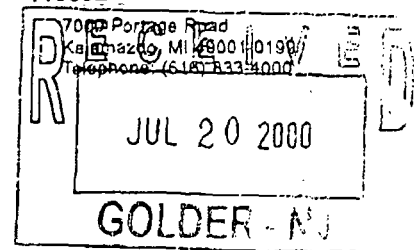


SDMS Document



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**Pharmacia & Upjohn**

July 12, 2000

Ms. Caroline Kwan
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway - 20 th Floor
New York, NY 10007-1866

RE: NOTIFICATION - REPLACEMENT OF PRIME CONTRACTOR/CONSULTANT
VIRGIN ISLAND CHEMICAL SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

Dear Caroline:

Pharmacia & Upjohn Company and Berlex Laboratories Inc., hereby provide you with written notification of the replacement of the prime contractor/consultant for the Virgin Island Chemical Site, McClaren Hart, Inc. with the firm of Golder Associates Inc., out of Cherry Hill, New Jersey. We regret to make such a change at this time, but feel that it is necessary to complete the RI/FS and other ongoing site activities in a more timely manner.

The project manager (PM) for Golder Associates (Golder) is Ms. Susan Sciarratta, P.E., with Mr. Steve Finn, who is a Principal of Golder, serving as Project Coordinator (Mr. Finn serves in this capacity for the SCP Carlstadt Superfund Site in New Jersey). Resumes for these key Golder personnel are attached. Ms. Norma Eichlin (the former PM with McClaren Hart), will be retained by Golder via a subcontract with Matrix Engineering so that she can continue to provide project support during the transition and assist in the completion of project deliverables.

We trust the revised project team meets with your approval. If you have any questions or concerns, please don't hesitate to call the undersigned.

Very truly yours,

BERLEX LABORATORIES, INC.

Terry E. Grimmer, M.S., R.E.A.
Head of Environmental Health & Safety

Cc: J. William Whitlock, Esq.
Eric Threadgold, Esq.
Kevin M. Walsh
Steve Finn, Golder Associates

PHARMACIA & UPJOHN COMPANY

William G. Gierke, P.G.
Corporate E&S
Environmental Remediation

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ATTACHMENT

RESUMES OF KEY GOLDER PERSONNEL

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P. Stephen Finn

- Education** B.Sc., (1st class honors) Civil Engineering, University of Bristol, U.K., 1977
M.S., Geotechnical Engineering, University of California, Berkeley, 1982
Postgraduate course in Engineering Seismology, Imperial College, University of London, U.K., 1983
- Affiliations** Chartered Engineer, U.K.
Member, Institution of Civil Engineers, U.K.
- Experience**
- | | | |
|--------------|---|------------------------|
| 1990 to date | Golder Associates Inc.
<i>Principal, formerly Associate.</i>
Responsible for management and technical direction of environmental assessment and remediation projects in the northeast and midwest. Experience includes strategy development, investigation, feasibility studies, design, construction management, and review of completed remedial measures. Sites include active and former manufacturing plants, landfills, and waste handling facilities throughout USEPA Regions I, II, III, V, and VII. Mr. Finn has extensive experience of negotiating cost-effective remedial approaches to groundwater and soil contamination problems at these sites including the use of innovative remediation technologies. Mr. Finn also provides strategic advice and environmental due diligence services in support of multi-site property transfers, mergers, and acquisitions. Previously Project Manager for various solid waste landfill designs including novel use of deep dynamic compaction to enhance air space on an active landfill. | Cherry Hill, NJ |
| 1986 - 1990 | Soil Mechanics Ltd.
<i>Divisional Director.</i>
General management responsibility for specialist consultancy division. Projects included major supervisory control and data acquisition systems for water treatment plants, dynamic laboratory testing, and foundation piling. | U.K. |
| 1983 - 1986 | Soil Mechanics Ltd.
<i>Research & Development Manager.</i>
Management responsibility for R&D department with multi-discipline technical staff. Development of new in-situ geotechnical testing services based on pressuremeters, penetrometers, dilatometers, and permeability measurements. | U.K. |
| 1982 - 1983 | Soil Mechanics Ltd.
<i>Senior Engineer.</i>
Investigation of geotechnical failures; geotechnical analysis for major U.K. road projects and the Baghdad Metro, Iraq. | U.K. |
| 1981 - 1982 | Postgraduate student. University of California, Berkeley. | |
| 1979 - 1981 | Soil Mechanics Ltd.
<i>Project Engineer.</i>
Responsible for land and marine geotechnical investigation and design projects in Hong Kong, Macao, and the Philippines. Design of soil and rock slopes, retaining structures, deep basements, piled and raft foundations, land reclamation, and groundwater control. | Hong Kong |
| 1977 - 1979 | Soil Mechanics Ltd.
<i>Graduate Engineer.</i>
Site supervision of major ground investigations, geotechnical design, and technical report preparation for experimental nuclear plant and major road schemes. | U.K. |

P. Stephen Finn

Publications

Starr, D.C. and P.S. Finn, 1979. Practical Aspects of Rock Slope Stability Assessment in Hong Kong. *Jnl. Hong Kong Inst. Of Engineers*, October.

