a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
10-01 Disposal of Ammonia Perchlorate Containing Rockets	Design and provide a pilot production plant for rocket disposal	Letterkenny Army Depot Mike Tambroni (ECC) 774-244-7103	Fall 2015		

EDE is tasked to design and build a confined burn facility for the disposal of all tactical rocket motors that contain ammonium perchlorate propellant. This project will provide for the disposal of 8,000 MLRS rocket motors per year along with 2,000 other service motors per year. The project consists of all facilities and equipment necessary to process the rocket motors. This will include segmenting size reduction, the confined burn chamber, and pollution control equipment. All site civil work for this project is also included. Full scale demonstration testing was perfomred at China Lake, California, as part of this project. The first task was to perform an evaluation of the thermal treatment methods of incineration, confined burn, and contained burn. The results of this study selected a hybrid system between contained burning and confined burning. Smaller rockets such as the MLRS are to be fired nozzle on directly into a firing chamber that will contain the heat and exhausts. After cooling the exhausts are passed through a pollution control system. Larger rocket motors are segmented, the segments ignited, and the exhausts similarly contained.

9546048

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
14-08 DIHMES Inert Checkout Hawthorne Army Depot	Turn-Key Facility	Hawthorne Army Depot Christopher DiLorenzo 918.420.8962	Fall 2015		37

EDE performed this project for PM Demil under contract with Indian Head.

EDE has developed and installed a system to recover explosive from obsolete mortars using inductive heating known as Demilitarization by Inductive Heating Meltout (DIHMES).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
13-02 ARC	Installation of Flashing Furnace	ARC			

EDE had designed, built, and installed a furnace for processing airbag energetic materials for Delphi . When Delphi went out of the airbag manufacturing business, ARC purchased the equipment from Delphi. EDE assisted ARC with the installation and upgrades needed to have the facility operate at the new location.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
13-01 South, Dakota	Provide Contained Burn Facility				

EDE was contracted to provide a turnkey Contained Burn Facility to process off-spec energetic materials, and explosive contaminated waste products. This facility included the feed systems, burn chambers, containment vessel, pollution control system, and controls. EDE also designed the open burning system including pads and pans for open burning of materials that could not be processed through the Contained Burn System. EDE assisted a confidential client in obtaining all environmental permits and approvals required for the construction of the facility. The facility was tested and demonstrated to comply with air emissions restrictions, and feed rate of materials.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
Magnesium Recovery Prototype Type Plant for Demilitarization of Illumination Flares	System and DemVal of equipment	Crane Naval Warfare Center Crane, Indiana	07/2012		

EDE had designed and installed equipment for the demilitarization of military flares by using high pressure water washout to recover magnesium and sodium nitrate for re-sale. For this project EDE performed a systemization of all of the equipment including upgrades and repairs to make the system operate correctly. EDE then performs DemVal testing on 60 mm, 81 mm, 4.2, and LU-2 flares. The polishing columns have been able to achieve 96% magnesium purity for recovery on items that have spherical magnesium and laminate binder.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
12-02 Explosive Watse Incinerator Belgium	Design and install a Turnkey Explosive Waste Incinerator	Belgium Ministry of Defense Major Eddy Descendre +32 (0)2 701 32 27	07/2013		

EDE teamed with a Belgium contractor, FABRICOM, to provide Belgium Ministry Of Defense an Explosive Waste Incinerator. The project includes all design, fabrication, installation, training and startup. FABRICOM is providing the infrastructure and EDE is providing all of the equipment. This includes the Explosive Waste Incinerator and Pollution Abatement System to meet European Regulations.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Manager	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
12-01 DIHMES Mortar Demil Plant Hawthorne, Nevada	Turn-key Facility	Christopher DiLorenzo	03/2013		

El Dorado Engineering Inc. (EDE) received a contract from Indian Head NSWC to provide services on the DIHMES plant located at Hawthorne, Nevada, to prepare the equipment for operations. This plan recovers explosive to be reused from obsolete mortars.

Specific tasks include:

- Test Plan & Standard Operating Procedure (SOP)
- Test Plan Development
- SOP Development
- Testing
- Optimization
- Operational Demonstration
- Final Technical Report
- Transition Plan

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
10-02 Upgrade to MARID Transportable Flashing Furnace	Refurbish Flashing Furnace and add trailer mounted pollution control	MARID Dennis Ridpath 918-420-6099	07/2010		

MARID had obtained a used transportable flashing furnace manufactured by EDE from Anniston Army Depot to be used in onsite cleanup of explosive wastes. This unit had been used in the cleanup of Talon, a large project where fuze components remained from an uncompleted contract. EDE was tasked to refurbish the Transportable Flashing Furnace and to also add a trailer mounted air pollution control system so that where required the flashing furnace could be operated without emitting harmful materials from the exhaust.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-06 Defence Construction Canada Demil Facility Project Study	Demilitarization Planning Study	Defence Construction Canada. Louis Lemay 141 Laurier Avenue West, Suite 301, Ottawa, Ontario K1P 5J3 Phone: (613) 949-6925	02/2009		

EDE reviewed contents of the Canadian stockpile and demilitarization project objectives and prepared a report that recommended a comprehensive demilitarization approach. All viable demil processes from simple incineration to more complex disassembly and resource recovery were considered. EDE recommended a phased approach to allow core demil capability to be acquired to perform significant workload immediately, with later phases adding other capabilities, such as disassembly, to enhance the core capability.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
09-03 EPA RCRA Clean Closure Certification	Professional Engineer Certification of Closure	U.S. Army CAMDS Tooele, Utah	02/09		

EDE was contracted by TVA to perform the professional engineering clean closure certification on a number of sites at the CAMDS facility in Tooele County, Utah. CAMDS was the pilot chemical agent munitions disposal facility. It was operated for a number of years processing chemical munitions and developing new approaches for chemical munitions demilitarization. As part of the closure of the facility, it is necessary to follow the RCRA (hazardous waste) closure regulations. EDE was required to review the closure plan development, assure that closure was accomplished as per the plan, and assure that the site was clean according to the requirements and regulations. These closures certifications had to be stamped by a Utah registered professional engineer.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
09-02 Explosive Waste Incinerator Ukraine	Turn-key Explosive Waste Incinerator	NATO (NAMSA) Luxembourg **CLT LAURENT** **352 3063 5988**	12/2009		

EDE was contracted by NAMSA to design, build, and install an Explosive Waste Incinerator (EWI) for demilitarization and destroying conventional munitions in Donetsk, Ukraine. The project included total responsibility to prepare the design, procure and fabricate all equipment, ship the equipment, install the equipment, and train the operators. The EWI is used to dispose of munitions at a very high feed rate with complete pollution control and absolute safety. EDE was awarded this contract based on a competitive bid of international companies to NAMSA. EDE effectively uses in-country personnel to assist with the program. This was regarded by NAMSA as an excellent benefit to the country of Ukraine providing employment and training for local Ukrainians on a project of this nature.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-07 Review of HWAD Nevada Incinerator Operations	Consulting regarding explosive waste incineration operations and environmental permitting	Hawthorne Army Depot Hawthorne, Nevada Ron Going, 775-945-7244	12/08		

EDE was contracted by Day & Zimmermann to review the explosive waste incinerator operations at Hawthorne, Nevada. EDE was requested to review the environmental permit and information required to be reported to the regulatory authorities. EDE was required to review present operations and provide comment on improvements. One of the largest findings of this review was that caustic was being used to scrub HCl even when no HCl was present. This caustic would end up in the waste drum collection barrels and have to be disposed of as a hazardous waste. This was creating an exorbitant extra cost to the operation. Other items reviewed were the recirculation system, kiln sections without flights, and data collection and reporting.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-05 Flashing Furnace for Anniston, Alabama, and Talon, West Virginia	Design, fabrication, and installation of a transportable flashing furnace and training of operators	Crane Naval Weapons Center Phil Keith 812-854-6157	06/08		

El Dorado Engineering, Inc. (EDE) had previously provided a Transportable Flashing Furnace (economy model) to Anniston Army Depot to flash explosive contaminated materials from their rocket recycling facility. EDE was contracted to provide a new larger flashing furnace for this location. EDE designed, fabricated, and installed a new larger flashing furnace capable of flashing up to 5,000 lbs. per hour of explosive contaminated materials. EDE trained the Anniston operators in the use of this equipment.

The smaller economy model was refurbished and sent to West Virginia to be used in the cleanup and restoration of the old Talon site. The furnace was used to process a wide variety of live items including fuzes, detonators, etc. EDE was also tasked to provide assistance with explosive chemistry, combustion, analyses and anticipated air emissions to be used to secure the environmental permits for the operation. EDE also designed and provided strongboxes for the operation at Talon, installed the furnace and trained the operators at Talon. EDE also provided the environmental analyses for use in permitting. This operation at Talon was very successful as the Mobile Ammunition Renovation Inspection Demilitarization (MARID) team was able to process an estimated 15,000 to 20,000 pounds of live ammunition between June and August working two 10-hour shifts per day.

A task to perform contained burn testing of MLRS motor was later added to this contract. This technology was successfully demonstrated by EDE at Arnold Air Force Base to provide complete and safety combustion of the MLRS motors and capture the effluent so it could be cleaned prior to exhaust. The project was on time and on budget.

