Solutient Technologies, LLC

STATEMENT OF QUALIFICATIONS

Environmental Site Management
Site Assessments & Surveys
Facility Decontamination
Waste Management
Soil Remediation
Hazardous Materials
Emergency Response

Toll Free: 1 (877) 787-7821

6616 Promway Ave NW
North Canton, OH 44720

(330) 497-5905
(330) 497-2045 fax

www.solutientech.com

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Introduction to Solutient

Solutient Technologies, LLC has earned a solid reputation as a small business industry leader and national provider of full-scope radiological services, environmental consulting, and remediation services designed to meet the varied needs of governmental and industrial clients. Our technical excellence, depth of resources, financial strength, national presence, and client focus are the basis for our reputation of providing responsive, high quality, and innovative services.

Solutient's staff provides professional radiological support services to the Department of Energy, Department of Defense, and private by-product and source material licensees. Our headquarters are located in North Canton, Ohio, and we operate two regional offices in Oak Ridge, Tennessee, and Dayton, Ohio. By strategically focusing on our target markets with a firm commitment to customer service, Solutient has steadily expanded its service capabilities, geographic presence, and client base. We are well positioned to provide comprehensive environmental services tailored to meet our clients' needs anywhere in North America.

Company History

Incorporated in 1997, Solutient was founded by a group of investors who also owned several other unrelated and non-competing businesses. The firm was later purchased by a team of Solutient employees and is now privately owned and chartered in Ohio as a Limited Liability Corporation (LLC).

Early efforts focused on the use of proprietary decontamination technologies to significantly reduce disposal volumes and remediation costs. As the business matured, Solutient developed more of a full service offering expanding into environmental site management, site assessments and surveys, and facility decontamination. With expertise in all aspects of radiation safety and radiation measurement, Solutient offers complete development, implementation and oversight for all facets of Decontamination and Decommissioning (D&D) programs. Additional areas of expertise include radiological risk assessment, emergency planning, and health physics program development, implementation and management.

The key element to our growth was the issuance of a mobile D&D License. Solutient currently maintains a license in the state of Ohio and other state and federal jurisdictions recognize this license under reciprocity. Solutient's current licenses enable the possession and management of up to one (1) curie of each isotope from atomic number 1-103, ten (10) curies of tritium, and in special cases, unlimited activities for sealed sources, including weapons grade material, on behalf of our clients at their sites.

Commitment to Safety

Safety is our highest priority at Solutient. We are committed to conducting our operations in a way that protects people, property, communities, and the environment. Safety is viewed as a critical element of every project. We believe that all injuries and occupational illnesses can be prevented. In fact, Solutient has one of the best safety records in the industry with Injury/Illness Rates (IIR) and Experience Modification Rates (EMR) of less than 0.8, well below both national and industry standards. This outstanding performance record is a direct result of our well-trained staff, state-of-the-art programs and procedures, and corporate commitment to safety and health.

Solutient has never received a regulatory notice of violation or incident by any state or federal agency for work performed.

Innovative Developments

Over the years, Solutient has become a leader in our development of innovative techniques and procedures within our industry. In the process of managing and completing dozens of remediation projects, Solutient has consistently achieved the highest level of productivity while maintaining worker safety. The res

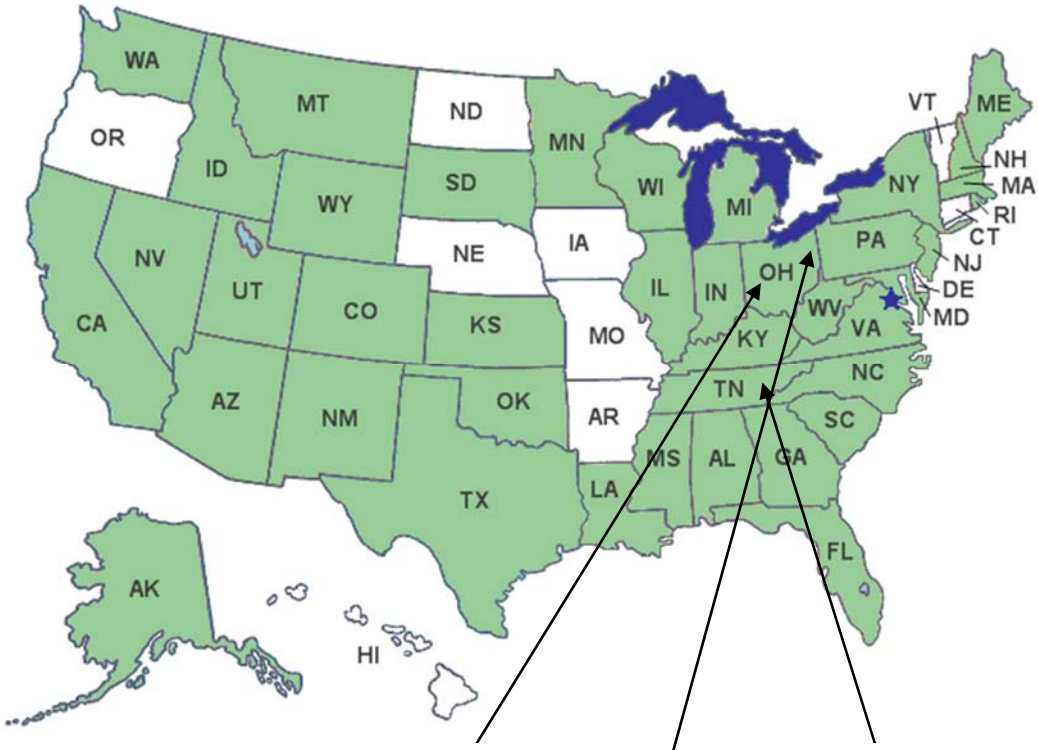
ult has been a net cost savings to our clients. Examples of these innovative developments include:

- Techniques to remove soil in two to six-inch lifts to minimize waste
- Unique survey system to efficiently measure large areas
- Efficient health physics techniques to improve operator efficiency
- Training programs to use typical construction workers for projects
- Special material handling techniques
- Special waste packaging optimization programs

For additional information, please visit our website at:

www.solutientech.com

Our Geographic Coverage



Dayton, OH
(937)313-6459

Oak Ridge, TN
(865) 220-7193

States Currently Served

North Canton, OH
Headquarters
(330) 497-5905

Solutient has three offices to serve the needs of our clients. In addition to our offices, Solutient is licensed to serve a variety of clients throughout the US and has in more than 30 states so far. Other state and federal jurisdictions recognize our Ohio License under reciprocity agreements and permit the management of radioactive material at work sites throughout the United States. In addition to the U.S. states covered, Solutient has actively performed services in the Canadian provinces. Canadian clients should contact our headquarters office in North Canton, Ohio for more details.

