SAND95-0574C

Offsite Demonstrations for MWLID Technologies

Conf-9504135--1

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ABSTRACT

The goal of the Offsite Demonstration Project for MWLID-developed environmental site characterization and remediation technologies is to facilitate the transfer, use, and commercialization of these technologies to the public and private sector. To meet this goal, the project focused on identifying the environmental restoration needs of mixed waste and/or hazardous waste landfill owners (Native American, municipal, Department of Energy [DOE], and Department of Defense [DoD]); documenting potential demonstration sites and the contaminants present at each site; assessing the environmental regulations that would effect demonstration activities; and evaluating site suitability for demonstrating MWLID technologies at the tribal and municipal sites identified.

Eighteen landfill sites within a 40.2-km radius of Sandia National Laboratories are listed on the CERCLIS Site/Event Listing for the state of New Mexico. Seventeen of the eighteen sites are not located within the confines of DOE or DoD facilities and are considered to be potential off-site MWLID technology demonstration sites. Two of the seventeen CERCLIS sites, one on Native American land and one on municipal land, were further evaluated and identified as potential candidates for off-site demonstrations of MWLID-developed technologies. Contaminants potentially present on site, identified through CERCLIS information, include chromium waste, household/commercial hazardous waste, volatile organic compounds, and petroleum products. MWLID characterization technologies applicable to these sites include Magnetometer Towed Array, Cross-borehole Electromagnetic Imaging, SitePlanner™/PLUME, Hybrid Directional Drilling, Seamist™/Vadose Zone Monitoring, Stripping Analyses, and x-ray Fluorescence Spectroscopy for Heavy Metals.

This work was supported by the United States Department of Energy under Contract DE-AC04-94AL85000.

INTRODUCTION

The goal of the Offsite Demonstration Project for the Mixed Waste Landfill Integrated Demonstration/Office of Technology Development (MWLID/OTD) is to facilitate the transfer, use, and commercial application of these technologies. The purpose of the present project is to identify the environmental restoration needs of mixed and/or hazardous waste landfill owners—Native American, municipal, Department of Energy (DOE), and Department of Defense (DoD)—and to document potential tribal and municipal sites for the demonstration of MWLID technologies within 40.2 km of Sandia National Laboratories (SNL) in Albuquerque, New Mexico.

Federal, state, municipal, and available tribal environmental records were accessed to identify the locations of tribal and municipal landfills within a 40.2-km radius of SNL. Records were researched to determine relevant statistics and regulator concerns regarding the landfill sites. From this list, five sites were selected as suitable for demonstration of MWLID technologies. Demonstration plans were developed for two of these sites.

IDENTIFICATION OF LANDFILLS

The initial search utilized the databases of the New Mexico Environment Department (NMED) Solid Waste Bureau and the City of Albuquerque Environmental Health Department; the Comprehensive Environmental Response, Compensation, and Liability Act Information System Listing (CERCLIS) list; and discussions with Native American officials. The total number of landfills identified in New Mexico, excluding unreported sites on Native American land and closed DOE and DoD sites, totaled 156. Thirty-one landfill sites were identified in a geographic region within 40.2 km of SNL. Of these 31 sites, 17 are located within the Albuquerque city limits, eight are located on Native American land, two are located on Kirtland Air Force Base (KAFB), and the remaining four are located in surrounding counties. Sixteen of the 31 identified landfills are closed.

A review of the CERCLIS Site/Event Listing for New Mexico identified 18 sites with assigned Environmental Protection Agency (EPA) identification numbers. Seventeen of the 18 sites are located outside the confines of DOE facilities and are thus considered potential MWLID technology demonstration sites.

POTENTIAL SITES SELECTED FOR OFFSITE DEMONSTRATION

Five landfill sites were selected as potential demonstration sites. Site selection was based on the presence or suspected presence of heavy metals and volatile organic compounds (VOCs). Two of these sites are located on Native American land; three are City of Albuquerque municipal landfills, one of which is no longer owned by the city. The five sites are described below.