SOW Reference Primary 3.8 Secondary 3.7

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-04 Flashing Furnace Hill Air Force Base	Refurbish flashing furnace, install, and train operators	Hill Air Force Base Dennis Weder 801-775-6921	May 2008	81	81

El Dorado Engineering (EDE) had previously provided a transportable flashing furnace to Eglin Air Force Base. The Air Force decided to transfer the furnace to Hill Air Force Base to process range scrap. EDE refurbished the flashing furnace, installed the flashing furnace at Hill Air Force Base's Test Range and trained the operators. Hill Air Force Base processed over 240,000 thousand pounds of live and potentially live items up to 20 MM TPT rounds. EDE again refurbished the furnace and shipped it back to Eglin Air Force Base. The project was very successful in that a large quantity of items were processed in a short period of time without incident.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-03 Explosive Dieletric Meltout System Hawthorne, Nevada	Turn-key Automated Facility	U.S. Army Brent Ochs/Paritosh Dave 812-854-3851/973 366-3200	06/2013		

EDE was tasked to provide an explosive dielectric meltout system known as DIHMES. This project is divided into two phases. DIHMES I was to design the system and demonstrate the technology at Crane, Indiana. DIHMES II was to provide a turn-key facility complete with all equipment and material handling systems so that the entire process operates remotely. The process is to recover explosive slugs from obsolete mortars which can be sold directly to the mining industry. The technology consists of a waterjet cutting system that cuts off the fuzes of various size mortars. The mortars are then placed upside down in a dielectric meltout station. When heat is applied, the explosive slug falls in to a collection container much like running hot water over a frozen orange juice can. The system includes a robot to transfer the materials to the waterjet cutting station and a dielectric meltout station. It also has specific equipment to handle the fuzes and any reject mortars. The operation is contained within a reinforced concrete bay with all operations conducted remotely and automatically. The explosive is received in a pure form compared to other technologies and is directly ready for resale.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-02 Provide Thermal Treatment System for Air Bag Manufacturing Wastes	Design, Fabricate, and Install Thermal Treatment System	Delphi Matamoras, MX Timothy R. Brennaman (937) 356-2754	09/08		

Delphi, in manufacturing airbag and airbag inflators, produces energetic waste materials, reject parts, and contaminated dunnage. EDE was tasked to provide a turn-key thermal treatment system. This system is required to handle all of their various waste streams and provide pollution control that meets Mexico's standards. Besides design, fabrication, and installation, EDE is required to provide on-site training and produce documents in English and Spanish.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
08-01 Design and Fabrication of Waste Incinerator	Design, Fabrication, Startup and Training	Kolon Yeong Dong-gun, Korea S.B. Park	11/07		

El Dorado Engineering was contracted by Kolon to provide a waste incinerator thermal treatment system for explosive and energetic materials. EDE evaluated the Korean workload and proposed an Explosive Waste Incinerator that included lead removal and recovery of two separate energetic material feed systems. EDE designed, fabricated and shipped the equipment to South Korea. EDE provided installation project managers responsible for both mechanical and electrical/controls installation. EDE also performed startup and training. All work was done on schedule and to the client's full satisfaction.

Primary 3.7

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
06-02 Explosive Waste Incinerator Shoeburyness, United Kingdom	Turn-Key Explosive Waste Incinerator	QinetiQ Keith Blair 01252 393927	09/06		

El Dorado Engineering, Inc. (EDE) was responsible to design and build an Explosive Waste Incinerator to process a wide variety of explosive items. The contract required EDE to meet the very strict EU environmental regulations regarding incineration emissions. The work involved design, fabrication, shipping, installation, testing, and training. EDE provided an Explosive Waste Incinerator with feed systems, lead recovery system, and an air pollution control system including an afterburner, gas cooler, and baghouse.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
06-01 Magnesium Recovery Pilot Plant Crane Naval Surface Warfare Center	Design and Construction of a Facility for Magnesium Recovery	Crane Naval Surface Warfare Center Crane, Indiana Sara Poehlein, 812-854-3190	06/2012		

TPL of Albuquerque, New Mexico, performed an SBIR project at a bench scale level showing the feasibility of recovering magnesium from obsolete illuminating flares for reuse by the Navy in new production applications. EDE was awarded a series of contracts to provide all necessary services to design, procure and fabricate, and install a pilot plant to recover magnesium from obsolete flares. The recovered magnesium must meet the specifications of new material so that it could be used in the Navy's current production. This pilot plant includes a waterjet system to washout materials from obsolete flares. The byproducts are then separated from the magnesium by a series of equipment processes and the magnesium is cleaned, classified, dried, and packaged for reuse. The plant has a state-of-the-art controls system and includes all equipment for preparing and manipulating the flares for washout through all downstream processes to high-grade magnesium recovery. This project was divided into three phases. The first phase was to provide the design of the entire plant and all of the equipment. Phase II was fabrication, procurement, and factory testing. Phase III installation and checkout at Crane was completed in 2012. The benefits of this project include a safe and environmentally clean process to dispose of obsolete flares and at the same time recover a highly valuable magnesium material for recycle and reuse.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
05-01 Transportable Flashing Furnace Anniston, Alabama	Design and Manufacture Transportable Flashing Furnace	Anniston Munitions Center Anniston, Alabama Phil Keith, 812-854-6157 Ellen McDaniel, 812-854-5315	12/05		

EDE was asked to design, manufacture, and deliver a Transportable Flashing Furnace (TFF) to the Anniston Munitions Center. The client desired a smaller sized version from EDE's full sized TFF. EDE therefore designed an economy model. This TFF will allow Anniston to flash and decontaminate explosive contaminated metals generated by the missile recycling facility and the detonation chamber. These metals will then be able to be sold directly as scrap metal. EDE assisted Anniston with the environmental permitting and safety siting of this equipment. On-site training and installation assistance was included in the contract.

SOW Primary 3.8 Secondary 3.7

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
EOD Solutions, Inc. Bosnia	Demilitarization Planning Study	EOD Solutions, Inc.	12/2004	15	15

EDE reviewed contents of the Bosnian stockpile and prepared a report that recommended a comprehensive demilitarization approach. All viable demil processes including an Explosive Waste Incinerator and disassembly and resource recovery were considered. Because of the age of the munitions, EDE recommended a phased approach to allow demil to begin as soon as possible, without waiting for all funding solutions to be in place.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
04-04 Explosive Waste Incineration Facility	Build and install an Explosive Waste Incinerator	NAMSA Luxembourg P. Courtney-Green, 352-3063 6449	March 2005		

EDE was contracted by NAMSA to design, build, and install an Explosive Waste Incinerator (EWI) for demilitarization and disposal of conventional munitions in Elbasan, Albania. The project included total responsibility to prepare the design, procure and fabricate all equipment, ship the equipment, install the equipment, and train the operators. The EWI is used to dispose of munitions at a very high feed rate with complete pollution control and absolute safety. EDE was awarded this contract based on a competitive bid of international companies to NAMSA. EDE had the most experience of any company bidding in providing ammunition demilitarization equipment of this nature. EDE was able to exceed NAMSA's requirements and still provide the lowest overall bid for the project. EDE effectively used in-country personnel to assist with the program. This was regarded by NAMSA as the "showcase" humanitarian project as the plant completed the ammunition disposal contract ahead of schedule.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
04-03 Rocket Shear Machine Developmental Testing Salt Lake City, Utah	Develop equipment for cleaning chemical agents from M55 rockets	Ralph M. Parsons Pasadena, CA John Ursillo, 626-440-2628	12/08	1,500,000	500

A team of companies including Ralph M. Parsons received a contract to design, install, and operate the demilitarization plant to treat and dispose of all chemical munitions stored at Blue Grass Arsenal, Kentucky. This process is unique in that it will not use incineration as the primary treatment technology. EDE was tasked to develop equipment and methodology to successfully punch the M55 rocket cavity containing chemical agents and drain the agent from the rocket cavity. The stored rockets are known to have agents that have gelled or crystallized. As part of this demonstration program EDE used simulated gelled agent and simulated crystals. EDE developed a plastic warhead for viewing the high-pressure washout nozzle configuration to successfully determine design pressures, flows and nozzle orientation to completely clean the rocket cavities of all agents. Based on the development tests using the plastic warhead, simulated aluminum rocket warheads contained in fiberglass shipping and firing tubes were punched and washed out again using simulated agents. The demonstration project was very successful with over 98% of the agent being removed, which exceeded the design requirements. Since this project deals with weapons of mass destruction, the tests were performed with exceedingly high levels of quality control and safety analyses.

