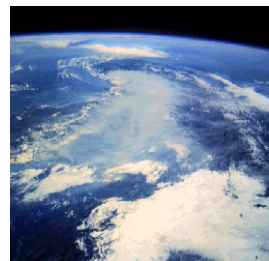




CS₂ Inc.
Statement of Qualifications



CS₂ Inc. continues to provide superior quality services on schedule, within budget, and to the satisfaction of our customers.

**A Certified, Woman-Owned, Small Business
Established 1997**

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www.cs2inc.com*



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Mission Statement

Our Mission ...

The Best Strategies and Solutions



CS₂ Inc. is the best at developing strategies and solutions to meet the environmental, engineering, and energy needs of facilities. CS₂ Inc. develops cost saving strategies to improve the bottom line and environmental footprint of facilities. CS₂ Inc. continues to provide superior quality services on schedule, within budget, and to the satisfaction of our customers.

Company Overview

Company: Compliance Strategies & Solutions, Inc.
Registered DBA: CS₂ Inc.
Structure: C Corporation
Year Established: 1997
President: Elizabeth Drake
Status: Woman-Owned, Small Business
Certification: State of Texas, METRO
Location: Houston, Texas
Clients: Industry and Government
Service Area: Nationwide and International
GSA Schedule: GS-10F-0107
Website: www.cs2inc.com

Our Reputation

- ◆ Cost Saving Solutions
- ◆ Environmental Footprint Strategies
- ◆ Excellent Service
- ◆ Exemplary Safety Record
- ◆ High Quality Deliverables
- ◆ On-Time and Within Budget Deliverables

Our Strengths

- ◆ Compliance Assurance
- ◆ Energy
- ◆ Engineering
- ◆ Environmental
- ◆ Facility Operations
- ◆ Innovation and Creativity
- ◆ Senior Staff

Our Senior Staff

- ◆ Chemical Engineers
- ◆ Developed Waste Heat Recovery Projects
- ◆ Developed Waste to Syngas Projects
- ◆ Environmental Agency Staff
- ◆ Environmental Auditors
- ◆ Environmental Compliance Managers
- ◆ Exemplary Regulatory Interpretation
- ◆ Global Energy Director
- ◆ Operated Chemical Plants
- ◆ Operated Co-Generation Units
- ◆ Operated Commercial Deepwell Facilities
- ◆ Operated EPA's Hotlines
- ◆ Operated Hazardous Waste Boilers
- ◆ Operated Hazardous Waste Facilities
- ◆ Plant Manager
- ◆ Process Chemist



Service Advantages

- ◆ Complementary Facility Operations, Environmental, Engineering, and Energy Experience
- ◆ Excellent Service Reputation
- ◆ Exemplary Safety Record
- ◆ Superior Quality

Our Awards

Aggie 100

- ◆ Ranked Number 6 Aggie Owned/Led Business in 2005
- ◆ Ranked Number 36 Aggie Owned/Led Business in 2008

Cost Saving Solutions

- ◆ Combined Test Plans
- ◆ Comparable Fuels Program
- ◆ Delisting Petitions
- ◆ Demonstrations of Similarity
- ◆ EMS Software
- ◆ Energy Efficiency Improvements
- ◆ Energy Management Programs
- ◆ Energy Recovery
- ◆ Exclusions
- ◆ Generic Compliance Plans
- ◆ Statistical Waste Analysis Plans
- ◆ Sulfuric Acid Recycle/Reuse Strategies
- ◆ Sustainability Programs
- ◆ Waste Heat Recovery

Services

Agency Negotiations and Interactions

- ◆ Agency Meetings
- ◆ Compliance Issue Resolutions
- ◆ Enforcement Negotiations
- ◆ Facility Assistance with Agency Inspections
- ◆ Notice of Deficiency Responses
- ◆ Notice of Violation Responses
- ◆ Position Advocating
- ◆ Regulatory and Policy Issue Clarifications and Tracking



Air

- ◆ Air Dispersion Modeling
- ◆ Air Permit Applications and Modifications
- ◆ Annual Emission Inventory System (AEIS) Preparation
- ◆ Best Available Control Technology (BACT) Analysis
- ◆ CEMS Testing and Certifications
- ◆ Emission Calculations
- ◆ Emission Control Evaluations (Scrubbers, RTO, SCR, SNCR, Adsorption, Absorbers, etc.)
- ◆ Emission Inventory Certification and Development (Stationary Sources)
- ◆ Emissions Testing
- ◆ Generic HRVOC Quality Assurance Plans
- ◆ Maximum Achievable Control Technology (MACT) Analysis
- ◆ NESHAP and HON Evaluations
- ◆ New Source Performance Standard (NSPS) Review
- ◆ Permit By Rule (PBR)
- ◆ Prevention of Significant Deterioration (PSD) Permitting
- ◆ Sustainability Programs
- ◆ Title V Compliance Assistance
- ◆ Title V Permit Applications and Modifications
- ◆ Toxic Emission Discharge Inventory (TEDI)





Audits, Assessments, and Inspections

- ◆ Air Emissions
- ◆ BIF Compliance
- ◆ CEMS Compliance
- ◆ HWC MACT Compliance
- ◆ Multi-Media Compliance Determinations
- ◆ RCRA Compliance
- ◆ Title V Compliance
- ◆ TRI Reporting Compliance
- ◆ Wastewater Treatment & Discharge Compliance
- ◆ Phase I Environmental Site Assessments

CERCLA/SARA/EPCRA/OPA

- ◆ CERCLA Hazard Ranking System Package Reviews
- ◆ Environmental Due Diligence Research
- ◆ Integrated Contingency Plans
- ◆ Phase I Site Assessments
- ◆ Site Remediation Oversight
- ◆ Spill Prevention Control & Countermeasures Plan
- ◆ Tier I and Tier II Reporting
- ◆ Toxic Release Inventory Form R Reporting

Energy

- ◆ Energy Assessments
- ◆ Energy Efficiency Improvements
- ◆ Energy Management Programs
- ◆ Best Management Practices
- ◆ Energy Strategies
- ◆ Syngas Engineering
- ◆ Waste to Energy Engineering
- ◆ Waste to Energy Operations

Maximum Achievable Control Technology

- ◆ Case-By-Case MACT Permit Applications
- ◆ Data-In-Lieu Evaluations
- ◆ Documentations of Compliance
- ◆ Fuels Analysis Plans
- ◆ Generic MACT Plans
- ◆ HWC MACT
- ◆ ICI Boiler MACT
- ◆ MACT CMS Evaluation Plans
- ◆ MACT CMS Evaluation Test Plans
- ◆ MACT Comprehensive Performance Test Plans and Tests
- ◆ MACT ESV Operating Plans
- ◆ MACT Feedstream Analysis Plans
- ◆ MACT Operation and Maintenance Plans
- ◆ MACT Operator Training & Certification Programs
- ◆ MACT Startup, Shutdown, and Malfunction Plans
- ◆ Notifications of Compliance
- ◆ Recordkeeping and Reporting
- ◆ Waivers, Extensions, and Petitions



Process Engineering

- ◆ Design of Chemical Manufacturing Processes
- ◆ Operations and Maintenance of Chemical Manufacturing Processes
- ◆ Development of New Processes
- ◆ Combustion Engineering
- ◆ Syngas Engineering
- ◆ Air Pollution Control
- ◆ Technology Evaluations
- ◆ Co-Product Evaluations and Market Strategies
- ◆ Process Engineering
- ◆ Process Chemistry
- ◆ Process Troubleshooting
- ◆ Process Optimization
- ◆ Energy Efficiency Improvements
- ◆ Energy Strategies
- ◆ Materials of Construction
- ◆ Corrosion

Risk Assessments

- ◆ Identification of Threatened or Endangered Species
- ◆ Multi-Pathway Human Health Risk Assessments
- ◆ Preliminary Risk Assessments
- ◆ Public Meetings and Participation
- ◆ Risk Assessment Protocol Development
- ◆ Screening-Level Ecological Risk Assessments
- ◆ Surrounding Land Use Data Collection





