

# **The Chamberlain Group, Ltd.**

**A Service Disabled Veteran Owned**

**Small Business**

**U.S. SBA Region III  
Small Business Subcontractor of the Year, 2000**

## STATEMENT *Of* QUALIFICATIONS

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## **INTRODUCTION**

The Chamberlain Group, Ltd. (Chamberlain) is a Service Disabled Veteran Owned and Controlled small business established in 1997 with headquarters located in Lynchburg, Virginia, and is registered as a corporation in the Commonwealth of Virginia. Chamberlain has three strategically placed offices and is currently conducting business in Virginia, Ohio, California, Georgia, Washington D.C. and South Carolina. In addition, Chamberlain has performed work for customers in Canada and the European Union.

The primary business areas of Chamberlain are Government project management, project and systems engineering; nuclear decommissioning and decontamination planning and execution; and nuclear Low Level, Transuranic and mixed waste operations including treatment technologies; safe and secure storage systems; professional staff augmentation, technology development and deployment and Value Management - Engineering support.

As a result of Chamberlain's pursuit of its' primary areas, Chamberlain has directly supported the Ohio Field Office's Technology Deployment program servicing Ashtabula, Mound, Fernald, Battelle West Jefferson and West Valley. Our technology program management role has allowed Chamberlain to oversee numerous D&D technologies demonstrations, interface directly with DOE Headquarters (EM) on technology needs and the cost benefits derived from implementing the technologies.

### **Chamberlain is a recognized performer and innovator:**

Nominated for U.S. Small Business Administration (SBA) Small Business of the Year in 1998

Received the U.S. SBA's "Administrator's Award for Excellence" Certificate in 1999 and 2000

Received the U.S. SBA Small Business Subcontractor of the Year for 2000 for Region III (Virginia, West Virginia, Pennsylvania, Delaware, Maryland and District of Columbia)

Received U.S. Department of Energy's National Pollution Prevention Waste Minimization Award in 2000 for Integrated Planning and Design of Concrete Crushing in Ohio

Received U.S. Department of Energy's National Pollution Prevention Waste Minimization Runner-up Award in 2001 for Bartered Services in Ohio

Received U.S. Department of Energy's National Pollution Prevention Waste Minimization Award in 2002 for Return on Investment for Nochar Technology Deployments

## **TECHNICAL AND ENGINEERING SUPPORT SERVICES**

Chamberlain has a diverse and comprehensive background in nuclear facility operations, Authorization Basis hazards analysis and document composition; radioactive materials processing, waste handling and all phases of the decommissioning process for all types of facilities. Through our personnel and ongoing projects involving waste management, D&D engineering (DOE, NRC and NRC Agreement States) and project management, we have been involved in all aspects of the planning and decommissioning of multiple site restoration and license termination projects.

While performing contracts in direct support of DOE prime contractors, Chamberlain has been involved with the implementation and execution of Integrated Safety Management Programs; construction activities; Legacy Mixed Waste project (planning, budgeting, execution, characterization and waste profiling); Excess Chemicals project; Large-Scale Technology Demonstration & Deployment Programs; D&D Waste Management; Pollution Prevention; waste minimization; Transuranic Waste movements and treatment; revision of the Mound Transportation BIO; project planning and execution of Waste Management projects in nuclear facilities; shipment of mixed wastes to off-site TSD facilities; project lead for Radiography Source Removal and disposition; and numerous other high-tempo/high risk operations.

Chamberlain provides a full range of technical and engineering support services. The following are descriptions of some of our operations, technical and engineering support services and highlights of Chamberlain's recent experience and accomplishments in each area.

## **Nuclear Decontamination and Decommissioning (D&D) baseline, work planning and execution**

The Chamberlain Group has been involved in the nuclear D&D community within the Department of Energy, Nuclear Regulatory Commission and Agreement States as corporate direct contract experience. Our principal owner's personal experience also encompasses Department of Defense and most other Federal Agencies. Our experiences cross all technical regimes, Baseline estimates, work planning and health physics planning, job execution (in a DOE union environment), waste profiling and packaging (low level radioactive waste (LLW), mixed LLW, TRU (CH), TRU (RH) and all other aspects of D&D projects.

**Battelle Columbus** – Provided management and technical supervisory personnel (including Health, Safety and Environmental Affairs Manager, Radiological Technical Support Manager, Project Managers, Engineering Manager, QA Manager, D&D Superintendent and Scheduler) to augment the Battelle Memorial Institute D&D work, which included removing material and decontaminating and demolishing three West Jefferson buildings (JN-1, Hot Cell Facility; JN-2, Critical Assembly Building; and JN-3, Reactor Building) previously used for radioactive material research activities, along with external areas associated with the buildings.

