



Remediation and
Restoration
Services

5669 Summer Ave.
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Statement of **QUALIFICATIONS**



Remediation



Demolition



Decommissioning



Abatement



Civil Construction

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



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ABOUT 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

SAFETY

GR2 promotes an "EHS Culture" in which health and safety are paramount in each and every project we complete.

QUALITY

GR2 is committed to executing and completing all projects with highest regard to quality, by leveraging our extensive experience.

CLIENT FOCUS

GR2 believes in professional relationships that are based on producing quality work in a timely manner.

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

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 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.

All GR2 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 (U.S. EPA) 40 CFR. The requirements of the GR2 training curriculum are continually updated in compliance with federal, state, and local regulations.

GR2 jobsites are managed through the comprehensive GR2 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.

GR2 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 safer for both GR2 personnel and our clients.

For details on GR2 Safety Management System and our H&S services, please contact our H&S manager.



Scott Campbell
Corporate H&S Manager

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Memphis, TN 38134



Safety is truly in our DNA. It's innate to how we do business, it's recognizable by clients and those within our industry, and it's the reason our safety record remains well below industry standard.

—Don Bradford, President and CEO

SAFETY MESSAGE FROM OUR CEO

DON BRADFORD,
PG, CHMM, CPEA
President and CEO

The Safety Moment that begins each of our morning site briefings, our conference calls, and our team meetings isn't cliché at GR2. Safety is truly in our DNA. It's innate to how we do business, it's recognizable by clients and those within our industry, and it's the reason our safety record remains well below industry standard.

GR2's Days Away from Work, Restricted Duty, or Job Transfer (DART) rate is ZERO ... our goal. In fact, GR2's DART rate has been zero for almost a decade, dating back to 2009! But when it comes to safety, we are never satisfied, constantly seeking new and innovative ways to reduce safety incidents through focusing on "leading indicators," proactively avoiding incidences BEFORE they happen, rather than measuring performance on "lagging safety indicators" AFTER the fact.

We use a top-down, bottom-up approach, measuring leading indicators such as hazard identification and mitigation, quarterly instructor-led training, employee audits and observations, reporting of unsafe conditions or activities, near-miss reporting/communication, pre-activity safety meetings, housekeeping, and overall safety commitment participation.



GR2's Health and Safety Policy is grounded in the following beliefs:

- Environmental, health and safety (EHS) performance will not be compromised for the sake of other business or client demands.
- Concern for employee H&S will be evident and embedded into all phases of our work by design and through the business decisions that we make.
- Each employee is empowered with responsibility for his or her personal H&S and the H&S of their fellow employees and subcontractors.
- Continuous improvement is a way of life at GR2, and we use feedback and experience to refine and build upon our EHS Culture to ensure continual forward progress.
- EHS incidents are preventable; we will strive to ensure that our policies, practices, and decisions are proactive on all accounts.
- Management is responsible for ensuring employees have the knowledge, skills, and equipment necessary to protect themselves and others.
- We will not be satisfied to simply meet EHS compliance standards.
- Every task must be performed with concern for the welfare of our employees, our contractors, our visitors, our clients, and the communities in which we operate.
- Protecting the well-being of our employees is a way of life around the clock — both on and off the job.

EnSafe's nucleus is comprised of its outstanding people. They're the lifeblood of our company (as your people are

your company's lifeblood)! With this in mind, I challenge each GR2er to make time each day to reestablish his or her focus on T3 - Think Things Through.



President and CEO



GR2 PERSONNEL RESOURCES

GR2 offers clients the following technical expertise:

