When Safety & Performance Matter®

Statement of Qualifications

Remediation
Demolition
Decommissioning
Abatement
Civil Construction

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Introducing GR²

GR² is a wholly owned subsidiary of EnSafe Inc., specializing in remediation, demolition, decommissioning, abatement, and civil construction services. GR² has been providing quality services to our clients for over 14 years. Originally founded as Operations Contracting Services (OCS) in 2000, the company was re-branded as GR² in 2013. Based in Memphis, Tennessee with a second office in Nashville, GR²'s project approach allows us to successfully service our clients across the U.S. in a variety of industries and locations with a strong focus on quality, customer service, and safety.

GR² Services

GR² industrial, abatement, and remediation services include the following:

- Asbestos abatement
- Bioremediation (soil/groundwater)
- Confined-space entry
- Construction of industrial waste landfill caps
- Decommissioning and decontaminating industrial facilities
- Hydroblasting
- Installation of piping systems for soil/groundwater treatment systems
- Lab packs
- Lagoon closure
- Management of transportation and disposal of waste and contaminated media
- Mold services
- Monitored natural attenuation
- Remediation construction
- Removal and containerization of waste and contaminated media
- Removal and disposal of underground storage tanks
- Site characterization and remedial design
- Soil remediation
- Structural/industrial demolition
- Tank (pit and sump) cleaning
- Vacuum truck services

GR² Health, Safety, and Quality Commitment

GR² is committed to both safety and quality. It is our goal to provide a safe work environment, deliver quality services for our customers, and to remain a profitable and growing company. We demonstrate our commitment by supplying the necessary training and equipment that enable all employees to perform their jobs in a safe and efficient manner. However, each employee must also be committed to safety and quality. All employees have a responsibility to themselves, their coworkers, and GR² to use the provided training

and equipment to perform their jobs safely. All employees also have a responsibility to be constantly aware of their work practices, the work practices of fellow workers, and the work environment. We ensure we have input from each employee regarding the safety of work practices, procedures, equipment, and conditions.

The most important asset to our organization and to our client is our staff of competent, qualified, experienced environmental professionals.

All GR^2 field personnel complete a comprehensive, structured training curriculum to ensure they perform our industrial service, remediation, abatement, and hazardous waste site activities with full regard to safety and environmental preservation. Core training topics include, but are not limited to Hazardous Waste Operations and Emergency Response, Confined-Space Entry, Lockout/Tagout, Bloodborne Pathogen, Personal Protective Equipment, Respiratory Protection, Excavation, Scaffolding, Department of Transportation (DOT), Hazmat Regulations, and the Resource Conservation and Recovery Act (RCRA). These programs are in compliance with Occupational Safety and Health Administration standards at 29 Code of Federal Regulations (CFR) 1910 and 1926, DOT 49 CFR, and U.S. Environmental Protection Agency's (USEPA) 40 CFR. The requirements of the GR^2 training curriculum are continually updated in compliance with federal, state, and local regulations.

GR^2 jobsites are managed through the comprehensive GR^2 Safety Management System. This system is designed to provide user-friendly, yet comprehensive health and safety (H&S) management capabilities for all levels of employees.

GR^2 is staffed with full-time safety professionals who continually monitor and assist our field staff with the latest in industrial hygiene and safety monitoring equipment. Our commitment to staffing our jobsites with full-time H&S personnel results in operations that are more efficient and safe for both GR^2 personnel and our clients.

For details on GR^2 Safety Management System and our H&S services, please contact our H&S manager (contact information provided below).

GR^2 Locations and Contacts

GR^2 serves clients across the U.S. from offices in Memphis and Nashville, Tennessee.

Office Locations and Phone Numbers

- **Memphis, Tennessee**
  5669 Summer Avenue
  Memphis, TN 38134
  Phone: (901) 369-0576
  Fax: (901) 369-0214

GR^2 Personnel Resources

GR^2 offers clients the following technical expertise:

- Construction/Project Managers
- Superintendents
- Vacuum Truck Operators
- Equipment Operators
- Field Technicians
- Hydroblasting Technicians

- Asbestos/Lead Technicians
- Chemists/Labpack Specialists

Industrial/Remediation Experience

GR^2 has significant, wide-ranging experience in industrial services and remediation for contaminated sites. This experience has allowed our staff to successfully execute all phases of industrial and remediation projects. Some examples of GR^2 work follow.