**Battelle Columbus** – Teamed with Barge, Waggoner Sumner and Canon Architects Awarded a Task Order Agreement for A/E and D&D Planning. Accomplishments include:

- Provided a plan and cost estimate for dismantling a fuel pool / hot cell building.

- Developed and submitted the first comprehensive cost estimate and schedule in 2001.

- Reviewed the structural adequacy of the JN-3 building for temporary storage of TRU waste in 2002.

- Reviewed all baseline activities and provided recommendations for additional engineering support in 2001.

- Submitted recommendations for disposition and resolution of the Challenge Team's baseline review comments and observations in 2001.

- Designed and supervised construction NRC approved Remote Handled TRU Storage area

- Working with the WIPP, wrote RH 72B - RH TRU cask handling procedures.

*Chamberlain Group Statement of Qualifications*

**Mound** – Designed project and Project Managed site union personnel removing 22 Plutonium - highly contaminated glove boxes, and the Plutonium Acid Recovery System. Estimated to contain 20 curies of Plutonium.

**Mound** – Part of team that performed the Mound Building 38 (Plutonium Facility) and a major stack demolition less than 150 feet from the site boundary and the civilian population. Provided Project Management and Waste Management support and plan & procedure development for this plutonium-contaminated facility.

**BWXT Parks Plutonium Facility** – decommissioning planning.

**Maine Yankee** – D&D planning combined with waste management services.

**McDermott Technologies' Alliance Research Center** – prepared Decommissioning Funding Plan and Cost Estimate and Project Execution Plan for submittal to regulators.

**Corporate Personnel experience** - over 100 field projects for Department of Defense Radwaste Management.



*Operations in Permacon™ within Chamberlain Group Designed Facility*

*Chamberlain Group designed - high hydrogen environment- filter insertion tool*

## **Waste Operations Management**

DOE Closure Site - legacy mixed waste team leader, completed ahead of schedule under budget; achieved stretch milestone for achievement.

DOE Closure Site - completed all mixed waste Site Treatment Plan target dates ahead of schedule.

DOE Closure Site – Designed, constructed and placed into operations a waste operations and volume reduction facility. Project was completed ahead of schedule and under budget.



Maine Yankee decommissioning – As part of the winning team - developed Waste Management Plan in support of Stone & Webster.

Battelle Columbus Closure Project – Designed and Supervised construction of NRC approved Remote Handled TRU storage Pad

Rocky Flats – Introduced Nochar™ technology to Rocky Flats to solidify highly contaminated TRU organics and hydrocarbons – the technology became the baseline technology for all TRU liquid wastes.

LANL – Introduced Nochar™ technology for solidification of TRU Level organics, hydrocarbons, acids and bases.

## **Waste Characterization/Profiling**

DOE Closure Site developed and contract administered two Basic Ordering Agreements for Non-intrusive gamma spectroscopy services. This was a key element to meeting Building 38 (Plutonium Facility) exit schedule and several other waste management milestones. Cadmium blades, orphan sources, LLW containers, and protactinium were transferred to ORNL.

Mound – prepared, submitted, and obtained acceptance of the first Mound waste profiles to NTS for several Nochar™ solidified waste streams that were initially RCRA-characteristic liquid mixed waste.

Mound – reclassified coter concentrate (A Site Treatment Plan regulated mixed waste stream) as 11e(2) exempt source material, sent waste for disposal.

### **TRU waste and program operations**

Chamberlain has a diverse and comprehensive background in nuclear and mixed waste operations and treatment technologies, including the following highlighted areas involving the National TRU Program and experience directly related to individual DOE sites' TRU waste operations:

Member of WGI expert team, which provided WIPP-related consulting services to the DMJM H+N TRUM project team at Hanford for the treatment and eventual disposal of TRU sludge at the WIPP;

Member of team that drafted a RCRA Class III permit modification to the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP);

Co-Authored the DOE complex-wide Basis for Interim Operations (BIO) for the WIPP mobile characterization equipment as part of a WIPP expert team under DOE EM-5;

Provided stabilization technology and supervision to solidify highly contaminated TRU, PCB oils;

Participated in Value Engineering Study to develop TRU – CH waste alternatives for stranded TRU waste at Mound. The alternatives which were developed were used to provide support to the employment of the OHOX rail car;

Designed the process for characterization, removal and packaging of 22 TRU ( 22 curies Pu) level glove boxes. This was the first time that in-situ gamma spectroscopy was used at Mound for highly contaminated equipment;

