

# Statement of Qualifications



**cegg CHASE**  
**Environmental Group INC.**





**Chase Environmental Group, Inc. (Chase), is a full-service decontamination, decommissioning, remediation, and waste management firm providing high-quality, practical, cost-effective solutions to your environmental challenges. We are committed to providing you with the highest quality, cost-effective services to meet your environmental needs.**

***Chase personnel have many years of experience in:***

- Hazardous and Radioactive Waste Management
- Waste Treatment
- Health and Safety Training
- Site Characterization
- Site Remediation



We are a hands-on contractor and perform most projects turn-key. With our resources, equipment and experience, we have successfully completed a broad range of environmental projects with a minimal use of sub contractors, which helps to control costs.

Chase's numerous permits and operating licenses, including a state-issued radioactive materials license, authorize us to perform radiological decommissioning and remediation activities at non-licensed and under-licensed facilities.

Our experience in characterization, waste management, and remediation has allowed us to manage and complete numerous site investigations, tank removals, facility demolitions, and remediation projects for clients throughout the **United States**.



Chase has performed remediation of soil, groundwater, and structures including decommissioning and closure of waste management areas regulated under **US NRC, RCRA, CERCLA, UST, and TSCA**.

***Cleanup projects have included:***

- Accelerators
- Laboratories
- Wastewater Treatment Ponds and Lagoons
- Landfills
- Concrete Containments and Sumps
- Underground Storage Tanks
- Paint Rooms and Firing Ranges
- Commercial Coating and Degreasing Facilities
- Bulk Chemical Handling Facilities
- Storage and Distribution Facilities



As a result of performing this work, Chase's staff has shipped several hundred thousand tons of radioactive, hazardous, and other regulated wastes to recycling and processing facilities and landfills.

Our goal is to form long-term working relationships with our clients by demonstrating a comprehensive understanding of their unique environmental needs and by assisting them in achieving compliance with regulations influencing their operations.

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## Chase Environmental Group Health and Safety Policy & Quality Assurance Program (QAP)

*Chase Environmental Group's Corporate Health and Safety Policy is to keep worker safety as a number one priority.*



Our Health and Safety Program is based upon a continuous improvement process of prevention, assessment, corrective action and training.

*Chase field personnel are extensively trained and qualified in all aspects of their jobs as well as the site specific Health and Safety plan. A Health and Safety Supervisor is assigned to every project.*

It is the policy, and belief, of Chase that all accidents are preventable and we are committed to Zero Accident Performance. Each individual is aware that they are responsible for their safety and the safety of those working with them and that they may stop work at any time for safety concerns. Chase personnel also take part in safety planning, procedure development and any necessary revisions to safety procedures.



*Chase is committed to Zero Accident performance.*

### Chase Environmental Group Quality Assurance Program

Chase is committed to performing work professionally and consistently at a quality level that meets or exceeds our internal requirements. **Our Quality Assurance Program is designed to implement the requirements of the American Society of Mechanical Engineers (ASME), NQA-1, and the Nuclear Facilities Quality Assurance Program Requirements.** All Chase employees are responsible for assuring the quality of work performed complies with these requirements. Chase's Quality Assurance Program provides the methodology for assuring this performance.



## Bonding and Insurance

Chase maintains relationships with two Treasury listed sureties for bid and performance bonding services, with bonding capabilities of \$5M to \$6M per project.

Chase's comprehensive liability insurance program covers all operations and includes the limits as shown in the chart below. Coverage may be increased if necessary.

<i>Chase Environmental Group, Inc. Comprehensive Liability Insurance Program</i>		
General Liability:	Each Occurrence	\$2,000,000
Automobile Liability:	Combined Single Limit	\$1,000,000
Excess Liability:	Each Occurrence	\$3,000,000
	Aggregate	\$3,000,000
Workers Compensation and Employer's Liability:	Each Accident	\$2,000,000
Professional & Pollution Liability:	Each Occurrence	\$2,000,000
	Aggregate	\$2,000,000
General plus Excess Liability:	Total	\$5,000,000



# Chase Environmental Services Overview

## Radioactive Waste Management Services

### *Radioactive Waste Brokerage*

- Low-Level Radioactive and Mixed Waste Management
- Turn-key Packaging, Labeling and Manifesting
- Chase Owned Transportation Vehicles

### *Radioactive Sealed Source Recovery*

- License Transfer
- Direct Disposal
- Disassembly of Gauges and Devices
- Source Consolidation
- Leak Testing

### *Radioactive Field Services*

- Waste Characterization
- Decontamination and Decommissioning (license termination)
- Characterization Surveys
- Final Status Surveys and Reports

### *Radioactive Waste Processing & Disposal*

- Volume Reduction (high force super compactor)
- Solidification and Stabilization
- Repackaging and Consolidation of Materials

## Hazardous & Special Waste Management Services

### *Remediation*

- Source Removal
- Remediation
- Packaging and Transportation

### *Demolition*

- Hazardous Structure Removals
- Abatement

### *Underground Tank Services*

- Removal of Tanks and Waste
- Site Investigations



## Specialty Services

### *Dual-Phase Extraction*

- Product/Groundwater Recovery

### *Bio-Remediation Systems*

- Water Treatment Capability

### *Mold, Lead, & Asbestos Remediation*

- EPA Accredited Personnel
- Monitoring Services

### *Additional Capabilities*

- Decontamination
- Speciality Construction

## Drilling Services

### *Monitoring Well Installations*

### *Direct Push Capabilities*

- Groundwater/Soil Sampling
- Injection of Treatment Media (ORC/HRC, etc)

### *Site Investigation Field Support*

## Project Summaries

# Radiological Services

*Chase's extensive experience and knowledge of radioactive waste regulations and requirements allow us to customize the best solutions for your needs.*

## Radioactive Waste Brokerage

- Low-Level Radioactive and Mixed Waste Management
- Turnkey Packaging, Labeling and Manifesting
- Chase Owned Transportation Vehicles

Chase's Brokerage Services Division specializes in LLRW, NORM and Mixed Waste collection, transportation, volume reduction, and disposal throughout the South, Midwest and Eastern United States. Our staff of experienced waste brokers and technicians hold advanced level certifications for properly preparing waste for transport over public highways. Your waste will be picked up, manifested, and controlled from the time of collection by our technicians to its final destination in one of our trucks.

### *Chase Waste Brokers and Technicians provide:*

- Advanced level certifications for public highway transportation.
- Knowledge in completing and reviewing the packaging, marking and labeling of radioactive materials.
- Radiological expertise to ensure full compliance with all DOT, NRC, state and local regulations.

## Sealed Source Recovery

- License Transfer
- Direct Disposal
- Disassembly of Gauges & Devices
- Source Consolidation
- Leak Testing

Chase offers a Radioactive Sealed Source Recovery, Recycle and Consolidation Program for unwanted, excess, or obsolete Sealed Sources and Devices. The personnel at Chase have experience in the successful recovery/disposal of thousands of sealed sources– from microcurie check sources up to kilocurie irradiation sources. We work with all the major gauge/device manufacturers and maintain disposal contracts with all licensed disposal facilities. Chase will provide owners of sealed sources or devices a written quotation for removal/recycle/disposal options. Chase offers turnkey removal, packaging and transportation on a "milk-run" or exclusive use basis. Additionally, Chase can disassemble gauges or devices that contain sealed sources at the Alaron hot cell facility located in Wampum, Pennsylvania and can provide leak testing kits and surveys for our customer's sources.



