



# **Environmental Management Services, Inc.**



**WASTE MANAGEMENT AND  
ENVIRONMENTAL REMEDIATION  
CONSULTANTS**



## **STATEMENT OF QUALIFICATIONS**

**April 2007**



**Environmental Management Services, Inc.**

150 N. Wiget Lane, Suite 101

Walnut Creek, CA 94598

[www.enviro-mgmt.com](http://www.enviro-mgmt.com)

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## Overview



**Environmental Management Services, Inc. (EMS)** is an 8(a) certified radioactive and mixed waste management and environmental remediation company located in Walnut Creek, California. For over a decade, EMS has been servicing government and commercial clients in the areas of facility decontamination and decommissioning, radiological and hazardous waste management, site remediation, and radiological support.

We retain preeminent and nationally recognized environmental scientists, project managers, health physicists, radiological technicians and DoD certified waste brokers. This considerable knowledge base gives us the ability to deliver truly innovative solutions that save money, eliminate compliance problems and minimize long-term liability to facility owners and waste generators.

We house the necessary radiological instrumentation and equipment, and maintain a Radioactive Materials License for waste brokerage, site remediation and MARSSIM surveys. EMS also retains site use permits and service contracts with major commercial waste processing, treatment and disposal facilities including Perma-Fix, PEcoS, US Ecology and EnergySolutions.

Our Industrial Safety Record over the past ten years shows zero injury and illness or lost work days case rates. It is EMS' policy that no phase of operations or administration to be of greater importance than illness and injury prevention at the work place.

This Statement of Qualifications (SOQ) provides a brief description of our experience in specific areas of environmental restoration and waste management. It also lists specific project experience with selected examples of our well-recognized initiatives and value-added engineering that saved our clients millions of dollars. A brief biography of EMS key principals and associates, along with our client list, is also provided.

## Contact Us

Give us the opportunity to discuss your needs and provide proper and cost-effective solutions to your environmental and waste management challenges by contacting:

**Environmental Management Services, Inc.**

150 N. Wiget Lane, Suite 101  
Walnut Creek CA 94598  
[www.enviro-mgmt.com](http://www.enviro-mgmt.com)

**Salem Attiga**

(925) 939-0687 o  
(925) 938-0105 f  
[saa@emshq.net](mailto:saa@emshq.net)

**Diana Davis**

(925) 939-0120 o  
(925) 938-0105 f  
[dmd@emshq.net](mailto:dmd@emshq.net)



## Overview

### Company Profile

- 8(a) Certified SDB 2004-2013
- Veteran Owned Small Business
- Founded: March 1996
- Headquarters: San Francisco Bay Area, CA
- Service Area: National
- Sectors Served: Government, Commercial, Industrial, Utility, Residential
- Size of Projects: \$10,000 - \$10 million
- DCAA Audited and approved rates
- NAICS Codes:

562211	Waste Management
541620	Environmental Consulting
562910	Remediation Services



### EMS Environmental Services

- Decontamination and decommissioning of radiologically contaminated facilities
- Brokerage, Transportation, and Disposal of Radioactive Waste
- Waste Characterization, Designation, and Profiling
- Site Surveys, Characterization and Remediation
- Recycling of Slightly Contaminated Radioactive Metals
- Waste Management, minimization, and pollution prevention
- Preparation and implementation of MARSSIM survey plans and reports for release of radiologically contaminated facilities
- CERCLA and RCRA Investigations and remediation
- Radiological Risk Assessment (RESRAD)
- Sampling and Analysis of Contaminated Media Including Soil and Groundwater
- Independent RCRA Closure Verification
- Remedial Design/Remedial Action and Construction Management
- Program Management and Regulation Compliance
- Preparation of RCRA Part A and Part B Permit Applications
- NEPA/CEQA Analysis
- NPL Site Closure and Long-Term Stewardship



## Waste Brokerage, Transportation and Disposal

EMS has extensive experience in brokerage and transportation of low-level radioactive, hazardous and mixed waste/materials. Our DoD certified and DOE trained waste brokers have over 75 years combined experience and are familiar with DOT requirements and Waste Acceptance Criteria of major waste processing and disposal sites including Perma-Fix, Hanford, NTS, US Ecology, EnergySolutions, etc.

Our brokers receive DOT and disposal site specific training annually and are required to attend regional compact meetings and waste processing and disposal conferences keeping abreast of the best available technology for the processing and disposal of radioactive, mixed, and hazardous waste/materials. Our team carefully evaluates processing, treatment and disposal options and recommends the most cost effective and compliant solutions to our customers.



### SCOPE

- Sampling, Characterization and Designation
- Waste profiling
- Packaging, Inspection and manifesting
- Radiological survey of waste containers
- Preparation of waste inventory sheets
- Evaluation of transportation, processing and disposal options
- Scheduling and coordination of waste transport and processing and/or disposal
- Development and implementation of effective waste/materials tracking system
- Compliance with disposal site Waste Acceptance Criteria (WACs)
- Regulatory compliance



### EMS IN ACTION

EMS highly qualified and DoD certified waste brokers have successfully brokered more than one million cubic feet of radioactive and mixed waste generated from various DoD, DOE, and commercial facilities.