Solutient Services

Environmental Site Management

Solutient provides a comprehensive approach for managing environmental conditions at our clients' facilities. Solutient has successfully completed a number of projects that include the comprehensive analysis, site characterization, decontamination, and radiological decommissioning of facilities throughout the United States. With extensive experience in radioactive waste management particularly the design and implementation of large-scale remediation projects, Solutient has the experience to restore conditions at contaminated sites thereby permitting unrestricted access to the general public.

Facility Decontamination

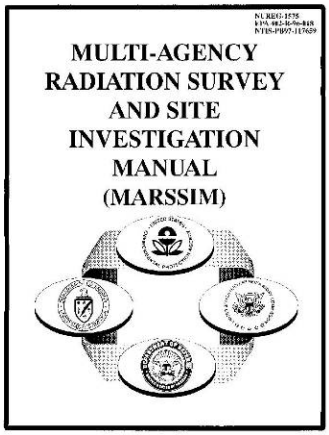
Solutient Technologies utilizes the most advanced environmental surface preparation, cleaning and decontamination technologies. Whether the surface is wood, concrete or metal, Solutient has experience in cost effectively and safely decontaminating it. Previous projects completed by Solutient include decontamination of floors, walls, structural components, as well as equipment including pumps, motors, piping, tools, and even vehicles.

Solutient utilizes aggressive traditional techniques such as scabbling and scarifying, CO_2, high-pressure water, needle guns, shot and sand blasting as well as a host of other methods. Solutient also employs more advanced methods of decontamination such as the Advanced Recyclable Media System (ARMS™). This extraordinary technology removes and absorbs low-level radioactive contaminates and hazardous materials from almost any surface. Oil, grease, paint, soot and heavy metals, including lead and depleted uranium can be remediated utilizing the ARMS™ technology thereby reducing previously contaminated surfaces to benign, ordinary substrates, suitable for all standard solid waste disposal or recycling techniques.

Our goal is to address our clients' specific contamination problems with the most reliable, cost effective and safe decontamination techniques available.

Site Assessments and Surveys

One of the initial key elements for any project is a complete and accurate site assessment. This allows for detailed planning thereby insuring a successful remediation project while at the same time controlling project costs. Site assessments may include instrumentation surveys, air monitoring, water sampling, geological surveying/sampling, and contamination surveying. All site assessment results are recorded and our client receives a comprehensive report of all findings with recommendations for proceeding to the next phase, if necessary.



Solutient has successfully performed numerous site surveys at client facilities. Our surveys incorporate all the industry recognized and approved surveying methodologies, which include, but are not limited to the following:

- NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*
- NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*
- Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors* (NRC 1974)

Solutient utilizes state of the art equipment in the performance of all surveying activities and routinely utilizes Global Positioning System (GPS)-assisted equipment to survey larger areas for contamination. Solutient's radiological equipment inventory is unparalleled in the industry, thus providing our clients with the assurance that the survey results are timely and accurate. This information better advises the Project Manager how best to reduce risks, eliminate the contamination and restores the site to its original condition.

Soil Remediation

During the last few decades, numerous facilities have been identified as having large volumes of contaminated soil. Until recently, remediation and disposal options were limited and the few options available were costly. Recent alternatives for disposal and the opening of additional landfills throughout the United States have provided new options for the cost effective disposal of contaminated material. Solutient examines all possible disposal alternatives on behalf of our clients to maximize efficiencies, limit liability and reduce costs.

Solutient has completed a significant number of soil remediation projects. These efforts typically require interfacing with regulatory agencies to set site release limits, evaluating remediation alternatives, performing soil excavation and loading, container transport by rail and truck, and site closure sampling. To date, Solutient has safely removed and disposed of more than 50 million pounds of soil for our clients.

Waste Management

Radioactive decontamination or remediation projects require expert waste management techniques to ensure that regulated wastes are safely characterized and properly disposed. Solutient implements a *Total Waste Management* (TWM) approach on all projects which involves intensive characterization activities including a variety of sample analysis procedures, both destructive and non-destructive analysis, on-site spectroscopy, radiation measurements, and historical site investigations. Off-site independent laboratories are utilized to perform verification sampling required for waste disposal profiling thus assuring compliance with each sites' waste acceptance criteria.

Solutient has successfully managed many of our clients' waste control programs and currently transports to all active radioactive waste repositories and processing facilities nationwide.

Solutient's *Total Waste Management* approach includes the following:

- Complete waste characterization of radioactive and hazardous wastes
- Packaging of waste materials (drum, box, gondola, sealand, High Integrity Containers (HIC's), special shielding containers, etc)
- Obtaining waste profile approvals from processing and disposal facilities
- Labeling of containers, and manifest and shipping document preparation
- DOT approved and trained Qualified Shippers
- Transportation services by truck and rail
- Emergency response for transportation incidents

Brokerage Operations

Solutient provides quality radioactive waste brokerage services to various government and commercial clients. Solutient has successfully brokered numerous radioactive waste shipments for government clients such as the Department of Defense and the Department of Energy's Oak Ridge Operations. Solutient maintains qualified brokers as required by each agency which, depending on the contract requirements, are utilized in either a prime contractor or subcontractor role.

Solutient has been very successful in managing commercial clients' wastes through a complex decision-making process matching specific waste streams to specific disposition pathways. Our goal is to maximize the use of all available processing and/or disposal alternatives in order to minimize the overall costs to our clients.