*Your waste will be controlled from time of collection to its final destination.*



*Waste handling prior to encapsulation.*

# Radiological Services

## Field Services

### *Decontamination and Decommissioning/License Termination*

- Decontamination and Decommissioning
- Remediation
- Surveys

We have the capabilities to assist you in your development of decommissioning plans, final status survey plans and final release surveys in accordance with applicable license and regulatory requirements. Chase provides turnkey decontamination and decommissioning services per the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) when performing final status survey to satisfy NRC/State release requirements for license termination.



*Real time monitoring of contaminated soil.*

### *Our Decontamination and Decommissioning Techniques include:*

- Strippable Coatings
- Chemical Decontamination
- Water Blasting
- Scabbling
- Ice Blasting
- Vacuum Blasting
- Soil Excavation/Source Removal

### *Remediation*

Chase has the personnel, equipment and experience necessary to perform facility or area remediation for both radioactive and mixed contaminants. Our methods are geared towards returning a contaminated area to compliance while minimizing the generation of costly radioactive or mixed waste.

### *Surveys*

Chase has extensive experience in planning and performing scoping and site characterization surveys. We have assisted companies in the characterization of sites involving radioactive materials, NORM materials, and mixed waste materials (hazardous and radioactive). These site characterizations have been performed for both the private and public sector.

Our staff understands the importance of characterizing sites in the most cost-effective manner, yet still ensures that all applicable standards and regulations are met or exceeded. We recognize how critical the characterization is to the overall project timeline and project cost schedule. Our staff also can provide the survey plans required to meet regulatory requirements prior to commencement of onsite work. We can then complete the survey report listing the nature and extent of radiological contamination, provide an evaluation of remediation alternatives and make suggestions for the final status survey design.

# Radiological Services

## Radioactive Waste Processing

### *Waste Processing and Disposal*

- Volume Reduction with High Force Supercompactor
- Solidification and Stabilization
- Material Repackaging and Consolidation

Chase's Processing Division operates a volume reduction and waste consolidation facility in Wampum, Pennsylvania for "Small Quantity Generators." Small Quantity Generators encompass a wide spectrum of academic, industrial, research, and government-sponsored entities that produce waste streams just as varied and uncommon.

Chase has dedicated its processing efforts to focus solely on the Small Quantity Generators and to afford these waste streams the proper level of attention – a level of attention that Chase has found absent at other commercial waste processing facilities that handle waste from large quantity generators (e.g. nuclear power plants, the DOE, etc.). Therefore, Chase has installed and operates a high-force compactor at a licensed waste processing facility in Wampum, Pennsylvania to serve as the centerpiece for our volume reduction operation. The super-compactor is capable of crushing 55-gallon steel waste drums and achieving a disposal density well in excess of 70 lbs/ft<sup>3</sup>.

Chase conducts other waste processing and consolidation efforts at the same facility such as solidification, waste repackaging, and sealed source encapsulation. All waste is disposed of at licensed disposal facilities, returned for storage, or disposed of at an alternatively approved facility.

***Examples of waste types suitable for processing at our facility include the following activated or contaminated materials:***

- Paper
- Plastic
- Glass
- Rubber
- PPE
- Soil/Sludge
- Absorbed Liquids
- Concrete or Rubble
- Metal
- Radio-Chemical Compounds (Solidified or Un-solidified)
- Sealed Sources or Devices Containing Sealed Sources
- Compactible Trash

Our customers can ship their waste directly to our facility in Pennsylvania or have our Brokerage Division manifest, pick up and transport to our Processing Division.



*Stabilization of high moisture content waste prior to disposal shipment.*



*Volume reduction of compactible waste with Chase High Force Supercompactor.*

# Hazardous & Special Waste Management Services

*Chase's management and professional staff have successfully completed hazardous and special waste management projects for over 25 years.*

## Remediation

Because Chase understands that remediation projects have unique challenges, we offer a broad range of remedial technologies and innovative construction solutions. The Chase team includes project managers, operational staff personnel, and administrative professionals. Chase also maintains state-of-the-art remediation and construction equipment that facilitates a high quality responsive work product to our clients.

We have completed remediation projects in support of regulatory closure requirements under State and Federal regulations including RCRA, CERCLA, TSCA and UST programs.

### *Typical waste streams include:*

- Chlorinated Solvents
- Dioxin
- Pentachlorophenol (PCP)
- Polychlorinated Biphenyls (PCBs)
- Transformer Oils
- Refined Petroleum Products
- Fuel Oils (gasoline, diesel, heating oils)
- Inorganic Constituents (arsenic, cadmium, chromium, mercury, nickel, lead and others)

Chase provides turnkey remediation support including waste profiling, transportation and disposal.

### *Chase remediation projects have included:*

- Excavating, packaging and transporting PCB-contaminated soil and debris from a remote island in the North Pacific to disposal facilities in Oregon.
- Contaminated soil and debris removal and site improvements from a military jet crash site.
- Remediated former Naval Weapons Facility including removal of contaminated soil and media from underneath a building.
- Excavating over 40,000 tons of hydrocarbon-impacted soil beneath the water table by installing temporary shoring.
- Removal of toluene-impacted soil, contaminated groundwater, achieving USEPA Region 9 cleanup objectives.



*Excavation of PCB-impacted soil on Pacific Ocean atoll.*



*Removal of petroleum-contaminated soil below groundwater table.*



*Removal and disposal of batteries at former defense firing range.*

# Hazardous & Special Waste Management Services

## Demolition

Chase has completed numerous building and structure hazardous material removals prior to facility demolition. These removals typically involve several hazardous materials, which require a comprehensive knowledge of abatement techniques and regulations for each hazard. We can assist your staff or provide the expertise for the entire project.

**With our extensive knowledge and experience in decontamination technologies and methodologies, we provide the most cost effective solution for the job.**

*Chase has been involved in projects that include:*

- Chemical Decontamination (lead and others)
- Mechanical Decontamination of Steel, Concrete, Brick, Building Drains, Ventilation Systems, Laboratories and Hot Cell decontamination and/or removal.
- Complete Building Dismantlement
- Soil Excavation

## Underground Storage Tank Removal

Chase provides turnkey underground storage tank (UST) project management. Chase personnel work closely with regulators to obtain closure status for UST facilities by providing technical and field support for all types of tank projects.

*Our tank services include:*

- Tank Cleaning and Disposal of Product
- Phase II Investigations
- Geoprobng
- Removal Permit Acquisition and Registration Verification
- Closure In-place or Temporary Closure and Reporting
- Site Assessment
- Soil Excavation and Disposal
- Contaminated Soil Management
- Tank Upgrades/Installations
- Corrosion Testing and Upgrading
- Well Installation



*Demolition of former manufacturing facility.*



*Chase licensed UST personnel comply with procedures described in the American Petroleum Institute's Publication 1604 to accomplish tank removal activities.*

# Specialty Services

*Chase provides dual phase extraction technology, bio-remediation systems, groundwater treatment, asbestos, mold and lead abatement.*

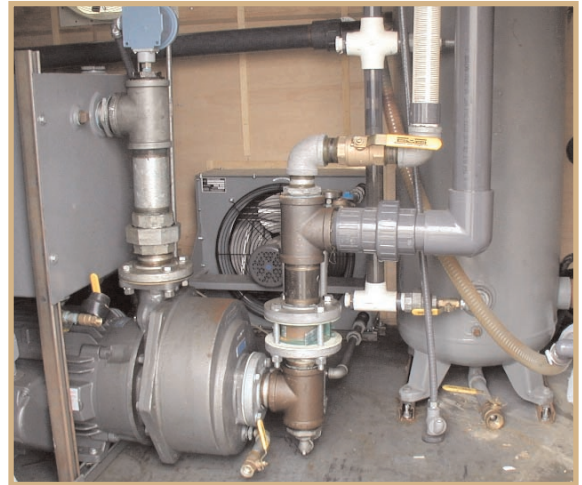
## Dual Phase Extraction System

**Chase will utilize the most effective treatment system for your needs, and can supply custom built units for your particular application.**

Vacuum Assisted Multi-Phase In-Situ Remedial Extraction (VAMPIRE®) is an innovative and cost effective remediation method that removes multiple phase (i.e. vapor, adsorbed, dissolved, and free phase) VOCs simultaneously from both the vadose and saturated zones.

