



# **New Mexico Environment Department DOE Oversight Bureau**

**Federal Fiscal Year 2011  
Third Quarter Report  
April 1, 2011 to June 30, 2011**



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

## Cover Photograph

DOE Oversight Bureau staff collect samples from a low-volume air monitoring station during the Las Conchas Fire. The Las Conchas Fire, the largest fire in New Mexico state history, was started by a downed power line in the Santa Fe National Forest on the afternoon of June 26, 2011. The fire burned over 150,000 acres of forest in Sandoval, Los Alamos, and Rio Arriba Counties, including areas of Santa Clara Pueblo, Jemez Pueblo, Cochiti Pueblo, Santo Domingo Pueblo, Santa Fe National Forest, Bandelier National Monument and the Valles Caldera National Preserve. During the fire, Bureau staff collected daily low-volume air samples to monitor for airborne fire-related radionuclides.

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## LIST OF ACRONYMS

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| AIP         | Agreement-In-Principle                                                                                           |
| AIRNET      | Air Radioactive Particulate and Tritium Monitoring Network                                                       |
| AQB         | Air Quality Bureau, New Mexico Environment Department                                                            |
| BMP         | Best Management Practices                                                                                        |
| BSL-3       | Bio-Safety Lab, Level Three                                                                                      |
| CBFO        | Carlsbad Field Office, U.S. DOE - WIPP Site Office                                                               |
| 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”)         |
| CFR         | Code of Federal Regulations                                                                                      |
| CH Waste    | Contact Handled Waste, WIPP                                                                                      |
| CMRR        | Chemistry and Metallurgy Research Replacement (facility)                                                         |
| COOC        | Compliance Order on Consent                                                                                      |
| CRMG        | Community Radiation Monitoring Group                                                                             |
| CTAC        | Carlsbad Technical Advisory Contractor                                                                           |
| CWA         | Clean Water Act                                                                                                  |
| CY          | Calendar Year                                                                                                    |
| D & D       | Decommissioning and Demolition                                                                                   |
| DARHT       | Dual Access Radiographic Hydro Test Facility                                                                     |
| DDT         | DichloroDiphenylTrichloroethane                                                                                  |
| DOD         | U.S. Department of Defense                                                                                       |
| DOE         | U.S. Department of Energy                                                                                        |
| DOE/NNSA    | National Nuclear Security Administration, U.S. DOE, operators of the LASO, SSO and WSO                           |
| DOE OB      | DOE Oversight Bureau, New Mexico Environment Department                                                          |
| 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, LANL                                                                  |
| EMSR        | Environmental Monitoring, Surveillance and Remediation (Committee), Northern New Mexico Citizens’ Advisory Board |
| 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 System                                                                                    |
| 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                                                                                  |

|          |                                                                                                            |
|----------|------------------------------------------------------------------------------------------------------------|
| HOPE     | Honor Our Pueblo Existence                                                                                 |
| HWB      | Hazardous Waste Bureau, New Mexico Environment Department                                                  |
| IEER     | Institute for Energy and Environmental Research                                                            |
| IWD      | Integrated Work Document                                                                                   |
| KAFB     | Kirtland Air Force Base, U.S. DOD                                                                          |
| LANL     | Los Alamos National Laboratory, the physical location on the Pajarito Plateau                              |
| LANS     | Los Alamos National Security, Limited Liability Corporation (LANS, LLC), the operator of the LANL facility |
| LANSCE   | Los Alamos Neutron Science Center, LANL                                                                    |
| LASG     | Los Alamos Study Group                                                                                     |
| LASO     | Los Alamos Site Office, U.S. 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/NM                                                                               |
| NAS      | National Academy of Sciences                                                                               |
| NEPA     | National Environmental Policy Act                                                                          |
| NESHAP   | National Emission Standards for Hazardous Air Pollutants                                                   |
| NGO      | Non-Governmental Organization                                                                              |
| NMCF     | New Mexico Community Foundation                                                                            |
| 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                                                                                |
| NNMCAB   | Northern New Mexico Citizens’ Advisory Board                                                               |
| NNSA     | National Nuclear Security Administration                                                                   |
| NPDES    | National Pollutant Discharge Elimination System                                                            |
| NRC      | Nuclear Regulatory Commission                                                                              |
| PCB      | Polychlorinated Biphenyl                                                                                   |
| PPE      | Personal Protective Equipment                                                                              |
| PPWP     | Pajarito Plateau Working Partnership                                                                       |
| 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                                                                       |
| Sandia   | Sandia Corporation, the operator of the SNL/NM facility                                                    |

|        |                                                                                                     |
|--------|-----------------------------------------------------------------------------------------------------|
| SAP    | Sampling Analysis Plan                                                                              |
| SCADA  | Supervisory Control and Data Acquisition                                                            |
| SEIS   | Site Environmental Impact Statement                                                                 |
| SFY    | State Fiscal Year                                                                                   |
| SMA    | Site Monitoring Area                                                                                |
| SNL/NM | Sandia National Laboratories/New Mexico, the physical location in Albuquerque                       |
| SOS    | Sandia Oversight Section, NMED DOE OB                                                               |
| SSC    | Suspended Sediment Concentration                                                                    |
| SSO    | Sandia Site Office, U.S. DOE                                                                        |
| SWMU   | Solid Waste Management Unit                                                                         |
| SWQB   | Surface Water Quality Bureau, New Mexico Environment Department                                     |
| TA     | Technical Area                                                                                      |
| TLD    | Thermoluminescent Dosimeter                                                                         |
| TMD    | Total Maximum Daily (Load)                                                                          |
| UNM    | University of New Mexico                                                                            |
| URS    | URS Corporation, the manager and operator, through WTS, of WIPP (Formerly United Research Services) |
| 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, operators of the WIPP facility                                            |

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## **DOE OVERSIGHT BUREAU SUMMARY**

### **ADMINISTRATION**

DOE Oversight Bureau (“Bureau”) staff completed general training, managed personnel activities, coordinated analytical laboratory price agreement extension and budgeted for monitoring and oversight activities.

Bureau staff completed data compilations and activity summaries for inclusion in the 2010 Annual Report.

Bureau staff worked with administrative personnel to reconcile analytical sampling expenditures and to encumber funds for contract laboratories in support of 2011 sampling activities.

Bureau staff met with Rebecca de Neri Zagal, Executive Director of the New Mexico Office of the Natural Resources Trustee, and their damage assessment planning contractor, Industrial Economics Inc., to provide an overview of contamination at LANL. Discussions centered on groundwater, surface water, and biota contamination.

During the last week in June, LANL was evacuated due to the Las Conchas fire. The fire did burn onto Laboratory property, but was quickly extinguished there. Bureau Chief Tom Skibitski served as one of the NMED staffers at the New Mexico Emergency Operations Center during the fire. Los Alamos Oversight Section (LOS) staff initiated emergency daily low-volume air monitoring in response to the Las Conchas Fire during the week of June 26, 2011. The Las Conchas Fire was 100 percent contained as of August 3, 2011.

### **PERSONNEL**

The Bureau was granted an exception to the hiring freeze to advertise and fill the vacant Environmental Scientist position in the Sandia Oversight Section. On June 30<sup>th</sup>, staff welcomed Susan Lucas Kamat to the Sandia Oversight Office.

### **FINANCE**

Administrative staff updated and revised budget spreadsheets to reflect the end of 2011 State Fiscal Year. Bureau staff worked with administrative personnel to reconcile analytical sampling expenditures and to encumber funds for contract laboratories in support of 2011 sampling activities.

Approximately 54% (\$1,414,715) of the projected 2011 work plan amount (\$2,640,492) has been obligated or spent by the end of the third quarter. Within the three major budget groups, approximately 61% of budgeted labor expenses were recorded; approximately 62% of budgeted contract expenses were recorded; and approximately 31% of equipment expenses were recorded.

Grant modification #056 obligated \$1,758,547 on June 20, 2011.

## **TRAINING**

Bureau staff attended the Environmental Radiation seminar hosted by LANL. Discussion focused on interpretations of current LANL data results from air particulates. LANS has modified their air-sampling program in an attempt to measure radionuclides from Japan. In the last round of sampling, no radionuclides were detected that can be traced back to the Japan reactor releases in March.

LANL Oversight Section staff attended a technical presentation at the LANL Physics auditorium by Anna Szynekiewicz, University of Texas -El Paso, on the significance of sulfur isotope chemistry and composition.

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

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

Staff scientist Julia Marple successfully completed Safety 501, the 40 hour Inexperienced Miner training. This training fulfills all requirements of 30 CFR Part 48 and allows for unescorted underground access at the WIPP site.

Staff scientist Thomas Kesterson successfully completed his Rad-202, Radiation Worker II retraining and Safety 619, Compressed Gas Cylinder Safety. The Rad-202 refresher provides a review of core radiological worker training material, as needed. Safety-619 covers the safe handling, transport, and inspection of compressed gas cylinders.

## **OUTREACH**

Staff from the LANL Oversight Section attended a public update meeting at the Holiday Inn Express in Los Alamos hosted by the DOE for the LANL Chemistry and Metallurgy Research Replacement (CMRR) Project.

Bureau staff attended a DOE Office of Environmental Management - Office of Disposal Operations public meetings for the “Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste,” held in Pojoaque and Carlsbad.

Bureau staff attended several public meetings sponsored by the New Mexico Community Foundation. The meeting topics included:

- Select environmental issues in the vicinity of LANL and recent air-monitoring results collected by LANL in response to the Fukushima Daiichi nuclear power plant releases this past March;
- The NMED, LANL and RACER database audit; and,
- Detailed technical discussion between NMED and LANL concerning contaminant transport in stormwater.

Staff attended monthly Pajarito Plateau Working Partnership (PPWP) meetings with Los Alamos County. Discussion focused on continuing road improvement projects in the county and stormwater controls associated with those projects.

Bureau staff participated in the Eight Northern Pueblos 2011 Tribal Youth Environmental Science Camp.

LANL Section staff Ralph Ford-Schmid submitted an abstract to present a paper at the American Water Resources Association Annual Meeting in Albuquerque in November 2011. The paper is titled, "Polychlorinated Biphenyls (PCBs) in Precipitation, Snowpack, Baseflow, and Stormwater in the Upper and Middle Rio Grande Watershed."

Staff attended the 114th WIPP Quarterly Meeting in Carlsbad on April 26, 2011. Staff discussed ongoing projects and latest results. Updates were provided by DOE CBFO, URS, HWB, DOE OB, and the New Mexico Waste Transportation Coordinator.

Staff attended the Uranium Fuel Cycle Conference in Hobbs on April 27 and 28, 2011.

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## 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 Los Alamos and Santa Fe offices. Staff provides assistance to the Bureau and DOE developing workplans, budgets and training requirements.

**Quarterly Summary: During FFY 2011 Q-3,** Bureau staff attended required and optional trainings and classes.

#### **Administration:**

Bureau staff completed data compilations and activity summaries for inclusion in the 2010 Annual Report.

Los Alamos Oversight Section (LOS) staff had informal meetings with representatives from several analytical laboratories. The meetings focused on current and future laboratory services and shipping logistics.

Staff worked with State and LANL Information Technology to resolve computer glitches and upgrade the Los Alamos office GIS software.

Bureau staff met with Rebecca de Neri Zagal, Executive Director of the New Mexico Office of the Natural Resources Trustee, and their damage assessment planning contractor, Industrial Economics Inc., to provide an overview of contamination at LANL. Discussions centered on groundwater, surface water, and biota contamination.

During the last week in June, LANL was evacuated due to the Las Conchas fire. The fire did burn onto Laboratory property, but was quickly extinguished there. Bureau Chief Tom Skibitski served as one of the NMED staffers at the New Mexico Emergency Operations Center during the fire. The Las Conchas Fire was 100 percent contained as of August 3, 2011.

#### **Finance:**

Bureau staff worked with administrative personnel to reconcile analytical sampling expenditures and to encumber funds for contract laboratories in support of 2011 sampling activities.

LANL Section administrative staff attended the NMED Financial Operations Group (FOG) 4<sup>th</sup> Quarter Meeting in Santa Fe. The agenda covered the human resources updates, purchasing/contracts updates, payments/grants, vehicle and building leases updates and budget updates.

#### **Training:**

Bureau staff attended the Environmental Radiation seminar hosted by LANL's Mike McNaughton. Discussion focused on interpretations of current LANL data results from air particulates. LANS has modified their air-sampling program in an attempt to measure radionuclides from Japan. Measurable radionuclides from the Fukushima Daiichi power plant

releases have been detected at LANL and UC Berkeley. Scientists at LANL and UC Berkeley are still in discussion about low-levels of radionuclides they are measuring from Japan. The predominant radionuclides are notably the short half-life noble gases such as xenon (known to be present but not directly measured), and iodine and tellurium. The longer-lived radioisotopes of cesium are only about 1% or less of the total plume contamination seen in the USA. Fukushima has been elevated to a 7 rating on an international scale, the same level as Chernobyl in 1986. In the last round of sampling, no radionuclides were detected that can be traced back to the Japan reactor releases in March.

LANL Oversight Section staff attended a technical presentation at the LANL Physics auditorium by Anna Szyrkiewicz, University of Texas -El Paso, on the significance of sulfur isotope chemistry and composition.