Primary 3.7

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
04-02 Decontamination of Air Force Test Range Metal Debris Using a Transportable Flashing Furnace Eglin Air Force Base	Demonstration Test Program	U.S. Army Corps of Engineers Scott Millhouse, 256-895-1607	12/04	580	580

El Dorado Engineering, Inc. (EDE) received an ESTCP contract award to demonstrate a technology developed by EDE for decontaminating metal debris produced by military test ranges. A Transportable Flashing Furnace (TFF) is a trailer mounted furnace capable of processing up to 5,000 lbs. per hour of test range debris to assure that the metals are free of explosives and propellants before being sold off-site as scrap metal. EDE's demonstration program utilized actual munition fragments and target debris from the test range at Eglin Air Force Base which were processed in an EDE designed and manufactured TFF. The results of this demonstration program were used to prove technical feasibility and provide the economic analysis for using this technology to assist with clearance of materials at active military test ranges.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
04-01 Contained Burn Construction	Contained Burn Construction		03-2004		

El Dorado Engineering, Inc. (EDE) was contracted to design, fabricate, and install a contained burn thermal treatment system for processing energetic waste materials. The Contained Burn Unit includes air pollution control equipment to meet the Pennsylvania environmental permitting requirements.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
03-06 RCRA Inspection Eglin Air Force Base	RCRA Inspection	Eglin Air Force Base	06/2003		

El Dorado Engineering, Inc. (EDE) was contracted by Eglin Air Force Base to perform a RCRA inspection of the burn kettles used in the Transportable Flashing Furnace for treating small arms ammunition under the existing Eglin Subpart X RCRA Permit. The inspection found that the burn kettles were in proper working order.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
03-01 Rocket Dismantling Machine Component Tests	Design, build, and test Equipment	Eco Logic Canada Doug Gray, 519-856-9591 ext. 214	12/04	1,500	1,300

As part of the non-incineration demilitarization plan for chemical munitions stored at Blue Grass Army Depot, a new M55 rocket dismantling machine needed to be designed for two of the three proposed processes. EDE was tasked to design and test various components that would be required by the dismantling machine. This included:

- Washout of the explosive filled burster using a high pressure washout system
- A low pressure washout system to washout gelled agent from the rocket warhead
- A system to punch and drain the agent and accommodate warhead washout
- A system to extract anti-resonator rods from the rocket propellant
- Develop equipment using sophisticated tube cutters to cut through the fiberglass outer container and the rocket metal parts without leaving an indentation or burr in the metal parts to enable extraction of the rocket motor grain

EDE designed and fabricated each of the equipment components as described and built simulated munitions. EDE utilized the simulated munitions to successfully test each of the components that were developed and write a comprehensive report of the program. All work was completed on schedule despite major changes to the criteria during the project.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
02-07 AET Pollution Control Iowa Army Ammunition Plant	Design, Fabricate and Provide Pollution Control System	AET Dana Point, CA	11/2002	103	103

El Dorado Engineering, Inc. (EDE) designed a contained burn system for AET for processing energetic waste materials. This facility, located at Iowa Army Ammunition Plant, was a commercial disposal facility owned by AET. EDE was contracted to design and furnish the pollution control system to meet the environmental requirements of the facility. This system consisted of a cyclone, baghouse, fan, duct work, and associated controls.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
02-05 ECC Site Safety Submission Kansas Army Ammunition Plant	Explosive Safety Review	Environmental Chemical Corp. Bloomfield, NJ Prashant Khanna	09/2002	55	55

El Dorado Engineering, Inc. (EDE) was tasked to perform an explosive safety review and site safety submission for cleanup and remediation operations at Kansas Army Ammunition Plant being performed by Environmental Chemical Corp. Site Safety Plan submission was reviewed and approved by the U.S. Army Corps of Engineers, the Army Field Safety Office, and the Department of Defense Explosive Safety Board.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
02-02 Total Solution Design Blue Grass Army Depot	Equipment system and process Design	Eco Logic Canada B. Morse 281-376-2190	01/02	10,000	1,000

U.S. Army PMACWA determined that there were three viable technologies for accomplishing the demilitarization of the chemical munitions stored at Blue Grass Army Depot using non-incineration technologies. The contract was awarded to each one of the technology providers to provide a total solution design based on their technology. Eco Logic had proposed the technology utilizing chemical neutralization of the agent followed by supercritical water oxidation of waste liquids, and thermal/hydrogen reduction system for processing combustible materials and in treating contaminated metal parts. EDE was contracted to perform all engineering to develop all of the equipment required for disassembly of the munitions to accommodate the various chemical process technologies. EDE also developed and tested a system to grind rocket propellant underwater to accommodate downstream processes. EDE designed all material handling equipment to move energetic materials, slurries, metal parts and chemical agent throughout the entire plant. EDE provided mass and material balances, P&ID diagrams, and equipment layout drawings for the entire process. EDE provided preliminary designs for all of the equipment required to perform the munition disassembly. EDE provided the safety and hazard analysis for the entire plant design. EDE also performed cost estimating for design build construction and operations of this equipment. The entire project was estimated at 1-½ billion dollars.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
02-01 Thermal Processor Unit for Kaho'olawe, Hawaii	Design, fabricate, and install transportable thermal processor	Parsons UXB Tom McCabe, 808-471-4303	May 2002		

El Dorado Engineering, Inc. (EDE) was contracted to design, fabricate, and install a transportable thermal processing unit for processing explosive contaminated ordnance debris as part of the cleanup and restoration of the Island of Kaho'olawe. Kaho'olawe was used as a Naval Test Range for a number of years had an estimated 10 million pounds of potentially explosive contaminated munition parts and target debris. Parsons/UXB was contracted by the Navy to restore the island to deliver it back to Hawaii. EDE's Transportable Flashing Furnace (TFF) allowed all of the metal parts and target debris to be safely treated so that it could be sold as scrap metal as it was removed from the island. The TFF was successfully designed, fabricated, installed and commissioned, and processed over 2 tons of material per hour and complete processing over 8 million pounds of material.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-09 Contained Burning Test of MLRS Rocket Motor Arnold Air Force Base, TN	Demonstrate that contained burning is a viable technology for demilitarization of MLRS rocket motors	Crane Naval Weapons Center Crane, IN Phil Keith, 812-854-6157	02/09	200	200

El Dorado Engineering, Inc. (EDE) proposed that contained burning would be an effective and efficient way to demilitarize MLRS rocket motors. It was postulated that although it is known that incomplete products of combustion exist at the rocket motor nozzle exit that the combustion could go to completion with entrained air. Firing the rocket motor in a containment vessel would allow capture of all motor exhausts that could then be scrubbed in a relatively small, highly efficient pollution control system. EDE demonstrated this concept by firing an MLRS rocket motor at Arnold Engineering Development Center in a contained rocket test chamber. Data was collected for designing a containment chamber specific for the MLRS rocket motor.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-08 Taiwan Retorts Taiwan	Fabrication and Installation of Retorts	Arsenal 203 Taiwan	12/2001		

El Dorado Engineering, Inc. (EDE) was tasked to fabricate, ship, and install replacement retorts for the Explosive Waste Incinerator at Arsenal 203, Taiwan. These retorts are specially designed for processing explosives and munitions. EDE installed the retorts on an existing furnace.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-07 Development of New Improved PTRDs Abingdon, MD	Development of PTRD	SAIC Abingdon, MD Dave Peterson, 443-402-9343	12/2001	130	130

El Dorado Engineering, Inc. (EDE) was contracted by SAIC to design, develop, fabricate, and test a new improved Pressure Test Relief Device (PTRD) . El Dorado Engineering developed an improved Pressure Test & Relief Device (PTRD) to protect operators when removing replacement plugs in chemical agent storage ton containers. The pressure chamber allows operators to introduce pressure into the ton container preventing any pressurized chemical agent from spraying out during plug removal. EDE fabricated and delivered to Pine Bluff Arsenal 8 PTRDs to be used in their chemical agent operations at that facility. The PTRD development was very successful and EDE's design became the new standard for use in the SETH munition program and wherever ton containers are stored.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-06 Tooele Army Depot Deactivation Furnace Support Tooele, Utah	Incinerator and equipment plant Engineering	Tooele Army Depot Tooele, Utah R. Snyder, 435-833-2181	01/2001		

Provide plant engineering services to include redesign of input feed conveyor, evaluation of ceramic filter baghouse operation and incinerator capability for fuze processing.

This project includes the development and design of equipment and procedures to disassemble fuze sin preparation of rotary kiln processing. Wrench kits, band saws and Ammunition Peculiar Equipment (APE) is included in the design effort.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-04 Eglin Burn Kettles Eglin Air Force Base, FL	Design, fabricate, and furnish a Transportable Burn Kettle System and heat source for processing munitions	Eglin Air Force Base, FL D. Freeman	07-2001		

EDE was tasked to evaluate the existing burn kettles at Eglin Air Force Base used for the disposal of munitions. EDE was to design and develop, fabricate and furnish, a new transportable burn kettle system with an external heat source. EDE furnished a trailer mounted transportable burn kettle processor complete with electrical generator, remote control system, fuel and flame safety system for heating specifically designed burn kettles to contain munitions that are thermally treated. Munitions were recovered from the test range and processed in this system. This system is permitted as part of the existing Subpart X environmental permit. EDE was also responsible for modifications to the permit application for this equipment.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-03 Chemical Munitions Demilitarization Russia	Engineering	Ralph M. Parsons Russia thomas.cc@rcwdp.ru	12/2008	660,000	2000

El Dorado Engineering is part of the Ralph M. Parsons team that was awarded the major contract to accomplish the demilitarization of chemical weapons in Russia. Parsons contracted with Russian companies to accomplish major portions of the work. EDE was tasked to assist with technology transfer from the U.S. experience.