## Decontamination and Decommissioning

EMS technical staff has extensive hands-on experience with Decontamination and Decommissioning operations.

### SCOPE

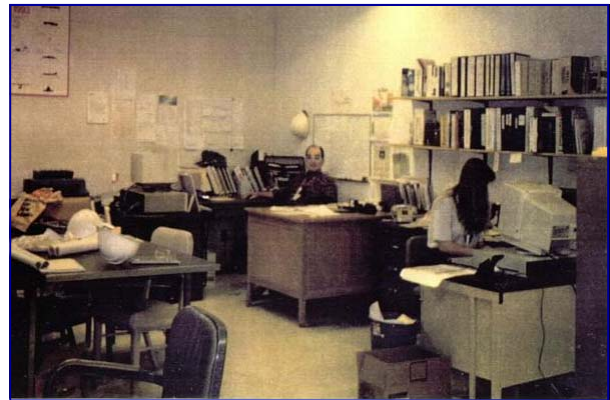
- Project planning and cost estimating
- Compliance with various regulatory requirements
- Preparing characterization and survey plans
- Reviewing, validating and interpreting survey data
- Evaluating D&D alternatives
- Preparing bid packages and technical specifications
- Providing management and technical support to D&D operations
- Conducting MARSSIM surveys
- Recommending effective waste minimization, packaging, transportation and disposal options
- Conducting H&S, QA and radiation protection audits and field surveillance
- Completing verification surveys and verification/docket reports for decontaminated facilities

### EMS IN ACTION

EMS key project managers were responsible for the overall procurement, planning, and performance of a major D&D program at a DOE NPL site. This program which included decontamination of four buildings and demolition of another, was completed ahead of schedule and well under budget. Cost saving initiatives and experiences gained from this program were shared with other DOE sites and the private industry at technical conferences and were published in two technical papers.



DOE Specimen Room  
Before Decontamination and Decommissioning



DOE Specimen Room  
After Decontamination and Decommissioning



## Site Surveys, Characterization and Remediation

EMS has extensive experience in planning and conducting radiological characterization and survey of various radiologically contaminated media. EMS is uniquely qualified to assist clients in negotiating clean-up levels and release limits of radiologically contaminated media with various Federal and State agencies including the Nuclear Regulatory Commission (NRC), EPA, and Agreement States.

Independent verification of cleanup completion of radiologically contaminated media is another area where EMS' support can be very effective. We can work with you, review all relevant information, and design and implement an effective and defensible program to independently verify that your facility has been successfully decontaminated or remediated consistent with your project objectives, and in compliance with all applicable laws and regulations and the agreed upon cleanup levels or release limits.



### SCOPE

- Preparation of characterization plans including: Survey Plans, QA/QC, H&S, Radiation Protection
- Field sampling and swipes
- Onsite surveys
- Reviewing, validating and interpreting site characterization data including radiological data
- Recommending decontamination or remedial actions as necessary
- Preparing CERCLA documents including RI/FS, focused FS, EE/CA, ROD & AM
- Preparing remedial/removal action plans including H&S and RPP as applicable
- Providing management and technical support for site remediation and removal action activities
- Providing post remediation/removal action verification, post closure monitoring, five year review, and supporting clients to negotiate site deletion from NPL

### EMS IN ACTION

EMS staff members have planned and executed many site characterization and remediation activities. Such activities included collecting thousands of environmental samples, overseeing installation of groundwater wells, removing underground tanks as well as the remediation of soils, landfills and groundwater at several industrial and government sites.



## Waste Management, Minimization and Pollution Prevention

EMS has many years of experience in the management of radioactive, hazardous and mixed waste streams. EMS staff has prepared numerous waste management related plans including waste minimization plans, waste certification plans and site treatment plans (STP) for compliance with the requirements of the Federal Facility Compliance Act (FFCAct) for mixed waste.

### SCOPE

- Preparing waste management disposition and minimization plans
- Preparing waste characterization plans, including sampling and analyses, H&S, QA/AC, and RPP as applicable
- Reviewing, validating and interpreting waste characterization data, including radiological data
- Designating waste as low-level, hazardous, mixed, high level, tru or sanitary based on characterization data and applicable Federal and State laws and regulations as well as disposal site Waste Acceptance Criteria
- Preparing exemption request packages for disposal of DOE low-level and mixed waste at commercial facilities
- Assessing and optimizing waste management practices and promoting pollution prevention awareness
- Assessing and providing verification of compliance with DOE Order 435.1 as applicable
- Providing field HazCating and evaluating/optimizing disposition options of laboratory chemical and radiological waste



### EMS IN ACTION

One of the most challenging tasks faced by EMS staff members was the disposition of thousands of mixed waste vials and jars containing radioactive biological matter preserved in organic solvents and acids. Our staff developed innovative and cost-effective procedures to characterize the waste streams. These procedures enabled our client to ship the waste off-site at a much lower cost and in time to avoid equity issues related to shipment of mixed waste between various states.

The successful implementation of an EMS-developed and managed waste minimization program achieved a volume reduction of more than 60% of low-level D&D waste and \$1.6 million savings in waste disposal costs.