Project Management

- Construction/Project Managers
- Superintendents

Mechanical Operators

- Vacuum Truck Operators
- Equipment Operators

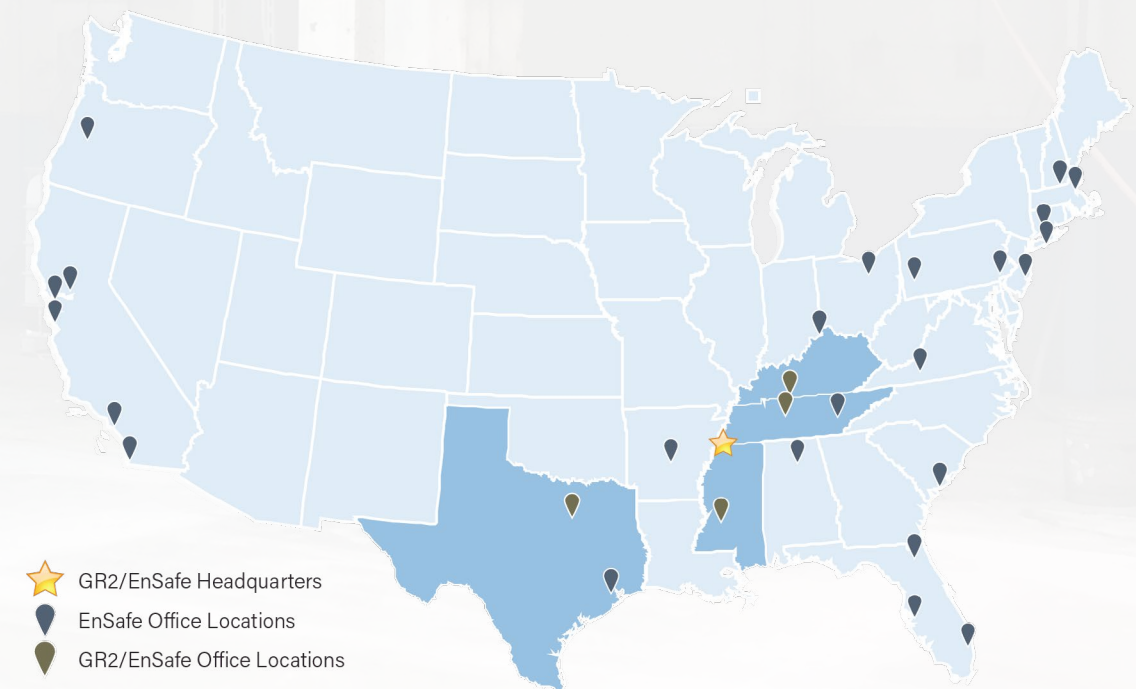
Technicians/Specialists

- Field Technicians
- Hydroblasting Technicians
- Asbestos/Lead Technicians
- Chemists/Labpack Specialists



GR2/ENSAFE LOCATIONS

Headquarters ★
Tennessee
5669 Summer Avenue
Memphis, TN 38134
Tel: 901-369-0576



- ★ GR2/EnSafe Headquarters
- EnSafe Office Locations
- GR2/EnSafe Office Locations

Offices

Tennessee
220 Athens Way
Nashville, TN
P: 615-255-9300

Texas
4545 Fuller Drive
Irving, TX
P: 972-791-3222

Kentucky
1148 College Street
Bowling Green, KY
P: 270-843-1622

Mississippi
101 W. Washington Street
Ridgeland, MS
P: 601-981-4880



INDUSTRIAL/REMEDIATION EXPERIENCE

GR2 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 GR2 work follow.

Remediation/Closure Experience



PROJECT: Brownfield Remediation

SITE: Smarthouse Way Site

LOCATION: North Little Rock, Arkansas

Significant dollars were saved on this Brownfield redevelopment project.

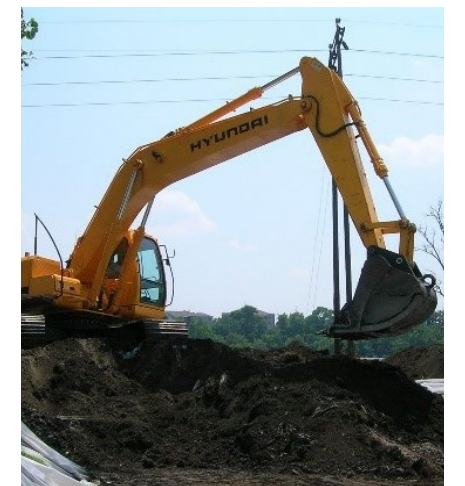
In October 2007, GR2 and its parent company, EnSafe Inc., were authorized by Main Street Argenta and the City of North Little Rock to prepare the remedial design (including all permitting and project oversight) and perform remediation services for the Smarthouse Way Southern Tract, a U.S. EPA Brownfields 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.

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 GR2 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 biphenyls (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 were 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 were 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.



PROJECT:
Emergency Removal
Action

SITE:
California Elementary
School

LOCATION:
San Bernardino, California

Based on GR2 quick response and quality of work, our client received a letter of commendation from the school district

GR2 mitigated potential risk to human health and the environment at a California elementary school where soil was contaminated by pesticides. GR2 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, playground surface and equipment installation, and parking lot paving. The entire project was accomplished within six weeks.

During all phases of the remediation, GR2 conducted continuous air moni-



toring 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 GR2's 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.

PROJECT:
Permeable Reactive
Barrier Installation

SITE:
Manufacturing Facility

LOCATION:
Waxahachie, Texas

Tests performed three and six months after installation resulted in 70% decrease in DNAPL compounds

GR2 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. GR2 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.



PROJECT:
Wastewater Aeration Basin
Rehabilitation

SITE:
Mining Company 2-Acre
Wastewater Basin

LOCATION:
Olaton, Kentucky

Disturbed areas around the basin were vegetated to match the existing materials.

