt water from the 2009-2010 snowpack.

Dave Englert submitted the Bureau draft report “Los Alamos Canyon Watershed Stormwater Monitoring from 2003 through 2008: Contaminant Transport Assessment” to DOE and LANS for review.

Bureau staff attended a presentation by LANS to the New Mexico Office of Natural Resources Trustee (ORNT). The ONRT implements the Natural Resource Damage Assessment and Restoration Program.

Bureau staff hosted the COMMUNITY RADIATION MONITORING GROUP meeting on December 15, 2010 in Espanola at the Northern New Mexico College.

Bureau staff participated in the WIPP Quarterly Meeting held in Albuquerque on October 21, 2010, and attended TRUPAC III progress report meetings.

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. Under the current discharge permit, LRRI is only required to sample total dissolved solids at monitoring wells ITRIMW4, -MW17, and -MW19.

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 FFY11 Q-1, Bureau staff completed required and supplemental training, procured field and office supplies, and evaluated analytical laboratory capabilities under the new price agreement.

Training:

Bureau staff continued attendance of the Environmental Radioactivity course at LANL and taught by LANS staff, Mike McNaughton. The discussion through late November was on the concepts of radionuclide decay rates or activities per media volume or mass versus concentration amounts per media volume or mass. This is a particularly hard concept to grasp because measured concentrations are more notably used when describing contamination by non-radionuclides. The class did not meet in December, but it is scheduled to end after several more sessions in January 2011.

All LOS staff holding a "Q" Clearance completed the DOE annual security training, and they submitted their signed confirmation documents to the DOE Albuquerque Service Center.

Staff participated in a discussion with technicians from TestAmerica Laboratory. The Laboratory representatives presented an overview of their services as well as revised details concerning the two price agreements currently held with the State of New Mexico.

Lloyd Bartels and Steve Yanicak completed Rad Worker II Training at the White Rock Training Facility.

Bureau staff members Lloyd Bartels, Courtney Perkins, Tom Skibitski, and Tom Kesterson attended the 3-day Essentials of Hazardous Materials Management course in Albuquerque. The course was intended to develop and improve the understanding of hazardous materials management, aid in performing job duties and responsibilities, and provide preparation for the Certified Hazardous Materials Manager (CHMM) national certification examination. One other Bureau staff member, Barry Birch, has already been certified. The goals of the CHMM program are to provide credentialed recognition, identify qualified hazardous materials managers, continue professional development and facilitate the transfer of knowledge and experience in the field. The training was sponsored by the New Mexico Society of Hazardous Materials Managers (NMSHMM) and the Roadrunner Chapter of the Alliance of Hazardous Materials Professionals (AIHMP). The three-day course covered basic information about hazardous materials management and spent time on all of the relevant federal regulations. Various professionals taught each of the 29 different modules.

CMRR Site Visit: On November 22nd, Bureau Managers Barry Birch, Tom Skibitski and Steve Yanicak met with Steve Fong and Tom Whitacre (DOE LASO) to tour the new CMRR laboratory/office facility. The group got to see detailed aspects of this state-of-the-art laboratory/office facility that is nearing the end of its construction phase. The CMRR laboratory/office is scheduled to begin operations during October or November 2011. The second phase of construction for the CMRR Level II Rad facility will take place over the next 10 years, and it is targeted to commence operations sometime before 2021.

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 FFY11 Q-1, Bureau staff participated in the MOA signing between NMED and Santa Clara Pueblo, drafted a stormwater report and hosted a CRMG meeting.

Staffs from the Bureau, LANS and Los Alamos County attended several of the Pajarito Plateau Watershed Partnership (PPWP) meetings. The monthly meetings are held every second Tuesday at the Bureau Office in Los Alamos. Discussions covered stormwater concerns of the current construction and demolition projects on the Pajarito Plateau.

Signing of MOU among the Santa Fe government entities, the Buckman Direct Diversion Board, and owners/operators at LANL:
Bureau staff joined others from the City of Santa Fe, County of Santa Fe, the Buckman Direct Diversion Board, the DOE (headquarters and local) and LANS for the signing of the MOU covering the protective measures planned and in-progress by LANL in the Los Alamos Watershed and Rio Grande that includes an early warning system for stormwater flow into the Rio Grande from this watershed. The MOU is a culmination of efforts after the Bureau staff identified legacy contaminants along the Rio Grande and in stormwater leaving the Laboratory and flowing into the Rio Grande.

Cooperative Information Exchange with Pueblo de San Ildefonso:
Bureau staff met with members of the Pueblo de San Ildefonso environmental data section and RACER staff for a data release discussion as well as a demonstration of the Pueblo data storage and display capability. In accordance with the Memorandum of Agreement between the Pueblo and NMED, the Bureau staff routinely meets with Pueblo staff for information exchange, sampling scheduling, and briefings on issues regarding potential impacts to Pueblo property. After the database demonstration by the environmental and RACER staff, Bureau personnel were quite impressed by the environmental information and associated GIS applications, and especially with the level of sophistication and quality. Bureau staff has been collaborating with Pueblo de San Ildefonso since 1993 and has seen its data management process make exponential leaps and bounds since those early years. Currently, the Bureau is seeking to obtain Pueblo approval to release the NMED data collected on tribal property associated with LANL impacts. Once released, it will be uploaded into RACER. This is the same courtesy of data exchange that the Pueblo extends to LANS each year for incorporating into the laboratory Annual Site Environmental Report.

Memorandum Of Agreement (MOA) Signing with Santa Clara Pueblo:
Ralph Ford-Schmid participated on behalf of the Bureau in the signing ceremony of the Memorandum of Agreement between the New Mexico Environment Department and Santa Clara Pueblo (SCP). The MOA identifies and allows NMED Bureaus and Santa Clara Pueblo (the Parties) to work together to protect all lands within the exterior boundary of Santa Clara Pueblo from environmental contamination and address contamination where it has occurred. The MOA purpose is:
1. Communication generally. This Agreement is intended to establish a protocol for inter-governmental cooperation and coordination, pursuant to the government-to-government relationship that exists between the Parties, and is independent of formal requests for consultation.
2. Consultation specifically. This Agreement identifies the controlling laws and authorities as they relate to NMED and SCP and the responsibilities hereunder for purposes of regular consultation between the Parties on matters of joint interest.

The MOA is similar to the Memorandum NMED has executed with Pueblo de San Ildefonso, except that it will only allow the Bureau to sample fish tissue and related biota in order to issue fish consumption advisories. In the future, the Bureau and SCP will formalize protocols for the safeguarding of SCP proprietary data, which will be an agreed-upon amendment or revision to the MOA.

Bureau Staff Presentation to the Annual Geological Society of America in Denver, CO
Bureau staff presented two posters at the Annual Geological Society of America (GSA) meeting in Denver Colorado in early November. One poster showed LANL, NMED and EPA stormwater data collected over time (since 1967) measured in flow events at a single sampling location or point in DP Canyon at the confluence with Los Alamos Canyon. The data trends through time showed that source-area cleanup actions by LANS/DOE over that period affected the contamination leaving the site as shown by a general decrease in Sr-90 concentrations. This was verified by Bureau monitoring in the late 1990's and more recently in 2010.

The second poster showed recent Bureau results from an independent study to determine if naturally occurring perchlorate could be leached from mountainous soils with melt water from the 2009-2010 snowpack. The study area was the primary recharge zone of the Sierra de los Valles, New Mexico where the ubiquitous presence of naturally occurring perchlorate in groundwater and surrounding areas at Los Alamos is well-documented by previous Bureau data collection. Results from these past efforts showed background perchlorate concentrations well below 1.0 µg/L and ranging from 0.09 to 0.45 µg/L with a mean of 0.27 µg/L (2 sigma +/- 0.07; n = 121). New results from this snowpack study show that perchlorate concentrations in groundwater discharging in the recharge area within the Sierra de los Valles are virtually the same as in the deep regional groundwater, with a mean of 0.28 µg/L for the recharge waters and 0.27 µg/L for the regional aquifer. However, additional assessments of regional groundwater chemistry including age-dating supports an influence of paleoclimate changes on natural perchlorate concentrations that took place during the Holocene Epoch. The current conceptual model for the presence and behavior of naturally occurring perchlorate in groundwater at Los Alamos suggests that perchlorate likely originates as a natural component of wet atmospheric

deposition as proposed by Rajagopalan, et al. (2009), followed by deposition and entrainment in thin land-surface soil horizons. The enrichment of perchlorate in soil horizons may occur as the oxyanion is deposited during episodic summer monsoon rains in the high-elevation recharge areas followed by intermittent drying periods. Soluble perchlorate is initially stored in soil horizons followed by downward movement within the vadose zone facilitated by snowmelt infiltration.

Report Submittal:
Dave Englert submitted the Bureau draft report "Los Alamos Canyon Watershed Stormwater Monitoring from 2003 through 2008: Contaminant Transport Assessment" to DOE and LANS for review.

- The report summarizes a compilation of stormwater data results collected during 2003 through 2008 from monitoring stations in the Los Alamos Canyon Watershed down to and including one station near the Buckman Direct Diversion on the Rio Grande.
- The 200+ page report attempts to summarize a significant multi-year effort on behalf of the Oversight Bureau which conducts annual watershed monitoring at Los Alamos National Laboratory.
- The DRAFT report was provided to DOE as specified under the LANL Site Specific Protocol, and it will not be released to any third party prior to a 30-day comment period in order that DOE and LANS be afforded an opportunity for an adequate review. The Bureau is providing an additional time allowance for review due to the length of the document.
- The DOE immediately forwarded the report to Pueblo de San Ildefonso for review as a courtesy because NMED also collected samples on Pueblo property during the referenced time interval.

ORNT:
Bureau staff attended a presentation by LANS to the New Mexico Office of Natural Resources Trustee (ORNT). The ONRT implements the Natural Resource Damage Assessment and Restoration Program. The ONRT assesses injury to natural resources caused by the release of hazardous substances or oil, and then seeks compensation from the responsible parties for restoration of those injured resources. Compensation is used to restore, replace or acquire the equivalent of injured, destroyed or lost natural resources and the services they provide. DOE/LANS provided an overview of the Environmental Restoration Program, the Groundwater Monitoring Program and the groundwater monitoring network at LANL.

CRMG Meeting:
Bureau staff members Steve Yanicak and Lloyd Bartels hosted the COMMUNITY RADIATION MONITORING GROUP Meeting on Wednesday, December 15, 2010 in Espanola at the Northern New Mexico College. Members of the public were concerned about population protection in the event of an accident involving fissionable material, transportation routes to waste repositories, and release of AIRNET #84 data collected on Picuris Pueblo without NGO coordination. The potential accident scenario will be a discussion topic at the next meeting, and the other two issues were addressed by DOE and the Bureau.

Future CRMG Meeting Proposed Locations & Topics are as follows:

MONTH (2011)	DATE & TIME	LOCATION	MAIN TOPIC
January	Wed, 1/12 -10am – 12noon	Conference Room at NNMC in AD 101	1) Develop 2011 Agenda and locations
February	Wed, 2/9 -10am – 12noon	Conference Room at NNMC in AD 101	1) TBD

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 FFY11 Q-1, Bureau staff reported no activity.

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 FFY11 Q-1, Bureau staff took quarterly readings of Electrets voltages at twelve monitoring stations and calculated DPR dose for FFY10 Q-4.

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 FFY11 Q-1, Bureau staff provided an AIRNET data submittal to DOE for review.

Bureau staff submitted AIRNET data to DOE/LASO:

1) NMED/DOE OB Data Submittal for Off Grid Airport Location TA 21 Demolition: Initial AIRNET Radionuclide and Metal Particulate Results. Data in this report shows selected metal and isotopic radionuclide initial results for Plutonium, Americium, Uranium and Gamma Emitters collected by the DOE-OB Solar-powered AIRNET location at the Los Alamos County Airport in response the TA 21 Demolition. The samples were obtained using a continuously operating air sampler which collected airborne particulates on filters. These samples were collected over the period of time from September 2009 through April 2010.
2) NMED/DOE OB Data Submittal for AIRNET Radionuclide Particulate Results near Los Alamos National Laboratory, First Calendar Quarter 2010. Data in this report show isotopic radionuclide results for plutonium, americium, uranium, gamma-emitting isotopes and tritium at Bureau AIRNET locations in the vicinity of the Los Alamos National Laboratory. The samples were obtained using continuously operating air samplers which collected airborne particulates on filters and atmospheric moisture with

silica gel. Each of the five (5) stations is co-located with a LANL AIRNET station. The co-located sites are at the Los Alamos Airport, McDonalds, the Royal Crest Trailer Court, Well PM-1, and the White Rock Fire Station (former location).

Filters were collected bi-weekly and combined into a single quarterly sample for each station. The airborne concentrations are calculated from per sample results. Silica gel samples are collected bi-weekly and are not composited. Tritium results are representative of the two week period during which each was collected. As specified by the LANL Site Specific Protocol, we will not release the data until after the 30-day comment period in which DOE and LANL staff have the opportunity to review these data. Following this, the results will be transmitted to the RACER database and also be and be made available for public access and put into the NMED file.

The DOE reviewed of the Bureau quarterly AIRNET results provided in the November 19, 2010 NMED data submittal letter for CY 2010 Q-1. The summary of the radioisotope results concluded that there were no significantly elevated concentrations. The review did note detections of Be-7 and U-238, but the concentrations of both were many orders of magnitude below the DOE-allowed derived air concentrations for occupational exposure. Even factoring the adjustment for public dose limits and for 24 hours/day instead of 8 hours/day exposure, these results were still far below the limits. It was also noted that the NMED results were not compared to any LANL historical AIRNET data to trend the results.