VAMPIRE® is a mobile system that is particularly effective in the removal of free product (e.g. gasoline and diesel) using high vacuums and high flow rates while simultaneously connected to as many as six monitoring or recovery wells. As much as 250 equivalent gallons of gasoline or diesel have been removed during a single eight hour VAMPIRE® extraction event.

VAMPIRE® is an excellent compliment to a risk based corrective action (RBCA) program. Source materials can be readily removed; thereby potentially allowing a risk based decision to then be rendered resulting in "monitoring only", no further action (NFA), or a reduced size remediation system. VAMPIRE® also has applications at sites where rapid remediation is necessary (e.g. real estate transfers, off-site plume migration, emergency response, etc.) and can be introduced at any time during the "life cycle" of a site.



# VAMPIRE

VACUUM ASSISTED MULTI PHASE IN SITU REMEDIAL EXTRACTION

## Bio-Remediation Systems

Chase uses injectable compounds to remediate contaminated subsurface soils and groundwater. Chase personnel have constructed and operated a wide range of bio-remediation systems including pump and piping systems, slurry walls, and injection points for bio-remediation compounds.

Depending on the medium and contaminant, several compounds may be utilized to provide the best cost effective and reliable solution. We use truck mounted Geoprobe® and PowerProbe™ units, as well as injection pump systems that are capable of injecting remedial compounds. Our equipment is fully self-contained with water tanks, mixing units, heating units and various pumps.

## Water Treatment Capabilities

*Recovered groundwater and impacted surface water is treated with Chase's Water Treatment System and can employ:*

- Oil Water Separators
- Mechanical Filters
- Carbon Canisters
- Mobile or Fixed Units

# Specialty Services

## ***Remedial systems installed by Chase have included:***

- A Bio-remediation system at an active Naval Base which successfully remediated approximately 4,500 tons of soil contaminated with jet fuel.
- 10,800 pounds of hydrogen releasing compound (HRC) injected using Geoprobe® equipment at a site contaminated with Trichloroethylene at the Portsmouth Gaseous Diffusion Plant.
- A mobile oil recovery system and a mobile groundwater treatment system, which recovered approximately 30,000 gallons of free product oil from the water table and treated approximately 1.75 million gallons of water using a combination of bio-remediation agents, skimmers, filters and oil-water separators.

## **Asbestos, Mold & Lead**

Chase personnel are EPA accredited building inspectors, and certified indoor air quality mold/asbestos technicians.

We have the experience to write all required health and safety plans, conduct all required characterizations and perform all follow-up abatement activities. We own the most current abatement equipment including HEPA air filtration systems, negative air pressure systems, and HEPA vacuum equipment.

## ***Chase performs the following sampling to determine the microbial background and assess the extent of potential mold contamination:***

- Ambient
- Impact
- Swab
- Tape
- Bulk

Chase's accredited personnel provide building assessments of HVAC systems for determining the status of indoor air quality.

## ***Projects include:***

- Complete asbestos and mold abatement at a former high school in preparation for remodeling.
- Lead paint removal at a state prison consisting of twelve observation towers and one guard post.
- Complete indoor air quality assessments and mold abatement at various community colleges.



*Basement prior to mold abatement.*



*Asbestos abatement at office building.*

# Specialty Services

## Additional Capabilities

### Decontamination

Chase has completed various types of decontamination and industrial cleaning projects. We specialize in completing projects with complicated site conditions, special hazards and tight time frames.

### Project examples include:

- Turnkey removal of approximately 6,000 square feet of flaking paint in the air return plenum of a defense remanufacturing facility. The work was performed in the plenum approximately 16 feet above the factory floor. Chase installed fall protection rigging and a solid floor, a ceiling access portal, complete negative air containment, a 200 amp temporary electrical service, and job lighting in preparation for the paint and rust removal.
- Decontamination cleaning, utility disconnection, machine removal, inspection of containment integrity beneath equipment using remote video with clearances less than one inch, application of specialty coatings, closure of abandoned pits and trenches, pressure testing of drain lines, waste characterization and final waste disposal.

### Specialty Construction

**Chase has completed construction projects in areas where hazardous constituents were present such as:**

- Installed pumps and provided system improvements, including software upgrades to an existing groundwater treatment system located at former lighting manufacturing facility. Chase also installed a 600 foot long groundwater collection trench. The interceptor trench and treatment plant were designed to facilitate the extraction, treatment and discharge of groundwater from on-site shallow wells.
- Repaired existing erosion damage to a CERCLA closure cap. Site work included clearing, grubbing, and the removal of surface debris, and installation of concrete in filled Geocells, geosynthetic liners and HDPE liner systems. The project included detailed surveys and excavating damaged areas prior to installing the improved drainage channels.
- Placed an engineered clay cap, topsoil, and erosion resistant layer over a previous landfill located on a former Naval Air Station base.



*Negative air units used during PCB contaminated lead paint removal.*



*Remediation of laboratory drain contaminated with mercury.*



*Repairs to CERCLA cap.*

# Drilling Services

*Chase personnel have extensive knowledge and experience in multiple drilling techniques with state-of-the-art equipment for drilling, subsurface characterization and well installation. Our drilling professionals and advanced equipment meet the most demanding job requirements on time and on budget.*

## **Chase's Equipment includes:**

- 2001 Central Mine Equipment Company (CME) High-Torque 55 drilling rig
- 2003 CME High-Torque 75 drilling rig
- Geoprobe® Systems Model 5400 (direct push capabilities)
- AMS (Art's Manufacturing & Supply, Inc.) PowerProbe® 9600 PTO (direct push and HSA capabilities)
- Split Spoon, Shelby Tube and Continuous Sampling System Samplers
- Hollow-Stem Auger (HSA), Air Rotary and Mud Rotary Drilling
- Standard and Wireline Coring Tools
- Automatic SPT Hammers
- 6-inch and 8-inch Down-the Hole (DTH) Hammers
- Ability to advance a HSA and DTH Hammer in the same hole with the same rig.



*Chase drilling crews provide experienced personnel to support site investigation activities.*

Our licensed drillers and certified rig operators have years of experience and have completed all necessary OSHA training and Corporate Medical Monitoring. Chase personnel provide field support for hydrogeologic investigations, well logging, aquifer testing, well sampling, environmental and geotechnical investigations, well rehabilitation and data interpretation.

## **Site Investigations**

Chase has conducted multiple site investigations to aid our clients with their risk management planning.

Such investigations have included:

- Soil sampling, temporary piezometer installation, permanent groundwater monitoring well installation and stream sampling for a manufacturing facility; contaminants included solvents, semi-volatiles and metals.
- Field support for investigation of a manufacturing complex (120 acres), including concrete coring, direct push sampling, monitoring well installation and sampling.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Characterization, Waste Removal and Decommissioning Activities at University Campus**

**LOCATION: Louisiana**

**STATUS: Completed August 2003**

**TOTAL PRICE: \$170,000**

Chase Environmental Group, Inc. (Chase) was contracted to develop a Decommissioning Plan for the University as a result of an LDEQ audit in which it was discovered that the facility continued to possess radioactive material even though their license had expired in 1980. The project entailed identifying and characterizing the waste on site, shipping the waste to an appropriately licensed facility, remediating contaminated areas, and performing a final status survey that would allow LDEQ to release the facility from radiological controls.