Remediation/Closure Experience

Brownfield Remediation, Smarthouse Way Site, North Little Rock, Arkansas

In October 2007, GR^2 and its parent company, EnSafe Inc., were authorized by Main Street Argenta and the City of North Little Rock to prepare the remedial design (including all permitting and project oversight) and perform remediation services for the Smarthouse Way Southern Tract, a USEPA Brownfields Cleanup Grant project. This project is the first Brownfields cleanup of a site in Arkansas with a planned residential reuse and the first Brownfields project funded by the Pulaski County loan program.

Significant dollars were saved on this Brownfield redevelopment project.

Since the late 1800s, the 5.8-acre Smarthouse Way site has had a variety of uses, including a manufacturer of oak cottonseed barrels, an asphalt plant, scrap paper company, a scrap metal company and associated junkyard, and electric transformer storage. The property, on the north bank of the Arkansas River with scenic views of the river and downtown Little Rock, Arkansas, is less than a mile from the Alltel Arena entertainment and convention facility and Dickey-Stephens minor league ballpark.

As originally scoped, EnSafe and GR^2 estimated the construction cost of the remedial action at $480,000. After being awarded the project, EnSafe met with Arkansas Department of Environmental Quality (ADEQ) and presented several risk-based cleanup alternatives developed using Geographic Information System (GIS) software. Using the GIS software, it was possible to conduct real-time evaluation of risk-based scenarios. As a result, at the conclusion of the meeting, EnSafe (on Main Street Argenta's behalf) and ADEQ were able to agree upon a residential risk-based cleanup based on site-specific action levels for lead and polychlorinated biphenyl (PCBs). This resulted in a final construction cost of $251,000, a $229,000 cost savings.

EnSafe prepared and submitted a Supplemental Property Development Plan (PDP) on November 27, 2007. ADEQ reviewed the Supplemental PDP and issued an approval letter on January 10, 2008. ADEQ then prepared the Property Development Decision Document, which was available for public comment for 30 days. On April 8, 2008, EnSafe submitted the Remedial Action Work Plan, which included excavation and backfilling plan and specifications, dust-control and contaminant monitoring plan, waste characterization and management plan, transportation plan, construction plan, storm water pollution control plan, health and safety plan, and quality assurance project plan.

The remedial action construction phase began with installation of erosion and sediment controls on May 20, 2008, and was completed on July 30, 2008. Contaminated areas were excavated to a depth of 12 inches

below ground surface and excavated material was stockpiled onsite. Based on waste characterization, approximately 1,200 tons of soil was treated onsite to stabilize lead before offsite disposal. Approximately 3,700 tons of soil and debris were disposed of as non-hazardous waste and approximately 230 tons of PCB-contaminated soil was disposed of at a Toxic Substances Control Act-approved landfill.

The Remedial Action Completion Report was submitted to ADEQ on August 6, 2008, and ADEQ issued the Certificate of Completion on August 27, 2008.

The project was completed in 10.5 months from authorization to proceed. All three submittals — Supplemental PDP, Remedial Action Work Plan, and Remedial Action Completion Report — were approved without comments from ADEQ.

This project won top environmental honors in the American Council of Engineering Companies of Tennessee's 2009 Engineering Excellence competition.

Permeable Reactive Barrier Installation, Waxahachie, Texas

GR^2 installed a permeable reactive barrier (PRB) downgradient of a concentrated plume of dense non-aqueous-phase liquids (DNAPL). The barrier was constructed 1 foot into the bedrock interface at 25 feet below ground surface. Total length of the PRB was approximately 320 feet across the site.

The PRB location was determined in the field using Global Positioning System technology to within +/-1 foot. Soil removed from the trench was staged on 10-mil polyethylene sheeting. Zero-valent iron (ZVI) was mixed with the soil using an ALLU SM mixing head mounted to a front-end loader. GR^2 added a total of 100 tons of ZVI to the soil. Samples of the mixed soil were collected, dried in an oven, placed under a magnet, and field-measured for even displacement by weight of the ZVI.

After achieving the desired percent unit weight of soil and ZVI, the material was returned to the trench and compacted using a rotary compactor mounted on an excavator. Additional monitoring wells were installed within and downgradient of the PRB to monitor plume destruction.