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

Quarterly Summary: During FFY11 Q-1, Bureau staff conducted routine maintenance and calibration tests on the high-volume air monitoring equipment.

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 FFY11 Q-1, Bureau staff collected samples from the Buckman well field wells 1, 6 and 8 that provide drinking water to Santa Fe County. In addition, staff collected a sample from USGS Well SF-5B for analysis of chlorine-36 and noble gases.

Bureau staff collected water samples from the Buckman well field that supplies drinking water to Santa Fe County. Samples were obtained at Buckman 1, 6, and 8 for the Chlorine Isotope project that will use Cl-36 concentrations for on-going contaminant pathway studies and also to help verify ages of groundwater beneath the Pajarito Plateau. Buckman 8 was also sampled for Dissolved Total Uranium, and Dissolved Isotopic Uranium. Staff also collected Cl-36 and noble

gases from well SF-5B that is located within the Buckman well field but more proximal to the Rio Grande. The SF-5B is an old USGS piezometer that is being considered for use as a monitoring point. Receipt of the Chlorine Isotope and Noble Gas projects results are expected during FFY11 Q-2.

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 FFY11 Q-1, Bureau staff collected samples from regional monitoring (R-Wells) for water quality in addition to the on-going Cl-36 project. Monitoring wells sampled were R-3, R-15, R-10 scr 1 & 2, MCOI-5, R-43 scr 1, R-50 scr 1, R-11, SCI-1, SCI-2, R-36, R-35b, R-12 scr 1 &2, and R-1.

WR SPRINGS MONITORING (LSM09)
Under this Activity ID, Bureau staff conducts annual sampling in a cooperative event with LANS Water Quality and Hydrology and 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 FFY11 Q-1, Bureau staff completed the annual raft trip to collect WR Springs samples and shipped them to an independent analytical laboratory for analyses.

(Because the annual Rio Grande raft trip spanned FFY10 Q-4 and FFY11 Q-1, some of the information provided in the last quarterly report is included in this report, as well.)

Annual Springs Monitoring: The annual monitoring of springs below Los Alamos National Laboratory occurred during late September and early October. A new Chlorine-36 Project was the priority for water sampling during the event. This project also included the collection of samples from production wells in the Buckman well field (Buckman 1, Buckman 6, and Buckman 8), which is discussed briefly under Activity ID LPW07.

The White Rock Canyon springs are generally found in major drainage confluences along the Rio Grande at the eastern border of LANL, Los Alamos County, and Pueblo de San Ildefonso property. The White Rock Canyon springs serve as an inferred facility boundary monitoring point, or early warning system, for testing groundwater beneath the Laboratory just before it passes into the Rio Grande. Since 1992, these springs have been analyzed by both Los Alamos National Laboratory (LANL) and the New Mexico Environment Department (NMED) for general chemistry, organics, radionuclides, perchlorate and metals to assess any Laboratory impacts.

This year, the White Rock Canyon springs sampling team commenced a two-year sampling project (Chlorine-36 Project) to measure modern water recharge into White Rock Canyon springs. In the recent past, Bureau researchers have collected and analyzed for a myriad of

environmental tracers (noble gasses, carbon-14, oxygen-18, deuterium, etc) to aid in the characterization of the plateaus hydrologic system. This project will add Cl-36 as a new tracer constituent. Currently tritium (3H) is used to determine if groundwater contains any fraction of modern (post-1950s) water. Tritium, however; is quickly reaching the end of its usable life-span due to a half-life of ~12.3 years. Chlorine-36 is a natural replacement as it shares a similar temporal signature in precipitation but does not suffer from the rapid decay effects of a short half-life. In the decades since the peak of Cl-36, decay is negligible and a less attenuated modern water signature remains. It has particular use in determining the contribution of recharge from canyon bottoms.

The Bureau project will analyze groundwater for Cl-36 using local springs and the Los Alamos National Laboratory groundwater monitoring network. There are greater than 100 monitoring wells and springs within the study area. A subset of these will be sampled with emphasis on wells with the highest information value. Examples of sample groups include:

- Wells and springs that exhibit chemistry within the range of background values. This will establish a background value for Cl-36 in the regional aquifer.
- Wells with tritium and no other contamination. This will establish a tritium-chlorine relationship in waters with natural modern recharge conditions and assist in delineating infiltration pathways.
- Wells within and bounding contamination plumes. These wells will be used to determine if Cl-36 has been produced during waste generation and if it is a viable predictor of waste migration.
- Wells that show anomalously high chloride and no other contamination.

Figure LSM09-1: The White Rock Canyon springs sampling team prepares to sample Spring 6 in Ancho Canyon at the Rio Grande, Laboratory analyses will include tritium, high explosives, volatile organic compounds and chlorine-36 (a long-lived radionuclide).

STORMWATER BELOW SWMUS PROJECT (LSF10)

Under this Activity ID, Bureau staff conducts on-going sampling of stormwater discharges from Solid Waste Management Units (SWMUs) for compliance with the LANL Individual Storm Water Permit. Bureau staff evaluates BMP implementation at SWMUs that are intended to enhance contaminant transport reduction in accordance with the LANL Individual Storm Water Permit.

Quarterly Summary: During FFY11 Q-1, Bureau staff maintained single-stage samplers in TA-53, collected samples from all locations in TA-53, and observed inauguration of a portion of the Buckman Direct Diversion early warning system, and staff prepared field samples for PCB analysis.

Buckman Direct Diversion:

Bureau staff oversaw the connection of the Bureau Buckman Direct Diversion Sampler to the LANL Early Warning System from the E109.9 gage station in lower Los Alamos canyon. The ISCO automatic sampler is programmed to collect an 8-liter sample (2 amber glass, 6 Nalgene bottles) one hour and fifteen minutes after receiving a signal from E109.9 indicating that Los Alamos canyon has begun to flow. The sampler was also connected to a 110 VAC power supply. Both the early warning system signal (via radio signal to TA-53, then to Tesuque Peak, then to the City of Santa Fe SCADA system) and the 110V power supply were provided by the

City of Santa Fe as part of a verbal cooperative agreement to assist the City of Santa Fe in monitoring for potential water quality impacts from LANL at the Buckman Direct Diversion.

Stormwater Sampling:
Bureau staff prepared stormwater samples collected during the latter half of 2010 from TA-53 single-stage samplers. Preparation involved using a dekaport splitter in the Los Alamos office wet laboratory. Samples will be submitted for PCB and SSC analyses during FFY11 Q-2. A number of samples were also prepared for a laboratory performance evaluation that will involve up to three contract analytical laboratories capable of PCB analysis by the EPA Method 1668A. Identically split samples will also include samples spiked with a known amount of PCBs (by an independent and certified laboratory) to evaluate the precision and accuracy of the results. Due to the high cost of PCB analysis by the congener method (1668A), Bureau scientists need to assess the quality per cost of PCB analysis by laboratories currently on NMED price agreements.

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 FFY11 Q-1, Bureau staff collected twelve sets of stormwater samples from DP Canyon just above the confluence with middle Los Alamos Canyon and two sets of samples from E110 in lower Los Alamos Canyon. A single one-half liter bottle was collected at E042 in Los Alamos Canyon, which is located above the low-head weir.

Bureau staff collected twelve sets of stormwater samples from DP Canyon just above the confluence with middle Los Alamos Canyon and two sets of samples from E110 in lower Los Alamos Canyon. A single one-half liter bottle was collected at E042 in Los Alamos Canyon which is located above the low-head weir.

Staff retrieved batteries and ISCO equipment from stations located in Los Alamos and Pueblo Canyons to recharge and refurbish prior to deployment in the spring.

Staff acquired Flowlink ®, a program which allows downloading hydrograph and sampling information from Bureau ISCO equipment. This provides electronic files for generating graphic displays of hydrographs and collection times along the hydrograph.

Staff completed the compilation and reporting of stormwater data from Los Alamos watershed and provided DOE with a draft report titled *"Los Alamos Canyon Watershed Stormwater Monitoring from 2003 through 2008: Contaminant Transport Assessment."*

The following abstract describes the 230 page report:

> During 2003 to 2008, the Department of Energy Oversight Bureau of the New Mexico Environment Department (NMED) collected stormwater samples from the Los Alamos watershed. The Los Alamos National Laboratory (LANL) discharged radioactive and

industrial effluents into the watershed during the 1940's through the 1980's that have spread throughout the canyon channel systems to the Rio Grande. Commercial analytical laboratories analyzed the samples for radiochemical, metal and physical characteristics. The New Mexico Environment Department has produced a report that evaluates the chemical and hydrological data and estimates mass transport of sediments and LANL legacy plutonium-239/240 in stormwater runoff, develops coefficients that help identify changing watershed functions, describes spatial and temporal trends in suspended sediment loads and contaminant levels, and compares results to applicable water quality criteria.

The sediment and plutonium-239/240 transport estimates were made from assumptions developed by observation and empirical measurements in stormwater since the Cerro Grande fire (May 2000). These general assumptions were borne out by sampling analyses. Specifically, analyses determined that suspended sediment concentrations in stormwater increase and decrease proportionately with flow rates, that plutonium-239/240 concentrations in suspended sediments are fairly consistent at individual stations, and that total plutonium-239/240 measurements in water increase uniformly with increasing suspended sediment concentrations. Based on these assumptions and the correlations between multiple suspended sediment and plutonium-239/240 concentrations and paired stormwater flow rates, NMED estimated sediment and plutonium-239/240 contaminant transport in individual storm events. The NMED also found that relationships developed between the sediment and plutonium-239/240 transport estimates and corresponding peak flows at each station. Using these relationships and the annual hydrograph records, NMED developed transport estimates for storm events not sampled.

Sediment and plutonium-239/240 transport estimates for the period of 2003 through 2008 are reported at six stations within the watershed. Coefficients are also developed and presented that identify stream function, relative channel stability, and sediment and contaminant availability at stations monitored during this period. Use of these coefficients in future stormwater assessments may identify changes in the watershed. These changes may reflect potential destabilization of the water courses or watershed improvements made by LANS to reduce off-site contaminant migration.

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 FFY11 Q-1, Bureau staff conducted site evaluations and coordinated closure of numerous spill/release reports.

A Bureau staff member, certified as a sediment and erosion control inspector, is notified by LANS staff of any spill/release reports made to NMED under 20.6.2.1203 NMAC. As part of the AIP, the Bureau staff member conducts site evaluations in an advisory capacity for

compliance with NPDES permits, and the member assesses the reporting process and any remediation actions in response to spills or releases to the environment by the permit operators. All findings, whether from site evaluations or spill assessments, are reported to DOE/LASO, and they may be used as recommendations to regulatory authorities.

Site evaluations provided to DOE and LANS by the Bureau:

- ***"NMED-DOE OB Site Evaluation Report for Storm Water and Erosion Controls at Technical Area (TA) 55, the Chemical, and Metallurgy Research Replacement Building (CMRR) and the TA-48 RULAB Project and Associated Building and Parking Area on May 10, 2010."*** The Bureau participated in a site evaluation for stormwater and erosion controls on May 10, 2010 at the Chemical, and Metallurgy Research Replacement Building (CMRR) and the TA-48 Associated Building and Parking Area. This site evaluation was conducted in an advisory capacity by the Bureau under the AIP to oversee the NPDES General Permit for Large and Small Construction activities issued to DOE/LANS. All previously suggested housekeeping issues had been rectified with the site appearing clean and orderly even though construction was occurring at the time and recent rain events had impacted the site.

- ***"NMED-DOE OB Site Evaluation Report for Stormwater and Erosion Controls at Technical Area (TA)-55, the LANL Nuclear Safeguards and Security Upgrades Project (NMSSUP) on November 17, 2010."*** Bureau staff, LANS staff and a contractor conducted a second site evaluation for stormwater and erosion controls at Technical Area (TA) 55 at the Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP) on November 17, 2010. Bureau staff provided a few suggestions including placement of water bars in several steep, open areas, replacement or refinement of already implemented check dams, the possible use of a soil stabilizer and/or mulch, and modifications of the Stormwater Pollution Prevention Plan (SWPPP).

Spill/Release Notifications by LANS to NMED (SWQB, DOE OB, HWB) and EPA:

- #266 - ***"Spill Response Assessment and Suggestion for Closure of Potable Water Release at TA-18, Building 138, June 29, 2010, LANL Discharge Notification Report #266."*** The LANS letter noted that Bureau staff found the actions taken by LANS were adequate in the protection of the health of New Mexico citizens and environment under 20.6.2.1203 NMAC. On June 29, 2010 NMED was notified of a 4,000-gallon potable discharge from a cut and capped water line near TA-18, Building 138. Water flowed into an excavated area and then into the Pajarito Canyon watercourse. The cause of the release appears to have been a separated pipe joint that occurred during the night or early morning of June 29, 2010. The water line was shut down by 07:55 and repairs were completed the following day. Moderate erosion was observed near the excavation; however, the Pajarito Canyon watercourse is heavily vegetated and no erosion was observed in this area. A review of the site maps indicated SWMUs and/or AOCs were not affected.