LDEQ issued reciprocity that allowed Chase to use our Kentucky radioactive materials license in the State of Louisiana. Chase mobilized to the facility, inventoried the materials that remained on-site, and discovered that dry active wastes, radioactive compounds, sealed sources, contaminated lead shields, and liquid mixed waste were present. Chase used field instrumentation to make radionuclide specific evaluations where possible. In other cases, samples were taken and shipped off-site for radiological and/or chemical analysis.

Remedial activities included removing several countertops, disassembling a fume hood, and jack hammering out a 4,500 lb. concrete vault that exhibited residual contamination above the authorized release limits. The wastes from these activities were shipped to a licensed processing facility in Pennsylvania.

Chase conducted a Final Status Survey that was presented in the Decommissioning Plan submitted to LDEQ with the specific intention of terminating the facility's radioactive materials license. The survey methods described in the Plan were extracted from NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual," (MARSSIM), and provided a statistical basis to demonstrate that residual levels of radioactivity did not exceed a risk-based release criterion of 25 mrem per year.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Historical Site Assessment and Final Status Surveys of a University Hospital Research Complex**

**LOCATION: California**

**STATUS: September 2004**

**TOTAL PRICE: \$110,000**

Chase Environmental Group (Chase) was contracted to perform historical site assessments and final status surveys at a University hospital and research center with approximately 230,000 square feet of area. Nine buildings were in the scope of work for historical site assessment. After the assessment for the first phase, five have been surveyed so far. The university is operating on a strict schedule requiring Chase to plan, execute, and report the results of the historical site assessment in phases to allow the University to meet its campus development plan schedule. In one case, Chase had only 3 weeks to mobilize and perform the work. Chase developed the Historical Site Assessments, Final Status Survey Plans, and the accompanying health and safety plans to expedite the work safely. The Historical Site Assessments involved personnel interviews and reviews of historical documents dating back almost 50 years. The Final Status Survey Plans for the two phases thus far completed, were prepared by Chase and were approved by the State of California, Department of Health Services, Radiologic Health Branch (RHB).

The buildings were surveyed according to MARSSIM protocols using large area proportional counters and sodium iodide detectors. Chase personnel performed the low level analysis for tritium and Carbon-14 using University's liquid scintillation counters. Chase used laser measurement and alignment tools to set up the reference coordinate system that was accurate to one tenth of a foot for all areas surveyed. Due to the scheduling constraints, Chase personnel performed the fieldwork in 12-hour shifts, six days per week. There were no accidents or compromises in personnel safety. The Final Status Survey Reports prepared by Chase were approved by the RHB. The project phases awarded thus far were completed on time allowing the University to proceed with the campus development plan.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Packaging and Manifesting Radioactive and Mixed Waste for Transportation**

**LOCATION: Confidential**

**STATUS: Completed 2002**

**TOTAL PRICE: \$525,000**

Chase Environmental Group (Chase) was contracted by a company to characterize radioactive waste materials, track special nuclear materials inventories, prepare waste profiles for Envirocare of Utah, and to develop packaging strategies for cost effective and safe shipping. Chase personnel have provided these services for shipping nearly 4 million pounds of radioactively contaminated metals to the Envirocare of Utah, 250,000 of which originated at a Department of Energy Facility.

Chase also provided the “hands on” characterization services of on-site treatment, solidification, and encapsulation of radioactive sources for packaging, loading, placarding, and manifesting for subsequent radioactive and mixed waste shipments.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Decommissioning of a University's Neutron Generator Laboratory**

**LOCATION: Louisiana**

**STATUS: Completed March 2002**

**TOTAL PRICE: \$224,000**

Chase Environmental Group, Inc. (Chase) completed remedial activities and a final status survey to support license termination of an obsolete research laboratory. The project included disassembling the facility's fourteen MeV deuterium/tritium neutron generator and subsequently shipping the generator and associated support equipment to a licensed waste processing facility in Tennessee for volume reduction. Additionally, the laboratory was utilized as an interim storage location for other radioactive and mixed wastes. Chase personnel identified, segregated, and transferred this waste to appropriate handling facilities.

After removal of the laboratory's contents and prior to commencing the final survey, Chase personnel removed extensive tritium (H-3) and Cs-137 contamination from the laboratory's concrete surfaces. Personnel in full anti-contamination clothing and respirators located impacted areas and employed an aggressive decontamination campaign that included the use of jackhammers, scabbling equipment, and HEPA equipped vacuum cleaners.

Once remediation was complete, Chase performed a final status survey using the guidance provided in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The survey consisted of surface beta-gamma and alpha scans, systematic fixed and removable measurements, and a comprehensive program of collecting wet wipes to make evaluations regarding the presence of tritium.

Preliminary planning included developing a dose/risk based release criterion and acting as a liaison with regulatory authorities to reach an agreement upon an acceptable survey methodology. There was little available history regarding either the origin of the equipment or the experiments and operations conducted in the laboratory, so Chase conducted a detailed historical site assessment (HSA) that provided the foundation for the Final Status Survey Report.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Facility Decontamination and Ventilation System Demolition**

**LOCATION: Illinois**

**STATUS: Completed October 2000**

**TOTAL PRICE: \$ 91,000**

Chase Environmental Group, Inc. (Chase) assisted with the decommissioning process of a facility in Illinois. The building once housed a radiopharmaceutical and radioactive device manufacturing facility and was slated for license termination and subsequent re-sale. In the course of decommissioning activities, excessive levels of Am-241 contamination were encountered, mainly in the overhead areas and ventilation systems in a section of the plant that once produced radioactive foils.

Initially, Chase was contracted to attempt several non-aggressive decontamination approaches for the areas with elevated levels. Once it was determined that a foaming agent would be the most cost effective method for surface decontamination, the scope of the project was expanded and Chase was awarded the decontamination and confirmatory surveying work in accordance with a modification to the facility Decommissioning Plan.

While on site, Chase personnel removed a major portion of the facility's radioactively contaminated ventilation system. The work involved sectioning ductwork, controlling contamination, and working around other systems. Chase's personnel performed radiological characterization on materials removed from the building and shipped two intermodal shipping containers packaged with compactable and non-compactable trash for processing and subsequent disposal. Chase conducted site surveys utilizing hand-held alpha scintillation detectors to determine total surface activity levels. Loose contamination levels were determined by dry smear and subsequent sample counting on an alpha/beta sample counter.

Once the decontamination, surveys, and waste removal actions were completed, the Illinois Department of Nuclear Safety conducted confirmatory survey verification and certified the area free of excessive radioactive contamination.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: University Waste Station Decontamination and Decommissioning**

**LOCATION: California**

**STATUS: Completed August 2000**

**TOTAL PRICE: \$62,100**

Chase Environmental Group, Inc. (Chase) was contracted by a university to assist with the decommissioning process of a former waste consolidation facility. The building and surrounding area once housed a storage and disposal operation with a pour station for discharge of exempt quantities of radioactive liquids to city sewage.

Chase conducted final status surveys of the waste storage building and removed the concrete pour station and associated steel piping for disposal as LLRW. Additionally, Chase provided Health Physics oversight of soil sampling conducted in the vicinity by a third party.

The Final Status Survey consisted of performing surface radioactivity measurements and loose surface activity smear analysis for the presence of Sr-90 and H-3. The surveys also required Chase to dismantle a number of internal building fixtures, including ventilation and cabinetry.