## **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 FFY 2011 Q-3, Bureau staff attended public meetings on new LANL facilities, LANL permits, and LANL ground water and stormwater quality and monitoring; attended public meetings sponsored by the New Mexico Community Foundation (NMCF); attended the Pajarito Plateau Working Partnership meetings; and participated in the Eight Northern Pueblos 2011 Tribal Youth Environmental Science Camp.

### **National Pollution Discharge Elimination System Individual Storm Water Permit Public Meeting**

Staff attended a public meeting hosted by LANL at Cities of Gold Casino in Pojoaque to provide updated information on LANL's compliance status with their National Pollution Discharge Elimination System (NPDES) Individual Storm Water Permit. The meeting included a presentation summarizing permit compliance status and a poster session with information on the permit requirements, LANL's progress on BMP installation and planned future work.

### **Chemistry and Metallurgy Research Replacement Project**

Staff from the LOS attended a public update meeting at the Holiday Inn Express in Los Alamos hosted by the DOE for the LANL Chemistry and Metallurgy Research Replacement (CMRR) Project. The meeting was required by the National Environmental Policy Act (NEPA) Environmental Assessment (EA) to allow for public comment and input on the CMRR project. Several stakeholders and contributors from around northern New Mexico expressed their opinions about the project.

### **Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Public Meeting**

Bureau staff attended a DOE Office of Environmental Management - Office of Disposal Operations public meeting for the "Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste." The meeting was held at the Cities of Gold Hotel in Pojoaque Pueblo. The format was divided into

an initial poster session, a DOE presentation and a wrap-up session with public commentary. The DOE discussion points were:

1. There is no existing facility for GTCC waste.
2. GTCC disposal is the responsibility of the Federal Government under the Low-Level Radioactive Waste Policy Amendments of 1985.
3. GTCC disposal is responsive to National Security concerns.
4. GTCC disposal supports U.S. Programs, medical isotope production, deep space exploration, etc.
5. GTCC disposal implements Environmental Stewardship, DOE and commercial cleanup commitments.

There is approximately 12,000 cubic yards of GTCC with no current path to disposal. The GTCC is segregated into three waste types:

- Activated metals: 2,000 m<sup>3</sup> with 160 MCi of activity
- Sealed sources: 2,900 m<sup>3</sup> with 2.0 MCi of activity
- Other waste: 6,700 m<sup>3</sup> with 1.3 MCi of activity

Although DOE does not yet have a preferred alternative, the proposed disposal methods and locations include:

- Geologic repository at Waste Isolation Pilot Plant (WIPP)
- Intermediate depth boreholes at Hanford Site (Hanford), Idaho National Laboratory (INL), Los Alamos National Laboratory (LANL), Nevada National Security Site (NNSS) formerly known as the Nevada Test Site (NTS), WIPP and its vicinity, and a generic western location (Region IV)
- Enhanced near-surface trenches at Hanford, INL, LANL, Savannah River Site (SRS), WIPP vicinity, and generic commercial location in the southeast (Region II) and west (Region IV)
- Above grade vaults at Hanford, INL, LANL, NNSS, SRS, WIPP vicinity, and generic commercial location in Regions I to IV (northeast, southeast, Midwest, and west)

Three DOE alternatives are in New Mexico:

- A deep geologic repository created by expanding the existing WIPP salt mine by adding panels
- A location near WIPP within the withdrawn area
- Enhanced near-surface trenches or intermediate depth boreholes at LANL

Overall public concern showed more opposition to the LANL alternative than WIPP. Several tribal or tribal-affiliated representatives presented strong commentary against the LANL alternative. Additionally, there was strong public sentiment that DOE not use New Mexico as a public radioactive dumping ground. Non-Governmental Organizations appeared to be united in their alternative solutions for GTCC:

1. Don't send GTCC waste to DOE facilities, especially WIPP.
2. Place GTCC in interim "hardened on-site storage" (HOSS) that would minimize transport and potential accidents.

3. DOE should not proceed with the final GTCC EIS, but instead develop a new draft EIS that includes HOSS as a best interim solution until a new, or second, geologic disposal site is developed.
4. GTCC-like waste is not subject to NRC requirements for geologic disposal. DOE should issue a supplement to its 1997 Final Waste Management EIS to look at reasonable alternatives for GTCC-like waste and other wastes for which long-term storage and disposal is not determined.

Public comments were due to DOE on June 27, 2011 (<http://www.gtcc eis.anl.gov/>).

### **Public Forum on Surface and Groundwater Quality**

Bureau staff participated in the Public Forum on Surface and Groundwater Quality at LANL on June 22, 2011, at Santa Fe Community College, Santa Fe, sponsored by the Northern New Mexico Citizens' Advisory Board (NNMCAB). The facilitated forum began at 4:30 p.m. with a poster session. Opening remarks were delivered at 5:30 pm; presentations occurred from 6:45 to 7:30. A panel discussion began at 7:30 p.m. for the purpose of answering questions from the public. Panelists and presenters included staff from US DOE, NNMCAB, LANS, NMED, US EPA Region VI, Los Alamos County, Santa Fe County and City of Santa Fe.

### **Water Monitoring for the Buckman Diversion Public Meeting**

LANL Section staff attended a presentation of "Water Monitoring for the Buckman Diversion" at the Mesa Public Library, hosted by the Los Alamos chapter of the Sierra Club. LANL Water Monitoring Program Manager Danny Katzman discussed LANL's actions to protect surface water quality as well the following points of concern:

- What projects are being implemented by LANL to mitigate transport of contaminated sediment in the Los Alamos/Pueblo Watershed?
- How does this benefit the City of Santa Fe's Buckman Direct Diversion Project's need to protect source water in the Rio Grande?

### **New Mexico Community Foundation**

Bureau staff attended a public meeting sponsored by the New Mexico Community Foundation (NMCF) at Northern New Mexico College (NNMC) in Espanola ([www.nmcf.org](http://www.nmcf.org)). The meeting was attended by approximately 30 people representing NMED, LANL, NGO's and public participants. The meeting focused on select environmental issues in the vicinity of LANL, but also covered recent air-monitoring results collected by LANL in response to the Fukushima Daiichi nuclear power plant releases this past March. The speaker noted that although LANL did detect some very low levels of radioactive fission products (such as I<sup>131</sup>) over northern New Mexico following the Fukushima releases, all reported levels were far below any human risk levels and were non-detectable as of early April.

Several LANL Oversight Section staff attended a NMCF sponsored public meeting regarding the NMED, LANL and RACER database audit. Presentation topics and presenters included: background and logic for audit, NMCF; findings of an independent audit conducted in December 2010, of the LANL, NMED and RACER databases, Risk Assessment Corporation; response to audit findings, LANL and NMED; and the path forward to cloud computing technology, LANL. Members of the public were in attendance.

Staff attended the New Mexico Community Foundation Forum for Environmental Education & Dialogue at NNMC on June 22, 2011. This meeting was perhaps the most detailed technical discussion to date between NMED and LANL concerning contaminant transport in stormwater. Dave Englert of the LANL Oversight Section presented “Contaminant Transport in Stormwater from the Los Alamos Canyon Watershed.” The presentation follows the posting of the Bureau’s report on the same subject that was available on the web site as of May 2011. The Bureau’s discussion summarized stormwater results collected from the Los Alamos/Pueblo Watershed over the period of 2003 to 2008. Danny Katzman of LANL presented the LANL overview on contaminants in stormwater as well as a discussion more specific to their Stormwater Mitigation Plan and Progress. The speakers focused on data interpretation tied to scientific results and referenced many pertinent recent and past publications on the topic to support their findings. Although there was only a small turnout by the public, there were representatives present from CCNS, HOPE, LASO and LANL.

#### **Pajarito Plateau Working Partnership**

Staff attended monthly Pajarito Plateau Working Partnership (PPWP) meetings with Los Alamos County. Discussion focused on continuing road improvement projects in the county and stormwater controls associated with those projects. Bureau staff met with Los Alamos County Project Manager Rey Gonzales and discussed the current status of the Diamond Drive Phase 4 Public Works Project, scheduled for completion by September 30, 2011. Phase 4 includes the replacement of Diamond Drive roadway between Los Alamos High School and Trinity Bridge. The group also discussed NMED’s PCB data submittal to DOE and stormwater flows in the county, including locations of storm drains and outfalls and how the town site drains. The information will also be used for the development of the Trinity Site.

#### **Eight Northern Pueblos 2011 Tribal Youth Environmental Science Camp**

Bureau staff participated in the Eight Northern Pueblos 2011 Tribal Youth Environmental Science Camp. Staff taught approximately 25 middle and high school level students how benthic macroinvertebrate assessments are used with habitat and water quality assessments to determine the health of stream ecosystems.

#### **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 FFY 2011 Q-3, Bureau management conducted a review of all contractual expenditures for SFY 2011 closeout.

#### **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-sourced 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 FFY 2011 Q-3,** Bureau staff conducted routine monitoring and maintenance of electrets at on- and off-site locations.

### **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 FFY 2011 Q-3,** Bureau staff collected AIRNET particulate samples, initiated emergency monitoring in response to the Las Conchas Fire and released a data submittal titled, “AIRNET Radionuclide Particulate Results near Los Alamos National Laboratory, First Calendar Quarter 2010.”

The LANL Oversight Section had six (6) low-volume air samplers in operation during FFY 2011 Q-3. Five (5) stations are co-located with a LANL AIRNET station: 1) Los Alamos Airport, 2) McDonalds, 3) Royal Crest Trailer Court, 4) Well PM-1 and 5) White Rock Fire Station. The sixth AIRNET station is a mobile solar-powered station located at the Los Alamos Airport.

LANL Section staff performed maintenance on the Bureau’s five (5) perimeter AIRNET stations, switched out filters and re-deployed the solar AIRNET station at the Los Alamos Airport. The solar monitor will remain at the Los Alamos Airport for the duration of the TA-21 decommissioning and demolition and MDA B cleanup activities.

During the week of June 26, 2011, Bureau staff initiated emergency daily low-volume air monitoring in response to the Las Conchas Fire.

Bureau staff submitted a data submittal to DOE titled, “AIRNET Radionuclide Particulate Results near Los Alamos National Laboratory, First Calendar Quarter 2010.” The data reports contained isotopic radionuclide results for plutonium, americium, uranium and gamma emitters at DOE-OB AIRNET locations in the vicinity of the Los Alamos National Laboratory. Tritium air concentrations were also included in the report. The samples were obtained using continuously operating air samplers which collected airborne particulates on filters and atmospheric moisture with silica gel. During this period, Bureau AIRNET staff did not observe any air particulate results at or near regulatory limits or outside of long-established trends for the locations.

The Bureau ordered an additional solar air sampler. The additional unit is a more compact version of our existing unit and will supplement the Bureau’s independent air monitoring programs at LANL.

### **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 decommissioning and demolition operations. Filter

samples are submitted and analyzed quarterly and results are provided for DOE, LANS and the public.

**Quarterly Summary: During FFY 2011 Q-3,** Bureau staff performed operational tests and maintenance of high-volume samplers prior to their deployment.

### **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 Los Alamos County and San Ildefonso Pueblo production wells. Generally, the analytes are substances not addressed under Safe Drinking Water Act.

**Quarterly Summary: During FFY 2011 Q-3,** Bureau staff performed split-sample FFY 2011 Q-3 monitoring for water quality and uranium at Buckman Well field in Santa Fe. Invoices for all previous projects were paid for SFY 2011 closeout.

### **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 the Pueblos of San Ildefonso and Santa Clara.

**Quarterly Summary: During FFY 2011 Q-3,** Bureau staff collected samples collected for carbon-14, tritium, and stable isotopes from several regional wells in the Water, Pajarito and Mortandad Canyon watersheds.

Bureau staff collected samples for carbon-14, tritium, and stable isotopes analysis from several regional wells in the Water, Pajarito and Mortandad Canyon watersheds. The samples were shipped for analysis by independent laboratories. Results will be used by NMED and LANS to determine water age in the regional aquifer, allowing investigators to revise inputs for the Pajarito Plateau site hydrogeological conceptual model for recharge, discharge and flow pathways.

Bureau staff collected samples from CDV-R-37-2, located within the interior of LANL property in the explosives corridor. Collecting samples within the area is more difficult due to intense security restrictions involving access and communication devices. Samples were collected for analysis of noble gas, stable isotopes, carbon-14 and tritium.

LANL Oversight Section staff collected samples for tritium, carbon-14, and other water quality constituents from regional wells CDV-37-1i, R-27i, R-47i, and R-48. All samples are being archived until the start of the new State fiscal year.

LANL Section staff collected samples for carbon-14, tritium, and stable isotopes analysis from regional wells R-52 and R-54, located in Pajarito Canyon. Bureau staff continues to collect

carbon-14 data from new regional wells, in addition to wells which have been recently rehabilitated, to fill data gaps as the complete data set for carbon-14 is compiled for a joint NMED and LANL report.

### **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 FFY 2011 Q-3,** Bureau invoices for all previous projects were cleared for SFY 2011 closeout.

### **STORMWATER BELOW SWMUS PROJECT (LSF10)**

Under this Activity ID, Bureau staff conducts on-going sampling of storm water 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 FFY 2011 Q-3,** Bureau staff reviewed LANL reports related to the NPDES Individual Stormwater Permit to prepare for the upcoming stormwater sampling season and met with Los Alamos County to plan a project to refine the knowledge of locations and flows of storm drains and storm sewers in the town site.