Initial tests performed three and six months after installation resulted in 70% decrease in DNAPL compounds within the PRB and no downgradient migration.

Emergency Removal Action, San Bernardino, California

GR^2 mitigated potential risk to human health and the environment at a California elementary school where soil was contaminated by pesticides. GR^2 performed an Emergency Removal Action under the oversight of California regulators, the school district, and county fire department.

The remediation effort included excavating more than 8,000 tons of soil for legal transport and proper disposal. In addition, the overall site required restoration: clean fill, sod placement,

Site redevelopment progresses

playground surface and equipment installation, and parking lot paving. The entire project was accomplished within six weeks.

During all phases of the remediation, GR^2 conducted continuous air monitoring at all site perimeters. Data were provided daily to state regulators to provide assurances to the surrounding community. During site activities, the state documented our removal and monitoring methodologies to incorporate into its future internal training processes for on-scene coordinators and project managers.

Based on GR^2 quick response and quality of work, our client received a letter of commendation from the school district and was honored during an "Appreciation Day Ceremony" arranged after project completion. The state issued a "no further action required" letter based on the remediation effort's results.

Wastewater Aeration Basin Rehabilitation, Olaton, Kentucky

GR^2 performed basin rehabilitation activities for a 2-acre wastewater basin at a mining company's Olaton, Kentucky, facility. GR^2 installed a temporary pumping and filtration system to remove the existing wastewater. The filter wastewater was pumped to another onsite treatment basin about 2,500 feet from the basin being rehabilitated. Once the basin was dewatered, the existing 40-millimeter high-density polyethylene (HDPE) liner was removed and properly disposed of at a permitted landfill.

The existing subgrade materials were dried by adding a drying reagent and then regrading to provide positive drainage for future basin-cleaning events. A leachate-collection system was installed down the center alignment of the basin and a new 40-millimeter liner system was installed.

A new floating platform was deployed in the basin attached to the inlet piping system to hold the atomizing jet system. Disturbed areas around the basin were vegetated to match the existing materials.

The rehabilitation activities included the following:

- Installation of temporary pumping and filtration system
- Pump and filter 500,000 gallons of wastewater
- Remove and dispose of 92,000 square feet (ft^2) of 40-millimeter HDPE liner
- Dry and grade basin bottom
- Install leachate collection system
- Install new 40-millimeter HDPE liner system
- Furnish and install a new floating atomizer platform and piping
- Install vegetative materials on the disturbed areas around the perimeter of the basin

Mercury Remediation, North Carolina

GR^2 remediated mercury contamination at a former chlorine plant situated between two active plant buildings and along the bulkhead to a tributary of the Albemarle Sound. The activities include installing a protective barrier wall and targeted excavation of mercury-contaminated soil.

The barrier wall consists of 580 linear feet of Waterloo Barrier Sheet Piling installed to a depth of 45 feet. Before installing the piling, GR^2 saw-cut the barrier wall trench; concrete and asphalt were removed and disposed of at an onsite landfill. The piling was driven using a vibratory hammer. Each piling joint was flushed and filled with an epoxy sealant to create a water-tight seal.

Three target areas were excavated with the soil being loaded into Department of Transportation-approved roll-off containers for profile sampling and disposition. Sheet piling support walls were installed in Target Area 1 prior to excavation. Approximately 1,200 cubic yards of soil were excavated. Depending on analytical results, material was either disposed of onsite or transported to and disposed at a hazardous waste landfill.

Treatment System Installation Experience

Complete SVE Dismantling, Relocation, and Installation; Louisville, Kentucky

GR^2 provided turn-key management, investigation, and remediation (design/build) services for a manufacturing facility contaminated with chlorinated solvents. An existing soil-vapor extraction (SVE) system from another client facility in California was evaluated for use at the Louisville, Kentucky, site.

GR^2 personnel traveled to California, dismantled the SVE system, and arranged for transportation to the Louisville facility. A secondary containment system was constructed and the system was installed within the secondary containment.

The controls were upgraded to convert the existing SVE system to a dual-phase extraction system at half the cost for a new dual-phase system. Components of the old system were removed and sent to manufacturer to be broken down and rebuilt, saving significantly versus the cost of replacement.

GR^2 is also performing all of the regulatory negotiations with the Kentucky Department for Environmental Protection's Division of Waste Management and local authorities (Metropolitan Sewer District and Air Pollution Control Board), as well as community relations activities regarding offsite issues.

