Your single source.

- Decontamination & Decommissioning
- Structural & Interior Demolition
- Hazardous Material Abatement
- Smart Demolition & Asset Recovery
- Equipment Dismantlement
- Emergency Response
- Fireproofing
LVI provided superb project management and oversight. Their attention to detail and safety created a smooth and efficient work environment that brought the project to completion on time and budget. Their crew worked as a team that tackled each task with gusto. The crew as a whole had a very harmonious working relationship that made working with them a genuine pleasure.

I would not hesitate to recommend your company and crew to others seeking your services.

Rich Holm
Reactor Administrator
University of Illinois at Urbana-Champaign
Department of Nuclear, Plasma and Radiological Engineering
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I have found LVI to be a first rate contractor that I would highly recommend for future work at the University of Washington or to anyone that needs to have asbestos and hazardous material abatement or D&D work performed in a safe, cost effective and professional manner.

Jeff Angeley
Associate Construction Manager
UW Capital Projects Office
NUCLEAR EXPERIENCE

THE SAFE NUCLEAR DECONTAMINATION & DECOMMISSIONING EXPERTS.

LVI supports the Department of Energy’s Environmental Management (EM) Program to decontaminate, decommission, and demolish obsolete nuclear weapons production and research facilities and associated sites throughout the U.S.

The DOE’s EM Program has successfully closed various sites such as Rocky Flats, Fernald and the Mound, and this program continues to reduce the footprint across the US from these legacy operations.

In addition, LVI has been a leader in the decommissioning of university and research nuclear reactors and facilities licensed by the Nuclear Regulatory Commission (NRC).

LVI offers services ranging from full decontamination and decommissioning (D&D) to facilitate NRC license termination to asbestos and hazardous material abatement, facility demolition, decontamination services in all types of radiological environments.

KEY CLIENTS & PROJECT LOCATIONS

» ABB – Combustion Engineering, Windsor, CT
» Accelerated Remediation Company (ARC)
» Bechtel Jacobs Company LLC, Oak Ridge, TN
» BWXT Y-12, LLC, Oak Ridge, TN
» Connecticut Yankee
» Department of Energy (DOE)
» DOE Paducah Gaseous Diffusion Plant Paducah, KY
» DOE Portsmouth Gaseous Diffusion Plant Piketon, OH
» Fluor Fernald
» Fluor-B&W Portsmouth, LLC
» General Electric
» Hematite Nuclear Fuel Processing Plant Festus, MO
» Idaho National Laboratory, Idaho Falls, ID
» Kerr McGee
» LATA Environmental Services of Kentucky, LLC
» Lawrence Livermore National Laboratory
» Magnox Ltd., Chapelcross & Trawsfynydd Nuclear Plants, UK
» North Wind, Inc.
» Nuclear Fuel Services, Inc.

» Oak Ridge National Laboratory Oak Ridge, TN
» Phelps Dodge
» Point Beach Nuclear Plant, Point Beach, WI
» University at Buffalo – SUNY, Buffalo, NY
» University of Arizona, Tucson, AZ
» University of Illinois, Urbana, IL
» University of Washington, Seattle, WA
» UT-Batelle, LLC
» Westinghouse Electric Company
» Y-12 National Security Complex Oak Ridge, TN

Radiation Monitor, University of Illinois
LVI has successfully completed numerous abatement and demolition projects in support of maintenance, upgrade and reclamation work.

LVI has consistently delivered innovative, cost effective-solutions for complex, high-profile and time-critical tasks and has maintained a superlative safety performance record throughout.

LVI has also added value to our relationship by providing extensive pre-planning, budgetary and asset management services. I would encourage anyone with similar needs to involve LVI early in the process in order to optimize your end result.

Jessie Guerrero
Director of Procurement
NRG Energy Inc.
FEATURED NUCLEAR PROJECTS
LVI is performing the decontamination and decommissioning (D&D), complete demolition, disposal and site restoration of the University at Buffalo’s Material Research Center (BMRC), which houses a high dose rate nuclear research and test reactor.

The BMRC was a research and test reactor facility with a pool-type reactor designed and constructed by AMF Atomics between 1959 and 1961. The reactor operated at power levels up to 2 MWe until 1994. Fuel was shipped from the facility in 2005. The facility is comprised of a 75 ft diameter tri-level containment building and a 5,500 square foot tri-level laboratory wing.

**RADIOLOGICAL WASTE REMOVAL AND MANAGEMENT**

Working within the regulatory framework of the Nuclear Regulatory Commission, EPA, OSHA, DOL, and NY State DOH, contaminants will be removed and include neutron-activated aluminum, steel, concrete, fission products, and laboratory radiological nuclides used in various experiments.

**REACTOR COMPONENT REMOVAL**

LVI removed the control blade drive mechanisms, control blade guide tubes, irradiation and experimental standpipes and devices, reactor bridge, fuel racks, reactor in-
Instrumentation, reactor tank ancillary items, such as lighting and miscellaneous items that were stored in the tank. The reactor components were removed in phases.

The 500 R/hr control blades were loaded, underwater, into a specially fabricated, shielded, storage container, which reduced the dose rate to less than 200 mR/hr. After being placed into a shipping box and grout macro-encapsulated to “treat” the mixed waste, was ready for disposal.

The reactor grid plate, with a dose rate of 40 R/hr, was unbolted and packaged into a specially-fabricated shielded container, placed in temporary storage, and is awaiting final packaging. LVI also removed several components and bolts measuring up to 8 R/hr and placed those items in shielded packaging and temporary storage.

LVI then removed remaining fuel storage racks, thermal column nose piece, dry chamber nose piece, the core support plenum, and ancillary components. The 28 ft deep pool was drained in phases, dependent upon dose rate levels. LVI will remove thermal column graphite, several ton lead shutter plates, hot cell interferences, and ancillary systems.

All reactor tank and cutting recycle water was containerized, filtered, sampled, and released.

**ACTIVATED & CONTAMINATED CONCRETE REMOVAL**
Cutting Edge Services will perform wire saw cutting to remove the surface contaminated Hot Cell concrete, the upper portions of the Bioshield, and the lower portions of the Bioshield to remove activated concrete. Approximately 600 tons of concrete will be cut and removed in 10 ton maximum size blocks. The blocks will be segregated into 3 different waste streams, dependent upon radioactivity levels. The cutting water will be recycled to minimize waste volume.

Following Bioshield removal, a remotely-operated BROKK, equipped with an impact hammer, will be used to break and remove the activated concrete from the tank bottom, below the reactor. A containment, portable HEPA ventilation, and a light water mist will be used to control dust levels. Once it is determined that all concrete and steel have been removed that requires packaging and disposal as low-level radioactive waste, the remainder of the facility concrete will be released in place.

**FACILITY SYSTEMS REMOVAL**
LVI will remove the remaining contaminated systems from the building structure, including the primary and secondary coolant piping, drain lines, several large liquid waste tanks, several underground waste storage tanks, radioactive exhaust ventilation systems, hot cell components, and other items.

**FACILITY DECONTAMINATION**
The reactor room floor, pipe trenches, tank vaults, and other facility surfaces will be decontaminated. LVI will also perform asbestos abatement and hazardous material removal prior to facility demolition.

**RADIOLOGICAL WASTE TRANSPORTATION AND DISPOSAL**
LVI will disposition approximately 21,000 cubic feet of radiologically contaminated waste as BSFR and LLRW. In addition, LVI will package, transport, and dispose of the 500 R/hr Class B, mixed low-level radiological waste control blades and the depleted uranium (DU) at the Nevada National Security Site.

**FACILITY DEMOLITION AND SITE RESTORATION**
LVI will demolish and remove the 10,000 square foot footprint structure, foundations, and tank vaults. The building debris will be radiologically released and 5,000 cubic yards of debris will be appropriately dispositioned.

