

Statement of Qualifications

Why Plexus?

Environmental and Remediation Services



Integrated Environmental Management, Inc.
A Plexus Company

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EXECUTIVE SUMMARY

Founded in 1985, Plexus Scientific Corporation (Plexus) is an employee-owned business with a mature management and corporate infrastructure, including highly functional contract management processes. The quality of our personnel in environmental consulting, remediation and radiological services has been at the heart of our success. Table 1-1 provides just a few of the many benefits that Plexus has provided to its clients and teaming partners.

Table 1-1. Why Plexus

Benefit of Using Plexus
Plexus's diverse team of professionals has consistently provided innovative environmental and remediation solutions to its clients, resulting in increased site closures, reduced remediation time and life cycle cost savings
Plexus regulatory expertise has allowed us to successfully negotiate complex strategies with regulators on behalf of our clients
Plexus has optimized legacy remedial systems resulting in more sustainable and lower operations costs
Plexus is ISO 9001:2008 certified and provides quality services to its clients and teaming partners, resulting in lower risk, better products, and better client satisfaction ratings
Plexus successfully uses new technologies and applies innovative methods as well as proven technologies to provide green and sustainable remedial solutions that have a reduced impact on the environment, while providing cost savings to the client
Plexus is a leader in performance-based remediation services, reducing the client risk in meeting regulatory goals or cost creep
Plexus has worked more than 1.95 million hours in the past 10 years with only three project-related recordable injuries (resulting in only one restricted work day). Our record has earned us recognition from the NSC with a 2012-2014 Occupational Excellence Achievement Award and a 2014 corporate NSC Hazard Recognition – Gold Award.

Our considerable experience in attaining environmental remediation objectives rivals that of much larger companies. The firm offers the additional benefit to industrial clients that perform Federal contracts by helping them meet their small business subcontracting obligations. Plexus has designed and performed complex remediation projects of all sizes to include performance-based remediation projects of up to \$15 Million with more than \$65 Million in performance based contracts awarded to date. Many of our staff members have in depth remediation experience in the private sector to include managing a major ground water remediation project in Baltimore where the firm has been supporting a PRP group comprised of fortune 500 companies for the last 8 years. The firm's practice supports facility owners and operators and does **NOT** support the US EPA in any programmatic or enforcement capacity.

In addition to providing a broad range of environmental and remediation services in the area of hazardous and toxic waste, Plexus has in depth experience in providing radiological services. On January 1, 2015, Plexus acquired a leading radiological services company, Integrated Environmental Management (IEM), now a Plexus Company. Founded in 1994, IEM has been providing strategic radiation protection management, nuclear services (including site

investigation, decontamination, decommissioning, risk assessment and remediation), and consulting to over 500 clients in the private and public sector since its inception. In addition to HTRW services, Plexus has provided Military Munitions Response (MMRP) Services to Department of Defense, Department of Interior (DOI), and Commercial clients.

Plexus offers a full array of environmental support services to its clients. Table 1-2 provides a list of Plexus's capabilities to support the requirements of the private sector as well as the Department of Defense, and other Federal Agencies.

Table 1-2 Plexus Capabilities

Environmental Support Services	
▪ CERCLA and RCRA Process Investigations, planning and reporting ▪ Environmental Assessment ▪ Environmental Impact Analysis ▪ Archive/Record Searches ▪ Soil Borings and Well Installation ▪ Aquifer/Soil Testing and Analyses ▪ Soil Gas/Vapor Intrusion Surveys and Studies	▪ Multimedia Sampling ▪ Real Time Field Data Analyses ▪ Database Management/Analysis ▪ GPS Surveying ▪ Contamination Assessment ▪ Geotechnical Data Collection and Use for Remedial Design ▪ GIS/CADD Support
Remedial Services	
▪ Remedial Investigations ▪ Remedial Design and Specifications ▪ Innovative Use of New and Emerging Remedial Technologies ▪ Remediation of multi-media contaminated sites ▪ Remedial System Operation & Maintenance ▪ Optimization of Remedial Systems ▪ Remedial System Planning and Permitting	▪ Contaminated Soil Removal and Disposal ▪ Remedial System Installation and Construction ▪ Construction QC Oversight/Management ▪ Green and Sustainable Remedial Design and Implementation ▪ Construction QC ▪ Site closure
Environmental Compliance Support	
▪ Multimedia Permit Application and Reporting ▪ Pollution Prevention Plans ▪ Environmental Compliance Monitoring ▪ Environmental and Safety Compliance Audits ▪ Environmental Program Management	▪ Environmental/Waste Management Planning ▪ Regulatory Negotiations ▪ Community Involvement Process including RAB Support ▪ NEPA Documentation
Military Munitions Response Program	
▪ Munition Constituents Sampling and Data Validation ▪ Munitions Constituents Treatment and Remediation ▪ Thermal Treatment of Explosives Contaminated Structures ▪ Anomaly Avoidance/Construction Support	▪ Regulatory Support ▪ Hazard Assessment ▪ Render Safe Treatment and Documentation ▪ Tracking and Disposal ▪ Removal/Remedial Actions ▪ Third Party UXO QC/Safety Support

- CERCLA/RCRA Investigation Planning, Implementation, and Reporting

Radiation-Related Services

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Health Physics Consulting ▪ Radiological Dose Assessments and Dose Reconstructions ▪ Radiological Risk Assessment Using CERCLA Methodologies or refined techniques that utilizes best science and advanced state-of-knowledge ▪ Radiation Protection Program Development and Implementation ▪ Radiation Safety and Special Topic Training ▪ Radiation Surveys (including Compliance Monitoring) ▪ Audits and Evaluations | <ul style="list-style-type: none"> ▪ Scoping, Characterization, In-process and Final Status Surveys using MARSSIM methodologies ▪ Packaging and Shipment of Radioactive Materials ▪ Site, Facility and Equipment Decontamination and Remediation ▪ Facility Decommissioning pursuant to NUREG-1757 guidance ▪ Environmental and Personnel Monitoring for Radioactivity ▪ Licensing and Permitting Support, including Regulatory Interactions |
|--|--|

Plexus experience spans multiple client sectors and geographic areas across the continental United States. This is best illustrated in Figure 1-1, which provides the locations of key projects conducted by Plexus as well as locations of its staff. The Plexus corporate office is located in Alexandria, VA.



Figure 1-1. Key Projects and Office Locations

The Plexus staff includes experienced health and safety professionals who provide project health and safety oversight and health and safety management. The Environmental and Remediation

Services Group safety program is led by a Certified Safety Professional (CSP). The Plexus staff have expertise in hazardous waste remediation health and safety; construction safety; chemical, biological, munitions and explosives of concern (MEC); and radiological health and safety. Health and safety experienced staff prepare detailed site-specific Health and Safety Plans (HASPs) in accordance with OSHA 1910.120, and ensure each on-site employee and subcontractor has the required OSHA training and medical surveillance in order to safely perform site work. Radiation safety is led by senior Certified Health Physicists (CHP) and a Certified Industrial Hygienist (CIH). As a result, Plexus has an excellent Health and Safety Program with Experience Modification Rating (EMR) values consistently below 1.00 as shown in Table 1-3.

Table 1-3. Plexus EMR Rates 2008-2014.

2008	2009	2010	2011	2012	2013	2014
0.90	0.91	0.85	0.86	0.86	0.83	0.83

PLEXUS EXPERIENCE SUMMARY

REMEDIATION SERVICES

Plexus Scientific Corporation has a long history of performing environmental and remediation services for industrial clients and Federal government agencies, completing hundreds of multi-phase, multi-discipline projects involving RCRA- or CERCLA-based remediation. Plexus has successfully worked on all aspects of environmental remediation projects from investigation, designs, and remedial action, to long-term monitoring. The firm's seasoned professionals have cutting-edge experience remediating both conventional HTRW and munitions-related sites with contaminated groundwater, soils and sediments. Plexus's remedial strategies integrate innovative technology, regulatory feasibility and economic practicality into sustainable solutions consistent with our client's mission, the community and the environment. The firm brings broadly based and experienced perspective to integrating environmental management and sustainable principles and solutions—managing this with client needs in mind.

Plexus's capable senior leadership is highly skilled at presenting a framework of proven and practical remedial solutions to address regulatory requirements and offers specific quantifiable benefits to its clients. In addition, our comprehensive understanding of our client's challenges has led to our firm commitment to environmental sustainability, green remediation, and support of aggressive goals for energy and water use reduction and environmental conservation. Plexus has found this to be an effective means of negotiating more rational remedial solutions. For example, at the Sacramento Army Depot, Plexus' remedial designs resulted in a reduction of groundwater extraction from 400 to 60 gpm and associated energy savings of 200,000 kWh/yr.

In particular, our in-depth experience in executing performance-based remediation contracts has developed into a comprehensive understanding of this contracting mechanism, and a level of comfort that allows us to be innovative and effective in meeting our client's needs. We rely on our experienced, interdisciplinary staff to carefully balance our client's objectives with the risks and costs associated with attaining those objectives. Plexus has been particularly successful in

achieving site closures under performance-based contracts. Our in-depth understanding of environmental regulations as they pertain to sites at the federal, state, and local level has successfully reduced project completion schedules. Plexus has historically attained client objectives at a reasonable cost and within the period of performance.

RADIOLOGICAL SERVICES

Plexus-IEM maintains in-house technical expertise that includes senior-level professionals who are Certified by the American Board of Health Physics in the comprehensive practice of health physics and with at least 25 years of experience in the radiation protection field; investigation, remediation and services personnel, who are Registered by the National Registry of Radiation Protection Technologists and with at least 25 years of experience in radiation protection; and additional staffing comprised of a Certified Industrial Hygienist, health physics technicians, field technicians, and research assistants.