Confidential Manufacturer; Indianapolis, Indiana

Involvement at this confidential client's facility began in 1989/1990, with environmental site assessments performed in support of property transactions for undeveloped parcels. Investigations identified a former underground storage tank (UST) pit contaminated with perchloroethylene (PCE); by 1993 GR^2 had installed a remediation system in the vicinity of the tank pit to address former solvent wastes.
The treatment technology simultaneously treats groundwater and soil-gas contaminated with volatile organic compounds (VOC) such as tricholorethylene and PCE. This technology integrates two basic processes:

- A high-efficiency air-stripping tower that uses a mass transfer of VOCS from dissolved phase to a gaseous state, and
- An SVE system enhanced with an air-sparging system that removes contaminated soil-gas for subsequent treatment with granular activated carbon in the silty clay formation.

Integrating these two technologies provided simultaneous remediation of contaminated groundwater and soil-gas with virtually clean emissions.

SVE System Upgrades; Lewisburg, Tennessee

GR^2 provided removal and replacement services for 500 feet of HDPE discharge piping for a dual-phase treatment system. The existing piping system was overloaded with sediments, preventing proper function.

GR^2 performed the following tasks to upgrade the system and provide for future maintenance.

- Installed temporary aboveground piping to allow the system to remain in operation during all phases of the project.
- Removed existing piping system and provided disposal of all components.
- Installed access vaults and a double-wall piping system (HDPE inner, polyvinyl chloride outer) between access vaults, as requested by the consultant.
- Installed quickly-disconnect fittings at each access vault to allow for routine inspection of sediment buildup in the HDPE piping.
- Provided and installed new Parschall Flume and optic level sensor to determine system flow.

Decommissioning/Decontamination Experience

Facility Decommissioning, Lionville, Pennsylvania

GR^2 decommissioned a 130,000 ft^2 facility that manufactured high-performance spray nozzles and pumps for dispersing water and aqueous film-forming foam. GR^2 decommissioned all equipment in the machine, paint, metal fabrication, and welding shops.

The work involved removing lead and chromium contamination from the concrete surface of two former paint spray booths. GR^2 used a ride-on scraper to remove the bulk of the paint buildup along with a Blastrac unit equipped with a high-efficiency, particulate-arresting (HEPA) vacuum system to remove material down to the concrete surface. Air monitoring was performed throughout the abatement process. The area was placed under a diminished pressure environment to limit exposure to facility employees.

GR^2 decontaminated and removed two paint booths — one 30 feet by 120 feet and the other 30 feet by 50 feet — from the middle of the facility: Each booth was decontaminated using a 10,000 pounds-per-square-inch hydroblaster equipped with a rota-jet nozzle. The paint booths were then removed for scrap and the roof penetrations were sealed.

GR^2 lab-packed more than 30, 1-cubic-yard containers a 55-gallon drum of miscellaneous shop chemicals, including aerosols, acids, asbestos, solvents, spent paints, and universal wastes.

The facility was closed-out and turned over to the new owner on schedule and under budget.

Plant Decommissioning, Mebane, North Carolina

GR^2 decommissioned this plant that formerly produced dry chemical powder fire extinguishers. The decommissioned area totaled 160,000 ft^2 and included former powder storage, powder transport/fill, aluminum stamping, metal stamping, metal processing, and material-testing areas.

GR^2 decontaminated and removed six, 40-foot powder silos and associated transport equipment from the Powder Storage Area. GR^2 used a guzzler truck with a cyclone unit to remove more than 200 cubic yards of BC and ABC powder from the silos, ductwork, and below-grade sumps. The powder was vacuumed from the interior surfaces of the room using manlifts and flex hoses.

During the course of the project, the client decided on total demolition of all former process equipment. GR^2 adapted and changed the health and safety protocol to address the changes in scope. A full-time Health and Safety Officer was assigned to the project with no work stoppage. GR^2 continued removing the

equipment and shipped more than 1 million pounds of scrap copper, steel, and various other metals to a local recycler.

The project was completed within the original schedule and the facility is currently used for warehousing.

Plant Closure, DeQueen, Arkansas

This GR^2 project involved decommissioning a former pentachlorophenol (PCP) treating facility. Closure activities included gross decontamination of the exterior drip pad (12,000 ft^2), removal of piping, and pressure-cleaning the storage tanks, pressure cylinders, and concrete containments inside the Treating Building.