A radiological Final Status Survey will be performed on the excavation to verify that the endpoint criteria had been met to satisfy license termination with the NRC. After a confirmatory survey is completed, the site will be restored by backfilling with 13,000 cubic yards of material and grading the site.

**Project Managed By** LVI Environmental Services Inc., a subsidiary of LVI Services Inc. | **Client Contact** Rob Weller, Project Manager, Facilities Planning & Design, University at Buffalo North Campus, 119 John Beane Center, Buffalo, NY 14260, 716-645-5887, rweller@buffalo.edu
LVI is a core member of the team removing and disposing of two nuclear reactors plus a radioactive waste vault and its associated tanks at the DOE’s Hanford Site 300 Area, which originally housed fuel manufacturing operations and experimental & laboratory facilities for the entire site.

In addition to the disposition of the two reactors and waste vault, LVI completed the excavation and remediation of the following waste sites in the 300 Area: 321, 3706, 340, 327, 3716, 300-284 and the 300-15 process sewer lines. In total, LVI has remedi- ated and packaged approximately 200,000 tons of contaminated soils/materials for disposal at ERDF. Additionally, LVI has excavated and stockpiled another 50,000 tons of soil for reuse as backfill material.

From 1947 to 1987, reactors at the Hanford Site, a 586-square-mile area of high desert in southeastern Washington, produced plutonium for America’s defense program. In 1989, the DOE, EPA, and Washington State Department of Ecology entered into a legally-binding accord to clean up the site to mitigate risk to the local environment including the Columbia River.

In August 2011, Phoenix Enterprises NW, LLC was awarded a small business contract by Washington Closure Hanford, LLC to complete the work. Phoenix brought in LVI for our extensive nuclear decontamination & decommissioning (D&D) expertise.
Working under the regulatory framework of the DOE, DOT, and EPA, LVI is providing project management, technical support, work planning, field supervision, union craft labor, and heavy equipment for remediation of the waste sites and reactor/vault removal. More specifically, LVI is conducting excavation, demolition of below-grade structures and foundations, packaging of remediated soils and demolition debris, and interference removal associated with reactor and vault removal. Contaminants involved include neutron-activated material and radiological contamination from reactor operations, plus high dose rate from laboratory waste and sludge.

The 309 Facility includes one plutonium recycle test reactor (PRTR) which sits inside thermal and biological shield walls in the center of the containment structure. The reactor core has top and bottom primary shields, and is covered by a rotating top shield block assembly. The reactor core (calandria) consists of 85 vertical aluminum tubes which hold Zircaloy-2 process tubes. A thermal shield is installed between the calandria and the biological shield walls. Radiological conditions inside the PRTR were last measured in 1997. The highest radiological readings obtained at that time were 46.7 R/hr on the bottom of the top shield and readings between 7.6 R/hr and 19.7 R/hr measured inside the reactor vessel. The current radiological readings are approximately 25% of the 1997 values.

LVI will remove the PRTR assembly as shown in the diagram above. The monolith will be freed from the structure by diamond wire saw cuts through the surrounding walls and support structure. The PRTR assembly, thermal shields and biological shield wall will be internally grouted and packaged as one piece, transported to the ERDF, and off-loaded inside the disposal cell. LVI removed the TRIGA reactor from the 308-A Facility demolition site on December 15, 2012. The reactor core and surrounding structural concrete below the minus 12-foot elevation were removed as a single monolith, using a pull-up gantry system. The TRIGA reactor monolith (approx. 250 tons) was packaged, including placement of additional 3,000 psi grout in the voids in the monolith and transported and off-loaded for disposal at ERDF on December 16, 2012.

The 340 Building concrete vault (40x22x25 feet) and attached valve pit (40x7x10 feet) houses two 15,000 gallon tanks plus associated valves, agitators, and pumps, which will be left in place. The tanks stored radioactive liquid wastes and currently contain waste heels (evaporated remains of liquids from past operation that were below pumpable levels). Historical surveys show gamma radiation levels inside the vault range from about 1,000 mR/hr on contact with the bottom of the tanks to about 30 mR/hr in the general area on top of the tanks. Beta radiation levels up to 9,100 mR/hr have been recorded. Prior to turnover to Phoenix, WCH grouted the two tanks and placed up to 12 inches of grout on the internal floor of the vault. LVI will structurally stabilize and remove the 340 Building Vault and Waste Tanks as a single monolith using a pull-up gantry system. The vault monolith (approx. 1100 tons) will be packaged and transported in accordance with DOT requirements and then offloaded for disposal at ERDF.

LVI is subcontracting heavy lift design, engineering, fabrication, hoisting and rigging and heavy transport to Barnhart Crane for the removal, transport and offloading of the 3 monoliths at Environmental Restoration Disposal Facility (ERDF).
LVI Services Inc. | Nuclear Experience, Services & Advantages

UNIVERSITY OF ILLINOIS DECOMMISSIONING OF NUCLEAR REACTOR LAB
URBANA, IL

LVI was selected to decontaminate and decommission (D&D) the University of Illinois’ 1950’s era Mark II Training, Research, Isotopes, General Atomics (TRIGA) reactor and nuclear reactor laboratory. LVI dismantled, removed, and packaged the reactor, systems, and structures and decontaminated and removed radiologically contaminated surfaces, components, and debris with unrestricted site release in accordance with 10 CFR 20.

Built in 1959, the research reactor was placed in “safe storage” mode in 1998, when its 30-year operating license expired. The 1.5 megawatt reactor was used for research, student instruction, and service to the industry. It produced no electricity, but was used in a wide variety of research applications. The NRC terminated the University’s reactor license in January 2013.

RADIONUCLIDE WASTE REMOVAL AND MANAGEMENT

Working within the regulatory framework of the Nuclear Regulatory Commission (NRC) and Environmental Protection Agency (EPA), contaminants were removed inside the facility and included neutron-activated aluminum, steel, concrete, and fission products and laboratory radiological nuclides used in various experiments.
LVI’s experienced engineering and operations team completed facility and reactor removal preparation activities, including stripping the bioshield exterior surfaces of conduit, piping systems, and interferences. Electrical isolations allowed for removal of process components and electrical distribution components. LVI removed the control rod drive mechanisms, irradiation facility drives, control rod guide tubes, irradiation tubing that entered the reactor assembly, fuel racks, reactor instrumentation, reactor tank ancillary items, such as lighting, water cooling piping, emergency spray header, and miscellaneous items that were stored in the tank.

Other facility preparation activities included the sizing and packaging of approximately 1,200 cubic feet of radioactive waste, consisting of glove boxes, debris, graphite stringers from the thermal columns, beam plugs, and miscellaneous laboratory items. The effort cleared a large portion of the floor area to allow more efficient D&D operations. The reactor tank water was pumped and removed to half height, which provided sufficient shielding for the 40 R/hr reactor assembly, and yet allowed the top half of the Bioshield to be removed.

**CONCRETE CUTTING**

The top Bioshield and shield tank were removed by wire saw cutting, and the concrete was radiologically released. Cutting Edge services performed approximately 1,200 square feet of wire saw cuts into 70 blocks. The cutting water was recycled to minimize waste volume.

**REACTOR REMOVAL**

The reactor components were removed in phases. The rotating rack had a dose rate of 40 R/hr, which measured the charge produced per hour, and was segregated from the reflector. The rotating rack was individually packaged, shielded, and loaded in a cask for shipment to an off-site facility for proper disposal. The tank was completely pumped of all liquids, dependent upon dose rates, prior to reactor assembly removal. The reflector and core support plenum was then disconnected from the cooling loop, 7 beam ports, and bolted connections. The assembly and remaining components were specially-packaged for disposal.