- #270 - ***"Spill Response Assessment and Suggestion for Closure of 1,100 Gallons Untreated Sewage Release at TA-55, Building 28, on July 13, 2010, LANL Report #270."*** The LANS letter noted that Bureau staff found the responses were proper and

clean up was completed and recommended that no further action was required at the time under this discharge notification. The report detailed that on July 14, 2010, NMED was notified of an untreated sanitary sewage release at TA-55, Building 28. The approximate amount of discharge was 1,100 gallons of untreated sanitary waste with flow duration of approximately 2.5 hours. The release was observed by a construction contractor working near TA-55. The release appeared to originate from a gravity sewer line serving TA-46, the Sanitary Wastewater System (SWWS), and it may have been exacerbated by construction activities at the site. The discharge was confined within an excavated area and the release did not flow across any SWMUs and/or AOCs, and it did not enter storm drains or the nearest watercourse (Pajarito Canyon). No erosion effects were apparent from the release. The damaged pipe was repaired and the area was disinfected by July 14, 2010.

- #277 - ***"Spill Response Assessment and Suggestion for Closure of Approximately 5,000 to 6,000 Gallons Potable Water Spill Release During a Fire Hydrant Flushing and Flow Test at TA-3, CMR Facility Building 216, LANL Report #277."*** On August 23, 2010, the NMED was notified of a potable water release at TA-3, CMR Facility Building 216, located at LANL. This release was reported to the Emergency Spill Hotline as required by 20.6.2.1203 NMAC on August 23, 2010. The approximate amount of the discharge was between 5,000 and 6,000 gallons of potable water with a flow duration of approximately 25 minutes. This spill happened during a hydrant flushing and flow test was not de-chlorinated following the discharge. During a site visit by LANS staff on August 26, 2010, the water was noted to have flowed approximately 150 yards across an asphalt conveyance and then entered a storm drain, which stretches approximately 300 yards before entering Mortandad Canyon. This stormwater conveyance system is part of NPDES outfall 03A021. There were no SWMUs or AOCs impacted by the discharge, and no significant erosion impacts were observed at the release area or in the Mortandad Canyon watercourse.

- #277 - ***"Spill Response Assessment and Suggestion for Closure of Approximately 10,000 Gallons Potable Water Spill Release at TA-3, Building 39, LANL Report #277."*** On September 13, 2010, the NMED was notified of a potable water release at TA-3, Building 39, located at LANL. This release was reported to the Emergency Spill Hotline as required by 20.6.2.1203 NMAC on September 20, 2010. The approximate amount of the discharge was 10,000 gallons of potable water with a flow duration of less than 15 minutes. This release was caused by a pipe break adjacent to TA-3 Building 39. The water entered two separate storm drains, both of which are connected to Mortandad Canyon. The water then appeared to flow down two natural drainage paths before entering Mortandad Canyon. Both drainage paths were protected by asphalt and concrete, which helped to protect the areas from erosion. Some soil that surfaced at the point of the break was stockpiled and protected by BMPs. None of the soil exposed to the release reached the two storm drains. During a site visit on September 20, 2010 by Bureau and LANS staffs, little if any soil from the break area was observed to have entered the storm drain system, and no SWMUs or AOCs were impacted by this discharge.

- #280 - On October 27, 2010 at LANL TA-21 Material Disposal Area B, approximately 5 gallons of a "volatile organic compound" spilled within Enclosure 12 at TA-21 MDA-B (see figures LPN12-1&2 below). Thirteen workers reported smelling chemical odors coming from two damaged 55-gallon drums that were unearthed inside a nearby excavation enclosure. Safety officials sent the 13 workers to the LANL occupational medicine clinic as a precaution. The workers were examined and released without treatment. The exposed soil was covered, the waste bin was closed, monitoring was conducted outside of the enclosure and all VOC readings were non-detections. Soil samples were collected in Enclosure 12 on October 28, 2010 for a Hazard Categorization determination. Cleanup and confirmation would be completed under the TA-21 MDA-B Remediation Project.

Figure LPN12-1: View of Enclosure 3 (similar to Enclosure 12) at MDA-B. Crews are filling the pit with clean fill

Figure LPN12-2: Aerial view of MDA-B looking east at several enclosures. The ARRA Project funding was used to excavate and backfill several pits

- #281 - On November 3, 2010 at LANL TA-50 Parking lot construction, a potable water line ruptured during an excavation on the TA-50 Building-50 Project,. Approximately 140,000 gallons of potable water were released from the 16-inch diameter line. The water flowed through a rip-rap stormwater conveyance into a detention pond at the south end of the project. Minimal erosion resulted from the release and no adverse impacts to any SWMUs or AOCs were apparent. The detention pond captured all of the discharge, and it did not release any water to adjacent Twomile Canyon. The water line was shut down as soon as practicable. Project staff took additional action by installing a rock berm along the edge of the detention pond to provide additional protection against a discharge to Twomile Canyon. Bureau staff conducted a site visit on November 4, 2010. The LANS staff on site reported that the eroded area above the detention pond would be repaired as soon as conditions allow.

- #282 - On November 9, 2010 LANS staff notified NMED/HWB of an exceedance of groundwater quality standards at Regional Well CdV-R-37-2 in accordance with reporting requirements of 20.6.2.1203 NMAC and the LANL Compliance Order On Consent. Iron was detected at 13,100 µg/L and manganese was detected at 967 µg/L.

- #283 - ***"Spill Response Assessment and Suggestion for Closure of Approximately 400-Gallon Treated Effluent Release at TA-46, Building 339 (SWWS), LANL Report #283."*** The letter noted that Bureau staff found the actions taken by LANS were protective of the public health and safety and the environment of New Mexico, and proper actions were taken under 20.6.2.1203 NMAC. On November 23, 2010, the NMED was notified of a treated effluent water release at TA-46, Building 339, the Sanitary Wastewater System (SWWS), (NPDES Outfall 13S), located at LANL. The approximate amount of the discharge was 400 gallons of treated effluent with a flow duration of approximately .17 hours. This release was caused by a leak in the effluent re-use wash water line. The majority of the release was diverted back into the head-works

by a berm constructed near the east boundary of the facility. The wash water line valve was isolated as soon as possible after the leak was discovered. Approximately 50-100 gallons of chlorinated, treated sanitary effluent discharged to the Canada del Buey watercourse. No SWMUs or AOCs were impacted by the spill and erosion from the spill was minimal.

- #285 - On November 17, 2010 LANL TA-3 Division staff verified a steam condensate leak in a storm drain outside of TA-3 Building 39. A leak in a steam condensate line within Building 39 reached a storm drain. The leaking condensate subsequently flowed through gage station E243.5 and into Twomile Canyon (through deleted Building: 39 NPDES Outfall 3A009). No erosion or adverse impact was apparent to any SWMUs or AOCs as a result of the release. The discharge volume was estimated at less than 5,000 gallons. From a review of stream gage data it appears the release began on approximately November 17, 2010 with slow and intermittent flow observed.

- #287 - On December 14, 2010 LANS staff notified NMED/HWB of an exceedance of groundwater quality standards at Regional Well R-29 in accordance with reporting requirements of 20.6.2.1203 NMAC and the LANL Compliance Order On Consent. Manganese was detected at 214 μg/L.

- #288 - On December 13, 2010 LANL TA-3 Division staff responded to a water leak at TA-35, Building TA-35-213. Facility staff along with Environmental Protection Division staff and Utilities staff identified the source of the leak as a cooling tower at TA-35-213. Apparently a strainer in the unit became clogged from mineral buildup, which caused the cooling tower to overflow. The water flowed through a roof drain and stormwater conveyance system (deleted NPDES Outfall 04A127) and into a heavily vegetated area that is connected to Mortandad Canyon. The water flowed across AOC 35-016(g), but it did not cause additional erosion to the area. Upon identifying the source of the leak, Facility staff stopped the leak and initiated repairs.

- #290 - ***"Spill Response Assessment and Suggestion for Closure of Potable Water Release at Technical Area (TA)-54, Building 39, December 22, 2010, LANL Discharge Notification Report # 290."*** On December 22, 2010, the Bureau, received notification of a 16,000-gallon release of potable water from a fire suppression line break at TA-54, Building 39, LANL. This release was reported to the Emergency Spill Hotline as required by 20.6.2.1203 on December 22, 2010. The break occurred in a backflow preventer when water service was restored following another spill at TA-36, Building 136 earlier in the morning. Originally, the secondary containment inside building 39 filled with approximately 6,000 gallons of water and further complications from the fire suppression valve caused a second discharge of approximately 6,000 gallons with 4,000 gallons again being contained in the secondary containment system. Some water did reach the Canada del Buey watercourse but no AOCs or SWMUs were impacted and and no erosion was observed in this area due to the spill.

Spill Response Assessments by NMED/SWQB to EPA Region 6:

- #264 - ***"Spill Response Assessment and Request for Administrative Closure of an Untreated Sanitary Wastewater Release at TA-18 Building 252, LANL report #264 on June 14, 2010."*** The NMED/SWQB received a request to closeout this release, by correspondence dated June 21, 2010. This incident was properly reported to NMED, and the SWQB has determined that corrective actions taken by the responsible party to remediate impacts to surface water from this spill were satisfactory. This letter closed the Department files on this action.

- #265 - ***"Spill Response Assessment and Request for Administrative Closure of an Unplanned, Potable Water Release at TA-21 Building 155, LANL report #265 on June 28, 2010."*** The NMED/SWQB received a request to closeout release #265 by correspondence dated July 6, 2010. This incident was properly reported to NMED, and the SWQB has determined that corrective actions taken by the responsible party to remediate impacts to surface water from this spill were satisfactory. This letter closed the Department files on this action.

- #266 - ***"Spill Response Assessment and Request for Administrative Closure of an Unplanned, Potable Water Release at TA-18 Building 138, LANL report #266 on June 29, 2010."*** The NMED/SWQB received a request to closeout release #266 by correspondence dated July 1, 2010. This incident was properly reported to NMED, and the SWQB determined that corrective actions taken by the responsible party to remediate impacts to surface water from this spill were satisfactory. This letter closed the Department files on this action.

- #272 - ***"Spill Response Assessment and Request for Administrative Closure of a Planned, Potable Water Release at TA-3 Building 216, LANL report #272 on August 20, 2010."*** The NMED/SWQB received a request to closeout release #272 by correspondence dated September 3, 2010. This incident was properly reported to NMED, and the NMED/SWQB has determined that corrective actions taken by the responsible party to remediate impacts to surface water from this spill were satisfactory. However, LANS was required to update its procedures regarding fire hydrant flushing to assure that environmental requirements, particularly regarding flow volumes and dechlorination requirements would be met. This letter closed the Department files on this action.

- #276 - ***"Spill Response Assessment and Request for Administrative Closure of an Unplanned, Potable Water Release at TA-3 Building 40, LANL report #276 on September 9, 2010."*** The NMED/SWQB received a request to closeout release #276 by correspondence dated September 16, 2010. This incident was properly reported to NMED, and the SWQB has determined that corrective actions taken by the responsible party to remediate impacts to surface water from this spill were satisfactory. This letter closed the Department files on this action.

- #281 - ***"Spill Response Assessment and Request for Administrative Closure of an Unplanned Potable Water Release at TA-50, LANL report #281 on November 3, 2010."*** The NMED/SWQB received a request to closeout release #281 by correspondence dated November 17, 2010. This incident was properly reported to NMED, and the SWQB

determined that corrective actions taken by the responsible party to remediate impacts from this spill were satisfactory. This letter closed the Department files on this action.

Year-End NPDES Spill Closure Meeting:
Bureau staff met with SWQB, GWQB and LANS staffs to review the year-end status of 2010 LANL Spill Notifications. The review team identified that LANS submitted 37 spill notifications to NMED (through mid-November). Of these, 7 were Regional Well notifications (mostly packer failures and associated well casing leaks) that are subject to regulatory decision trees specific to GWQB and HWB. The releases (listed by year of notification), which have not been closed out under 20.6.2.1203 NMAC are as follows:

- 2002-(No LANS spill number assigned) Diesel release of approximately 48,000 gallons from an AST at TA-2l to the subsurface. The fuel is believed to be trapped under a building (extrapolated from a report to HWB on 04.19.02) and is inaccessible. It is believed the diesel is perched in the geologic formation and is not leaching to the ground water. The spill was reported to NMED and HWB has been working with LANL on Tier Assessments however, GWQB has never responded. GWQB will review the history and provide response. The LANS staff believes that due to the geologic characteristics, the release although unmitigated poses no threat to ground water and should be addressed under HWB not GWQB.

- 2009-231 Puncture of development water lining. LANL has not requested closure of this release but it preparing to do so in the near future. When closure is requested, GWQB will be the Bureau to respond.

- 2009-232 Steam condensate.

- 2009-236 Steam condensate.

- 2010-280 Breach of unknown VOCs during clean-up activities at TA-2l MDA-B. The LANS staff is still investigating the contents of the drums and has not requested closure. The analytical data results for the soil samples have not been received yet. The drums were placed back in the trench and reburied until the contents can be determined and corrective action can be proposed. The LANS staff has not requested closure of this release as of the date of the meeting. The investigation is on-going.

- 2010-282 NMED GWQB is in the process of closing.

- 2010-283 NMED GWQB is in the process of closing.

The remaining notifications were subject to the review process of SWQB and EPA Region 6. However, Bureau staff was instrumental in providing non-regulatory site assessments to expedite the process. The result of this process involving LANS and NMED saw the closure of 28 out of 30 spill notifications during 2010.

NPDES Spill Closure Meeting Action Items for 2011:

- Spill Reporting Decision Tree - LANS has been required to report to several entities for each release. This is time consuming and cumbersome to staff both at LANL and NMED. The NMED has attempted to streamline the process, but it is still working on internal functions before LANS will be given reporting procedures for the spill hotline. Until this directive is given to LANS, verbal notification must be reported to the HWB spill hotline, GWQB, SWQB, and the Bureau. The LANS staff has requested that it be allowed to provide input on the spill reporting decision tree to help streamline the process.