The concrete pour station was cut from the surrounding concrete pad, and the piping was excavated from the underlying soil. All materials were placed in a B-25 box and staged for disposal by another university subcontractor.

Chase controlled personnel access and defined PPE requirements for work involving handling contaminated materials and soil samples. Chase personnel were responsible for maintaining the entry/egress control point as well as assisting exiting personnel with personnel monitoring activities.

Upon completion of on-site activities, Chase issued a final status survey report, and the facility was decommissioned.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Facility Decommissioning, Final Status Survey, and License Termination**

**LOCATION: Confidential**

**STATUS: Completed 2004**

**TOTAL PRICE: \$1,115,000**

Chase Environmental Group (Chase) was contracted to develop planning documents for closure of an 840 acre nuclear fuel fabrication facility. The facility had several process and storage buildings, waste water ponds, sanitary lagoons, an incinerator, and waste disposal areas. A comprehensive system of underground utilities and drains was located at the facility.

Chase has provided long-term planning and regulatory liaison services for the client since 1993. Since then, Chase has prepared the Radiological Characterization Report and the facility's Decommissioning Plan. Additionally, Chase has authored three Final Status Survey Plans in accordance with NUREG/CR-5849 and eight Final Status Survey Reports for submission to the U.S. Nuclear Regulatory Commission. Chase duties have also included quality assurance program support, radiological data analysis, groundwater plume modeling, writing and reviewing health and safety plans, ALARA committee participation, and radiological controls program support. To date, the decommissioning process has resulted in releasing approximately 700 acres of the site from U.S. Nuclear Regulatory Commission licensing control.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Decommissioning and Final Status Survey of a University Radioactive and Hazardous Waste Handling Facility/Waste Management Services**

**LOCATION: California**

**STATUS: Completed March 2002**

**TOTAL PRICE: \$285,000**

Chase Environmental Group (Chase) was contracted to perform decommissioning and final status survey activities at a university's central radioactive and hazardous waste handling facility. Chase conducted the project in two phases so that the critical path items would be completed by the project deadline. Chase developed the Final Status Survey Plan and the accompanying health and safety plans to expedite the work safely. The containerized waste storage yard and Waste Handling Facility were surveyed according to MARSSIM protocols and individual storage containers were surveyed for free release. The final status survey and decommissioning report prepared by Chase was received and approved by the regulatory agency with no comments. The first phase of the project was completed on time allowing the university to proceed with the campus development plan.

Chase mobilized its crew who surveyed and released almost 120 cubic yards of recyclables, scrap, and debris over a two-week period. Chase also surveyed and released several storage containers and mobile offices. These mobile office facilities were then removed and sent to various locations for disposition, including demolition at an offsite facility. Chase was responsible for disposition of all other items once they were surveyed and determined to meet the university radiological release criteria. The fixed price project was completed on time and within budget.

Chase also performed contracted radioactive waste management services for the University in March 2002 where our personnel sorted, surveyed, and dispositioned nearly 12,000 cubic feet of waste in various forms including animal carcasses, drummed wastes, cardboard boxes containing laboratory trash, and metal equipment components.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Characterization, Excavation, and Packaging of Laboratory Waste Disposed in a Settling Pond at a University Campus**

**LOCATION:** Iowa

**STATUS:** Completed December 2000

**TOTAL PRICE:** \$275,000

Chase Environmental Group, Inc. (Chase) was contracted to characterize, remediate, and survey a facility formerly used for the disposal of thorium contaminated laboratory debris originating from a closed laboratory. The characterization involved record reviews, employee interviews, radiological surveys, and subsurface investigation and contaminant thickness mapping and delineation, and a final status survey using MARSSIM protocols. Subsurface mapping involved using Chase's Geoprobe™ and remote radiation detectors.

Remediation involved confirmatory surveys and excavation delineation, directional radiation surveys to guide earthmoving equipment, sampling soils and debris, and radiation surveys of exposed surfaces. Multiple hazards existed at the facility including radiation, irregular working surfaces, open excavations, sharp debris, and unusually high heat indices. Approximately 1,500 tons of sloping soil overburden were removed to gain access to the contaminated material which had been deposited in sloping layers. Nearly 900 tons of contaminated soil and debris were removed and packaged in B-25 boxes. Confirmatory radiological analyses were performed to ensure that the levels measured in the soils remaining in the excavation were less than required radioactivity release concentrations. Chase backfilled the excavation with clean soils and then graded and seeded the slope. Chase performed the Final Status survey using the MARSSIM guidance.

Chase was contracted by the University to prepare and ship 225 bulk steel boxes of deregulated radioactive material to a hazardous waste landfill. Using radiological and chemical laboratory data, Chase prepared and submitted a waste profile on behalf of the University.

Package preparation involved weighing each package, securing box lids with steel strapping, and removing any previous labels or markings. Additionally, intrusive package inspections were performed by drilling a representative number of packages and verifying the absence of liquid. Threaded fasteners and sealant were used to restore package integrity. The finished packages were loaded onto forty-six separate flatbed trailers; as many as twelve shipments were performed daily. Chase completed hazardous waste manifests and other shipping paperwork on behalf of the University. All shipments were accomplished without incident.

# Project Summaries

## Radioactive Waste Management Services

**PROJECT NAME: Soil Treatment of Special Nuclear Material**

**LOCATION: Pennsylvania**

**STATUS: Completed October 2000**

**TOTAL PRICE: \$333,500**

Chase Environmental Group, Inc. (Chase) teamed with Alaron Corporation, a radioactive waste processor, to treat 1,230 packages of special nuclear material contaminated with waste. The waste consisted of DOE owned sludge in degraded 96 cubic foot steel boxes. The material had previously failed the disposal facility's paint filter test. To satisfy the receipt requirements of the disposal site, Chase induced a pozzolonic reaction to accomplish the treatment. First, the sludge was emptied into large steel bins engineered and fabricated by Chase specifically for the project. Then, lime kiln dust was added to the sludge and mixed with a track-hoe. The kiln dust bonded with the sludge and absorbed a significant portion of the water. The bonding/absorption in turn caused an exothermic reaction that drove off remaining moisture.

In conjunction with the mixing operation, treated waste was sampled and analyzed to evaluate the success of the processing efforts. At the request of the waste generator, the paint filter and moisture content tests used by the disposal facility were replicated in Chase's mobile lab. Satisfactory results were recorded in each instance.

The resultant product was packaged into gondola railcars. The original shipping containers were torch cut and layered with the waste. More than forty railcars were prepared in this manner and shipped successfully for disposal. Throughout the project, Chase's management staff acted as liaison between Alaron Corporation, the original waste generator, and the disposal facility. Chase's on-site responsibilities included managing all treatment activities, operating mixing equipment, and maintaining detailed records regarding waste disposition.

# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME: Remediation of Toluene-Affected Soil and Groundwater**

**LOCATION: Kentucky**

**STATUS: Completed April 2002**

**TOTAL PRICE: \$780,000**

Chase Environmental Group was contracted for the removal and closure of two 20,000-gallon heating oil tanks. Traces of toluene were encountered in the excavation pit upon removal of the heating oil tanks. Subsequent assessment identified extensive subsurface toluene contamination in an area immediately adjacent to the heating oil underground storage tank pit area.

Subsequent removal of toluene-affected soil uncovered a spent solvent recovery piping system that was once connected to a 10,000-gallon underground flow-through tank and a 20,000 gallon storage tank. Review of historical "as-built" plans provided details on the design and construction of the spent solvent recovery system. Residual toluene in the product piping system was removed by vacuum extraction and the accessible piping was removed. The remaining piping that ran under the concrete foundation of an adjoining warehouse was cut-off and closed in-place by filling with concrete. Toluene contamination was identified in the sandy fill materials of the former toluene underground storage tank pit. Field screening and Geoprobe sampling techniques were utilized to determine the potential extent of subsurface contamination. Approximately 700 cubic yards of toluene contaminated soil and fill materials were removed by excavation for packaging and transportation to a hazardous waste disposal facility.