In the commercial sector, we have worked with the chemical industry, the pharmaceutical industry, the nuclear industry, the petroleum industry, manufacturing, real estate and banking industries, the pulp and paper industry, metallurgical operations, public utilities, organizations that provide medical diagnosis and treatment, and more. In the government sector, our experience includes work for the U. S. Department of Defense, the U. S. Department of Agriculture, the U. S. Army Corps of Engineers, and a variety of State, county and local agencies. We have also worked for the U. S. Department of Justice, the Federal Bureau of Investigation, the Federal Occupational Health Department, and various State Attorneys General and legal counsel as experts and to provide technical support for litigation.

The firm's broad array of capabilities include health physics; radiological dose and risk assessment; radiation protection program development and implementation; internal and external dosimetry and dose reconstruction; radiation safety; radiation surveys and site assessments; packaging, shipment and disposal of radioactive materials; site, facility, and equipment decontamination and remediation; facility decommissioning; and emergency response program development/implementation; and environmental monitoring for radioactivity. IEM holds a license issued by the Maryland Department of the Environment (No. MD-31-281-01), a USNRC Agreement State agency, to possess any radioactive material suitable for transport under U.S. Department of Transportation (DOT) regulations for any purpose and in any location. Last but not least, our radiological operations are also certified to the ISO 9001:2008 international quality standard, which demonstrates a company-wide commitment to quality and customer service.

MUNITIONS SERVICES

Plexus has provided military munitions response services to include anomaly avoidance support for the DOI at sites such as the Patuxent River Refuge near Fort George G Meade, MD and for a commercial client at Former Camp Howze, TX. We have performed construction support and have assisted with removal actions as a subcontractor at military munitions sites such as Hawthorne Army Depot, NV. We have also been subcontracted to provide a military munitions remedial investigation at Arnold AFB, TN as well as provide RI/FS and EE/CA reporting at Former Conway Bombing & Gunnery Range, SC and Fort McClellan, AL, respectively. Plexus

has also been a leader in remediation of munitions constituents in soil and associated explosives contaminated structures. We have provided those services at the Tooele Army Depot, UT and at the former Savanna Army Depot, IL.

SUSTAINABILITY AND REGULATORY SOLUTIONS

Plexus also provides Sustainability consulting services that are relevant to the sustainable management of large industrial complexes with energy and water related conservation objectives. The firm is currently and has been providing support since August 2008 to all aspects of Fort Bragg's Sustainability/NEPA program -- one of the best in the Army. Plexus provided Sustainability Planners for regional planning, energy, facilities, land use, materials, transportation, and water. These planners were embedded within the functional organizations to ensure better integration in the various planning efforts. By doing so, sustainable solutions were woven into existing functional processes early to facilitate their adoption. The Sustainability Planners helped ensure that the best courses of action were always identified and considered, with many facets of the decision-making process becoming more streamlined and better integrated. This proved to be an extremely effective concept and contributed to Fort Bragg being selected as the Army's first Sustainability Award winner. Plexus is also supporting the DoD/Army Regional Environmental and Energy Offices, which is currently helping the Army Reserve Command establish a viable energy/sustainability program, recently helped establish the Army National Guard's sustainability program, supported the Army's land acquisition initiative at Fort Benning, and supported many other DoD efforts. As always, the firm's success would not be possible unless we integrate cutting edge regulatory solutions into our planning process.

CLIENT BENEFITS ACHIEVED BY PLEXUS

Plexus projects have yielded many benefits to our clients that range from life cycle cost savings to the delisting of a landfill from the NPL. We have also responded to the public, regulatory and site owner communities to develop and implement highly sustainable remedial solutions. These often result in more reasonable remedies, particular when the firm was retained to optimize legacy remedial systems. Details of these projects are included in the Appendix and provide quantitative examples of cost savings associated with innovative project design and execution that are relevant to legacy industrial remediation systems.

At Fort Drum, New York and the Dix area, New Jersey, Plexus was successful in enhancing the performance of a large legacy remediation system and deleting a landfill from the NPL. Project highlights and benefits include:

- This project demonstrated the need for optimizing legacy remediation systems to meet the installation's green remediation objectives and energy use reduction goals, benefiting the client as well as the regulatory community
- Optimization of the existing soil vapor extraction (SVE)/air sparge system (AAS) has been achieved through focusing system resources on key hot spot areas to maximize efficiency and increase contaminant mass removed.
- As a result of the optimization efforts, Plexus has to date reduced costs of contaminant removal by 95%, from \$7,500/lb. to \$350/lb., as well as achieving a

significant energy savings of 77% (from \$30K to \$7K per month).

- Plexus delisted a Former Sanitary Landfill at the JB MDL Dix Area, resulting in costs savings to the client of \$70,000/yr.

At the Sacramento Army Depot California, Plexus optimized a highly inefficient legacy remediation system making the system significantly more sustainable through reduced ground water extraction by millions of gallons per year. Project highlights and benefits include:

- Within two years of award, Plexus gained consensus from the regulators to reduce the sampling effort by ~83%, and to install a replacement groundwater extraction system that reduced the extraction rate from 450 GPM to 60 GPM. The volume of extracted groundwater is expected to decrease from ~236 MGPY to ~32 MGPY.
- The new treatment system provides a reduction in energy use of more than 200,000 kWh/year, and reduces the carbon footprint/carbon emissions by an estimated 53 metric tons. This has decreased the carbon footprint of remedial activities by more than 60% of the previous system.
- Subsequently, annual remediation system operation costs have been reduced by 85%.

At the Hawthorne Army Depot, Nevada, Plexus implemented a risk based approach to site remediation to achieve performance objectives in less time than a traditional approach. Project highlights and benefits include:

- Plexus' approach to achieving the performance objectives at the Hawthorne Army Depot site includes a risk-based approach to remediation.
- Plexus negotiated with regulators to achieve a rapid decision making process based primarily on field testing results. Investigation and follow-up removal action (approximately 1,800 cubic yards) were completed in less than two months.
- LNAPL was discovered during subsurface investigation activities. Use of an automated solar-powered petroleum recovery system avoided costly installation of additional site infrastructure (e.g., power) and was installed in less than a week. The active recovery system requires little oversight during operations and the storage tank is emptied every other month, cutting O&M costs in half.

At Fort Drum, New York, Plexus completed an extensive remediation project to repair an existing landfill cap. Project Highlights and benefits include:

- Design and construction of a post closure cap repair for this 16-acre landfill referred to as Old Sanitary Landfill (OSL), after it was discovered that the original cap installed in 1980 had failed.
- As part of its sustainability goals, Plexus covered the topsoil with matting to prevent erosion prior to the growth of grass on the landfill, preventing the need for additional repair and as a result, lowering emissions from heavy equipment and trucks bringing material.

- The use of an on-base borrow source for the construction of the leveling layer, cover layer and topsoil reduce project cost and truck traffic and greenhouse gas emissions.

At a site in Ellicott City, Maryland, Plexus performed a comprehensive site restoration and UST identification. Project highlights and benefits include:

- Due to the location of the impacted area, erosion control measure were needed during the investigation and remedial activities. A woven coconut fiber matting, for erosion protection from both runoff and stream flow, was installed as part of the engineered slope. The matting was staked into the High-density polyethylene (HDPE) geo-grid to further stabilize the slope. In addition, Plexus utilized a water-fill portable dam to isolate the riverbank from the Patapsco River.
- Plexus's field personnel performed on site analysis to help guide the excavation, reducing the overall field schedule and reducing off-site analytical cost.
- The previously unknown underground storage tanks were located and removed by the property owner, giving USEPA the knowledge that the source of the oil had been removed.
- At the completion of the project, the property owner received a stable slope designed for the adjacent river flows, and a restored surface area.

At Fort Meade Maryland, Plexus reduced the risk associated with landfill gas in the immediate vicinity of a housing complex. Project highlights and benefits include:

- Design and implementation of a landfill gas migration control system to mitigate the imminent and substantial endangerment concerns associated with landfill-generated methane gas for an adjacent military housing development.
- A special biopolymer slurry method of construction was used for the methane gas recovery trench. This provided the benefit of safety and less noise vibration when compared to traditional sheet pile construction.
- Design and installation of an automatic drain-down function on the condensate tank for the methane collection system allowed Plexus to significantly reduce the number of shutdowns due to high water level alarms occurring during rain events. Operation time increased from 88% to 99%.
- Plexus eliminated the need to have personnel travel to the site and restart the system within the required four-hour window, which allowed for lower operating costs. Before the system was upgraded, the system would have at least one unscheduled shut down per week. After the installation of the automatic restart system, Plexus was able to reduce the operational budget.

At Camp Reynolds, Pennsylvania, Plexus demonstrated its ability to efficiently restore soils contaminated by metals requiring less time than a traditional approach. Project highlights and benefits include:

- CERCLA closure activities, including hazardous and non-hazardous MC lead and

antimony contaminated soil characterization, preparation of a risk assessment to define cleanup goals, a FS and PP, and RD/RA to address site contamination at a former DoD small arms range and infiltration course.

- Because the results of the XRF screening were provided in real time, Plexus was able to continually excavate until the contaminated soils exceeding the residential screening criteria were removed. This eliminated the need to have an expensive onsite laboratory performing analysis. This process also shortened the overall project duration by several weeks since the site crew did not have to wait for analytical results to come back from the lab before determining if the contamination had been removed from several hot spot locations at depth.
- Plexus was able to target the contaminated areas more effectively so only contaminated soils were removed. Plexus estimates that 25% more soil would have been removed if typical laboratory analysis had been used.