- Information to be included in Spill Reports to NMED - Currently LANS is only reporting the SWMU or AOC if it is impacted by the spill. The GWQB requested that any SWMUs or AOCs within the release area be included in the 7 & 15 day spill reports as shown on the LANL spill report form. Documentation on activities which occur within a SWMU should be held on record even if no immediate impacts are noted.

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 & middle Rio Grande) to put LANL and SNL contributions to the Rio Grande in perspective.

Quarterly Summary: During FFY11 Q-1, Bureau staff collected and archived two precipitation samples each from Bandelier National Monument and Los Alamos County airport, two stormwater samples from the Rio Grande in Albuquerque and one stormwater sample from South Fork Acid Canyon in Los Alamos.

Bureau staff collected two precipitation samples each from Bandelier National Monument and Los Alamos County airport. Two stormwater samples were collected from the Rio Grande in Albuquerque, and one stormwater sample was collected from South Fork Acid Canyon in Los Alamos. All samples were archived awaiting contract analytical laboratory price agreement modifications to accommodate additional analytical methods.

Staff met with LANS representatives to discuss the combined LANS/DOE OB PCB background study report. Staff continued to compile and blank-correct new data results as they were received from the analytical laboratory and revised all past data using the new blank-correction methodology developed mutually between LANS and the Bureau.

Staff reviewed PCB data analyzed under contract to LANS to determine if agreed-upon procedures for blank-correction were being implemented. This process will also evaluate whether the elimination by LANS evaluators of resulting values between the minimum detection level and the practical quantitation level (concentrations seen but not reliably quantified) has had a significant impact on the final values. Raw, batch-blank, and final data along with the values used to blank-correct have been requested from LANS to complete this evaluation.

Staff provided access to the Bureau ISCO sampler located at the Buckman Direct Diversion (BDD) by the City of Santa Fe in order to connect the Bureau sampler to the City SCADA system which processes signals from the LANL gage station in lower Los Alamos Canyon. When stormwater flows past the LANL gage station, it sends a signal to collect a sample at the BDD after a time delay of one hour and ten minutes. Thus, the water collected should represent

the water, with its sediments and potential contaminants, that has traveled the 3.5 miles from the gage

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 FFY11 Q-1, Bureau staff reported no activity.

MACROINVERTEBRATE PROJECT (LMI15)
Under this Activity ID, Bureau staff conducts water quality assessments of LANL-area streams utilizing benthic macroinvertebrate population sampling. Macroinvertebrate populations (such as dragon flies, which begin the lifecycle at the bottom of lakes and streams) are long-term indicators of the chemical, biological and physical health of flowing waters. The numbers and diversity of species of macroinvertebrates reflect water quality stressors and/or water quality trends.

Quarterly Summary: During FFY11 Q-1, Bureau staff collected Macroinvertebrate samples from three locations at LANL including Water Canyon west of the laboratory boundary, Los Alamos Canyon above the reservoir, and the Sandia Canyon wetlands in TA-3; and from one location in the Rio Grande near the Buckman Direct Diversion.

Macroinvertebrate samples were collected from three locations at LANL including Water Canyon west of the lab boundary, Los Alamos Canyon above the reservoir, and the Sandia Canyon wetlands in TA-3. One sample was also collected from the Rio Grande near the Buckman Direct Diversion. These four samples, along with a sample collected from lower Pajarito Canyon near the Rio Grande in September 2009, were submitted for analysis to an independent analytical laboratory specializing in aquatic bioassessments. (Rhithron Associates, Inc. identified the macroinvertebrate species and assessed the health of the water at the five locations against 52 metrics in February 2011.) These results will be compared to benchmark metric values for bioregions established by the NMED/SWQB for New Mexico streams.

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 FFY11 Q-1, Bureau staff split soil and stormwater samples with LANS and independently analyzed them. Bureau staff monitored air quality at LANL D&D sites.

D&D Soil and Stormwater Monitoring:
The LANS received additional funding under the American Recovery and Reinvestment Act to accelerate several D&D projects (see Figure LDD16-1). As a result, Bureau staff increased soil and stormwater split sampling with LANS at MDA-B and DP canyon, and independently

analyzed for radionuclides (uranium and plutonium) and RCRA metals. To date NMED has split on six confirmatory sampling events at MDA-B for a total of 15 samples (3 samples of 2 bottles each from each of the 6 rows in 4 total enclosures). One row was split into two separate sampling events due to access issues. The next set of split sampling is scheduled for early 2011.

D&D AIR Monitoring:
Bureau staff provided baseline air monitoring results collected at Los Alamos Airport to LASO for review. The summary report concluded that there were no significantly elevated radionuclide results; typically the results were either below the minimum detectable activity (MDA) or within a factor of 2 or 3 of the MDA. Without historical data the review could not determine if the values increased due to the work at TA-21. Additionally, the metal values, notably beryllium, were compared with the limits given in the NIOSH Pocket Guide. The results were several orders of magnitude below identified limits.

Figure LDD16-1: Looking east is what used to be called DP West. In mid-December 2010, the mesa was almost bare except for the waste containers in the foreground and the last and largest building to be demolished, Building 21-209, in the background.

D&D Excavation:
Innovative Technical Solutions, Inc. (ITSI) continued demolition of Building 21-209 in DP East. This 34,373 ft^2 building is the last of 24 buildings demolished at TA-21 with ARRA funding. The ITSI completed removal of structural asbestos-containing material (ACM) and began demolition of interior structures.

The ITSI completed packaging waste from the 12,480-square-foot Building 21-152 (adjacent to the former TSTA location). The company completed removal of the building slab and sub-grade structures and continued backfilling the excavation site.

A demolition subcontractor, American Remediation Solutions and Environmental Corporation (ARSEC), continued packaging waste from the DP West complex. The company has shipped more than 11,000 yds^3 (~57%) of a projected 19,217 yds^3 of industrial and low level waste.

Crews continued excavating enclosures at MDA-B. They have excavated 648 cubic yards for a total of 15,348 yds^3 excavated to date of an estimated 28,312 yd^3 total. The crews completed backfilling to support dismantling enclosure 7. They began the process of overburden removal and continued construction of enclosure 9. Work is expected to continue until August 31, 2011.

BACKGROUND PERCHLORATE REPORT (LTM17)

Under this Activity ID, Bureau staff conducts a specialized study to evaluate perchlorate in groundwater in the northern Rio Grande Basin.

Quarterly Summary: During FFY11 Q-1, Bureau staff reported no activity.

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 FFY11 Q-1, Bureau staff assisted the RACER database team updating legacy surface water data.

Bureau staff continues to work on formatting legacy data (1992-2000) for incorporation into the RACER database. The majority of this effort has been spent properly formatting the SWQB data set to be able to utilize the standard RACER upload process. The Bureau expects that the data will be uploaded into RACER during FFY11 so that it will be publicly available. Bureau staff observed an audit conducted by Risk Assessment Corporation (RAC). The audit results are pending.

TECHNICAL REVIEW (LMP23)

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

Quarterly Summary: During FFY11 Q-1, Bureau staff prepared inputs for the FFY 2009 Annual Report.

Bureau staff compiled inputs for the FFY09 Annual Report. The format has been modified to include more data results.

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 FFY11 Q-1, Bureau staff completed general training, managed personnel activities, coordinated analytical laboratory price agreement implementation and budgeted for monitoring and oversight activities.

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 FFY11 Q-1, Bureau staff prepared technical and periodic reports for publication.

GENERAL GROUNDWATER MONITORING (ER) (SGE42)

Under this Activity ID, Bureau staff evaluates groundwater parameters to determine if there is any change in groundwater quality 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 FFY11 Q-1, Bureau staff collected groundwater samples from Burn Site, Tijeras Arroyo, and Chemical Waste Landfill monitoring wells. Samples were analyzed for inorganics, organics, and metals.

Bureau staff collected groundwater samples from the following monitoring wells: CWL-MW9, CWL-MW10, CWL-MW11, TA2-SW1-320, TA2-W-26, TA2-W-19, TJA-2, WYO-4, TJA-4, TJA-7, CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12. Samples were analyzed by a contract analytical laboratory for inorganics, organics, and metals.

Burn Site Groundwater: Bureau staff collected groundwater samples from Burn Site monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12. The samples were submitted to an independent contract analytical laboratory for analysis of volatile organic compounds (VOCs), diesel range organics, (DROs), gasoline range organics (GROs), nitrate-nitrite as Nitrogen, anions, perchlorate, high explosives, and semi-volatile organic compounds (SVOCs).

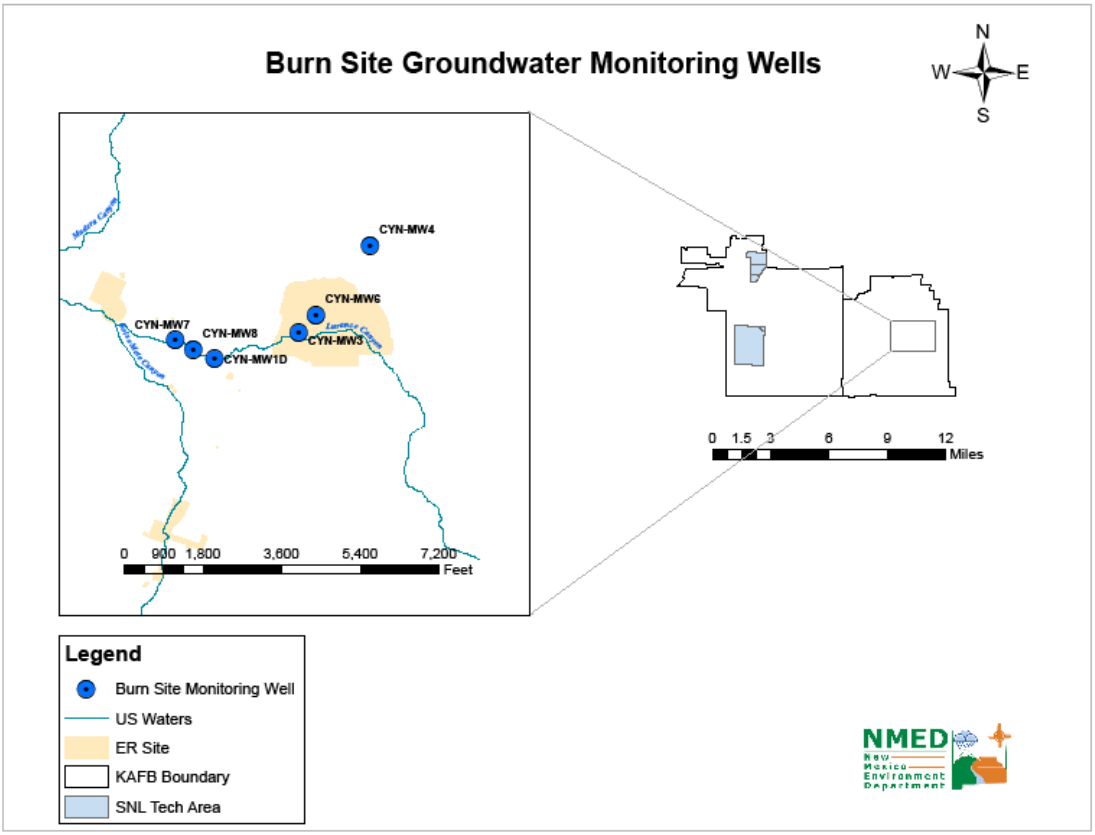

Figure SGE42-1: Map of Burnsite (Canyon) groundwater monitoring wells at Kirtland Air Force Base

Bureau staff reviewed groundwater data collected FFY10 Q-4.

Groundwater Protection Program (GWPP): Bureau staff submitted a draft data submittal to DOE titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico GWPP Conducted by NMED/DOE OB for FFY 2010 Q-2." During March 2010, Bureau staff collected groundwater samples from Groundwater Protection Program (GWPP) monitoring wells CTF-MW2, SFR-2S, and TRE-1. The Bureau also collected a sample from Coyote Springs located in Arroyo del Coyote. Split samples were collected using standard Sandia sampling procedures and equipment. The samples were submitted to an independent contract analytical laboratory for analysis of Target Analyte List (TAL) metals plus uranium, anions, nitrate plus nitrite as N (NPN), cyanide, volatile organic compounds (VOCs), high explosives (HE), gamma-emitting isotopes, gross alpha/beta, radium 226/228, radon-222 and isotopic uranium 234/235/238. All samples were filtered in the field prior to analysis, except for VOCs, HE and total mercury. Elevated concentrations of arsenic, beryllium, fluoride, RDX, and radium 226/228 were noted in several samples.