Chase installed twelve temporary monitoring wells in perimeter areas surrounding the waste removal area in order to assess potential toluene contamination in groundwater outside of the excavation pit area. The temporary monitoring wells were sampled for volatile organic compounds. The depth to groundwater was measured in the temporary monitoring wells for determination of groundwater flow direction. No groundwater contamination was identified outside of the waste removal area. The waste removal excavation pit was back-filled with gravel. Toluene-affected pit water was remediated in-situ using a combination of enhanced bioremediation and dual-phase vacuum extraction remedial methods. Cleanup to the adopted cleanup levels for soil and toluene-affected excavation pit water – which was determined to be recharged by groundwater - was achieved within six months of the discovery of the subsurface toluene contamination.



# Project Summaries

## Hazardous & Special Waste Management Services

### **PROJECT NAME: Retail Gas Station Demolition, UST Removal & Soil Remediation**

**LOCATION: Kentucky**

**STATUS: Completed July 2004**

**TOTAL PRICE: \$400,000**

Chase Environmental Group, Inc. was responsible for the turn-key investigation, sampling UST closure, remediation, and building demolition of an extremely high traffic gas station undergoing complete demolition and rebuilding.

Chase performed an asbestos survey prior to demolition and prepared and submitted the proper notifications to the Kentucky Division of Air Quality. Approval to demolish the building was granted and the building and canopy were razed per project specifications.

Chase initiated a preliminary investigation of the UST pit to determine the presence of contamination resulting from previous releases. This was necessary due to the size of the UST system, its location in a high traffic area, and the necessity for a timely closure due to the new construction for the facility. A release was discovered and reported to the Kentucky Environmental Response Team. Subsequently Chase either initiated or was directed by the Kentucky Division of Waste Management UST Branch to advance a total of 52 borings to approximately 20 feet. This resulted in full plume delineation and a Corrective Action Plan was prepared as requested by the USTB.

The CAP included excavation and disposal of approximately 4000 tons of soil and the removal of any groundwater as it was encountered. Tank removal for seven tanks and excavation activities, including backfilling, were completed within 10 working days. The Closure Assessment Report was submitted to the Kentucky Division of Waste Management within 30 days and the site met the requirements outlined in 401 KAR 42:070 and is eligible for clean closure.



# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME: Demolition of former manufacturing facility**

**LOCATION: Kentucky**

**STATUS: Completed March, 2004**

**TOTAL PRICE: \$195,000**

Chase Environmental Group (Chase) was contracted to provide services including the demolition of a manufacturing facility, slab and parking areas. The building was approximately 165,000 SF and was constructed of metal, concrete and brick with steel girder supports. In addition to the demolition activities the following abatement/remediation activities were completed:

Indoor Air Monitoring—Conducted surveys for airborne, surface and subsurface contamination. Parameters measured included metals, volatiles, semi-volatiles, PCB, mercury.

Asbestos abatement—Asbestos containing materials (ACM) including pipe insulation, transite panels, floor tiles and mastic were evaluated and removed prior to demolition.

Chromium—There were chrome plating activities conducted at this facility. Concrete was removed and crushed on-site 2/0 and returned to the footprint. Approximately 350 tons were removed beneath the slab (contaminated with Hexavalent Chromium). Also, surplus chemicals, mercury switches, light ballasts and light tubes left onsite were removed, packaged and disposed prior to demolition.

Chase provided all permits, licenses and oversight to complete the project in less than 50% of the contract time.



# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME: Jet Crash Clean-Up**

**LOCATION: Tennessee**

**STATUS: Completed April 2004**

**TOTAL PRICE: \$185,000**

Chase Environmental Group (Chase) was contracted to provide contaminated soil and debris removal at the site of a military jet crash at a remote site.

Chase established a grid system in the remediation area. The remediation area consisted of three "zones". Zone One was approximately 75' x 250' and was considered to contain soil which had the highest probability of containing impacted soil. Zone Two was a fifty-foot wide border around Zone One. Zone Three was a 100' x 200' area north of Zone One, which contained soil that had a low probability of being impacted. Samples were obtained in opposite quadrants of the all grids using a flame ionization detector. Grids which contained field screening results above 50 ppm were excavated using tracked excavating equipment. Chase placed the material into a stockpile. After obtaining approval from the state, the waste soil was loaded in dump trucks and taken for disposal. The plane debris was loaded into roll-off containers for disposal. Debris removal was completed in Level C personal protective equipment due to the hazards associated with removal of carbon fibers contained in the plane pieces.

After each grid was excavated, additional field screening samples were obtained to verify that the remaining soil was beneath clean-up levels. When field screening was completed, Chase personnel obtained confirmatory samples and sent samples for volatile and petroleum hydrocarbon analyses. After the confirmatory results demonstrated that the levels in the soil were beneath the clean-up level, the area was backfilled with soil, topsoil and seeded and mulched.

The plane crash impacted a small stream that bisected Zone One. Chase personnel excavated the stream bank and placed rip-rap in the areas of remediation. Chase personnel also completed improvements to the property's access roads and improvements to surface drainage pathways.

Approximately 1000 tons of non-hazardous hydrocarbon impacted soil and plane debris were disposed.



# Project Summaries

## Specialty Services

**PROJECT NAME: Bioremediation of Aircraft Fire Training Area**

**LOCATION: Florida**

**STATUS: Completed September 2001**

**TOTAL PRICE: \$210,000**

Chase Environmental Group (Chase) was contracted to install and operate a Bio-Remediation system at the former Fire training Area located at the Naval Air Station. The system was designed to remediate the petroleum contamination in four existing pits. The site was immediately adjacent to an active runway.

The system included addition of nutrients in order to enhance existing microbial activity, addition of contaminate specific bacteria, measurement and control of operating parameters, and land farming to provide necessary levels of oxygen for biological activity.

A ground water pumping system was installed in order to control the moisture levels of the soil.

Approximately 4500 tons of soil impacted by the contaminants were treated as part of this project.

The bioremediation treatment occurred over an eight month timeframe. At the end of the time, the results from analyses completed on the soil indicated that the cleanup levels established by the Florida Department of Environmental Quality had been met.

# Project Summaries

## Specialty Services

### **PROJECT NAME: Remediation of Tetrachloroethylene contaminated Soil and Groundwater**

**LOCATION:** Kentucky

**STATUS:** Ongoing

**TOTAL PRICE:** \$150,000

Chase Environmental Group was contracted for the investigation and remediation of soil and groundwater at a dry cleaning facility. A groundwater assessment identified extensive subsurface Tetrachloroethylene contamination in an area immediately adjacent to the dry cleaning areas.

Chase installed six monitoring wells in order to assess potential tetrachloroethylene contamination. The monitoring wells were sampled for volatile organic compounds (VOCs). The depth to groundwater was measured in the monitoring wells for determination of groundwater flow direction.

**The Corrective Action Plan was implemented in two stages:**

#### **Stage 1 VAMPIRE™ Remediation**

Vacuum Assisted Multi-Phase Remediation Extraction (VAMPIRE®) is an innovative and cost effective remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (i.e. vapor, adsorbed, dissolved, and free phase) VOCs. VAMPIRE® simultaneously removes VOCs from both the vadose and saturated zones.