Hazardous Materials

Many remedial projects have multiple hazards which demands that highly trained professionals properly characterize, package, transport, and dispose of a wide variety of hazardous and radioactive wastes. Solutient's utilizes a *Total Waste Management* (TWM) approach for identifying, packing and disposing of all RCRA, TSCA and radioactive wastes from our clients' facilities dramatically reducing the overall costs for the project while ensuring regulatory compliance. The following information describes Solutient's hazardous materials services:

Lab Pack Services

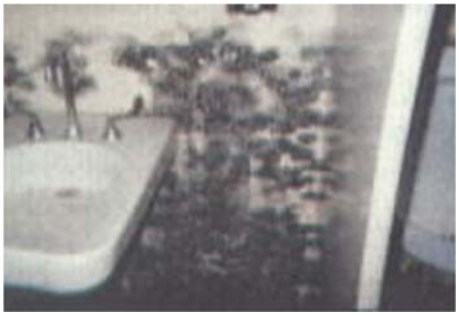
Solutient provides cost-effective preparation, transportation and disposal of waste laboratory reagents from private and public laboratories, academic facilities, R&D centers, and governmental clients. Our professionals properly identify and categorize all waste materials, satisfy label and packing requirements to meet DOT and disposal site criteria, and provide state-of-the-art recycling and disposal services.

Other Wastes

From small quantities to large volumes of material, Solutient can manage a variety of common hazardous wastes used in industrial facilities and public institutions. Examples of hazardous material routinely managed by Solutient are:

- Asbestos and Asbestos Containing Material (ACM)
- Mercury and Mercury Compounds
- Polychlorinated Biphenyls (PCB's)
- Lead

Black Mold



The growth of various molds is becoming a problem of monumental proportions, and mold growth in public, residential and commercial buildings is believed to have caused serious medical conditions. Property damage from mold growth has destroyed millions of dollars in real estate and forced homeowners from their residences.

Solutient provides experienced and professional mold inspection, sampling, and remediation services for the commercial, residential and industrial community throughout the United States. Solutient's staff provides a wide range of mold consulting and environmental consulting services.

Risk Assessment and Risk Management

Risk Assessments are used to evaluate the relative risk associated with radiological hazards. Risk Management applies the assessment results to evaluate policies and procedures, support decision-making, and design contingency plans to deal with reasonably foreseeable incidents. Solutient has developed Risk Assessment and Risk Management Programs to optimize remediation project objectives by implementing appropriate control measures to minimize worker exposure, accelerating remediation, and limit our clients' financial exposure. Examples include a project at one client's facility where a 13 Ci source measuring approximately 11 Roentgen was successfully prepared, packaged, and shipped for dispositioning with the maximum dose of 40 mrem to a single individual. Another effort was undertaken for a major steel manufacturing plant where Solutient performed a detailed Risk Assessment of their scrap metal handling procedures and radiation monitoring systems. The report was presented to senior management and major changes were implemented to their risk management policies and procedures.

Personnel Support Services

Solutient recognizes that certain projects may only require specific contract personnel to supplement an organization's EH&S staff to meet specific technical or operational requirements. Solutient routinely provides professional, highly skilled personnel to manage or perform all phases of a project.

Various professional services can be provided on a time and material basis, or on a fixed price contract basis, depending on the project requirements. Such services would include, but not limited to the following personnel:

- Certified Health Physicists
- Health Physics Engineers
- Radiological Engineers
- Industrial Hygienists
- Civil and Construction Engineers
- Radiation Safety Officer
- Health & Safety (OSHA) Compliance Specialists
- Waste Management Specialists
- Regulatory and Compliance Specialists
- Equipment Operators
- Decontamination Technicians
- Health Physics Technicians

Solutient provides quality remediation and decontamination technicians and equipment operators skilled in the use of most radiological instrumentation and operation of most decontamination equipment. All technicians receive continuing training in hazardous materials management (HAZWOPER), radiological safety, respirator use and maintenance, confined space entry procedures, forklift operations, and other OSHA related requirements related to training.

Instrumentation Sales/Lease

Solutient provides the following instrumentation sales and lease services to our clients:

- Lease and lease-to-purchase of instruments and equipment from our extensive inventory of portable instrumentation
- New instrument and equipment sales
- Professional consultation for custom instrument applications and benchmarking

Solutient provides instrumentation sales and lease services to a broad range of radiation protection and industrial hygiene professionals including the Department of Defense, academic institutions, private industry, research, and regulatory agencies. Solutient can provide the following sales and lease of the following:

- Portable radiation protection instrumentation with detectors
- Radiation detectors for portable instrumentation
- Support equipment for radiation protection instrumentation
- Portable gamma spectroscopy equipment
- In-situ pipe monitoring equipment and detectors
- Robotic systems for pipe inspection and monitoring
- Sealed sources and counting standards
- Semi-portable decontamination equipment
- Air monitoring equipment

Laboratory Services

Solutient offers a broad range of radiochemical analytical services in support of operating nuclear facilities, radioactive waste management programs, decontamination and decommissioning projects, and organizations dealing with Naturally Occurring Radioactive Materials (NORM). Some of our analytical capabilities include:

- Gamma spectroscopy; both laboratory and field capabilities
- Gross alpha and gross beta (wipe/smear counting)
- Alpha spectroscopy for radium, uranium, thorium, plutonium and others
- Radon and radium measurements in support of NORM programs

Solutient has developed a mobile laboratory for utilization at job sites in support of facility decontamination and decommissioning program activities. Please contact our main office for additional information.

Leak Testing Services

Nuclear Regulatory Commission (NRC) requires regular testing of sealed sources containing greater than 3.7 MBq (100 micro curies) of beta/gamma or 0.37 MBq (10 micro curies) of alpha radioactive material in order to ensure that there hasn't been any radioactive leakage from them. Complete records of all leak test results must be maintained by the licensee.

Sealed sources and devices (SSD) that are approved by the NRC or Agreement State and that are used according to their respective SSD Registration Certificates usually pose little risk of contamination. Leak tests, performed at the frequency specified in the SSD Registration Certificate, should identify leaking sources so that the licensee can take immediate action to withdraw them from use and decontaminate, repair or dispose of them. If at any time there is reason to suspect that a sealed source might have been damaged, it must be leak tested and not used until the leak test results are quantified and source integrity has been verified.

