

MANAGING RISKS AND LEVERAGING OPPORTUNITIES: Strategies For Bottom-Line Results



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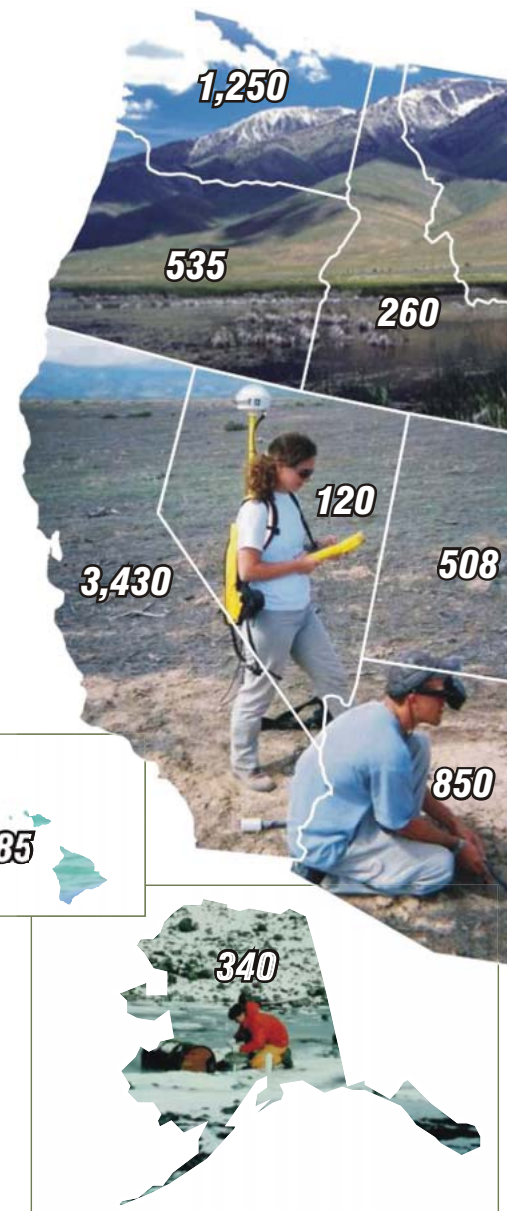
Today's environmental health and safety (EHS) managers face numerous challenges. You must comply with a myriad of permits that require extensive data collection, monitoring, and reporting; as well as address legacy pollution and reduce future liability. You must integrate with your organization's key business processes while constantly reducing staff and costs. You must satisfy many different stakeholders, including internal management; local, state and federal regulators; and neighboring businesses, residents, and special interest groups who demand ever-greater transparency.

With knowledge, teamwork, and execution, Ecology and Environment, Inc., (E & E) will help you to manage risks and leverage opportunities. We'll help you to effectively and accurately manage your data so you can spend more time on the strategic issues that add value to your organization. We'll use our knowledge of innovative technologies to find solutions for past pollution that reduce both costs and liabilities. As a vital part of your team, we will help you use best practices to improve both environmental performance and the bottom line.

You can count on us to respond to your needs with creativity, integrity, and expertise. As our client, you are the center of our universe, and our goal is to make you shine.

▼ Effective Tools for Clients

E & E frequently designs Web sites and GIS databases to support ongoing compliance management, as well as data exchange, during larger remediation projects. Clients can quickly review information to support and demonstrate business decisions.



E & E has provided environmental and engineering services at more than 27,800 sites nationwide.

Our experience working in every state and every urban county in the country means we have the geographic knowledge, the relationships with key agency personnel, and the understanding of local laws and regulations to resolve issues and negotiate solutions.

- *To provide the knowledge and expertise your project deserves, we offer the expertise of 1,000 staff professionals representing 75 disciplines.*
- *To respond quickly to your needs, we offer worldwide coverage from 25 domestic and 25 international locations.*



COMPLIANCE AND PERMITTING

Environmental Permitting—Compliance and Beyond

E & E helps industrial clients achieve compliance and minimize pollution, reduce emissions, reuse waste materials, and devise solutions to achieve or go beyond compliance.

Services

- Environmental Audits
- Abatement Requirements Evaluation
- Environmental Impact Analysis/EIS
- Greenhouse Gas Emissions Certification and Trading Evaluation
- Public Involvement and Stakeholder Engagement
- Sustainable Development Planning
- Environmental Management System (EMS) Development/ISO 14001 Compliance Assessments
- Corrective Action Recommendations
- Current/Future Environmental Liabilities Assessment
- Evaluation of Current Regulations vs. Potential Operations
- New Regulations Identification/ Impact Evaluation
- Permit Applications Development and Review—NPDES; PSD; RCRA; CAA Title IV and V; CWA Sections 316(a)/316(b), 404, and 401; U.S. Army Corps of Engineers Sections 10 and 404

Manufacturing and production facilities can be required to have dozens or even hundreds of permits—including air, water, hazardous materials, hazardous waste, underground storage tank, wastewater discharge, and others—as well as numerous plans to address emergency preparedness and response, safety, and security. New issues like greenhouse gas management and water quality trading continue to emerge.