**ACTIVATED MATERIAL REMOVAL**

A remotely-operated Brokk was equipped with an impact hammer to break and remove the activated concrete and metals in the vicinity of the active core region. A containment, portable HEPA ventilation, and a light water mist was used to control dust levels. As the embedded beam tubes were exposed, they were separated in sections using the Brokk. The shadow shields and activated Bioshield metals were removed with the concrete. Once it was determined that all concrete and steel had been removed that required packaging and disposal as low-level radioactive waste, the remainder of the Bioshield was released in place.

LVI removed the remaining potentially-contaminated systems from the building structure, including the primary coolant piping, heat exchanger, and pump, Nitrogen-16 delay tanks, wastewater system, and embedded fuel storage tubes. The reactor room floor, pipe tunnel, catch basin, sump and other concrete were decontaminated using scabblers, saw cuts, or impact hammers. Any contaminated soils were removed and packaged. LVI also performed asbestos abatement and hazardous material removal prior to facility demolition. Finally, LVI demolished and removed the 3,200 square foot structure, foundation, tunnels, and vaults. The released portion of the Bioshield was rubblized during building demolition.

**CONTRACTOR COORDINATION**

LVI hired Enercon to provide waste management, radiation protection, health physics personnel and equipment, and Final Status Surveys to verify that the endpoint criteria had been met to satisfy license termination with the NRC.

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Rich Holm, Reactor Administrator, University of Illinois
LVI performed demolition of radiologically-contaminated Buildings 9769 and 9211 to slab, site restoration, and waste disposition of all associated material and debris at the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) Y-12 National Security Complex. Funded by the American Recovery and Reinvestment Act of 2009 (ARRA), the project was the largest ARRA demolition project awarded at Y-12.

Building 9211 was an approximately 83,500 square foot, four-story steel frame structure with masonry walls built in 1945. The facility was renovated, modified and altered numerous times since its original construction with a major Biomedical Laboratory addition occurring in 1980. The original building was constructed on concrete piers, which supported the first floor. A 3-foot to 7-foot tall crawl space was present under the original building footprint. The crawl space floor consisted of a concrete mud mat approximately 4 inches thick. With the exception of exterior mechanical systems, exterior electrical systems and the walkway connecting Building 9211 to Building 9207, the facility was considered radiologically-contaminated. The exterior of the building was coated with asbestos-containing paint. LVI’s scope of work included the demolition of the walkway between Building 9211 and Building 9207.
Building 9769 was a 19,520 square foot, three-story steel frame structure with masonry walls constructed in 1945. The building façade consisted of metal panels over hollow core block. The hollow core block exterior surface was coated with asbestos containing paint. A majority of the areas in the facility were considered radiologically contaminated with the exception of: exterior mechanical systems, exterior electrical systems, a single story addition on the northeast corner, Building 9770-03 and the stairwell/entry way on the south side of the building.

**ASBESTOS-CONTAINING MATERIAL DISPOSAL**
A majority of the hazardous materials were abated from both structures under a separate contract and left behind for final disposition under this contract. Friable asbestos was bagged and stored in various rooms/locations inside each building. LVI’s scope of work included the removal and disposition of remaining universal waste and hazardous materials, including the bagged asbestos. LVI was required to remove, package and transport the bagged friable asbestos to the DOE’s Environmental Management Waste Management Facility (EMWMF) landfill for disposal. In addition, LVI had to remove, package and transport 498 metal doors (presumed to contain asbestos) for disposal at the Y-12 Industrial Landfill.

**INNOVATIVE DEMOLITION TECHNIQUES**
A primary goal of the project was to preserve the first floor slabs of both buildings over the crawl space areas, in order to avoid contacting potential radiological contamination under the slabs and exposing the underlying soils. This prevented the contractor from tracking heavy demolition equipment on the slabs. LVI solved this problem by utilizing one of its ultra-high reach demolition (UHD) machines. LVI employed a track-mounted 140,000 lb. Hitachi EX-550LC excavator custom fit with a Jewel 140 ft. heavy duty high-reach boom and MP-20 shear/processor. This unique UHD machine and attachment allowed LVI to reach in, shear and process the higher elements and remove them in sections to the ground. This approach created less dust and allowed the debris to be pulled out, processed, and removed from the site after each building segment was dropped. As a result, LVI was able to limit the damage from demolition operations and preserve the first floor slabs of both structures, thereby satisfying the Owner’s stated goal. Additionally, the reach and capacity of this UHD machine minimized the amount of manual labor that was required to perform this work, an added safety benefit.

LVI utilized between three to five excavators with a variety of attachments to assist the UHD machine. These machines typically included a minimum of two to three 100,000 class excavators with shears and multi-processors to cut and size reduce the building debris.

As the UHD machine sheared and processed the higher elements of the structure to the ground, the assist excavators were used to safely grab, remove and size debris for load-out. The 100,000 lb. excavators were the perfect machines to assist the high reach, because they had the power and capacity to grab portions of the steel structure, cut steel members and separate them from the wreckage while keeping a safe distance. A smaller excavator with grapple attachment was used to separate debris into piles for waste load-out.

**METAL SALVAGE & RECYCLING**
LVI recycled approximately 200 tons of metals and equipment from the clean areas of each facility.

**SUBCONTRACTOR COORDINATION**
LVI awarded a subcontract to Hubbard Trucking, Inc., an SDB and Hub-Zone Small Business, to provide waste transportation support services. Hubbard provided 21 cubic yard tri-axle trucks with approved lift gates to haul building debris and LLRW to the approved landfills. Absorbent pads and pigs were added by LVI personnel to all loads destined for the EMWMF landfill.

LVI thoroughly inspected the structures prior to demolition to insure removal of universal and hazardous wastes. The work force was trained in “anomalous waste detection” to observe the debris during building demolition and waste load-out to stop and remove any unacceptable items. The project management team included a Waste Management Specialist who verified that each shipment met the waste acceptance criteria (WAC) for EMWMF. LVI transported over 1200 loads to the EMWMF landfill representing approximately 23,000 cubic yards of radiologically contaminated building debris, which was size reduced, packaged and shipped for disposal. In addition, LVI transported 63 loads of non-radiological demolition debris/waste to the Y-12 Industrial Landfill.

LVI subcontracted approximately $450,000 to small businesses primarily for waste management, structural engineering and ES&H support.

 zerosha recordable incidents
DOE SAVANNAH RIVER SITE, K COOLING TOWER | AIKEN, SC

PROJECT HIGHLIGHTS

» Multi-story, heavy industrial demolition & site restoration of the 2nd largest cooling tower in the world to be imploded
» Waste material downsizing and segregation
» Finished one month ahead of schedule & under budget
» Completed without any recordable injuries
» Recycled 1,600 tons of steel rebar, stainless steel, and aluminum piping, steel plates, and copper wire

LVI delivered waste management and site restoration for the Department of Energy (DOE) Savannah River Site’s K-Reactor hyperbolic cooling tower demolition. This 455-foot-tall and 333-foot-wide heavily-reinforced concrete structure was the second largest cooling tower in the world to be imploded.

Built in 1992 as part of the structures supporting the U.S. Department of Energy’s National Defense Initiative at the Savannah River Site and the K Area Reactor, the tower became part of a 67 percent site-wide operational footprint reduction initiative funded by the American Recovery and Reinvestment Act (ARRA) in 2009.

The tower was so tall that the strobe lights on top were used as a visual landmark for aircraft in the area. When strobes lights were permanently turned off, the FAA had to be notified that they would no longer serve as an aerial guide.