LANL Section personnel reviewed LANL's Individual Storm Water Permit (No. NM0030759), including a thorough review of all 5 volumes of the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes every Site Monitoring Area (SMA) in detail, including the historical activities, contaminants of concern and required and/or installed Best Management Practices (BMPs) and corrective action(s) taken.

Staff also reviewed the Site Discharge Pollution Prevention Plan (SDPPP) for LANL's NPDES Individual Stormwater Permit in an effort to identify candidate locations for the upcoming stormwater season sampling. The SDPPPs provide descriptions and maps of all sites covered by all Site Monitoring Areas (SMAs) in the permit, including historic activities and required BMPs. The review included comparing the SDPPP information to the 2011 Annual Report that details the status of baseline control measures installation at each site and SMA.

The review of the SWPPP and SDPPP was necessary to plan for the upcoming stormwater sampling season.

Bureau staff met with Los Alamos County personnel to discuss PCB sampling on/from county property, as well as storm water management in the town site. Bureau staff plans to collaborate on a project to refine the knowledge of locations and flows of storm drains and storm sewers in

the town site with the goal of evaluating what drainages potentially provide a large amount of run-on to SWMUs.

### **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 FFY 2011 Q-3,** Bureau staff shipped archived stormwater samples to a contract laboratory for analysis and participated in an erosion control project in the Pueblo Canyon watershed.

LANL Section staff compiled most of the Bureau's archived stormwater samples (ISCO and grab) and shipped them to an NMED contract laboratory for radionuclide and water quality analyses. Samples from the following locations were sent as project 744 LSW11 4.12.11 (ISCO SW-Rads (2010)) for analyses:

- ISCO Rad Rio Grande at Buckman (3 samples)
- Rio Grande above Alameda (5 samples)
- Rio Grande at Otowi (1 sample)
- Gage E040-9/22/10 (6 samples)
- Gage E040-10/21/10 (5 samples)
- Gage E040-8/9/10 (6 samples)
- Gage E040-8/23/10 (4 samples)
- Gage E040-7/31/10 (8 samples)
- Gage E110-9/22/10 (3 samples)
- Gage E042-9/22/10 (1 sample)
- E030-8/23/10 (1 sample)
- SF Acid above E055.5 (3 samples)

Bureau staff participated in the willow-planting project in the Pueblo Canyon wetlands. For the project, cuttings from established plants were moved and planted downstream in a wetland area that has seen substantial amounts of erosion. The project was spearheaded by Ralph Ford-Schmid of the DOE OB.

### **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 FFY 2011 Q-3,** Bureau staff conducted site evaluations and coordinated closure of numerous spill/release reports.

The Bureau conducts site assessments at LANL and reviews 24-hour, 7- and 15-day notifications specific to its NPDES permit with regard to unplanned liquid releases (spills) and implementation of erosion safeguards during construction activities.

Staff reviewed 2010 LANL data and prepared a 2012 sampling plan and budget estimate for FFY 2012 outfall verification sampling. Staff also coordinated with LANS personnel to schedule sampling, discuss proposed analytical methods, and order sample bottles.

Bureau staff reviewed LANL's NPDES Discharge permit for the permitted outfalls in order to plan for FFY 2012 sampling. Staff also sampled the 001 (power plant) outfall and the 13S (SWSC) outfall for the permitted analytes and perchlorate. Perchlorate is not a permitted contaminant, but recent sampling from the 001 outfall has shown increasing levels. The current round of sampling for perchlorate included one sample from the 001 outfall itself and one from the SWSC water holding tank prior to mixing with the power plant/cooling tower water. Preliminary results do not indicated detectable levels of perchlorate in either sample.

Bureau staff and LANL/LANS WQ/RCRA personnel conducted a visual review of spill #301, a potable water leak estimated at 100,000 gallons, reported by LANS on March 16, 2011. Staff offered suggestions to LANS for mitigation and remediation of the area impacted by the release. Most of the impacted area was well vegetated and only minor mulching may be needed to help stabilize the damage.

DOE Oversight Bureau staff along with staff from the LANL/LANS Water Quality/RCRA NPDES program visited several old NPDES outfall sites under the Reduction of Outfall Program to identify sites for elimination from the current LANL NPDES discharge program. Inspection and photo documentation of sites is performed to provide verification that eligible outfalls either have been disconnected or are being treated in a manner where there is no longer a discharge.

Sites recommended for closure and removal from the NPDES permit includes:

- Outfall 03A185 at TA-3, Building 357 (CMR Air Washers)
- Outfall 03A185 at TA-15, Building 312 (DARHT Cooling Tower)
- EPA designated outfall 02A129 at TA-21 (Boiler Blow Down)
- Outfall 03A130 at TA-11 (Cooling Tower)

During this period, DOE OB staff submitted the following report(s) concerning Bureau recommendations for Outfall(s) Deletion from LANLs Current NPDES Permit. The report was transmitted to DOE LASO, LANL, NMED (SWQB, DOE OB, and HWB) and EPA: "DOE Oversight Bureau (DOE OB) Inspection Observations and Suggestions for Deletion National Pollution Discharge Elimination System (NPDES) Outfall(s) from LANLs Current NPDES Permit Number NM0028355 issued by Region 6." DOE Oversight Bureau staff is drafting a letter to EPA Region 6 and NMED Surface Water Quality Bureau documenting recommendation for closure of these four (4) outfalls under NPDES permit NM0028355.

The following release/discharge notifications were submitted by LANL to EPA and NMED:

**#302** - Following a data verification process, LWSP and AOEP staff confirmed a groundwater sample detection in excess of a New Mexico Groundwater Quality standard. From LANL correspondence dated March 23, 2011; Mortandad Canyon regional aquifer well R-60, a newly constructed well, was sampled for the first time on December 16, 2010. Benzo(a)pyrene was estimated at concentrations of 0.851 µg/L and 0.769 µg/L in the unfiltered primary and field duplicate sample, respectively. Following a March 30<sup>th</sup> meeting with NMED-GWQB and clarification of reporting requests, ENV-RCRA staff conducted an additional review of groundwater data and completed verbal notifications to NMED-GWQB. Following the provisions of the Compliance Order on Consent, this information was reported to the NMED Hazardous Waste Bureau. This release is also being reported pursuant to NMED's letter "Reporting of Newly Detected Exceedances of Groundwater Standards at Los Alamos National Laboratory," dated February 10, 2010, as a detection in excess of a New Mexico Groundwater Quality Standard. Laboratory ADEP and LWSP are coordinating with NMED-HWB to ensure reporting and corrective actions are completed to ensure compliance with LANL's Consent Order.

**# 303** - Following a data verification process, LWSP and ADEP staff confirmed two groundwater sample detections in excess of New Mexico Groundwater Quality standards. At Pajarito Canyon regional aquifer well R-32, iron was detected at 3,850 µg/L and aluminum was detected at 6,850 µg/L. Following the provisions of the Compliance Order on Consent, this information was reported to the NMED Hazardous Waste Bureau. This release is also being reported pursuant to NMED's letter "Reporting of Newly Detected Exceedances of Groundwater Standards at Los Alamos National Laboratory," dated February 10, 2010 as detections in excess of New Mexico Groundwater Quality Standards. Verbal notification was provided by ENV-RCRA to NMED-GWQB on April 15, 2011. Laboratory ADEP and LWSP are coordinating with NMED-HWB to ensure reporting and corrective actions are completed to ensure compliance with LANL's Consent Order.

**#304** - Following a data verification process, LWSP and ADEP staff confirmed a groundwater sample detection in excess of a New Mexico Groundwater Quality standard. From LANL correspondence dated March 23, 2011; Mortandad Canyon regional aquifer well R-60, a newly constructed well, was sampled for the first time on December 16, 2010. Benzo(b)fluoranthene was found at estimated concentrations of 0.839 µg/L and 0.714 µg/L in the unfiltered primary and field duplicate sample, respectively. The U.S. EPA tap water screening level is 0.29 µg/L.

Following a March 30, 2011, meeting with NMED-GWQB and clarification of reporting requests, ENV-RCRA staff conducted a review of groundwater data and completed verbal notifications to NMED-GWQB. Following the provisions of the Compliance Order on Consent, this information was reported to the NMED Hazardous Waste Bureau. This release is also being reported pursuant to NMED's letter "Reporting of Newly Detected Exceedances of Groundwater Standards at Los Alamos National Laboratory," dated February 10, 2010, as a detection in excess of a New Mexico Groundwater Quality Standard. Laboratory ADEP

and LWSP are coordinating with NMED-HWB to ensure reporting and corrective actions are completed to ensure compliance with LANL's Consent Order.

**#305** – “Spill Response Assessment and Request for Administrative Closure of an Unplanned, Potable Water Release at TA-49, LANL report #305 on April 27, 2011.” This incident was reported to NMED pursuant to New Mexico Water Quality Control Commission Regulations (20 NMAC 6.2). SWQB has determined that corrective actions taken by LANS to remediate impacts to surface water from this spill are satisfactory. This letter closes the Department's files on this action.

**#306** - On October 26, 2010, a diesel release of approximately 10 gallons occurred at Technical Area 53 near Building 939. The release was from a tank on a trailer mounted generator, occurred over asphalt, and did not reach a storm drain or watercourse. LANS Emergency Response and HAZMAT responded and sorbed standing diesel and impacted plants and soil from the release. The impacted asphalt was sprayed with Microblaze and the fuel tank was drained. During a site visit on April 26, 2011, diesel fumes were noted in the area of the release and Laboratory staff responded to the site and recommended investigating the nature and extent of the release to determine potential impacts to the underlying soil. Following completion of site safety and security protocols, excavation of the impacted area began on June 8, 2011. As of June 13, excavation and cleanup of impacted material was nearing completion. The discharge appeared to be within the boundary of AOC 53-008. The Laboratory continues to assess potential PRS impacts from the release.

#### Relationship of the Discharge to a SWMU or PRS:

AOC 53-008 is an unpaved open area (referred to as a "bone yard") storing used materials and equipment associated with experiments conducted at TA-53. This 3 to 4 acre storage area is irregularly shaped and located east and south of the former TA-53 surface impoundments [Consolidated Unit 53-002(a)-99]. Most of the storage area is vegetated with grasses, shrubs, and juniper trees, with several dirt trails. Materials present at the site in photographs from 1989 include vacuum pumps, metal ducts, concrete shielding blocks, empty over-pack drums, and drums containing steel bearings. This site was inspected in September 1993 during preparation of the RFI work plan and found to contain shielding blocks (magnetite, concrete, and steel), concrete, steel, other metallic debris, and other miscellaneous items. No hazardous materials or chemicals were observed with the exception of lead stored in a shed (structure 53-621) at the south end of the site. This area has been used for storage since 1972 to the present. Much of the material previously stored at the site has been removed. The release occurred on an asphalt parking area near the storage area.

Comments: Verbal notifications were provided to NMED-GWQB, NMEQ-SWQB, NMEQ-HWB, and NMEQ-DOE-OB on June 6, 2011, within 24 hours of ENV-RCRA learning that the extent of the impacted material was greater than initially believed. A site visit was scheduled with NMED-DOE Oversight Bureau. This site visit never happened due to the Las Conchas Fire. LANL/LANS staff was asked to provide pictures and sample verification of the mitigation activities in lieu of the site visit.

The “Spill Response Assessment and Suggestion for Closure” reports listed below were submitted to EPA, DOE and LANS by the Surface Water Quality Bureau (SWQB). The SWQB and EPA reviewed and considered on-site observations and recommendations for closure made by the Bureau before filing “closure” determinations. Bureau efforts helped expedite more than 90% of the LANS spill notifications last year.

**Report #285** – “Spill Response Assessment and Suggestion for Closure of Steam Condensate Line Release at TA-3 Building 39, December 7, 2010, LANL Discharge Notification Report # 285.” Actions taken by LANS were adequate and the Bureau recommends no further action is required at this time under this discharge notification.

**Report #301** – “Spill Response Assessment and Suggestion for Closure of Potable Water Release at TA-49, State Road 4, March 16, 2011, LANL Discharge Notification Report # 301.” The Bureau recommends that actions taken by LANS were adequate and that no further action is required under this discharge notification. The Surface Water Quality Bureau (SWQB) subsequently submitted their report for Administrative Closure to EPA and LANL for this release.

**Report #305** – “Spill Response Assessment and Request for Administrative Closure of an Unplanned, Potable Water Release at TA-49, LANL report #305 on April 27, 2011.” This incident was reported to NMED pursuant to New Mexico Water Quality Control Commission Regulations (20 NMAC 6.2). The New Mexico Environment Department/Surface Water Quality Bureau (NMED/SWQB) received a request to closeout this release, by correspondence dated May 11, 2011. SWQB has determined that corrective actions taken by you to remediate impacts to surface water from this spill are satisfactory. This letter closes the Department's files on this action.

### **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 FFY 2011 Q-3, Bureau staff prepared spike samples for a performance test of contract labs to evaluate their relative performance, attended tour of LANL “Urban Run-on” sites, participated in a PCB Regional Background Study meeting and submitted a paper abstract for presentation at the 2011 American Water Resources Association Annual Meeting in Albuquerque.