PROFILES OF RELEVANT PLEXUS EXPERTS

REMEDIATION SERVICES

ALI SADRIEH, PE, PMP– VICE PRESIDENT, ENVIRONMENTAL REMEDIATION GROUP

Mr. Sadrieh has more than 15 years of experience in environmental project and program management. In addition to leading Plexus's Environmental Remediation Group, he also serves as Plexus's Program Manager on our USACE Baltimore District MAES remediation contract. His experience includes work at high visibility installations such as Fort Meade and APG, Maryland. He also serves as the Program Manager for the Plexus USACE Louisville Environmental Restoration Services Contract with a pool of \$225 Million. His duties as a Program Manager include program and project oversight, negotiating task orders, and managing and overseeing the execution of remediation projects. Mr. Sadrieh is experienced in both cost-reimbursable, fixed-priced and performance-based contract environments. As the manager of Plexus' Environmental Remediation Group, he controls the firm's resources in this area.

Mr. Sadrieh also has more than 25 years of experience in the field of environmental engineering, with a strong background in geo-environmental engineering, program and project management, safety, technology, environmental remediation services, and QC. He has program management experience executing more than \$100M in remediation projects, including performance-based contracts. He has managed seven ID/IQ contracts for USACE and AEC, ranging from \$12M to \$160M (pool contract values). Under his leadership the firm has been awarded exceptional ratings from USAEC for work at Fort Drum NY, Dix Area NJ and West Point NY; Hawthorne Army Depot, NV; and at the Sacramento Army Depot, CA.

JEFFREY SGAMBATO, CPG – SENIOR HYDROGEOLOGIST AND PROGRAM MANAGER

Mr. Sgambato, CPG, has more than 20 years managing environmental investigations through remediation for the private sector. He is Plexus's Program Manager for our multi-million dollar AEC Environmental Restoration IDIQ contract as well as the most recently awarded AEC Environmental Remediation Multiple Award (ERMA) Performance –Based IDIQ contract with an

overall pool of more than \$200 Million. He has extensive experience in management of performance-based environmental remediation contracts.(PBCs) Mr. Sgambato has worked in the PBC environment for over the past 10+ years, both on federal and commercial contracts. He is Plexus's primary point of contact with AEC and AFCEC. He has been the lead technical and regulatory negotiator for major groundwater contamination cases in more than 12 states, including Virginia and Maryland under RCRA and CERCLA requirements.

Mr. Sgambato has served as the senior technical lead on a wide range of assessment, remediation, and compliance projects that had complex hydrogeological and regulatory issues. He has extensive experience in groundwater flow and quality studies, site characterization of hazardous and solid waste sites, regulatory compliance, development of remedial strategies and the application of in-situ remedial technologies. On sites involving waste sources and/or soil and groundwater contamination, Mr. Sgambato has developed and implemented cost-effective investigations and remediation approaches, a number of which resulted in very significant energy and water savings.

PATRICK REILLEY, PMP – PROJECT MANAGER

Mr. Reilley is a Project Manager with more than eleven years of private sector and federal contracting experience in environmental and general construction. He has managed projects for the USACE Baltimore District for more than five years. He has been Plexus's Project Manager on several of our task orders at Fort Meade, including Manor View and the CSL.

More recently for AEC, he served as the Project Manager on the Hawthorne Army Depot performance-based task order, which involves remediation at 11 solid waste management units. Innovative technologies have been used that are aligned with the government's goal of waste minimization and sustainable remedial solutions. Mr. Reilley also served as the Project Manager of Plexus's remedial services contract at West Canal Creek, APG, Maryland. This complex project, which involved the evaluation of contaminated soil, sediment and groundwater, was a highly complex project that demonstrates the firm's ability to manage a multi-discipline team providing human health and ecological risk assessment and a high-profile regulatory interaction.

PAUL GILLER, PG – PROJECT MANAGER

Mr. Giller is a professional geologist with 10 years of experience working as a Project Manager for complex environmental remediation projects, from site assessment, to remediation, to closure. He serves as the Project Manager for the Plexus California Group Performance-based remediation project being conducted for AFCEC as well as the firm's PBR Task order at the Sacramento Army Depot. His relevant ERS experience includes project management, environmental remediation, RI/FS, RCRA/CERCLA, hydrogeology, as well as FFP and PBC projects. He has hands-on technical leadership experience in the investigation and remediation of numerous impacted sites that involved such COCs as VOCs, Dense Non-Aqueous Phase Liquids (DNAPL), Light Non-Aqueous Phase Liquids (LNAPL), petroleum hydrocarbons, and metals in unconfined, confined, and fractured bedrock aquifers. He has extensive technical field experience with site investigations, remedial action plan implementation, and remediation system operation and management. Field experience includes detailed core logging, ground water, soil, and soil vapor sampling, monitoring well network installation, hydrogeologic data analysis, analytical data analysis, aquifer testing, evaluation of aquifers, geologic field mapping, and geologic structural

and stratigraphic analysis. His responsibilities include budget development, project implementation and management, regulatory and client interaction, data analysis, report preparation and determination of future actions.

MICHAEL BREWIN, PG – PROJECT MANAGER

Mr. Brewin is a project manager and geologist with more than 13 years of experience in the application of geologic, geochemical, and hydrogeologic principals to environmental issues and energy exploration. He served as the project manager for the firm's \$15 million performance based remediation project at Fort Drum, West Point and Joint Base McGuire, Dix and Lakehurst (JBMDL) where he has been extremely effective in achieving energy use reductions through optimization of legacy remedial systems. He has also been successful in delisting a landfill on the National Priorities List (NPL) at JBMDL. His experience includes project management, geologic investigations, geological services and oversight, construction management, site characterization and remediation. He has supported the development of three-dimensional visualizations of geologic and contaminant data, management of and presentation of geospatial data and fate and transport modeling. His experience includes the management and implementation of site investigations and remediation at multiple RCRA and CERCLA sites including significant interaction with EPA Regions 1, 2 and 3.

CRAIG HEBERT, PG – GEOLOGIST

Mr. Hebert has more than 10 years of experience in both the private sector and the government in the application of geologic, geochemical, and hydrogeologic principles to environmental issues. His experience includes the manufacturing industry as well as brownfields. Capabilities include geologic and groundwater investigations, geological services and oversight, construction management, site characterization, remediation system design and implementation, and geochemical laboratory management. He has remediation experience that includes Soil Vapor Extraction, Air Sparging, and Bioventing System Design and Implementation, groundwater pump and treat, and in-situ biodegradation. Mr. Hebert's experience also includes the management and implementation of site investigations and remediation efforts at multiple sites including significant interaction with EPA Regions 3 and 9. In addition, Mr. Hebert has worked with numerous state regulators (i.e., California Regional Water Quality Control Board, California Department of Toxic Substances Control, Maryland Department of Environment and Nevada Department of Environmental Protection) and local authorities in the implementation of environmental investigations and remediation efforts at multiple sites. He has actively participated in presentations, public meetings, negotiations, and site visits with regulators and has worked on several federally managed projects and have participated in communications and meetings with EPA personnel.

MARGARET MIKULICH, CSP, MS – ENVIRONMENTAL REMEDIATION SERVICES HEALTH AND SAFETY MANAGER

Ms. Mikulich has more than 22 years of professional experience in health and safety management and planning, and developing comprehensive site-specific HASPs and corporate level Health and Safety Programs. She has expertise in hazardous waste investigation and remediation health and safety project support and on-site support; construction safety; industrial hygiene; chemical,

biological, MEC, and radiological health and safety; OSHA regulatory requirements; and health and safety training. As the Health and Safety Manager, Ms. Mikulich ensures the Plexus hazardous waste remediation projects are performed safely and meet the requirements of 29 CFR 1910.120, the Hazardous Waste Operations and Emergency Response Standard, including developing site-specific HASPs and procedures and ensuring all site activities are performed in a manner consistent with the site-specific HASP, Plexus Corporate Health and Safety Program, client requirements, and applicable federal, state, and local regulations. Ms. Mikulich has served as the Project Health and Safety Coordinator for all AEC ID/IQ and USACE Baltimore District remediation contract projects, including Canal Creek, Fort Dix / Fort Drum / West Point, Sacramento Army Depot, Hawthorne Army Depot, Camp Reynolds, Savanna Army Depot, Fort Meade Manor View Dump Site, Fort Meade Closed Sanitary Landfill, and the Patuxent Wildlife Research Center Uncontrolled Waste Site.

SCOTTI BOZEMAN, PE, PMP – PROJECT MANAGER

Ms. Bozeman is a project manager and environmental engineer with more than 22 years of experience from preliminary assessments through complex remedial actions. She serves as the project manager for the firm's \$5.4 million performance based remediation project at Columbus and Keesler AFBs, MS, for AFCEC. She has effectively managed dozens of projects for the US EPA, USACE, and US Air Force. She negotiated one of the first performance-based subcontracts accepted by EPA Region 4 for cleanup of a TCE plume in Tampa, FL. She managed the design and performed construction oversight of a pilot-scale permeable reactive barrier (PRB) installed to treat groundwater contaminated with heavy metals at a former phosphate fertilizer site in Charleston, SC, and coordinated the efforts of participants including the EPA Office of Research and Development (Ada, OK), and the University of Waterloo. She has extensive experience in formal partnering with US Air Force, EPA Region 4, Florida Department of Environmental Protection (FDEP), USACE, and contractors to expedite environmental restoration process.