Solid and Hazardous Waste

- ◆ Annual and Biennial Hazardous Waste Reports
- ◆ Annual Operating Reports
- ◆ BIF Recertifications of Compliance
- ◆ BIF Revised Certifications of Compliance
- ◆ CEMS QA/QC Plans
- ◆ Closure Plans and Certifications
- ◆ Demonstrations of Similarity
- ◆ Interim Status Plans and Amendments
- ◆ On-Site Compliance Coordination
- ◆ Optimization Programs
- ◆ Pollution Prevention and Waste Minimization Plans
- ◆ RCRA Comparable Fuels Programs
- ◆ RCRA Compliance Plans
- ◆ RCRA Delisting Petitions
- ◆ RCRA Permit Applications and Modifications
- ◆ RCRA Regulatory Compliance Training
- ◆ RCRA Risk Burn Plans and Tests
- ◆ RCRA Trial Burn Plans and Tests
- ◆ Recordkeeping and Reporting
- ◆ Statistical Databases
- ◆ Sustainability Programs
- ◆ Waste Characterization and Classifications
- ◆ Waste/Feedstream Analysis Plans

Sulfuric Acid Technology

- ◆ Sulfuric Acid Plant Processes
- ◆ Sulfuric Acid Plant Design
- ◆ Sulfuric Acid Regeneration
- ◆ Sulfuric Acid Supply Analysis/Strategies
- ◆ Sulfuric Acid Recycle/Reuse Strategies
- ◆ Operations and Maintenance Improvements
- ◆ Energy Recovery
- ◆ Materials of Construction
- ◆ Corrosion
- ◆ Combustion
- ◆ Burner Nozzles

Sustainability

- ◆ Energy Conservation
- ◆ Energy Improvements
- ◆ Energy Efficiency Process Assistance
- ◆ Energy Management Programs and Training
- ◆ Environmental Management Systems

Syngas

- ◆ Process Engineering for Purification of Syngas
- ◆ Permitting for Syngas Plants
- ◆ Waste to Syngas Engineering
- ◆ Waste to Syngas Operation

Water

- ◆ Discharge Monitoring Reports
- ◆ Multi-Sector/General NPDES Permitting
- ◆ Material Water Balances
- ◆ NPDES Permit Applications
- ◆ Sustainability Programs
- ◆ TMDL Evaluations
- ◆ Treatment System Evaluations

Staff

CS₂ Inc.'s staff is comprised of engineers and scientists having an average of 25 years experience in the hazardous waste and chemical industries. The staff of CS₂ Inc. is well known for their hazardous waste, facility operations, environmental, process engineering, and energy expertise. Their experience ranges from multi-media auditing to process engineering to hands-on facility operations and energy programs.

CS₂ Inc. staff has a unique skill set of environmental, engineering, operations, and energy expertise with our senior chemical engineers, process chemist, and environmental specialists. Our engineers and chemist have operated chemical facilities and commercial hazardous waste facilities nationwide.





Publications

- ◆ **“An Approach to Evaluating Hazardous Waste Combustion Residues for Delisting”**, Joseph Nixon and Jerry Drake, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2003, in Orlando, Florida.
- ◆ **“HWC MACT Plan Templates”**, Elizabeth M. Drake and Gerald J. Drake, presented at the Air & Waste Management Association’s Hazardous Waste Combustors Specialty Conference, April 2003, in Charleston, South Carolina.
- ◆ **“Projected Revised MACT Standards for Existing Hazardous Waste Incinerators”**, Joseph Nixon and Jerry Drake, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2002, in New Orleans, Louisiana.



- ◆ **“Demonstrations of Similarity for RCRA, BIF, and MACT Performance Tests”**, Gerald J. Drake and Elizabeth M. Drake, Presented at the Air & Waste Management Association’s Hazardous Waste Combustors Specialty Conference, April 2002, in St. Louis, Missouri.
- ◆ **“The Streamlined RCRA Delisting Petition Process Provides a Viable Approach for Disposal of Hazardous Waste Combustor Residues”**, Melissa L. Douglas and Gerald J. Drake, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2001, in Philadelphia, Pennsylvania.

- ◆ **“Trial Burn and Risk Assessment Results for Three BIF Units”**, Gerald J. Drake, Melissa L. Douglas, and John Jones, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2001, in Philadelphia, Pennsylvania.
- ◆ **“Incorporating Statistics into a Waste/Feedstream Analysis Plan”**, Gerald J. Drake and Melissa L. Douglas, Presented at the Air & Waste Management Association’s Hazardous Waste Combustors Specialty Conference, March 2001, in Kansas City, Missouri.
- ◆ **“Projected MACT Limits for Hazardous Waste Burning Boilers and Industrial Furnaces”**, Melissa L. Douglas and Gerald J. Drake, Presented at the Air & Waste Management Association’s Hazardous Waste Combustors Specialty Conference, March 2001, in Kansas City, Missouri.
- ◆ **“A Sophisticated Approach for Trial Burn Plan Development to Support a Post-Trial Burn Risk Assessment”**, Jerry Drake, Elizabeth Drake, and John Jones, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2000, in Portland, Oregon.
- ◆ **“Reducing the Burdens of Compliance Testing under Increasing Regulatory Requirements”**, Jerry Drake, Lisa Douglas, and John Jones, Presented at the International Conference on Incineration and Thermal Treatment Technologies, May 2000, in Portland, Oregon.





Project Experience

Agency Negotiations and Interactions

- ◆ **Bayer Corporation, Texas.** Interfaced with the US EPA Region 6 regarding proposed delisting petitions for three waste streams. Negotiated requirements for the Sampling and Analytical Plans to support the delisting petitions.
- ◆ **Vertellus Specialties, Inc., Indiana.** Negotiated with EPA Region V to prepare a demonstration of similarity for two non-identical boilers, thus eliminating Trial Burn, Risk Burn, and Recertification of Compliance (RCOC) testing on one boiler. Also negotiated the combining of Trial Burn/Risk Burn test conditions, thus eliminating a single test condition. Also negotiated a combined Trial Burn and RCOC for two boilers, thus eliminating a separate RCOC test. Reilly estimated the demonstration of similarity, eliminated test condition, and combined Trial Burn and RCOC testing resulted in savings of approximately \$1.2 MM. Interacted with EPA Region V and Indiana Department of Environmental Management (IDEM) personnel during two RCOC tests on three BIFs, during the Trial Burn/Risk Burn testing on two BIFs, and during the Trial Burn testing on two BIFs. Reviewed and provided comments on two Draft Part B Permits. Assisted with an appeal of the Part B Permit and with several permit modifications.
- ◆ **Natural Gas Odorizing, Inc., Texas.** Interfaced with Texas Commission on Environmental Quality (TCEQ) personnel during the development of a RCRA Part B Permit Application and associated modifications to the air permit for a BIF unit. Negotiated with the TCEQ on the closure requirements for several tanks and a BIF unit with an air pollution control system. Assisted facility personnel during two onsite hazardous waste inspections by the TCEQ.
- ◆ **Mallinckrodt Inc., North Carolina.** Interfaced with North Carolina Department of Environment and Natural Resources (NCDENR) and EPA Region IV personnel during the development of a RCRA Part B Permit Application including the Trial Burn Plan, Risk Burn Plan, and Risk Assessment Protocol. Interacted with NCDENR personnel during on-site RCOC testing, and during the Trial Burn/Risk Burn testing. Assisted facility personnel during two onsite hazardous waste inspections by the NCDENR and EPA Region IV.
- ◆ **GlaxoSmithKline, North Carolina.** Interfaced with NCDENR and EPA Region IV personnel during the development of the Comprehensive Performance Test (CPT) Plan, Risk Burn Plan, and Risk Assessment Protocol. Served as a technical representative during the public meeting required for HWC MACT compliance. Negotiated with the NCDENR during the preparation and submittal phases of a standard delisting petition for treated residues resulting from the incineration of hazardous waste. NCDENR granted the exclusion in early 2002. Under the exclusion, the treated residue will be sent to a solid waste landfill rather than a hazardous waste landfill for final disposal.
- ◆ **Sterling Chemicals, Inc., Texas.** Coordinated the Trial Burn testing and interacted with the TCEQ's contract representative to assure the testing was accomplished in accordance with the approved Trial Burn Plan and deviations during the testing were pre-approved prior to implementation.
- ◆ **Rohm and Haas Company, Texas.** Assisted the facility with responses to a Notice of Violation (NOV) on their BIF boiler.
- ◆ **Combustion Client, Nebraska.** Interacted with Nebraska Department of Environmental Quality (NDEQ) personnel during the initial Trial Burn of a commercial hazardous waste incinerator.
- ◆ **Combustion Facility, Texas.** Interfaced with TCEQ personnel during several Trial Burns while serving in environmental and operations capacities. Interfaced with EPA Region VI personnel during a TSCA Trial Burn and during a TSCA Demonstration Test. Served as the point of contact during many TCEQ on-site inspections including post-inspection negotiations of alleged violations.