The VAMPIRE™ was used to remove the high concentrations of TCE prior to the injection of HRC.

Three 8-hour VAMPIRE™ events were performed resulting in the removal of 27 lbs of chlorinated compounds.

#### **Stage 2 Hydrogen Releasing Compound injection**

Hydrogen Releasing Compound is a product designed specifically for the **in-situ treatment of chlorinated solvent based contamination** in the groundwater environment. Hydrogen Releasing Compound is a viscous liquid that is pressure injected directly into the subsurface. Upon contact with water, Hydrogen Releasing Compound slowly hydrolyzes and is broken down by microbial action. During this process, lactic acid is released and utilized by microbes to produce hydrogen. The resulting hydrogen is then used in a microbially mediated process known as reductive dechlorination. This step-by-step biodegradation process (reductive dechlorination) reduces harmful contaminants into harmless end products.

Hydrogen Releasing Compound injection was used to complete the degradation of the chlorinated compounds to a acceptable levels.

40 lbs of Hydrogen Releasing Compound were injected into 25 locations in the area of the plume. Groundwater sampling and analysis is ongoing quarterly to determine the efficiency of the degradation.



# Project Summaries

## Specialty Services

**PROJECT NAME: Hydrogen Releasing Compound Injection  
Using Push Probe Equipment**

**LOCATION: Ohio**

**STATUS: Completed May 2004**

**TOTAL PRICE: \$105,000**

Chase Environmental Group (Chase) was contracted to provide injection of Hydrogen Releasing Compound, HRC-XTM for remediation of Trichlorethylene (TCE) contamination in groundwater. The Hydrogen Releasing Compound was used for the enhanced degradation of TCE in groundwater. HRC-X complexes with the contaminant and reduces the Trichlorethylene to Dichlorethylene, Vinyl Chlorid then Methane.

The TCE was being transported from sources at the facility by groundwater flow. A barrier wall had been previously constructed to prevent off-site migration of the groundwater contamination, however, the groundwater flow was circumventing the barrier. The HRC-X was selected for in-situ remediation of the TCE contamination. Parallel rows of injection points were off-set to maximize the injection areas. Injection area one was approximately 900 feet long and parallel to the barrier wall. The second injection area was about 150 feet long and diagonal to the west end of the barrier wall. The third injection area was about 150 feet long and located on the down gradient side of the barrier wall where TCE had escaped through the barrier. Over 190 injections were completed to a depth of forty feet or bedrock refusal. A total of 10,800 pounds of HRC-X compound was injected for the project. Geoprobe™ and PowerProbe™ equipment was used to advance the injection rods. The HRC-X was heated to a temperature in excess of 110 degrees Fahrenheit to reduce the material viscosity and was injected into the groundwater aquifer with high pressure pumps. Upon completion of the injection, the holes were plugged and marked for surveying.

# Project Summaries

## Specialty Services

**PROJECT NAME: Groundwater Treatment System Improvements/Groundwater Collection Trench Construction**

**LOCATION: Kentucky**

**STATUS: Completed November 2000**

**TOTAL PRICE: \$165,000**

Chase Environmental Group (Chase) was contracted to install pumps and provide system improvements, including software upgrades to an existing groundwater treatment system located at former lighting manufacturing facility. Chase also installed a groundwater collection trench measuring approximately 600 feet in length. The system was designed to facilitate the extraction, treatment and discharge of groundwater from on-site shallow wells. The extracted groundwater is treated by a counter-current, shallow tray, air-stripping unit. The groundwater is contaminated with trichloroethene (TCE) and its degradation products.

Modification of the existing system included connecting influent and effluent piping, providing electrical power, and connecting sensor and control wiring to the existing panel. The system is controlled by ISACC (Intelligent System for Automatic Control and Communication). Chase completed an upgrade to this system and installed mechanical and digital flow meters to the influent lines as well as a pressure regulator to control air pressure to the wellhead.

Chase completed constructed of a 600-foot long groundwater collection trench. The depth of this trench was between twelve and fifteen feet deep and was excavated into bedrock. The trench was lined with a 20-mil high density polyethylene (HDPE) sheeting on the bottom and downgradient side of the trench. After the lining was installed, drainage pipe, filter fabric and pea gravel were installed to facilitate drainage towards a sump. A 1,000 gallon HDPE tank was installed in the sump area. A pneumatic twin diaphragm pump was installed in the tank. A high level alarm was installed in the sump and integrated into the ISAAC system which will notify the system in the event of sump pump failure.

Approximately 600 tons of soil impacted by the contaminants were disposed of as special waste as part of this project.



# Project Summaries

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Approximately 600 tons of soil impacted by the contaminants were disposed of as special waste as part of this project.



# Project Summaries

## Specialty Services

**PROJECT NAME: Maysville Community College Abatement**

**LOCATION: Kentucky**

**STATUS: Completed July 2002**

**TOTAL PRICE: \$285,000**

Chase Environmental Group (Chase) provided asbestos, mold abatement and demolition services at the KCTCS Maysville Community College. The complete demolition, abatement and renovation were conducted over summer break in preparation of the students return.

Interior Demolition: Ceiling panels, ductwork, water lines, floor coverings, drywall, air handling units, heating units were removed.

Asbestos abatement—Asbestos containing materials (ACM) encountered during the demolition activities were removed and disposed.

Mold abatement—After interior demolition activities were completed, mold contamination was removed by HEPA vacuum, TSP application, wiping and rinsing all interior surfaces of the building. "Enviroshield" mold inhibiting paint / encapsulant was applied in all areas above the drop ceilings and testing was performed to assure removal was complete.

Chase's portion of the project was completed in 75% of the allowed contract time at 88% of the proposed estimate.



# Project Summaries

## Specialty Services

**PROJECT NAME: PCB, Cadmium, and Lead Based Paint Removal**

**LOCATION: Indiana**

**STATUS: Completed 2002**

**TOTAL PRICE: \$480,000**

Chase Environmental Group, Inc. was responsible for the turn-key removal of approximately 6,000 square feet of flaking paint in the air return plenum of a defense remanufacturing facility in Indianapolis.

Chase prepared the work plan, and prosecuted the work during back shift hours so that there would not be a disruption of factory operations. The work was performed in the plenum approximately 16 feet above the factory floor. Chase installed fall protection rigging and a solid floor, a ceiling access portal, a complete negative air containment, a 200 amp temporary electrical service, and job lighting in preparation for the paint and rust removal. The containment entailed operating articulating lifts in very close proximity to closely spaced and sophisticated computer controlled milling equipment on the factory floor.

Once the containment was erected and certified, Chase used dry ice blasting and hand scraping to remove loose rust and paint. Following the paint removal, Chase prepared the surfaces for painting using detergent wipes. All surfaces were then primed and painted. All loose debris was retrieved and the top surface of the ceiling tiles were vacuumed using HEPA equipped vacuum cleaners. All wastes were bagged and shipped to a facility permitted to receive PCB contaminated materials.

The entire project, including a change order that increased the scope of the project by 20 percent, was performed 3 weeks ahead of the schedule promised for the base bid.



# Project Summaries

## Specialty Services

**PROJECT NAME: CERCLA Landfill Cap Repairs**

**LOCATION: Kentucky**

**STATUS: On-going**

**TOTAL PRICE: \$550,000**

Chase Environmental Group (Chase) was contracted to repair existing damage to landfill cap from erosion. Site work including clearing, grubbing, and the removal of surface debris in preparation of the landfill surface for installation of concrete infilled Geocells, geosynthetic liners and HDPE liner systems. The project included detailed surveys and excavating damaged areas prior to installing the improved drainage channels.