Solutient Technologies provides computerized leak test kits for our clients to comply with the testing requirements in their SSD Registration Certificates. Each kit is sealed for security and contains complete instructions and all the materials needed to test each source. Our assay techniques can detect any alpha, beta or gamma emitting radionuclide at levels less than 0.0001 micro curies and a leak test certificate is issued for each sample demonstrating measured result of $\leq$ 0.005 micro curies. Solutient Technologies notifies clients immediately if any test results exceed 0.005 micro curies.

Emergency Response

Solutient is available 24/7 to respond to any radioactive or hazardous materials incident anywhere in the United States.

Our toll free telephone number is:

(877) 787-8721

In many instances, Solutient will have staff on-site within a few hours depending on the geographical location. In all cases, Solutient will be operational within 24 hours from receiving the notification to mobilize. Solutient can expeditiously respond to any radioactive or hazardous materials incident and provide all necessary interfaces with regulatory agencies and local emergency response officials. Please contact our main office for details.

Project Summaries

Curtis Bay Depot Decontamination & Decommissioning Project

The Defense National Stockpile Center (DNSC) of the Defense Logistics Agency (DLA) was closing the Curtis Bay Depot (CBD) site and was seeking to terminate the associated NRC license. The site had stored thorium nitrate in fiber and steel drums under license by the Atomic Energy Commission and later from the NRC as part of the National Defense Stockpile.

Solutient conducted characterization surveys and performed remedial actions at 22 specific areas at the site resulting in their unconditional release. These areas consisted of three buildings, two concrete pads, sixteen and mass areas, and one burial pit. The final volume of waste was approximately 100,000 ft^3 which was comprised of 5,232 tons of soil and concrete debris. This waste was loaded, prepared, and shipped in 46 rail cars sent to a radiological burial site. All work was validated by the Oak Ridge Institute for Science and Education (ORISE).

Hammond Depot Decontamination & Decommissioning Project

Solutient performed a remediation/characterization of the Hammond Depot which was also being closed by the Defense National Stockpile Center (DNSC) of the Defense Logistics Agency (DLA). Nine specific areas were remediated and surveyed for unconditional release per NUREG 1575, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). These nine areas consisted of three buildings and six land masses. The final volume of waste was approximately 106,000 ft^3 which was comprised of 4,500 tons of soil and concrete debris loaded into 42 railcars sent for disposal at a radiological waste burial site. Again, all work was validated by the Oak Ridge Institute for Science and Education (ORISE).

Global Threat Reduction Initiative (GTRI)

Solutient Technologies is part of the Professional Project Services (Pro2Serve) small business team that was selected by National Nuclear Security Administration (NNSA) to perform contract nuclear nonproliferation services. The contract is for work to remove and secure vulnerable, at-risk nuclear and radiological materials around the world through NNSA's Global Threat Reduction Initiative (GTRI).

This five-year contract will enable Solutient and the Pro2Serve team to compete for up to $100 million worth of individual tasks for the GTRI program tasks include removing radiological and nuclear material, working at nuclear and radiological facilities to perform security vulnerability assessments, develop security system upgrade design work, install security improvements, and train facility personnel. Solutient is proud to support GTRI's mission to reduce and protect vulnerable nuclear and radiological material located at civilian sites worldwide.

Safety Light Corporation (Phase I)

Solutient was contracted to characterize, sort material, repackage, and stage for disposal, more than 200 drums and 30 B-25 boxes (approximately 4500 ft^3) of various waste material previously excavated from one of the underground burial silos at the site. Limited data provided by the client as to the contents of the containers indicated the presence of elevated levels of radium, as well as strontium and cesium radioisotopes. Approximately 172,000 lbs of material was shipped offsite for disposal, including concrete debris, laboratory wastes, and demolition/building debris.

Solutient's contract was initially awarded with direct US NRC oversight. Within weeks after the award, and prior to mobilization, the USEPA, along with the USNRC and Commonwealth of PA, indicated to SLC that the EPA would be drafting an Administrative Order of Consent (AOC) for the work proposed at the site. This posed a major shift in the effort, and Solutient was instrumental in moderating the tasks to be accomplished under the Consent Order, having been highly successful in balancing the project site work with all regulatory agencies involved.

The work included the preparation of an on-site staging and repackaging area, and the modification of an expanded work plan to handle the high radiation levels present in some containers. Solutient successfully relocated each container to the process area, opened each container, characterized, sorted and repackaged for disposal, and relocated each container to an on-site temporary storage area. A process building was constructed on site to manage all radioactive waste material. All on-site efforts were supported by Solutient's mobile laboratory capability as well as our portable radiation detection and support equipment inventory.

Safety Light Corporation (Phase II)

Solutient was tasked with separating low-level wastes from high-level wastes which had been collected and stored at the site. Approximately 3,600 ft^3 of material was prepared and transported for disposal. Upon receipt of the material at Envirocare, Solutient personnel utilized significant engineering controls by selectively placing shielding and arranging floor plans to meet site exposure limits.

Safety Light Corporation (Phase III)

Solutient was contracted to perform a sort and segregation of 12,000 curies of tritium-contaminated materials. Approximately 10,000 curies of Class B waste was packaged and shipped to Barnwell, SC for disposal. Another 1,000 curies of Class A waste was packaged and shipped to a processing facility in Tennessee. This project was overseen by the Pennsylvania Department of Health and Region I NRC.

Cooling Tower NORM Remediation
Confidential Client

An industrial gases company initiated removal of an old cooling tower in preparation for the installation of a replacement unit. During the process, it was discovered that the old cooling tower was contaminated with naturally occurring radioactive material (NORM). Solutient Technologies performed an assessment and determined that elevated levels of ^{226}Ra and ^{228}Ra in the well water used as the source for the cooling towers was the likely source of radiological contamination and that the earthen cooling tower basin and associated piping was also contaminated with NORM scale.

With client approval, Solutient Technologies wrote, submitted, and obtained Radioactive Material License for the facility and obtained regulatory consent for a phased remediation effort. All site work was conducted under the license and in accordance with the client's License Termination Plan including a Final Status Survey Work Plan. The cooling tower components were remediated for free release and ultimate disposal. Three acres of surrounding soil, consisting of a large drainage ditch and creek running adjacent to the facility, were surveyed and remediated. The cooling tank basin was laid out in grids, surveyed and all contaminated areas were remediated to meet the free release criteria. Approximately 6500 cubic feet of NORM waste was prepared and shipped to a regulated disposal facility.