MATTHEW NEWMAN, PE – PROJECT ENGINEER

Mr. Newman has more than seven years of remediation engineering experience in both the private and public sectors. His main duties are to monitor site operations and report data to regulatory agencies and clients for a variety of projects. He has experience in the implementation of remediation technologies, such as groundwater pump and treat systems, soil vapor extraction systems, multi-phase extraction systems, passive water treatment systems, and aerobic and anaerobic bioremediation. Mr. Newman also has hands-on experience self-performing operations and maintenance along with detailed troubleshooting of remedial systems. Mr. Newman has served as a task manager for conducting large scale monitoring simultaneously at a variety of environmental sites including managing the sampling program at a site consisting of over 300 monitoring wells and 250 private supply wells each sampled at various intervals. Mr. Newman has led the compilation of a variety of site data for state agency and EPA-regulated sites. Mr. Newman has worked with EPA Regions 4 and a variety of state agencies, such as the Maryland Department of the Environment, Mississippi Department of Environmental Quality, Pennsylvania Department of Environmental Protection, and New York State Department of Environmental Conservation. Prior to his work at Plexus Scientific, Mr. Newman served as an Area Safety Manager facilitating the health and safety program for a local staff office across numerous projects

for four years. He has experience drafting health and safety plans in accordance with client and corporate requirements as well as preparing Accident Prevention Plans / Site Safety and Health Plans in accordance with EM-385-1. He has developed job safety analysis and activity hazard analysis documentation for a variety of different field tasks.

RADIOLOGICAL SERVICES

CAROL D. BERGER, CHP, FHPS – VICE PRESIDENT NUCLEAR SOLUTIONS

Ms. Berger, a nationally-recognized health physicist, is certified by the American Board of Health Physics, is a Fellow member of the Health Physics Society and has over 35 years' experience in nuclear activities with emphasis in strategic planning, radiation dosimetry, instrumentation, and applied health physics. Ms. Berger has been serving the private sector for most of her career, performing the full range of radiological services. . She also served as the Project Manager and technical lead in the performance of Interim Final Status Surveys (IFFS) at a W. R. Grace site in Baltimore, Maryland, which included the survey and release of steel beams, building siding, trusses, and other difficult-to-survey items.

She has also served as the Program Manager for the Baltimore MARS contract and directed the work for three different task orders under the contract. She directed the Decommissioning of the Diamond Ordnance Radiation Facility, Silver Spring, MD where she provided task-specific solutions to activated concrete and associated in-situ radiation measurements to characterize the isotopes and activity. She established data quality objectives for characterization surveys in a fashion that permitted characterization data to be used as final status survey data, thus resulting in significant over-all cost savings. She also served as the Program Manager for the Investigation of Colonie Site Vicinity Properties in Colonie, New York, where she developed the work plan to remediate impacted soil containing depleted uranium, complete a sub-surface radiation survey at a facility parking lot and dust sampling inside existing homes, and the Program Manager for the decommissioning planning for the STURGIS barge

BILL THOMAS, CHP, CIH, FHPS – SENIOR HEALTH PHYSICIST

Mr. Thomas is certified by the American Board of Health Physics, the American Board of Industrial Hygiene, and is a Fellow member of the Health Physics Society. He has over 32 years of experience in radiological and industrial hygiene activities with emphasis on systems to minimize personnel exposures to radioactive and hazardous materials, compliance with federal and state regulations, site and facility audits. Mr. Thomas served as the Project CHP and Project CIH for the decommissioning of the Diamond Ordnance Radiation Facility (DORF) in Silver Spring, Maryland. As the Project CIH, he provided task-specific solutions to lead dust and asbestos issues that were thought to be but not confirmed present at the site. He established data quality objectives for characterization surveys in a fashion that permitted characterization data to be used as final status survey data, thus resulting in significant over-all cost savings. Mr. Thomas also served as the Safety Manager and Project CHP for the investigation of Colonie Site Vicinity Properties, located in Colonie, New York. Mr. Thomas reviewed and approved the work plan and prepared the APP. He also served as a technical liaison with the USACE during the on-site activities and provided guidance and work direction when the excavation work at one of the sites began to encroach upon an active railroad line.

JACK BUDDENBAUM, CHP – SENIOR HEALTH PHYSICIST

Mr. Buddenbaum is certified by the American Board of Health Physics and has 30 years of experience providing innovative solutions in the field of radiation protection/health physics. He has served as a project manager or program manager for government clients (e.g., USACE, USDOE) as well as commercial clients licensed with the USNRC or a USNRC-Agreement state, providing a variety of consulting services including radiological or mixed-waste site investigations, remedial actions, and decommissioning. He has extensive experience in exposure assessment/dose modeling, dose reconstruction, site decommissioning, radiation protection program assessments, and project management. Among his many projects, Mr. Buddenbaum currently serves as Project Manager for the Decommissioning Planning project for the USACE Baltimore District for the MH-1A Nuclear Reactor and STURGIS Barge. In this capacity he coordinates a team of scientists and engineers and has provided technical direction on a multitude of project tasks, including development of a historical site assessment, a decommissioning plan, an environmental assessment and waste management plan required to support decommissioning and issuance of a decommissioning permit by the Army Reactor Office.

JEFFREY SUMLIN, NRRPT – PROJECT MANAGER

Mr. Sumlin has over 34 years of experience in the radiation protection field, with emphasis on decontamination, site surveillance and applied health physics. He is certified by the National Registry of Radiation Protection Technologists (NRRPT) and has more than 15 years of experience as a Project Manager and Radiation Control Supervisor. He served as the Radiological Controls Supervisor for the remediation of sanitary sewer and storm drain piping impacted by the decontamination of ships involved in nuclear testing. At Hunters Point Shipyard, he supervised the removal of seven miles of piping and tens of thousands of cubic feet of soil which was shipped to pads for radiological survey and the collection of over 4,000 soil samples. His extensive field and management experience, interpersonal skills, and technical abilities in the decontamination, decommissioning, and radiation protection fields are accompanied by excellent qualifications in project coordination, regulatory compliance, site characterization and radiological oversight and verification. Mr. Sumlin served as the Project Manager to complete the final status radiation survey for the Great Lakes Environmental Research Laboratory, operated by the National Oceanic and Atmospheric Administration, in Ann Arbor, Michigan. Mr. Sumlin and the field team completed the radiation surveys for nineteen laboratories, two environmental chambers and one waste storage building. Each of the rooms previously used licensed radioactive materials, including carbon 14 and tritium. The survey was performed pursuant to the guidance in NUREG-1757 and NUREG-1575 (MARSSIM).

SUSTAINABILITY SOLUTIONS AND REGULATORY SOLUTIONS

GEORGE CARELLAS – SENIOR CONSULTANT

Mr. Carellas served as the DoD/Army Southeast Regional Environmental Coordinator, where he supported DoD/Army interests in environmental matters, including promulgation of the Federal Munitions Rule by the States. In this capacity he worked with all of the military services, the Coast Guard and eight states. He is currently the Plexus Program Manager for the sustainability

program supporting Fort Bragg in North Carolina, where he is addressing National Environmental Policy Act (NEPA) and sustainability planning issues. He co-chaired a comprehensive regional clean-up partnering forum, with representation from USEPA and the Southeast states, for the purpose of cleaning up closed or transferred ranges. As the Assistant for Sustainability in the Deputy Assistant Secretary of the Army office, he prepared policy and guidance memorandums related to compliance, NEPA, pollution prevention, and natural resources conservation. Mr. Carellas also served as the functional manager for the NEPA program for the Forces Command. He drafted Office of the Secretary of Defense (OSD) policy for public involvement aspects of the Range Assessment protocol and advised the Secretariat on NEPA and public involvement initiatives. He led a multi-faceted team in the development of the Army's environmental strategy to proactively manage Army environmental programs. He chaired the Army Environmental Legislative Committee, a primary focus of which was federal legislation and policy on the continued operation of ranges. As Co-Chair of the Compatible Use Sustainability Sub-Committee of the DoD/ECOS Committee, he helped establish the first committee for the buffering of military training ranges from encroachment.

DAVID BELL, JD, LL.M. – VICE PRESIDENT, REGULATORY AND LEGAL AFFAIRS SERVICES

Mr. Bell has more than 27 years of legal experience, including 18 years in the field of environmental law, five of which were as the senior environmental attorney in the Army General Counsel's office. He serves as the senior regulatory expert at Plexus where he provides regulatory guidance on the firm's projects, including performance-based remediation. His areas of expertise encompass general legal advice, negotiations, regulatory rulemaking, and legislation. He has advised the Army Secretariat and Staff, major Army command staff, and installation personnel on legal and policy issues arising under DoD and Army regulations and policies, as well as federal and state laws and regulations, particularly those under RCRA; CERCLA; Safe Drinking Water Act; Clean Water Act; NEPA; BRAC laws; Chemical Demilitarization Program; and the FUDS Program.

Mr. Bell has extensive experience in the legal, technical, and environmental implications of the DoD's use of military munitions over the years. As the Army's representative in discussions with USEPA, other federal agencies, states, and environmental groups, he was instrumental in securing for DoD a workable Military Munitions Rule that preserved the military's ability to train effectively. He served as the principal legal advisor in the Army-led effort to draft guidance for implementing the munitions rule within the DoD, including drafting DoD Directives, Instructions, and Standards, such as changes to DoD 6055.9-STD and DoD and Army policy memoranda. Mr. Bell was also at the forefront of the defining of DoD's authorities and responsibilities for conducting CERCLA-based response actions on former training ranges.