To reduce the client's short-term cost and liability, GR^2 gross-decontaminated the drip pad area, scarified the concrete surface, and installed a chemical-resistant epoxy coating to the entire surface. Storm water samples were then collected and analyzed for PCP. The state granted approval to discharge the storm water to grade without treatment. GR^2 also employed techniques inside the building to reduce exposure risk to site personnel working on the project. Aboveground tanks and vessels were cleaned using a 10,000-pounds-per-square-inch hydroblaster equipped with a rotating jet nozzle.

Using this equipment eliminated the need for personnel to enter the vessels for cleaning, thereby limiting the exposure to PCP during the cleaning process. Throughout the project, GR^2 implemented strategies and techniques to limit the risk to employees during the decontamination process.

The project was completed on the time schedule and within the initial budgets developed by GR^2.

Asphalt Plant Decontamination/Demolition, Halls, Tennessee

GR^2 responded to a fire at an asphalt materials plant, providing oversight and decontamination/demolition services. GR^2 assisted with extinguishing some of the fire by bringing in dirt to smother it where water proved to be ineffective in controlling the blaze. The portion of the plant involved part of the production line for the asphalt roofing material, measuring about 200 feet by 100 feet. Overall, GR^2:

- Secured the site,
- Bermed the water to contain runoff,
- Assisted in extinguishing blaze, and
- Initiated cleanup effort for burnt material outside the plant.

Then GR^2 initiated building demolition by removing structures and segregating building material based on whether it was contaminated (some of it had collapsed on the burnt material). The content was segregated based on generator knowledge. GR^2 then continued to clean up to the slab. Another group handled disposal of material. GR^2 bermed the water used in fighting the fire so it could be analyzed for proper disposal. GR^2 worked in concert with the local Emergency Management Agency and fire department.

Sludge Impoundment Closure, Craig, Oklahoma

GR² performed a variety of tasks for closing a sludge impoundment in Oklahoma. Among the tasks were:

- Installing temporary and permanent storm water and erosion-control devices (swales, straw bale barriers, and silt fences)
- Clearing grub borrow areas, vegetation, and vegetative growth atop the sludge impoundments
- Pumping approximately 2.05 million gallons of water from inside the sludge impoundments and concrete sump to the oxidation ponds (both ponds were pumped down simultaneously to prevent collapse of the interior berm)

Borrow soil is loaded for impoundment closure

- Solidifying and compacting approximately 15,000 cubic yards of dewatered sludge/sawdust lying on the bottom and floating atop the impoundments

GR² also placed and compacted the following:

- Solidified sludge in the bottom of the impoundments and approximately 60 cubic yards of fill in the concrete sump
- Approximately 20,000 cubic yards of general site fill in the impoundments to approximately 2 feet above existing grade, approximately 382 to 383 feet mean sea level
- Approximately 7,200 cubic yards of barrier soil in 6-inch compacted lifts with a total compacted thickness of 24 inches

Other project elements included:

- Constructing approximately 1,300 linear feet of storm water diversion swales and a five-strand barbwire fence around the sludge impoundments, with two, 16-foot wide gates
- Placing 12 inches of soil capable of supporting vegetation over the low-permeability soil cap and grading it into the existing ground surface (approximately 3,400 cubic yards)
- Seeding, mulching, and fertilizing the sludge impoundment cap and all the disturbed areas
- Regrading the borrow area to drain to the existing ditch to the south/southeast
- Maintaining all access roads during construction and then repairing them to existing conditions when the project was complete.

Lead/PCB Remediation, Memphis, Tennessee

GR² remediated soil contamination identified when apartments were under construction in Memphis. Lead, PCBs, and pesticides were impacting the site; a portion of the site had been an auto salvage yard for more than 60 years while another portion was impacted by a nearby pesticide manufacturing facility. GR² removed the contaminated soil, disposed of it offsite, and then restored the property through backfilling, seeding, and repairing damaged sidewalks and utilities. Dust-control measures and air monitoring were conducted routinely during the soil removal to protect onsite workers, nearby residents, and the

environment. The interior of the partially completed apartment buildings was wipe-sampled to ensure that the buildings are safe for construction workers and future apartment occupants.