EXPEDITED WASTE REMOVAL AND RECYCLING

LVI provided extensive personnel and heavy equipment resources to downsize and load-out demolition debris after the implosion led by American DND on May 25th, 2010. By August 26th, LVI had sized, loaded and hauled over 1,400 truckloads of concrete and PVC fill materials without incident to the on-site disposal cell. This included...
approximately 13,000 cubic yards of concrete and 19,500 yards of PVC fill. Additionally, over 1,600 tons of steel rebar, stainless steel, and aluminum piping, steel plates, and copper wire were recycled.

**SITE RESTORATION**
Site restoration efforts included revegetating the surrounding area, site protection using barricades and water runoff management and rip-rap placement.

**SPECIALTY IMPLOSION ENGINEERING**
The height of the tower posed a unique challenge for demolition engineers, who spent months surveying the tower. Demolition efforts required site workers to place 3,860 separate charges, fueled by 1,300 pounds of nitroglycerin-based explosive, along the lower 250 feet of the structure. Due to the unusual shape, a custom designed and fabricated basket was attached to a crane with a carrying capacity of 10,000 pounds.

The basket held up to six workers along with the necessary equipment for drilling and placement of 1,300 pounds of explosives. The personnel basket, designed to meet all OSHA and ANSI standards, literally could roll around the tower as the crane moved it along.

The implosion was a complete success. The actual detonation took eight seconds. The tower fell within the footprint of the tower basin, as planned, with less than 1 percent falling outside the base ring. The dust cloud dissipated within 12 minutes. The closed public roadways were reopened within 15 minutes of the detonation. The seismic impact was measured at less than 1/6th the allowable limit for “peak particle velocity.”

**TARGET ZERO SAFETY**
The project was completed one month ahead of schedule, under budget, with zero OSHA Recordable Incidents and zero lost time accidents.
In March 2011, LVI was contracted by the University of Arizona to decontaminate and decommission (D&D) the University’s Training, Research, Isotopes, General Atomics (TRIGA) reactor and in its nuclear reactor laboratory.

LVI dismantled the reactor and its ancillary support systems, removing all radioactive materials from the NRL, and reducing the radioactivity to levels that permitted release of the licensed area for unrestricted use and License termination. Activities were completed in accordance with 10 CFR 20.

Many of the reactor components and systems were either activated or contaminated and were segregated from non-radiological components, so that they could be disposed of as low level radioactive waste (LLRW). LVI’s waste minimization emphasis resulted in a reduction to the overall volume of waste requiring disposition through licensed facilities or disposal sites.

LVI removed the control rod drives, fuel storage racks, cooling coils, the reactor assembly, and other irradiated reactor components from the pool.

After the pool water was dispositioned, the tank’s gunite layer and activated portions of the steel liner and concrete were removed. All materials were packaged and shipped for proper disposal.
LVI’s team included Enercon Services, Inc., which provided waste management support and radiation protection services, including the health physics personnel and instrumentation. Final Status Survey activities, lead by Enercon, were conducted for all remaining surfaces in the facility. The Final Status Survey was performed to verify that the endpoint criteria had been met to satisfy license termination with the NRC. ORISE conducted a confirmatory survey in early September 2011, on behalf of the NRC, to verify that the endpoint criteria had been met to satisfy license termination.

Site restoration was completed in October 2011. This included concrete backfill of the reactor pit and the fuel storage tubes. The Final Status Survey Report was approved by the University in November 2011.

NRC license termination occurred in early 2012.

**Additional Details**

**Purchase Order No.:** Y561491

**Contaminants:** Radiological contamination from the following radionuclides of concern: Co-60, Eu-152, Eu-154, H-3 and C-14.

**Regulatory Framework:** Nuclear Regulatory Commission (NRC)

**Contract Value Note:** Reflects a credit to the University from a reduction to the volume of waste disposed as radioactive waste.

**Project Managed By** LVI Environmental Services Inc., a subsidiary of LVI Services Inc. | **Client Contact** Ralph Banks, Assistant Director, Planning, Design, and Construction, University of Arizona, (520) 621-3326, rabanks@email.arizona.edu
LVI served as the University of Washington’s Decommissioning Operations Contractor (DOC) to decontaminate and decommission (D&D) its educational nuclear reactor, housed in More Hall Annex. LVI removed and disposed of all hazardous and radioactive materials above unrestricted release limits to allow the University to terminate its Nuclear Regulatory Commission (NRC) License No. R-73.

The ARGONAUT-class reactor (Argonne Nuclear Assembly for University Training), a small-scale reactor designed to teach nuclear reactor theory, nuclear physics, and perform engineering laboratory experiments, operated for UW’s Department of Nuclear Engineering from 1961 to 1988. It is believed to be the only reactor to be contained in a glass building, allowing students to view it and demystify its operation.

SAFE APPROACH TO D&D NEAR OCCUPIED FACILITIES

The LVI team faced several challenges, from generating multiple sets of plans and procedures for the job in a short period of time, to dealing with a number of confined space issues and preventing disruption to adjacent occupied University facilities. The project specific documents generated included, along with other required submittals, a Project Management Plan, a Radiation Control Plan, a Health and Safety Plan,

LVI reacted quickly to all challenges and managed the work of subcontractors effectively making every effort to accommodate the University’s requests while accomplishing the project goals.

I have found LVI to be a first rate contractor that I would highly recommend for future work at the University of Washington or to anyone that needs to have asbestos and hazardous material abatement or D&D work performed in a safe, cost effective and professional manner.

Jeff Angeley
Associate Construction Manager
UW Capital Projects Office

The More Hall Annex was situated in the heart of a major university with occupied facilities and buildings surrounding the Annex, including a nearby student union. Most of the work was performed while classes were in session, so the LVI team had to be sensitive not only to protecting the health and safety of the work force, but also sensitive to the protection of the students, faculty and public, as well as the prevention of other adverse impacts to the University and its operations.

**RADIOLOGICAL WASTE removal and MANAGEMENT**

Working within the regulatory framework of the Nuclear Regulatory Commission (NRC) and Washington Department of Labor and Industries (DOLI), contaminants were removed inside the facility which included asbestos, lead-based paint, and radiological contaminants from the following radionuclides of concern: Cobalt-60, Europium-152 and -154, Helium-3, Carbon-14, Plutonium-239, -240, and -241. Plutonium contamination was present as a result of a plutonium foil failure that occurred during an oscillator experiment in 1972. As a result of this incident, LVI had to remove the ventilation system from the reactor building, as well as decontaminate surfaces in and adjacent to the reactor room. An above-ground radiological waste retention tank was also characterized, removed, and disposed.

Other hazardous materials such as lead and cadmium, which were necessary to support the dismantlement of the reactor and other related reactor components and systems, were removed. Activated concrete in the heavily reinforced bioshield area and the reactor pedestal were also removed.

Waste management responsibilities included the characterization, transportation and disposal of all hazardous, radioactive and mixed waste generated by project D&D activities. Waste minimization was a primary focus of the project. LVI’s D&D approach effectively separated the activated concrete and metals from those materials that could be handled as construction debris.

The project’s waste minimization efforts ultimately resulted in a 45% reduction to the anticipated volume of low level radioactive waste (LLRW). A total of 1,700 cubic feet of LLRW was generated and shipped offsite for disposal, as well as 32 cubic feet of mixed waste. Upon completion of D&D activities, a Final Status Survey was performed to verify that the endpoint criteria had been met to satisfy license termination with the NRC.

**CONTRACTOR COORDINATION**

LVI teamed with Enercon Services, Inc. (Enercon), which provided waste management support and radiation protection services, including the health physics personnel and equipment. Final Status Survey activities, lead by Enercon, were conducted for all remaining surfaces in the More Hall Annex, in order to leave behind a “clean” building for future demolition. Enercon’s subcontract value was approximately $1,058,000.