Isleta Pueblo Site No. 3

Isleta Pueblo Site No. 3 is approximately 46.5 hectares and is located 0.8 km west-southwest of the town of Isleta, within the Isleta Pueblo Reservation, approximately 1.6 km west of the Rio Grande. The site is bounded by state roads and undeveloped acreage. Numerous streets provide access to the site, nearby residences, and the Wall-Colmony Machine Works, which is located east of the site. Terrain slopes to the east and southeast. On-site vegetation consists of native grasses and some trees. Depth to ground water is estimated to be 30.5 m. The site is currently developed with Housing and Urban Development (HUD) structures and associated infrastructure.

The site is under the jurisdiction of the Isleta Pueblo Tribal Council. Because the site has been developed with residential housing, it is a source of concern to the Tribal Council.

This landfill is the Pueblo's oldest dumpsite. Its opening date is unrecorded; it was closed in 1974. The dump may contain chromium waste from the adjacent Wall-Colmony Machine Works, which started operating about the time the dump was closed. Other suspected contaminants, based on 1983 estimates of materials placed in Albuquerque landfills, include household and commercial hazardous waste and petroleum products.

Isleta Pueblo Site No. 4

Isleta Pueblo Site No. 4, approximately 10.1 hectares, is located 1.6 km southwest of the town of Isleta and 1.2 km west of the Rio Grande, near the intersection of the Santa Fe Railroad and El Camino Real. The site is accessible from the east by El Camino Real. The terrain is irregular and slopes slightly to the south. On-site vegetation consists of native grasses and sage. Depth to ground water is estimated to be 7.6 m. The dump site trenches are now closed, and no commercial or residential development exists on the site.

This dump site was utilized during the mid 1970s for an unrecorded duration. There are no source records for the materials disposed at this site. The majority of the disposed materials probably originated from within the Pueblo, but materials from commercial operations off the Pueblo may also have been dumped. The primary suspected contaminant is chromium waste from the Wall-Colmony Machine Works, operational during approximately the same time period and located within the Pueblo, about 0.4 km north of the site. Other suspected contaminants, based on 1983 estimates of materials placed in Albuquerque landfills, include household and commercial hazardous waste and petroleum products.

City of Albuquerque Eubank Landfill

The Eubank Landfill is located in the southeast quadrant of Albuquerque. The landfill encompasses approximately 40.5 hectares and was utilized for disposal of household and commercial refuse from 1967 until 1978. The site is bound by a mobile home park, undeveloped land, a power station, the Sandia Research Park, and KAFB. The site is accessible from Eubank Boulevard and KAFB. Tijeras Arroyo is adjacent to the southeast side of the site, running northeast to southwest. The site slopes slightly to the south and southeast. On-site vegetation consists of native grasses, weeds, sage, and a few trees. Ground water is approximately 122.0 m deep and flows in a south and southwest direction. The site is undeveloped.

The preliminary site assessment in 1982 identified liquid solvents, possibly methelyne chloride, chemical wastes, commercial wastes, and residential waste (EPA, 1982). No leachate collection system exists at this landfill; the site is currently listed as a low-priority CERCLA site. The landfill is owned by the City of Albuquerque, which has expressed an interest in having the site assessed. A housing subdivision is being developed to the north and northeast of the site. KAFB has water supply wells in the down hydraulic gradient direction from the site, but two wells were sampled in 1982 and 1981 and no significant levels of contamination were found in either well.

City of Albuquerque Los Angeles Landfill

The Los Angeles Landfill is located in north Albuquerque, 1.6 km west of US Interstate 25 between Alameda Boulevard and Paseo del Norte. The site is bounded on the east by the Washington Business Park and on the west by the Albuquerque Metropolitan Area Flood Control Authority North Diversion Channel. Depth to ground water ranges from 28.9 to 38.1 m. Ground

water flow is to the southeast. The landfill is currently utilized as the Albuquerque Balloon Fiesta Park and the Independence Day fireworks display site.