Participated in Ohio field office initiative to utilize pre-manufactured RH TRU temporary storage systems. This was a direct outcropping from the VE study for Mound TRU Alternatives;

Designed, supervised the construction and placed into operation Consolidated Waste Processing Facility at Mound – the facility was later utilized to characterize and process TRU level soils and other highly contaminated waste streams;

*Chamberlain Group Statement of Qualifications*

Designed and supervised construction of RH TRU storage pad for Battelle. The pad and containment walls were designed to provide security and protect the public from fence line exposure. The pad and walls were licensed approved by NRC;

Designed layout and implemented the use of pre-manufactured RH Storage systems to temporarily store RH TRU while awaiting shipment

Wrote RH 72B liner and cask loading procedures with WIPP personnel to be employed at the West Jefferson Site. Two RH 72B liners were successfully loaded and are currently at West Jefferson Site awaiting transport to Hanford; and

Wrote plans and supervised implementation of loading of 10-160B casks with RH TRU at the West Jefferson site.

Team Member for TRU Shield™ lead shielded containers BOA with WIPP Value \$30M – 5 year contract





## **Waste Minimization/Pollution Prevention**

DOE Ohio Field Office winner of DOE National Awards in 2000, 2001, and 2002 for cost savings work and pollution prevention activities in Ohio region.

Rocky Flats – sponsored by DOE-EM to conduct Pollution Prevention assessment at Rocky Flats which resulted in assisting RFET's with problematic TRU oil waste stream.

DOE Ohio Field Office – managed the procurement of a \$750,000 concrete crusher that was excess equipment at Hanford, for the price of shipping. In addition, relocated the crusher to ETTP and avoided \$1 M expenditure for a crusher to support ETTP.

Ohio Field Office – designed and conducted annual P2 conference and meetings

Oak Ridge – Assisted DOE National Metals Recycle Center (NMR) and BWXT Y-12 to evaluate approaches for removal and reuse of excess equipment and materials from three buildings at Y-12.

University of California at Berkeley: Assisted NMR in evaluating re-use of concrete and stainless steel magnet components in the decommissioning of the Bevatron.



## **Systems Engineering**

Mound – designed and placed into commission a negative pressure LLW Volume Reduction Facility. Project required 6 months from design initiation until ready to operate.

Mound – designed on-line NOCHAR oil solidification process using off the shelf components.

Mound – designed and constructed portable glove box like containment for treatment of small quantity materials.

Hanford – TRU Waste Analysis and System Engineering support for DMJM/WGI for TRU tank waste treatment systems

Waste Control Specialists – Direct support of solidification of legacy highly tritiated oils (1000 curies per liter) which had separated from other absorbents. Called for systems integration for air scrubbing, glove box adaptation, air monitoring etc. Coordinated support of National Labs to complete the project.

## **Engineering Design and Integration**

Savannah River Site - Provided PDS Design Engineering support to Teledyne Brown Engineering for the performance of the Westinghouse Savannah River Company (WSRC) Americium/Curium (Am/Cm) Vitrification System Program at the U.S. Department of Energy's Savannah River Site.

## **Technology Demonstrations and/or Development**

DOE Ohio Field Office – Direct support to the Ohio Field Office Technology program for seven years. During this period Chamberlain Group prepared, submitted and project managed numerous technical assistance requests, technology demonstrations and deployments.

Mound – Provided all support engineering and technology demonstration equipment and personnel to support the program across the five Ohio Field office sites. Areas which are supported are:

Closure technologies D&D, Soils remediation, regulatory frameworks compliance, dose rate modeling, long-term stewardship etc.

Mound – Implemented a new stabilization technology for the treatment of TRU PCB oils; completed treatment.

## **Low-Level Radioactive Waste Volume Reduction Services**

Mound – designed and placed into commission the LLW Volume Reduction Facility.

Personnel experience – Operated Department of Defense radwaste volume reduction facility; over 100 projects using numerous technologies; performed commercial volume reductions in support of commercial power plant decommissioning.

Direct support of DOE Headquarters Technical Assistance Program as “Senior Technical Expert” in support of Volume Reduction of D&D Waste Streams at K-25 and Fernald

Direct Support DOE Headquarters Technical Assistance Program as “Senior Technical Expert” for the volume reduction and waste minimization efforts at the “silos removal”, and “railhead removal” projects.

## **Program and Projects Controls**

Savannah River Site – performed a reassessment of the project controls for the Tritium Extraction Facility (TEF) program for the U.S Department of Energy’s Savannah River Operations Office.