El Dorado Engineering was tasked to provide an evaluation of all of the equipment design and procedures associated with handling the chemical munitions, drilling and draining the agent, technical studies, and all other work associated with bringing this project from a concept design up through a proven completely tested system for chemical munitions. This contract has required several trips per year to on-site Russian facilities since the project inception.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
01-02 Engineering Support Tasks	Engineering Task Orders	EG&G TOCDF Facility Tooele Army Depot T. Park, 435-882-8450	12/2001	200	200

EG&G operates the chemical ammunition disposal facility at Tooele Army Depot. They have contracted with El Dorado Engineering to perform various task orders to improve and sustain their operations. Task orders include pollution control equipment, testing, design, and upgrade; evaluation of equipment and machinery for improved operations, and HVAC evaluations in a toxic environment.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-22 EOD Solutions, Inc. Triana, Albania	Demilitarization Planning Study	EOD Solutions, Inc. Tirana, Albania	05/2000	10	10

EDE reviewed contents of the Albanian stockpile and prepared a report that recommended a comprehensive demilitarization approach. All viable demil processes from simple incineration to more complex disassembly and resource recovery were considered. Because of the age of the munitions, EDE recommended a phased approach to allow demil to begin as soon as possible, without waiting for all funding solutions to be in place.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-19 Charted Ammunition Industries Singapore	Demilitarization Study	Chartered Ammunition Industries Singapore	12/2000	15	15

Chartered Ammunition Industries of Singapore retained EDE to examine their existing demilitarization capabilities, compare it with anticipated workload, and prepare a conceptual plan for equipment, process, and facility upgrades.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-16 ICI Fuze Kit Design Joplin, MO	Munitions Demilitarization Equipment	ICI Joplin, MO	03/2000	--	--

Designed and fabricated a fuze kit for an APE 1002M1 defuzing machine to remove the end plug on MK 344, Mod 0 & 1, fuzes. This operation allows the ¼ pound tetryl booster to be removed and the fuzes to be processed.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-14 Hawthorne Day and Zimmermann Conveyors Hawthorne, Nevada	Design	Day & Zimmermann Hawthorne, Nevada	12/2000		

Day & Zimmermann operates a flashing furnace to thermally treat explosive contaminated metal parts. Containers are cycled through the furnace. In the loading/charging area of the furnace there is a vast convoluted conveyor system that was originally designed to provide accumulation space for several containers. The small number of containers does not warrant all of the unnecessary conveyors, transfer equipment, limit switches, etc. that was originally built for this accumulation area. EDE has proposed as a cost saving measure a direct conveyor system using existing equipment that will circumvent unnecessary conveyors and other equipment.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-13 Bechtel Nevada Tactical Missile Study Las Vegas, Nevada	Tactical Missile Study	Bechtel Nevada Las Vegas, Nevada Dennis Jeffrey, 702-295-2192	09/2000		

EDE had previously supplied Bechtel Nevada with a contained burn system for processing Shillelagh rocket motors. This system contained the exhaust and processed the exhaust through a pollution control system. It was designed to process one missile motor every 7-½ minutes. EDE evaluated the U.S. stockpile of tactical missiles currently slated for disposal to determine which missiles besides the Shillelagh were also candidates for disposal in this system.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-12 Day & Zimmermann Hot Gas Chamber Hawthorne, Nevada	Feasibility Study	Day & Zimmermann Hawthorne, Nevada	09/2000		

EDE evaluated the feasibility of converting the existing hot gas decontamination chamber at Hawthorne to a contained burning facility for processing tactical rocket motors with complete air pollution control. The study confirmed that the existing chamber could be modified to handle a considerable portion for the tactical rocket motors that are currently slated for disposal.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-10 Ensign-Bickford Contained Burn Simsbury, CT	Perform a Feasibility Study for Applying Contained Burn Technology	Ensign Bickford Simsbury, CT	08-00		

EDE was tasked to evaluate the energetic wastes that Ensign Bickford is currently treating by open burning. Ensign Bickford is one of the leading commercial explosive manufacturing companies in the U.S. EDE was to evaluate using a technology developed by EDE known as contained burning to process Ensign Bickford's waste material in a more environmentally acceptable practice than open burning.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-08 ACWA Program for Pueblo, CO and Blue Grass, KY	Design Services	U.S. Army/Eco Logic B. Morse, 281-376-2190	12/2000	200	200

U.S. Army is considering alternative technologies to incineration for processing chemical munitions. Eco Logic and Foster Wheeler were each given contracts to provide alternative technologies. EDE was hired by Eco Logic to develop the processes required to be performed on the various munitions to allow them to be treated by the alternative technologies. Work consists of developing equipment for processing M55 rocket motors by extracting and size reducing the propellant grain, draining the agent and shearing the explosive components for hydrolysis treatment. EDE also developed processes for projectiles of various sizes and 4.2-inch mortars. Another responsibility was to develop the material handling schemes for moving the materials into the munitions treatment area of the facility and subsequently moving the various process streams into the downstream treatment technologies.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-07 Modified Baseline System For Chemical Munitions Pueblo Army Depot	Design Services	SAIC Jack Quinlan, 443-402-9338	10/2000	75	75

The U.S. Army investigated alternatives for chemical munitions treatment and disposal at Pueblo Army Depot. One alternative was patterned after the existing design used at Johnston Island and Tooele Army Depot. The major difference would be that agent would not be drained from the munitions and incinerated separately, but would be incinerated in the metal parts furnace. EDE's responsibility was to evaluate various methods to access the agent in the various projectiles currently stored at Pueblo that would allow processing these munitions through the metal parts furnace. EDE down selected three alternatives that were identified for further testing. These alternatives were evaluated by a series of tests. The ultimate best choice was crushing the fuze adapter. Although modified incineration was not selected for Pueblo, this technology was utilized in subsequent Ralph M. Parsons designs for projectile demilitarization using alternative technologies at both Pueblo and Blue Grass Army Plants.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-06 Donovan Detonation Chamber Blue Grass Army Depot, KY	Instrumentation and testing	DeMil International Huntsville, AL K. House, 256-536-6885	10/2000	310	310

EDE was tasked by DeMil International to provide instrumentation to measure peak pressure, static pressure, temperature, and material strain for a detonation chamber that was designed to contain up to 45 pounds of HE high order detonation. EDE also performed emissions sampling to characterize the exhausts of the chamber. The chamber is used as an alternative for open burning and open detonation for high production contained disposal of obsolete munitions.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-05 Flashing Furnace Ravenna, Ohio	Design and build flashing furnaces	MKM Stafford, TX K. Irahi, 281-277-5100	05/00		

MKM has a contract with the U.S. Army IOC for the remediation of various buildings and facilities that were used to process explosives and munitions. In the cleanup of these buildings there are metal parts potentially contaminated with explosives. EDE designed and provided a trailer mounted flashing furnace that would destroy any residual contamination so that the material could be sold as scrap metal. Because the furnaces are below de minimis air emission requirements, EDE and MKM were able to gain concurrence from EPA and Ohio EPA that no permits would be required for this furnace. EDE's role includes design, fabrication, startup and training of the flashing furnace for processing these materials.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-02 Cryofracture Munitions Feed System McAlester, Oklahoma	Design and fabricate equipment	U.S. Army/General Atomics McAlester, Oklahoma J. Follin, 858-455-4405	07/2000	2,000	250

General Atomics is developing technology for cryofracturing munitions prior to feeding them in an explosive waste incinerator. The pilot project is to process an Adam mine that contains depleted uranium. EDE was tasked to design and build the feed system that place the cryofractured munitions components in the explosive waste incinerator. EDE also was tasked to design an air handling system to collect dust and particulate from the cryofracturing process and remove the particulate prior to discharge.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
00-01 Contained Burn Facility Iowa Army Ammunition Plant	Turnkey, design, and install	AET Dana Point, California R. Gregg, 949-240-6452	07/2001		

EDE was contracted to design, fabricate, and install a pilot contained burn facility for treating propellant, explosives, and pyrotechnic (PEP) waste materials and contaminated trash and dunnage. The contained burn facility utilizes a novel approach as an alternative to open burning and open detonation. The facility is constructed without a controlled burner and is not classified as a hazardous waste incinerator. The materials are ignited and burned within a containment vessel and the emissions are passed through with a complete air pollution control system. The design work included upgrading an existing building providing additions and utilities to the building in the design and all equipment required for operations.

Project Name: Utah Governor's Committee on Oversight at Dugway

Date: 1994 - 1996

Client: State of Utah

Area of Expertise Demonstrated: Demonstrated experience in chemical warfare materials and hazardous waste management and pollution avoidance.

Project Description: Mr. Ralph Hayes, President of EDE, was appointed by Governor Leavitt to serve on a committee that would provide oversight of activities at DPG and report on them to the State. At that time there was much concern by the public that activities at DPG might be endangering residents of the State of Utah by exposing them to risks of hazardous chemicals and hazardous biological materials. This task force was periodically briefed by the DPG commander and Civilian Executive Officer on all programs currently going on at DPG and programs that were planned in the future. The committee would review these plans, tour the DPG facilities, and investigate the safety procedures to assure that the public safety was being properly looked after. The committee was able to allay public fears as we found that proper procedures were in place to protect the public. On a few occasions the committee was able to offer constructive advice that DPG implemented to improve safety.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
Chemical Warfare Materials Cleanup	Plan and oversight of excavation of chemical warfare materials	Defense Depot Ogden	1990	50	50

ID kits contaminated with chemical warfare agent had been buried at Defense Depot Ogden. EDE provided planning, excavation, and oversight of digging up these materials and identifying those materials containing chemical agent. EDE personnel were required to wear full rubber level A protection. All chemical agent materials were turned over to the Army's technical escort unit.