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- ◆ **Combustion Client, Florida.** Interfaced with Florida Department of Environmental Quality (FDEQ) and EPA Region IV personnel during an on-site inspection.
- ◆ **Chemical Plant, Illinois.** Interfaced with Illinois Environmental Protection Agency (IEPA) personnel during an on-site inspection. Negotiated with IEPA personnel during the development and approval of a container storage area closure plan.
- ◆ **CERCLA Client, New York and New Jersey.** Served as a client's technical representative on four Potentially Responsible Party (PRP) Site Remedial Technical Committees. In this capacity, negotiated and interacted with State and EPA Regional staff regarding site remediation activities.

Air Permitting

- ◆ **Confidential Client.** Outlined air permitting strategies and state and federal rule applicability for several potential site locations for client seeking to test new technologies for the production of syngas from waste materials.
- ◆ **Mallinckrodt Inc., North Carolina.** Assisted Mallinckrodt in preparing the application for modification of the Synthetic Minor Operating Permit to include a new air pollution control device, as well as increased operational flexibility for the two hazardous waste burning boilers subject to the HWC MACT standards.
- ◆ **Motiva Enterprises LLC, Virginia.** Assisted client in obtaining several minor amendments to the State Operating Permit to increase operational flexibility at the bulk gasoline terminal.
- ◆ **Motiva Enterprises LLC, Mississippi.** Provided assistance in preparing applications for renewal and modification of the Synthetic Minor Operating Permits for two bulk gasoline terminals, adding the capability to store and blend fuel grade ethanol. These projects included calculating landing loss emissions for existing internal floating roof tanks.

Audits, Assessments, and Inspections

- ◆ **Houston METRO, Texas.** Participated in a multimedia environmental compliance assessment of six METRO facilities. The assessment evaluated the facilities' compliance with the regulations relating to the management of hazardous waste, universal waste, used oil, used oil filters, used coolant, spent lead-acid batteries, and used tires. The assessment also evaluated the facilities' compliance with the Texas Tier II reporting requirements under the Emergency Planning and Community Right-to-Know Act. A written report was prepared that identified the problems at the facilities and the proposed solutions.
- ◆ **NASA JSC, Texas.** Performed an environmental compliance assessment of the hazardous and industrial solid waste management activities at the NASA Johnson Space Center and Ellington Field located in Houston, Texas. The assessment evaluated the facilities' compliance with the regulations relating to hazardous waste characterization, accumulation, recordkeeping, and reporting. The assessment also evaluated the facilities' compliance with the regulations relating to industrial solid waste such as asbestos, State regulated wastes, and recyclable materials. A written report was prepared that identified the problems at the facilities and the proposed solutions.
- ◆ **NASA JSC, Texas.** Performed an environmental compliance assessment of the conventional and toxic air pollutant control activities at the NASA Johnson Space Center located in Houston, Texas. The assessment evaluated the facility's compliance with the regulations relating to Title V permitting, New Source Performance Standards, Ozone Depleting Substances, the Cap and Trade Program, and the National Emission Standard for Hazardous Air Pollutants (NESHAP). A written report was prepared that identified the problems at the facility and the proposed solutions.



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- ◆ **Donna Le, Texas City, Texas.** Performed a Phase I Environmental Assessment of a parcel of land in Texas City, Texas. As part of the assessment, conducted a thorough environmental due diligence investigation of activities at the site, and prepared a detailed assessment report of the findings.
- ◆ **Confidential Client, Arkansas.** Conducted a multi-media environmental assessment of a major industrial facility. The attorney-client assessment included environmental evaluations of RCRA treatment, storage, and disposal, hazardous material transportation, CAA MACT standards and NESHAPS, NPDES, SPCC, EPCRA, TSCA, Risk Management Plan, Process Safety Management, POTW, Underground Storage Tanks, Used Oil, Universal Waste, and Laboratory Practices. Interfaced with corporate environmental staff in performing the assessment. Reported the findings of the assessment to the facility.
- ◆ **GlaxoSmithKline, North Carolina.** Conducted a hazardous waste combustor maximum achievable control technology (HWC MACT) audit prior to the facility compliance date. The assessment addressed all applicable MACT standards to the hazardous waste incinerator operation and compliance systems. The results of the assessment were used to ensure that all requirements has been addressed, and for facility management to certify compliance with the standards and their Title V Permit.
- ◆ **Confidential Client, Minnesota.** Conducted a hazardous waste combustor maximum achievable control technology (HWC MACT) audit on an attorney-client basis. The assessment addressed all applicable MACT standards to the hazardous waste incinerator operation and compliance systems. Interfaced with corporate environmental staff in performing the assessment. Reported the findings of the audit to the facility. The results of the assessment were used to further improve the compliance status of the facility.
- ◆ **Vertellus Specialties, Inc., Indiana.** Performed a facility audit to assess the environmental compliance status with respect to all BIF and RCRA regulations. The audit involved reviewing all applicable regulations and permits, performing on-site inspections and document review, and composing reports of inspection findings.
- ◆ **Immanuel Baptist Church, Texas.** Performed a Phase I Environmental Site Assessment of the siting property for Immanuel Baptist Church. As part of the assessment, conducted a thorough environmental due diligence investigation of activities at the site, and prepared a detailed assessment report of the findings.
- ◆ **Championship, Inc., Texas.** Performed a Phase I Environmental Site Assessment of the Friendswood Golf Center. As part of the assessment, conducted a thorough environmental due diligence investigation of activities at the site, and prepared a detailed assessment report of the findings.
- ◆ **Giant Cement, South Carolina.** Conducted a HWC MACT compliance audit of a cement manufacturing facility. Developed the compliance audit checklist, conducted the on-site audit, and provided an oral and written report of the findings to the facility.
- ◆ **Municipal and Hazardous Waste Facilities, USA.** Performed over 40 multi-media environmental audits of municipal waste landfills and hazardous waste treatment, storage, and disposal facilities throughout the United States. Audit areas included groundwater monitoring, air monitoring, landfill leachate and gas collection systems, municipal and hazardous waste landfill design and operation, incineration, deepwell injection, solvent recovery, stabilization, tank storage, container storage, PCBs, contingency plans, waste analysis plans, inspection plans, and stormwater discharges. Each audit involved reviewing all applicable regulations and permits, performing on-site inspections and document review, composing reports of inspection findings, and following-up on the site's completion of action items.
- ◆ **Combustion Client, West Virginia.** Performed a facility audit to assess the environmental compliance status with respect to all BIF and RCRA regulations. The audit involved reviewing all applicable regulations and permits, performing on-site inspections and document review, and composing reports of inspection findings.
- ◆ **Combustion Client, Florida.** Performed a facility audit to assess the environmental compliance status with respect to all BIF and RCRA regulations. The audit involved reviewing all applicable regulations and permits, performing on-site inspections and document review, and composing reports of inspection findings.



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- ◆ **TSD Client, Quebec, Canada.** Performed an audit of a hazardous waste incineration and storage facility. The audit consisted of a site inspection, facility personnel interviews, records review, and report preparation.
- ◆ **Manufacturing Client, Illinois.** Performed an audit of a plastics facility. Reviewed and evaluated all aspects of the facility's hazardous waste management activities. Subsequent to the audit, the information obtained during the audit was used to prepare a facility-wide hazardous and solid waste management plan.
- ◆ **Government Client, Idaho.** Interviewed staff and performed an audit of the defensibility and traceability of data in support of the Programmatic Environmental Impact Statement for a proposed new production reactor for plutonium and tritium.
- ◆ **Government Client, Washington.** Interviewed staff and performed an audit of the defensibility and traceability of data in support of the Programmatic Environmental Impact Statement for a proposed new production reactor for plutonium and tritium.
- ◆ **Government Client, Idaho.** Participated in DOE's Tiger Team assessment. As member of the Environmental Compliance Audit Team, reviewed and evaluated the facility's compliance with the National Environmental Policy Act (NEPA). Also observed the facility's spent nuclear fuel rod recycling process in support of DOE Headquarters guidance addressing mixed radioactive and hazardous waste.
- ◆ **Manufacturing Client, Alabama.** Provided field oversight of the Field Investigation Team (FIT) during an assessment of a large facility. Activities involved review of the FIT sampling and analysis plan, collecting duplicate groundwater and soil samples, and ensuring that FIT staff followed appropriate sample collection protocols.
- ◆ **Government Client, New York.** Performed inspections/audits of 20 federal hazardous waste generator facilities. These facilities included vehicle maintenance shops, warehouses, and Military Reserve Posts. Prepared reports to document the findings from each facility inspection.
- ◆ **Manufacturing Client, Mississippi and Missouri.** Performed an audit of four facilities to evaluate compliance with the Form R Toxic Release Inventory Reporting requirements under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA). Provided compliance assistance to audited facilities by preparing Form R Reports identified as missing. Also provided regulatory analysis assistance to legal counsel on TRI reporting compliance issues.