The site inspection report listed PCBs, lindane, trichloroethylene, toluene, and napthalene as substances of major concern (EPA, 1986). Eight leachate and eight ground water monitoring wells are located on site. The leachate monitoring wells have never yielded fluids. The landfill has on-site gas vents to release methane gas. Analysis of water samples collected from a monitoring well and analyzed for organic chemical constituents during 1987 and 1988 indicated the presence of numerous contaminants (listed in the off-site demonstration program section below). However, the five water wells located within an 0.8-km radius of the site have not shown (as of 1986) the presence of these contaminants. The site is owned by the City of Albuquerque and is currently listed as a low priority CERCLA site, although there is concern about drinking water contamination.

City of Albuquerque Coronado Landfill

The Coronado Landfill site is approximately 24.3 hectares in size and is located in north-central Albuquerque, east of US Interstate 25. It is bounded by several principal roadways. Landfill materials are estimated to be confined to the northwest portion of the site and in the filled arroyo channel that crosses the southern half of the site. Depth to ground water at this site is approximately 76.2 m.

The Coronado Landfill was purchased from the City of Albuquerque by Signetics, Inc. for construction of a microchip manufacturing facility. At the time of purchase, Signetics was not aware that the site had previously been part of a landfill. Signetics has conducted quarterly ground water sampling since 1990. The ground water is analyzed for total Kjeldahl Nitrogen and Halogenated Volatile Organics. Tetrachloroethene was detected in several of the sampling events. Signetics also performs monthly monitoring of the 35 methane gas vents on the property. Methane has been detected as high as 500,000 ppm. During the last site investigation, ground water samples and soil samples (15.2 to 20.3 cm depth) were collected and analyzed for target compound list organics and target analite list metals (Fluor, 1993). Comparisons were made with the Background Benchmark Concentration (BBC), which is three times the natural background concentration. Ground water samples showed concentrations of selenium, zinc, tetrachloroethene (11-14ug/l), and bis (2-ethylhexyl) Phthalate above the BBC. Surface soil samples showed concentrations of chromium, lead, and mercury above the BBC. Benzo Pyrene, a toxic polyaromatic hydrocarbon, was found in concentrations up to 88000 ug/kg. Pesticides detected above the BBC included heptachlor, dieldrin, aldrin, heptachlor epoxide, and endrine ketone.

The site is currently listed as a CERCLA site. No remedial action is planned for the Coronado Landfill under CERCLA, but the site will be further investigated under RCRA.

SANDIA NATIONAL LABORATORIES' UNIQUE CAPABILITIES

A unique capability of SNL's MWLID program is its expertise in evaluating and demonstrating innovative environmental technologies such as those proposed for this project. SNL has years of experience sponsoring technology demonstrations at mixed waste and chemical waste landfill sites for the DOE and DoD. Through these demonstrations, MWLID staff acquired (1) valuable information and experience about the performance of various environmental technologies in arid environments, (2) experience working with regulators and tribal environmental regulators, and (3) expertise in commercializing technologies and technology transfer to the private sector. The

MWLID program has an excellent record for transferring innovative environmental technologies to the private sector.

A search of current literature and contacts with other professionals concerning the assessment and remediation of mixed waste and chemical waste landfill sites reveals that the unique innovative environmental technologies being demonstrated here are not yet widely available in the domestic private or public sector. One objective of this project is for the technologies demonstrated to be made available to the domestic private and public sector for commercial applications through technology transfer.