## Recycling of Non-Real Property Containing Residual Radioactivity



Reuse or recycle of non-real property containing residual radioactivity is gaining momentum within the nuclear industry and at many government facilities. The practice however, requires unique qualification and experience not only with the recycling industry but also with all aspects of radiation protection, regulatory guidance, and proper determination of release limits and acceptable exposure levels to various receptors.

EMS' uniquely qualified health physicists and toxicologists have worked on several projects that involved recycling of concrete and scrap metals.

### SCOPE

- Preparing radiological survey plans, including H&S, QA/QC and RPP plans
- Conducting radiological field surveys
- Reviewing, validating and interpreting radiological data
- Developing radiological release criteria through application of NRC approved RESRAD models
- Preparing Applications for Approval of Authorized Release Limits of Contaminated Property and Materials
- Evaluating recycling vendors capabilities
- Coordinating the transfer of released materials to approved vendors

### EMS IN ACTION

The most recent project involved evaluation of disposition options of more than one million pounds of non-real property materials at two federal sites and one industrial facility. The project included defining and analyzing alternatives, assessing risk through application of latest regulatory approved computer codes (models), determining and proposing release limits, and coordination with regulatory agencies including the Nuclear Regulatory Commission (NRC) and Agreement States.



## Removal of Contaminated Sources

Key EMS Project Managers have successfully managed the removal, treatment, and offsite shipment of many radioactive sources. EMS has been recognized by our clients for our initiatives to reuse some of these radioactive sources rather than simply disposing of them in landfills and trenches. Our approach has saved our clients money and preserved valuable resources.

### SCOPE

- Preparing and implementing source characterization and survey plans
- Performing bench scale studies to evaluate possible treatment options
- Conducting nationwide inquiry to identify potential users of sources
- Preparing source removal plans and procedures including H&S and radiation protection plans
- Managing removal of sources to beneficial users

### EMS IN ACTION

One of the most rewarding tasks managed by EMS staff members was the removal, packaging, and shipping of a large Cobalt 60 source and several Sr-90 sources. As an alternative to land disposal, we initiated informal inquiries to see if the sources could be transferred to beneficial users. We successfully located industrial and medical research users for both Co-60 and Sr-90 sources and avoided the more costly and less environmentally sound land disposal alternative.



## Radiation Protection, Health and Safety

Over the years, EMS staff have provided government and industrial clients with exceptional support in the area of radiation protection and occupational safety and health programs.



### SCOPE

- Conducting Radiation Workers I & II training and certification
- Preparing radiation protection plans and ALARA program manuals for compliance with 10CFR 835
- Preparing radiological control manuals and implementation plans
- Conducting MARSSIM surveys
- Developing and implementing environmental and personnel dosimetry programs
- Conducting H&S and radiation protection compliance audits and surveillance
- Preparing H&S plans, emergency response plans, illness and injury prevention plans, etc.

### EMS IN ACTION

EMS was responsible for developing and implementing effective health and safety and radiation protection plans and practices at a major NPL facility. EMS staff members prepared the site radiological control manual and radiological protection plan to comply with 10CFR835. EMS provided training to over 200 radiation workers involved in radiation protection and cleanup programs at various sites. A key EMS staff member served at a major Department of Energy (DOE) facility as the chairperson of the radiological control committee responsible for protecting site workers, neighboring communities and the environment from radiation. EMS was recognized by the client for maintaining a safety record of zero work loss days from occupational injuries over a period of nine years.



## Regulatory Compliance

EMS has many years of experience in drafting documents for compliance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Conducting environmental impact analysis and preparing environmental compliance documents involves multidisciplinary project personnel and regulators. Although time consuming and challenging, projects are not permitted to proceed without these documents.

EMS staff members have streamlined the NEPA process and integrated NEPA requirements with CERCLA RI/FS and/or EE/CA documents. Our streamlined approach has resulted in significant cost reduction and schedule acceleration for EMS clients.

### SCOPE

- Preparing NEPA Environmental Assessment (EA) and Categorical Exclusions (CX)
- Preparing CEQA Initial Studies and Environmental Impact Reports (EIR)
- Preparing RCRA Part A and Part B Permit Applications
- Preparing RCRA closure plans and post closure verifications and certification documents
- Preparing Site Treatment Plans for compliance with the Federal Facility Compliance Act for storage and treatment of mixed waste
- Preparing regulatory-required reports including EPA Biannual Report, Federal Facility RCRA Activity Report and annual NESHAP report

### Other environmental compliance and permitting services include:

- Preparing the Report of Waste Discharge (ROWD) for compliance with Subchapter 15 of the California Code of Regulations
- Negotiating Waste Discharge Requirements (WDR)
- Acquiring NPDES permits

### EMS IN ACTION

At a major NPL site, EMS drafted the Environmental Assessment document for a major decontamination and decommissioning project as well as eight Categorical Exclusions for radioactive and mixed waste removal and building demolition. EMS prepared Part B permit applications for an RCRA facility in California and interacted with regulators to secure facility permits. EMS staff members also prepared numerous compliance documents, including RCRA closure plans, site treatment plans and EPA Biannual and NESHAP reports.