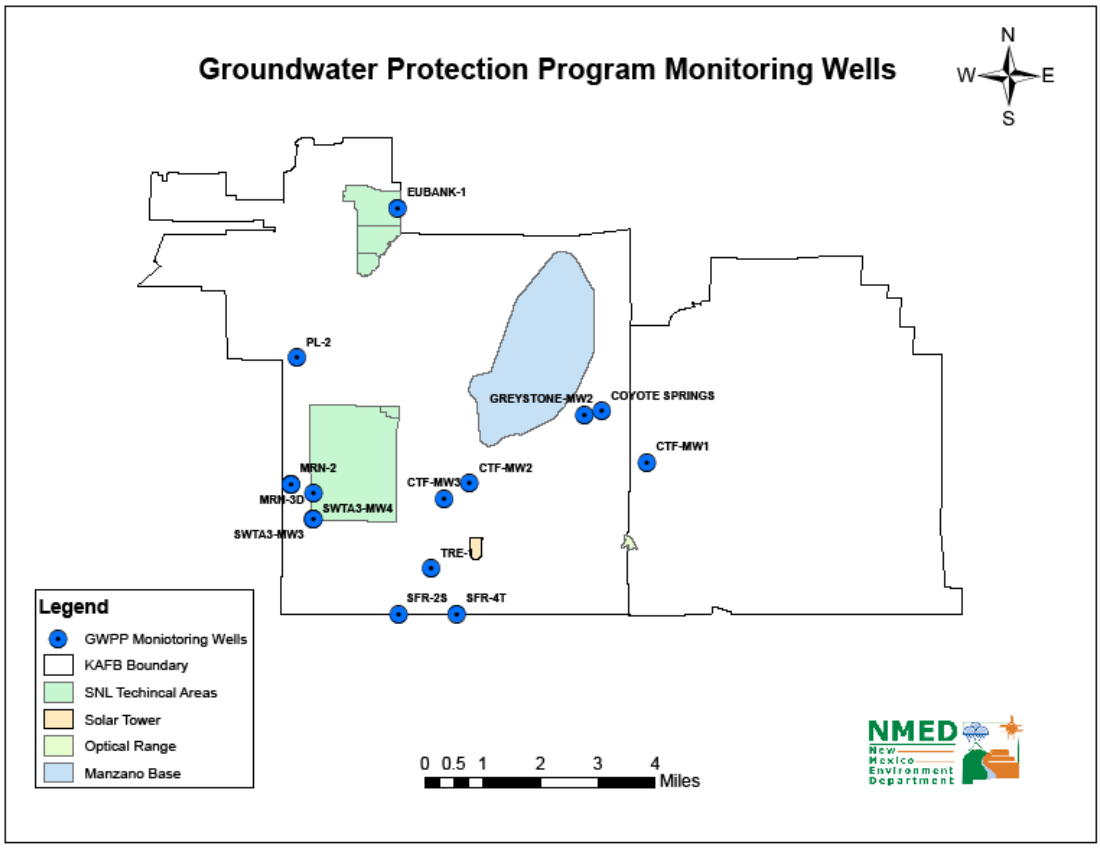

Figure SGE42-2: Map of GWPP groundwater monitoring wells at Kirtland Air Force Base

Mixed Waste Landfill Groundwater: Bureau staff reviewed groundwater data collected FFY10 Q-4.

Technical Area-V (TA-V) Groundwater: Bureau staff reviewed groundwater data collected FFY10 Q-4.

Tijeras Arroyo Groundwater (TAG): Bureau staff collected groundwater samples from TAG monitoring wells TA2-SW1-320, TA2-W-26, TA2-W-19, TJA-2, WYO-4, TJA-4, TJA-7. The samples were submitted to an independent contract analytical laboratory for analysis of VOCs, and nitrate-nitrite as N.

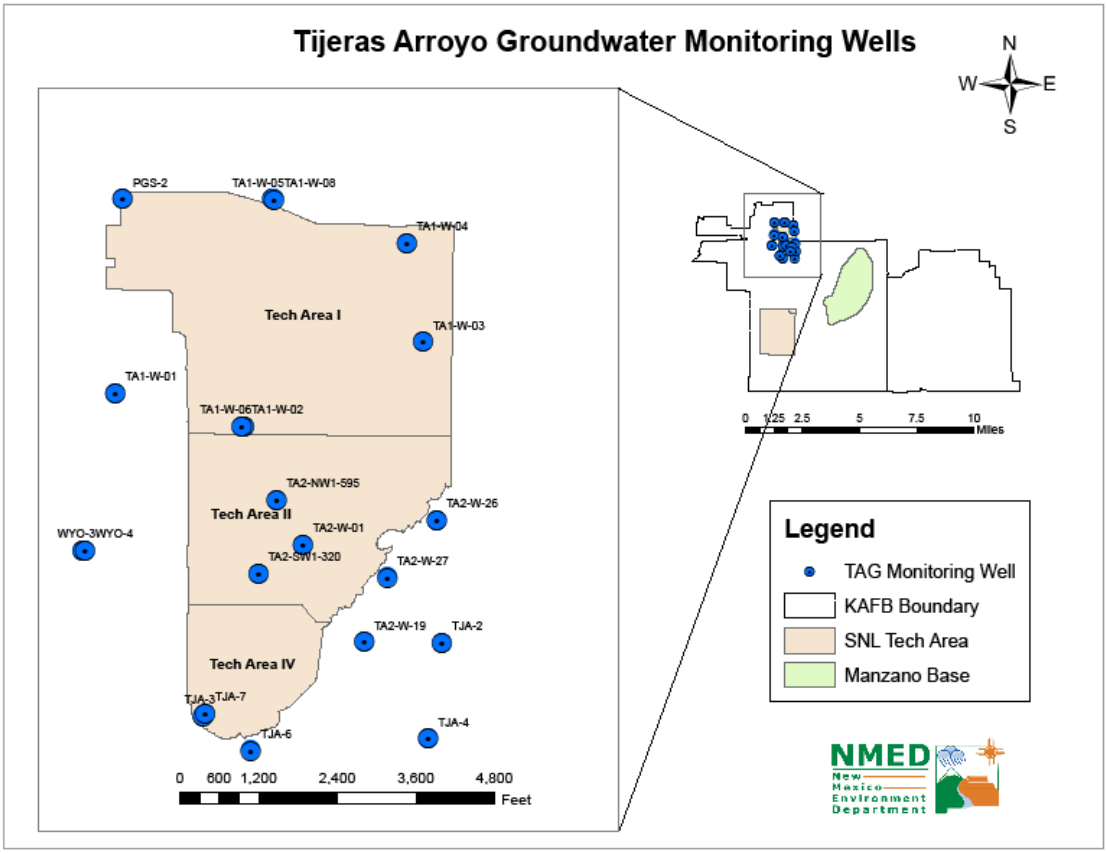

Figure SGE42-3: Map of TAG groundwater monitoring wells at Kirtland Air Force Base

Bureau staff reviewed groundwater analytical data from samples collected in FFY10 Q-4 for incorporation in the annual groundwater monitoring report.

Chemical Waste Landfill (CWL) Groundwater: Bureau staff collected groundwater samples from CWL monitoring wells CWL-MW9, CWL-MW10, CWL-MW11. The samples were submitted to an independent contract analytical laboratory for analysis of VOCs and TAL metals.

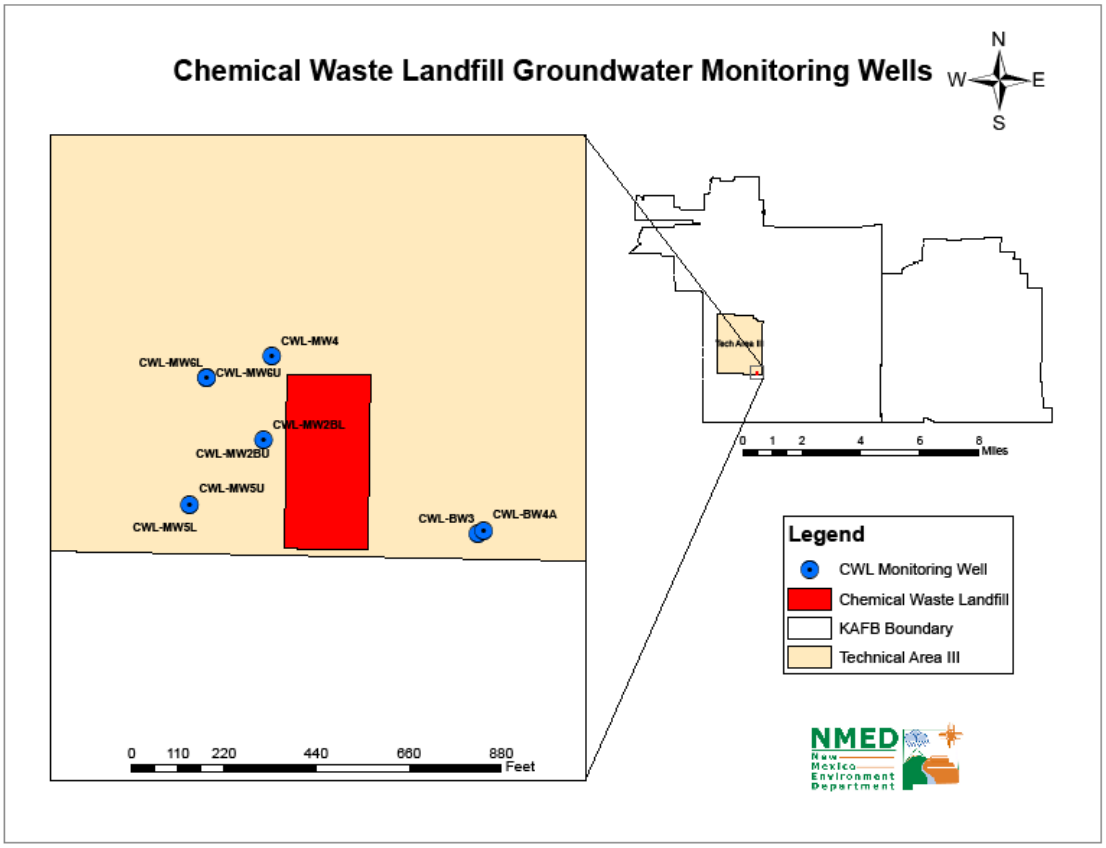

Figure SGE42-4: Map of CWL groundwater monitoring wells at Kirtland Air Force Base

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 uses the principle of ion pair production resulting from gamma photons interacting with air molecules to reduce the voltage of a charged Teflon™ disk. Using a predetermined formula, the voltage drop indicates the amount of radiation passing through the chamber.

Quarterly Summary: During FFY11 Q-1, Bureau staff conducted direct penetrating radiation measurements from all 12 electret stations located on-site and off-site. Results will be reported to DOE with comparisons from Sandia, which uses co-located TLDs.

Bureau staff submitted a draft data submittal for review titled, "Direct Penetrating Radiation Monitoring at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for CY 2010 Q-1."

Bureau staff submitted a draft data submittal for review titled, "Direct Penetrating Radiation Monitoring at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for CY 2010 Q-2."

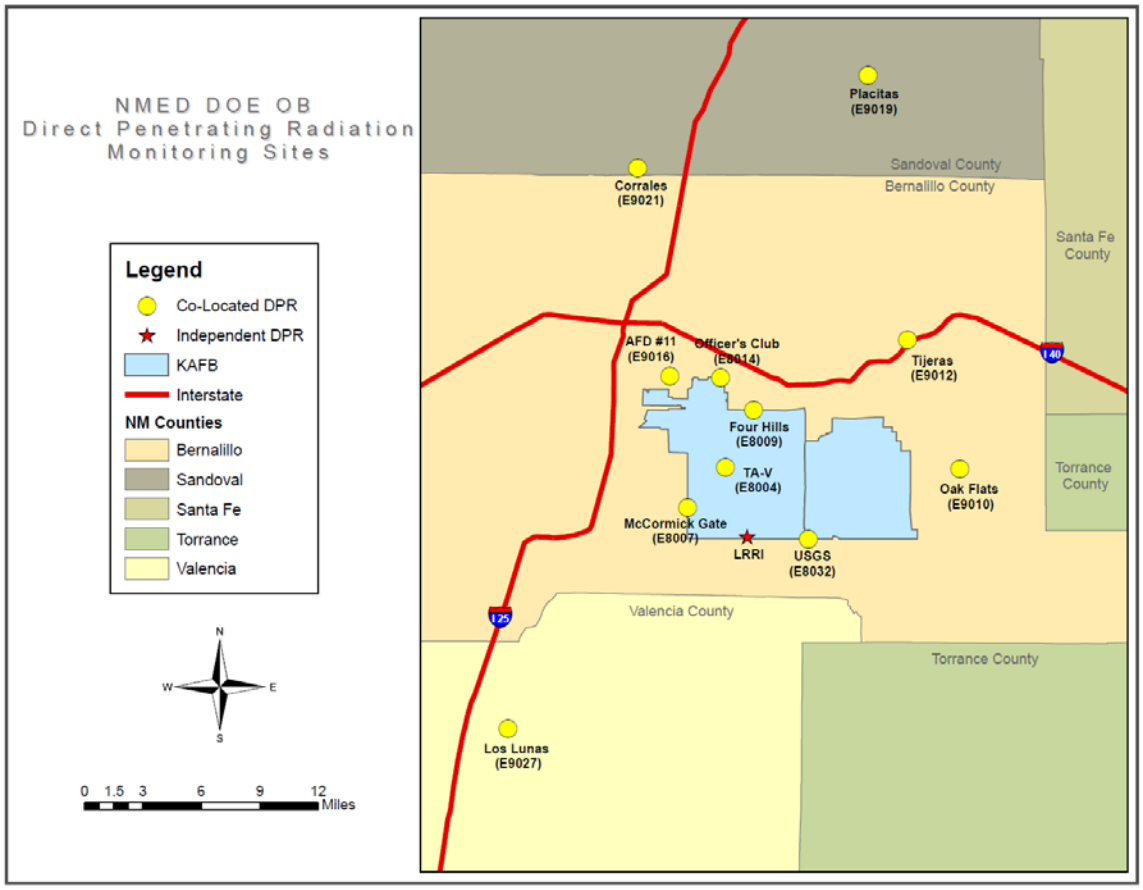

Figure SDP43-1: Map of DPR sites located on KAFB and in the surrounding areas from Los Lunas to Placitas and Oak Flats to Corrales

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 FFY11 Q-1, Bureau staff continued to collect bi-weekly air particulate filters from 3 perimeter monitoring stations and 1 on-site station located at the Mixed Waste Landfill. Silica gel samples taken from the perimeter stations are collected bi-weekly and composited for the quarter. Silica gel samples taken from MWL are also collected bi-weekly, but they are analyzed separately.