Achieving regulatory compliance requires that operations be routinely reviewed to determine whether regulatory thresholds are crossed; that permits be obtained and that operations comply with all data collection, monitoring, and reporting requirements; and that required plans be developed in a continually evolving regulatory environment. We work closely with you to prepare and implement plans that keep workers and neighbors safe.

At E & E, we use our well-founded understanding of existing and evolving regulations to develop compliance strategies that meet requirements in the least burdensome way. We design environmental management systems (EMSs) that allow EHS managers to track permits and requirements; manage multiple sets of data; and communicate both internally and externally. We also lead you beyond compliance—to “walk the talk” toward implementing sustainable development concepts and achieve the triple bottom line of environmental, social, and economic prosperity.

To proactively manage risk for new facilities, we provide a comprehensive permit acquisition strategy. The end result is on-time, on-budget performance that reduces long-term liability.

- ▼ For a commercial shipping company, we completed industrial hygiene and compliance assessments aboard 11 vessels on the Great Lakes.





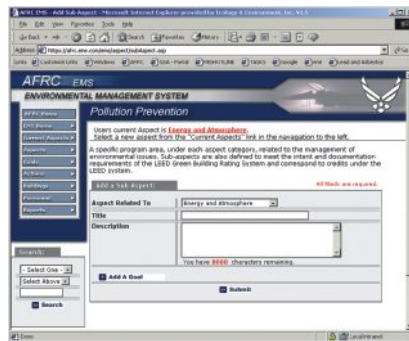
▲ E & E conducted audits at several Metra commuter rail maintenance facilities in Chicago, and prepared air permit applications and SPCC plan updates to ensure compliance.



Thermal Destruction of Explosive Waste at a TSD Facility

“Through the E & E team’s efforts, Martin Electronics, Inc.’s financial liabilities and the monetary requirements for the closure care assurance have been greatly reduced. E & E has demonstrated a high degree of diligence and professionalism.”

—Manager, Safety, Environment and Energetics



▲ E & E designs Web-based EMSs to enable clients' executive, financial, and environmental staff members to review the environmental information needed to maintain compliance and support business decisions.

Projects

Permitting and Compliance for an Explosives Ordnance Blending Facility, Florida

Filed RCRA and air permits, developed an approach to reduce compliance monitoring by 50%, and negotiated with regulatory agencies to reduce the closure and post-closure financial assurance—a significant cost savings for our client.

Crater Lake National Park Environmental Compliance Program, Oregon

Reviewed environmental permits for property acquisition and assisted in incorporating best-management and sustainable design practices into the Integrated Environmental Management Plan (IEMP).

Air Permit and Compliance Services for Sawmill Facility, Alabama

Conducted a best-available control technology (BACT) analysis and updated the facility's PSD/Title V air permits to allow for greater capacity/production levels.

IEMP and Safety/Loss Control Plan, California

As part of a green design program, prepared the IEMP and associated safety and loss control (risk management) plan for a concessionaire that provides ticket sales and ferry services in the San Francisco Bay region.

NPDES Stormwater Permits and Environmental Audits for Food-Processing Facilities, Nationwide

Prepared an EPA-approved group NPDES stormwater permit application for six fruit and vegetable processing facilities. Conducted compliance assessments at 12 facilities, prepared NPDES permit applications, and designed stormwater monitoring programs.

Environmental Audits for Nine Electrical Power-Generating Plants, Peru

Evaluated liability and compliance with Peruvian laws and World Bank guidelines regarding air emissions, water discharges, waste disposal, chemical storage, and noise.

Environmental Compliance Audits for a Microelectronics Facility, California

Designed a unique facility audit self-assessment program, in accordance with regulatory criteria, to enable EHS managers to rapidly update capabilities and design corrective action plans. Recommended systemwide improvements to comply with new regulations.

REMEDIATION

Solving Problems from the Past with Technology for the Future

E & E has **30 years** of experience in the management and design of more than **\$10 billion** in remediation projects. We offer “green design” solutions that help our clients reduce costs while achieving environmental benefits.