Solutient Technologies performed a Final Status Survey (FSS) and wrote the FSS Report verifying the site had been decontaminated to the approved derived concentration guideline levels (DCGL'S). Based on Solutient's Final Report, Radioactive Material License was terminated allowing the client to operate the facility unrestricted using a Personal Protection Plan to protect plant personnel performing maintenance.

Aerojet Chino Hills

Solutient professionals managed the remediation and decommissioning of this California facility used for assembly, testing, and storage of depleted uranium (DU) munitions. This project included surveying and remediation of seven buildings, ten test areas, two storage areas, and a single run-off area. The entire site consisted of 800 acres of land. An on-site laboratory was employed to analyze several hundred soil samples taken from throughout the site. Solutient professionals provided oversight for the entire DU remediation effort. A grid system was established to systematically survey and sample all areas for DU contamination. Over 250,000 ft^3 of soil and debris was shipped to Envirocare of Utah for disposal. Solutient personnel were instrumental in efforts to restore the California site for public use.

University of Rochester

Solutient Technologies' performed a turnkey remediation project at the University of Rochester's Nuclear Research Structures Laboratory (NSRL). This project included conducting a characterization survey, remediation activities, and a Final Status Survey utilizing the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG 1575 criteria. Contaminates included tritium, ^{238}U, and ^{137}Cs. Solutient also performed a characterization study and survey of approximately 1,300 concrete shield blocks from the facility and was instrumental in obtaining approval from the regulatory body for unconditionally releasing the shield blocks.

Countywide Recycling and Disposal Facility

Under contract, Solutient Technologies was requested to respond to radiological alarm at the Countywide Recycling and Disposal Facility located in East Sparta, Ohio. The 258 acre municipal solid waste landfill has portal radiological monitors to survey incoming shipments of waste, one of which contained an unidentified radioactive material. The shipment was isolated and the Ohio Department of Health (ODH) was notified. ODH responded to the site to oversee the recovery efforts.

Solutient Technologies performed an initial dose survey and determined that radium 226 was the isotope of activity. A loose contamination survey of the solid waste material was performed and smear samples were taken from the inside of the container. Using personal protection equipment (PPE), each trash bag was removed from the roll-off box and was dose rated. Materials were sequentially removed from the bag until an "asphalt looking" material was identified as the source of the escalated dose rate. The non-impacted waste was surveyed and released back to the landfill. The trash receptacle and roll-off box were also surveyed and released for reuse by the facility. The Dry Activated Waste (DAW) material was sampled and smear samples were taken from inside the roll-off to ensure there was no remaining loose contamination.

Using data from both the onsite and off-site analytical laboratory, the source was identified as a radium needle with a dose rate of 450 mrem/hr on contact. The needle was prepared, packaged and shipped for final processing and disposal at a licensed facility. Solutient's prompt characterization, identification, packaged and disposal of the radium needle allowed the facility to return to normal operation in a timely manner. In addition, Solutient's efforts to identify the material reduced the volume of radioactively impacted waste shipped for disposal and allowed for the prompt release of non-impacted equipment back to operational status.

Beryllium Decontamination and Sampling Oak Ridge National Laboratory

Beryllium has historically been used in construction, research and was stored at various facilities at ORNL. Effort is currently underway to decontaminate and remove beryllium material or beryllium contaminated material from several buildings at the Laboratory. This particular project involved the removal, decontaminating, sampling, and repackaging specific materials in a building and a shed.

As a first tier-subcontractor to V3 Technical Services, Solutient Technologies participated in various aspects of the project including the development of task-specific Beryllium Exposure Preventative Plans, designing and installing engineered controls to reduce the spread of beryllium contamination, consolidating material and containers, and staging beryllium material for repackaging. Potentially beryllium contaminated material was removed from existing containers, decontaminated and sampled. In addition, Solutient Technologies managed all analytical data from the project.

Upon completion of this operation, V3 Technical Services and Solutient Technologies decontaminated the tools and equipment that could be salvaged. Once sample results were verified, the items were removed from the site.

BP America

Solutient provided all site project management support and performed as the operating contractor for the radioactive materials license closure of a 100-acre industrial research facility with approximately 500,000 ft2 of building space. All operations and remediation activities were conducted in accordance with the terms, conditions and directives of Solutient's Ohio Radioactive Materials License and NUREG 1575, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Solutient also provided the Radiation Safety Officer for the facility license as well as Solutient's license on-site.

The project took more than 22 months to complete at a cost of approximately $2 million dollars. Concurrent with the site remediation work were the facility-wide renovation activities being undertaken concurrently by the facility's new owners. This required that significant controls be instituted to minimize delays and additional costs to the new owner. Solutient successfully interfaced with other site contractors, existing tenants and the new owner to complete the project.

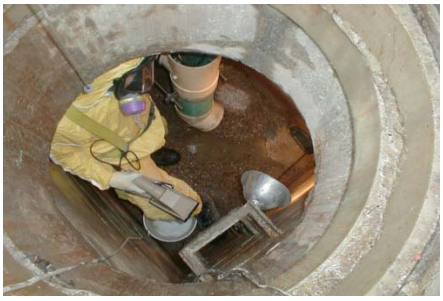
Solutient's site responsibilities included the preparation of all project related health and safety plans, QA/QC programs, radiation safety plans, and radiation work permits. Included in the 30,000 man-hours of project activities were site assessments, baseline surveying, demolition, excavation, decontamination and verification tasks. All waste management activities including waste profiling, packaging, manifesting, transporting and disposing of more than 30,000 lbs of radioactive waste were directly performed by Solutient.

Alliant Tech Systems

Under contract to a major defense contractor, our field services group remediated a 3,000-meter firing range used for testing large caliber kinetic energy penetrators made of depleted uranium (DU).

The areas remediated included the catch boxes for depleted uranium penetrators, practice rounds, High Explosive Anti-Tank (HEAT) rounds and the surrounding area (approximately two acres). An on-site laboratory was established for real-time analysis of contamination material. Approximately 600 soil samples were collected and analyzed with gamma spectroscopy. The data were used to identify the extent and depth of the contamination. Independent sampling was undertaken by state agencies and an independent contractor provided verification of the analytical results. Solutient professionals coordinated the construction of a rail spur to ship 200,000 ft^3 of soil and debris to Envirocare of Utah for disposal. No restrictions were placed on the site for future use.