Because the apartment site was next to an elementary school, state and federal regulators raised concerns that lead contamination may have migrated to the school property. GR^2 also removed and disposed of the lead-contaminated soil, completing this time-critical action before students were to return for a new school year.

The remedial action included strict dust-control measures and air monitoring to ensure that lead contamination did not enter the school building nor leave the site. As an additional protective measure, the school's windows, doors, vents and playground equipment were covered with plastic sheeting before the removal action began. Lead wipe-sampling was conducted inside the school before and after the remedial action to ensure that lead-contaminated dust had not entered the school building.

Solid Waste Landfill Closure, North Carolina

GR^2 closed a solid waste landfill that encompassed approximately 90 acres with approximately 75% of the perimeter bordering wetland areas in North Carolina. The site was prepared via clearing, grubbing, and installing erosion-control measures.

Grass, trees, and stumps were cleared from the landfill borrow area. Debris shredded using a tub grinder was either used as fuel or spread onsite. Erosion-control measures — silt fence, riprap check dams, and temporary diversion ditches — were implemented before construction occurred at the landfill and borrow areas.

Site construction activities included:

- Preparing the subgrade
- Installing haul roads
- Installing a geotextile barrier, soil and aggregate cap
- Installing a pond

The landfill subgrade required cutting and filling approximately 40,000 cubic yards of existing soil to ensure positive surface drainage. Haul roads were constructed for access to the borrow areas.

Approximately 3.5 million ft^2 of geotextile liner were placed and heat-welded on the subgrade surface. More than 120,000 cubic yards of soil were excavated, transported, placed, and compacted on the geotextile liner. Also 34,000 tons of crushed limestone aggregate were placed and compacted on the liner in other areas. A 3.8-acre pond was constructed on the borrow area site with soil excavated for landfill cap.

Soil Removal, Craig, Oklahoma

Total petroleum hydrocarbon (TPH)-contaminated soil removal activities at the Craig facility included the development of closure/post-closure plans for Oklahoma Department of Environmental Quality (ODEQ)approval; construction oversight; and removal of approximately 1,800 cubic yards of TPH-contaminated soil/wood fibers. After removal, a Professional Engineer (PE)-certified Construction Completion Report was submitted to the state.

GR^2 was contracted to remove the TPH-contaminated soil from a low area with underlying soil conditions similar to quicksand. The soil was removed with tracked excavators on mats and hauled to a concrete pad onsite for dewatering. Once dewatered, the soil was transported and disposed of in a local subtitle "D" landfill.

Landfill Closure, Craig, Oklahoma

Landfill closure activities conducted by GR^2 at a forest product company's site in Craig, Oklahoma, include the development of closure/post-closure plans for ODEQ approval; PE-certified design and specifications; a Scope of Work for contractor selection; construction oversight; and construction of the engineered cover for a 20-acre solid waste landfill.

To ensure construction activities did not impact the surrounding water bodies, a Storm Water Pollution Prevention Plan (SWPPP) was developed to address both the landfill and borrow area construction. The plan outlined "best management practices," erosion and sediment controls, inspection and maintenance, and post-construction storm water controls. It also prescribed methods for documenting SWPPP activities and inspections.

GR^2 completed cap construction on August 8, 2001, with final state inspection later that month. Upon completion of the landfill, a PE-certified Certification of Closure report was developed. The report provided summarized landfill construction information and included as-built drawings, color photographs, in-place testing results, and daily logs.

The cap construction included the following:

- Installing and maintaining approximately 2,500 feet of erosion-control measures;
- Placing and compacting approximately 12,500 cubic yards of barrier soil, and 6,300 cubic yards of vegetative soil;
- Constructing 800 linear feet of storm water diversion swales; and
- Seeding, mulching and fertilizing all disturbed areas.

Post-closure activities include short-term groundwater monitoring, and general operations and maintenance procedures to ensure cover integrity.

Class III Landfill Engineering Assessment, DeQueen, Arkansas

GR^2 implemented innovative engineering alternatives for leachate compliance issues at a forest product company's treating plant landfill in DeQueen, Arkansas. Over the past several years, the amount of leachate had been increasing in closed cells at the active landfill operated under a Class III Landfill Permit issued by ADEQ.

A study concluded that a leachate collection system needed to be installed in limited areas and additional barrier soil needed to be placed over portions of the landfill to limit infiltration and to meet ADEQ's cover requirements.