GR2 performed basin rehabilitation activities for a 2-acre wastewater basin at a mining company's Olaton, Kentucky, facility. GR2 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 (ft²) 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

PROJECT:
Mercury Remediation

SITE:
Former Chlorine Plant

LOCATION:
North Carolina

Approximately 1,200 cubic yards of soil were excavated and disposed of onsite or at a hazardous waste landfill—depending on analytical results.

GR2 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, GR2 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



PROJECT:
Complete SVE Dismantling, Relocation, and Installation

SITE:
Manufacturing Facility

LOCATION:
Louisville, Kentucky

Components of an old system were removed and sent to manufacturer to be broken down and rebuilt—saving significantly versus the cost of replacement.

GR2 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.

GR2 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.

GR2 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.

PROJECT:
Confidential Manufacturer

SITE:
Undeveloped Parcels

LOCATION:
Indianapolis, Indiana

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

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 GR2 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 (VOCs) such as trichloroethylene 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.



PROJECT:
SVE System Upgrades

SITE:
Treatment System

LOCATION:
Lewisburg, Tennessee

The existing piping system was overloaded with sediments, preventing proper function.

GR2 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.

GR2 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



PROJECT:
Facility Decommissioning

SITE:
High-Performance Nozzles and Pumps Facility

LOCATION:
Lionville, Pennsylvania

Based on GR2's quick response and quality of work, our client received a letter of commendation from the school district

GR2 decommissioned a 130,000 ft² facility that manufactured high-performance spray nozzles and pumps for dispersing water and aqueous film-forming foam. GR2 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. GR2 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.

GR2 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.

GR2 lab-packed more than 30, 1-cubic-yard containers of 55-gallon drums 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.



PROJECT:
Plant Decommissioning

SITE:
Dry Chemical Powder Fire Extinguisher Plant

LOCATION:
Mebane, North Carolina

GR2 adapted and changed the H&S protocol to address the changes in scope.

GR2 decommissioned this plant that formerly produced dry chemical powder fire extinguishers. The decommissioned area totaled 160,000 ft² and included former powder storage, powder transport/fill, aluminum stamping, metal stamping, metal processing, and material-testing areas.

GR2 decontaminated and removed six, 40-foot powder silos and associated transport equipment from the Powder Storage Area. GR2 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. GR2 adapted and changed the H&S protocol to address the changes in scope. A full-time Health and Safety Officer was assigned to the project with no work stoppage. GR2 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.

PROJECT:
Asphalt Plant Decontamination/ Demolition

SITE:
Asphalt Materials Plant Fire

LOCATION:
Halls, Tennessee

GR2 initiated building demolition by removing structures and segregating building material based on whether it was contaminated.

GR2 responded to a fire at an asphalt materials plant, providing oversight and decontamination/demolition services. GR2 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, GR2:

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

Then GR2 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. GR2 then continued to clean up to the slab. Another group handled disposal of material. GR2 bermed the water used in fighting the fire so it could be analyzed for proper disposal. GR2 worked in concert with the local Emergency Management Agency and fire department.



PROJECT:
Plant Closure

SITE:
Former PCP Treating Facility

LOCATION:
DeQueen, Arkansas

GR2 employed techniques inside the building to reduce exposure risk to site personnel working on the project.

This GR2 project involved decommissioning a former pentachlorophenol (PCP) treating facility. Closure activities included gross decontamination of the exterior drip pad (12,000 ft²), 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, GR2 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. GR2



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, GR2 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 GR2.

PROJECT:
Soil Removal

SITE:
Panel-Making Plant

LOCATION:
Craig, Oklahoma

After removal, a Professional Engineer (PE)-certified Construction Completion Report was submitted to the state.

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.

GR2 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 on-site for dewatering. Once dewatered, the soil was transported and disposed of in a local subtitle "D" landfill.



PROJECT:
Solid Waste Landfill Closure

SITE:
Wetland Areas

LOCATION:
North Carolina

Erosion-control measures, including silt fences, riprap check dams, and temporary diversion ditches were implemented before construction occurred at the landfill and borrow areas.

GR2 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 on-site. 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 a geotextile barrier, soil and aggregate cap

- Installing haul roads
- 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 ft² 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.

PROJECT:
Landfill Closure

SITE:
Forest Product Company Site

LOCATION:
Craig, Oklahoma

A Storm Water Pollution Prevention Plan (SWPPP) was developed to ensure construction activities did not impact the surrounding bodies of water.



Landfill closure activities conducted by GR2 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

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.

GR2 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
- 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.