Mound Advanced Technology Center Sewer Project



The Department of Energy's (DOE) Mound facility operated from 1948 to 2003 supporting the early atomic weapons programs by manufacturing non-nuclear and tritium-containing components for nuclear weapons. As a result, the Mound Site had low-level radioactive contamination in soil and volatile organic compounds in the ground water. DOE conveyed the Mound property to the Miamisburg Mound Community Improvement Corporation (MMCIC) to transition the site for reuse as a technology and industrial park. Solutient Technologies supported the remediation efforts at the site as parcels of property were transitioned to the MMCIC for economic redevelopment.

Solutient Technologies performed initial characterizations, decontamination and survey for release of three sewer systems, and the site storm water sewer system comprising over 50 manholes and collection areas. Sewers identified as impacted or radiologically contaminated were decontaminated using conventional and state of the art cleaning techniques under permitted confined space entry procedures. All waste from the project was characterized, prepared, and packaged for disposition by the Department of Energy. Solutient Technologies prepared and submitted a modeling report that the Ohio Department of Health (ODH) and EPA which was approved for the unrestricted use of the sewers allowing for agricultural land application of the non-radioactively contaminated sludges from the project.

Solutient's free release of the sewers resulted in the successful tie in of the Mound site sewer system into the City of Miamisburg city sewer system freeing land parcels for subsequent transfer to MMCIC for redevelopment. Solutient worked directly with the City of Miamisburg, the Ohio EPA, and the Ohio Department of Health (ODH) to obtain approval for the agricultural land application permit.

Chicago Pile 5 (CP5), Argonne National Lab

Solutient remediated an area inside the pump room at the CP5 reactor using the ARMS™ technology. Solutient was required to perform a hazard analysis, build temporary containment, pass an operation readiness review, and clean radioactively contaminated concrete. At the completion of the project all equipment had been cleaned to meet free release criteria. Solutient was able to clean the concrete and complete release of the client's equipment on schedule and within budget. The ARMS technology successfully decontaminated the concrete while generating minimal waste for subsequent disposal.

Department of Defense – Rock Island Arsenal

Solutient provided the radiological expertise in support of contract work being performed by World Environmental, a qualified minority-owned 8(a) firm for the US Army's Rock Island Arsenal. Solutient maintains DoD/AFSC certified brokers required to oversee all radioactive waste shipments. Over the life of their contract, Solutient aided in the successful disposition of radioactive waste materials from the following sites:

- Aerojet Ordinance Tennessee
- Brooks Air Force Base
- Camp Elmore
- Camp Lejeune
- Camp Pendleton
- Cherry Point Marine Corps Air Station
- Davis-Monthan Air Force Base
- Iowa Army Ammunitions Plant
- Jacksonville Naval Air Station
- Kingsville Naval Air Station
- National Naval Medical Center, Bethesda
- Naval Air Station, Kingsville
- Naval Air Station, Millington
- Naval Air Station, Pensacola
- Naval Amphibious Base, Little Creek
- Naval Hospital, Pensacola
- Naval Medical Center, Bethesda
- Naval Medical Center, Portsmouth
- Navy Area Defense, Jacksonville
- Patrick Air Force Base
- Pensacola Naval Station
- Picatinny Army Depot
- Quantico Marine Corps Base
- Tinker Air Force Base

Stark County, Ohio (Confidential Client)

Solutient personnel performed the dismantling of a former tube mill without adversely impacting the normal plant operations in contiguous work cells. Production equipment, concrete floors and sub-grade soils were PCB-contaminated, resulting from historical use of PBC-containing hydraulic fluids. Site activities included waste repackaging, decontamination and dismantling of equipment, excavation, containerization, transportation and disposal of liquids, sludges and solids. Written permission was obtained from the USEPA Region V for recycling via melting of low-level PCB-contaminated metals utilizing the Client's electric arc furnace.

Department of Defense BRAC 2

As part of the Base Realignment and Closure Program, a task was initiated to remove 23 historic low-level radioactive waste disposal wells from one installation. Parsons Engineering Science was retained to investigate and close the site. Solutient implemented its mobile radioactive materials license to provide material control for the project. Between 1954 and 1958, wells were used for disposal of a variety of radioactive materials including ^{137}Cs, ^{60}Co, ^{90}Sr, ^{238}U and ^{226}Ra. The wells had undergone periodic flooding and the disposal containers had been compromised to varying degrees.

The site was within the bounds of the base golf course. This location posed a unique challenge to both controlling access to the site and minimizing the impact to the operational golf course. The project required the establishment of two major work areas; the first area was the actual well site where dewatering and well removal took place and the second area included a tightly controlled, temporary structure where the containers were removed from the wells. The containers were opened and the contents inventoried inside a glove box that was set up inside a sea-land container provided by the Air Force. HEPA ventilation systems maintained the glove box with negative air with respect to the sea land container.

All materials were surveyed to determine activity levels. Approximately 200 radium devices were recovered containing several ten's of micro curies of ^{226}Ra. Sources were individually tracked to comply with the Solutient Radioactive Materials License which allowed for the optimal disposal efficiency. The Air Force provided for additional analysis off-site analysis. Final closure was based on the removal of all sources and a MARSSIM assessment of the site and surrounding areas.

The Timken Company

Solutient provided First-Responder services involving a cesium source melt at this steel-making facility. Cesium contamination was spread throughout the bag house and stacks resulting in a multi-million dollar cleanup. Led by GTS Duratek, the prime contractor, Solutient was one of the first responder's onsite and played a lead role in providing project-start HAZWOPER training to over 180 workers.

Solutient provided key supervisory and technician personnel on the project and supplied the site with mobile laboratory equipment, i.e.; multi-channel analyzer and alpha-beta counter. Solutient provided oversight of packaging and shipment of radioactive waste material, and assisted the prime contractor with the preparation of the final report and approval process with the State. When major decontamination crews were demobilized, Solutient remained onsite and continues to provide training to Timken personnel as well as other health physics support. Solutient has been selected as the primary Corporate Radiological Advisory Group for all matters involving radiological site safety.