## Program Management

EMS has provided government and industry clients with exceptional program management support, including planning and managing field activities, preparing budget and baseline documents, and providing clients with innovative solutions. Our project managers have saved clients more than \$10 million in site cleanup and waste management costs by utilizing sound project management practices, aggressive cost and schedule controls and innovative, streamlined and cost-saving initiatives.

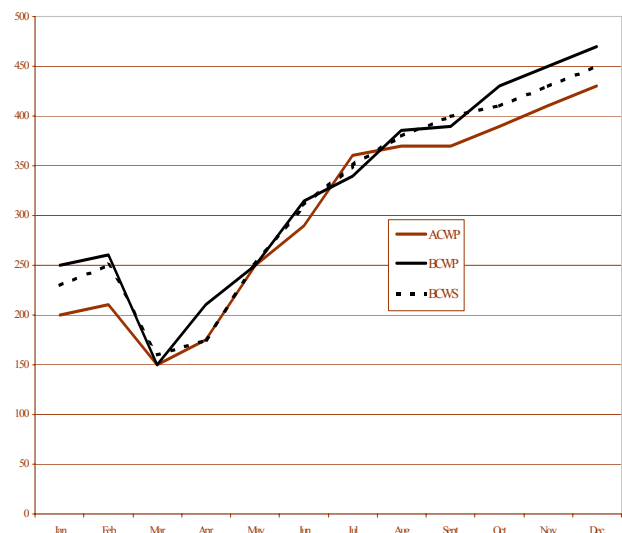
At EMS, we believe a successful program management service depends on the application of effective project management principals and vigilant attention to the following objectives:

### SCOPE

- Understand customer's needs and regulatory requirements and constraints
- Maintain direct communication with the client project staff and seek feedback during all project phases
- Develop a cost-effective plan that meets the customer's needs and complies with regulatory requirements
- Assign highly qualified and properly trained project personnel
- Develop detailed project scope, schedule and budget consistent with customer's objectives and financial constraints
- Establish and implement proven and effective project management systems with well defined and measurable performance criteria
- Measure project performance against established criteria
- Ensure that work is conducted in a safe manner and in compliance with all applicable laws and regulations
- Continue to optimize project performance by implementing cost saving initiatives, streamlining approaches and utilizing innovative technology whenever appropriate

### Project Status

ACWP = Actual Cost for Work Performed  
BCWP = Budget Cost for Work Performed  
BCWS = Budget Cost for Work Scheduled



### EMS IN ACTION

EMS project managers have managed environmental projects exceeding \$100 million. These projects included the clean up of three NPL sites, decontamination and decommissioning of radioactively contaminated buildings, closure of RCRA facilities and removal and off-site treatment or disposal of over one million cubic feet of radioactive, hazardous, and mixed waste from various contaminated sites.



## Selected Projects

Throughout their environmental consulting career, EMS key professionals and associates have provided technical support and managed many projects for industrial and government clients. These projects ranged from initial environmental screening to remediation of soils and groundwater. The following is a selected list of these projects. All projects were completed with zero lost work days due to occupational illness or injury. Client contact names and phone numbers will be provided upon request. **We encourage you to talk to our clients before you give us work.**



### **U. S. Army Joint Munitions Command (JMC)** *Characterization, Profiling, and Disposal of Radioactive Remediation Waste*

This project involves characterization, profiling, sorting, packaging, and transportation of approximately 10,000 cubic yards of radioactive low-level and mixed waste streams excavated from a Navy major NPL site in California. Scope of work under this project also includes procurement of waste containers and transportation subcontractors, and evaluation and optimization of waste treatment and disposal options.

**Value:** \$11,000,000

**Project Duration:** 2 years (ongoing)



### **U.S. Department of Energy** *Decontamination and Decommissioning of Radioactive Facilities*

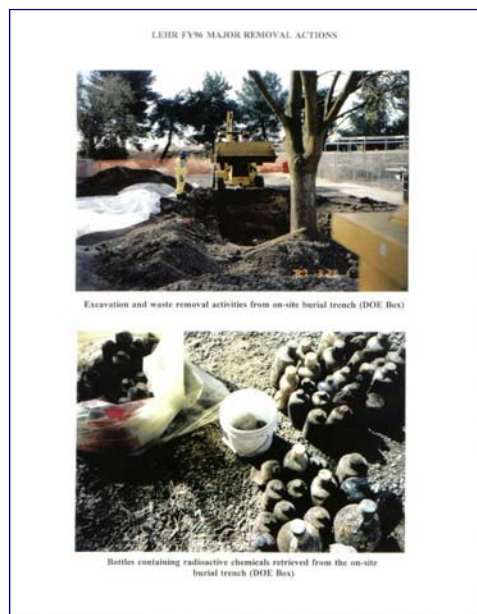
This project, managed by one of EMS' Principals, involved chemical and radiological characterization and survey, decontamination of building walls, floors, and ceilings, and removal of contaminated piping systems, drain lines and internal structures. The successful completion of this project was verified by a DOE independent verification contractor and the California Department of Health Services Radiological Branch.