Battelle Columbus – provided the complete staff for all project schedule and cost accounting.

DOE Mound – Developed baselines and completed (22) Glove box, acid recovery system, the complete building and stacks removals. Projects were completed within the projected baselines by using internal resources to remove the glove box systems and a commercial team for the building and stack removals on a fixed price contract.

## PROJECT EXPERIENCE DIRECTLY RELATED TO D&D

The projects described below demonstrate a partial listing of Chamberlain's experience in performing D&D projects and tasks. The projects listed do not include numerous small size high-risk projects such as 22 plutonium glove box removals with over 20 curies of Plutonium. In addition, many of our projects were conducted using DOE site union labor.

Chamberlain also has a tremendous safety record. Since its establishment, Chamberlain has never had a lost time accident, and there have not been any lost time accidents associated with any activities on any project which Chamberlain has had a management role or planning or procedural preparation responsibility.

### 1. Battelle Columbus Laboratories Decommissioning Project (BCLDP)

Client/Customer: Battelle Memorial Institute for US DOE  
Place of Performance: Columbus, Ohio  
Period of Performance: 10/02 – 11 /03  
Contact Person/Reference: N. Joseph Gantos, Battelle Decommissioning Mgr (614) 424-4961

**Project Description:** Provided management and technical supervisory personnel (including Health, Safety and Environmental Affairs Manager, Radiological Technical Support Manager, Project Managers, Engineering Manager, QA Manager, D&D Superintendent and Scheduler) to augment the Current D&D work involving removing material from and decontaminating and decommissioning three West Jefferson buildings (JN-1, Hot Cell Facility; JN-2, Critical Assembly Building; and JN-3, Reactor Building) previously used for radioactive material research activities, along with the related external areas associated with the buildings.

Building JN-1, the Hot Cell Building, was the oldest and most highly contaminated building in the Nuclear Sciences area. This building began operation in 1955 and was used for nuclear research activities, including examinations and evaluations of power and research reactor fuels; post-irradiation examination of fissile control rod, source, and structural materials and components; and examinations of irradiation surveillance capsules. In addition, the building was the site of radiation source encapsulation, and physical and mechanical property studies of irradiated materials and structures



## *Chamberlain Group Statement of Qualifications*

Building contamination consisted of fission products, activation products, uranium (natural, enriched, depleted), thorium, cobalt-60, carbon-14, and a few other individual nuclides.

*Picture West Jefferson Site (JN-1 is the largest building, near the center)*

Many of the highly contaminated hot cells had already undergone material and utility removal and gross decontamination. Several areas were undergoing those processes. The High Energy Cell had been used the previous two years for sorting, segregating, characterizing, and packaging transuranic (TRU) waste and had been re-contaminated as a result of those activities. The entire building was undergoing gross decontamination, residual contamination was to be fixed using appropriate coating materials, and disassembled and disposed of as low level radioactive waste.

Building JN-2 was used for critical assembly experiments, direct energy conversion experiments, experiment assembly, special nuclear material handling, and plutonium research activities. Active nuclear experimentation was terminated in 1970. Since then it was used to house the Radioanalytical Laboratory and administrative offices. This building was mostly clean, however, there were contaminated areas to be decontaminated and potentially contaminated drain lines to be removed. Ultimately, the building was to be demolished and disposed of as clean waste.

Building JN-3 contained the Battelle Research Reactor that was in operation from 1956 until 1974. The mechanical components of the reactor were removed and disposed of in the late 1970s. Since that time, the building was used for short-term waste storage and material handling. Decontamination of this building was essentially completed, with the exception of pipes embedded in concrete, a contaminated structural I-beam, and underground drain lines. Ultimately, this building was to be demolished and disposed of as clean waste.

Any contaminated soils on the site would be excavated and disposed of and contaminated drain lines and structures also disposed. Many of the remaining utilities and structures were to be removed as part of external area remediation. Contaminated filter beds were being remediated, on an experimental basis, using an in-situ soil washing technology. However, excavation and refill were expected to be required, depending on the success of the new technology.

The goal of the above-mentioned activities was to reduce contamination levels to less than free-release limits as approved by the NRC so as to allow Battelle to use the facilities and grounds without radiological restrictions.