POTENTIAL MWLID TECHNOLOGIES FOR OFFSITE DEMONSTRATION

To aid technology transfer, demonstration programs were developed for two of the five selected potential sites: (1) the Isleta Pueblo Site No. 3 (IPS3) and (2) the City of Albuquerque Los Angeles Landfill (LAL). Assessment techniques that may be demonstrated are described below. Techniques to be used at both sites include SitePlanner™/PLUME, Magnetometer Towed Array, Hybrid Directional Drilling, and Cross-borehole Electromagnetic Imaging. Techniques for possible use at only IPS3 include x-ray Fluorescence Spectroscopy and Stripping Analysis. Techniques for possible use at only LAL include the SEAMIST™/Vadose Zone Monitoring System.

SitePlanner™/PLUME

SitePlanner™/PLUME is a computerized sampling tool using geostatistics to optimize the use of both historical and non-intrusive field data to aid in the formulation of a sampling strategy. SitePlanner™ and PLUME combine data visualization, data management, and geostatistics to optimize the number and locations of drilling and sampling points needed to assess a hazardous waste site. The system can be used in the field as data are collected (e.g., geologic and on-site chemical analytical information) to support real-time decision making during the site assessment process. Using this tool to optimize the number and location of borings, wells, and samples can result in significant time and cost savings. This sampling strategy provides guidance siting for vertical and directionally-drilled boreholes and sampling locations along the boreholes for contaminant delineation.

Magnetometer Towed Array

The Magnetometer Towed Array uses seven magnetometers mounted on a trailer towed by an off-road vehicle to rapidly survey a site. The vehicle and sensor platform are designed to exhibit a low magnetic signature and thus minimize interference with the magnetometers. An on-board computer accepts magnetic data together with precise positioning data and outputs positions for every magnetic data point. The magnetic map of the surveyed area is displayed on a video monitor that provides a user interface to semi-automated target analysis. A magnetic anomaly can be selected for iterative least-squares model matching to determine the best fit of the magnetic moment and depth to the anomaly.

Hybrid Directional Drilling

Directional drilling (drilling at an angle) and horizontal boring have been shown to eliminate the problem of drilling-induced contaminant migration and contaminated drilling by-products. Worker safety is enhanced because the drilling equipment can often be located at the periphery of the landfill. This drilling technology minimizes the environmental impact of the drilling process

and provides a low cost but high quality alternative to more costly conventional directional drilling methods at shallow depths and vertical peripheral drilling. Successful demonstrations of the technology have been conducted at the Savannah River Site, Westinghouse Hanford Operations, SNL, and KAFB.

Cross-borehole Electromagnetic Imaging

Cross-borehole Electromagnetic Imaging is used to map the subsurface of a site by measuring the attenuation and phase shift of radio frequency signals propagated between boreholes. Since electrical properties, such as resistivity or electrical conductivity, are directly related to the chemical composition of the fluid passing through the geologic medium, contaminant source and plume detection are possible.

X-Ray Fluorescence Spectroscopy

X-ray Fluorescence Spectroscopy (XRF) detects and quantifies metals in a lined borehole in real time using two techniques. Depending on site-specific objectives and constraints, the XRF probe can use either a radio-isotope source or an x-ray generating tube to detect metal contamination in the subsurface. Downhole detection and quantification of contamination minimizes the number of samples for collection and analysis (on-and off-site). In situ analysis can speed the assessment process and support near-real-time decision making in the field, leading to cost and time savings.

Stripping Analysis

Stripping Analysis is a rapid field screening method that can be used for the detection of heavy metals in soil samples retrieved through drilling or other techniques. This method can analyze four metals simultaneously at parts-per-billion (ppb) levels within several hours of collection. Results are as good or better than comparable laboratory techniques. Significant cost savings can be achieved using stripping analysis to support field assessment and remediation activities. This technique provides results in the field in a near real-time fashion; it can be used as a screening method to direct field activities quickly and efficiently, minimize the number of samples that must be sent to a laboratory for confirmation analyses, and maximize site worker safety.