LANL Section staff prepared spiked PCB samples for a performance test of the four NMED contract labs to evaluate their relative performance using Method 1668 for PCB congener analysis. Samples of high performance liquid chromatography water were spiked with low (part-per-quadrillion) levels of 18 congeners and submitted to each lab. In addition, two (2) one-gallon stormwater samples from TA-53 at LANL were split into four (4) aliquots and submitted to each laboratory to compare each laboratories homologue determinations. Results will be sent

to all the participating laboratories during FFY2011 Q4. The Bureau had one spike left over; LANL has expressed an interest in using the same spike to test their PCB laboratory.

Several LOS staff attended a tour of LANL's "Urban Run-on" storm water sampling locations to evaluate their proximity to SWMUs in the Los Alamos County town site area for consideration in the PCB baseline background report. The tour included LANL, DOE and NMED personnel.

LOS staff attended a PCB Regional Background Study meeting between NMED and LANL for data review and report planning. Currently all of the applicable data is being compiled for statistical analyses. Los Alamos Oversight Section staff is working to compile all of the applicable data, run statistical analyses on the data and begin to write the report. Portions of the written report are in draft form. LANL has begun to write the background/baseline PCB report based on both LANL and NMED sampling results. This collaborative project is important as it may influence the development of or assessment of water quality standards.

LOS staffer Ralph Ford-Schmid submitted an abstract to present a paper at the American Water Resources Association Annual Meeting in Albuquerque in November 2011.

### **"Polychlorinated Biphenyls (PCBs) in Precipitation, Snowpack, Baseflow and Stormwater in the Upper and Middle Rio Grande Watershed."**

**Abstract** - Recently issued fish consumption advisories (2006 – 2011) for polychlorinated biphenyls (PCBs) in the Rio Grande and the inclusion of PCB monitoring requirements in recent MS4 stormwater permits underscore the need to understand and quantify potential sources of PCBs within the watershed. PCBs in the Rio Grande are derived from a variety of sources including precipitation falling as rain and snow, stormwater runoff from regional background locations, runoff from urban environments and runoff from PCB spill or disposal sites. The New Mexico Environment Department, along with Los Alamos National Laboratory, is developing reference concentrations for PCBs in some of these matrices using EPA analytical Method 1668A. This method reports PCB congener concentrations at detection levels that are several orders of magnitude less than commonly used analytical methods for PCB Aroclors. Precipitation and snowpack samples (n=40) were collected to determine baseline levels of PCBs in precipitation. Average total PCB in precipitation is 516 pg/L relative to 7,553 pg/L measured in stormwater runoff from ephemeral tributaries (n=40) containing no known PCB sources. Samples from the upper Rio Grande under baseflow (n=43) and stormwater (n=27) conditions are used to compare with samples collected in the Rio Grande in Albuquerque (n=8) downstream from the North Diversion confluence. Average total PCB in the Rio Grande range from 129 pg/L in baseflow to 4,205 pg/L in regional stormwater flow, compared to 191,448 pg/L in stormwater below the Albuquerque North Diversion confluence. Urban stormwater runoff samples (n=24) were collected in Los Alamos County to determine contributions to PCB levels found in stormwater runoff samples (n=148) collected in watersheds downstream from solid waste management units (SWMUs) at Los Alamos National Laboratory (LANL). Average total PCB in Los Alamos County urban runoff was 43,106 pg/L compared to 2,078,197 pg/L in stormwater collected below LANL SWMUs. The role of suspended sediment

concentration in assessing PCB levels in stormwater is discussed along with the use of PCB homologue distributions to differentiate potential source terms.

### **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 FFY 2011 Q-3, 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 FFY 2011 Q-3, Bureau staff reported no activity.

### **DEMOLITION AND DECOMMISSIONING 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 FFY 2011 Q-3, Bureau staff continued to split soil samples from MDA B with LANS and monitored the D&D progress at DP West (TA-21).

Bureau staff continued to coordinate confirmation sample splits at MDA B with LANL's contractor, Northwind, as the sampling areas became available after excavation. LANL Oversight Section staff coordinated with a contact at MDA-B for splits on confirmation samples from four rows (12 total locations) in Enclosure #5. At the end of FFY 2011 Q3, the DOE OB had split with LANL on a total of 26 confirmation samples from 15 rows. By mid-June, excavation was approximately 86% complete.

Due to the proximity of the close of SFY 2012, the samples were archived for shipping during the early SFY 2012. The samples will ultimately be analyzed for isotopic plutonium, isotopic uranium and target analyte list (TAL) metals.



**Figure LDD16-1.** A “vintage” Cold War-era full-face radiation suit, left, was unearthed in Enclosure 2 at MDA B.  
(Photo courtesy of LANS.)

Bureau staff also participated in a tour for the HWB of the D&D progress at TA-21. LANL conducted a walking tour of DP East and West, including what was the TSTA facility. Very few structures remain standing at TA-21 on DP Mesa.



**Figure LDD16-2.** In MDA-B, 29 inert artillery shells were unearthed in Enclosure 9. (Photo courtesy of LANS).

### **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 FFY 2011 Q-3, Bureau staff continues to discuss and plan for the upcoming migration of LANL and RACER environmental data to a cloud-based system.

Bureau staff attended RACER meetings with LANL to coordinate the new cloud system that will replace RACER for storage and dissemination of LANL-related environmental data. Currently, the SWQB data integration project is on hold until the conversion is made to the cloud system.

Bureau personnel continue to participate in a weekly meeting with representatives of LANS and their service provider Locus Technologies to discuss the upcoming migration of LANL and RACER environmental data to a cloud-based system.

## **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 FFY 2011 Q-3,** Bureau staff visited the WIPP site to observe sample collection, began a review of the “Draft Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, Los Alamos New Mexico,” and prepared inputs for the FFY 2010 Annual Report, including figures, maps and charts.

Two LANL Section staff members visited the WIPP site and observed the sample collection at Stations A and B. They also accompanied WIPP personnel to the AIRNET and DPR stations surrounding the WIPP site. LANL and WIPP staff collaborate on an annual basis to assess field and sampling methods and evaluate procedures in monitoring programs in order to maintain consistency between the Bureau sites.

On April 25, 2011, the DOE Oversight Bureau staff received the submittal titled, “Draft Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, Los Alamos New Mexico.” A Bureau review is in process during the 45 day comment period.

Bureau staff compiled and submitted the FFY 2011Q-2 Report for the LANL Section.

## **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 FFY 2011 Q-3,** Bureau staff completed general training, managed personnel activities and budgeted for monitoring and oversight activities.

The Bureau was granted an exception to the state hiring freeze to advertise the vacant Environmental Scientist position in the Sandia Oversight Section. On June 30<sup>th</sup>, staff welcomed Susan Lucas Kamat to the Sandia Oversight Office.

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

### **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 FFY 2011 Q-3,** Bureau staff updated the Bureau website and prepared technical and periodic reports for publication.

Bureau staff attended the semi-annual U.S. Department of Defense (DOD) Kirtland Air Force Base (KAFB) and Sandia National Laboratories public meeting held at the Cesar Chavez Community Center on April 19, 2011. Much of the DOD portion of the meeting was dedicated to updates regarding the Bulk Fuel Release at KAFB.

Bureau staff participated in the WIPP Quarterly meeting in Carlsbad held on April 26, 2011, and attended the Uranium Fuel Cycle Conference in Hobbs on April 27 and 28.

Bureau staff participated in the NMCF Forum for Environmental Education and Dialogue (FEED) public meeting held on May 12, 2011.

Bureau staff attended the KAFB Bulk Fuel Release public meeting on May 17, 2011.

Bureau staff participated in the Northern New Mexico Citizens' Advisory Board public meeting in Santa Fe on June 22, 2011.

### **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 FFY 2011 Q-3, Bureau staff collected groundwater samples from the Burn Site, Solid Waste Management Unit (SWMU)-49, SWMU-116 and Mixed Waste Landfill (MWL).

Bureau staff collected groundwater samples from the following monitoring wells: CTF-MW2, CTF-MW3, CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, MWL-BW2, MWL-MW4, MWL-MW5, MWL-MW6, MWL-MW7, MWL-MW8 and MWL-MW9. Samples were analyzed by a contract analytical laboratory for inorganics, organics, metals and radionuclides.

### **Burn Site Groundwater**

Bureau staff collected groundwater samples from Burn Site monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12. All samples were sent to Test America Phoenix. Samples were analyzed for 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).

Bureau staff reviewed groundwater data collected during 2010 and 2011.

Bureau staff submitted a data submittal to DOE for review titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Conducted by NMED/DOE OB for FFY 2010 Q-3." During May and June 2010, the Bureau collected groundwater samples from Burn Site groundwater monitoring wells CYNMW3, CYN-MW6, CYN-MW7 and CYN-MW8. These monitoring wells were re-sampled by Sandia to confirm previous results obtained during the last sampling event. Split samples were collected using standard Sandia sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory for analysis of total petroleum hydrocarbons (TPH) gasoline range organics (GRO). No concentrations were detected above the method detection limit (MDL).

Bureau staff submitted a draft data submittal to DOE for review titled, "Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Conducted by NMED/DOE OB for FFY 2010 Q-4." During September 2010, Bureau staff collected groundwater samples from monitoring wells CYN-MW6, CYN-MW9, CYN-MW10, CYN-MW11 and CYN-MW12. Split samples were collected using standard Sandia sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory to be analyzed for metals, non-metal inorganics, organics, and radionuclides. All samples analyzed for nitrate-nitrite as N were detected at or above the EPA maximum contaminant level (MCL) of 10 mg/L.

### **Groundwater Protection Program (GWPP)**

During FY2011 Q-3, Bureau staff reviewed groundwater data collected during Q-2 FFY 2011 from monitoring wells CTF-MW1, CTF-MW2, CTF-MW3 and CYN-MW5. The Bureau also collected groundwater samples from Coyote Springs. Samples were submitted for analysis to an independent analytical laboratory for 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<sup>226/228</sup> and isotopic uranium<sup>234/235/238</sup>. All samples were filtered in the field prior to analysis, except for VOCs, HE and total mercury.

### **Lovelace Respiratory Research Institute (LRRI) Groundwater**

No activities were performed during FFY 2011 Q-3.

### **Mixed Waste Landfill (MWL) Groundwater**

Bureau staff collected groundwater samples from MWL monitoring wells MWL-BW2, MWL-MW4, MWL-MW5, MWL-MW6, MWL-MW7, MWL-MW8 and MWL-MW9. All samples were sent to Test America Phoenix. Samples were analyzed for total and dissolved TAL metals and uranium, anions, nitrates, VOCs, gross alpha/beta, isotopic uranium, gamma emitting isotopes and tritium.

Bureau staff submitted a draft data submittal to DOE for review titled, “Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED/DOE OB for FFY 2010 Q-3.” During April 2010, Bureau staff collected groundwater samples from Mixed Waste Landfill (MWL) groundwater monitoring wells MWL-MW4, MWL-MW5, MWL-MW6, MWL-MW7, MWL-MW8 and MWL-MW9. Split samples were collected using standard Sandia sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory for analysis of total and dissolved target analyte list (TAL) metals plus uranium, nitrate-nitrite as nitrogen, gamma-emitting isotopes and gross alpha/beta. No anomalies were detected in the groundwater results from samples collected at MWL monitoring wells. All constituents were detected at concentrations below EPA standards.

Bureau staff submitted a draft data submittal to DOE for review titled, “Groundwater Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by NMED/DOE OB for FFY 2010 Q-4.” During July 2010, Bureau staff collected groundwater samples from Mixed Waste Landfill (MWL) groundwater monitoring wells MWL-MW7, MWL-MW8 and MWL-MW9. Split samples were collected using standard Sandia sampling procedures and equipment. Bureau samples were submitted to an independent contract laboratory to be analyzed for target compound list volatile organic compounds. No anomalies were detected in the groundwater results from samples collected at MWL monitoring wells. No analyte concentrations were detected above the minimum detection level.

### **Technical Area-V (TA-V) Groundwater**

Bureau staff reviewed groundwater data collected during 2010.

### **Tijeras Arroyo Groundwater (TAG)**

Bureau staff reviewed groundwater data collected during 2010.