**Value:** \$10,000,000

**Project Duration:** 4 years



## Selected Projects



### U.S. Department of Energy CERCLA RI/FS

Managed by one of EMS Principals, this project involved conducting CERCLA RI/FS activities at a DOE NPL site. The site covered six operable units including landfills, surface and groundwater, underground tanks and leach field systems, and numerous radioactive and disposal burial trenches. The project also involved installation of groundwater wells and hundreds of hydropunch holes, performing vadose zone and groundwater contaminant transport modeling, developing risk based action standards and effective communication with the regulatory agencies and the public.

**Value: \$8,000,000**

**Duration: 7 years**



### Laboratory for Energy Related Health Research

#### *Environmental Restoration and Waste Management Project*

As a first tier subcontractor, EMS has provided unique technical and management support to this multi-million dollar superfund project. EMS involvement included preparation and/or review of key CERCLA, RCRA, NEPA and CEQA documents including preparation of a closure plan for the onsite Mixed Waste Storage Facility, evaluation of remedial alternatives, and closure of RCRA facilities. EMS scope also included characterization, designation, profiling, and disposition of radioactive, mixed, and hazardous wastes and materials, developing and implementing effective radiation protection programs, providing radiation worker training to more than 200 project personnel and participating in various internal and external QA, H&S and radiation protection audits and surveillances. EMS staff played a key role in developing and negotiating cleanup strategies with the regulators that has saved the client several million dollars in remediation work.

**Value: \$3,500,000**

**Duration: 6 years**



ENVIRONMENTAL MANAGEMENT SERVICES, INC.

## Selected Projects

### **US Department of Energy**

#### *Treatment and Disposal of a Unique Low-Level Radiation Sludge*

This project which was managed by one of EMS principals consisted of removing approximately 150 m<sup>3</sup> of low-level radioactive sludge waste from underground concrete tank system and solidifying, packaging and transporting the treated sludge waste to the DOE Hanford Site for disposal. The full-scale solidification process was preceded by laboratory bench scale solidification tests known as Process Control Program (PCP), where different types of solidification chemicals were added and properly mixed with the sludge waste. The results of the PCP tests were used to determine the type and proper additives required to form a solid waste monolith that meets the disposal site waste acceptance criteria and the requirements of the State of Washington, Department of Ecology.

Although the sludge was successfully solidified and accepted for disposal at the Hanford Site, several problems associated with the removal of the tank sludge and waste/additive mixing and curing were encountered. These problems ranged from the inability of the various pump systems to remove all of the sludge from the tanks to the “hard to control” exothermic solidification process. These problems were resolved and the waste was successfully treated and disposed of at Hanford.

Experience gained from this project was shared with other DOE sites and published in technical conference proceedings.

**Value: \$1,250,000**  
**Duration: 6 months**

### **Lawrence Berkeley National Laboratory**

#### *Technical and Regulatory Support for the Disposition of Radioactive Laboratory Waste*

On this project, EMS technical and radiation experts performed detailed characterization and survey of drummed laboratory waste and optimized waste disposition options based on this characterization. Waste characterization included radiological survey, gamma counting, beta counting, and HazCating for possible chemical constituents in the waste matrix. Characterization data were used to designate waste and to prepare waste profile documents consistent with the disposal site waste acceptance criteria. Under EMS staff direction and oversight, this unique laboratory waste was successfully compacted (significant volume reduction), packaged and disposed of at the DOE Hanford site.

**Value: \$110,000**  
**Duration: 1 month**

### **Lawrence Livermore National Laboratory**

#### *Waste Management Technical Support*

EMS provided exceptional support to LLNL's Waste Management Compliance Program. This support included review of the laboratory waste management practices and procedures against regulatory and DOE requirements, identifying deficiencies and recommending changes and revisions to practices and/or procedures to achieve full compliance.

**Value: \$131,000**  
**Duration: 1 year**





## Selected Projects

### **Energy Technology Engineering Center** *Technical Support, Part B Permit Application*

EMS scope on this major permitting project consisted of reviewing ETEC specific data related to the onsite RCRA facility, incorporating state regulatory comments on the draft Part B permit document, and revising key sections of the draft documents including management practices, personnel training, contingency plan and emergency procedures, and closure and post closure plans.

**Value: \$50,000**

**Duration: 6 months**

### **Pacific Gas & Electric Company** *Environmental Compliance Program for Gas Facilities*

EMS key staff developed and implemented a streamlined environmental compliance program for PG&E gas compressor facilities. This program, designed to comply with Subchapter 15 and Title 22 of the CCR, included design and construction of wastewater treatment facilities, installation and sampling of groundwater monitoring wells, closure of RCRA facilities, corrosion control, and assessment of groundwater contamination and cleanup options.

**Value: \$10,000,000**

**Duration: 5 years**



### **Stanford Linear Accelerator Center (SLAC)**

#### *Optimization of Metal Recycling Options*

This project involved conducting an optimization study to determine the feasibility of recycling about 120 metric tons of volumetrically contaminated radioactive steel and iron. Using the DOE RESRAD RECYCLE latest computer code (model), EMS technical staff determined potential radiological dose to the public and workers under various exposure scenarios from the recycling of slightly radioactive materials and the reuse of end products. Based on the results of this optimization study, EMS prepared the Application for Approval of Authorized Limits for the SLAC metal recycling.