Project Name: Hazardous Materials and Wastes Survey Studies and Engineering

Date: 1986

Client: Dugway Proving Ground

Area of Expertise Demonstrated: RCRA permitting and RCRA permit compliance activities.

Project Description: EDE was contracted by Dugway Proving Ground (DPG) to review their status as a small quantity hazardous waste generator and determine that they were in compliance with RCRA. At that time, DPG mistakenly understood that they were a small quantity generator and exempt from most of the requirements of RCRA. EDE conducted a review of all the hazardous materials purchased by DPG and studied the use and disposition of these materials. It became obvious very quickly that DPG was not a small generator and that in fact DPG needed to organize and become compliant with RCRA. EDE found some 67 RCRA and CERCLA sites on DPG. EDE prepared all of the initial RCRA documents and plans for DPG including the training plans. EDE also assisted DPG in organizing an environmental group that would report directly to the base commander. EDE trained all of the supervisors and the entire DPG workforce on the provisions of RCRA. This was over 1,000 personnel. EDE suggested ways to modify many of the current operations so that they would not be hazardous waste operations. EDE developed guidance and policy for DPG to properly identify, handle, store, treat hazardous wastes and for both on and offsite recycling programs. EDE also established methods to perform waste collection and waste handling that would allow the less than 90 day storage rule to be in effect and avoid classifying many of the DPG locations as hazardous waste storage. EDE prepared and helped DPG implement a waste minimization plan. EDE also prepared RCRA closure plans at 10 specific DPG sites, many of these were related to military chemical agent operations. The contract began as a simple effort for about $20,000, however, DPG was very pleased with EDE's work and expanded the scope to $150,000. The extra effort included support DPG needed in recognizing the operations at DPG that were subject to RCRA and organizing DPG so that DPG might properly manage these operations.

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in Thousands)	
				Entire Project	Work For Which Firm Was/Is Responsible
Chemical Munitions Demil Training Facility	Oversight of Machines and Mechanical Engineering	Edgewood Arsenal	1985	5,000	200

EDE provided oversight of setting up a training facility at Edgewood Arsenal that duplicated the actual machines and equipment that were used at the chemical agent disposal sites. EDE provided onsite direction, supervision, and mechanical engineering for the installation of all of the machines that were installed for the chemical agent demil facility. EDE provided two years of onsite supervision during this project.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
190. Open Burn Pit Closure E. Camden, Arkansas	Clean Closure of Open Burn Pits	Marconi Aerospace E. Camden, Arkansas L. Mahon, 870-574-1712 x 156	09/99	100	100

EDE completed and implemented the closure plan for 4 open burn pits that treated PEP wastes since the 1980's. The pits were "clean closed" by excavating 630 tons of soil and ash residue. Verification sampling and analysis confirmed that clean closure standards were achieved. The pit area was graded and reseeded to natural surroundings.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
188. Air Monitoring Program E. Camden, Arkansas	On-site Air Monitoring During Open Burning Operations	Marconi Aerospace E. Camden, Arkansas L. Mahon, 870-574-1712 x 156	04/99	50	50

EDE completed and implemented the Ambient Air Monitoring Plan for Marconi's Open Burn Thermal Treatment Facility. This facility treats 400 pounds/day of PEP related wastes by open burning in burn pans. The Air Monitoring Program consisted of 10 separate burns over a 2 week period. EDE performed modeling of each burn utilizing our in-house developed model called PCAD. Seven sampling crews were deployed to take real time samples during each test burn. Five of these crews were deployed in the plume area where maximum contaminate deposition was anticipated. This work was required under Marconi's RCRA Subpart X permit for thermal treatment activities.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
141. RCRA Trial Burns Kansas AAP	Assist with operation of hazardous waste incinerator	Day & Zimmerman Kansas AAP John Gilpin (316) 421-7478	12/97		

Provide engineering support to assist Day & Zimmerman with the operation of their hazardous waste incinerator. This support includes start-up of the incinerator, and assisting Day & Zimmerman with the trial burn acceptance testing.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
132. RCRA Part B Permitting Camden, Arkansas	Design & Permit System For Disposal of Expl. & Propellant Wastes	Tracor Camden, Arkansas J. Bullock, 501-574-1712	12/97	550	550

EDE was tasked by Tracor to design and permit a system for the disposal of explosives and propellant wastes by open burning that would be acceptable to the State of Arkansas regulatory authorities. EDE provided a complete design including burn pans and pads, soil sampling, RCRA Part B Permit preparation, air modeling, risk assessment, and groundwater monitoring. EDE performed a site assessment and closure plan for the existing burn pits. The evaluation investigated heavy metals and trace explosive quantities including AP in soils and groundwater. The State of Arkansas accepted and approved the application, and issued a permit, making it one of the first Subpart X permits to be issued in the U.S. EDE provided all coordination with regulatory authorities during this effort.

EDE recommended cleanup target levels for soil and water contamination, and negotiated these with the regulatory authorities.

EDE developed the methodology for all soil and water sampling, performed an RFI for 9 Solid Waste Management Units, and developed all plans for closure of these facilities from excavation of contaminated soils to final grading and reseeding to natural grasses. EDE performs semi-annual RCRA audit and conducts annual Hazwoper and RCRA refresher training. EDE also conducts quarterly Technical Review Committee meetings for Tracor. These meetings inform local officials, plant personnel, and the public of the current status of Tracor's environmental effort.

Results - Tracor received one of the first RCRA Subpart X permits in the U.S.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
162. Laidlaw Hazardous Waste Incinerator Clive, Utah	Engineering services in support of the commercial hazardous waste incinerator	Laidlaw Clive, Utah C. Pittman, 801-595-4400	12/97		

Laidlaw owns and operates a commercial hazardous waste incinerator in the Utah west desert. EDE was selected to provide design and engineering support for modifications and upgrades to improve the incineration facility operations. EDE's work is issued as various specific tasks. Tasks include such things as modifications to pollution control equipment and renovation of the waste heat boiler. EDE conceives of the required equipment, provides design drawings for various improvements to the overall facility.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
165. M117 Bomb Demilitarization Crane Army Ammunition Plant Crane, Indiana	Design of Process Equipment	Global Environmental Solution Magna, Utah K. Farnsworth, 801-251-6262	12/96	10,000	1,000

Global Environmental Solutions (GES) has a contract for the demilitarization of M117 bombs. The tritonal explosive from these bombs is being reclaimed for resale value. EDE is assisting GES with the design of all processes equipment required to handle the molten explosive, and process it for highest resale value material. Complex engineering and explosive safety analysis is required for the treatment of molten explosives.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
159. NTS Incinerator Design and Permitting Camden, Arkansas	Design and permit hazardous waste incinerator	NTS Camden, AR S. Berry, 619-632-5638	06/96	150	150

EDE is contracted by NTS to provide the design and environmental permitting for a hazardous waste incinerator to be located in Camden, Arkansas. This incinerator will be used to process obsolete lithium batteries for a Navy contract, and then be converted to a commercial PEP waste incinerator. EDE's responsibility includes providing the design, RCRA Part B permit applicaiton, and trial burn plan.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
160. Incinerator Training Bluff Arsenal, Arkansas	Incinerator training	U.S. Army Pine Bluff Arsenal, Arkansas T. Hardin, 501-540-3624	12/96	70	70

EDE is contracted to provide two 4-week training programs on the operation and maintenance of the incineration facilities located at Pine Bluff, Arkansas. These incinerators include a rotary kiln incinerator, a carbottom incinerator, a fluidized bed incinerator, and an afterburner. The training program covers each of these incinerators, including all ancillary equipment and the pollution control systems. EDE is also providing training on the environmental regulations that govern the operation of these incinerators. As part of this training program, EDE prepared training plans, teacher manuals, student manuals, and training certifications. Training includes both classroom and hands-on training.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
161. CWP Upgrade Mason & Hanger Iowa Army Ammunition Plant	Design, fabrication, and installation of incinerator upgrades	Mason & Hanger Iowa Army Ammunition Plant J. Leeper, 319-753-7824	09/96	400	400

EDE is contracted to provide improvements to the carbottom incinerator at the Iowa Army Ammunition Plant. This incinerator is used to process PEP contaminated wastes. EDE's responsibility is to design and install an afterburner, and to upgrade and replace the entire computer control systems for the incinerator operation. EDE also is to design and provide exhaust stack monitoring systems that would provide continuous emissions monitoring.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
164. Air Pollution Control System Design and RCRA Subpart X Permit Madisonville, Kentucky	Air Pollution Control Design and Subpart X Permitting	Donovan Demolition Danvers, Illinois J. Donovan, 309-963-4425	06/96	1,000	400

Donovan Demolition is constructing a demilitarization facility for obsolete munitions and explosives. This facility utilizes contained detonation chambers. EDE's responsibility was to design the air pollution control system for these chambers, and to prepare the RCRA Subpart X permit application. This included air modeling and risk assessments.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
134. Explosive Waste Incineration Madisonville, Kentucky	Incinerator System	Ensign-Bickford Co. Kentucky J. Coderre, 203-843-2630	12/95	1,500	1,500

EDE was tasked to design and provide an incinerator system capable of the disposal of Ensign-Bickford's energetic wastes. This included analysis of the waste stream, design development, permitting, fabrication, construction, installation, and startup of the system.