Compliance Plans

- ◆ **Mallinckrodt Inc., North Carolina.** Reviewed and updated interim status plans and associated standard operating procedures (SOPs). Developed a CEMS Quality Assurance Plan for the facility BIF CEMS. Also, developed an Instrumentation Quality Assurance Plan for the BIF instrumentation. Developed and implemented a statistical spreadsheet program for managing the analytical data of the hazardous waste feed stream for the BIF boiler. The program statistically monitors the compliance status of the waste feed stream constituent concentrations versus the allowable feed rates and determines the acceptable operating limits.
- ◆ **GlaxoSmithKline, North Carolina.** Reviewed and provided comments on the facility CEMS Quality Assurance Plan. Developed the HWC MACT CMS Performance Evaluation Plan and CMS Performance Evaluation Test Plan. Developed a feedstream analysis plan (FAP) for materials burned in the on-site incinerator. This document will be used by the facility to ensure that sufficient information is available to document compliance with the applicable feedrate limits required to be established under the hazardous waste combustor MACT rules.
- ◆ **Ciba Specialty Chemicals, Inc., Alabama.** Provided an outline for the CMS Performance Evaluation Plan to allow facility personnel to develop the document for compliance with the regulations.



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- ◆ **Vertellus Specialties, Inc., Indiana.** Developed a CEMS Quality Assurance Plan for the facility BIF CEMS. Also, developed an Instrumentation Quality Assurance Plan for the BIF instrumentation. Provided operator and management training on the contents of the CEMS and BIF Instrumentation Plans.
- ◆ **Sterling Chemicals, Inc., Texas.** Developed a CEMS Quality Assurance Plan for hazardous waste and air regulated units at the facility. Developed HRVOC Quality Assurance Plans for the facility's flares and a cooling tower.
- ◆ **Albemarle Corporation, Texas.** Developed a HRVOC Quality Assurance Plan for the facility's flares.
- ◆ **Natural Gas Odorizing, Inc., Texas.** Developed closure plans for three tanks, a BIF boiler, and an air pollution control system. Submitted the plans to the agency for review and approval. Received approval and all units were closed. Developed HRVOC Quality Assurance Plans for the facility's flare and cooling tower.
- ◆ **Giant Resource Recovery, Inc., North Carolina.** Preparing an Environmental Management System for one of the company's lightweight aggregate kiln facilities. Development of the EMS is being driven by the facility's Title V permit, and is among the first to be developed and implemented in the State of North Carolina.
- ◆ **Combustion Client, Florida.** Developed a CEMS Quality Assurance Plan for the facility BIF CEMS. Provided operator and management training on the contents of the CEMS Quality Assurance Plan.

Compliance Testing

- ◆ **Total Petrochemicals USA, Inc., Texas.** Conducted compliance testing activities during the Trial Burn and Risk Burn testing of a hazardous waste burning boiler and incinerator. Activities included pre-test preparation, operational oversight, testing oversight, and Agency interaction.
- ◆ **MEMC Pasadena Inc., Texas.** Conducted compliance testing activities during the source testing of natural gas fired furnaces. Activities included pre-test preparation, operational oversight, testing oversight, and Agency interaction.
- ◆ **DSM Pharmaceuticals, Inc., North Carolina.** Developed a mini-burn test plan for gathering preliminary risk assessment data for this facility. Coordinated the on-site testing of two incinerators, performed data reduction and calculations, and developed the test reports. Provided the results to perform the preliminary risk assessment. Also, developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for the emissions testing. Prepared the Trial Burn Plans and Quality Assurance Project Plans (QAPP) for four hazardous waste incinerators. Developed integrated test plans for the four incinerators incorporating the Trial Burn, Risk Burn, and HWC MACT requirements into one test plan. Developed and submitted a demonstration of similarity for three incinerators.
- ◆ **Mallinckrodt Inc., North Carolina.** Coordinated two separate RCOC tests on each of two BIF boilers including the development and submittal of Trial Burn/Risk Burn and compliance test plans; planning, scheduling, and supervising the testing activities; performing data reduction and calculations; developing the testing report; and performing QA/QC activities related to the testing. Also, developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for the testing. Developed, submitted, and received approval for a demonstration of similarity for the two BIF boilers. Conducted emission tests to gather preliminary risk assessment data for this facility. Coordinated the on-site testing, performed data reduction and calculations, and developed the test reports. Provided the results to perform the preliminary risk assessment. Also, developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for the emissions testing. Developed Trial Burn Plans, Risk Burn Plans, and QAPPs for the two BIF boilers.



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- ◆ **Natural Gas Odorizing, Inc., Texas.** Coordinated two separate RCOC tests on the BIF boiler including the development and submittal of the Compliance Test Notification; planning, scheduling, and supervising the testing activities; performing data reduction and calculations; developing the testing report; and performing QA/QC activities related to the testing. Also, developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for the RCOC testing. Conducted emission tests to gather preliminary risk assessment data for this facility. Coordinated the on-site testing, performed data reduction and calculations, and developed test reports. Prepared the Trial Burn Plan and QAPP for their hazardous waste burning boiler.
- ◆ **Vertellus Specialties, Inc., Indiana.** Performed as the Trial Burn Manager for two separate trial burns of two boilers at this facility. Developed the trial burn plan and quality assurance project plan and negotiated with EPA Region V to obtain approval of these plans. Responsible for planning all trial burn activities, coordinating stack sampling, spiking, and process sampling, and overall supervision of personnel involved with the conduct of the trial burn. Interfaced with regulatory agency personnel onsite during the testing, and managed the development and submittal of the trial burn report. Developed a demonstration of similarity for two non-identical boilers, which received agency approval and eliminated a trial burn and RCOC for this boiler. Developed a mini-burn test plan for gathering preliminary risk assessment data for this facility. Coordinated the on-site testing of two BIFs, performed data reduction and calculations, and developed the test reports. Provided the results to perform the risk assessment. Coordinated two separate RCOC tests on each of three BIF boilers including the development and submittal of the Compliance Test Notification; planning, scheduling, and supervising the testing activities; performing data reduction and calculations; developing the testing report; and performing QA/QC activities related to the testing. Also, developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for the RCOC testing.
- ◆ **Combustion Client, Nebraska.** Performed as the Trial Burn Manager for the first trial burn conducted at this commercial hazardous waste facility. Assisted in the development of the trial burn plan. Responsible for mini-burn testing, planning trial burn activities, coordinating stack sampling, metals and POHC spiking, process sampling, and overall supervision of all personnel involved with the conduct of the trial burn. Interfaced with regulatory agency personnel onsite during the testing, and managed the development and submittal of the trial burn report.
- ◆ **Combustion Client, Oklahoma.** Performed oversight activities on the emissions testing of a thermal desorption device. Oversight included reviewing, observing, and reporting on the emissions testing including the acceptability of the sampling company and methodologies.
- ◆ **Combustion Client, Utah.** Performed as a member of the trial burn team for this commercial hazardous waste incineration facility. Assisted in planning trial burn activities including quantities of POHC and waste materials, AWFCO parameters and limits, and incineration operations.
- ◆ **Combustion Client, Utah.** Developed, submitted, and evaluated requests for proposals for stack sampling and spiking services for a trial burn performed for this facility.
- ◆ **Combustion Client, Florida.** Coordinated a RCOC test on the BIF boiler including the development and submittal of the Compliance Test Notification; planning, scheduling, and supervising the testing activities; performing data reduction and calculations; developing the testing report; and performing QA/QC activities related to the testing. Conducted emission tests to gather preliminary risk assessment data for this facility. Coordinated the on-site testing, performed data reduction and calculations, and developed test reports. Provided the results to perform the preliminary risk assessment. Prepared the trial burn and QAPP for their hazardous waste burning boiler.