### **Chemical Waste Landfill (CWL) Groundwater**

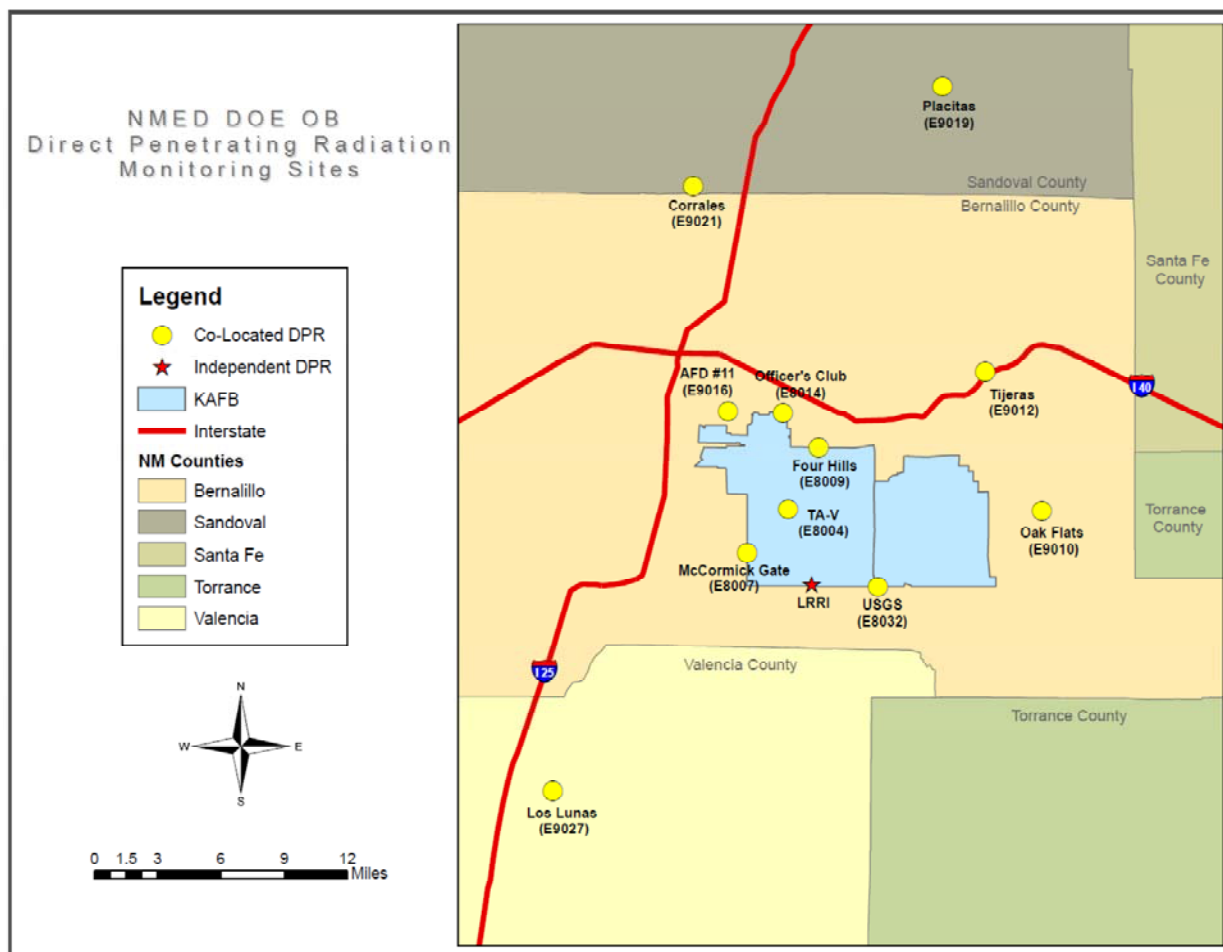
Bureau staff submitted a draft data submittal to DOE for review titled, “Groundwater Monitoring at Sandia National Laboratories/New Mexico Chemical Waste Landfill Conducted by NMED/DOE OB for FFY 2011 Q-1.” During December 2010, staff collected groundwater samples from Chemical Waste Landfill groundwater monitoring wells CWL-MW9, CWL-MW10 and CWL-MW11. Split samples were collected using standard Sandia sampling

procedures and equipment. Bureau samples were submitted to an independent contract laboratory to be analyzed for target analyte list (TAL) metals and volatile organic compounds (VOCs). No anomalies were detected in the groundwater results from samples collected at the CWL monitoring wells.

### **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 FFY 2011 Q-3, Bureau staff conducted direct penetrating radiation measurements from all 12 electret stations located on-site and off-site. Results will be reported to DOE once data results have been received from SNL.

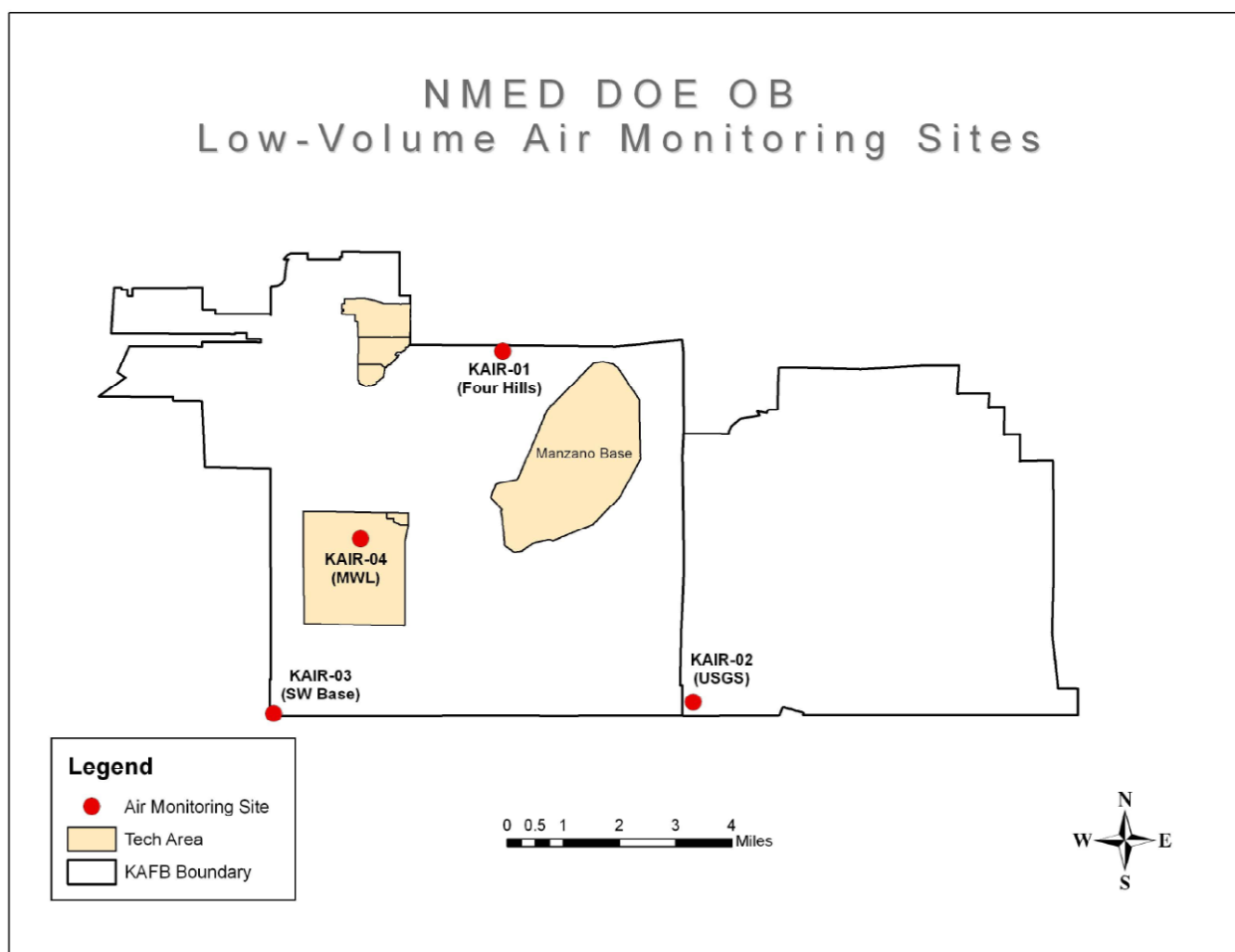


**Figure SDP43-1.** Map of Direct Penetrating Radiation (DPR) sites on-site and off-site of Kirtland Air Force Base.

## PARTICULATES LOW-VOLUME AIR PROJECT (SPL44)

Under this Activity ID, Bureau staff evaluates the ambient air concentrations of gross alpha/beta; isotopes of americium, plutonium, and 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 FFY 2011 Q-3, Bureau staff continued to collect bi-weekly air particulate filters from three (3) perimeter monitoring stations and one (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 are analyzed separately.



**Figure SPL44-1.** Map of AirNet sites on the perimeter of Kirtland Air Force Base and at the Mixed Waste Landfill.

Bureau staff shipped first calendar quarter 2011 samples to ALS Laboratory Group. Particulate filters will be analyzed for gross alpha/beta, gamma emitting isotopes, isotopic americium, plutonium and uranium. Silica gel samples will be analyzed for the presence of tritium.

#### **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 FFY 2011 Q-3, Bureau staff approved payment for previous sampling events and purchased equipment for the summer stormwater sampling season.

#### **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 FFY 2011 Q-3, Bureau staff reviewed data from previous sampling events.

#### **DEMOLITION AND DECOMMISSIONING PROJECT (SDD48)**

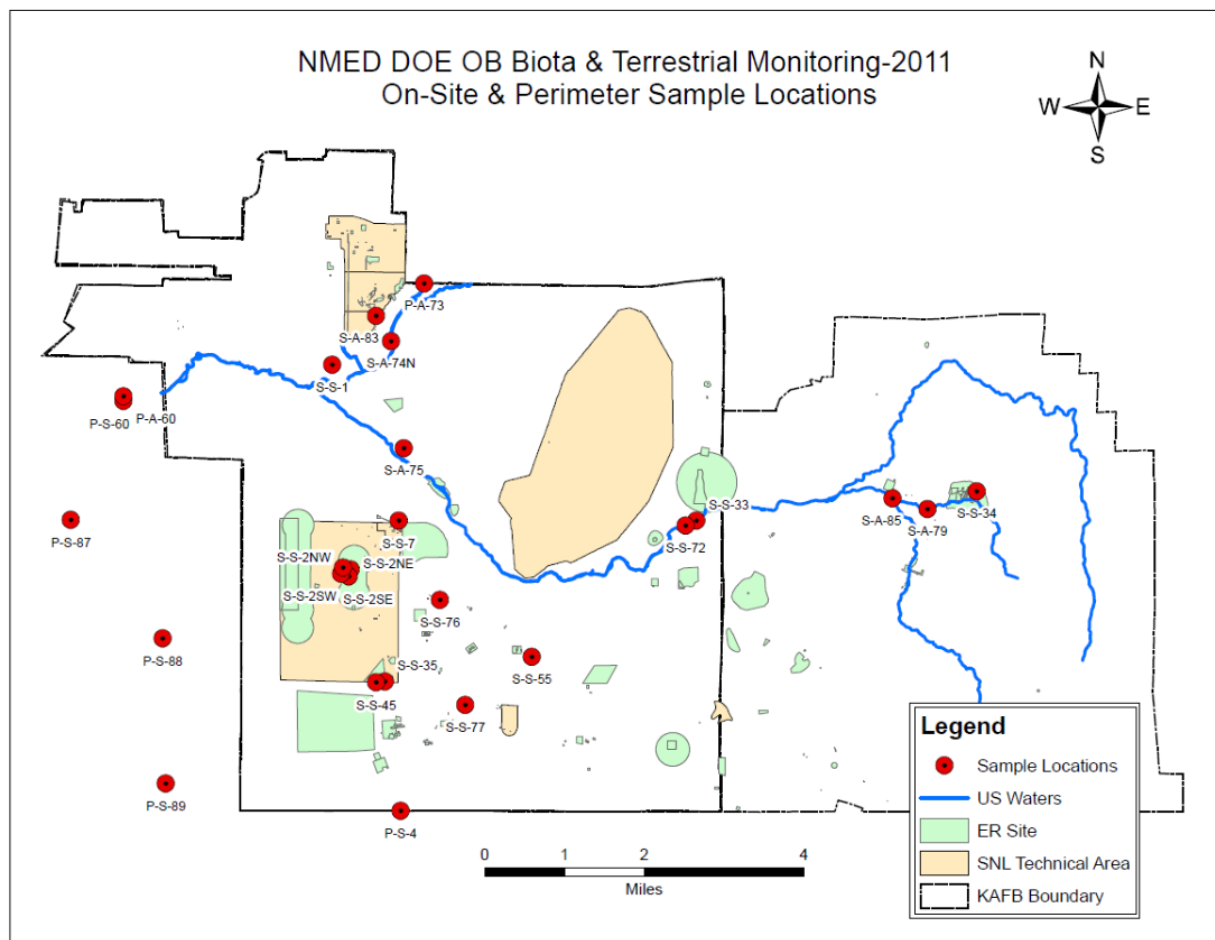
Under this Activity ID, Bureau staff conducts site evaluations and media monitoring during decommissioning and demolition operations.

**Quarterly Summary:** During FFY 2011 Q-3, Bureau staff finalized the report of soil sampling at the Building 605 demolition and decommissioning site.