**Value: \$50,000**

**Duration: 1 month**



## Selected Projects

EMS has performed various waste brokerage projects at several Department of Defense (DoD) and DOE facilities. The following is a short description of some of these brokerage projects:

### East Coast Run

EMS was responsible for the profiling, manifesting, transportation and disposal of radioactive waste at six separate government facilities in the Maryland area including; 1. Walter Reed Army Medical Center, 2. U.S. Army Research Institute of Infectious Disease, 3. Goddard Space Flight Center, 4. Army Research Lab at Aberdeen Proving grounds, 5. Fort Meade, and 6. U.S. Army Center for Health Promotion and Preventative Medicine. The waste included: sealed sources, dry active waste, uranium and thorium compounds requiring solidification, contaminated lead shielding for recycling and disposal, and bulk-liquid mixed waste for incineration, contained in 44 steel drums. EMS subcontracted for transportation, laboratory and disposal services. Processing and disposal sites included, Perma-Fix of Florida, Duratek's Consolidation Facility in Barnwell South Carolina, and the U.S. Army ACERT Service Facility in Rock Island, IL.

### Bethesda, MD

EMS was responsible for the profiling, manifesting, transportation and disposal of radioactive items and devices located at the Uniformed Services University of Health Sciences and Armed Forces Radiobiology Research Institute. The waste materials included: mixed waste (scintillation vials and bulk liquids), sealed sources, uranium compounds for solidification and activated solids such as metal, wire, and wood. The total volume of material shipped for processing was contained in 14 steel drums. EMS Subcontracted for transportation, and processing and disposal services. Processing and disposal sites included, Perma-Fix of Florida, DSSI in Kingston, TN and Duratek consolidation facility in Barnwell, SC. EMS's Tennessee transportation permit was used for the transport of mixed waste materials into the State of Tennessee for incineration.

### Various Tennessee Locations

EMS shipped 28 drums of radioactive items and devices collected at thirteen separate scrap yard facilities in the State of Tennessee. EMS traveled over 900 miles making one to three stops each day. Processing and disposal sites included Environmental Management Controls, Turlock, CA, RACE LLC, and EnergySolutions, Clive Utah. Significant volume reduction (~ 30%) was achieved at the RACE LLC processing facility reducing projected disposal costs.

### Warner Robin AFB

EMS shipped 14 drums of low-level waste consisting of radioactive devices to Duratek's consolidation facility in South Carolina for processing and disposal. Prior to waste shipment, EMS prepared waste profiles and manifests, verified waste inventory, and provided onsite supervision of waste loading. EMS' initiative/suggestion to consolidate similar waste streams resulted in eliminating 4 drums of waste and saving client significant cost for waste transportation and disposal.

### Davis Monthan AFB

EMS shipped 5 truck loads and 2 Fed-Ex shipments of various radioactive waste including depleted uranium counter weights for processing/disposal at multiple facilities including US Ecology facilities in Washington and Idaho, EnergySolutions of Utah, Duratek in South Carolina, and Lawrence Livermore National Laboratory in California. As with the Warner Robin AFB shipment task, EMS was able to consolidate waste packaging process resulting in significant volume reduction and saving in waste transportation and disposal cost.

**Value: \$1,300,000**

**Duration: 2005—present**



## EMS Cost Saving Initiatives

The following is a partial list of initiatives by EMS key staff that have resulted in schedule acceleration, resolved or avoided potential compliance and liability issues, and provided significant cost savings to our clients.

- Recommended and led efforts for the preparation and negotiation of groundwater monitoring variance from California Code of Regulations (CCR) Subchapter 15 requirements. Efforts saved our utility client \$900,000 in capital costs and \$320,000 per year in groundwater monitoring and reporting costs.
- Recommended an environmentally protective alternative to the CCR Subchapter 15 requirements for waste management facilities at a major utility gas plant and prepared and negotiated a variance application package for agencies approval. Involved regulatory agencies approved the variance resulting in a savings of about \$5 million in capital costs.
- Recommended modifying and reuse of existing building for waste staging and storage as opposed to “other” contractor’s proposal to construct a new facility at a cost of more than \$500,000. The cost for this modification was \$12,000, resulting in a net cost savings of \$488,000.
- Identified and negotiated transfer of a high Curie Co-60 source to a research institution for reuse as opposed to the original plan for disposal at an offsite radioactive disposal facility, resulting in a net cost savings of \$120,000 and preservation of valuable land.
- Identified and implemented alternative to “other” contractor’s proposal for onsite dismantling of a contaminated 10-ton tanker trailer that required very costly H&S and radiation protection practices. Alternative consisted of negotiating a fixed price contract with an offsite commercial facility for transporting, dismantling, and super compacting tanker components and disposing compacted waste at a radioactive disposal site. Cost savings compared to original contractor approach (onsite dismantling) was \$500,000.
- Streamlined and eliminated more than 80% of characterization and assessment of Imhoff building and waste treatment facility. Effort accelerated completion of D&D by one year and saved more than \$250,000 in unnecessary characterization costs.