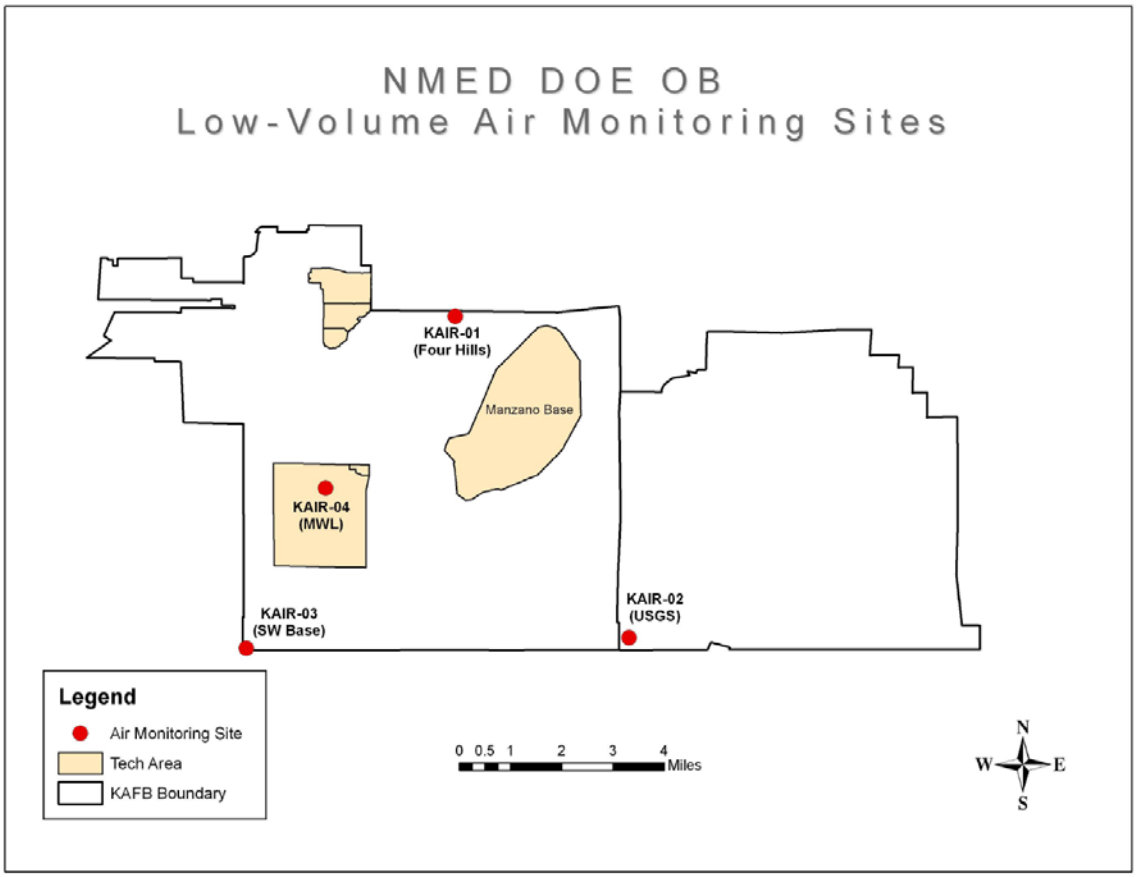

Figure SPL44-1: Map of low-volume air monitoring stations at Kirtland Air Force Base

Bureau staff shipped CY 2010 Q-3 samples to an independent contract analytical laboratory for analysis of gross alpha/beta, gamma emitting isotopes, isotopic americium, plutonium and uranium. Silica gel samples will be analyzed for the presence of tritium.

Bureau staff submitted a draft data submittal for review titled, "Airborne Particulate Radiation and Atmospheric Tritium Results at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for CY 2010 Q-1."

Bureau staff submitted a draft data submittal for review titled, "Airborne Particulate Radiation and Atmospheric Tritium Results at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for CY 2010 Q-2."

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 FFY11 Q-1, Bureau staff collected stormwater runoff samples from sites SWMP-10 and SWMP-12. Samples were analyzed for total and dissolved metals, cyanide, suspended sediment concentration, hardness, low level gross alpha/beta, isotopic uranium, PCB congeners, and total oxygen concentration.

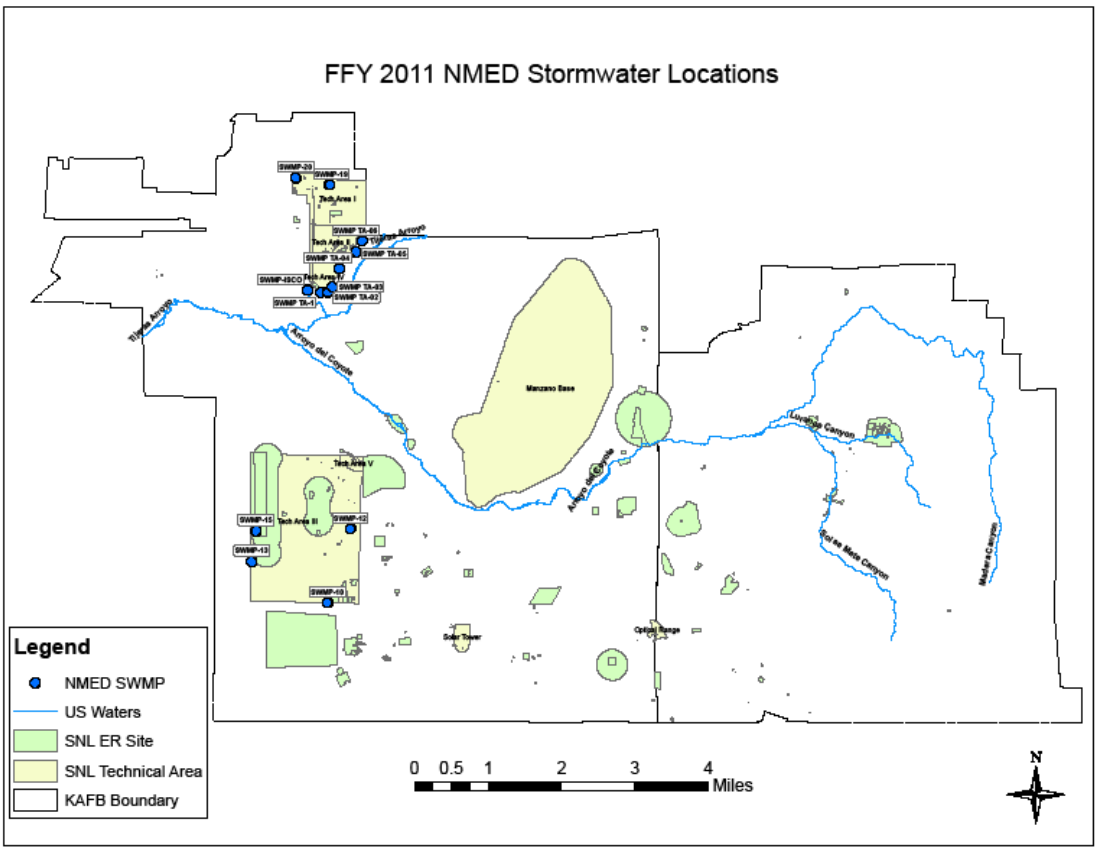

Figure SSW45-1: Map of stormwater monitoring sites on SNL/NM Technical Areas at Kirtland Air Force Base

TIJERAS ARROYO STUDY (STA47)

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

Quarterly Summary: During FFY11 Q-1, Bureau staff continued to collect stormwater run-off samples after rain events. Samples were analyzed for dissolved metals + uranium, total cyanide, suspended sediment concentration, total oxygen concentration, PCB congeners, gross alpha/beta, gamma-emitting isotopes, isotopic uranium, particle size, total suspended solids, and hardness.

On October 21, 2010 Bureau staff collected stormwater samples at Tijeras Arroyo sites SWMP TA-1, SWPM TA-2 and SWMP TA-3. The samples were submitted to an independent contract analytical laboratory for analysis of PCB congeners, TOC, TSS and particle size. Staff is reviewing the laboratory results before preparing a data submittal to DOE and the public on the NMED website. (See Figure SSW45-1 above.)

On December 12, 2010 Bureau staff collected stormwater samples at Tijeras Arroyo sites SWMP TA-1, SWPM TA-2 and SWMP TA-3. The samples were submitted to independent contract

analytical laboratories for analysis of PCB congeners, TOC, TSS particle size, SSC, hardness, gross alpha/beta, isotopic uranium, gamma-emitting isotopes and TAL metals + cyanide.

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 FFY11 Q-1, Bureau staff prepared the draft data submittal for sampling conducted during D&D of Building 605.

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 FFY11 Q-1, Bureau staff reported not activity.

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 FFY11 Q-1, Bureau staff collected split wastewater samples with Sandia and Albuquerque Bernalillo County Water Utility Authority (ABCWUA) personnel at SNL wastewater stations.

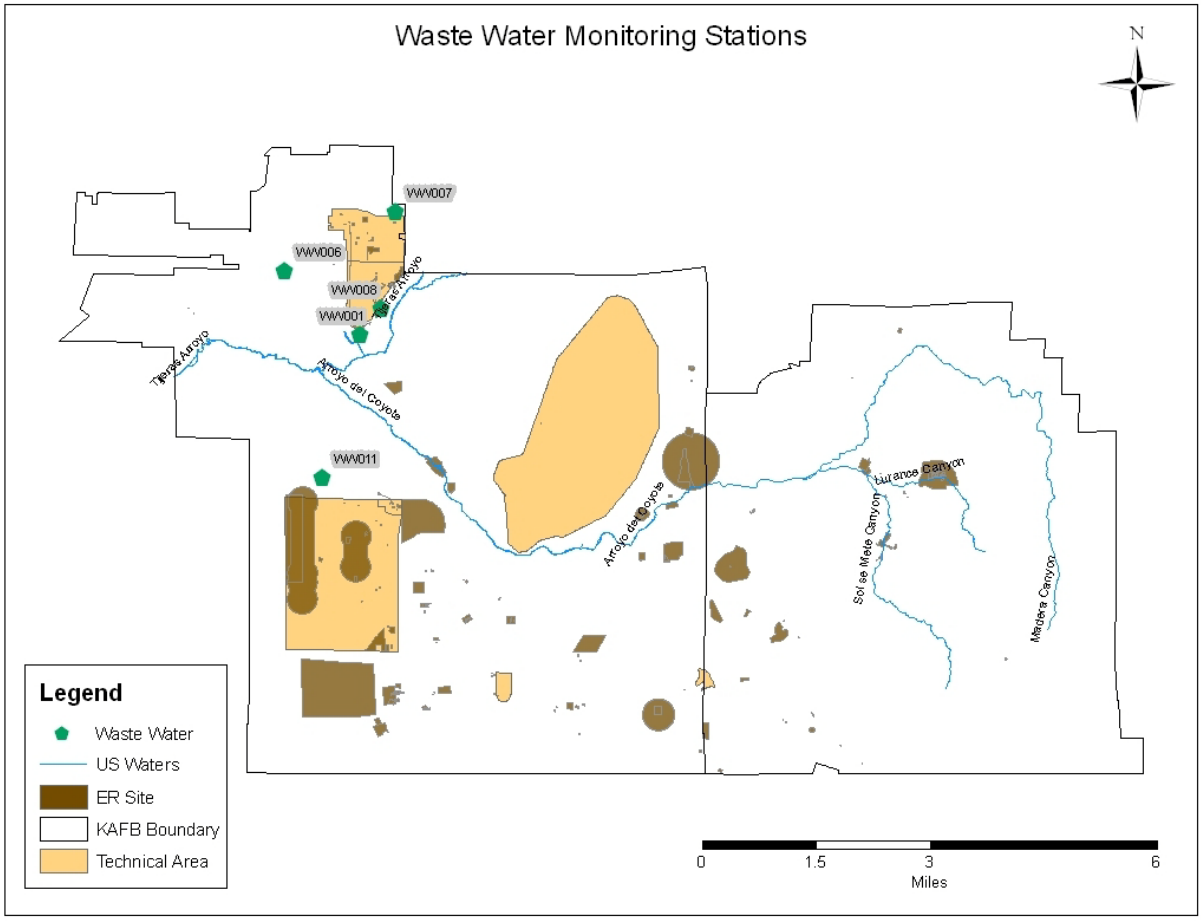

Figure SWW51-1: Map of wastewater monitoring sites at Kirtland Air Force Base

Bureau staff collected split wastewater samples with Sandia and ABCWUA personnel using standard Sandia sampling procedures and equipment. Samples were collected from wastewater monitoring stations WW001 (City of Albuquerque permit number 2069A), WW006 (City of Albuquerque permit number 2069F), WW008 (City of Albuquerque permit number 2069I), and WW0011 (City of Albuquerque permit number 2069K). Bureau samples were submitted to independent contract analytical laboratories for analysis of organics, total metals, inorganics, and radiological particulates. No analyte concentrations exceeded established criteria.

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 FFY11 Q-1, Bureau staff reported no activity.