#### **BIOTA AND TERRESTRIAL PROJECT (STE49)**

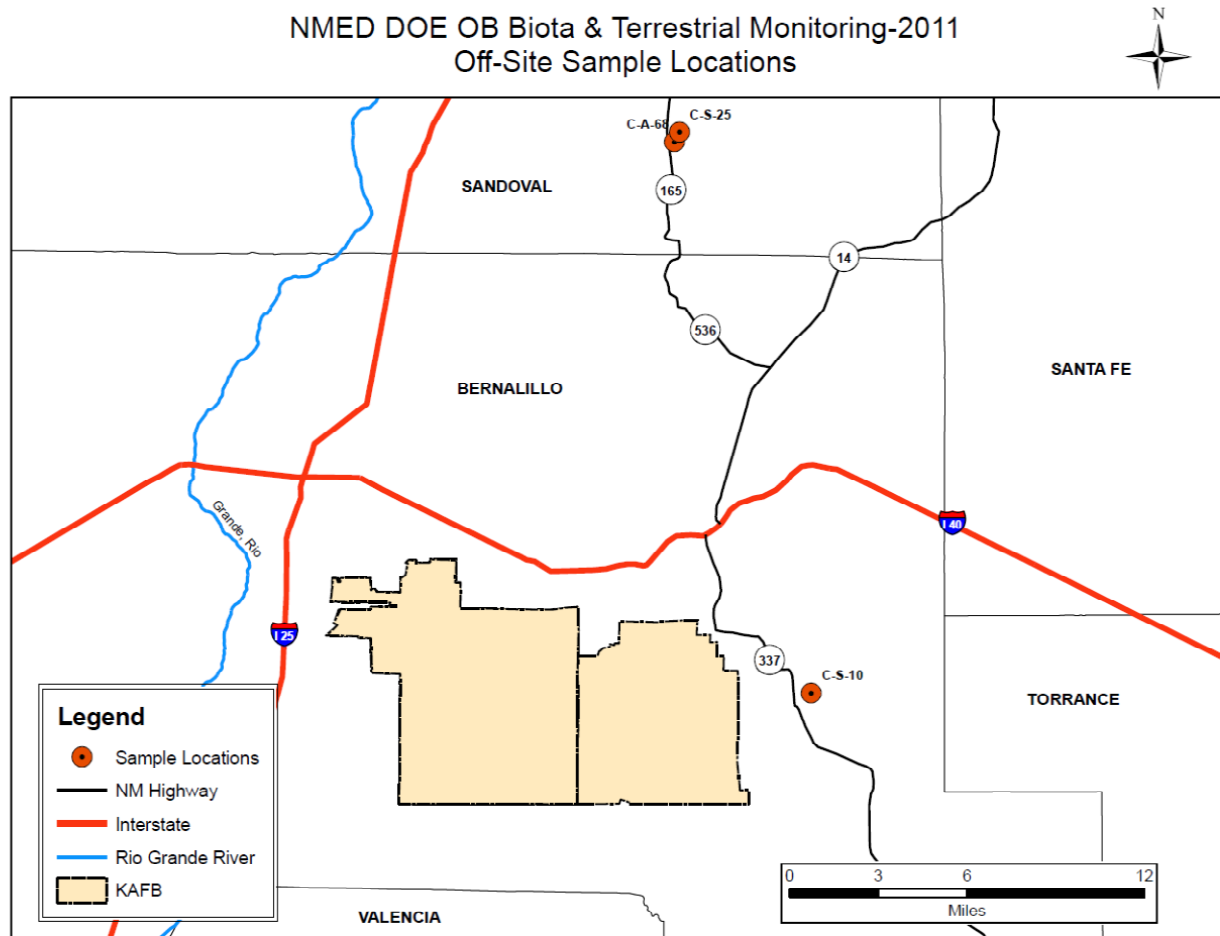
Under this Activity ID, Bureau staff conducts annual sampling of soils and plants in a cooperative effort with Sandia on KAFB and the surrounding area.

**Quarterly Summary:** During FFY 2011 Q-3, Bureau staff completed the annual biota and terrestrial sampling event.



**Figure STE49-1.** Map of the biota and terrestrial sampling locations on-site and on the perimeter of Kirtland Air Force Base.

Bureau staff completed the annual biota and terrestrial sampling event. Split samples were collected using standard Sandia procedures and equipment from 29 sites. Of the 29 samples, 19 samples were collected from on-site, seven (7) from perimeter locations and three (3) from off-site locations. The off-site locations are Oak Flats Campground, Las Huerta Creek and Placitas Fire Station. Biota and terrestrial samples consisted of both soil and sediment samples that were shipped to independent analytical laboratories. Samples from all 29 sites will be analyzed for gamma emitting isotopes, gross alpha/beta and tritium. In addition, four (4) sites will be analyzed for high explosives and perchlorate. Five (5) other sites will be analyzed for perchlorate. Due to the lack of moisture during the current drought conditions, staff members were unable to collect any vegetation samples.



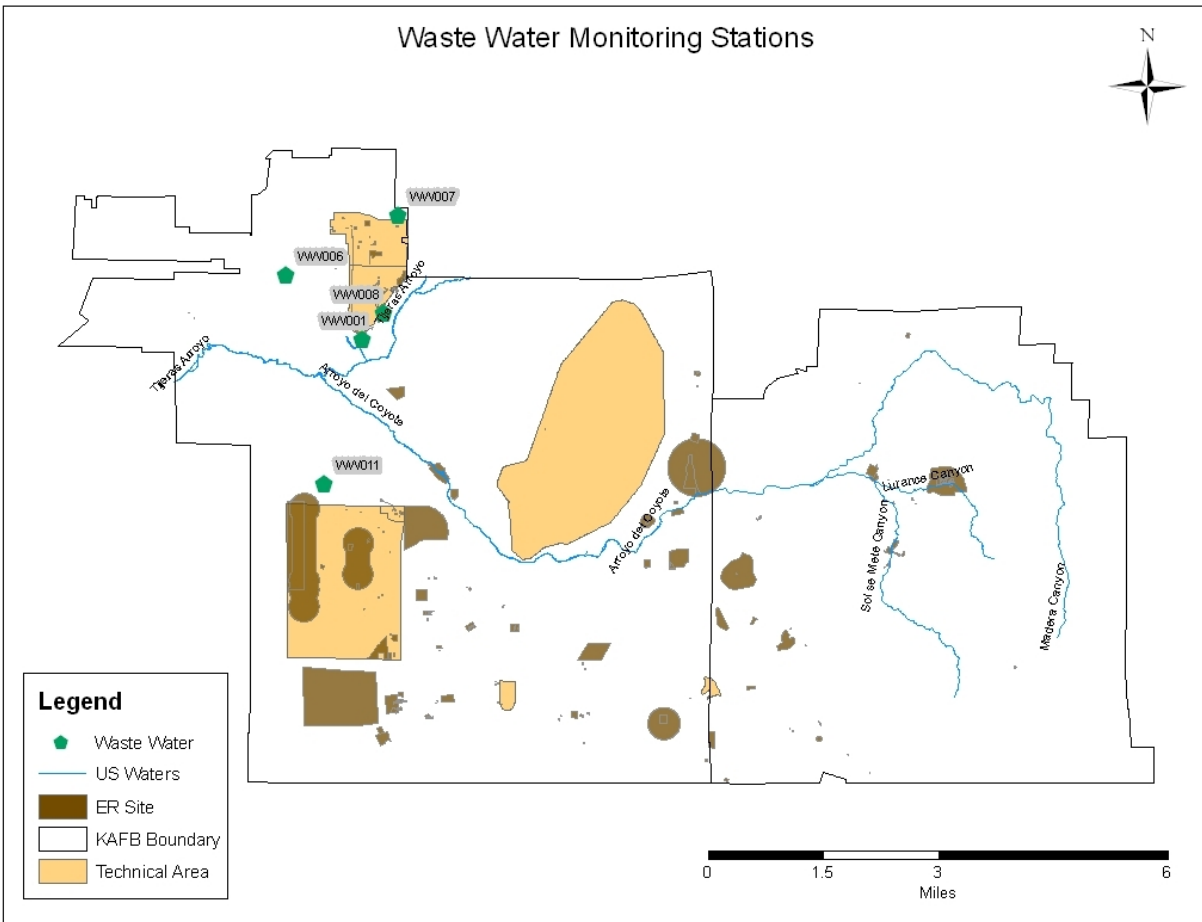
**Figure STE49-2.** Map of the biota and terrestrial sampling locations off-site of Kirtland Air Force Base.

## 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 FFY 2011 Q-3, Bureau staff collected waste water samples from SNL outfall monitoring stations WW001, WW006, WW008 and WW011 and submitted data results to DOE.

Bureau staff submitted a draft data submittal to DOE titled, “Wastewater Monitoring at Sandia National Laboratories/New Mexico Conducted by NMED/DOE OB for April 2011.” Bureau staff collected split wastewater samples with SNL and Albuquerque Bernalillo County Water Utility Authority (ABCWUA) using standard SNL sampling procedures and equipment during April 2011. Samples were collected from wastewater monitoring stations WW001 (ABCWUA permit number 2069A), WW006 (ABCWUA permit number 2069F), WW008 (ABCWUA permit number 2069I), and WW0011 (ABCWUA permit number 2069K). Samples were submitted to Test America for organics, total metals, inorganics, and radiological analyses. No analyte concentrations exceeded established criteria.



**Figure SWW51-1.** Map of Wastewater Monitoring Stations on Kirtland Air Force Base.

### 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 FFY 2011 Q-3, 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 FFY 2011 Q-3, Bureau staff compiled and edited portions of the 2010 Annual Report.

**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 FFY 2011 Q-3, Bureau staff reported no activity.

**GIS DATA PROJECT (SGD56)**

Under this Activity ID, Bureau staff provides map generation, internal geospatial data management and internal database management.

**Quarterly Summary:** During FFY 2011 Q-3, 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 FFY 2011 Q-3,** Bureau staff participated in administrative, safety and radiation training, attended Audit-11-17 of the Washington TRU Solutions Monitoring Programs, observed facility activities related to EPA's Annual Inspection of waste emplacement (40 CFR 191, Subpart A) and witnessed a dry run of the TRUPACT III operation.

Staff scientist Julia Marple successfully completed Safety 501, the 40 hour Inexperienced Miner training. This training fulfills all requirements of 30 CFR Part 48 and allows for unescorted underground access at the WIPP site.

Staff scientist Thomas Kesterson successfully completed his Rad-202, Radiation Worker II retraining and Safety 619, Compressed Gas Cylinder Safety. The Rad-202 refresher provides a review of core radiological worker training material, as needed. Safety-619 covers the safe handling, transport, and inspection of compressed gas cylinders.

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

In April, three staff members of the Los Alamos Oversight Section (LOS) visited the Carlsbad office for observation and consultation. One staff member remained on short term reassignment to assist the Carlsbad staff in implementing various programs and equipment upgrades. With the help of IT and visiting LOS staff, the Carlsbad staff successfully installed software for the recently purchased HOBO data loggers and GPS's. The LOS staff accompanied WIPP Oversight Section (WOS) staff in several field activities, such as air monitoring and soil and sediment collection, and exchanged valuable information concerning field procedures. It is the desire of the DOE OB to build consistent data gathering and reporting within the Bureau's different sections, and to prepare for creating a unified data management system.

Later in the quarter, staff scientist Julia Marple visited the Los Alamos office and worked with the LOS staff to observe their field activities and to continue working on data management issues.

In May, staff attended Audit-11-17 of the Washington TRU Solutions Monitoring Programs. The audit was conducted to evaluate the adequacy, implementation, and effectiveness of the Washington TRU Solution's (WTS) Quality Assurance (QA) program. The following criteria were evaluated:

- Organization
- Quality Assurance Program
- Training
- Records

- Volatile Organic Compound / Hydrogen / Methane Monitoring
- Delaware Basin
- DP-831
- Groundwater Monitoring
- Biotic / Vegetation / Surface Water-Sediment-Soil Sampling / Water Quality Monitoring and Environmental Monitoring and Hydrology Field Work

No “observations” were noted during this audit, an observation being a condition that is determined not to be a violation of procedure or requirements at the time, but if not controlled or addressed, may result in a CAQ (Condition Adverse to Quality) during future activities. The audit team evaluated these selected programs and concluded that overall, the WTS Monitoring Programs were adequate, satisfactorily implemented, and effective.

During the same week in May, staff was present to observe the EPA’s Annual Inspection of waste emplacement, 40 CFR 191, Subpart A (radiation dose calculation to public from WIPP emissions), and WIPP monitoring programs. One of the activities, as stated in the Permittees weekly publication, Underground 2150, included the random selection of five CH waste containers and three RH boreholes underground. Later, information pertaining to these containers was accurately verified by the Waste Data System. The EPA did state some observations, such as the salt occlusion found on the probe of Skid A-1 at Station A, but overall, the inspection appears to have been favorable. The audit report has not been received.

In June, staff was present at a dry run of the TRUPACT III operation in the Waste Building. The operations included the transportation of a TRUPACT-III package by Facility Transport Vehicle from the airlock between Room 108 and the CH Bay to its delivery and placement onto facility pallet stands; the unloading of a Standard Large Box 2 from the TRUPACT-III on the Yard Transport Vehicle; and the installation of the TRUPACT-III inner and outer lids by the Bolting Robot.

Staff attended a Technical Procedure Review for the draft procedures for TRUPACT-III Abnormal Operations. This is a normal review process for any new operation to insure safe practices among all involved personnel. These procedure reviews will take place regularly, with additional comments and edits, as required.

Later in June, on behalf of the HWB, WOS staff inspected eight items pertaining to modifications of the WIPP Hazardous Waste Facility Permit for TRUPACT-III project. These items were identified in a Professional Engineer (PE) Certification, received June 16, 2011, which stated that these were “constructed in a manner that will allow waste handling operations to occur in the affected areas in compliance with the WIPP Hazardous Waste Facility Permit.”

The eight items are listed as follows:

1. Remove concrete pad.
2. Install hood ventilation system.
3. Install bolting robot.
4. Install pallet dispenser.
5. Install VOC monitoring system.
6. Perform electrical work in Room 108.

7. Install bolt and cover / lid rack.
8. Install payload transfer station.

In a letter to the Permittees, dated June 21, 2011, the HWB stated that “Based upon a review of the information provided in the certification and obtained during the inspection, NMED hereby finds that compliance with the requirements of the Permit are acceptable. The Permittees may now process waste utilizing the modified portions of the facility.”