**ZERO VIOLATIONS OR OSHA RECORDABLE INJURIES**

The NRC audited the project and identified no violations, findings, observations or suggestions for improvement - virtually unheard of in the nuclear industry. Additionally, the LVI team experienced no OSHA recordable injuries on the project.

The Final Status Survey was completed in September of 2006 and substantial completion was accomplished on October 19, 2006 with the submittal of the Final Status Survey Report to the University.

**ON-TIME, UNDER BUDGET COMPLETION**

The project was completed on schedule and under budget. The total collective project team dose was 1,491 person-rem, which was 25% of the collective dose estimate in the Decommissioning Plan. Final acceptance and closure of the project was achieved in June of 2007 based on the NRC’s approval of the Final Status Survey Report and related documentation. The NRC License was terminated at this point in time.
LVI was contracted to perform the demolition of the Remediation Treatment Facility (RTF) at Pit 9 at the Department of Energy-owned Idaho National Laboratory (INL).

While the Pit 9 buildings were almost completely constructed, they were never used. The demolition work did not involve radiation hazards.

The Remediation Treatment Facility (RTF) was a concrete structure 60 feet tall with 18-inch walls. The building was divided into 3 cells to support different waste treatment processes and segregation for the Pit 9 nuclear materials. Due to the height of the concrete building, a 75-ton crane with a 5,200-pound wrecking ball was used to bring the walls down to a level of 30 feet above grade. The remaining walls were demolished with 450- and 650-class excavators with hammer and shear attachments.

The arc meter cell was demolished down to 15 feet below grade and large equipment pads were removed at the floor level. A massive amount of rebar was separated from the concrete and trimmed by torches at grade level to complete the project and leave the site clean.

The project was completed ahead of schedule, within budget and with no incidents.

**Project Managed By** LVI Environmental Services Inc., a subsidiary of LVI Services Inc.

**Client Contact** Brad Frazee, North Wind Inc., 208-557-7891, bfrazee@northwind-inc.com
LVI AT A GLANCE

THE RECOGNIZED LEADER IN COMPLEX DEMOLITION AND HAZMAT SERVICES.

LVI is nationally ranked as the top contractor in demolition and hazardous material abatement. With a national network of 32 offices, we’re ready to serve you in any environment, from densely urban to isolated and remote. Our focus is simple - lead with safety, build relationships, and deliver quality. The result? An experience our clients describe as exceptional.

### OUR MISSION
LVI’s mission is to exceed client expectations for safety and performance, develop their long-term trust, and earn repeat business.

### OUR ADVANTAGES
- Top-ranked demolition contractor in the world since 2007 (D&RI)
- Top-ranked abatement contractor in the U.S. since 1999 (ENR)
- Excellent 27-year health and safety record
- Industry-leading bonding capacity & insurance coverage
- Scalable services for the most complex jobs
- Proven, high-quality emergency response experience
- Self-performing, cross-trained team
- Largest fleet of company-owned heavy equipment in our industry
- International presence, local service
- Licensed in all 50 U.S. states

<table>
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<th>Contractor Ranking</th>
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</table>
By the early 1990’s, LVI had grown to seven offices and established its national presence. At that time LVI began to implement its diversification strategy through several tuck-in acquisitions that strengthened its national footprint and service capability for national clients.

By expanding service offerings to a broad range of remediation services and adding deconstruction and facility response capabilities including decontamination & decommissioning, infection control, fireproofing, and emergency and disaster response, LVI quickly became a top-ranked full service contractor.

Recently, LVI acquired two specialty companies - Pioneer Maintenance & Erectors, a millwright and rigging company headquartered in Pennsauken, New Jersey and Randolph Construction Services, a specialized design-build contractor headquartered in Pasco, Washington. Pioneer offers its capabilities for installing complex mechanical systems and equipment dismantlement support, respectively, with emphasis in baggage handling systems at the nation’s airports. Randolph is capable of delivering one-of-a-kind industrial, commercial and federal facilities both domestically and abroad. LVI provides design-build services primarily to the federal government through the Government Services Administration, U.S. Army Corps of Engineers and the Department of Energy with an emphasis in border security facilities.

Today, LVI executes approximately 5,000 projects worth $400 million annually ranging in size from short-term disaster clean-up projects to large-scale, multi-year contracts with public and private sector clients, including many Fortune 500 companies.

For over a quarter century, LVI has built an excellent reputation. Our dedicated team emphasizes job safety, client communication, and solving complex issues in innovative ways.
LVI’s flexibility, innovative solution to complex issues and attention to detail resulted in the successful completion of this project. LVI successfully and professionally managed owner-generated changes in scope, schedule acceleration and the subsequent coordination issues with numerous construction trades.

Darius D. Parker, P.E.
Senior Project Manager
Carter & Burgess, Inc.
OUR SERVICES
I have been greatly impressed with the level of professionalism, knowledge, and attention to detail that LVI has demonstrated. They have showed a solid understanding of what it takes to perform as evident in the fact that, despite a change to the demolition sequence and an increase to their scope, LVI managed to work with us and the other subcontractors to stay on schedule.

Above all, LVI has put safety first and has embraced Actus’ culture of an incident and injury free work place. In comparison to other subcontractors on previous projects, LVI has proven to be the most responsive and cooperative.

Mark Kline
Construction Manager
Actus Lend Lease
SERVICES

TURNKEY SOLUTIONS FOR COMPLEX NEEDS.

LVI has safely completed more than 61,000 projects worth $4.2 billion since our inception, including some of the most complex, secure, and historically significant projects in the U.S.

DECONTAMINATION & DECOMMISSIONING (D&D)
LVI provides remediation and demolition of radiologically-contaminated environments at Department of Energy (DOE) and Nuclear Regulatory Commission (NRC) licensed facilities.

STRUCTURAL AND INTERIOR DEMOLITION
LVI has been ranked the #1 demolition contractor in the world since 2007 by D& Ri. We offer complete interior and structural demolition and dismantling for projects of varying size and complexity.

HAZARDOUS MATERIAL ABATEMENT
Ranked as the #1 asbestos contractor in the U.S. since 1999 by ENR, LVI brings unmatched expertise in the removal, encapsulation and management of asbestos, lead, PCB, and radiological material.

INFECTION CONTROL
LVI has well over a decade of experience protecting hospital personnel and patients from nosocomial infections and contaminants resulting from demolition and construction activities.

MOLD REMEDIATION
LVI removes indoor contamination caused by toxic molds resulting from water intrusion due to natural disasters, building defects, or other water-related malfunctions.

MILLWRIGHT & RIGGING
LVI offers rigging, millwright, heavy hauling, machinery maintenance and repair, welding, and fabrication. We selectively can dismantle a plant, and relocate it to a new location, on- or off-shore.

FIREPROOFING
LVI applies spray-on fireproofing, intumescent paint and fire blankets or mineral wool products to structural steel. LVI’s expertise and knowledge in UL, ICBO, ASTM, and local and state codes is second to none.

DESIGN-BUILD CONSTRUCTION
LVI offers turnkey design-build construction and monitor installation services in support of border control efforts. Services include site surveys, risk analysis, design, value engineering and construction.

SMART DEMOLITION & ASSET RECOVERY
LVI’s work approach emphasizes recycling, asset recovery and waste management to maximize re-use of demolished material and divert it from landfills for reprocessing into new materials.

EMERGENCY RESPONSE
LVI provides time-critical disaster recovery and clean-up services including fire & water restoration, property protection, and power services, and removal of damaged materials.

LVI is a client-oriented contractor rather than a contractor-oriented contractor. The difference is they demonstrate a commitment to client satisfaction unlike many of their competitors.

Donald E. Reynolds, Senior Project Manager, ATC Associates, Inc.
LVI provides specialized remediation and demolition of radiologically-contaminated facilities and environments. LVI develops cost-effective strategies to reduce facility risk, increase safety, and minimize waste.