Design includes all material handling and toxic gas scrubbing and pollution control.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
143. Remediation of Explosive Contaminated Soils Childersburg AAP	Site Investigation, Development of Method-ology, Expl. Haz. Anal	Roy F. Weston One Weston Way West Chester, PA Alan Zupko, 610-701-3623	12/95	200	200

EDE was responsible to develop methodology and provide all explosive related work to support the project to excavate and incinerate explosive contaminated soils from ditches, and building sites from the former Alabama Army Ammunition Plant in Childersburg, Alabama. It was El Dorado Engineering's responsibility to develop the Site Safety Plan. The work included preparing formal hazards analysis, developing methodology and obtaining explosive safety approvals for this work.

EDE provided:

- Preliminary Hazard Analysis
- Operating and Support Hazard Analysis
- Subsystem Hazard Analysis
- System Hazard Analysis
- Explosive Safety Training

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
147. Remediation of Sites at Savanna Army Depot and Childersburg AAP	Site Investigation, Excavate & Incinerate Contaminated Sites	Weston Services 1 Weston Way West Chester, PA 19380 J. Irey, 215-430-7318	12/95	30,000	700

- Weston Services Inc. was contracted to excavate and incinerate explosive contaminated lagoons. EDE was contracted to provide expertise regarding the unique safety aspects of this project. EDE prepared site safety plans, SOP's, and hazard analysis along with the design of procedures and methodology for the unique requirements of the associated explosive hazards with this project. EDE provided UXO sweeps, and other activities where inherent explosive hazard exists during the project. All plans received DOD Explosive Safety concurrence.
- EDE developed the methodology to blend high explosive concentrations in soils to lower the concentrations to make the soil safe for handling and incineration. EDE also developed the methodology for removing underground piping contaminated with explosives. This required using explosive charges to cut the pipe as the proper flange connections had not been installed. EDE, through the use of a subcontractor, performed all operations on the site regarding explosives for Weston Services.
- EDE designed and installed personnel blast shields on two different model backhoes. Shields protected operators from potential blast and fragments during excavation of explosive contaminated pipelines and blending of soils containing high concentrations of explosive.
- For this project, EDE provided Hazard Analysis per MIL-STD-882A, including:
  - Preliminary Hazard Analysis
  - Operating and Support Hazard Analysis
  - Subsystem Hazard Analysis
  - System Hazard Analysis
- EDE provided on-site explosive safety services during the entire excavation of the materials.
- The project offered unique challenges in that high concentrations of TNT and RDX were present in the lagoons requiring personnel protection, and buried piping had to be explosively cut to remove. The site was also a former test range and UXO sweeps had to be performed in advance of the excavation.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
Q37. Engineer Services Tooele Army Depot, Utah	Engineering Services for Support of Chem Demilitarization	Huntsville Corps of Engineers Robbie Bailey, 205-955-1472	12/94	3,000	3,000

- Provide engineering services for support of chemical munition demilitarization activities at CAMDS. Work includes machines, robotics, incineration, air pollution control, computer analyses, hazardous waste disposal, pollution abatement and other similar tasks.
- Sample delivery orders include design and specification of high temperature insulated duct work. Design of a robotics system for handling projectiles. Study of explosion-proof electrical requirements for robots at CAMDS. Design and develop a prototype projectile transporter container.
- EDE was tasked to do a major project for a complete tank assessment of all above ground and below ground tanks at CAMDS. The work also includes design of spill containment facilities, soil sampling, leak testing, corrosion analyses, and ultrasonic testing of tanks. The engineering costs of this single task order were $450,000.
- EDE was tasked to provide a study, design, and specification for propane tanks, vaporizers, and distribution system.
- EDE performed submittals for RCRA Subpart J and responses to notice of deficiencies for RCRA RD&D permit. EDE performed a design of the feed systems for incineration facilities.
- EDE developed a design to eliminate fugitive emissions from the hazardous waste incinerators and design of charcoal filter units for toxic ventilation.
- EDE designed and prepared specifications for a projectile nose closure conveyor system. Conveyor system was required to fit in around existing equipment in a congested operating bay.
- EDE prepared a technical report and a technical data package to upgrade the control system for the CAMDS site toxic ventilation system.
- EDE assisted in the development of simulant munitions and agent simulants.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
123. Energetic Material Treatment Mesa, Arizona	Design of Contained Thermal Treatment Unit	TRW Mesa, Arizona M. Gardner, 602-396-1238	10/94	600	600

EDE was tasked to design, test, construct, and install a system for containing the thermal treatment of energetic wastes and exhaust the products to a pollution control system. This requires EDE to design and develop vessels to contain the ignition of propellants and be resistant to overpressures and temperatures resulting from this ignition. A prototype unit was designed and tested to obtain parameters for the full scale system. EDE also participated in the preparation of a RCRA permit for the facility. The full scale system includes building lighting and power systems.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
140. Slurry Feed System Lubben, Germany	Design and Fabrication of a Slurry Feed System	General Atomics San Diego, CA J. Follin (619) 455-4405	05/94	1,000	1,000

This project required EDE to design and provide a complex slurry feed system for waste explosives and propellants consisting of multiple tanks, pumps, instrumentation, circulation, and injection systems. EDE was responsible for providing the controls and control panels, along with all hardware to complete the system. The slurry injection system requires that the slurry be continuously circulated through a closed loop system with the injection systems tapped from the circulating lines. The system was delivered to GA Lubben, Germany, for use in the demilitarization facility.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
039. Design of a Pilot Plant for Separation & Recovery of Plastic Bonded Explosives	Design of a Pilot Plant	Naval Weapons Support Center Crane, Indiana	12/93	2400	2400

EDE is required to design a pilot plant to use solvents to extract explosive ingredients from waste plastic bonded explosives. This project includes laboratory testing, bench scale testing, design and construction of a small pilot plant and the design of a first of a kind full size pilot plant. A hazards analysis is required for each operation. EDE will design and construct and operate the pilot plant to demonstrate feasibility.

EDE designed, developed, procured, and fabricated an automated material handling system to handle dry explosives, and then mix it with solvents.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
115. Remediation of Lagoons at Savanna Army Depot	Excavate and Incinerate Explosive Contaminated Lagoons	Savanna Army Depot Savanna, Illinois J. Irey, 215-430-7318	08/93	30,000	500

- Weston Services Inc. was contracted to excavate and incinerate explosive contaminated lagoons. EDE was contracted to provide expertise regarding the unique safety aspects of this project. EDE prepared site safety plans, SOP's, and hazard analysis along with the design of procedures and methodology for the unique requirements of the associated explosive hazards with this project. EDE provided UXO sweeps, and other activities where inherent explosive hazard exists during the project. All plans received DOD Explosive Safety concurrence.
- EDE developed the methodology to blend high explosive concentrations in soils to lower the concentrations to make the soil safe for handling and incineration. EDE also developed the methodology for removing underground piping contaminated with explosives. This required using explosive charges to cut the pipe as the proper flange connections had not been installed. EDE, through the use of a subcontractor, performed all operations on the site regarding explosives for Weston Services.
- EDE designed and installed personnel blast shields on two different model backhoes. Shields protected operators from potential blast and fragments during excavation of explosive contaminated pipelines and blending of soils containing high concentrations of explosive.
- For this project, EDE provided Hazard Analysis per MIL-STD-882A, including:
  - Preliminary Hazard Analysis
  - Operating and Support Hazard Analysis
  - Subsystem Hazard Analysis
  - System Hazard Analysis
- EDE provided on-site explosive safety services during the entire excavation of the materials.
- The project offered unique challenges in that high concentrations of TNT and RDX were present in the lagoons requiring personnel protection, and buried piping had to be explosively cut to remove. The site was also a former test range and UXO sweeps had to be performed in advance of the excavation.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
130. Munitions Disposal Facility, Rotary Kiln System Dresden, Germany	Design, Develop, Fab. and Provide an Explosive Waste Incin.	General Atomics San Diego, CA J. Follin, 619-455-4405	10/93	1,500	1,500

EDE was contracted to design, develop, fabricate, and provide an Explosive Waste Incinerator and all accompanying feed systems and controls and an afterburner for the disposal of waste explosives and munitions. The project included development of the design, fabrication, and shipment of all materials, installation, supervision, and engineering start-up. The major elements in the system were:

- Deactivation Furnace
- Retorts
- Duct Work
- Feed and Discharge Conveyors
- Positive Feed System
- Control Panels
- Instrumentation
- Gas Piping
- Electrical Motors and Wiring

Design data was provided for preparation of environmental permits. Final design drawings, design analysis documents, operation and maintenance manual, and quality control plan was provided. Equipment was fabricated and arrangements for packaging and shipping for overseas installation.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
133. RCRA Part B Subpart X Permitting Camden, Arkansas	Design and Permit a System for Disposal of Explosive Wastes	Atlantic Research Corp. Camden, Arkansas B. Holyfield, 501-574-0610	12/93	285	285

EDE was tasked by Atlantic Research Corp. to design and permit a system for the disposal of explosives and propellant wastes by open burning that would be acceptable to the State of Arkansas regulatory authorities. EDE provided a complete design including burn pans and pads. EDE also provided soil sampling, RCRA Part B Permit preparation, air modeling, risk assessments, and groundwater monitoring. EDE responded to all NOD's.

EDE was also tasked to develop the plans to close and decontaminate the old facilities.