WOS staff was present during a TRUPACT-III Readiness Assessment at the WIPP. Those activities observed included the movement of the Yard Transport Vehicle (YTV) into its proper location to receive the TRUPACT-III; unloading the TRUPACT-III from its shipping trailer and its placement and securing onto the YTV; the transport of the YTV / TRUPACT-III through the CH Bay; and into position in Room 108 of the Hazardous Waste Building.

Staff also observed the “Smoke Test”, in which smoke was released near the lids to demonstrate the proper operation of the Hood Ventilation System. This test was considered successful.



**Figure WAD70-1.** The TRUPACT-III being lifted from its trailer during FFY 2011 Q-3 readiness assessment.



**Figure WAD70-2.** The TRUPACT –III in-place atop the Yard Transport Vehicle (YTV) during the readiness assessment.

### **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 FFY 2011 Q-3, Bureau staff attended the WIPP Quarterly Meeting 114, the public hearing for the “Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste,” and the Uranium Fuel Cycle Conference.

#### **WIPP Quarterly Meeting**

On April 26 of this quarter, staff attended the 114th WIPP Quarterly Meeting in Carlsbad. Staff discussed ongoing projects and latest results. Updates were provided by DOE CBFO, URS, HWB, DOE OB, and the New Mexico Waste Transportation Coordinator.

#### **Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Public Meeting**

In April, the DOE OB Bureau Chief and the Program Manager of the WOS attended the Public Hearing for the “Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste,” held in Carlsbad. The format

was divided into an initial poster session, a DOE presentation and a wrap-up session with public commentary. The DOE discussion points were:

1. There is no existing facility for GTCC waste.
2. GTCC disposal is the responsibility of the Federal Government under the Low-Level Radioactive Waste Policy Amendments of 1985.
3. GTCC disposal is responsive to National Security concerns.
4. GTCC disposal supports U.S. Programs, medical isotope production, deep space exploration, etc.
5. GTCC disposal implements Environmental Stewardship, DOE and commercial cleanup commitments.

There is approximately 12,000 cubic yards of GTCC with no current path to disposal. The GTCC is segregated into three waste types:

- Activated metals: 2,000 m<sup>3</sup> with 160 MCi of activity
- Sealed sources: 2,900 m<sup>3</sup> with 2.0 MCi of activity
- Other waste: 6,700 m<sup>3</sup> with 1.3 MCi of activity

Although DOE does not yet have a preferred alternative, the proposed disposal methods and locations include:

- Geologic repository at Waste Isolation Pilot Plant (WIPP)
- Intermediate depth boreholes at Hanford Site (Hanford), Idaho National Laboratory (INL), Los Alamos National Laboratory (LANL), Nevada National Security Site (NNSS) formerly known as the Nevada Test Site (NTS), WIPP and its vicinity, and a generic western location (Region IV)
- Enhanced near-surface trenches at Hanford, INL, LANL, Savannah River Site (SRS), WIPP vicinity, and generic commercial location in the southeast (Region II) and west (Region IV)
- Above grade vaults at Hanford, INL, LANL, NNSS, SRS, WIPP vicinity, and generic commercial location in Regions I to IV (northeast, southeast, Midwest, and west)

Three DOE alternatives are in New Mexico:

- A deep geologic repository created by expanding the existing WIPP salt mine by adding panels
- A location near WIPP within the withdrawn area
- Enhanced near-surface trenches or intermediate depth boreholes at LANL

Citizen speakers at this meeting were overwhelmingly in support (approximately 9 to 1 in favor) of the geologic repository alternative that results in an expanded mission of the existing WIPP facility.

Public comments were due to DOE on June 27, 2011 (<http://www.gtcceis.anl.gov/>).

### **Uranium Fuel Cycle Conference**

WOS Bureau Chief and Program Manager attended the Uranium Fuel Cycle Conference in Hobbs on April 27 and 28, 2011. Conference proceedings included:

- Uranium Mining: Geology and New Mining Technology

- Uranium Processing
- Japan and Nuclear Energy: What Went Wrong and its Impact
- Small Nuclear Reactors and the Eastern New Mexico Energy Corridor
- The Small Nuclear Reactor and Deployment
- Research and Readiness
- Government and the Small Nuclear Reactor
- Training and Education for the Future of Nuclear Energy

## **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 FFY 2011 Q-3, Bureau staff continued National Emissions Standards for Hazardous Air Pollutants (NESHAP) air filter collection at WIPP Station A (both primary and back-up) and Station B.

### **Exhaust Air Monitoring**

Air filters are collected from the Station A skid of reference (primary) and its back-up each morning, with the responsible party completing the chains of custody. Primary filters are compiled by month and shipped to the contract lab with the back-up filters archived for future analysis, if required. Filters from Station B are collected on Wednesday mornings. Station A air flow data is forwarded monthly to the staff of the Oversight Bureau from Carlsbad Technical Advisor Contractor (CTAC). This data is compared to the chains of custody for any discrepancies. There were no issues this quarter with the Station A air flow data.

This quarter, Staff submitted a report to the DOE titled, “Station A Exhaust Air Monitoring at the Waste Isolation Pilot Plant Conducted by the New Mexico Environment Department, DOE Oversight Bureau, July – December 2010.”

There were no detections for  $\text{Sr}^{90}$ ,  $\text{Cs}^{137}$ , or  $\text{U}^{235}$  during this time.  $\text{U}^{234}$  was detected in the filters collected for the months of September, November, and December, while  $\text{U}^{238}$  was also detected in the filters collected during December.  $\text{Pu}^{238}$  was detected in those filters collected during both July and November, while  $\text{Pu}^{239/240}$  was detected in August.  $\text{Am}^{241}$  was detected in August and September. However, it should be noted that  $\text{Pu}^{238}$  and  $\text{Am}^{241}$  were detected in the sample blank, indicating the results for the months showing detections are questionable.

Staff also shipped to the contract lab Station A filters for the first quarter of 2011. These results are expected soon.

**Table WEA72-1. Laboratory Results for Station A, July to September 2010.**

| <i>Jul-10<br/>Station A</i>                                      | Analytical Results<br>Monthly Composite Sample |       |               |             | <i>Data Summaries</i> |       |
|------------------------------------------------------------------|------------------------------------------------|-------|---------------|-------------|-----------------------|-------|
| Analyte                                                          | Result                                         | 2 s   | Sample<br>MDC | Lab<br>Flag | Result                | 2 s   |
|                                                                  | pCi/composite                                  |       |               |             | nBq/m <sup>3</sup>    |       |
| Sr-90                                                            | 0.18                                           | 0.22  | 0.46          | U           | 2909                  | 3556  |
| Pu-239/40                                                        | 0.017                                          | 0.023 | 0.034         | U           | 275                   | 372   |
| Pu-238                                                           | 0.019                                          | 0.023 | 0.017         | LT          | 307                   | 372   |
| Am-241                                                           | 0.012                                          | 0.025 | 0.036         | U           | 194                   | 404   |
| Cs-137                                                           | -1.0                                           | 4.9   | 8.7           | U           | -16164                | 79202 |
| U-234                                                            | 0.014                                          | 0.027 | 0.056         | U           | 226                   | 436   |
| U-235                                                            | 0.001                                          | 0.026 | 0.05          | U           | 12                    | 420   |
| U-238                                                            | 0.005                                          | 0.022 | 0.048         | U           | 81                    | 356   |
| <div>(m<sup>3</sup>)                      (ft<sup>3</sup>)</div> |                                                |       |               |             |                       |       |
| Total Air Flow                                                   | 2289                                           | 80857 |               |             |                       |       |

| <i>Aug-10<br/>Station A</i>                                      | Analytical Results<br>Monthly Composite Sample |       |               |             | <i>Data Summaries</i> |       |
|------------------------------------------------------------------|------------------------------------------------|-------|---------------|-------------|-----------------------|-------|
| Analyte                                                          | Result                                         | 2 s   | Sample<br>MDC | Lab<br>Flag | Result                | 2 s   |
|                                                                  | pCi/composite                                  |       |               |             | nBq/m <sup>3</sup>    |       |
| Sr-90                                                            | 0.09                                           | 0.22  | 0.49          | U           | 1402                  | 3352  |
| Pu-239/40                                                        | 0.033                                          | 0.030 | 0.018         | LT          | 503                   | 457   |
| Pu-238                                                           | 0.019                                          | 0.028 | 0.052         | U           | 290                   | 427   |
| Am-241                                                           | 0.041                                          | 0.034 | 0.019         | LT          | 625                   | 518   |
| Cs-137                                                           | 0.0                                            | 4.9   | 8.7           | U           | 0                     | 74667 |
| U-234                                                            | 0.031                                          | 0.035 | 0.060         | U           | 472                   | 533   |
| U-235                                                            | 0.003                                          | 0.027 | 0.047         | U           | 46                    | 411   |
| U-238                                                            | 0.011                                          | 0.023 | 0.049         | U           | 168                   | 350   |
| <div>(m<sup>3</sup>)                      (ft<sup>3</sup>)</div> |                                                |       |               |             |                       |       |
| Total Air Flow                                                   | 2428                                           | 85768 |               |             |                       |       |

| <i>Sep-10<br/>Station A</i>                                      | Analytical Results<br>Monthly Composite Sample |       |        |      | <i>Data Summaries</i> |       |
|------------------------------------------------------------------|------------------------------------------------|-------|--------|------|-----------------------|-------|
| Analyte                                                          | Result                                         | 2 s   | Sample | Lab  | Result                | 2 s   |
|                                                                  | pCi/composite                                  |       | MDC    | Flag | nBq/m <sup>3</sup>    |       |
| Sr-90                                                            | -0.07                                          | 0.20  | 0.46   | U    | -1112                 | 3270  |
| Pu-239/40                                                        | 0.022                                          | 0.027 | 0.041  | U    | 360                   | 441   |
| Pu-238                                                           | 0.007                                          | 0.024 | 0.018  | U    | 106                   | 392   |
| Am-241                                                           | 0.034                                          | 0.030 | 0.032  | LT   | 556                   | 490   |
| Cs-137                                                           | 1.6                                            | 5.0   | 8.6    | U    | 26159                 | 81747 |
| U-234                                                            | 0.048                                          | 0.038 | 0.041  | LT   | 785                   | 621   |
| U-235                                                            | 0.000                                          | 0.027 | 0.020  | U    | 0                     | 441   |
| U-238                                                            | 0.017                                          | 0.023 | 0.034  | U    | 278                   | 376   |
| <div>(m<sup>3</sup>)                      (ft<sup>3</sup>)</div> |                                                |       |        |      |                       |       |
| Total Air Flow                                                   | 2263                                           | 79939 |        |      |                       |       |

**Table WEA72-2. Laboratory Results for Station A, October to December 2010.**

| <i>Oct-10<br/>Station A</i>                                                                         | Analytical Results<br>Monthly Composite Sample |       |               |             | <i>Data Summaries</i> |       |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------|-------|---------------|-------------|-----------------------|-------|
| Analyte                                                                                             | Result                                         | 2 s   | Sample<br>MDC | Lab<br>Flag | Result                | 2 s   |
|                                                                                                     | pCi/composite                                  |       |               |             | nBq/m <sup>3</sup>    |       |
| Sr-90                                                                                               | -0.04                                          | 0.22  | 0.49          | U           | -520                  | 3270  |
| Pu-239/40                                                                                           | 0.007                                          | 0.021 | 0.042         | U           | 97                    | 312   |
| Pu-238                                                                                              | 0.004                                          | 0.021 | 0.031         | U           | 61                    | 312   |
| Am-241                                                                                              | 0.023                                          | 0.025 | 0.032         | U           | 342                   | 372   |
| Cs-137                                                                                              | -3.1                                           | 5.1   | 9.4           | U           | -46084                | 75816 |
| U-234                                                                                               | 0.011                                          | 0.024 | 0.053         | U           | 164                   | 357   |
| U-235                                                                                               | 0.020                                          | 0.027 | 0.047         | U           | 297                   | 401   |
| U-238                                                                                               | 0.013                                          | 0.020 | 0.035         | U           | 193                   | 297   |
| <div><div>(m<sup>3</sup>)</div><div>(ft<sup>3</sup>)</div></div> <div>Total Air Flow248987916</div> |                                                |       |               |             |                       |       |

| <i>Nov-10<br/>Station A</i>                                                                         | Analytical Results<br>Monthly Composite Sample |       |               |             | <i>Data Summaries</i> |       |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------|-------|---------------|-------------|-----------------------|-------|
| Analyte                                                                                             | Result                                         | 2 s   | Sample<br>MDC | Lab<br>Flag | Result                | 2 s   |
|                                                                                                     | pCi/composite                                  |       |               |             | nBq/m <sup>3</sup>    |       |
| Sr-90                                                                                               | 0.10                                           | 0.23  | 0.50          | U           | 1553                  | 3573  |
| Pu-239/40                                                                                           | 0.017                                          | 0.025 | 0.044         | U           | 264                   | 388   |
| Pu-238                                                                                              | 0.035                                          | 0.032 | 0.019         | LT          | 544                   | 497   |
| Am-241                                                                                              | 0.030                                          | 0.032 | 0.048         | U           | 466                   | 497   |
| Cs-137                                                                                              | -3.2                                           | 4.3   | 7.9           | U           | -49709                | 66796 |
| U-234                                                                                               | 0.038                                          | 0.033 | 0.038         | LT          | 590                   | 513   |
| U-235                                                                                               | -0.004                                         | 0.025 | 0.044         | U           | -65                   | 388   |
| U-238                                                                                               | 0.002                                          | 0.022 | 0.038         | U           | 37                    | 342   |
| <div><div>(m<sup>3</sup>)</div><div>(ft<sup>3</sup>)</div></div> <div>Total Air Flow238284135</div> |                                                |       |               |             |                       |       |