MUNITIONS SERVICES

MARK BAGEL, PG – SENIOR GEOLOGIST AND PLEXUS MMRP MANAGER

Mr. Bagel, Plexus's MMRP Services Manager, has 35 years of experience in environmental and engineering-related services for both commercial and federal clients. He has managed numerous

projects and conducted negotiations with regulatory agencies on behalf of these clients. He served as a Project Manager on Phase I/Phase II investigations and Engineering Evaluation Cost Analyses (EECAs) on MMRP projects. The great majority of these projects were performed under CERCLA and RCRA regulations. Mr. Bagel has successfully managed federal, multidisciplinary, multimillion dollar environmental projects including CERCLA investigations and remediation related to MMRP activities. He has also been responsible for leading projects at numerous military sites containing munitions and explosives of concern (MEC) and other hazardous materials. Mr. Bagel has developed corporate safety and quality programs for MMRP related activities during large scale environmental field efforts. He has hands-on experience with complex mixed hazardous, toxic, and radioactive waste (HTRW) and MMRP projects having served as lead field geologist, Project Manager, and Site Manager on numerous multidisciplinary site investigation and remediation projects.

APPENDIX A - PROJECTS

REMEDIAL SERVICES

Industrial PRP Group-CERCLA RI/FS, RD and RA, Baltimore, MD
Remediation Services – West Canal Creek, APG, MD
Groundwater and Soil Remediation, Fort Drum, NY, Joint Base McGuire, Dix and Lakehurst (Dix Area)
NJ and West Point, NY
Environmental Remediation Services, Sacramento Army Depot, CA
Site Remediation, Hawthorne Army Depot, NV
Support in Groundwater Treatment Performance Evaluation Nationwide
Remediation Services at Air Force Plant 42, Los Angeles Air Force Base and Fort MacArthur, CA
RI/FS at MMRP Sites, Hawthorne Army Depot, NV
Comprehensive Soils Remediation, Camp Reynolds, PA
Thermal Remediation of Munitions Constituents and Below the Slab Remedial Investigation, Savanna
Army Depot Activity, IL
Manor View Dump Site Landfill Gas Migration Control System, Fort Meade, MD
Closed Sanitary Landfill Gas Migration Control System, Fort Meade, MD
Uncontrolled Waste Site, Patuxent Wildlife Research Center, Laurel, MD
Environmental Remediation, Mississippi Group Sites: Columbus and Keesler AFBs, MS

RADIOLOGICAL SERVICES

International Radiopharmaceutical Company, Environmental Monitoring Program, Mo
WR Grace, Building 23, Baltimore, MD
Radiological Investigation and Remediation in Colonie, NY
Decommissioning Planning for the MH-1A Nuclear Power Reactor and STURGIS Barge, Fort Eustis, VA
Decommissioning of the Diamond Ordnance Reactor Facility, Silver Spring, MD

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REMEDIAL SERVICES

INDUSTRIAL PRP GROUP- CERCLA RI/FS, RD AND RA, BALTIMORE, MD

Plexus serves as the official Project Coordinator for this project on behalf of a group of Fortune 500 responsible parties/companies. Jeff Sgambato, CPG, PM and Senior Hydrogeologist for Plexus, has worked on this site for more than 15 years, performing RI/FS and Remedial Design (RD) and Remedial Action (RA) work in accordance with USEPA Reg. 3 and the Maryland Department of the Environment approvals. A ROD was signed by EPA in 2003. Current remedial costs are estimated to be in the range of \$15M to \$20M.

This site is in an urban setting and has a plume of impacted groundwater that is deeper than 250 feet and up to two miles long. Contaminants consist of a variety of chlorinated organics, especially TCE. RI activities have involved deep well drilling, extensive soil and groundwater sampling, modeling and vapor intrusion investigations to identify the extent of contamination and the basis for evaluating remedial technologies. Potential technologies evaluated in the FS consist of pump and treat and various in-situ technologies, as well as vapor mitigation. Pilot testing of an in-situ degradation technology has led to further evaluation and a supplemental FS to deal with the complex conditions at the site. It is now likely that pump and treat technologies and possibly supplemental in-situ technologies will be selected by EPA. Flow and transport modeling are being used to assist in the alternatives evaluation.

Challenges that have been met and overcome include access issues in an urban setting, drilling in unusual settings (e.g. cemeteries and tight residential quarters), highly elevated concentrations of contaminants in groundwater (e.g. greater than 50 ppm total chlorinated VOCs), and a very large, deep plume. Feasibility study considerations include careful analysis of lifecycle costs because the cleanup time for this plume is likely to be very lengthy (e.g. greater than 50 years). Additionally, any pumped water will likely need a potentially complex treatment system and careful discharge of treated water.

REMEDIAL SERVICES – WEST CANAL CREEK, APG, MD

This project was a \$4.5 million performance-based contract to conduct soil, sediment, and groundwater remediation at the Canal Creek Study Area of the Edgewood Area at Aberdeen Proving Ground (APG) in Maryland, one of the highest profile installations in the Army environmental remediation arena. The project consisted of over 37 separate sites, in some cases collocated with active buildings, and included a 110 acre wetland and tidal creek. Sites included landfills, former chemical warfare agent testing, manufacturing and storage locations. Buried munitions and explosives of concern (MEC) including chemical warfare materiel (CWM) was a concern at all sites.

Plexus performed extensive research and compilation of data generated from decades of investigation and removal activities conducted throughout the installation. Groundwater investigation and feasibility studies were conducted by a sub-consultant under our direction for an extensive groundwater (GW) plume discharging into a sensitive wetland area. This was a highly complex technical project that demonstrated our ability to manage a multi-discipline team providing Remedial Investigations (RI), Feasibility Studies (FS), Proposed Plans (PP), Records of

Decision (RODs), Remedial Design (RD), Remedial Action (RA), and Remedial Action Completion Reports (RACR) while supporting the installation with an active Restoration Advisory Board (RAB) and conducting public meetings. Plexus successfully brought 13 sites from RI/FS, through Proposed Plan to Site Closure (SC) with Land Use Controls (LUCs).

Additionally, Plexus performed a Time Critical Removal Action (TCRA) at one site containing polychlorinated biphenyls (PCBs) and mercury where hot spot removal and excavation was the remedy. This remedy required Unexploded Ordnance (UXO) and CWM clearance. This involved on-call UXO support, the use of real-time CWM monitoring equipment, clearance of excavations in two-foot lifts, and the pre-screening of split samples for chemical warfare agent degradation products of all soil samples prior to shipment off site.

Plexus's technical approach for this project focused on performing safe operations, achieving the performance objectives, minimizing the amount of waste generated, and minimizing negative effects on the local environment during and after operations. Plexus delivered this by leveraging our staff's in-depth knowledge of the Canal Creek environment-its soil, sediment, and GW resources-and our experience on other sites with similar contamination issues.

GROUNDWATER AND SOIL REMEDIATION – FORT DRUM NY, JOINT BASE MCGUIRE, DIX AND LAKEHURST (DIX AREA) NJ AND WEST POINT NY

This \$14.3 million task order demonstrated Plexus' ability to successfully manage a large contract over 3 distinct installations in 2 states. We also demonstrated our ability to significantly reduce life cycle cost over the term of the contract. Our exit strategy for this contract was to optimize legacy systems to achieve either site closure or Monitored Natural Attenuation (MNA). Other major achievements included the delisting of a CERCLA site from the National Priorities List (NPL). Plexus was tasked to perform environmental remediation services at two landfills and nine petroleum release sites at Fort Drum; two pesticide handling areas, two landfills, and over 12 miscellaneous hazardous waste and fuel handling and storage facilities at JB MDL (Dix Area); and 15 landfills at West Point. Chemicals of Concern (COCs) include but are not limited to pesticides, volatile organics, and metals.

Plexus has reduced costs of contaminant removal from \$7,500/lb to \$350/lb to date, which will ultimately reduce the lifecycle costs of the active remediation system.

The base-wide monitoring program at Fort Drum is comprised of 150 monitoring wells. Plexus optimized the field sampling program, developed with the New York State Department of Environmental Conservation (NYDEC), to maximize data quality and reduce overall cost by reducing the number of wells by 33%.

Fort Drum: Plexus optimized and operated large active remediation systems at Fort Drum. The exit strategy primarily involved replacing the active remediation systems with passive in situ technologies that enhance natural remedial processes. Plexus inherited poorly characterized sites and aging remediation systems at Fort Drum that were in need of optimization. An evaluation of the Soil Vapor Extraction/Aquifer Air Sparge (SVE/AAS) systems indicated that the removal of COCs via SVE had declined well below design expectations. Plexus performed extensive baseline sampling to facilitate a better understanding of present GW conditions and to obtain accurate site characterization results. The data from site characterization efforts enabled Plexus to focus efforts

where remediation was needed. A mobilized ozone system was used to augment the existing SVE/AAS systems, and, in some cases, the ineffective and inefficient sections of the treatment train were deactivated, while maintaining active air sparging for bioaugmentation. The addition of groundwater amendments and bioaugmentation of naturally occurring petroleum degrading microbes was conducted to enhance natural attenuation. Plexus was able to significantly reduce Life-Cycle costs (LCC) over the term of the contract by optimizing multiple legacy remediation systems, reducing contaminant removal costs by 95% (from \$7,500/lb to \$350/lb) and achieving a significant energy savings of 87% (from \$30K to \$4K per month). Plexus has achieved closure at four sites with NYDEC concurrence.