SEAMIST™/Vadose Zone Monitoring System

The SEAMIST™ membrane liner, developed by Science Engineering Associates (SEA) and demonstrated at the MWLID, is a promising technology that can replace the rigid casing found in most boreholes. SEAMIST™ can be used for sample collection, in-situ measurements, and transporting sensors downhole without contact between the instruments and the contaminated soils. Sensors that operate downhole to detect contamination or measure soil properties reduce the number of soil samples needed for offsite analyses.

An integrated pressure and gas sampling system using the SEAMIST™ borehole liner has been built by SNL and SEA. This stand alone field system performs real-time measurement at up to 64 sampling ports in either single or multiple wells, which can range from test holes created by a hydraulic "punch" (2.5 to 5.0 cm) to existing full size boreholes (20.3 cm). The sampling system utilizes a Bruel and Kjaer gas analyzer, a barometric pressure sensor, a differential pressure sensor, and a solenoid valve system to sequentially connect each sampling port to a sensor. Temperature sensors and thermocouple psychrometers that measure soil water potential are located in selected wells. The Vadose Zone Monitoring System can be used to assess and monitor contaminant transport in soils with deep vadose zones.

PROPOSED OFF-SITE DEMONSTRATION PROGRAMS FOR ISLETA PUEBLO SITE NO. 3 AND ALBUQUERQUE LOS ANGELES LANDFILL

Isleta Pueblo Site No. 3

Site Description and Project Considerations

The 46.5-hectare IPS3 site is located on the Isleta Pueblo Reservation in alluvial deposits of silts, sands, gravel, and cobbles. The terrain slopes to the east and southeast. Depth to ground water is 30.5 m. No ground water monitoring wells are installed to determine direction of flow; however, the Pueblo's water tanks and associated supply well are located northeast of the site.

The contaminant of concern is chromium waste presumed to have originated from the adjacent Wall-Colmony Machine Works, which operated until 1991 and underwent remediation for chromium contamination in 1994. Other suspected contaminants include household and commercial hazardous waste and petroleum products.

The site is under the jurisdiction of the Isleta Pueblo Tribal Council. Because tribal governments have been granted state government status under CERCLA, the US EPA is the governing agency. Stakeholder issues will need to be resolved in a mutually beneficial manner. Additionally, all tribal and federal regulations governing site assessment will be reviewed and followed. A written agreement including a statement of work, regulatory requirements, and stakeholder issues will be signed with the Tribal Council prior to starting the demonstration. This agreement would constitute Tribal Council approval of the demonstration.

Site Demonstration Approach

The site assessment demonstration at IPS3 will be conducted using the Landfill Characterization and Monitoring System (LCMS) approach, an integrated-systems approach for assessing and monitoring contaminants in and beneath landfills. The system uses emerging and existing minimally-intrusive technologies and downhole sensors that require minimal development work. The synergy of this approach can produce superior results in a safer fashion while reducing field investigation costs and time. This demonstration will focus on techniques used to identify heavy metal contamination since chromium waste is potentially a critical problem.

Site Demonstration Program

To determine applicable regulatory requirements, SNL will:

1) Meet with tribal regulators and confirm/identify all tribal regulations that govern site assessment.
2) Secure an agreement with the Tribal Council to allow SNL to assess the landfill site, then secure all permits needed for site assessment. This process will require several stakeholder meetings with both the Tribal Council and the residents currently living on the landfill site.
3) Work with the tribal regulators and the EPA to confirm all tribal and federal regulations governing site assessment on tribal lands. The regulatory review should include the CERCLA site assessment reporting and regulatory requirements, RCRA handling of any hazardous waste generated by site assessment activities, and Clean Water Act and Clean Air Act compliance.
4) Ensure that all regulations are followed and all necessary permits are secured.

Site Assessment Plan

The Site assessment program will be conducted in three phases: historical, non-intrusive, and minimally intrusive.