## EMS Cost Saving Initiatives

- Invested \$70,000 for purchase of small shredder and compactor for onsite D&D waste reduction. Effort reduced D&D waste by more than 50% with a net savings of \$800,000 in waste transportation and offsite disposal costs.
- Identified major problems (false positives) with “certified” laboratory analysis that undiscovered, would have significantly changed project direction and doubled clean up costs. The “certified” laboratory reported high levels of Strontium 90 radioactive isotope in soil samples taken a few feet above groundwater level. Prior to our review, our client reported this erroneous data to federal and state agencies and, in response to agencies request, prepared a time critical removal action to minimize impact to groundwater. In reviewing laboratory data, we noted that gross beta was hardly detected in the same sample that reportedly had high Sr-90. Since this is practically impossible because Sr-90 is a strong beta emitter, we advised our client to request reanalysis of the same sample. Several reanalysis reported no detection of Sr-90 and as a result, no removal action or further groundwater investigation were required.
- Developed innovative technique to characterize thousands of mixed waste vials and jars containing radioactive biological matter preserved in organic solvents and acids. This technique enabled offsite disposition of the legacy waste at a much lower cost and ensured site compliance with the FFCAct.
- Used double-bagged asbestos contaminated material as a void space filler of B-25 containers containing D&D waste disposed off at Hanford. Efforts avoided having to dispose of asbestos waste at hazardous landfills in California and eliminated the need to buy void space fillers to comply with Hanford requirements, resulting in a total savings of about \$100,000.



## EMS Key Personnel

EMS retains highly qualified and nationally recognized environmental experts. Our principals and associates have more than 150 years combined experience in a wide range of environmental engineering and consulting. The following is a summary of the experience of EMS principals and associates:

### EMS Key Personnel

**Salem A. Attiga, Ph.D.:** Dr. Attiga has more than 27 years experience in planning, executing, and management of multi-million dollar environmental compliance and cleanup projects. He is well recognized by various clients for his technical and managerial skills, value engineering, analytical approach to solving difficult problems, and attention to detail. Dr. Attiga is a Registered Environmental Assessor in California and a member of the American Nuclear Society and the National Society of Professional Engineers. Dr. Attiga has received many awards for his technical skills and initiatives that saved our government and industrial clients millions of dollars in compliance and cleanup cost. Dr. Attiga has authored 15 technical papers published in environmental and scientific journals.

**Thomas J. Dias:** Mr. Dias has over 35 years experience in all aspects of radioactive and mixed waste management with emphasis on waste brokerage and management of remediation projects. He maintains certification as a DoD Senior Waste Broker, has received training in MARSSIM survey design and is proficient in planning, estimating, and managing complicated multi-hazard disposal projects. He has been the Radiation Safety Officer on several large quantity radioactive material licenses. His extensive network of industry professionals and his knowledge of most recent processing, transportation and disposal options of various hazardous and radioactive waste streams assure the best value for the client. Mr. Dias is a member of the National Chapter of the Health Physics Society, a lifetime member of the Northern California Chapter of the Health Physics Society, and a Registered Radiation Protection Technologist.

**Ronald Wilcox:** As a DoD certified Senior Waste Broker with over 24 years experience in the radioactive waste processing and shipping business, Mr. Wilcox is proficient in all operations associated with preparing and shipping radioactive and hazardous waste / materials to licensed disposal sites. For 16 years, Mr. Wilcox served as Manager of Waste Operations at California's only licensed radioactive waste processing facility. He was responsible for the receipt and inspection of incoming radioactive and hazardous waste loads, warehousing and tracking waste material onsite and overseeing processing operations, including operation of the B400 waste compactor for waste volume reduction. Mr. Wilcox oversaw all aspects of packaging including package selection, marking, labeling, and quality assurance inspection and reviewed manifests and supporting document preparation for compliance with all Department of Transportation, State, Federal, and disposal site regulations. Mr. Wilcox was recently recognized by the State of Tennessee, Division of Radiological Health for his exceptional service and responsiveness in the characterization and disposal of radioactively contaminated military items at various metal recycling facilities throughout Tennessee.



## EMS Key Personnel

**Pramoth Mohan, M.S.:** With a B.S. in Chemical Engineering and an M.S. in Environmental Health Physics, Mr. Mohan is highly qualified as a Health Physicist and a DoD certified Assistant Waste Broker on a major radiological remediation project at a San Francisco Navy NPL site. Mr. Mohan is responsible for reviewing and validating waste radiological data, inspecting and surveying incoming and outgoing containers, preparing manifests for offsite shipments and performing radiological measurements including swipes using Protean Model IPC9025 automatic planchet counter. He is familiar with DOT requirements and the Waste Acceptance Criteria for shipping radiological waste/materials to EnergySolutions, U.S. Ecology, Barnwell, Richland and WCS. Mr. Mohan is an Associate Member of the American Academy of Health Physics.