Dix Area: Plexus performed Long-Term Management (LTM), Operation and Maintenance (O&M), in-situ GW remediation, soil removal activities, risk assessments, CERCLA Five Year Reviews, and program optimization with the goal of reducing the Army's LCC. Plexus managed most sites in the Dix Area Classification Exception Area (CEA) and has successfully achieved closure of ten sites under this state program. In addition, Plexus was able to delist the Former Sanitary Landfill from the NPL based on analysis of data trends and aquifer conditions. This analysis, in addition to a filtration study performed, led to a vast reduction in monitoring requirements for this site. Plexus worked closely with the multiple project stakeholders and regulators to successfully implement a complex environmental program and participated in numerous RAB and Proposed Plan public meetings, solidifying a positive and productive relationship with the general public.

West Point: Plexus performed LTM activities, including GW monitoring to ensure protectiveness of human health and the environment. In addition, Plexus reduced the requirement for monitoring thereby reducing the Army's LCC. Plexus also performed Five Year Reviews and successfully implemented the environmental program under both the state RCRA program and the installation's preferred CERCLA process.

ENVIRONMENTAL REMEDIATION SERVICES – SACRAMENTO ARMY DEPOT, CA

The project was a \$7M long-term, performance-based CERCLA remediation project. It involved maintaining and optimizing a significant groundwater pump and treat system to remediate a widespread plume of CVOCs, complete all CERCLA 5-year reviews, and develop a plan to delist the site from the NPL.

To propel the site toward closure, Plexus developed the following strategy: Increase regulator buy-in, reduce monitoring requirements, reduce groundwater extraction requirements, and implement innovative remedial technologies. Plexus designed and installed an innovative groundwater extraction system that reduced the extraction rate from approximately 400 GPM to 60 GPM, minimizing LCC to the Government, while being protective of down gradient receptors through plume containment. This has decreased the carbon footprint of remedial activities by more than 64% and has greatly reduced disposal of clean groundwater into the sewer system.

The new treatment system provides a reduction in energy use of more than 200,000 kWh/year. Interim and long-term cost savings also were achieved by reducing and focusing extensive monitoring requirements to obtain only necessary and meaningful data. Plexus successfully developed and negotiated a reduction in groundwater monitoring requirements, and as a result, annual laboratory analytical costs have been reduced by 85%. Additionally, in-situ technologies,

including MNA, were analyzed using analytical and modeling techniques for possible further optimization.

From 1989 to 2009, the groundwater extraction system at Sacramento Army Ammunition Depot was pumping at a high-flow rate of approximately 400 gpm. This system was inefficient as the extraction wells were located upgradient of the current plume. Over the course of system operation, more than four billion gallons of groundwater were extracted, treated, and discharged directly into the municipal sewer system. Over 80% of this water was estimated to be “clean,” i.e., containing contaminants at concentrations less than the MCL. Plexus developed a plan to replace the high-flow system with the new low-flow system and presented to the regulatory agencies. The regulatory agencies were involved in all stages of plan preparation and the new system was approved and implemented in 2009 after only one year of development. By February 2010, the old system was shut down and the new system had been installed, tested, and was operating at 60 gpm and the new system maintained capture while reducing the size of the plume. Adoption of the new system has reduced water waste by 87% and electricity usage by 71%. The new system was also automated and requires minimal operation and maintenance. In addition, annual remediation system operational costs have been reduced by 85% and the total life cycle costs of the U.S. Army have been significantly reduced. In 2013, Plexus was granted permission by the regulators to shut down the groundwater extraction system and begin evaluation of rebound and MNA.



Plexus has developed an exit strategy for the site’s groundwater remediation that will ultimately result in the de-listing of the site.

SITE REMEDIATION – HAWTHORNE ARMY DEPOT, NV

This was a long-term, \$9M performance-based project for the remediation of 13 solid waste management units and the execution of the base wide groundwater monitoring program. Soil COCs included explosives, PCBs, and metals, including arsenic and lead. GW COCs included explosives, petroleum, and chlorinated solvents, with plumes that are measured in acres. Plexus’s approach to achieving the performance objectives included a risk-based approach to remediation, in conformance with the Nevada Division of Environmental Protection (NDEP) regulations. After fully characterizing the sites, Plexus established a CSM to depict the exposure pathways present at each site. An ecological risk screening was then performed to determine whether or not an ecological risk assessment was warranted. Plexus then performed a Tier 1 evaluation to identify the COCs, and then developed site-specific, risk-based cleanup goals for each COC. A Tier 2 evaluation was performed to determine the necessary corrective action. Six sites have achieved SC and two sites have achieved RC.

At several sites, previous contractors had installed treatment systems that were still operational upon task order award. Plexus immediately began discussions with the NDEP to revise the exit strategy for these sites and as a result, five sites were sampled for regulatory closure, Closure Decision Documents were issued and signed, and the treatment systems decommissioned. At another site, a chlorinated solvent plume, adjacent to the installation boundary and influenced by faulting, was delineated through the installation of multiple 200-foot deep monitoring wells and quarterly and annual monitoring. Preliminary GW modeling indicated that MNA should be one of the corrective actions evaluated in the Corrective Measures Study.



As a result of a gasoline spill at one site on the installation, NDEP wanted the Army to re-start a SVE system; however, after additional data collection and regulatory negotiations, Plexus was able to have MNA accepted as the remedy. At another site, LNAPL were discovered during subsurface investigation activities. Green and sustainable remedial options were employed. Plexus utilized a solar-powered free product recovery system to maximize product recovery while avoiding the cost and disruption of utilities associated with traditional pumping systems. Use of an automated solar-powered petroleum recovery system avoided costly installation of additional site infrastructure (e.g., power) and was installed in less than a week. The active recovery system required little oversight during operations and the storage tank is emptied every other month, cutting O&M costs in half.

At site B27A, Plexus was afforded a short window of accessibility to conduct investigation work previously delayed due to Mission-critical operations. Plexus worked with state regulators to achieve a rapid decision making process and implemented this process, including rapid exchange of field and laboratory analytical results to reach consensus on the corrective action for the site. The agreement on the corrective action was documented in a CAP that was drafted concurrently with the completion of the investigation and the mobilization for corrective action. In less than 60 days, Plexus performed the site investigation comprised of several hundred field and lab samples, negotiated the corrective action, drafted a corrective action plan, excavated over 1,800 cubic yards of explosives contaminated soil, installed, developed and sampled five 100-foot deep monitoring wells, imported and compacted over 10,000 cubic yard of backfill, and restored the site. The project also included MEC construction support and associated planning documents.

SUPPORT IN GROUNDWATER TREATMENT PERFORMANCE EVALUATION NATIONWIDE

Plexus has led reviews of existing groundwater pump-and-treat systems at 12 Army installations. These reviews involved the gathering of national experts in various technical and engineering disciplines and regulatory stakeholders for an in-depth assessment of the system design, operational performance, and optimization/close-out strategy. These reviews have led to dramatic cost savings and, in some cases, system close-out. This project also involved the evaluation of enhanced bioremediation of explosives-contaminated groundwater.

REMEDIAL SERVICES AT AIR FORCE PLANT 42, LOS ANGELES AIR FORCE BASE AND FORT MACARTHUR, CA

Plexus has been awarded \$5.5M AFCEC Performance Based Remediation (PBR) contract to conduct environmental remediation at Air Force Plant 42 (AFP42), Los Angeles Air Force Base (LAAFB) and have achieved SC at Fort MacArthur. In this PBR, Plexus has committed to achieving SC to residential standards, at six sites and RC at two sites. To achieve these Performance Objectives (POs), Plexus has teamed with two small businesses in Southern California to provide the best value to the Air Force.

Plexus plans to achieve SC at three soil sites impacted by PAHs and VOCs. Through detailed analyses of existing data, Plexus will develop site specific, risk-based, clean-up goals (RBGs) for soil that will be incorporated into a ROD. Plexus will then perform remedial actions of soil excavation and SVE to achieve SC. By developing and incorporating RBGs in the ROD, the volumes of excavated soil can be greatly reduced leading to lower costs. In addition, this will minimize field efforts and reduce impacts on AFP42 operations.

At a site where groundwater has been impacted with VOCs, Plexus will achieve SC through a combination of applied technology and use of existing remedial systems. The groundwater at this site is over 350 feet deep and the dissolved phase VOC plume is over 35 acres in extent. After a thorough review of existing data, a VOC vapor plume is thought to be in the shallow soil, directly under a large hanger. This vapor plume is potentially acting as a source area, continually impacting groundwater. Plexus is applying an innovative approach of using SVE technology to reach under the hanger to remediate the vapor plume which will remove the source of TCE to the groundwater. By removing the TCE source, the existing pump and treat system will be able to remediate the groundwater and the site will achieve SC.

RI/FS AT MMRP SITES, HAWTHORNE ARMY DEPOT, NV

Plexus was subcontracted to provide Nevada licensed personnel to assist with the investigation and detonation of MEC items found at several land sites within the Hawthorne Army Depot. Plexus conducted reacquisition of anomalies and the set up and detonation of donor charges to render safe MEC items found during the investigation.

COMPREHENSIVE SOILS REMEDIATION – CAMP REYNOLDS, PA

Plexus received a fixed-price performance based task order under the USACE Baltimore Multiple Award Remediation Contract (MARC) to bring this Formerly Used Defense Sites (FUDS) site through all phases of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process to achieve closure. In order to achieve this goal, Plexus finalized the RI, performed a FS and Risk Assessment to establish the most cost effective remedy that is protective of human health and the environment, prepared and secured regulatory buy-in of the Decision Document, ROD, and Remedial Design (RD). The remedy consists of the excavation and off-site disposal of munitions constituents (lead and antimony) contaminated soil at an inactive small arms shooting range and infiltration course. Plexus was responsible for maintaining the Administrative Record and has prepared and implemented a Public Involvement Plan (PIP). The PIP encouraged the formation of a RAB. The field portion of the remedial action has been completed and the final report has been approved by the Pennsylvania Department of Environmental Protection (PADEP)

for review. All work has been conducted in full compliance with CERCLA regulations and Army guidance and have achieved Site Closure.