The historical phase will utilize the SitePlanner™/PLUME tool, a computerized sampling plan that optimizes historical and non-intrusive field data to formulate a sampling strategy. Site information integrated into SitePlanner™ will include a site map of the landfill and immediately surrounding area. Initially the site boundaries will be delineated through analysis of aerial photographs and any available landfill operations information. Additional information for site assessment will include tribal site records; analytical results obtained from assessment activities; and site geographic, hydrologic, geologic, and contaminant distribution data. All accessible site information will be input into SitePlanner™/PLUME to develop a site plan map, which will be used to lay out the site assessment surveys. Historical and recent aerial photographs of the landfill site and surrounding area will be secured. The approximate boundaries of the site and areas of concentrated hazardous waste disposal (i.e. concentrations of 55-gallon [208.1 liter] drums, sludge pits, abandoned storage tanks, etc.) will be delineated. Based on information gathered and input into SitePlanner™/PLUME, appropriate Magnetometer Towed Array and hand held magnetometer survey grids for locating concentrations of buried ferrous metal objects (55-gallon drums, abandoned tanks, etc.) will be determined.

For the non-intrusive phase, SNL will: (1) Conduct a Magnetometer Towed Array and hand held magnetometer survey (in densely developed areas) and input survey information into the Site Planner™/PLUME database for further site analysis, and (2) Utilize SitePlanner™/PLUME to analyze existing data and determine and additional data needed for further site assessment.

For the minimally intrusive phase, SNL will: (1) Utilize Cross-borehole Electromagnetic Imaging as a reconnaissance tool to identify any contaminant plumes and input this information into the SitePlanner™/PLUME database. (2) Utilize directional and horizontal drilling under the landfill to collect soil samples for analysis of contaminants. A drilling and sampling pattern based contaminant plume presence and suspect areas of chromium contamination will be established. (3) Conduct a downhole XRF survey to determine heavy metal contamination and compare the survey results to Stripping Analysis derived data. (4) Utilize Stripping Analysis as a field screening tool to determine the concentration of heavy metal contaminants present and submit selected samples to an EPA-approved analytic laboratory for analysis. All information will be processed into the SitePlanner™/PLUME database for further analysis.

Stakeholder Issues

The stakeholder issues for the IPS3 site assessment demonstration include presenting a preliminary site assessment plan to Isleta Tribal Council for review/suggestions and holding stakeholder meetings to describe the program and address tribal concerns. An agreement must be signed with the Tribal Council to conduct the demonstration. The agreement should address (1) the finalized site assessment plan, (2) regulatory requirements, and (3) all stakeholder issues. The necessary steps for conducting the site demonstration include selection of appropriate time, logistics, and actual running of the demonstration. The reporting phase will utilize the capabilities of SitePlanner™/PLUME to generate the site assessment information documents, such as contaminant distribution maps and 3-D subsurface projections, for incorporation into the site assessment report. The site assessment report will be submitted to the Tribal Environmental Office and the U.S. EPA or their designated oversight agency.

City of Albuquerque Los Angeles Landfill

Site Description and Project Considerations

The LAL landfill is located in alluvial deposits of silt, sand, gravel, and cobbles. The terrain slopes slightly to the south and west. Depth to ground water ranges from 28.9 to 38.1 m, with a southeast flow recorded during the assessment. The site is owned by the City of Albuquerque and used annually for the International Balloon Fiesta and the Independence Day fireworks display.