Delisting Petitions & RCRA Comparable Fuels Exclusions

- ◆ **GlaxoSmithKline, North Carolina.** Prepared a delisting petition for submittal to the NCDENR to request delisting approval on the bottom ash and spent lime from the burning of hazardous waste in their on-site incinerator. NCDENR granted the exclusion for the spent lime in April 2002 and granted the exclusion for the



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bottom ash in June 2004. Under the exclusion, the treated residues are sent to a solid waste landfill rather than a hazardous waste landfill for final disposal.

- ◆ **Bayer Corporation, Texas.** Performed preliminary evaluations of four facility waste streams to determine potential candidates for RCRA hazardous waste delisting petitions. For the candidate waste streams that passed the preliminary evaluations, prepared delisting petitions and submitted the petitions to the US EPA Region 6 for review and approval. EPA Region 6 has approved the delisting petition for the facility's treated wastewater effluent and spent carbon waste stream.
- ◆ **Total Petrochemicals USA, Inc., Texas.** Successfully prepared a comparable fuel package that was submitted to, and approved by, the Texas Commission on Environmental Quality (TCEQ). On an annual basis, data from confirmatory sampling and analysis activities are entered in the facility's comparable fuel database to ensure compliance with the limitations of the exclusion. Materials covered by the exclusion are not subject to RCRA regulation when burned onsite in the facility's combustion units.

HWC MACT Standards

- ◆ **Total Petrochemicals USA, Inc, Texas.** Prepared the notice of intent to comply with the HWC MACT standards and provided support at the public meeting for the hazardous waste incinerator and boiler. For the incinerator, developed the CMS Performance Evaluation Test Plan, Feedstream Analysis Plan, Operation and Maintenance Plan, Startup, Shutdown, and Malfunction Plan, CEMS QA/QC Plan, and CMS QC Program. Developed the Comprehensive Performance Test Plan and QAPP for the incinerator and coordinated the testing. Assisted the facility in developing the Operator Training and Certification Program.
- ◆ **Vertellus Agriculture & Nutrition Specialties LLC, Indiana.** Evaluated the compliance status of the three hazardous waste boilers to the HWC MACT standards and developed a compliance plan for the boilers. Prepared the notice of intent to comply (NIC) with the HWC MACT standards and provided support at the public meeting. Finalized the NIC for submittal to the appropriate regulatory Agencies.
- ◆ **Mallinckrodt Inc., North Carolina.** Evaluated the compliance status of the two hazardous waste boilers to the HWC MACT standards and developed a compliance plan for the boilers. Prepared the notice of intent to comply (NIC) for the HWC MACT standards and provided support at the public meeting. Assisted the facility in finalizing the NIC for submittal to the appropriate regulatory Agencies.
- ◆ **Giant Resource Recovery, Inc., USA.** Developed the Operator Training and Certification Program for two lightweight aggregate kiln and two cement kiln facilities. Conducted training of management personnel at each of the facilities. Developing the training program to be presented to operations personnel.
- ◆ **DSM Pharmaceuticals, Inc., North Carolina.** Studied available options for the four on-site incinerators to achieve compliance with the HWC MACT regulations. Performed a preliminary evaluation of the available test and operating data to determine potential problem areas and various options to upgrade equipment or operations to meet the MACT standards. Developed the combustion compliance strategy for the four hazardous waste incinerators and several non-hazardous boilers. The developed strategy offered four different compliance options for evaluation, and recommendations for merging the RCRA, CAA, and HWC MACT requirements to bring the facility into compliance with the HWC MACT regulations. Developed and submitted Integrated Test Plans that incorporate the Trial Burn, Risk Burn, and HWC MACT requirements for each of the incinerators. The Integrated Test Plans were designed to obtain the test data required for the CPT to submit as data-in-lieu of testing. Developed the metals extrapolation methodology for inclusion in the test plans. Developed and submitted a demonstration of similarity to satisfy the Trial Burn, Risk Burn, and HWC MACT requirements for the incinerators, whereby DSM will test two of the incinerators only and the test results will be applied to the other two similar incinerators.
- ◆ **GlaxoSmithKline, North Carolina.** Prepared the notice of intent to comply with the HWC MACT standards and provided support at the public meeting for this hazardous waste incinerator. Assisted the facility in the technology evaluation and selection and in vendor selection for the equipment retrofit for compliance with the



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HWC MACT standards. Performed a data-in-lieu evaluation on data collected during a RCRA Trial Burn. Developed the CMS Performance Evaluation and Performance Evaluation Test Plans. Also, assisting in the development of the SS&M Plan, O&M Plan, and ESV Operating Plan by developing templates to allow facility personnel to develop documents that comply with the regulations and reviewing the completed documents. Developed the Comprehensive Performance Test Plan (CPT Plan) and QAPP for the facility. Developed an Operator Training and Certification Program and conducted the training. The Operator Training and Certification Program satisfied both the CISWI and HWC MACT requirements for the facility's solid waste incinerator and hazardous waste incinerator. Developed the Feedstream Analysis Plan for the facility. Assisting in the installation of new equipment for complying with the HWC MACT regulations.

- ◆ **Ciba Specialty Chemicals, Inc., Alabama.** Provided assistance in developing the CPT Plan. Also, provided a template for the SS&M Plan and CMS Performance Evaluation Plan to allow facility personnel to develop documents to comply with the regulations.
- ◆ **Bayer Corporation, Addyston, Ohio.** Assisting Bayer in determining which on-site combustion device is best suited for burning the waste from two perspectives: compliance performance with respect to MACT emission standards and an operations and equipment perspective. This evaluation process includes the review and estimation of potential emission limits for the Phase 2 HWC MACT for a coal fired boiler and a process heater. A third device is classified as an incinerator and would be subject to the new incinerator standards in the HWC MACT regulations. Determined the best performer and presented the recommendations to Bayer.
- ◆ **Combustion Client, Texas.** Performed economic evaluations on the impact of the proposed HWC MACT standards for two incineration facilities.
- ◆ **Miscellaneous Facilities, USA.** Developed a HWC MACT Timeline Program[®] for the finalized HWC MACT regulations. The program contained a detailed timeline of regulatory deadlines established by the HWC MACT regulations. The program also contained a monthly activity summary of deadlines and activities for each month from the initial notification required on January 28, 2000 through the submittal of the initial comprehensive performance test report in 2003. Managed the project from conceptualization through distribution to approximately 50 facilities located throughout the USA.
- ◆ **Miscellaneous Facilities, USA.** Developed a HWC MACT Recordkeeping, Reporting, and Notification Roadmap. The roadmap explains the regulatory requirements, provides timelines for the requirements, and provides sample forms and notices that can be used to satisfy the requirements.

On-Site Compliance

- ◆ **Crown Beverage Packaging, Texas.** Prepared the annual Federal Operating Permit Compliance Certification Report. The report included the semiannual Deviation Reports, the Permit Compliance Certification Form, and the Responsible Official Certification Form for the applicable reporting period.
- ◆ **Fluids Management, Texas.** Provided Permit by Rule (PBR) assistance to four facilities. The scope of work included reviewing process descriptions for each facility; identifying the PBR(s) appropriated for each facility; calculating emissions; and preparing written documentation to demonstrate compliance.
- ◆ **Gulf Bayport Chemicals, Texas.** Provided PBR assistance by identifying the applicable PBR(s) for the facility, and preparing the registration and certification claim forms required by the State of Texas.
- ◆ **Kinder Morgan Liquids Terminals, LP, Texas.** Provided PBR assistance by identifying the applicable PBR(s) for the facility, and preparing the registration and certification forms required by the State of Texas.
- ◆ **Nitro-Phos, Inc., Texas.** Provided regulatory compliance assistance to the facility. Developed Tier Two NOV Response to the Agency, and prepared Tier Two Reports.