The project involved an innovative approach to the assessment of potential environmental impacts to surface water and stream sediment. There is an intermittent stream along the western side of the site that has been dry since 2006. The original plan was to collect surface water samples and stream sediments. However, since the stream has been dry during the hard drought that started in 2005, surface water sample collection was not possible. Despite the drought condition of the stream, the State required Plexus to develop a mechanism for gauging the potential impacts of contamination to the stream after the drought broke. In a round-table approach, the Plexus team presented an innovative approach that was critiqued by USACE and the State until all parties' concerns were addressed. This approach involved sampling groundwater that would discharge to the stream, if and when the water table rose to a level of the stream bed. Through a series of groundwater models, Plexus was able to demonstrate that there was no potential for groundwater discharge to the stream to negatively impact future surface water, sediments, and biota populations.

This project is an example of teamwork between Plexus, USACE, the Commonwealth of Pennsylvania, and private property owners. Plexus developed and maintained a strong relationship throughout all phases of the project with all stakeholders, which allowed for early completion of all deliverables in the project schedule. By including USACE, PADEP, and the land owners in discussions at all times, Plexus was able to begin producing the final report documents early in the project which allowed them to be largely complete once the execution phase was done. Activities at the site complied with regulations and guidance set forth by FUDS, CERCLA, PA Act II and State-Army Agreements. As a result of this success, Plexus has received positive feedback from USACE and an excellent CPARS rating.

THERMAL REMEDIATION OF MUNITIONS CONSTITUENTS AND BELOW THE SLAB REMEDIAL INVESTIGATION – SAVANNA ARMY DEPOT ACTIVITY, IL

Plexus was subcontracted to inspect, assess, and decontaminate 16 buildings in order to identify and remove explosive hazards in buildings that are scheduled to be transferred to the public under BRAC. The buildings were historically used to load and demilitarize fixed rounds and bombs with explosives. The main Munitions Constituents (MC) of concern were TNT, RDX, lead azide and nitroglycerin. As MCs were a concern, the project was conducted following MMRP safety regulations and guidelines.

Plexus supported the Army in discussions with the regulatory stakeholders, and in public meetings to achieve stakeholder approval of the thermal process, and to identify the data quality objectives for the assessment, and remediation of the structures. Plexus's innovative thermal process was much safer than the use of traditional open burn techniques, and was easily accepted by regulatory and public stakeholders due to the reduction in hazardous compound emissions that would result from open burning. Prior to the initiation of work, Plexus prepared and gained approval for the site Explosives Safety Submission through the DoD Explosive Safety Board Plans), Accident Prevention Plans, and Work Plans that were approved by USACE and the (DDESB), as well as Field Sampling and Analysis Plans (including Quality Assurance Project regulatory stakeholders in Illinois and with the USEPA.

The Dropex® colorimetric sampling kits were used to screen the structures and equipment for energetic MC constituents and to map the extent of contamination within each building. Confirmatory samples were collected for fixed laboratory analysis to quantify levels of contamination. Contaminated areas within structures and associated equipment that tested positive for energetic compounds were thermally treated using convective heating. After completion of the thermal treatment, Plexus retested the remediated area using Dropex®, and fixed laboratory sampling to verify the removal of the explosive hazard. The results were used to classify the buildings and equipment as fit for unrestricted use, in accordance EM 385-1-97 Explosive Safety and Health Requirements Manual. The structures ranged from 200 square feet to 16,000 square feet in size. The thermal treatment was completed 15 months ahead of time and under budget due to our detailed sampling and thermal treatment program, which focused the treatment effort on only those areas that were confirmed as contaminated.

The detailed and established sampling and thermal treatment program, which focused the treatment effort on only those areas that were confirmed to be contaminated, allowed Plexus to complete the thermal treatment portion of the project a full 15 months ahead of schedule and within budget.

Plexus also conducted a below-the-slab RI of soils beneath the buildings. Plexus designed an innovative remote concrete coring system to enable operators to drill through slabs safely outside the QD safety arcs and to allow safe access to the soils beneath the building slab, sumps and walkways. Soil was analyzed for energetic compounds using Dropex® to determine the extent of contamination. The impacted soil was further analyzed for the concentration and extent of explosive contamination, using the thermal test outlined in EM385-1-97 to identify the soils that could be safely shipped to a laboratory for analysis. Additionally, an amendment to the Explosives Safety Submittal was approved by the DDESB for the remote drilling operations.

MANOR VIEW DUMP SITE LANDFILL GAS MIGRATION CONTROL SYSTEM – FORT MEADE, MD

Concerns about the presence of methane became an issue shortly after military housing was built near the Manor View Dump, an old unregulated landfill at the Fort Meade Army Base in Maryland. USACE Baltimore tasked Plexus to perform a Time Critical Removal Action (TCRA) by designing and implementing a landfill gas migration control system for the military housing to mitigate the effect of the landfill methane. A 175-foot long, 15-foot deep trench was constructed between the housing units and the dump site to intercept the landfill gas. A special biopolymer slurry method of construction was used, which had the benefit of safety and less noise vibration when compared to the traditional sheet pile construction. A network of piping from the trench and extraction wells were tied to a blower to actively extract methane from and around the dump site. The trench was capped with an impervious liner to prevent extraction of clean air through the top of the trench. Plexus was also tasked with monitoring the methane level around the dump site and the housing, and to take corrective actions as necessary, such as adding additional wells to the network of existing wells. Plexus also performed a field investigation to determine the radius of influence of several of the existing extraction wells, and of the trench. Plexus then designed the required system of blowers to control the methane at the site. Plexus operated this system to ensure methane control around the housing area and was also responsible for designing and implementing

upgrades and responding to system shut downs in less than four hours over the lifecycle of the contract.

Plexus and the Army Corps of Engineers (USACE) arranged to transfer a larger blower from a USACE site that had completed its remediation. This required very little additional funding, and achieved methane control at the site. Plexus also designed and installed an automatic drain down function on the condensate tank for the methane collection system. This allowed Plexus to significantly reduce the number of shutdowns due to high water level alarms occurring during rain events. Operation time increased from 88% to 99% once the modifications were introduced. All work was conducted in compliance with CERCLA guidance and regulations.

Plexus worked closely with the Army, federal and State officials, and local community organizations and kept all parties informed of the methane levels on-site on a monthly basis. Plexus has participated and provided presentations on behalf of the Army at the installations RAB meetings to maintain an open line communication with the public. This was a high profile project for the Army where Plexus served as a trusted partner for USACE, Fort Meade and the Army.

CLOSED SANITARY LANDFILL GAS MIGRATION CONTROL SYSTEM – FORT MEADE, MD

Plexus maintained and operated the landfill gas migration system at the Fort Meade Closed Sanitary Landfill (CSL) to ensure compliance with the landfill post closure permit. In addition, Plexus implemented a system review and optimization. This treatment system optimization project produced results that increased system operation time to 95% and reduced operational cost of methane collection and treatment by eliminating the use of the flare.

Plexus provided O&M of a landfill perimeter methane gas collection system, monitors effluent concentrations at the landfill, and designs and implements required system upgrades when necessary. Plexus self-performed the optimization analysis, regulatory negotiations, and O&M for this project to ensure compliance with the landfill post-closure permit.

UNCONTROLLED WASTE SITE, PATUXENT WILDLIFE RESEARCH CENTER – LAUREL, MD

This project consisted of cleaning up debris, including thousands of tires on an environmentally sensitive area of this wildlife center abutting wetlands. The responsibility for the clean-up rested with the Army, as the property was part of Fort Meade, but has since been transferred to the U.S. Fish and Wildlife Service (USFWS) as part of BRAC 88. Plexus coordinated the work with all the stakeholders involved including the BRAC office, the USFWS and USACE. We obtained all the required permits from the Maryland Department of Environment (MDE), including a storm water management permit. During field execution, small equipment was used to ensure that sensitive trees that needed to be preserved (as designated by the USFWS) were not damaged, and the impact to the area was minimized. Debris in the wetland was also removed using an excavator with a thumb located just outside the wetland boundary. Plexus performed a Forest Stand Inventory by a certified Maryland forester prior to start of debris removal, but performed it such that no reforestation was required.

Although the government did not expect the presence of MEC at this site, Plexus was prepared for the possibility of encountering MEC given Fort Meade's history. We assigned a Site Manager to

the project that had over ten years of experience in Unexploded Ordnance (UXO) identification and avoidance as an Explosive Ordnance Disposal (EOD) Site Safety Officer. This decision proved successful when three UXO items were discovered in the debris. The items were isolated and work continued in other parts of the site until the Army's 749th EOD Company responded and disposed of these items.

As follow-on to this project, Plexus cleared another area of the Research Center, which contained several hundred creosote-contaminated telephone poles. The same precautions from the first part of the project were required and all property has been turned over to the USFWS.

ENVIRONMENTAL REMEDIATION – MISSISSIPPI GROUP SITES: COLUMBUS AND KEESLER AFBs, MS

Plexus was awarded a \$5.4M performance-based remediation services task order in 2013 by the USACE Tulsa District to perform environmental services at Columbus and Keesler AFBs, MS. This contract includes the attainment of performance-based remediation goals at six landfills, two chlorinated solvent plumes, one former open detonation site at Columbus AFB; three landfills, three petroleum release sites, and one arsenic site at Keesler AFB. Contaminants of concern include chlorinated solvents, petroleum products, pesticides, metals, and radionuclides.