Large U.S. Chemical Processing Facility (Confidential Client)

This facility in Los Angeles manufactured clay absorbents for the petroleum refining industry, several of which contained naturally occurring radioactive materials (NORM) including thorium and uranium. During the manufacturing, areas within 16 structures were contaminated with radioactive materials including the office and laboratory areas, processing equipment, tanks, and storage warehouses. Solutient's project scope included remediation and management of all radioactive materials, operation of the on-site radiological analysis laboratory, waste disposal activities associated with hazardous and radioactive waste, demolition support, and health and safety management.

The project involved several discrete tasks, including radiological decommissioning and decontamination of above grade structures, asbestos abatement, demolition of above grade equipment, structures and materials, radiological decommissioning and decontamination of below grade affected structures, soils and other material, demolition of below grade unaffected structures, utilities and materials, soil remediation, and site restoration. The on-site laboratory provided for alpha, gamma and fluorometry analysis of soil samples, and gross alpha and beta analysis of wipe samples. The laboratory delivered real-time results to the Solutient site supervisor during the characterization and remediation activities.

All activities at the site were performed under the Solutient Technologies, California Radioactive Materials License and in accordance with NUREG 1575 the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). All plans and permits were approved by the state, county and/or city regulatory authorities. Solutient personnel developed the Site Radiological Health and Safety Plan, the Decommissioning and Decontamination Plan, conducted all necessary training, instituted the site radiological health and safety program, and provided the laboratory technical and quality assurance procedures.

Shieldalloy Metallurgical Corporation

Shieldalloy Metallurgical Corporation

This project involved intensive use of Solutient Health Physics personnel in support of the capping of a radioactively contaminated slag pile. Previous smelting operations at the site generated a slag which contained uranium and thorium. Soil contaminated with vanadium and low levels of the isotopes was excavated from around the slag pile, placed on top of the pile and capped with clean clay from a nearby borrow area. Solutient's primary objective was to monitor contamination control from trucks and personnel during this phase.

Solutient also prepared and submitted the Final Status Survey Plan in accordance with MARSSIM protocol, to the Ohio Department of Health. The plan, which was approved shortly after submittal, showed that the final status survey activities of the Class 1 areas around the slag pile met the established criteria after capping. Solutient coordinated all work with other contractors who were installing a berm around the areas being surveyed. In addition, more than 300 surveys were performed on vehicles entering the area. Solutient was also responsible for providing all training, dosimetry and environmental monitoring for the site.

Kansas State University

The primary remediation activities associated with this project included the removal of chemically and radiologically contaminated soil and debris, which included animal carcasses and intact containers of unknown laboratory chemicals. Solutient prepared a Health and Safety Plan specifically developed to define the safety program requirements and protocols to be followed to ensure that employee risks are minimized. Solutient was also responsible for managing and performing all remediation activities including removal and disposal of all radiological and chemically impacted soils/material, and ensuring that all residual radioactivity remaining after the project met the approved clean-up criteria established under NUREG 1575 (MARSSIM). Waste disposal activities included transfer of the waste in roll off containers by truck to a rail spur for shipment and disposal of the waste at an approved disposal facility. The Final Status Survey and Report was completed to ensure the OCWLF was cleared for removal from the K-State Radioactive Materials License.

During this project, additional isotopes were identified and the size of the remediation area more than doubled requiring adjustments to the remediation plan and excavation protocol. This required the submission of and approval by KDHE of a modified survey and sampling plan. The final survey confirmed all levels to be below Derived Concentration Guideline Levels (DCGL) conforming to the latest version of RESRAD.

General Dynamics Ordnance and Tactical Systems

Solutient Technologies was enlisted by General Dynamics Ordnance and Tactical Systems to audit the DU demilitarization operation in Marion, IL. Two visits to the site ensured that a full production day would be observed and an adequate number of air samples were obtained. Solutient established the preeminent areas for the fixed air sampling based on the activity and potential risk. Consideration to time spent in the area of concern and handling of material determined which individuals would wear the personal Breathing Zone (BZ) air samplers. Removable Surveys (smear) of the process area were executed and the data was used to assess how well the housekeeping, PPE, and change line procedures were working. After evaluating the process trash procedures Solutient was able to establish protocols for disposal of items that pose potential dangers. After reviewing the survey results, Solutient evaluated the personal protective equipment (PPE) requirements to ensure safety for all employees and visitors to the site. The audit's findings were able to support the activity and advise General Dynamics of any recommendations to maintain exposures as low as reasonably achievable (ALARA).

AAR Corp.

Solutient Technologies, LLC (Solutient) began working on AAR Corp in 2010, addressing the western portion of the property where B&P had allegedly disposed of significant volumes of thorium-contaminated incinerator ash and debris. In 2013 Solutient obtained landfill waste acceptance, disposal approval from the Michigan

Department of Environmental Quality Office of Radiological Protection, reciprocity from USNRC, City of Livonia approval of a Soil Erosion and Sediment Control Plan, and USNRC approval of a Remedial Action Plan authored by Solutient on behalf of AAR Corp. The Remedial Action Plan called for the selective excavation of thirty-two (32) 100 square meter grids to a minimum depth of one (1) meter, using site characterization data from 2007 as the basis for grid selection.

Solutient transported their Gamma Spectroscopy (GS) unit and ancillaries, as well as all applicable hand-held survey instruments, to the site in order to establish an on-site radiological laboratory capable of providing real-time analytical results. Gamma Spectroscopy was used to analyze (1) a minimum of four random samples in the 1-2 meter strata from each of the 32 excavated grids, (2) samples of blended soils, and (3) samples obtained during load-out of thorium-contaminated soils prior to releasing haul trucks. An estimated 485 (GS) samples were analyzed over the course of the project.

Solutient utilized Michigan Gravel Trains with which to transport a total of 7,349 tons of thorium-contaminated soils for disposal. Roll-off boxes were staged on-site to accommodate the eventual transportation and disposal of 236 cubic yards of site debris. Site activities were completed in 2014.

Key Personnel

Steven M. Pocock
President / CEO

With over 22 years of experience in program management and business operations, Mr. Pocock provides all management and development oversight for Solutient. Additional responsibilities include the development of all business plans and accompanying documentation, preparation of cost estimates, proposals, and project management documentation for government and commercial projects. He is one of the founders of the company and was instrumental in the startup and licensing of Solutient.