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- ◆ **Rohm & Haas Company, Texas.** Provided regulatory compliance assistance by determining the RCRA regulatory status of tanks used to manage hazardous recyclable materials and non-hazardous materials.
- ◆ **Mallinckrodt Inc., North Carolina.** Coordinated BIF compliance activities for the facility including updating compliance plans and systems, recommending compliance improvements for operations, coordinating CEMS quarterly and annual testing, providing training, assisting with Agency inspections, and auditing and maintaining compliance records. Reviewed and revised the standard operating procedures for the BIF boiler at this facility.
- ◆ **Metton America, Inc., Texas.** Provided on-site compliance assistance related to general waste management issues, Texas Tier II reporting, Toxic Release Inventory (TRI) Form R Reporting, air quality permit renewal, and discharge monitoring reporting.
- ◆ **Sterling Chemicals, Texas.** Provided RCRA regulatory compliance assistance regarding the regulatory status of closed manufacturing process units, hazardous substance release response activities, and secondary containment requirements for hazardous waste tanks.
- ◆ **Combustion Client, Florida.** Coordinated BIF compliance activities for the facility including reviewing compliance systems, recommending and upgrading these systems, planning CEMS system tests, coordinating training activities, assisting in Agency inspections, and reviewing and updating regulatory documents. Developed, reviewed, and revised the standard operating procedures for the BIF boiler at this facility.
- ◆ **Combustion Facility, Texas.** Responsible for the direct supervision of the environmental compliance group at the facility including central files system, RCRA inspectors, and compliance assistant. Interfaced with the regulatory agencies, company staff, and customers during on-site inspections and audits. Reviewed and submitted all regulatory reports and documents, and established quality assurance/quality control review systems for regulatory-related documents. Reviewed and commented on permit applications and State and Federal proposed regulations. Assisted with facility programs and projects to ensure compliance with all environmental regulations and permit requirements.
- ◆ **Chemical Plant, Illinois.** Responsible for coordinating the on-site compliance activities associated with the hazardous waste liquid incinerator, tank storage, container storage, and inspections for the facility. Performed sampling and analyses of stormwater discharges, and operated an aeration and biologically activated tank for treating stormwater prior to discharge. Developed a partial closure plan for a hazardous waste container storage area that received agency approval. Performed operational reviews at several off-site hazardous waste disposal facilities.
- ◆ **Combustion Client, Kentucky.** Provided technical and regulatory assistance for the development of Standard Operating Procedures for the proper handling of site generated waste at the facility.
- ◆ **Combustion Client, Texas.** Project included the development of Standard Operating Procedures to address various operations and the compliance of the facility.
- ◆ **Combustion Client, Utah.** Reviewed and revised the standard operating procedures for this facility. Assisted in troubleshooting operational problems for the incinerator. Assisted in the development of standard operating conditions, burner management, and AWFCO documents.
- ◆ **Combustion Client, Nebraska.** Developed, reviewed, and revised the standard operating procedures for this commercial incineration facility. Assisted in troubleshooting operational problems for the incinerator. Assisted in the development of preventative maintenance programs.
- ◆ **Combustion Client, Texas.** Developed, reviewed, and revised the standard operating procedures for the BIF boiler at this facility.



Operations Experience

- ◆ **TSD Facility, Texas.** Responsible for the direct supervision and safety of the hazardous waste incinerator operations and maintenance personnel. On night and weekend shifts, responsible for the entire facility including the water treatment facility, deepwell injection facility, landfill, tank farm, container storage buildings, waste receiving, and laboratory. Directed the operation of the incinerator to maximize production and to ensure total compliance with all regulatory permits, environmental policies, and health and safety procedures. Acted as the facility's Emergency Coordinator with responsibility for the entire facility. Responsible for operating the incinerator during several RCRA and TSCA compliance tests. Developed, reviewed, and revised the standard operating procedures for this facility. Responsible for the direct supervision of the deepwell injection facility, potable and process water treatment facility, sewage treatment plant, and steam utility boilers at the facility.
- ◆ **Chemical Plant, Illinois.** Responsible for the safety and training programs for the facility. Developed and implemented programs for respiratory protection, personal protective equipment, hearing protection and monitoring, and personnel exposures. Developed and implemented the facility's Hazard Communication Program that passed an OSHA inspection. Initiated an employee training program and maintained the associated records. Interfaced with the local fire department and OSHA field office during facility inspections. Responsible for the direct supervision of the curing agents production line for the facility including production, budget, maintenance, projects, and safety. Responsible for the direct supervision of a 4000 drum storage building for the facility including inventory, operation of forklifts, loading of trucks, and completing bills of lading in accordance with DOT regulations.
- ◆ **TSD Facility, Texas.** Responsible for production planning and waste blending for the 150 MM Btu/hr rotary kiln hazardous waste incineration facility that processed bulk solids, containers, liquids, and sludges. Specified the storage and blending of bulk liquids and sludges for seventeen tanks, and the scheduling of waste receipts for the facility. Coordinated the laboratory efforts for the incinerator operations. Specified the sampling and analysis requirements, reviewed the data, and recommended operations accordingly. Reviewed the laboratory quality assurance/quality control program. Reviewed the waste disposal approvals for operational acceptability, waste blending, special handling requirements, and preliminary health and safety considerations. Coordinated the annual and quarterly Land Disposal Restrictions Incineration Treatment Evaluation Program to ensure compliance for the incineration residuals with the Best Demonstrated Available Technology treatment standards for the associated waste codes. Coordinated the decontamination, sampling and analytical, and documentation requirements for the disposal of site generated wastes such as scrap metal and restricted trash.
- ◆ **Combustion Client, Nebraska.** Developed a waste blending/burn plan optimization program for the operations of this commercial fluid-bed incineration facility to optimize the incineration capacity and maximize profits.
- ◆ **Combustion Client, Tennessee.** Project included the review of operations at the captive incineration facility to explore possibilities of optimization of their incineration process to increase the throughput of the unit.

Permitting

- ◆ **Environmental Technology and Management, Inc., Texas.** Provided assistance in developing a New Source Review (NSR) air permit renewal application for a facility's operations located in an ozone non-attainment area.
- ◆ **Kellogg Brown & Root, Texas.** Provided air permit application assistance for the facility's abrasive blasting operations. The scope of work included conducting an on-site evaluation; participating in a pre-application meeting with the Agency; and preparing the permit application.
- ◆ **Motiva Enterprises LLC, Texas.** Provided assistance in applying for the TXG 670000 TPDES permits for the discharge of hydrostatic testing water for 9 terminals located in Texas.



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- ◆ **DSM Pharmaceuticals, Inc., North Carolina.** Prepared a RCRA Part A permit revision for their four hazardous waste incinerators and multiple tank storage areas.
- ◆ **Natural Gas Odorizing, Inc., Texas.** Managed the preparation of a RCRA Part B permit application for their hazardous waste burning boiler and tank storage. After the facility decided to stop burning hazardous waste, managed the final closure plan preparation for the boiler and tank storage.
- ◆ **Mallinckrodt Inc., North Carolina.** Prepared a RCRA permit application for their interim status facility containing two hazardous waste burning boilers, tanks, and container storage areas. Prepared a CAA Title V permit application for the two hazardous waste burning boilers subject to the HWC MACT standards.
- ◆ **Vertellus Specialties, Inc., Indiana.** Developed the RCRA Part B Permit application for this facility containing three boilers and several tanks. Developed each section of the application including the waste analysis plan, contingency plan, closure plan, inspection plan, etc. After completion of the Trial Burn and Risk Assessment, the Part B Permit was issued. Reviewed and provided comments on the draft permit. Assisted the facility with an appeal of the permit and several permit modifications. Prepared RCRA Part B permit modification requests for boiler operating conditions, and coordinated public participation activities regarding each request. Developed the RCRA Part B permit renewal application. Reviewed and provided comments on the draft renewal permit.
- ◆ **Metton America, Inc., Texas.** Prepared the facility's air quality permit renewal application for emissions from its production process. Prepared the industrial wastewater permit renewal application for their Texas Pollutant Discharge Elimination System Permit.
- ◆ **Combustion Client, Florida.** Prepared a RCRA permit application for the facility including a boiler and tank storage area.