Under this contract, Plexus is performing enhanced bioremediation at four sites, including the use of vegetable oil and sodium lactate to address chlorinated solvents; zero-valent iron (ZVI) to address arsenic contamination in groundwater; and enhanced soil vapor extraction (SVE) to address a diesel spill. Plexus also is performing long term maintenance (LTM) to include semi-annual and annual groundwater monitoring, land use control (LUC) inspections, and routine operations and maintenance (O&M) of a methane extraction system. Plexus is optimizing the remedial approaches to achieve either site closure or LTM at all 17 sites.

RADIOLOGICAL SERVICES

INTERNATIONAL RADIOPHARMACEUTICAL COMPANY, ENVIRONMENTAL MONITORING PROGRAM, MO

Plexus/IEM was contracted to perform an expanded environmental monitoring program. The objective of this project was to design and implement a monitoring program that was consistent with the recommendations of the U.S. Nuclear Regulatory Commission (USNRC) in Draft Regulatory Guide 4014 (DG-4014). DG-4014 defines a process with an appropriate scope and level of effort that can be used to characterize potential environmental liabilities for decommissioning planning purposes. Specifically, a risk-based approach is recommended in order to identify the types of events that may increase decommissioning costs from potentially-significant soil or ground water contamination.

For this work, the Firm prepared a work plan that included the design of the sampling/measurement locations, subsurface sampling, and a GPS-guided walkover survey. The work plan was promptly approved and the field team mobilized to the site, acquired the necessary data, subjected the data set to a strict V&V process, and prepared the expanded environmental monitoring report. Included were GPS-guided survey results, presented graphically as well as numerically and with statistical analysis, shallow and deep soil lithology, groundwater sampling, and extensive soil sampling.

The primary finding is that there had been no radiological impact to subsurface soils as a result of licensed operations. In light of its long operational history and legacy, the client appeared to be maintaining good control over contamination and effluents. No adjustments of significance to the level of decommissioning funding already in place were necessary. In addition, the project was completed on time, on budget, and to the satisfaction of the client.

It is important to note that the GPS-guided surveys of key areas at the site covered only non-paved portions of the property. The surface covering over the soil reduced the detection sensitivity to the point where data in those areas would be of little, if any, use. However, the boreholes and sample analysis in these areas were negative for indications of radiological impact, thus impacts under paved surfaces can be disregarded in the future.

WR GRACE, BUILDING 23, BALTIMORE, MD

IEM conducted interim final status survey (IFSS) investigations at the client's Curtis Bay facility in Baltimore, Maryland for the purpose of determining the efficacy of clean-up operations conducted by a third-party remediation contractor. The investigation was conducted in the southwest quadrant of an industrial structure (Building 23) that had been used to extract radioactive thorium and other rare earth elements from monazite sand in the mid- 1950s. This short-lived program was conducted under contract with the Atomic Energy Commission and, upon its completion, resulted in wide-spread radiological contamination of processing equipment and structural surfaces within the building. In 1984, the entire facility, including Building 23, was placed into the Formerly Utilized Sites Remedial Action Program (FUSRAP).

Working on behalf of the client (and with extensive oversight by the USACE), IEM implemented an IFSS program that was consistent with applicable NRC and MARSSIM radiological survey guidance. The IFSS investigations were completed on remaining structural surfaces within the building, which were being rehabilitated in preparation for new industrial operations use. All IFSS activities were undertaken by a small team of health physics technician using hand-held survey instruments over an approximately 2,400 square meter area comprised of structural steel beams, columns, truss works and corrugated metal roof and siding surfaces.

A total of 33 Survey Units were investigated during the course of the project; all but 2 SUs were undertaken as Class 1 MARSSIM surveys. In all, an estimated total of 27,000 scanning data point, 650 stationary measurements, and 650 removable (smear) samples were collected for evaluation. Based on the assembled survey information, all but one SU was determined to be eligible for release under the terms and objectives of the IFSS project.

RADIOLOGICAL INVESTIGATION AND REMEDIATION IN COLONIE, NY

IEM was contracted by the USACE to investigate and remediate suspected contamination at two commercial vicinity properties, and to identify and quantify residual contamination at several representative residential properties in the vicinity of the Colonie site located in Colonie, New York. The radiological constituent of concern at each site was depleted uranium, with the original source of this material being the former industrial facility that fabricated products from uranium and thorium under a license issued by the Atomic Energy Commission (AEC) and the State of New York. Air emissions from this facility and surface runoff resulted in the atmospheric spread

of contamination to vicinity properties. Although a comprehensive clean-up of the facility and surrounding properties had been completed, legacy concerns still lingered at off-site locations in the immediate area.

IEM conducted various surface and subsurface soil investigations at the two commercial sites, with one of the test areas resulting in a significant remedial action. At this site, approximately 15 cubic yards of soil that was found to exceed project release criteria were removed, and the remaining radioactivity was characterized. An interesting complicating factor in this removal project was that the contamination in question was present within the embankment of an active and heavily-used railroad line.

The remaining project activities included an evaluation of potential atmospheric deposits of fine, contaminated dust particles in attic spaces (and other infrequently accessed areas) within the representative vicinity properties. This investigation utilized a unique ASTM-specified vacuum and filtration technique to collect samples for subsequent laboratory analysis. The results of this “dust” investigation confirmed that low levels of contamination were indeed present in these representative properties, meaning an expanded investigation of scores of other residential units in the area may be necessary for risk assessment purposes.

DECOMMISSIONING PLANNING FOR THE MH-1A NUCLEAR POWER REACTOR AND STURGIS BARGE, FORT EUSTIS, VA

IEM, under contract with the USACE-Baltimore District, was directed to develop a comprehensive suite of planning and supporting documents to direct the decommissioning and dismantlement of a former WWII Liberty ship that had been equipped with a nuclear power reactor. Officially identified as the MH-1A Nuclear Power reactor and STURGIS Barge, the vessel was used for approximately a decade in the Panama Canal Zone for electrical power requirements and later at Fort Belvoir, Virginia. Upon completion of this mission, it was subsequently de-fueled, mothballed and is currently being stored in the James River Reserve Fleet, near Ft. Eustis, Virginia. The key requirements of this decommissioning planning included review of historical documents and development of a Historical Site Assessment (HSA) consistent with NUREG-1757 guidance. The team also prepared a detailed Decommissioning Plan, a Waste Management Plan, a Quality Assurance Plan, and performed an Environmental Assessment, also consistent with the guidance in NUREG-1757. However, what was unique about the effort is that the site of decommissioning and waste disposal had not been selected. Therefore, the planning documents needed to be broad enough to accommodate up to five potential decommissioning sites and a variety of waste disposal locations. The over-riding objective is that all activities performed during the dismantlement and disposition of on-board components/equipment and structural materials be sufficient to permit a successful petition to the Army Reactor Office (ARO) for termination of the existing ARO permit. It also required compliance with a variety of Federal and State requirements, and a means of ensuring eligibility of all scrap for disposition at the selected disposal locations.

The planning documents were completed and accepted for use by the USACE. Remaining contract activities are to support the active decommissioning, being performed under another USACE contract, provide input to historical preservation requirements, to develop a Mitigation Plan that will be used to implement Virginia State’s historical preservation and public integration requirements for broad public access to information, and other USACE-directed activities.

DECOMMISSIONING OF THE DIAMOND ORDNANCE REACTOR FACILITY, SILVER SPRING, MD

IEM was tasked by the Baltimore District of the USACE to decommission the Diamond Ordnance Radiation Facility (DORF), a former Army research reactor located in Silver Spring, Maryland. The project was completed under budget and within the time frame associated with the contract. IEM received excellent CPARS scores from the client with regard to project performance.

The decommissioning of the DORF first included the survey and release of thousands of cubic yards of warehoused materials and other items that the Walter Reed Army Medical Center had been storing at the site under the authorization of their USNRC license. The fact that both the USNRC and the ARO have regulatory jurisdiction at the site was a complicating factor that IEM successfully overcame. In addition to multiple regulators, there were also multiple stakeholders, including the Army Research Laboratory, Walter Reed and Fort Detrick, which assumed ownership of the property under BRAC. Finally, there were limited “as built” drawings to facilitate source term investigations; poorly-characterized materials entombed within the former reactor core during a prior remediation project; elevated exposure rates in what should have been unimpacted areas; and former underground storage tanks that were insufficiently characterized when they were removed many years ago.

The decommissioning process required IEM to develop several key deliverable documents to meet contract obligations. These documents, among others, included an investigation work plan, health and safety plan, quality assurance plan, waste management plan and final status survey plan. When the investigation was complete, we prepared a comprehensive investigation report, and concluded that the entirety of the site could be released for unrestricted use without remediation if non-traditional data interpretation and measurement methods were employed. While there was no public engagement associated with the project outside of an Environmental Assessment performed by Fort Detrick using significant input from IEM’s products, IEM did lead two Technical Project Planning (TPP) sessions that involved the various multiple stakeholders as a means of ensuring buy-in to the preferred alternative to the site.

As noted above, a significant element of this project entailed the management of “abandoned” materials that had, over time, come to be warehoused in this facility. Quantities of radioactive waste, hazardous waste/materials (asbestos, lead, and chemical), scrap metal, and liquids were disposed during this aspect of the project. Over 12,000 pounds of scrap metal and over 60 cubic yards of non-hazardous, non-radiological solid wastes were eventually released from the site. Radioactive waste included concrete cores from wall and ceiling investigations, waste containers, HEPA filters, debris, drum compactors, lead shielding, and other reactor and nuclear medicine-impacted materials.