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 FFY11 Q-1, Bureau staff reviewed periodic documents and technical reports for submission to DOE/SSO.

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 FFY11 Q-1, Bureau staff reported no activity.

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 FFY11 Q-1, Bureau staff monitored the permit renewal process initiated by WTS/CBFO staffs and approved by NMED/HWB. On November 18, 2010 EPA recertified the WIPP operations.

WIPP Permit Renewal

The permit renewal process involved the seeking of public input at meetings held throughout the state. A draft permit was issued by NMED in June, 2010 with public hearings held in August. The new permit became effective December 30, 2010, and it is due to expire in 2020.

WIPP Planned Maintenance

A planned maintenance outage began on December 1, 2010, and it lasted throughout the remainder of the month. The purpose of the outage, which occurs annually, is for WTS staff to conduct planned maintenance on equipment and the facility. Some work during the outage will include upgrades to ensure the long-term safety and reliability at the plant. The outage allows facility upgrades without interfering with waste handling and disposal activities.

Essential projects planned for this outage include:

- Mining from S-400 to S-700 will be conducted to remove approximately 300 feet of roof, and the modification of two bulkhead doors to increase clearance for remote-handled waste operations. Ground control (roof beams and chain-link mesh) will also be installed to support the roof.
- Two waste hoist tails are planned to be replaced due to normal wear and tear. Waste hoist tails are the end weights on each of the waste hoist cables.
- A ventilation overcast will be installed at the intersection of S-2180 and W-30. A ventilation overcast is used to direct airflow ventilation in the mine.
- In E-300, mining crews have planned to remove as much as six feet from the floor along 3,000 feet of drift. This operation will increase the ventilation throughout this area.
- Hardware and software installation will be completed in the hot cell complex as part of the transfer cell and hot cell upgrade.
- Facility modifications to the Waste Handling Building will accommodate the TRUPACT-III shipping package. It is expected that several facility modifications will be necessary to safely handle the larger package and waste payloads.

Panel 6 Inspection

Staff accompanied NMED/HWB, DOE, and WRES personnel underground on an inspection of the construction of Panel 6 Hazardous Waste Disposal Unit (HWDU) and an inspection of the Panel 6 Disposal Room Volatile Organic Compound Monitoring System (DRVOCMS).

After review of information provided in the request documentation and observed during this inspection, NMED/HWB certified in a letter to DOE and WTS that Panel 6 HWDU and DRVOCMS were constructed in compliance with requirements of the Permit.

Fire Water Pump Building
Staff accompanied DOE and WRES personnel to the Fire Water Pump Building in response to concerns about the roof leaking down an interior wall and into an electrical junction box around unsealed conduits. At the time of this visit contractors were repairing the roof, and they had sealed the top of the junction box. Subsequently, the pump house repairs were completed on October 13, 2010, which was more than two weeks ahead of schedule.

Compliance Inspections for VOCs (particularly TCE)
A "Notification of Exceedance of Disposal Room Volatile Organic Compound (VOC) Concentration of Concern for Carbon Tetrachloride" was issued after the carbon tetrachloride value for the October 5, 2010 VOC disposal room sample obtained from Panel 5, closed room 7 location 7i, was measured at 4,823 parts per million by volume (ppmv). This exceeded the 50% Action Level of 4,813 ppmv in the WIPP Permit IV.F.3.b. According to Section IV.F.3.c of the Permit, upon receiving validated analytical results that indicate one or more of the VOCs specified in Table IV.D.1 in any of the closed rooms in an active panel has reached the "50% Action Level" in Table IV.F.3.b, the sampling frequency for such closed rooms will increase to once per week. Since this notification was provided to NMED, the VOC levels have already dropped below the 50% action level.

Training for Bureau staff
The NMED administrative staff has been providing the Workplace Violence, Sexual Harassment, and Emergency Action Plan Training throughout the state. All Bureau staff from the Carlsbad office attended this required training on Friday, November 19.

Staff scientist Julia Marple successfully completed MED-101, First Aid and CPR, offered at WIPP. This class covered basic first aid, CPR, and treatment for airway obstruction.

Staff Scientist Thomas Kesterson successfully completed the Essentials of Hazardous Materials Management training given by The Roadrunner Chapter of the Academy of Hazardous Material Professionals (AHMP) and the New Mexico Environment Department (NMED).

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 FFY11 Q-1, Bureau staff participated in the WIPP Quarterly Meeting, and attended TRUPAC III progress report meetings.

The 112th WIPP Quarterly Meeting was held in Albuquerque on October 21, 2010. Presentations were made by NMED, CBFO, NMEMNRD and NGOs.

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 FFY11 Q-1, Bureau staff collected and shipped exhaust air filters for laboratory analysis, reported analytical results and observed probe extractions and cleaning.

Air Monitoring at the Exhaust Shaft

The Carlsbad 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 skid of reference (primary) and its back-up each morning. A third skid exists, and it is often undergoing routine maintenance or it is in stand-by status. Primary filters are compiled by month and shipped to an independent contract laboratory for composite analysis of radioparticulates. The back-up filters are archived for future analysis, if required. Filters from Station B are collected weekly. They are only analyzed after an instance requiring the shift in exhaust air from the primary shaft, through an additional air filtration system and out an auxiliary shaft.

Staff distributed its final reports on Station A filter analysis, entitled "Station A Exhaust Air Monitoring at the Waste Isolation Pilot Plant/New Mexico Conducted by NMED/DOE OB, January – March 2010," and "Station A Exhaust Air Monitoring at the Waste Isolation Pilot Plant Conducted by the New Mexico Environment Department, DOE Oversight Bureau, April – June 2010."

Filters were not shipped during this quarter. Staff is evaluating the capabilities of a second analytical laboratory that may be used either as a primary or back-up source for analyses. A set of archived filters will be shipped to the second laboratory for comparison during FFY11 Q-2.

Staff wrote a proposal and justification for internal NMED approval to allow the installation of CAP88-PC conversion software on the computers at the Bureau offices at all three DOE facilities in NM. As allowed under 40 CFR 61.93, WRES personnel currently use CAP88-PC to demonstrate compliance with the standard set down in 40 CFR 61.92, "that emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr." The CAP88-PC software allows conversion of data results received from analytical laboratories in units of activity (pCi/m^3) to units of dose rate (mrem/yr) in order to compare with the standard. With this installation, the Bureau will be able to compare its data results with WRES results and the standard. This will be particularly important when the Bureau reports data results with public availability.

Station A Probe Extraction and Maintenance

Staff members observed the preventative maintenance probe-pulls at Station A for the cleaning of the shrouds and nozzles (the probe). During this quarter, the preventative maintenance probe pulls occurred bi-weekly, on Tuesdays. Personnel representing WTS, CEMRC, CBFO, CTAC and the Bureau are present. Regular removal and cleaning of the nozzles and shrouds minimizes

the accumulation of salt and insures the collection of representative samples of particulates on the filters. As each one of the three probes is removed, staff takes photographs of the shroud and nozzle, and these photos are forwarded to the Environmental Protection Agency (EPA) in Dallas, Texas.

After removal of these probes, the amount of salt occlusion in the nozzle is measured by WTS personnel, and that information is included in reports forwarded to the Bureau and to the EPA. 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. Occlusion in the shroud is measured visually. An occlusion in the shroud greater than 33% causes it to fail.

Figure WEA72-1: Probe pull of Station A, Skid A-1 on November 2, 2010. The shroud was occuluded to a marginal status

On October 5, 2010 the probes were not measured, but they passed visually. For the probe pull of November 11, 2010 the shroud on skid A-1 was recorded as marginal; however, this skid was not in service at that time. Furthermore, the shroud on skid A-1 failed on November 30, December 7, and December 28, but this skid was not in service during this time. Because of its location in the exhaust air shaft at the 90-degree bend, it has a greater tendency to occlude with salt accumulation.

DIRECT PENETRATING RADIATION PROJECT (WDP73)

Under this Activity ID, Bureau staff uses electret passive ion chambers to evaluate the ambient gamma radiation at WIPP. The Electret passive ion chamber uses the principle of ion pair production resulting from gamma photons interacting with air molecules to reduce the voltage of a charged Teflon™ disk. Using a predetermined formula, the voltage drop indicates the amount of radiation passing through the chamber.

Quarterly Summary: During FFY11 Q-1, Bureau staff collected quarterly readings of electrets around the WIPP area, replaced spent electrets as needed, sent the electret reader in for annual calibration, and submitted CY2010 Q-3 draft report to DOE.

In October, staff submitted a draft report to the DOE, entitled "Direct Penetrating Radiation Monitoring at the Waste Isolation Pilot Plant Conducted by NMED /DOE OB for the CY 2010 Q-3." DPR results ranged from a minimum average quarterly dose of 24.5 mRem at WIPP 14 (located behind the Waste Handling Building) to a maximum average quarterly dose of 32.4 mRem at WIPP 16 (the rest area on US 285 between Carlsbad and Loving) (see figures WDP73-1 and -2). Currently, WIPP 15 serves as a control for quality assurance and is located in the Oversight Bureau Office in Carlsbad. The third quarter 2010 average quarterly dose for WIPP 15 was 28.5 mRem.

The highest readings were found at WIPP 16 and WIPP 17 (the Malaga Volunteer Fire Department). These are along the south transportation route, over which there have been no TRU shipments since September 2008. Water was found in the canisters of WIPP 11 and 13, which were omitted for CY 2010 Q-3, because the presence of water causes a larger voltage drop, resulting in a higher calculated average quarterly dose result. Electret number SFC 131 from WIPP 4 was omitted from the calculation of the average quarterly dose, as its teflon disk was inadvertently touched upon removal from the canister. Touching the teflon disk also causes a larger voltage drop and a higher calculated average quarterly dose result. The WIPP 18 canister was missing from its deployed location.

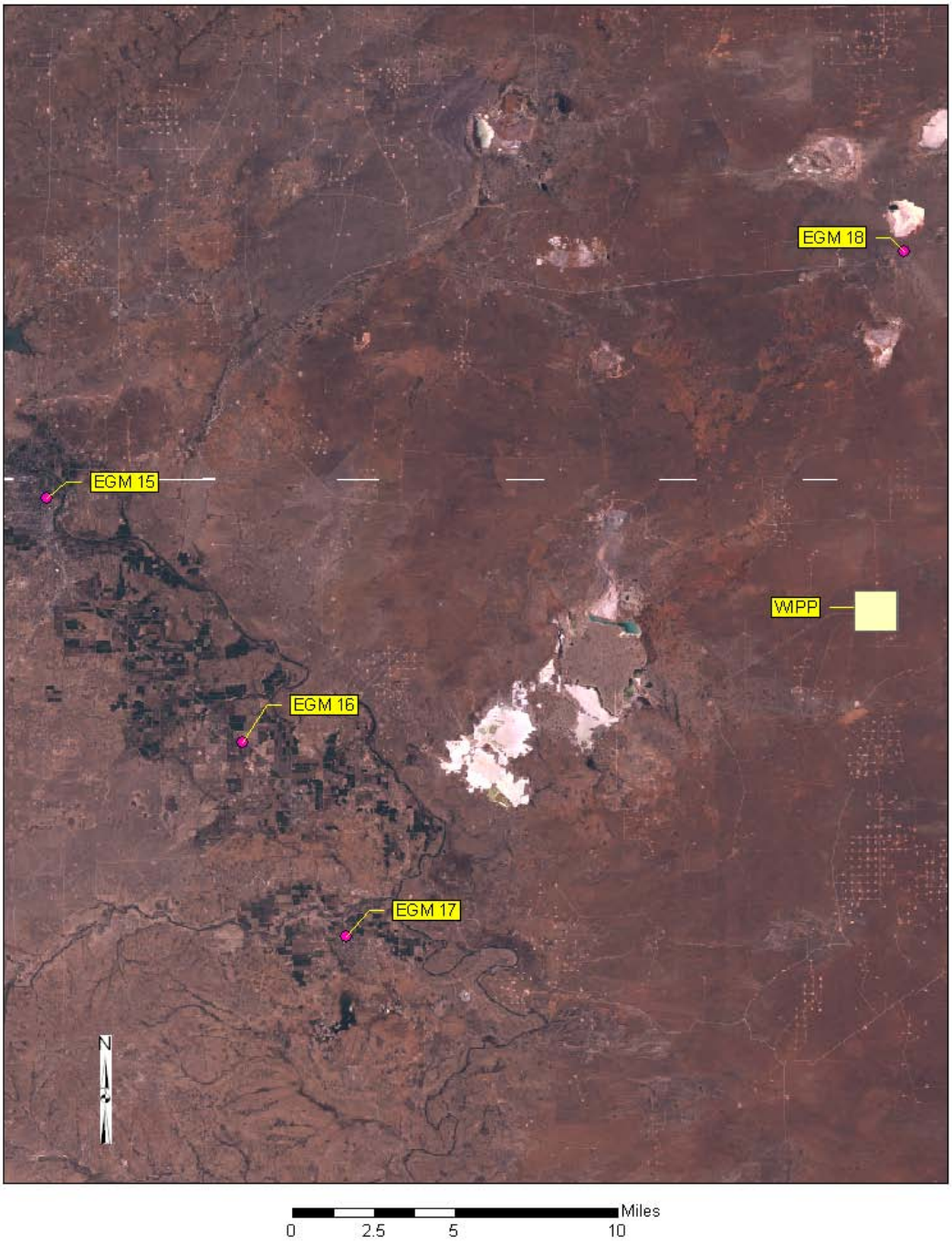

Figure WDP73-1: Map of DPR monitoring stations representing background areas in Eddy County