**Bruce Moffatt:** Mr. Bruce Moffatt is a seasoned radioactive and mixed waste broker with over 20 years experience in the nuclear industry. Mr. Moffatt has extensive experience in all aspects of radioactive and mixed waste brokerage operations, having shipped to various processing and disposal sites including EnergySolutions, Nevada Test Site, Barnwell, Los Alamos, Savannah River, US Ecology WA, etc. In addition to his Waste brokerage experience, Mr. Moffatt has worked on several D&D and remediation projects for both DOD and DOE facilities requiring radiological surveys, decontamination and final status surveys in accordance with MARSSIM.

**Waste Brokers and Health Physics Technicians:** EMS personnel includes highly qualified and trained waste brokers, and Sr. and Jr. health physics technicians. Our waste brokers have profiled, manifested, and shipped well over a million cubic feet of low-level and mixed waste streams from DoD, DOE, and industrial installations. Our health physics technicians have provided health physics support to government and industrial clients that included radiation safety, decontamination and decommissioning, MARSSIM survey, soil remediation, and inspection and survey of waste containers and transportation trucks.



## EMS Key Personnel

### **EMS Associates**

EMS occasionally draws upon industry professionals to provide specialty technical services. The following individuals are additional resources that EMS can use as needed.

**Timothy Mock:** Mr. Mock has 20 years experience in operations, health physics and safety management in the nuclear industry. While with ATG, US Ecology, OHM and in the U.S. Navy, he functioned as a hazardous/radioactive materials broker and operations technician. Mr. Mock performed many specialized tasks, including ion exchange resin discharges, steam generator inspections, and radioactive material shipping and processing.

**John Polyak:** Mr. Polyak has over 18 years experience in the nuclear industry providing support to the Department of Defense and nuclear generating stations. Recent experience included preparation of Historical Radiological Assessments of a major DoD facility. Mr. Polyak also performed radiological surveys, remediation decontamination, and transportation and disposal tasks of radiologically contaminated soil at a DoD naval air station.

**Harry Newman, CHP:** Mr. Newman is a Certified Health Physicist with over 25 years of experience in the nuclear industry and in regulatory programs. His experience includes Decontamination and Decommissioning, Project Management, Regulatory Compliance, Environmental Monitoring, Nuclear Facility Licensing, Dose Modeling, Technical Support, Facility Operations, Emergency Management and Response, Quality Assurance Systems Management, and Radiological Laboratory Analysis.

**M. Abri, R.E.A.:** Mr. Abri has more than 15 years experience in the areas of environmental studies, waste management, and regulatory compliance. As an Environmental Engineer with the California Department of Toxic Substance Control, Mr. Abri reviewed and approved permit applications (including Part B) and closure of large STD facilities. He has also developed RCRA Facility Assessments for the State of California and reviewed and approved many RCRA corrective actions at many industrial sites. As an Environmental Consultant, Mr. Abri wrote permit applications and RCRA closure plans, and prepared NEPA and CEQA documents for a wide variety of environmental and construction projects.

**M.A. Bayati, Ph.D., D.V.M., D.A.B.T.:** Dr. Bayati is a prominent toxicologist and pathologist with dual diplomas by the American Board of Veterinary Toxicology and the American Board of Toxicology. He is a nationally recognized expert in human, veterinary, and environmental toxicology and pathology including diagnostic toxicology and evaluating human clinical data and pathological lesions in tissues. Dr. Bayati has worked with various health care providers to identify causes of illnesses from environmental exposure to toxic agents and radiation. He has served as an expert witness on several cases involving human exposure to toxic agents. Dr. Bayati is a member of the Editorial Board, Bulletin of Environmental Contamination and Toxicology. He has authored 32 technical papers published in national and international environmental and toxicological journals.



## EMS Client List

With over 150 years combined experience in the environmental and waste management field, key EMS professionals and associates are recognized for establishing a flexible approach to working with our clients in both the public and private sectors. At EMS, we work diligently with our clients to identify needs, evaluate options, recommend a proper course of action and assist in implementation. We're proud of our successful track record in resolving our clients' environmental and waste management challenges in a cost effective manner.

- U.S. Army Joint Munitions Command (JMC)  
Rock Island, Illinois
- U.S. Navy Hunters Point Shipyard  
San Francisco, California
- U.S. Department of Energy  
Oakland, California
- Stanford Linear Accelerator Center  
Stanford, California
- Lawrence Livermore National Laboratory  
Livermore, California
- Lawrence Berkeley National Laboratory  
Berkeley, California
- Pacific Northwest National Laboratory  
Richland, Washington
- Energy Technology Engineering Center  
Canoga Park, California
- TetraTech EM, Inc (TtEMI)  
San Francisco, California
- Jacobs Engineering  
Sacramento, California
- McClellan Air Force Base  
Sacramento, California
- University of California at Davis  
Davis, California
- Weiss Associates  
Emeryville, California
- The Boeing Company  
Huntington Beach, California
- EnergySolutions  
Clive, Utah





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## **ENVIRONMENTAL MANAGEMENT SERVICES, INC.**

150 North Wiget Lane, Suite 101  
Walnut Creek CA 94598  
Phone: 925-939-0687  
Fax: 925-938-0105

Learn more about EMS at  
[www.enviro-mgmt.com](http://www.enviro-mgmt.com)