EDE prepared sampling plans for soil, surface water, and groundwater for old facilities and provided analyses of results. EDE provided all sampling and analyses for explosives, trace toxic metals, reactivity, and nitrates.

EDE prepared closure plans for four burn pits and cost estimates for closure. EDE performed an NPDES assessment. EDE also assessed over 10 potential CERCLA and RCRA sites. EDE provided all coordination with regulatory authorities during these efforts.

The project offered unique problems in that ammonium perchlorate had leached from the propellant and was found in soil and groundwater samples.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
129. Environmental Support for Navy Large Rocket Motor Disposal, Arlington, VA	Planning Compliance With Enviornmental Regulations	Vitro Corp. 2121 Crystal Drive Arlington, VA 22202 B. Koutris, 703-418-8057	10/92	40	40

As a subcontractor to Vitro, EDE was tasked to assist the Navy in planning the compliance with environmental regulations in regard to the disposal of large rocket motors. EDE was tasked to develop a detailed ten year program schedule, and to delineate all of the environmental requirements that the facility would be required to meet. EDE was further tasked to perform site assessments of potential sites based upon those requirements and assist the Navy in selecting the optimum site for the proposed facilities.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
103. Environmental Permitting & Development of Procedures For Disposal of Expl. Wastes	Thermal Treatment of Explosive Wastes	Rockwell Canoga Park, CA B. Kephart, 818-773-5314	08/91	200	200

EDE was tasked to perform three related projects. The first was to explore Department of Transportation regulations for off-site shipment of explosive waste products. The second was to design, develop, and fabricate a thermal treatment unit that would collect the off-gases and provide an air pollution control system. The third task was to provide air modeling and a RCRA Subpart X permit application for thermal treatment of explosive wastes.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
113. RCRA Permitting and Air Modeling of Open Burning Grounds	Air Modeling	Thiokol Brigham City, Utah	11/91	66.5	66.5

Provide RCRA Subpart X support including air modeling for Thiokol's open burning operations. This includes development of sizing and combustion scenarios of open burning of 1.1 and 1.3 materials, modeling the combustion and downwind dispersion under various meteorological conditions.

Subpart X support included the technical description of the open burning operation including description of the site, all containment devices, and the operating parameters. Description of the site's air conditions included existing air conditions and the impact of open burning to the ambient air based on the modeling results. Also included was the evaluation of run-on/run-off for the burning grounds and the potential impact to the groundwater and surface waters.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
125. Modeling of Surface Deflagrations Involving Air Bag Propellants	Model Downwind Hazards	TRW Safety Systems Mesa, Arizona	06/91	15	15

EDE was contracted by TRW to model the downwind hazards in the unlikely event of a surface deflagration involving air bag propellants using the PCAD computer model. Modeling was performed for both night time and day time scenarios to determine expected products from the incident, as well as concentration levels.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
126. Modeling of Anticipated Activities for Consolidating Phillips Lab. at Kirtland	Air Emissions	Kirtland Air Force Base Kirtland Air Force Base, NM	08/91	5	5

This effort, performed under two separate contracts, was to model the air emissions from the static firing of rocket motors ranging in size from 15 to 30,000 pounds. EDE was to assume atmospheric conditions. Based on these assumptions and combustion information available in the EDE library, EDE predicted peak and time weighted average maximum downwind concentrations for HCl and aluminum oxide. Distances to these peak concentrations were also provided. EDE also evaluated two inadvertent accidents during the firing resulting in a detonation. These modeling results were used by the Air Force to compare to existing environmental standards to determine requirements for further risk analysis and highlight any immediate problems, if observed. This project was required on a rush turn-around basis for a study being accomplished by a committee during a one week period. EDE, therefore, was called and contracted to provide the services the same week as the request for services. EDE performed follow-up verbal reporting with Air Force experts that were called in to review the results of this effort.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
106. Air Emissions Support Studies and Testing Thiokol, Utah	Air Emissions Testing	NASA/Sverdrup Stennis Space Center	12/90	45	45

EDE performed air emissions testing and modeling for the shuttle booster test firings at Thiokol in support of NASA environmental studies. This work also included a study of the tall plume resulting from burning 1.3 million pounds of propellant in two minutes. Investigated plumes that penetrated the mixing layer and the ultimate dispersion of these tall plumes.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
112. RCRA Part B Permit Applications for Incinerators Huntsville, AL	Preparing RCRA Part B Permit Applications	U.S. Army Huntsville, COE Huntsville, AL B. McIntosh, 205-830-4100	11/90	200	50

EDE, as a subcontractor to EBASCO, assisted the Army in preparing the RCRA Part B Permit applications for 7 hazardous waste incinerators located at the various Army installations listed below. These incinerators are being upgraded to be in compliance with the latest RCRA requirements. EDE has visited each of the installations and prepared the require site specific incinerator operation information and technical description for the RCRA permit application.

Hawthorne Army Ammunition Plant - Nevada
Red River Army Depot - Texas
Crane Army Ammunition Plant - Indiana
Sierra Army Depot - California
Seneca Army Depot - New york
Lexington Blue Grass Army Depot - Kentucky
McAlester Army Ammunition Plant - Oklahoma

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
117. Explosive Solvation/ Slurry Skid Hawthorne, Nevada	Design and Fabrication of Transportable Skid	Weston Services West Chester, PA 19380 J. Irey, 215-430-7318	10/90	150	150

EDE designed and fabricated a transportable skid for providing an explosive solvent fuel slurry blend system for firing a boiler. This system was used to test the novel concept of using waste explosives as fuels. The concept offers a positive energy recovery for the disposal of explosive wastes. EDE designed and fabricated two tanks for dissolving the explosive, and one for blending these solutions with fuel oil. This system was complete with all necessary controls and safety equipment to complete the solvation, blending, and pumping to a fired boiler. The system was fully instrumented for viscosity, flow rate, etc.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
023. Model of Open Burning of Explosives	Developed Computer Model to Predict Products of Combustion	Naval Surface Weapons Center Silver Springs, MD G. Young, 202-394-1688	12/89	294	294

EDE developed a computer model (Products of Combustion/Atmospheric Dispersion - PCAD) to predict products of combustion, plume rise, and atmospheric dispersion for open burning of ordnance and explosives. The model was validated by test burns and measurements and model iterations at Hercules Bacchus Works.

EDE performed emissions testing on 9 open burns and 7 static firings of rocket motors. Excellent agreement was found between the model and actual emissions tests. EDE developed a method to introduce a tracer gas in the plume to enhance validation.

This effort was used to support both the NEPA requirements and PSD permit application.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
033. Prepare Part B Permits	Preparation of Part B Permits	CH2M Hill/Huntsville COE Reston, VA M. Thompson, (703)-471-1441	12/89	700	175

Assist in the preparation of Part B Permits for the following facilities:

- Anniston Army Depot
- Aberdeen Proving Ground
- Lexington Blue Grass Army Depot
- Pine Bluff Arsenal
- Umatilla Depot Activity
- Newport Army Ammunition Plant
- Pueblo Depot Activity
- Tooele Army Depot

Preparation of the project included hazardous waste incinerators, permit application, and trial burn plans. The work also includes a Research and Development permit application preparation. The work is specific to Chemical Agent Munition Demil Operation. Studies included options for separate disposal sites or regional and national disposal sites. Tasks require in-depth process descriptions of the entire process for existing and all future planned testing for chemical munitions demilitarization including particular emphasis on incinerators, material flow, and waste generation. This project provides an in-depth knowledge base line of the state-of-the-art and future chemical agent demil.

EDE prepared the closure plan for both the existing CAMDS plant and the planned stockpile disposal plant at Tooele Army Depot.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
099. Carbottom Incinerator For Military Wastes Pine Bluff Arsenal	Design of a Carbottom Incinerator	Pine Bluff Arsenal Pine Bluff, Arkansas	12/89	200	200

EDE provided the design for a carbottom incinerator that was specifically designed for disposal of military wastes at Pine Bluff. The carbottom incinerator was fabricated, installed, and met or exceeded all of the requirements of Pine Bluff Arsenal. The incinerator was capable of flashing contaminated hardware as well as the incineration of combustible waste materials.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
093. DuPont Incinerator Pompton Lakes, NJ	Design of a Hazardous Waste Incinerator	DuPont Pompton Lakes, NJ	01/88	1,200	1,200

Design of a hazardous waste incinerator to dispose of hazardous wastes associated with the manufacture of blasting caps at DuPont Pompton Lakes works. Design includes incineration, feed systems, and all air pollution control equipment.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
085. Design and Construction of Carbottom Incinerator Pine Bluff Arsenal	Design & Construction of Carbottom Incinerator	Pine Bluff Arsenal Pine Bluff, Arkansas	12/88	185	185

The project consisted of turn-key design and construction of a carbottom incinerator for the disposal of wastes with potential contamination of explosives and/or military chemicals such as tear gas, phosphorus, etc. The engineering was performed by El Dorado Engineering Inc., and the construction was performed by Bruce Nickel/El Dorado Corp.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
004. Design of an Explosive Contaminated Waste Incineration Facility	Architecutre and Engineering Design Services	Mason & Hanger Pantex Plant, E. Highway 60 Amarillo, Texas Archie Ruggles, 806-381-3338	12/88	1,000	1,000

The project consists of all architecture and engineering design services and construction management of an explosive waste incineration facility. This included bringing off-site utilities to the site, paving and drainage, four buildings including HVAC and power.