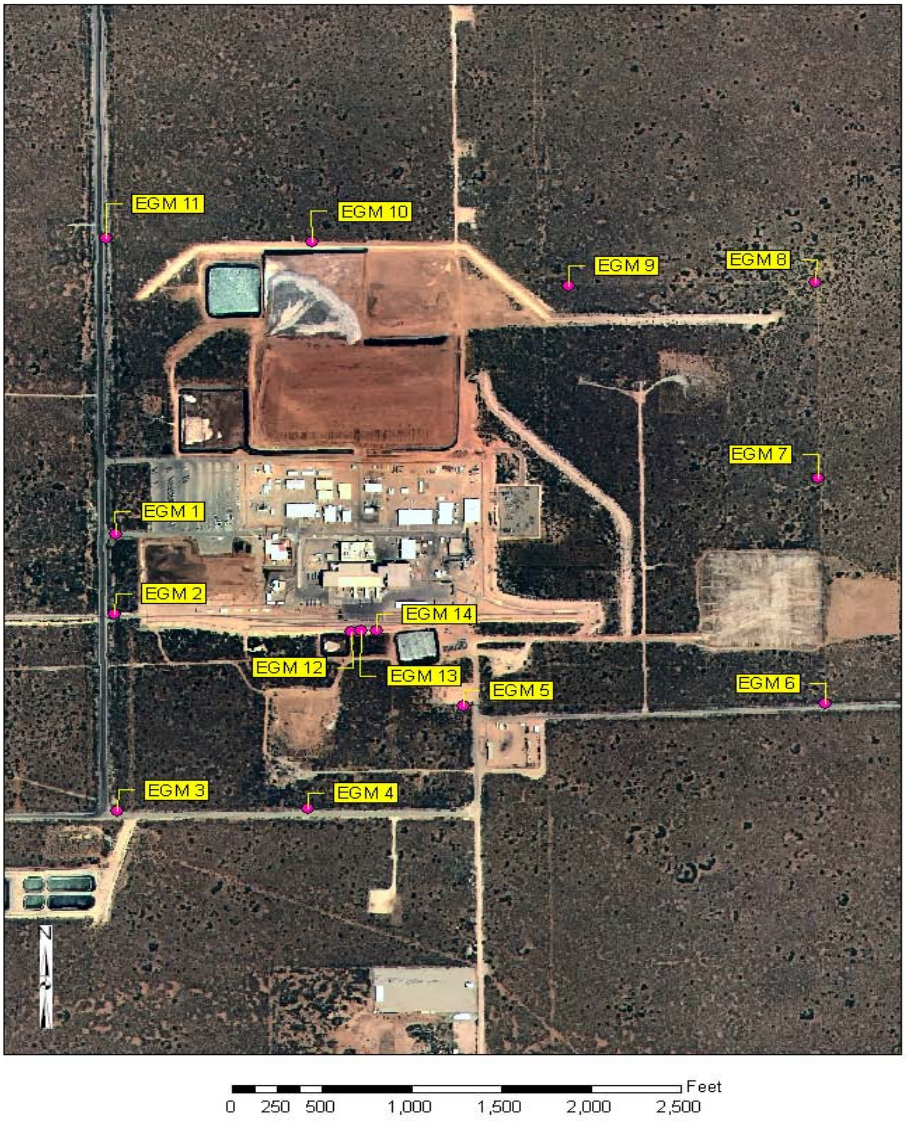

Figure WDP73-2: Map of DPR monitoring stations for the WIPP site

PARTICULATES LOW-VOLUME AIR PROJECT (WPL74)

Under this Activity ID, Bureau staff evaluates the presence of selected radionuclides as particulates in the ambient air near WIPP. Ambient air is sampled with continuously running, low-volume air samplers drawing air through glass fiber filters. The filters are analyzed for the presence of americium-241, cesium-137, plutonium-238, plutonium-239/240, and strontium-90. Future analyses will include gross alpha/beta.

Quarterly Summary: During FFY11 Q-1, Bureau staff collected bi-weekly filter samples, maintained five low-volume air monitoring stations, and reported CY 2010 Q-2 results to DOE/CBFO.

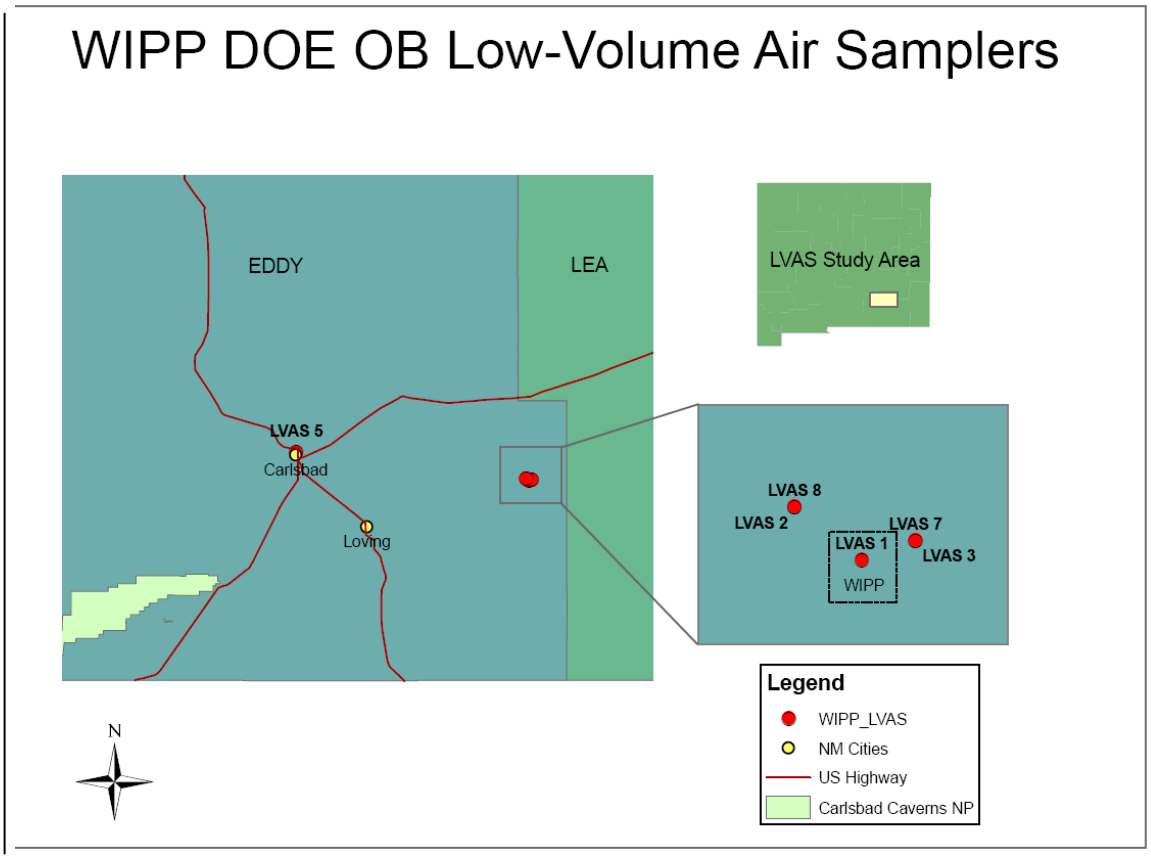

Figure WPL74-1: Map of low-volume AIRNET monitoring stations at WIPP

The WIPP Oversight Section had 5 low-volume air samplers in operation during FFY 2011 Q-1 (see Figure WPL74-1). Four air samplers were located at the WIPP site, with an additional co-located sampler employed in a filter media study. The sampler formerly located behind the Bureau office in Carlsbad is no longer in service. The Bureau is working with Carlsbad Environmental Monitoring & Research Center for use of its southeast control site as an alternative location, which will better represent the background levels in the environment associated with the WIPP site.

Bureau staff received CY 2010 Q-2 analytical results from the independent contract laboratory and provided a data submittal to DOE/CBFO titled, "Ambient Air Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for CY 2010 Q-2." All values for the above listed radionuclides were reported below the requested minimum detectable concentrations.

Bureau Staff shipped filters collected during CY 2010 Q-3 to an independent contract laboratory for analysis. Results are pending.

Staff continually manages the ambient air program's database and maintains field equipment. Staff replaced and maintained one air pump and sent an air flow calibrator in to the manufacture's distributer for annual service and calibration.

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

Quarterly Summary: During FFY11 Q-1, Bureau staff released a final data submittal on CY10 vegetation sampling.

Bureau staff collected split vegetation samples with WRES (Washington Regulatory and Environmental Service) personnel at four locations surrounding the WIPP site (see Figure WGE75-1). The samples were submitted to an independent contract analytical laboratory for analysis of specific radionuclides, including: americium-241, cesium-137, plutonium-238, plutonium-239/240, uranium-234, uranium-235, and uranium-238. No analyte concentrations were measured above the requested sample-specific minimum detectable activities (MDAs).

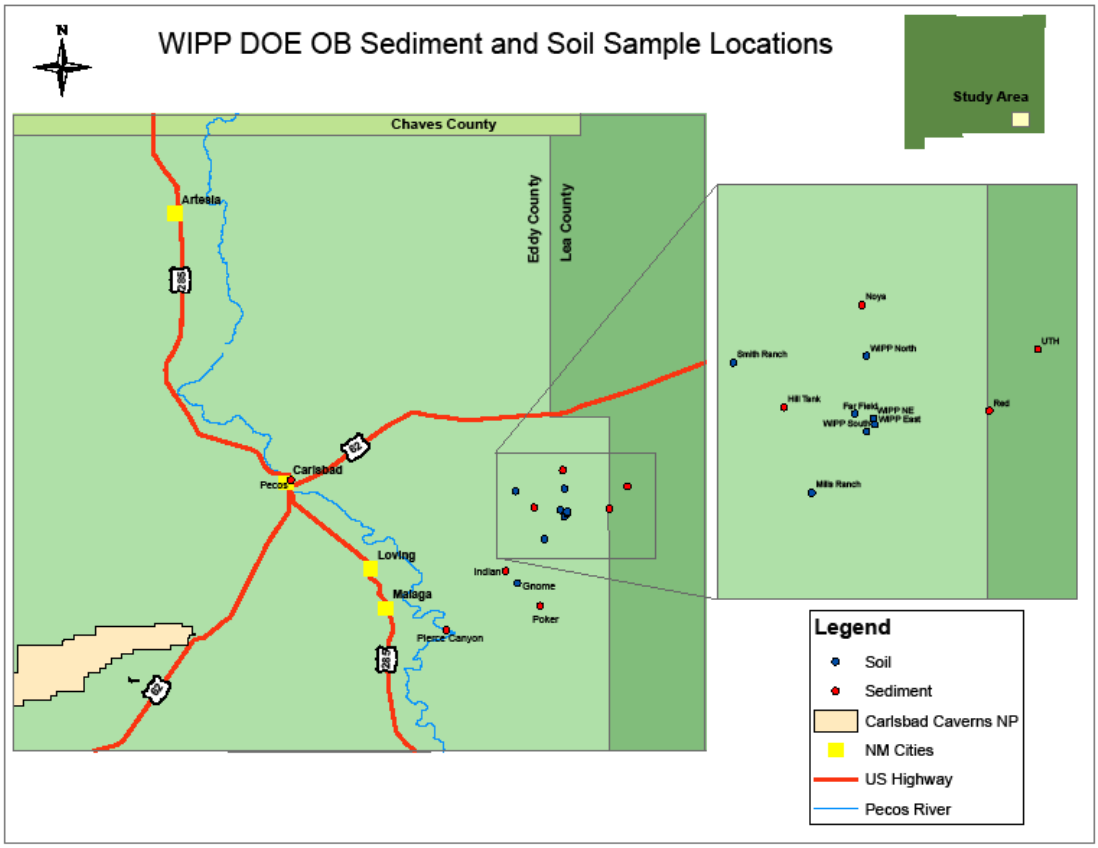

Figure WGE75-1: Map of soil and sediment sampling locations surrounding the WIPP site

Data results were compared to the New Mexico Environment Department Technical Background Document for Development of Soil Screening Levels, Revision 5.0, August 2009. This document references: "USEPA, 1997, *Ecological Risk Assessment Guidelines for Superfund:*

Process for Designing and Conducting Ecological Risk Assessments, Environmental Response Team, Interim Final June 5," and "USEPA, 1998, *Guidelines for Ecological Risk Assessment*, Risk Assessment Forum, Final, April. EPA/630/R-95/002F; http://www.epa.gov/ncea/ecorisk.htm." The soil screening levels provide site managers with a framework for developing and applying the soil screening levels (for appropriate land uses) to determine if areas or entire sites are contaminated to an extent that warrants further investigation.

Isotopic activity results from the laboratory method blank were included with the sample results. All radionuclides were undetected with sample activities less that the sample-specific MDAs except Pu-238, Pu-239/240, and Am-241 were detected above the sample specific MDAs but less than the requested MDAs.

Although no radionuclide activities were detected above the requested MDAs, actual activities may be suspected in some locations based upon activity exceeding the sample specific MDAs. However, the Method Blank results also indicate activities above the sample specific MDAs, and below the requested MDAs for Pu-238, Pu-239/240 and for Am-241. Therefore, it is likely the activities noted are due to quality control issues at the contract laboratory. The laboratory has been notified to review procedures, but additional analysis was not deemed necessary for this sample set.

The Bureau will continue to sample these sites to verify that operations at the WIPP are conducted without adverse impacts to the surrounding environment.