The project involved identifying, testing, and transporting to the Superfund Site, suitable clay and topsoil materials that could be constructed into a low permeability cap with sufficient root zone thickness to meet the construction quality assurance and cap design documents. Chase and subcontractor personnel used company-owned equipment to prepare the materials in accordance with the design specification, compacting and contouring existing and borrow material to grade specifications, placing erosion matting (Enka 7010), and placing either concrete or infilled geocells as final layers.



# Project Summaries

## Specialty Services

**PROJECT NAME: Removal of Elemental Mercury from Laboratory Drain Traps**

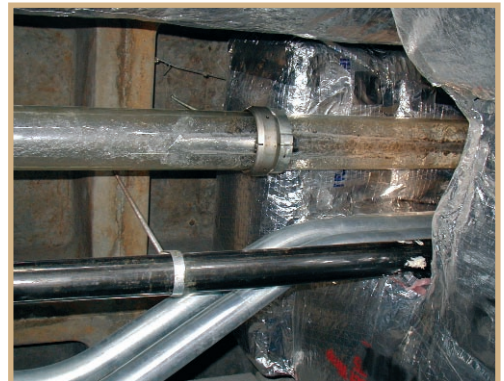
**LOCATION: Kentucky**

**STATUS: Completed July 2001**

**TOTAL PRICE: \$147,000**

Chase Environmental Group (Chase) was contracted to remove elemental mercury from drain traps for several laboratories at a university. Chase inspected, cleaned, and monitored over 600 drains in less than one week. Chase personnel worked closely with university personnel to ensure that routine classroom activities and vital experiments were not disrupted during the cleaning. In addition to removing the elemental mercury, Chase removed over one drum of small debris, glassware, sharps, and other material from the drains. The project involved detailed performance monitoring and pre- and post-project monitoring of university effluents. Post-project monitoring revealed that mercury levels had dropped dramatically due to the remediation.

Later, Chase was contracted to remove mercury contamination from the acid drain line system. Chase fabricated a water treatment system and installed it to manage the water generated from the process. Then Chase personnel cleaned the glass piping system using high pressure jetting, flushing out mercury, sand, carbon, and biomatter. Drains that had been previously blocked were restored to "as new" operating condition. Materials that were flushed out of the system were collected and packaged for disposal.



# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME:**  
**Excavation, Concrete Demolition,  
UST Removal including Transportation,  
and Disposal of Soils contaminated  
with petroleum hydrocarbons**

**LOCATION:** *Louisville, KY*

**STATUS:** *Completed 01/15/02*

**COST:** *\$2,500,000*

**CLIENT:** *Sullivan Cozart  
P.O. Box 953  
Louisville, KY 40201  
Dan Polston • 502-584-4213*



**REGULATORY BASIS  
(CERCLA, RCRA, etc.):** *RCRA, Kentucky UST Regulations, OSHA  
Contaminants:*

- **Chemical:** *Hydrocarbons*
- **Radiological (including isotopes and assay):** *None*

Work Description – Chase Environmental Group (Chase) was contracted for the removal of three UST's, excavation, transportation and disposal of all contaminated materials, the treatment of impacted groundwater and the restoration of the excavated footprint back to original grade.

The three UST's consisted of (2) 30,000 gallon and (1) 15,000 gallon steel lined concrete tanks, which were installed in the 1940's. The excavation footprint necessary to remove the tanks and the contamination plume was approximately 300' x 65' x 42 ft deep. An auger cast pile shoring system was installed to a depth of 60' around the entire footprint to provide wall stability during excavation. Due to the extent of contamination, the excavation depth went approximately 15' below the groundwater table. Once the contaminated soils were removed Chase employed a mobile oil recovery system and a mobile groundwater treatment system to clean the impacted groundwater to required limits.

Two underground concrete vaults approximately 35,000 gallons in size were uncovered during excavation activities. These vaults along with an underground coal silo, three foot thick concrete slab, foundation footings and coal conveyor system were demolished and the concrete and reinforcing steel disposed.

Over the course of the project Chase excavated and disposed of approximately 40,000 tons of contaminated soil and debris, recovered approximately 30,000 gallons of free product from the water table, treated approximately 1.3 million gallons of water and placed approximately 28,000 cubic yards of backfill material to required compaction specifications.

The project was completed in nine months, well within the contractual timeframe, and at a cost which was under the client's budgeted amount.

# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME: Soil Source Removal, Various Sites Former Navy Facility**

**LOCATION: Kentucky**

**STATUS: Completed June 2003**

**TOTAL PRICE: \$1,865,418**

Chase Environmental Group (Chase) provided removal of contaminated soil and groundwater from various SWMU's. Soil and contaminated media removal of approximately 6900 tons, 18,000 gallons of water and 350 tons non-hazardous concrete slab. The project required excavation within and under existing buildings and excavation around existing structures. Work included removal and replacement of existing structures, construction of new overhead pipe tower, installation of piers for support of a wall footer, removal of 10 inch concrete slab and temporary and permanent relocation of utilizes. Additional work included removal and reinstallation of machines and equipment, backfilling and replacement of concrete slab. Other work included collection of environmental samples for soil and groundwater samples using Geoprobe® direct push equipment and injection of Hydrogen releasing compounds for enhanced degradation of TCE in groundwater. Upon completion CADD drawings of excavation areas were provided. Waste characterization and disposal was provided for a soil, contaminated media, groundwater and concrete slab.

This project required a short completion schedule of 60 calendar days and was completed on schedule and under budget.

Waste generated during the project included approximately 1700 tons of hazardous waste solids, 22,000 gallons hazardous waste liquids and 152 tons non-hazardous solids.

Change Orders included foundation shoring to excavate under building foundation, additional water disposal and cleaning of two pits.

# Project Summaries

## Hazardous & Special Waste Management Services

**PROJECT NAME: Hazardous Waste Remediation**

**LOCATION: Tern Island, HI**

**STATUS: Completed November 2004**

**TOTAL PRICE: \$2,534,891**

Chase Environmental Group (Chase) was contracted to provide contaminated soil removal at an United States Fish and Wildlife Service (USFWS) Nature Preserve located in the Hawaiian Islands National Wildlife Refuge. The site had been the former location of a LORAN navigation station operated by the US Coast Guard until the mid 1960's.

This project was complicated due to several factors. The area excavated was located on a coral atoll located approximately 450 miles northwest of Honolulu, Hawaii. The site is managed by the USFWS and is home to several threatened and endangered species. The area to be remediated was located adjacent to the Pacific Ocean, which limited equipment mobility and access.

Chase established a grid system in the remediation area utilizing coordinates established during previous site investigations. Each grid was excavated using tracked excavating equipment. Chase placed the material into DOT approved soil bags and transported it out of the affected area using an all-terrain forklift. The bags were weighed and placed into cargo containers, which Chase then loaded onto a small lightering barge. The lightering barge transported the containers to a larger barge anchored approximately one mile offshore. The containers were transferred to the larger barge using a crane. The cargo containers were shipped to Oregon for disposal.

The material excavated contained a substantial amount of debris which consisted of concrete, metal grates, glass, machine parts, metal pipes, truck axles, steel beams, and rebar. This material was segregated by hand or using the excavator and placed into separate cargo containers.

After each grid was excavated, a Chase technician obtained confirmatory samples and completed field immunoassay testing using the SDI Rapid Assay PCB test kit. Over 800 tests were completed.

A total of 1690 CY of non-hazardous PCB soils were disposed. There were a total of six-55 gallon drums of capacitors, transformers and batteries, which were disposed of as hazardous waste and eight drums of soil which was disposed of as TSCA waste. There were eight cargo containers of debris disposed.