Risk Assessments

- ◆ **Mallinckrodt Inc., North Carolina.** Coordinated a preliminary multi-pathway human health risk assessment and screening level ecological risk assessment for the facility. The risk assessments were conducted pursuant both to the NC Protocol and the EPA's Human Health Risk Assessment Protocol.
- ◆ **DSM Pharmaceuticals, Inc., North Carolina.** Gathered facility-specific data, surrounding land use data, and threatened and endangered species information for conducting screening level ecological risk assessments and multi-pathway, human health risk assessments. Coordinated a preliminary risk assessment and the development of a risk assessment protocol for submittal to the Agency.
- ◆ **Vertellus Specialties, Inc., Indiana.** Coordinated a preliminary risk assessment, the development of a risk assessment protocol, and the successful completion of a post-risk burn risk assessment for the facility. Gathered facility-specific data, surrounding land use data, and threatened and endangered species information for conducting the screening level ecological risk assessments and multi-pathway, human health risk assessments.
- ◆ **GlaxoSmithKline, North Carolina.** Coordinating a preliminary risk assessment and the development of a risk assessment protocol for the facility. Gathered facility-specific data, surrounding land use data, and threatened and endangered species information for conducting a screening level ecological risk assessment and a multi-pathway, human health risk assessment.
- ◆ **Combustion Client, Florida.** Coordinated a preliminary risk assessment and the development of a risk assessment protocol for the facility. Gathered facility-specific data, surrounding land use data, and threatened and endangered species information for conducting a screening level ecological risk assessment and a multi-pathway, human health risk assessment.



Site Remediation and Corrective Action

- ◆ **TSD Client, New York.** Served as a member of a Potentially Responsible Party (PRP) Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, remedy selection, remedial design and remedy implementation. The selected remedy was a full-scale pilot study of *in situ* soil vapor extraction. Successful implementation of the ISVE system resulted in a change in the Low Temperature Thermal Desorption remedy identified in the ROD. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **Combustion Client, New York.** Served as a member of a PRP Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, remedy selection, remedial design and remedy implementation. The selected remedy was excavation and thermal treatment of 12,000 cubic yards of solvent contaminated soil in a rotary kiln incinerator. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Served as a member of a PRP Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, and monthly groundwater monitoring. The selected remedy implemented at this site was hydraulic containment of groundwater using a slurry wall and ground water extraction. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New Jersey.** Served as a member of a PRP Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, and remedial design. The proposed remedy for this site consisted of removal and treatment of hot spots, installation of a site-wide cap, and installation of groundwater monitoring wells. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Served as a member of a PRP Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, and remedial design, and remedy implementation. The selected remedy for this site was *in situ* biological treatment for the unsaturated contaminated soils at the site. *In situ* biological treatment was also selected as the remedy for groundwater contamination. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Served as a member of a PRP Technical Committee responsible for remediation. Provided technical review and oversight site activities, including: site investigations, document preparation, and remedial design, and remedy implementation. The remedy selected for this site consisted of installation of groundwater interception wall and a groundwater extraction system. In addition, local residents were provided with an alternative source of drinking water. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports and remedial design documents. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, Puerto Rico.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports. Also tracked costs associated with site activities and prepared monthly status reports.



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- ◆ **TSD Client, New York.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New Jersey.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports. Also tracked costs associated with site activities and prepared monthly status reports.
- ◆ **TSD Client, New York.** Provided technical support to legal counsel representing a PRP. Responsibilities included technical review of site investigation reports. Also tracked costs associated with site activities and prepared monthly status reports. Provided technical support to legal counsel representing the site owner/operator responsible for cleaning up the site.

Technical Experience

- ◆ **Confidential Client, Texas.** Reviewed client's wastewater volume generation, contaminants, and sources, then developed a strategy to eliminate offsite treatment, instead proposing that the client discharge to POTW. The recommended strategy, equipment, and process will allow direct discharge to a POTW in a phased approach.
- ◆ **Confidential Client, Texas.** Lead a due diligence assessment team tasked to evaluate two out-of-service refineries for possible purchase, refurbishment, upgrade and startup. A written report was prepared that summarized the current condition of the facility equipment and estimated resources and schedule that may be required to place the facilities back in service.
- ◆ **Confidential Client, Texas.** Conducted a technical engineering evaluation for a commercial wastewater treatment facility, which the Client recently acquired. This facility was previously exempt from regulation, however under recently passed rules, is now required to be permitted under Texas Commission on Environmental Quality, Rule No. 1281. The evaluation included design reviews and calculations of, and for, the existing equipment at the "mothballed" facility, culminating in the issuance of a Certified Engineering Report, P.E. sealed and stamped by CS₂ Inc.
- ◆ **Confidential Client, North Carolina.** Performed an Air Pollution Control System (APCS) technology assessment for this Client, who burns RCRA listed hazardous waste as an alternative fuel in boilers to produce steam. The assessment evaluated the facility's current emissions and determined the APCS that would be the most cost effective engineering solution to meet both the Client's environmental goals and satisfy the new HWC MACT standards.
- ◆ **TSD Facility, Texas.** Developed and implemented a computerized, multi-dimensional waste blending/burn plan optimization program for the 150 MM Btu/hr rotary kiln hazardous waste incineration facility that processed bulk solids, containers, liquids, and sludges. Program considered the numerous operational constraints, permit limits, and logistical considerations and the multi-dimensional waste characteristics and calculated the optimum, consistent waste blends and burn plan schedules for operations of the facility. The facility processed approximately 200,000 pounds of waste a day prior to the completion of the computerized optimization program and approximately 900,000 pounds of waste a day following the successful implementation of the optimization program.
- ◆ **Combustion Facilities, USA.** Supervised the waste disposal approvals for two RCRA and four BIF liquid injection facilities. Reviewed the waste characterizations and the associated analytical data for operational flexibility, waste blending, special handling requirements, and preliminary health considerations. Coordinated the research and development efforts to expand liquid injection incineration capabilities, e.g., slurring solids into pumpable liquids, corrosion inhibitor selections, etc. Implemented the quality assurance/quality control programs. Performed the sampling and analysis of hazardous wastes per the waste analysis plans.
- ◆ **Combustion Facilities, USA.** Coordinated and participated in field testing and analysis for the six incineration facilities, including RCRA trial burns, on-line ash testing, and dew point monitoring. Performed corrosion



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testing for metals, linings, and paints to determine corrosion rates and material performance. Specified materials of construction for the facilities and the transportation department. Coordinated the successful process development efforts to reduce/eliminate the metaphos boiler tube corrosion associated with the combustion of phosphorus-containing wastes. Performed inspections of tanks, linings, and paints, and assisted in numerous failure investigations.

- ◆ **Combustion Facility, Louisiana.** Participated in trial burn activities for the facility. Conducted dew point monitoring tests to study the effects of additives on the combustion of phosphorus-containing waste. Process development work lead to a patent application for the improved production capabilities.
- ◆ **Combustion Facility, California.** Conducted a wastewater treatment system performance test and a test to slurry solids into pumpable liquids for incineration in the combustion unit.
- ◆ **Combustion Client, Missouri.** Conducted a feasibility study for increasing throughput on an existing hazardous waste incinerator versus other recognized incineration technologies. Developed heat and material balances, capital and operating cost data, and qualitative/quantitative evaluations of the individual technologies.
- ◆ **Combustion Client, Tennessee.** Conducted a feasibility study to improve the feed systems on two hazardous waste incinerators at the facility.
- ◆ **Combustion Client, Mississippi.** Project included a research study on the formation of dioxins and furans during the incineration process for this proposed commercial incineration facility, including an evaluation of process designs for the formation and fate of the produced dioxins and furans in the air pollution control system.
- ◆ **Manufacturing Client, Idaho.** Provided assistance in the preparation of a petition to EPA for a National Capacity Variance under the RCRA Land Disposal Restrictions Program. Also assisted with the preparation of an application to EPA for a research and development permit for the construction of a waste treatment unit.
- ◆ **Manufacturing Client, New York.** Provided regulatory compliance assistance to a client on RCRA Hazardous Waste Management issues at their aircraft engines, plastics, abrasives, and appliance manufacturing facilities.
- ◆ **Manufacturing Client, Texas.** Provided regulatory compliance assistance on all aspects of the RCRA Hazardous Waste program at its secondary lead smelting facilities. Also provided regulatory compliance assistance on all aspects of transportation of hazardous materials under the Department of Transportation's Hazardous Materials Transportation Regulations (HMTRs).
- ◆ **Manufacturing Client, Virginia.** Provided regulatory compliance assistance on RCRA hazardous waste recycling issues at an explosive and propellant manufacturing facility.
- ◆ **Government Client, Washington DC.** Provided prompt, accurate and factual information about RCRA, Superfund, and UST, statutory and regulatory requirements and associated policies and guidance to RCRA/Superfund Hotline callers of diverse backgrounds and varying degrees of regulatory knowledge.
- ◆ **Government Client, Washington DC.** Provided NEPA compliance assistance by conducting technical reviews of all types of NEPA documentation prepared for environmental restoration and waste management activities.
- ◆ **Government Client, Washington DC.** Provided prompt, accurate and factual information about EPCRA statutory and regulatory requirements and associated policies and guidance to EPCRA Hotline callers of diverse backgrounds and varying degrees of regulatory knowledge.