Mr. Pocock has managed several complex remediation projects while with Solutient and Aerojet Ordnance Tennessee, where he served as Senior Program Manager for Aerojet's Environmental Services and Tungsten Manufacturing Business. Major remediation projects include: Depleted Uranium remediation and removal from test sites in Socorro, NM and Chino Hills, CA, equipment decontamination at Oak Ridge, TN, Fernald, OH, and Vicksburg, MS, and facilities decontamination and demolition at Ionia, MI, Honolulu, HI, Los Angeles, CA, and Jonesborough, TN. Previous positions held include Program Manager for Facilities and Metals Programs and ISO 9000 Overview Team Leader while at Aerojet Ordnance Tennessee, and Accounting Manager, Financial Analyst, and Program Control Administrator while at Raytheon Corporation.

Dell Reuss
Senior Project Manager

Mr. Reuss has over 24 years of experience in the management of radioactive materials. At Solutient, he is responsible for the preparation of technical specifications and engineering cost estimates for projects including decontamination, demolition, and facility restoration, remediation of radioactive waste materials, and management of all field operations. Mr. Reuss verifies that cleanup projects comply with the standards and requirements set forth by the client, and federal, state, and local agencies. He provides oversight for the characterization, handling, transportation and subsequent disposal of radioactive wastes. Mr. Reuss has manifested and shipped over 10 million ft^3 of radioactive and mixed waste to Barnwell, Hanford, and Envirocare. He is also one of the founders of the company and was instrumental in the startup and operation of Solutient.

While at Aerojet Ordnance Tennessee, Mr. Reuss was responsible for the development and implementation of Depleted Uranium remediation programs. He was directly responsible for operations of on-site decontamination programs, radioactive waste packaging, and transportation of radioactive waste, water treatment technologies, and hazardous waste training for site personnel. He also managed several off site decontamination projects. Major remediation projects include: the decommissioning of a 50,000 SF Depleted Uranium manufacturing facility, including removal of sub grade tanks, pipes, and sewers, the closure of an evaporation pond containing depleted uranium and thorium waste.

Brad Squibb
Radiation Safety Officer

Mr. Squibb has over 30 years of experience working in the nuclear industry. As the Corporate Radiation Safety Officer, he is responsible for oversight and maintenance of the company's Radioactive Materials License. He provides guidance, direction and training to employees and clients on regulatory issues pertaining to the license, as well as emergency response training. As a Certified Waste Broker for the DOD and DOE, he has shipped over 10 million pounds of radioactive and mixed waste to Barnwell, Hanford, Waste Control Specialists, and Envirocare.

Service as the on-site Project Manager for several large-scale remediation projects, Mr. Squibb provides technical and analytical evaluation, and regulatory interpretation. He coordinates waste profiling and shipping activities with the various disposal sites. He is responsible for the operation and management of the Solutient Technologies Tennessee office. Mr. Squibb has provided regulatory licensing, waste characterization and profiling, project management, training and waste management for Solutient Technologies, GTS Duratek, Bechtel Jacobs, Parsons, Aerojet, URS Corporation and other large companies within the industry. Mr. Squibb has served on several committees dealing with radiation safety and works closely with state and federal regulators and clients to provide technical expertise on issues of concern within the industry. Mr. Squibb is the author of several technical papers published while serving as the Secretary of the International Society of Respiratory Protection (ISRP).

Greg McFeely
Operations Manager

Mr. McFeely has over 10 years of experience as a Radiological Technician, Decon Specialist, and Supervisor where he has worked at numerous decontamination and decommissioning projects across the United States in a variety of different positions and situations. Mr. McFeely was the lead technician on major MARSSIM closure projects in California, New Jersey, Pennsylvania and Ohio. He provides a wide variety of skills in the field, lab and/or office.

As the Operations Manager, Mr. McFeely oversees the daily operations of Solutient Technologies, including instrumentation, equipment, and warehouse activities. He also supervises field projects and health physics personnel.

Leslie W. Cole
CHP, Assistant Radiation Safety Officer

Mr. Cole has more than 39 years of experience in applied health physics and environmental health physics with specific emphasis in environmental sampling, analysis and data evaluation, health physics and safety program evaluations, radiological and mixed waste assessment and uranium health physics. He is a past Director of Environmental Health and Safety at a uranium metal fabrication facility and is also a member of the NCRP Task Group developing national recommendations for handling uranium. He has served as a Radiation Safety Officer for a major decontamination facility that processes material from nuclear power plants. He has also served as a Health Physics Team Leader in an Environmental Radiological Assessment Program.

Randy Farneth
Corporate Account Manager

Mr. Farneth has more than 22 years of experience in the environmental / construction services profession. At Solutient, he is tasked with responsibility for business development, relying on his ability to effectively communicate with and properly interpret the needs of corporate environmental engineers, consulting engineers, economic development directors, regulators, and environmental attorney. His planning thoroughness and common sense approach to project implementation reflects itself in his ability to balance the goals of the project with the perceived needs of his Client. He brings to Solutient an accomplished background in site project management, resource allocation and client responsiveness. Project experience includes RCRA facility closures, NRC facility decommissioning, TSCA and RCRA site remediation and restoration, selective dismantling, facilities decontamination, waste beneficiation and minimization, UST closures, and AST installations.

Radioactive Materials Licenses

Solutient currently maintains a license in Ohio that allows for the possess and management of up to ten (10) curies of radioactive material including weapons grade material on behalf of our customers.

The Nuclear Regulatory Commission (NRC) and Agreement States recognize this license under reciprocity and permit the management of radioactive materials throughout the United States. As a result, Solutient is able to perform regulated activities and remediation at client sites nationwide while saving our clients the time and expense of obtaining a new license for any site work we are contracted to perform

Over the last five years, our radioactive materials license has been approved for use at more than sixty customer facilities and project locations nationwide. To date, all licensed activities have been performed without violation, incident or overexposure.

OHIO RADIOACTIVE MATERIALS LICENSE

- Solutient Technologies, LLC
- 3219 – decontamination services
- License Number: 03219770000
- Expiration Date: May 1, 2021