LVI has a reputation for thorough and safe decommissioning of nuclear facilities throughout the United States. LVI has demonstrated capabilities to manage projects of all sizes on-budget and on-schedule on many of the largest government installations.

We have consistently met complex remedial demands involving the removal of hazardous and radiologically-contaminated materials, as well as equipment, components, soil and structures associated with nuclear sites. Restoration is accomplished by uniquely-qualified professionals with unparalleled experience on nuclear D&D projects.

**DECONTAMINATION & DECOMMISSIONING (D&D) SERVICES**

**DELIVERING UNMATCHED SOLUTIONS IN COMPLEX RADIOLOGICAL ENVIRONMENTS.**

**DECONTAMINATION & DECOMMISSIONING CAPABILITIES**

- Decommissioning planning and estimating
- Decontamination technology evaluation
- Nuclear reactor dismantlement & decommissioning
- Decontamination of radiologically contaminated facilities, equipment and structures
- Removal, sizing and packaging of radiologically-contaminated material, equipment, soil, and structures for proper disposal
- Waste site remediation
- Asset recovery
- Cleanup and site restoration
- Hazardous material abatement
- Beryllium abatement
- Biological and chemical decontamination
- Microbial remediation
LVI has self-performed the demolition of everything from hospitals, hotels & casinos, and commercial office to manufacturing, power and chemical plants and highly-secure government and nuclear facilities.

Our demolition experience ranges from selective interior/exterior demolition to the leveling of entire commercial building complexes. From knocking out interior walls to imploding buildings, LVI offers comprehensive demolition services and provides unequaled safety, performance, and efficiency.

When the project involves the removal of turnkey structures, we will remediate the site. The entire project will be performed by LVI, assuring our clients that the work will be completed on or ahead of schedule and in the safest and most cost-effective manner possible.
HAZARDOUS MATERIAL ABATEMENT SERVICES


LVI brings unmatched expertise in the removal, encapsulation and disposal of asbestos, lead, PCB, hydrocarbons & radiological material.

No other company has the extensive history and successful experience that LVI brings to the table in the highly-regulated asbestos abatement market, and we enjoy a record of compliance in this highly regulated industry. We have more than 50 million hours of removing asbestos over the past 20 years and have performed more than 17,700 asbestos abatement projects just since 2000.

We have a proven track record in the proper abatement of asbestos-containing materials, our low experience modification rate (EMR) and OSHA incident rates reflect our commitment to health and safety on the job. In occupied buildings, we perform our services while assuring the safety of building occupants.

TOTAL ABATEMENT CAPABILITIES

» Asbestos remediation, abatement, removal and disposal
» Encapsulation and enclosure
» Lead and lead-based paint (LBP) remediation, abatement, removal and disposal
» Polychlorinate biphenyl (PCB) remediation, abatement, removal and disposal
» Lighting ballasts handling
» Mercury lamp handling
» Hazardous waste drum handling
» Hazardous material transportation and disposal
» Radiological/chemical decontamination

NASA Moffett Field Wind Tunnel Demolition & Abatement, Mountain View, CA
LVI has well over two decades of experience protecting hospital personnel and patients from nosocomial infections and contaminants resulting from construction activities.

LVI works in concert with healthcare facility administrators and general contractors to design and implement a series of engineering controls and physical barriers to prevent construction-related airborne contaminants from escaping work zones. These measures reduce the potential for the inadvertent cross-contamination of patient treatment areas.

LVI infection control technicians design and construct physical barriers, strategically place air filtration equipment, and create negative pressurization in order to control particulates. These activities, in conjunction with constructing ante-rooms (decontamination areas), maintaining cleanliness and establishing waste stream controls, significantly reduce the transmission of potentially infectious agents associated with the construction or renovation process.

We have an uncompromising approach to cleanliness and containment and share our clients’ mission of keeping patients, employees and visitors safe and healthy. We also offer insurance that has full pollution endorsements and specifically includes mold coverage.

LVI employees are trained in OSHA’s Hazard Communication Standard and chemical safety, and we continually communicate with staff via daily safety meetings. We also keep current with guidelines issued by government and industry organizations, including:

» Joint Commission on Accreditation of Healthcare Organizations
» American Institute of Architects
» Centers for Disease Control and Prevention
» National Fire Protection Association

Additionally, our director of restoration is a chemist, toxicologist and industrial hygienist who is certified by the American Society of Healthcare Engineering.

TOTAL INFECTION CONTROL CAPABILITIES

» “Safety Blanket” design and planning
» Dust control
» Noise & vibration reduction/control
» Equipment operation within or adjacent to patient- and staff-occupied buildings
» Airborne contaminant barrier construction
» Negative pressure containments
» Decontamination ante-rooms construction
» Air scrubbing systems and monitoring
» Particulate count documentation
» Hazardous material (HAZMAT) abatement
» Radiation clean-up
» Mold and biological contaminant remediation
» Waste stream controls and disposal
LVI removes indoor air contamination caused by molds resulting from water intrusion due to natural disasters, building defects, plumbing failures or other water-related malfunctions.

LVI is well-versed in the cleanup of mold-contaminated environments in all building types. We employ the most up-to-date, effective and proven mold abatement solutions. We respond promptly and provide cost-effective solutions to remediate affected properties as quickly as possible. We also offer drying and dehumidification services.

LVI Services were on site at just over a week after Hurricane Katrina hit. The job LVI faced at the time was tremendous. Three Lakeway was badly damaged by the hurricane, requiring significant debris removal, mold containment and removal, and interior and exterior repairs.

Working conditions were horrendous. Yet despite these tremendously adverse conditions, LVI Services performed all needed and requested tasks in a timely and thoroughly professional manner.

William J. Renton
Special Agent in Charge
U. S. Department of Justice
Drug Enforcement Administration
MILLWRIGHT & RIGGING SERVICES

MACHINERY INSTALLATION, MAINTENANCE OR RELOCATION MADE EASY.

LVI specializes in the precision setting, assembly, alignment, leveling and anchoring of manufacturing equipment such as turbines and generators, process equipment, corrugated and folding box machinery, pumps, compressors, conveyors and machine tools. We can also selectively dismantle, move to a new location (on- or off-shore), and re-install or rebuild machinery.

In addition to industry leading machinery installation capabilities, LVI offers unlimited capacity in the lifting and hauling transporting of equipment, with single lifts in excess of 500 ton, oversized loads. All rigging is performed by highly trained personnel with state-of-the-art equipment and techniques, including hydraulic lifts.

Our services continue with the option of facility maintenance during temporary scheduled shutdowns, around the clock maintenance scheduling, and 24-hour emergency service. We also provide supplemental maintenance to cover vacations, sick days, and peak production periods. Our trained personnel are current on procedures in confined space entry, respiratory protection, high work, hot work and lock outs.

We also offer a full service shop with capabilities for fabrication and machining as part of facilities maintenance or repair. Specialty machinery repair could include turning, boring, drilling, milling, and grinding. With our welding, shearing, bending and rolling equipment we can fabricate everything from sheet metal to structural steel, stainless steel, aluminum, and specialty metals. If fabrication is needed on-site.

TOTAL MILLWRIGHT & RIGGING CAPABILITIES

» Machinery assembly and erection
» Precision setting, leveling, and anchoring
» Scheduled and emergency machinery maintenance
» Equipment decommissioning
» Match marking & heavy rigging
» Overweight & oversize machinery relocation
» Re-installation and millwright services
» Machine repair and rebuild/fabrication shop
» Mobile machining
LVI specializes in the application of spray-applied fireproofing and intumescent paint to structural steel, including reapplication following the removal of asbestos-containing materials or other contaminants.