Training

- ◆ **Clean Harbors Environmental Services, Inc. (CHESI), Nebraska.** Developed and presented a HWC MACT Operator Training Program for the CHESI facility in Kimball, Nebraska. The audience for the training was the operators of the facility's hazardous waste incinerator. The training was designed to teach the operators to perform their duties in a manner that ensures the facility's compliance with emissions standards and operating limits required by the HWC MACT standards. The training materials for the HWC MACT Operator Training Program were developed in a modular format. The training program consisted of six (6) training modules that addressed nine site-specific training topics required by the HWC MACT regulations. Each training module included a slideshow presentation and review questions. At the conclusion of the training presentations, each participant was required to pass a written exam based on the materials presented during the training program.
- ◆ **Giant Cement Company, South Carolina.** Developed a Hazardous Waste Combustor MACT Operator Training and Certification Program and conducted the training at this cement kiln facility. The training also incorporated the Portland Cement MACT requirements. The training program included a regulatory overview, basic combustion principles, combustor operations, continuous monitoring systems, inspections and maintenance, and feedstream and products modules. The training covered the facility Operation and Maintenance Plan, Startup, Shutdown, and Malfunction Plan, Continuous Monitoring System QC Program, Continuous Emission Monitoring System QA/QC Plan, and Feedstream Analysis Plan.
- ◆ **Giant Resource Recovery, Inc., South Carolina.** Developed a training program and conducted the training for company management and environmental personnel on the Hazardous Waste Boiler and Industrial Furnace (BIF) regulations. The training included all aspects of the BIF regulations including regulatory history, operating parameters and limits, compliance testing, emission controls, monitoring systems, exemptions and waivers, and permitting requirements.
- ◆ **GlaxoSmithKline, North Carolina.** Developed a Hazardous Waste Combustor MACT Operator Training and Certification Program and a Commercial, Industrial, and Solid Waste Incinerator (CISWI) Operator Training and Qualification Program. The training was conducted for the operators and management personnel of the incineration devices. The training included a regulatory overview, basic combustion principles, incinerator operations, continuous monitoring systems, inspections and maintenance, and residue management.
- ◆ **Keystone Cement Company, Pennsylvania.** Developed a Hazardous Waste Combustor MACT Operator Training and Certification Program and conducted the training at this cement kiln facility. The training also incorporated the Portland Cement MACT requirements. The training program included a regulatory overview, basic combustion principles, combustor operations, continuous monitoring systems, inspections and maintenance, and feedstream and products modules. The training covered the facility Operation and Maintenance Plan, Startup, Shutdown, and Malfunction Plan, Continuous Monitoring System QC Program, Continuous Emission Monitoring System QA/QC Plan, and Feedstream Analysis Plan.
- ◆ **Mallinckrodt Inc., North Carolina.** Developed and presented a hazardous waste management training program for the facility personnel at Mallinckrodt Inc. (hereafter, Mallinckrodt) in Raleigh, North Carolina. The audience for the training was facility personnel who manage hazardous waste or make decisions on how hazardous waste is managed. The training was designed to teach facility personnel to perform their hazardous waste management activities in a manner that ensures compliance with the laws and regulations that are applicable to hazardous waste management at the facility. The training materials for the hazardous waste management training program were developed in a modular format. The training program consisted of fourteen (14) training modules that addressed the regulations pertaining to the hazardous waste management activities at the facility. Each training module included a slideshow presentation, a case study, review questions, and supplemental materials (e.g., guidance, fact sheets, regulations, and Agency interpretations). At the conclusion of the training presentations, each participant was required to pass a written exam based on the materials presented during the training program.



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- ◆ **Metton America, Inc., Texas.** Developed and presented a hazardous waste management training program for the facility personnel at METTON America, Inc. (hereafter, Metton) in La Porte, Texas. The audience for the training was facility personnel who manage hazardous waste or make decisions on how hazardous waste is managed. The training was designed to teach facility personnel to perform their hazardous waste management activities in a manner that ensures compliance with the laws and regulations that are applicable to hazardous waste management at the facility. The training materials for the hazardous waste management training program were developed in a modular format. The training program consisted of fourteen (14) training modules that addressed the regulations pertaining to the hazardous waste management activities at the facility. Each training module included a slideshow presentation, a case study, review questions, and supplemental materials (e.g., guidance, fact sheets, regulations, and Agency interpretations). At the conclusion of the training presentations, each participant was required to pass a written exam based on the materials presented during the training program.
- ◆ **Vertellus Specialties, Inc., Indiana.** Developed and presented a continuous emission monitoring system (CEMS) training program for facility operators and instrumentation personnel. The training included all aspects of the facility CEMS QA/QC Plan including daily, quarterly, and annual calibration and testing requirements, calibration gases, data quality objectives, recordkeeping requirements, and corrective actions.
- ◆ **Solite Corporation, Virginia.** Developed a Hazardous Waste Combustor MACT Operator Training and Certification Program and conducted the training at this lightweight aggregate kiln facility. The training program included a regulatory overview, basic combustion principles, combustor operations, continuous monitoring systems, inspections and maintenance, and feedstream and products modules. The training covered the facility Operation and Maintenance Plan, Startup, Shutdown, and Malfunction Plan, Continuous Monitoring System QC Program, Continuous Emission Monitoring System QA/QC Plan, and Feedstream Analysis Plan.
- ◆ **Total Petrochemicals USA, Inc., Texas.** Developed the basic combustion principles section of the facility's Hazardous Waste Combustor MACT Operator Training and Certification Program. CS₂ Inc. reviewed the training modules and provided comments to the facility. Facility personnel presented the training to the appropriate personnel.
- ◆ **Virginia Solite, Virginia.** Developed a Hazardous Waste Combustor MACT Operator Training and Certification Program and conducted the training at this lightweight aggregate kiln facility. The training program included a regulatory overview, basic combustion principles, combustor operations, continuous monitoring systems, inspections and maintenance, and feedstream and products modules. The training covered the facility Operation and Maintenance Plan, Startup, Shutdown, and Malfunction Plan, Continuous Monitoring System QC Program, Continuous Emission Monitoring System QA/QC Plan, and Feedstream Analysis Plan.
- ◆ **Combustion Client, Utah.** Trained the incinerator operators of this commercial hazardous waste incineration facility on the fundamentals of operation. This training included equipment operations, standard operating procedures, automatic waste feed cut-off systems, operational interlocks, and safety systems.
- ◆ **Manufacturing Client, USA.** Developed and presented intermediate and advanced level RCRA training materials addressing all aspects of hazardous waste management applicable to generators and treatments, storage, and disposal facilities. Presented training to facility personnel on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs. This training was presented quarterly at various facilities nationwide.
- ◆ **Manufacturing Client, Maryland and New Jersey.** Developed and presented RCRA training to facility personnel on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs.
- ◆ **TSD Client, Alabama.** Developed and presented RCRA training to facility personnel on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs.



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- ◆ **Manufacturing Client, Texas.** Developed and presented training on the transportation of hazardous materials under the Department of Energy's Hazardous Materials Transportation Regulations (HMTRs).
- ◆ **TSD Client, Georgia.** Developed and presented introductory and advanced RCRA training to facility personnel on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs.
- ◆ **Manufacturing Client, New York.** Developed and presented RCRA training on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs.
- ◆ **Manufacturing Client, Ohio.** Developed and presented RCRA training on the practical and regulatory requirements necessary to meet compliance obligations under federal and state hazardous waste programs.
- ◆ **Government Client, Illinois.** Developed materials and presented training on standards for hazardous waste tanks systems.
- ◆ **Government Client, New York.** Developed and presented training materials at workshops on Permitting Hazardous Waste Combustion Units.