GR^2 began constructing the landfill cover in October 2004. During cover construction a recovery system was installed to intercept leachate that was impacting surface water. GR^2 managed and removed soil from an onsite borrow source, and covered the landfill with 2 feet of engineered fill. Compaction testing was performed during the soil placement. The project was completed in the spring of 2005.

Spray Pond Closure, Philadelphia, Mississippi

Pond closure activities at a forest product company's Philadelphia, Mississippi, site include the development of closure/post-closure plans for Mississippi Department of Environmental Quality approval; sludge

solidification bench-scale study; PE-certified design and specifications; a Scope of Work for contractor selection; construction oversight; sludge solidification; and construction of the engineered cover for a 3.2-acre groundwater treatment evaporation pond.

GR^2 constructed a sump and pumping system to transfer the pond's water to a temporary onsite wastewater treatment system. The pond was dewatered and the remaining PCP-contaminated sediments solidified with lime kiln dust (LKD). The solidified sediment was covered with soil backfill to existing grades and covered with barrier and vegetative soil.

The closure activities included the following:

- Solidifying and compacting approximately 4,700 cubic yards of dewatered sediment with LKD;
- Removing and dismantling an existing walkway;
- Placing and compacting approximately 25,000 cubic yards of general fill material, 4,500 cubic yards of barrier soil, and 2,300 cubic yards of vegetative soil;
- Constructing 1,200 linear feet of storm water diversion swales; and
- Seeding, mulching and fertilizing all disturbed areas.

Landfill Cell Construction/Brownfield, Elizabethton, Tennessee

GR^2 was selected under competitive bid process to construct a RCRA-type landfill cell within a site with an approved Brownfield Agreement. The project included detailed plans and specifications and was performed under a Work Plan approved by the Tennessee Department of Environment and Conservation (TDEC). The following activities were completed in accordance with project specifications:

- Site clearing, grading, and preparation
- Bottom liner installation
- Waste relocation (RCRA hazardous)
- Top liner installation and fusion-welding to bottom liner.
- Installation of compacted soil cover and topsoil
- Final grading, seeding, and mulch

The project involved clearing and preparing approximately 5 acres to receive a 40-mil HDPE textured bottom liner. After the bottom liner was installed, a secondary buffer of soil was placed on top of the liner before relocating the waste debris.

The waste debris contained an enormous amount of concrete, reinforcing steel, and structural steel that would have punctured the liner and created a breach in the cell. GR^2 worked with the design engineer to install a buffer layer to prevent liner damage. Other alternatives were evaluated, such as segregation and screening of the debris, but were not employed. Segregation and screening may have allowed the extremely high concentrations of lead and asbestos in the debris to release into the air, potentially cross-contaminating other areas of the site.

GR^2 relocated approximately 15,000 cubic yards of debris into the cell. The boundary of the cell area had to remain exposed so the top liner could be fused to the bottom liner after all waste relocation was completed.

As with the bottom liner, a buffer of soil was placed on top of the debris to prevent puncturing the liner. These design changes were accomplished without delaying the project and completed with oversight from TDEC personnel.

After relocating the waste debris and installing the buffer soil, a top 40-mil HDPE liner was installed and fusion-welded to the bottom liner. The entire area was then covered with 2 feet of compact clay and 1 foot of topsoil cover. Seed and mulch were applied and the area was fenced; signage also was placed around the site to notify personnel of the location of the waste. Even with the design changes, GR^2 cost controls brought the project in 5% below the approved budget.

Asbestos Abatement Experience

Asbestos Survey/Abatement, Ridgeway Trace, Memphis, Tennessee

GR^2 saved Weingarten Realty Investors, Inc., significant dollars and time toward its goal of demolishing a 454-unit apartment complex to make way for a retail development. The scope of work included asbestos-containing material (ACM) abatement of sheetrock on walls and ceiling in the apartments. GR2 was awarded the $1.5 million contract to perform the abatement work.

Upon further site review we suggested — and then performed — a Phase 2 asbestos survey that determined 30% of the material to be removed actually qualified as non-ACM since the composite sample material was less than 1% asbestos.

A Class Two abatement was then performed on the walls, saving significant cost in abatement, disposal, and personal protective equipment. We gained the concurrence of the Shelby County Air Pollution Control Board before implementing this approach.