Services

- Site Assessment
- Geologic and Geophysical Investigations
- Water Quality Studies and Modeling
- Remedial Alternatives Analysis
- Treatability Studies
- Remedial Design
- Bid Document Preparation
- Construction Oversight
- Remediation Systems O&M
- Site Restoration
- Air Quality Studies and Modeling
- Human Health Risk Assessment
- Ecological Risk Assessment
- Data Management, including Web-based Data Management
- GIS-based Site Mapping
- Emergency Response
- Feasibility Studies/Corrective Measures Studies
- Laboratory/Analytical Services

Despite years of environmental vigilance, many firms must still remediate legacy pollution. Whether the results of past practices, current acquisitions or mergers, or a spill or accident, owners seek to eliminate or reduce the costs and liabilities associated with contaminated sites. E & E can meet all your site remediation needs.

Our experience includes virtually any type of contaminant (MTBE, perchlorate, solvents, heavy metals, PCBs) and industry (transfer, storage, and disposal facilities; plating shops; manufactured gas plants; radiological materials; container/drum; oil and chemical; and mines). E & E will help you determine what's the right response when things go wrong.



▲ We designed and managed the installation of a constructed treatment wetland system at a refinery in Ohio. E & E's approach has enabled Chevron to accelerate the remediation schedule and achieve additional environmental benefits. EPA selected this site as one of about 30 RCRA showcase sites nationwide for 2002.

We are skilled in operating new, advanced equipment and developing innovative applications for site assessment and testing. Our toolbox includes traditional equipment as well as newer technologies. Unlike engineering firms that only seek engineered or structural solutions, E & E works with natural systems to reduce long-term operation and maintenance (O&M) costs while providing net environmental benefits. For example, we were among the first firms in the nation to use phytoremediation (for a site contaminated with hexavalent chromium). These biological systems offer reduced monitoring requirements and significant cost reductions while still meeting water quality standards.

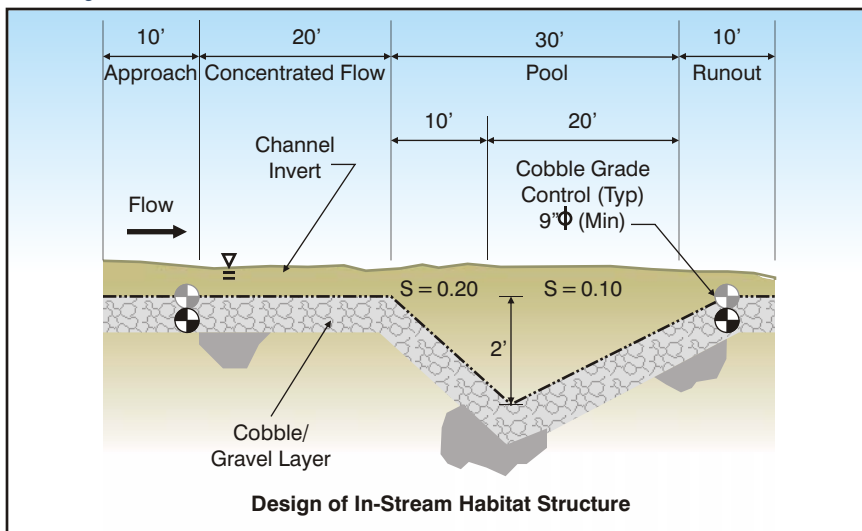


At a silver smelting/recovery site in Florida, E & E designed a biological groundwater remediation system that has been achieving contaminant destruction efficiency of greater than 99% while reducing long-term O&M costs.

E & E helps clients with all phases of litigation support, including case preparation, deposition, and expert witness testimony. E & E's staff experts in medical, public health, epidemiology, pharmacology, and toxicology critically evaluate health-related claims and develop creative solutions and strategies to win the case.



After millions of gallons of coal slurry contaminated a Kentucky waterway, E & E developed restoration goals to ensure channel and streambank stability and prepared designs for in-stream habitat structure.



Projects

Phased Remediation Plan and Cleanup at the Welsbach Site, New Jersey

Designed a phased remediation plan to allow fast-track cleanup to begin at 60 of the 600 contaminated properties, thereby reducing the costs to our client by minimizing disruptions for nearby residents.

Remedial Technology Assessment and Design Modifications for Former Automotive Facility, Mississippi

Designed modifications to improve an existing groundwater treatment system—thereby saving our client significant costs—and provided O&M activities to ensure continued remedial effectiveness.

Coal Slurry Remediation, Kentucky and West Virginia

Developed a cleanup strategy and design and successfully restored contaminated river and streambeds after a catastrophic release of millions of gallons of coal slurry.

Environmental and Risk-based Assessments at Thiokol Manufacturing Plants, Utah and Maryland

Conducted an environmental liability evaluation. Performed a screening-level endangerment assessment to determine whether there were any off-site effects on human health or the environment at the Utah operations, which included the NASA space shuttle motor facility that produced and tested rocket propellant and motors.

Hudson River PCB Remediation, New York

Overall project management, community involvement, and remedial design support for the \$500-million cleanup of sediments in the historic Hudson River.