The process equipment designed includes a solid and liquid feed incinerator for explosive contaminated materials. This includes two solid feed options, one liquid feed system, the air pollution control system, and the incinerator controls. A carbottom charging system is used to flash explosive contaminated metal parts. Explosive considerations are required to keep explosive from settling in liquid lines and for personnel barricading.

This project consisted of three phases:

Phase I - Preliminary Design

Phase II - Final Design

Phase III - Construction management including verification of installation contractor conformance to specification and inspection of contractor installed facility structures and equipment.

The project also includes RCRA environmental (Part B) and air permitting, including meetings with the Texas Air Control Board and Texas Water Commission.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
005. Part B Permit Hercules	Part B Permits	Hercules Magna, Utah	07/87	340	150

As a subcontractor, EDE assisted Dames & Moore in preparation of a PArt B permit for Hercules Bacchus in Magna, Utah. The site consists of several explosive burning grounds, hazardous waste surface impoundments, seven incinerators, hazardous waste storage areas, and explosive contaminated waste burning. As part of this Part B, EDE developed alternative treatment processes and closure plans for all of the waste facilities.

This project included the development of closure procedures for nitroglycerin sumps, hazardous waste operations and explosive burning grounds, surface water run on/off analysis, residue analysis from burning pads, groundwater migration, and in situ treatment and biodegradation of waste explosives.

The project was expanded to include design of recycling and treatment options to eliminate surface impoundments. EDE provided a formal literature search for this task.

EDE also did a study and preliminary design for the treatment of waste waters associated with the shipment of RDX and HMX.

Also included was an evaluation of NG manufacturing waste waters and proposed concepts for waste water treatment.

EDE is preparing policy and guidance documents for all PEP (propellants, explosives, pyrotechnics) waste operations at Hercules Bacchus Works. This included a sampling and analyses plan for explosive contaminated soils.

Provided a review of impending Subpart X Regulations as to impact to Hercules. Also provided comments for Hercules' input to the industrial group providing comment to EPA on the draft Subpart X Regulations.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
083. Incineration Feasibility Study	Incineration Feasibility Study	Aerojet Sacramento, CA	05/87	200	200

Perform a survey of existing incineration technology and incineration feed systems. Identify candidate incineration technology for the Aerojet waste streams. Provide technical feasibility for processing Aerojet wastes.

Prepare test plans and conduct testing. Design the incineration facility including incinerators, feed systems, and air pollution control equipment. Perform construction management.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
081. Incineration Feasibility	Feasibility Study and Concept Design for Incineration of Expl.	Honeywell LAP Facility Joliet Army Ammunition Plant Joliet, IL J. Johnson, 612-936-3107	06/86	75	75

EDE prepared a feasibility study and concept design for the incineration of explosive and propellant wastes produced by Honeywell at Joliet AAP. EDE investigated intra-red furnaces, fluidized bed incinerators, rotary kilns, wet air oxidation, and multiple hearth furnaces. Study includes furnace design parameters and layout, feed system analyses, barricade analyses, air pollution control systems, and environmental analyses and cost analyses. A similar study was performed for open burning that also included computer modeling and prediction of off-site dispersion of open burning products of combustion.

EDE prepared a feasibility study and developed a concept to pretreat 30MM projectiles to preclude detonation when processed in a deactivation furnace. This includes a preliminary design for a remotely operated projectile shearing operation.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
002. Provide Feed Chutes and Ducting for BZ Disposal Fac. Pine Bluff, AR	Design & fabrication of equipment to feed munitions into a DF	Burns & Roe Industrial Services Corp. Oradell, NJ A. Lucania, 201-265-2000	11/85	175	175

Provide design and fabrication of equipment and facilities to feed chemical agent filled munitions into a deactivation furnace. Proper ventilation and sealing required to eliminate the possibility of agent leakage. Fabrication of blast attenuation discharge ducting. Project includes assembly, testing, and quality control (MIL-Q-9858A) and documentation.

Performance

- On schedule and within budget

Results

- Hardware met or exceeded all requirements.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
031. Design of Blast Chamber Cells	Design of Blast Chamber Cells	Crane Naval Weapons Center Crane, Indiana D. Scales, 812-854-3505	03/84	55	55

Design blast chambers, cells and ventilation system for conducting explosive test work. Development of collection and disposal of heavy metal contaminants.

This project was initiated because of fugitive emissions from existing test cell contaminating operator breathing air and office space.

The design included structural design for the chamber and all instrumentation feedthroughs. A door and seal mechanism was designed to not only sustain blast effects but also capable of vacuum testing down to .1 torr.

The facility consisted of two separate test cells and chambers, a vacuum equipment room, work area, and instrumentation area.

Procedures were developed for collection and disposal of the hazardous waste produced from the test.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
003. Explosive & Explosive Contaminated Waste Processors	Installing Explosive Contaminated Waste Processors	Tooele Army Depot Tooele, Utah R. Martinez, 801-833-2605	12/84	4,084	4,084

These projects, performed under the name El Dorado Corp., for one customer spanning a period of 8 years, included providing, installing, and startup of pollution control system for 1236 deactivation furnaces in some facilities installing new deactivation furnaces. Also explosive waste incinerators and explosive contaminated waste incinerators were fabricated, installed, tested, and started. The project included projects in the Continental U.S. and overseas Army facilities, 16 locations in all. Also included was a white phosphorus demilitarization facility utilizing a 1236 deactivation furnace and phosphoric acid manufacturing plant. This system utilized a new and novel scrubbing acid manufacturing plant. This system utilized a new and novel scrubbing technique for P205 wherein a saleable product was manufactured as a part of the scrubbing process. Facilities are shown below.

EWI at Iowa AAP APC at Hawthorne AD APC at Ft. Wingate AD
EWI at LAAP APC at Ft. Wingate AD APCS at McAllister AD
EWI at Lake City AAP APC at Lake City AD APC at Letterkenny
APCS at Hawthorne AD EWI at KAAP APC at Anniston AD
CWP at Sunflower AD APCS at Lake City AAP APC at Sierra AD
CWP at IAAP APCS at Ft. Wingate AD APC at Hawthorne AD
APCS at Miesau AD APCS at Navajo AD APC at Navajo AD
APC at Seneca AD CWP at Badger AAP APC at Red River AD
APC at Blue Grass AD CWP at Kansas AAP APCS at Tooele AD
APC at Pueblo AD

EWI Explosive Waste Incinerator
CWP Contaminated Waste Processor
APC Air Pollution Control System
AD Army Depot
AAP Army Ammunition Plant

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
028. Hazardous Waste Permits Huntsville COE	Develop Part B Permits	Huntsville COE Huntsville, AL	02/84	340	81.5

As a subcontractor to CH2M Hill, develop Part B permits for Army hazardous waste disposal facilities in the State of Texas. Includes explosives waste incinerator, trial burn plan and field testing, and sampling and monitoring.

As a subcontractor to CH2M Hill, develop permits for Army hazardous waste disposal facilities in the State of Virginia. Radford Army Ammunition Plant, operated by Hercules, has a wide variety of hazardous waste operations including the slurry explosive waste incinerator.

As a subcontractor to Gutierrez, Smouse, and Wilmut & Associates, develop Part B permits for Army explosive waste incinerator facilities in the State of Louisiana. EDE prepared the Trial Burn Exemption Request which was the first one the Corps of Engineers has ever approved. The Louisiana Army Ammunition Plant is operated by Thiokol.

EDE developed the closure plan for each of the explosive waste incineration facilities for each of these sites.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
024. Solvent Extraction of Navy PBX Explosives	Testing on Solvation of PBX Explosives	Crane Naval Weapons Center D. Burch, 812-854-3505	01/83	20	20

EDE performed testing on solvation of PBX explosives for recovery of waste explosive in usable form. Tests include different solvents and solvent mixtures and laboratory modeling with actual explosives of bench scale solvation.

8. Work by firm or joint-venture members which best illustrates current qualifications relevant to this project (list not more than 10 projects).

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Project Owner's Name & Address and Project Manager's Name & Phone Number	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which firm was/is responsible
008. Ordnance Disposal Facility Indian Head, MD	Engineering Analysis	U.S. Navy Naval Facilities Engr. Cmd. Washington, D.C. G. Bergen, 314-421-1476	11/83	180	85

EDE served as a subcontractor to Booker Associates of St. Louis, MO. EDE's task consisted of engineering analysis of Ordnance Hazardous Waste Disposal Facilities. Engineering analyses of existing storage and treatment facility for hazardous materials and wastes at Indian Head Naval Ordnance Station. Work includes evaluation of existing facilities, identification of modification to existing facilities and recommendation for new facilities to handle 100% of hazardous materials at that facility. Facilities evaluated included contaminated waste processors and explosive waste incinerators, including all air pollution control systems and feed preparation.

Study included identifying alternate government and private disposal facilities, including permit status, packaging, and transportation requirements, and applicable DOT regulations, waste collection procedure alterations.

The study also included a detailed analyses of open burning regarding continuous, regulatory impact and potential contamination.

Performance - Project completed with funding. All deliverables in conformance to schedule. Given an outstanding rating by Navy.

Results - Evaluation of existing facilities. Presentation of current state-of-the-art technology. Recommendation of new facilities to handle 100% of wastes.