Asbestos Abatement/Demolition, Eight-Story Building and Ancillary Structures, Memphis, Tennessee

GR^2 performed asbestos abatement and demolition of an eight-story, high-rise building and five ancillary structures for Three Madison Investments, LLC. The scope of work included a turnkey study, investigation, and a survey of ACM and universal waste.

The asbestos-related scope of work consisted of the removal and disposal of the following items:

- Floor tile and floor tile mastic, approximately 115,000 ft^2
- Carpet and carpet adhesive, approximately 112,450 ft^2
- Asbestos-containing carpet adhesive, approximately 5,000 ft^2
- Thermal system pipe insulation, approximately 700 linear feet
- Boiler insulation, approximately 250 ft^2
- Roofing material, approximately 21,025 ft^2
- Exterior façade, approximately 6,640 ft^2
- Exterior spray-applied fireproofing, approximately 4,640 ft^2

The universal waste-related scope of work consisted of the removal and disposal of the following items:

- Fluorescent light bulbs, approximately 6,900 bulbs
- Fluorescent light ballasts, approximately 3,670 ballasts

- Mercury switches and high-intensity mercury lamps
- Electronic scrap/circuit boards
- Flammable liquids
- Medical waste
- Corrosives

The project was completed with zero incidents within budget and on time.

Other Experience

Miscellaneous Industrial Projects

Asbestos/Underground Tanks, Multiple Locations: For a major healthcare company, GR^2 personnel provided asbestos and UST consulting in more than 20 states in the continental U.S. Project included management of field survey crews, design of asbestos abatement projects, and management of active abatements.

Plating-Line Decontamination: GR^2 personnel conducted plating-line decontamination for Sunbeam Corp. The project involved the decontamination of the plating tanks, removal of the associated piping process and equipment, segregation of wastes, and proper packing of wastes for shipment.

Oil/Water Separator System: GR^2 personnel installed an oil/water separation system. Due to cost and space limitations, developed design changes that reduced the cost of the project significantly by limiting the amount of custom fabrication and provided the same level of oil/water separation as the original design.
Lab Packing: GR^2 personnel have managed multiple lab-packing operations for distributors, transporters, and retailers.

Decommissioning: GR^2 personnel managed the decommissioning of an emergency generator fuel system consisting of 4,000 linear feet in a 21-story building in downtown Nashville, Tennessee. Project included cleaning and flushing 1- and 2-inch lines, removal of piping, containerizing, and disposal of generated rinse water.

Decontamination: GR^2 personnel managed specification development for a heavy metal decontamination of 11 buildings containing asbestos insulation and recovery of metallic mercury.

Miscellaneous Remediation Projects

Groundwater Remediation System: GR^2 personnel managed the installation of a groundwater remediation system for the recovery of dissolved and free product. Project included excavating, dewatering, lining, and backfilling an extraction trench; constructing a 12- to 14-foot-deep trench with drain/well piping and vacuum enhancement piping, and installing manholes at the extraction well and trench system.

Landfill Cap; Memphis, TN: GR^2 personnel reviewed plans and specifications, completed quantity take-off, and prepared bid documents for remediation of 30-acre municipal/industrial landfill. Work included excavation and relocation of buried drums, and installation of a 30-acre engineered cap.

Miscellaneous Asbestos Projects

Hospital, Memphis, TN: GR^2 removed approximately 2,500 ft^2 of floor tile and underlying mastic, an asbestos-containing material. Project was started on a Friday evening and was completed by 8 a.m. Monday without any disruptions to hospital operations. GR2 also removed approximately 5,000 ft^2 of floor tile and underlying mastic. Work was started 4 p.m. on Friday and completed by 1 a.m. on Saturday without disrupting hospital operations.

Federal Building, Memphis, TN: GR^2 conducted a removal of transite panels from a cooling tower at federally owned building in downtown Memphis. Panels were removed, wrapped, and secured onto pallets. Pallets were lowered to ground using a crane. The project was completed over the weekend to prevent disruptions to facility operations.

NSA Mid-South, Millington, TN: GR^2 holds a facility-wide contract to conduct asbestos abatements at the Navy installation. Over the past three years, GR^2 has completed more than $250,000 in asbestos and lead removal work orders. GR^2 has performed all these projects within budget and zero violations.