Treatment Wetlands at a Confidential Site in the Midwest

Designed the first wetland system to treat solvent-contaminated groundwater in the U.S. The passive, cost-effective system was used to remove 95% of the contaminants from the groundwater.

Midway Village Remedial Cleanup Program, California

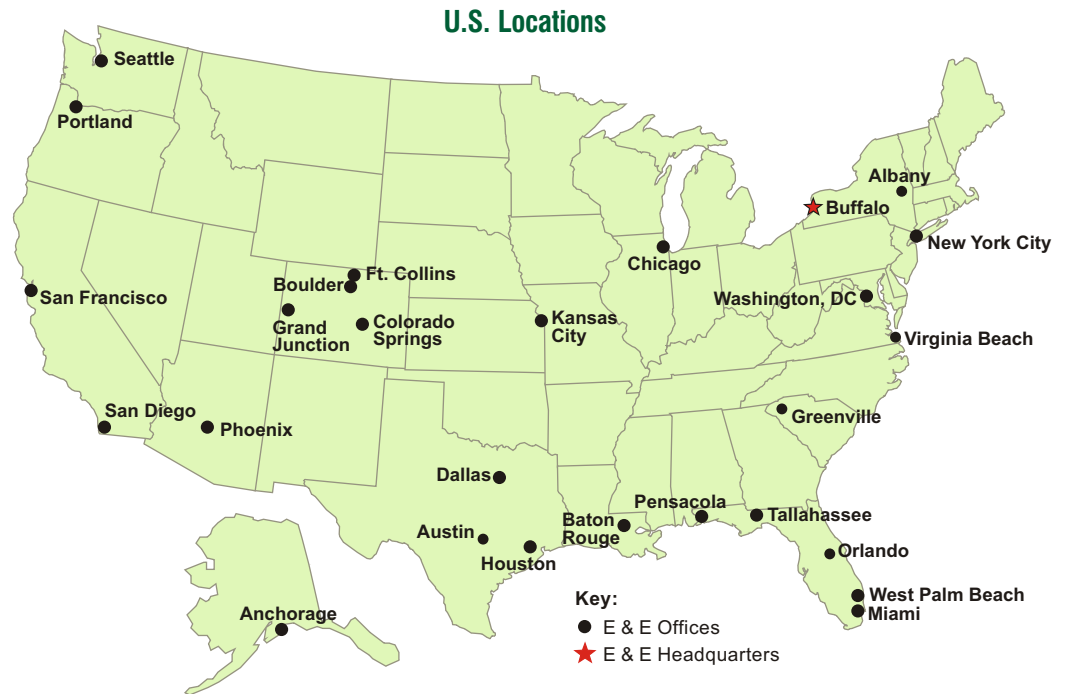
Successfully implemented a fast-track, risk-based removal program at a housing complex built on a former manufactured gas plant site.

Compliance and Remediation Services

- Alternatives Analysis
- Bid Document Preparation
- Community Relations
- Construction Management/
Cleanup Oversight
- Contingency Planning
- Contractor Selection
- Corrective Action
Recommendations
- Current/Future Environmental
Liabilities Evaluation
- Emergency Response
- Ecological Risk Assessment
- Engineering Evaluations/
Cost Analyses
- Engineering Feasibility
Studies
- Environmental Management
Systems
- Environmental Impact
Assessment
- Environmental Regulations
Review
- Human Health Risk
Assessment
- Information Management/
Web Design Services
- Litigation Evaluation
- Medical Monitoring and
Assessment
- Operation and Maintenance
- Permit Application
Preparation
- Remedial Action
Implementation/
Site Restoration
- Remedial Design
(Plans/Specifications)
- Risk-Based Contamination
Assessment
- Sample Collection/Analysis
- Vulnerability Analysis
- Sustainable Development

E & E's responsive, creative experts (1,000 staff) in environmental, health, and engineering disciplines will help you meet your compliance and remediation challenges with:

- Strategies for managing risks, reducing liabilities, and benchmarking and implementing best management practices and sustainable development concepts;
- A toolbox of traditional and new approaches to improve environmental performance; and
- Technologies to effectively and accurately manage data.



International Locations

South America

- Caracas, Venezuela
- Lima, Peru
- Quito, Ecuador
- Rio de Janeiro, Brazil
- Bogotá, Colombia
- Buenos Aires, Argentina
- San Jose, Costa Rica
- Santiago, Chile

Africa/Middle East/Europe

- Amman, Jordan
- Anhui, China
- Ankara, Turkey
- Berlin, Germany
- Cairo, Egypt
- Dammam, Saudi Arabia
- Jeddah, Saudi Arabia
- Kuwait City, Kuwait

Asia

- Beijing, China
- Kunming, China
- Shenyang, China
- Tianjin, China

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