## **2. D&D Planning and Estimating at Battelle Columbus**

Client/Customer: Battelle Memorial Institute for US DOE  
Place of Performance: Columbus, Ohio  
Period of Performance: 3/01 – 9/02  
Contact Person/Reference: Michael Darnell, Battelle Deputy Decommissioning  
Mgr (614) 424-3074

**Project Description:** Chamberlain teamed with another company to provide an evaluation of the best approach and cost for dismantling JN-1, a radiologically contaminated building at Battelle's West Jefferson facility near Columbus, Ohio. Chamberlain provided an independent cost estimate for use by DOE in its overall budget to the US Congress for the project. As a first step, the work scope and boundary assumptions for the estimate were written down and agreed upon. Then a work breakdown structure that listed each major step of the work scope was created, and a cost estimate for each step was made. The costs were totaled and a written report submitted. This report was useful in DOE and Battelle agreeing on the budget for dismantling the building. In addition, Chamberlain assisted project management in strategic planning and baseline cost verification activities for the entire project.

## **3. Mound Building 38 D&D**

Client/Customer: B&W of Ohio, Inc.  
Place of Performance: Miamisburg, Ohio  
Period of Performance: 5/02 – 2/03  
Contact Person/Reference: Tim Hodgens, PM, RWE NUKEM, Columbia, SC  
(803) 315-6482

**Project Description:** Part of team that performed the Mound Building 38 D&D with URS Corporation, Cleveland Wrecking and NUKEM Nuclear Technologies. Provided Project Management and Waste Management support and plan & procedure development.

Building 38 was originally designed to be a radiochemical processing facility for Pu-238, used in the oxide form as a fuel for RTGs. Building design began in 1965, and construction was completed in December 1967. The assembly and disassembly operations associated with manufacturing Pu-238 heat source modules for RTGs was the primary operation conducted in Building 38. Other programs conducted in Building 38 included the assembly of three types of heat sources and two types of RTGs and general-purpose radionuclide handling. RTG and heat source assembly and disassembly were supported in the F-line operations and involved the Five-watt, High Power Generator Mod 3 and General Purpose Heat Sources (GPHS) programs.

#### **4. Mound Mixed Waste Streams and Other Waste Projects**

Client/Customer: B&W of Ohio, Inc. / CH2M Hill Mound  
Place of Performance: Miamisburg, Ohio  
Period of Performance: 10/97 – 9/03  
Contact Person/Reference: Jim Fontaine, Waste Management, CH2M Hill (937) 865 3189

**Project Description:** Removal, treatment and disposal of highly contaminated mixed waste streams that are subject to regulatory enforceable milestones. Program was behind schedule when Chamberlain assumed management of the program. The program was accelerated, and all milestones that had been in jeopardy were accomplished on time or ahead of schedule and under budget. In addition, Chamberlain was first in the nation to use the DOE Broad Spectrum Treatment Contract that has generated site savings of up to 66%. The total projected target cost was \$1.6M, with a final cost of approximately \$1.0M. These efforts resulted in Chamberlain receiving the U.S. Small Business Administration's "Administrator's Award for Excellence" Certificate in 1999 and 2000, and SBA Region III Small Business Subcontractor of the Year in 2000.

Chamberlain also managed the project to remove plutonium-contaminated glove boxes (contained 22 Ci of Pu) from Building 38's A-line using union labor and participated in plans for the removal of the remainder of the building.

Chamberlain also led the project to relocate and start operations of a DOE-owned concrete crusher from the Hanford site to Mound and start volume reduction of building material waste. In the startup at Mound, Chamberlain was involved in project efforts including waste materials testing and plant operating procedures.

Chamberlain also provided assistance to BWXTO and to a waste treatment facility to reprocess a tritiated liquid waste from Mound that had been partially solidified. Chamberlain managed the overall project, provided the technology to complete the stabilization, arranged for the use of specialized equipment (a tritium glove box from Mound and a tritium scrubbing system from Lawrence Livermore National Lab), provided the technical oversight and arranged for the resulting waste disposal at the Nevada Test Site. As a result, the project was completed expeditiously and below expected cost.



## **5. LLRW Volume Reduction Facility**

Client/Customer: B&W of Ohio, Inc.  
Place of Performance: Miamisburg, Ohio  
Period of Performance: 10/97 – 4/98  
Contact Person/Reference: John Krueger, former Waste Mgmt & Deputy Site Manger, Now President, WESKEM (865) 241 9716

**Project Description:** Design, construct, and place into operation a low-level radioactive waste decontamination and volume reduction facility in support of the overall \$660M D&D project. The facility was completed and put into operation within 6.5 months during a winter period, ahead of schedule and under budget. Original budget was \$1.0M with a final cost of \$750,000.

Chamberlain managed the overall task and coordinated construction activities, including: evaluation of waste characterization data to determine facility needs and requirements, planning and layout of waste operations, facility design engineering, equipment and materials procurement and installation and cost estimation.