Originally, the landfill monitoring system contained eight leachate and eight ground water monitoring wells. Five additional wells were installed in 1988. There are also on-site methane gas vents. The 1986 Site Inspection Report listed PCBs, lindane, trichlorethylene, toluene, and napthalene as substances of major concern. Analysis of water samples collected from monitoring well 2 (LA2) in 1987 and 1988 indicated the presence of Benzene (3ppb), p-xylene (1ppb), m-xylene (1ppb), Toluene (trace), 1,1 Dichloroethane (1.5ppb), 1,1,1 Trichloroethane (1ppb), Trichloroethene (2ppb), Tetrachloroethene (2.7ppb), 1,1 Dichloroethene (2ppb), 1,1,1 Trichloroethene (1.4ppb), Chloromethane (1ppb), Dichloromethane (trace to 2ppb), Trichlorofluoromethane (5.3ppb), Freon type compound (1ppb), 1,1,2 Trichloroethene (trace), 1,1 Dichloroethene (23ppb), and Chloroethane (2ppb). The leachate monitoring wells have never yielded fluids. Five water wells located within an 0.8-km radius of the site have not shown the presence of the above contaminants as of 1986.

A site assessment demonstration must consider event scheduling at the site. Early stakeholder introductions will be important, and all city, state, and federal regulations governing the site must be followed. A written agreement including a statement of work, regulatory requirements, and stakeholder issues will be signed with the City of Albuquerque Health and Environment Department and the NMED. The agreement will constitute approval for the demonstration.

Site Demonstration Approach

The site assessment demonstration at LAL will be conducted using the Landfill Characterization and Monitoring System (LCMS) approach. Because the contaminants of concern are VOCs, the demonstration will focus on techniques to identify these.

Site Demonstration Program

To determine applicable regulatory requirements, SNL will:

1) Meet with City of Albuquerque regulators and confirm/identify all municipal regulations governing site assessment.
2) Secure an agreement with the city that allows SNL to assess the landfill site, then secure all permits needed for site assessment. This process will require numerous stakeholder meetings with the city and the residents currently living around the landfill site.
3) Meet with NMED regulators and confirm the CERCLA site assessment reporting and regulatory requirements, RCRA handling of any hazardous waste generated by site assessment activities, and Clean Water Act and Clean Air Act compliance.
4) Secure all permits needed for site assessment.

Site Assessment Plan

The Site assessment program will be conducted in three phases: historical, non-intrusive, and minimally intrusive. These first two phases will follow the plan outlined in the site assessment plan for IPS3 above. The third phase differs and is described here.

For the minimally intrusive phase, SNL will: (1) Utilize Cross-borehole Electromagnetic Imaging as a reconnaissance tool to identify contaminant plumes. (2) Utilize SitePlanner™ to lay out a drilling and sampling program based on contaminant plume presence and any areas of VOC contamination. (3) Utilize directional drilling to collect soil samples for analysis to determine the contaminants present, and submit samples to an EPA-approved analytic laboratory for contaminant analysis. All information will be input into the SitePlanner™/PLUME database for further site analysis. (4) Install SEAMIST™ Vadose Zone Monitoring System wells to monitor movement of the contaminant plume(s) within the vadose zone.

Stakeholder Issues

The stakeholder issues for the site assessment demonstration at LAL include (1) presenting a preliminary site assessment plan to City of Albuquerque, NMED, and EPA for review and suggestions, and (2) holding stakeholder meetings to describe the program and address concerns. An agreement must be arranged with the City of Albuquerque to conduct the demonstration. The agreement should address (1) the finalized site assessment plan, (2) regulatory requirements, and (3) any remaining stakeholder issues.

The steps necessary to conduct the site demonstration include selection of appropriate time, logistics, and the actual running of the demonstration. The reporting phase will utilize the capabilities of SitePlanner™/PLUME to generate technical documentation for use in the site assessment report. Supporting documents include both contaminant distribution maps and 3-D subsurface projections. The site assessment report will be submitted to the City of Albuquerque Environmental Health Department and the New Mexico Environment Department.

FUTURE PROJECT ACTIVITY

Future activity of the Off-Site Demonstrations for MWLID Technologies Project will focus on performing an environmental site assessment of one of the recommended sites utilizing MWLID-developed technology. The actual start date for the off-site demonstration of MWLID-developed technologies will depend on availability of DOE funding.

REFERENCES

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