PROJECT:
Sludge Impoundment Closure

SITE:
Sludge Impoundment Site

LOCATION:
Craig, Oklahoma

The sludge impoundment cap and all the disturbed areas were seeded, mulched, and fertilized.



- 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

PROJECT:
Class III Landfill Engineering Assessment

SITE:
Forest Product Treating Site

LOCATION:
DeQueen, Arkansas

A study concluded that a leachate collection system needed to be installed in limited areas.

GR2 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.

GR2 began constructing the landfill cover in October 2004. During cover construction, a recovery system was installed to intercept leachate that was impacting surface water. GR2 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.

PROJECT:
Spray Pond Closure

SITE:
Forest Product Site

LOCATION:
Philadelphia, Mississippi

GR2 constructed a sump and pumping system to transfer the pond's water to a temporary onsite wastewater treatment system.

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.

GR2 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
 - Seeding, mulching and fertilizing all disturbed areas

PROJECT:
Landfill Cell Construction/ Brownfield

SITE:
RCRA-Type Landfill Cell

LOCATION:
Elizabethton, Tennessee

GR2 worked with the design engineer to install a buffer layer to prevent liner damage.

GR2 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. GR2 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.

GR2 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.

Asbestos Abatement Experience



PROJECT:
Asbestos Survey/
Abatement

SITE:
Ridgeway Trace

LOCATION:
Memphis, Tennessee

A Class Two abatement was performed on the walls, saving significant cost in abatement, disposal, and personal protective equipment.

GR2 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.



PROJECT:
Asbestos Abatement/
Demolition

SITE:
Eight-Story Building and
Ancillary Structures

LOCATION:
Memphis, Tennessee

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

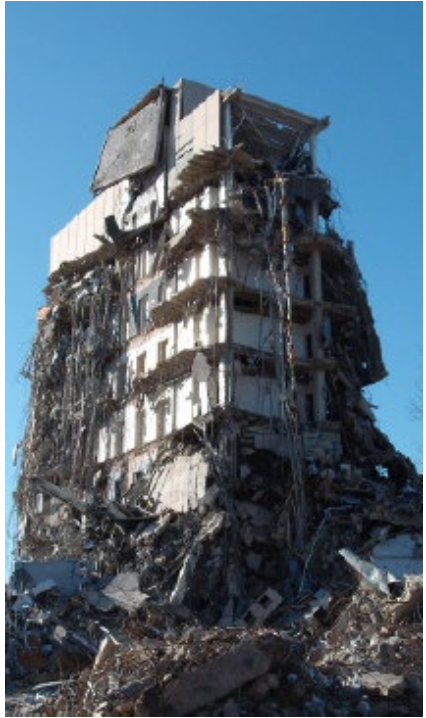
GR2 performed asbestos abatement and demolition of an eight-story, high-rise building and five ancillary structures for Three Madison Investments, LLC. The scope of work included a turn-key study, investigation, and a survey of ACM and universal waste.

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 ft²
- Carpet and carpet adhesive, approximately 112,450 ft²
- Asbestos-containing carpet adhesive, approximately 5,000 ft²
- Thermal system pipe insulation, approximately 700 linear feet
- Boiler insulation, approximately 250 ft²
- Roofing material, approximately 21,025 ft²
- Exterior façade, approximately 6,640 ft²
- Exterior spray-applied fireproofing, approximately 4,640 ft²
- 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, GR2 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.

DECONTAMINATION:
GR2 personnel managed specification development for a heavy metal decontamination of 11 buildings containing asbestos insulation and recovery of metallic mercury.

**OIL/WATER
SEPARATOR SYSTEM:**
GR2 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.

**PLATING-LINE
CONTAMINATION:**
For a major healthcare company, GR2 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.

DECOMMISSIONING:
GR2 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.

LANDFILL CAP; MEMPHIS, TN:
GR2 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.



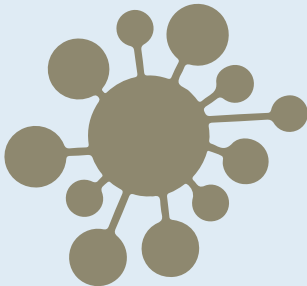
MISCELLANEOUS REMEDATION PROJECTS

HOSPITAL, MEMPHIS, TN:
GR2 removed approximately 2,500 ft² 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 ft² 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:
GR2 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.

**GROUNDWATER REMEDIATION
SYSTEM:**
GR2 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.

MISCELLANEOUS ASBESTOS PROJECTS



**NSA MID-SOUTH,
MILLINGTON, TN:**
GR2 holds a facility-wide contract to conduct asbestos abatements at the Navy installation. Over the past three years, GR2 has completed more than \$250,000 in asbestos and lead removal work orders. GR2 has performed all these projects within budget and zero violations.



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