Serving both the new construction and renovation markets, we deliver results that meet all code-related requirements and the specifications of project architects and engineers. We perform this technical service for clients in a variety of industries, including commercial, retail, healthcare, and educational institutions.

LVI also installs intumescent paint, a specialized fire-retardant coating for exposed steel. Designed to look like cosmetic paint, this material – typically used for high-profile and architecturally complex buildings – allows the designer to leave the building structure exposed while providing the required fire rating.

LVI has the technical knowledge to ensure that intumescent paint is applied with the appropriate thickness, primers and topcoats to meet all codes and requirements of the project. LVI’s expertise and knowledge in UL, ICBO and ASTM standards and codes is second to none, offering an unsurpassed confidence level.
LVI offers an integrated approach to the design, construction, and installation of sophisticated facilities and equipment, with a single point of responsibility.

Through LVI’s subsidiary, Randolph Construction Services, we offer an extensive portfolio of design-build experience in industrial, commercial and federal facilities that spans not only regionally but across our nation and around the world. With almost one million square feet of functioning systems installed, we have proven we can meet the needs of our clients today and far into the future.

We have a diverse staff with the proven capabilities to self-perform complex design-build projects. LVI’s unique in-house capabilities allow us to maintain explicit control of all aspects of a project’s critical path. Our approach delivers the best value while meeting schedule, cost and quality goals.

**TOTAL DESIGN-BUILD CONSTRUCTION CAPABILITIES**

- Land, Sea, and Air Port of Entry (POE) construction
- Radiation Portal Monitor (RPM) installation
- Operational laboratory renovation
- Fish behavior guidance system design
- Facilities utility infrastructure construction
- Manufacturing facility design-build construction
- Historical restoration
- Project management
- Renewable energy systems installation

*New Land Port of Entry (LPOE), Frontier, Washington*
LVI’s work approach emphasizes recycling, asset recovery and waste management to maximize material re-use and diversion from landfills for reprocessing into new materials.

LVI considers ourselves to be responsible stewards of the environment. As such, we strive to operate beyond compliance in enhancing the environment and protecting public health. Whenever possible it is our goal to divert, at minimum, 75% of the waste accumulated during any demolition project. To achieve this we develop detailed waste management plans, including those for LEED certification, which factor into the demolition approach and include sorting, hauling, & asset recovery plans.

Our state-of-the-art equipment enable us to perform large-scale concrete breaking & sizing, steel cutting, and equipment dismantling.

SMART DEMOLITION & ASSET RECOVERY SERVICES
MAXIMIZING RESOURCES AND RETURN FOR OUR CLIENTS.

TOTAL SMART DEMOLITION CAPABILITIES

- Development of asset recovery & LEED programs
- Waste management documentation
- Deconstruction
- Systematic structural disassembly
- Material sorting and recycling
- Salvage and resale or reuse of non-hazardous metals, brick, lumber and steel
- Equipment dismantling and salvage
- “Soft gut” interior demolition
- Concrete crushing and recycling
- Material reuse during design-build construction
- Removal of process decommissioned equipment

RECYCLING BY THE NUMBERS

60% non-ferrous material scrapped per year on average
30,000 – 35,000 tons of scrap recycled per year on average

ANNUAL SCRAP VALUES

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<th>Year</th>
<th>Value</th>
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<tr>
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<tr>
<td>2010</td>
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<tr>
<td>2007</td>
<td>$15.4 Million</td>
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</table>
LVI offers expert emergency response and recovery services nationwide to minimize damage and disruption for our clients following all types of emergencies and disasters, both manmade and natural.

Our goal is to restore your businesses safely, cost-effectively and within a prescribed schedule. Our expertise and quick action help ensure that our clients suffer the least possible damage as the result of a catastrophe. With a national network of more than 35 offices and a self-performing, cross-trained workforce of approximately 3,500 employees, we can immediately dispatch teams ranging from 10 workers to thousands, depending on the scale of the emergency.

TOTAL EMERGENCY RESPONSE CAPABILITIES

» Pre-recovery disaster planning
» Damage inspection and assessment
» Small- to large-scale cleanup
» Building dry-in
» Temporary power
» Emergency board-up services
» Water extraction, soot clean-up and odor removal
» Structural restoration and remediation
» Salvage mitigation & intermediary - brand label liability
» Electronic data, document, and record recovery
» Structural drying and dehumidification
» Hazardous material abatement
» Mold, biological, and chemical remediation
» Interior/structural demolition
» Debris removal and disposal

I want to thank you and the NorthStar /LVI team for responding quickly to our extraction and drying needs at the W last month. Your team addressed the water issue and helped us to mitigate the event with minimized business interruption.

Our engineering and management staff commented on how professional your workers handled themselves as well as on their attention to ‘housecleaning.’ It was also noted that your paperwork was exceptional.

Thomas Trudo
Project Director, Real Estate Group
Starwood Hotels & Resorts Worldwide, Inc.

LVI emergency response workers clean up following devastating wildfires near San Diego.
The Pine Bluff Chemical Demilitarization Facility (PBCDF) consisted of several major structures and process areas, each of which was designed to provide a specific support capability to the demilitarization process. As such, the disposal of some areas required unique handling.

LVI has performed the stated work in a safe and compliant manner and is on track to complete work six days before the required completion date.

Kathryn Shrontz
Subcontracting Administrator
URS
WHY LVI?
“TARGET ZERO” SAFETY

A SAFETY RECORD SECOND TO NONE.

Safety is not just a goal, it is a responsibility. With safety statistics below industry average for more than 20 years, safety is one of LVI’s main competitive advantages.

We are committed to delivering quality work with the safety and health of our employees as a top priority. This responsibility goes far beyond compliance with regulatory requirements, exceeding minimum standards and helping us achieve safe work environments on every project.

Training is key and continuous evaluation of our work practices helps maintain the positive trend we have seen in our safety statistics for the past several years. Our detailed employee handbook sets the stage for safety. Project managers to superintendents have all earned OSHA 30 hour Certifications. These comprehensive education programs further help safeguard project safety.

Our dedicated staff of full-time safety professionals is involved in every phase of a project, working closely with OSHA-certified superintendents and project managers to ensure maximum safety. Safety representatives conduct comprehensive compliance inspections to ensure each project is in line with company policies, client requirements and governing regulatory standards.

Safety and quality are critical elements of LVI’s commitment to our customers to deliver quality projects on time, within budget while maintaining a safe work environment for employees, client personnel, and the public alike.

LVI’S EXPERIENCE MODIFICATION RATE (EMR)

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<td>2011</td>
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<tr>
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<td>0.63</td>
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Industry Average (1.0)

LVI’S PROACTIVE, CONSCIENTIOUS AND PROFESSIONAL MANNER, IN WHICH THEY PROSECUTED THEIR WORK, SET THE PROACTIVE SAFETY EXAMPLE FOR MANY OF THE FOLLOW-ON CONTRACTORS.

Larry Hensley
Senior Safety Officer
& Quality Assurance Inspector
Pentagon Renovation Office

LVI HAS BEEN RECOGNIZED FOR SAFETY ON NUMEROUS PROJECTS.

- **PLATINUM AWARD, 2010**, Harvard University Contractor Safety Assessment Program (CSAP), ConstructSecure
- **OUTSTANDING SAFETY RECORD, 2007**, Pentagon Renovation & Construction Program Office
- **SAFETY AWARD, BARTLESVILLE, 2007**, ConocoPhillips
- **SUSTAINED SUPERIOR SAFETY PERFORMANCE AWARD, 2005**, Second Brigade Complex Barracks, Phase I & II, U.S. Army Corps of Engineers
OUR STRONG TRACK RECORD FOR PERFORMANCE AND SAFETY ENABLE US TO RECRUIT THE MOST QUALIFIED EMPLOYEES, MANY OF WHICH REMAIN AT LVI THEIR ENTIRE CAREER.