| <i>Dec-10<br/>Station A</i> | Analytical Results<br>Monthly Composite Sample |                    |               |             | <i>Data Summaries</i> |       |
|-----------------------------|------------------------------------------------|--------------------|---------------|-------------|-----------------------|-------|
| Analyte                     | Result                                         | 2 s                | Sample<br>MDC | Lab<br>Flag | Result                | 2 s   |
|                             | pCi/composite                                  |                    |               |             | nBq/m <sup>3</sup>    |       |
| Sr-90                       | -0.03                                          | 0.25               | 0.58          | U           | -734                  | 5394  |
| Pu-239/40                   | 0.016                                          | 0.024              | 0.041         | U           | 345                   | 518   |
| Pu-238                      | 0.007                                          | 0.024              | 0.018         | U           | 140                   | 518   |
| Am-241                      | 0.019                                          | 0.023              | 0.035         | U           | 410                   | 496   |
| Cs-137                      | 5.2                                            | 4.3                | 6.8           | U           | 112187                | 92770 |
| U-234                       | 0.15                                           | 0.07               | 0.05          | LT          | 3236                  | 1445  |
| U-235                       | 0.029                                          | 0.033              | 0.050         | U           | 626                   | 712   |
| U-238                       | 0.099                                          | 0.054              | 0.051         | LT          | 2136                  | 1165  |
|                             |                                                |                    |               |             |                       |       |
| Total Air Flow              | (m <sup>3</sup> )                              | (ft <sup>3</sup> ) |               |             |                       |       |
|                             | 1715                                           | 60579              |               |             |                       |       |

**Table WEA72-3. Laboratory Results Blank Filter, July through December 2010.**

***Blank filter July - December 2010***  
***Station A***

| Analyte   | Result        | 2 s   | MDC   | Lab Flag |
|-----------|---------------|-------|-------|----------|
|           | pCi/composite |       |       |          |
| Sr 90     | -0.18         | 0.19  | 0.45  | U        |
| Pu-239/40 | 0.003         | 0.031 | 0.054 | U        |
| Pu-238    | 0.043         | 0.039 | 0.023 | LT       |
| Am 241    | 0.027         | 0.028 | 0.019 | LT       |
| Cs 137    | -0.5          | 4.1   | 7.1   | U        |
| U-234     | 0.008         | 0.025 | 0.059 | U        |
| U-235     | -0.002        | 0.028 | 0.041 | U        |
| U-238     | 0.014         | 0.024 | 0.047 | U        |

**Preventative Maintenance Probe Pulls**

Staff members regularly attend preventative maintenance probe-pulls at Station A for the cleaning of the shrouds and nozzles (the probe). Also present are personnel from WTS, including the surface air monitor and engineer, the tech from Carlsbad Environmental Monitoring and Research Center (CEMRC), US DOE and CTAC. Regular removal and cleaning of the nozzles and shrouds minimizes the accumulation of salt and insures a collection of a representative sample of particulates on the filter. As the shrouds are removed, staff members photograph the probes and these photos are forwarded to the EPA in Dallas, Texas.

After removal of these probes, the amount of salt occlusion is measured by WTS personnel, and included in reports forwarded to the DOE OB office in Carlsbad 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 inspection. This quarter, the nozzles from Skids A-2 & A-3 passed each preventative maintenance probe pull, while the nozzle from Skid A-1 failed during the May 10 probe pull, with 92.5% occlusion. At his time, Skid A-1 was in service as back-up. The shroud for Skid A-1 also failed at this time. This quarter, the preventative maintenance probe pulls took place every other week.



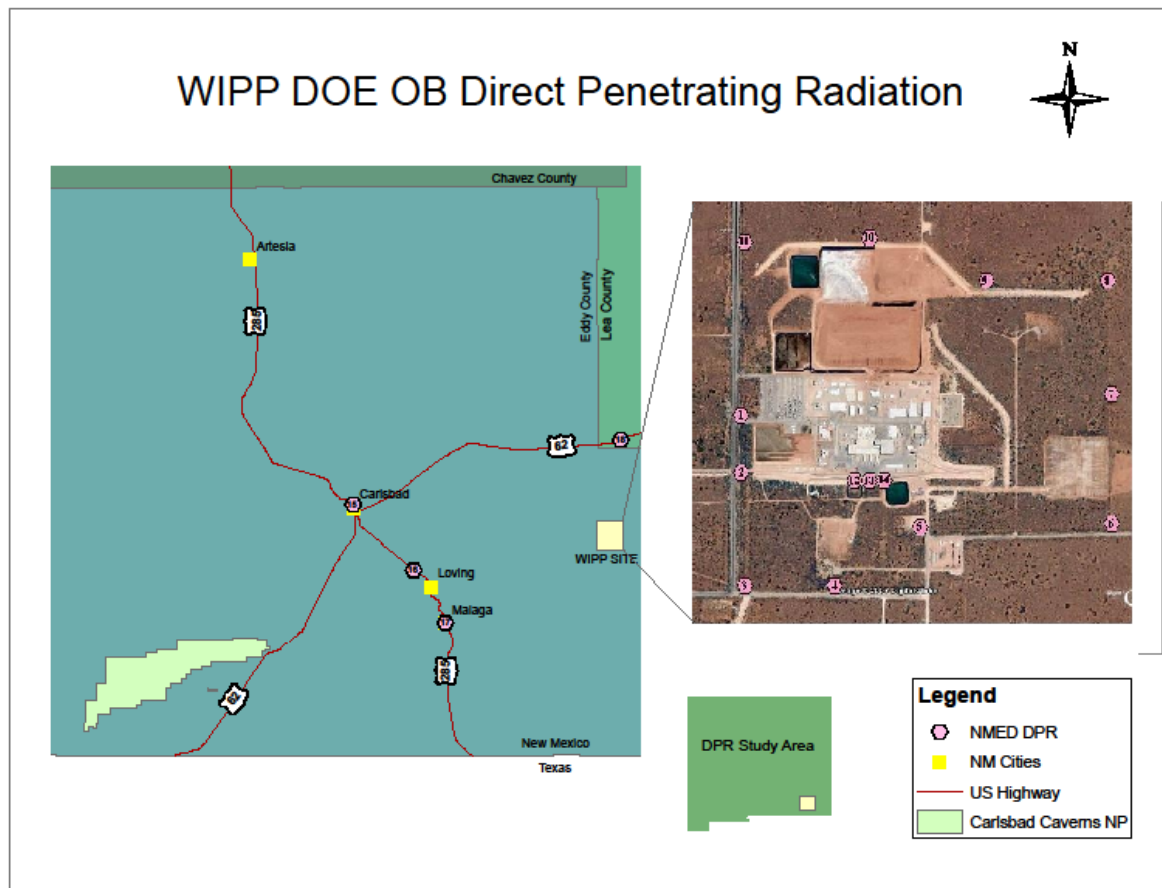
**Figure WEA72-1. Probe from Skid A-1, on May 10, showing failure of both the nozzle and shroud.**

### **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. A canister encasing three electrets is posted at each DPR monitoring location.

**Quarterly Summary:** During FFY 2011 Q-3, Bureau staff collected quarterly readings of electrets around the WIPP area, performed data entry and maintenance of the DPR database, and sent draft data submittals to the DOE for CY 2010 Q-4 and CY 2011 Q-1. The draft data submittal for CY 2011 Q-2 is pending. Results appear to be within normal background range.

The final report entitled, “Direct Penetrating Radiation Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for the CY 2010 Q-3” was submitted to DOE and NMED for public release.



**Figure WPD73-1. Map of DPR monitoring sites surrounding WIPP, and remote areas.**

### **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.

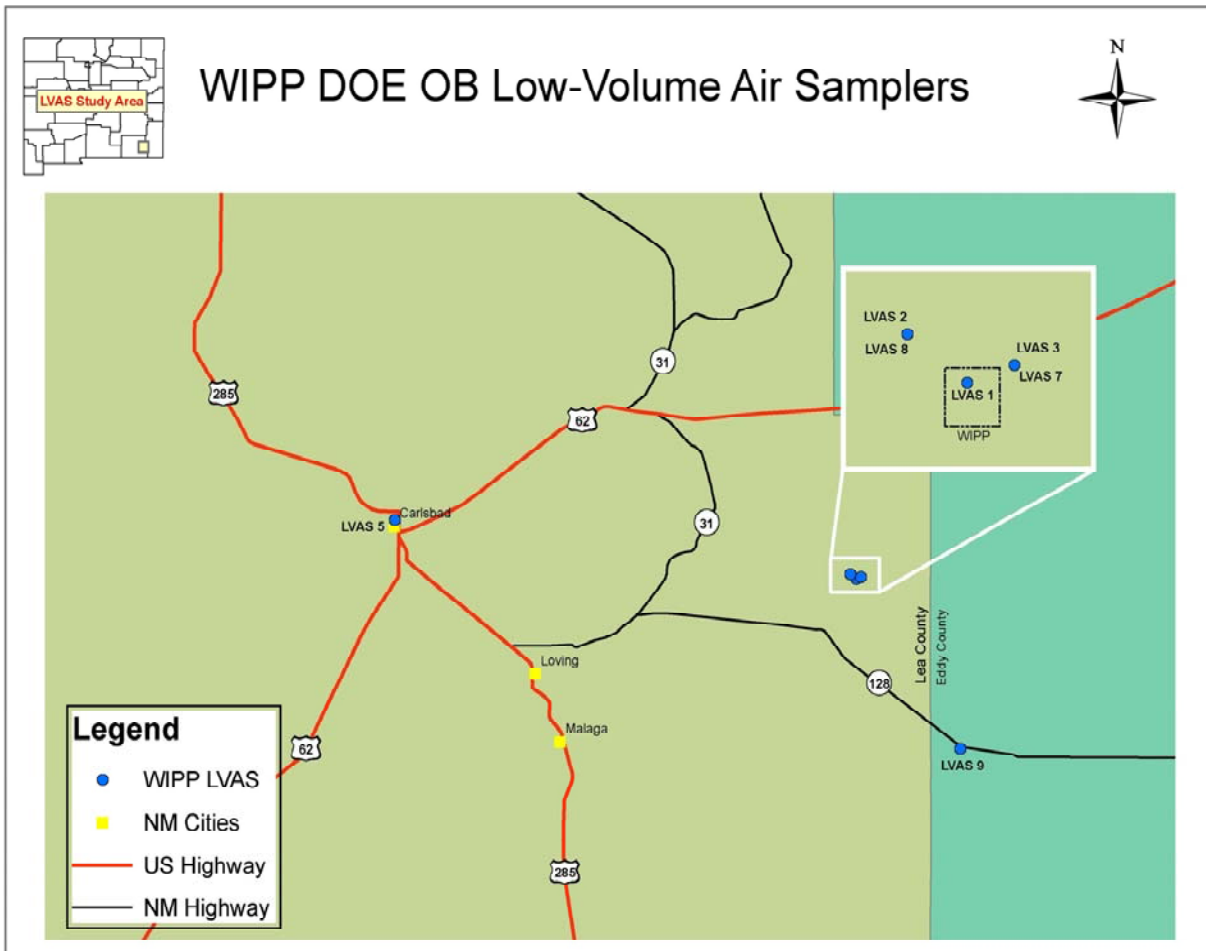
**Quarterly Summary:** During FFY 2011 Q-3, Bureau staff maintained six low-volume air monitoring stations and collected bi-weekly filter samples.

The WIPP Oversight Section had six (6) low-volume air samplers in operation during FFY 2011 Q-3. Five air samplers are located at the WIPP site. Two sampling locations have co-located samplers. One is for quality purposes. Filters from the other co-located sampler are to be archived for future use as needed. The sixth sampler is at the newly acquired SE Control Site, which is located at a distance upwind from the WIPP.

Bureau staff collected filter samples from six air sampling stations as conditions warranted (at least bi-weekly) and sent one test sample to a new contract laboratory to assess interface

compatibility in the areas of procurement, sample processing, and other contractual requirements including quality, detection limits, turn-around time and data delivery.

No reports were submitted on low-volume ambient air sampling results during Q-3. The backlog of samples dating from the end of CY 2010 will be shipped for analysis during Q-4.



**Figure WPL74- 1. Location of low-volume air monitoring stations in the WIPP area.**

Staff participated in two (2) training opportunities with members of the LOS staff, including field observations and data management.

Staff continually manages the ambient air program's documents, procurement, planning, database and the maintenance of field equipment and sampling sites.

### **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 FFY 2011 Q-3, Bureau staff completed soil and sediment sampling and worked on the VOC SOP.

Soil and sediment sampling field work was completed this quarter. Samples were shipped to the analytical laboratory and results have been received. The draft report is nearing completion at quarter's end.

The VOC SOP is also nearing completion. It is anticipated that the VOC sampling project will begin during FFY 2011 Q-4.

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