WITH MORE THAN 100 PROJECT MANAGERS, 100 SUPERINTENDENTS, AND KEY MANAGERS EACH BRINGING 25 OR MORE YEARS OF RELEVANT INDUSTRY EXPERIENCE, OUR BENCH STRENGTH SURPASSES OUR COMPETITORS. IN ADDITION TO THESE KEY STAFF, OUR LABOR FORCE NUMBERS MORE THAN 2,000 CROSS-TRAINED STAFF DEPLOYED THROUGHOUT THE U.S. WITH A CONTINGENCY OF 1,500 FIELD STAFF TO MEET ANY UNANTICIPATED NEEDS.

WE PROVIDE EXTENSIVE TRAINING IN OPERATIONS AND SAFETY AND MAINTAIN INCENTIVE PROGRAMS FOR ALL LEVELS OF MANAGEMENT WITH PERFORMANCE CRITERIA KEYED TO ON-SCHEDULE PERFORMANCE, NO LOSS-TIME INJURIES AND NO ENVIRONMENTAL VIOLATIONS. CROSS-TRAINING IN MORE THAN ONE SPECIALTY TRADE HELPS PROVIDE GREATER FLEXIBILITY IN STAFFING PROJECTS TO PEAK PERFORMANCE.

LVI PERFORMS OUR WORK WITH OUR OWN HIGHLY-TRAINED EMPLOYEES. BY ELIMINATING LABOR SUPPLIERS, WE PROVIDE HIGHER QUALITY WORK IN COMPLIANCE WITH YOUR SPECIFICATIONS AND REQUIREMENTS.
HEAVY EQUIPMENT

LARGEST COMPANY-OWNED FLEET IN OUR INDUSTRY.

LVI is well-positioned to supply the needed equipment and materials for your project in good, safe, and operable condition. With the ability to deploy our own fleet of equipment we maintain control of the project, reduce downtime, and keep projects on-schedule.

Our fleet is equipped with state-of-the-art technology including global tracking, machine diagnostics & maintenance, on-board dust suppression systems, and machine attachments that reduce vibration, dust and noise. Our impact breakers have the lowest decibel readings in the industry.

In the event that LVI requires additional equipment beyond our inventory, we are able to call upon our strong relationships with equipment leasing companies to meet those needs. LVI also has agreements in place with the nation’s top three material providers and similar agreements for preferred pricing on various sub-trades, including hauling and disposal.

LVI’S GROWING INVENTORY

150 Trucks 80 Attachments
100 Skid Steers 30 Loaders
75 Excavators 5 Dozers
PROPRIETARY TECHNOLOGY

INNOVATION FOR YOUR BENEFIT.

LVI is a leader in the use of innovative technologies for the benefit of our clients and the industry.

REAL-TIME COST ACCOUNTING
LVI employs a sophisticated, real-time, fully integrated computer cost accounting system to monitor labor, equipment, supplies, subcontractors and other project costs daily with perpetual inventory identifying in detail all consumables and small tools used on every project.

HIGH-PRESSURE WATER JETTING
LVI piloted the use of high-pressure water jets to efficiently remove lead-based paint and asbestos.

BIOMETRIC TIME CLOCK
LVI installs biometric time clocks for its payroll system on large projects. These clocks minimize payroll errors and improve jobsite security. All field worker time is recorded and transmitted via satellite to our payroll center. The system provides accurate cost accounting information and is a better method of tracking time. Debit cards are issued to enable delivery of payroll in a paperless, secure manner. LVI is one of the few specialty contractors of its kind that has incorporated this technology into its business operations.

LVI’s biometric time clock system on large projects improves payroll accuracy and jobsite security
BONDING & INSURANCE

LARGEST BONDING CAPACITY & BEST INSURANCE IN OUR INDUSTRY.

In addition to having significant working capital, LVI has an aggregate bonding capacity in excess of $235 million, and holds the most reliable insurance rating in the industry.

$235 Million Bonding Capacity
$30M Per Occurrence Pollution Coverage
A+ A.M. Best Rating

LVI differentiates itself further by being one of the very few, if not the only, specialty contractor in our field that has an Environmental CGL Policy that covers all pollutants, including asbestos, lead, and other hazardous materials, causing bodily injury or property damage due to dispersal, seepage, migration or release at any time during the course of a project.

PROFESSIONAL ASSOCIATIONS

ACTIVE LEADERS IN OUR INDUSTRY AND LOCAL COMMUNITIES.

LVI maintains memberships in a wide range of important trade associations at the national and branch office level.
A LEADER IN SUSTAINABLE WASTE DIVERSION AND RECYCLING.

In concert with LVI’s standard policy to divert the highest percentage of construction and demolition waste from landfills, we also assist clients seeking LEED Certification.

Achieving Leadership in Energy and Environmental Design (LEED) certification is the best way to demonstrate that your project is truly sustainable. LVI regularly assists our clients with meeting the selected certification goal through our innovative recycling and waste diversion procedures.

Our standard goal is to redirect a minimum of 75% of recyclable recovered resources back to the manufacturing process or redirect reusable building materials to the appropriate end users.

To pursue the LEED certification sought, adjustments are made to diversion levels, procedures and impacts.

Certification level and corresponding diversion goals are identified early in the design stage, as higher levels may have cost as well as scheduling impacts. LVI assists during the budgeting process to assure that full impacts are recognized as soon as possible.

Often during the project, LVI appoints a Recycling Field Coordinator responsible to coordinate the enforcement of the LVI Construction Waste Management and Recycling Plan through monitoring, documentation, and training activities.
AWARDS & PRESS

RECOGNITION OF SAFETY & PERFORMANCE EXCELLENCE.

LVI is frequently recognized for our superior service, safety achievements, and innovative technology and methods from national media and industry organizations.

#1 ABATEMENT CONTRACTOR IN THE U.S. SINCE 1999

OUTSTANDING SUBCONTRACTOR AWARD, 2007 & 2008
Turner Construction

TOP 5 DEMOLITION & WRECKING CONTRACTOR IN THE U.S.
Engineering News Record (ENR)

5TH LARGEST ALL-ENVIRONMENTAL FIRM IN THE U.S.
Engineering News Record (ENR)

PLATINUM AWARD, 2010, Harvard University Contractor Safety Assessment Program (CSAP), ConstructSecure

#1 DEMOLITION CONTRACTOR IN THE WORLD SINCE 2007

OUTSTANDING SAFETY RECORD, 2007
Pentagon Renovation & Construction Program Office

SAFETY AWARD, BARTLESVILLE, 2007
ConocoPhillips

CERTIFICATE OF EXCELLENCE, 2006 & 2007
Sunoco

SUSTAINED SUPERIOR SAFETY PERFORMANCE AWARD, 2005
Second Brigade Complex Barracks, Phase I & II U.S. Army Corps of Engineers
INDUSTRIES & CLIENTS

27 YEARS OF SERVICE TO INDUSTRY LEADERS.

LVI serves a diverse range of industries and clients, including many Fortune 500 companies.

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WHY LVI?
LVI is licensed in all 50 states to perform demolition, hazardous material abatement and soil & mold remediation - along with its disaster response capabilities. This, combined with our network of 32 branch offices in all major U.S. markets and abroad, enables LVI to deliver the resources, skill, and know-how to your project with aptitude and efficiency.
I would like to express my appreciation to LVI for professionalism and outstanding efforts in the successful completion of the hazardous removal and interior demolition of the Pentagon Wedge II Renovations project.

By working closely with our superintendent, we were able to complete this project within the time frame of our very aggressive and accelerated schedule.

I look forward to working with your staff again in the future and have no reservations at recommending LVI to potential clients.

Tom Miller, Program Manager
Hensel Phelps Construction Company