Finn, P. S., R. M. Nisbet and P. G. Hawkins, 1984. Guidance on Pressuremeter, Flat Dilatometer and Cone Penetration Testing. 20th Regional Meeting Geological Society, University of Surrey, U.K. 1, 223-233.

Coatsworth, A. M., D. J. Corke, P. S. Finn and A. Price-Jones, 1985. Field Measurements with Microcomputers in Soils and Rocks. *Quart. Jnl. Of Engineering Geology*, 18, 327-334.

Finn, P. S. and R. M. Nisbet, 1986. Site Investigation, Design and Performance of LPG Storage facilities on Reclaimed Land. *Proc. International Conf. On Marginal and Derelict Land*, Glasgow, 713-731.

Finn, P. S., 1987. Industrial Data Acquisition - A Review. *Proc. International Test and Transducer Conference*, London, 2, 117-127.

Finn, P. S., 1987. Microcomputer Applications in In-Situ Testing. *Proc. Symp. On Computer Applications in Geotechnical Engineering*. 107-116.

Finn, P. S., and P. J. L. Eldred, 1989. Data Management with Microcomputers in Geotechnical Engineering. *Quart. Jnl. Of Engineering Geology*, 20, 131-137

Galante, V. N., A. W. Eith, M. S. M. Leonard and P. S. Finn, 1991. An Assessment of Deep Dynamic Compaction as a means to Increase Refuse Density for an Operating Municipal Waste Landfill. *Midland Geotechnical Society Conference: Planning and Engineering of Landfills*, U.K.

Presentations

Brownfields Recycling: Implementation. *Environmental Management Forum, Atlanta GA. October 1996*

The Role of Active Landfill Gas Extraction in Landfill Remediation. *U. S. Environmental Protection Agency. Philadelphia, PA. January 1998.*

Site Remediation Issues in New Jersey: A Consultant's Perspective. *Chemical Industry Council, Princeton NJ. January 1999*

Sub-Surface Iron Reaction Zones Installed by Hydraulic Fracturing. *International Environmental Technology Expo '99. Atlantic City, NJ. April 1999.*

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P. Stephen Finn

ENVIRONMENTAL REMEDIATION EXPERIENCE

Industri-Plex Site,

Woburn, Massachusetts

Project Manager for multi-firm team responsible for Remedial Design of No. 5 site on the NPL that has become a national model for Brownfield redevelopment. Remedial design involved soil and geosynthetic covers, groundwater and gas extraction/treatment, wetlands remediation and mitigation design and institutional controls. Implemented Remedial Action contracting strategy and continued Resident Engineering services during construction. Subsequently provided support for sale and redevelopment of major portions of the 250 acre property, including the development of institutional controls (deed restrictions) to maximize site re-use while protecting the integrity of the remedy.

Scientific Chemical Processing

Carlstadt, New Jersey

Program Manager for large PRP group at this NPL site. Responsible for RI/FS work and interim remedial actions including slurry wall and cap containment, shallow groundwater/leachate extraction and drum/tank removal. Site contaminants include PCBs and VOCs in soil and sludge and chlorinated solvent DNAPLs.

Cinnaminson Groundwater Contamination Site

New Jersey

Project Director for Remedial Design. Activities include negotiation of Work Plans, execution of major field program including drilling, sampling and pumping tests, groundwater monitoring, groundwater treatability studies, and landfill gas extraction system design review.

Confidential Site

Pennsylvania

Project Director for Feasibility Study and Remedial Design for groundwater, soil and sediment remediation in complex hydrogeologic conditions involving NAPLs and pesticides in a karst environment and ecological risk and impact assessment for a trout stream system. Key participant in negotiation of ROD and Consent Decree. Developed and negotiated an Alternate Soil Remedy using hydrofracturing enhanced SVE in place of soil excavation, leading to a ROD Amendment.

Dover Landfill

New Hampshire

Project Director for Remedial Design. Negotiated Pre-Design Investigation scope including waste extent investigation using geophysics, aquifer testing, wetlands survey, landfill gas monitoring and air dispersion modeling, and determination of background arsenic levels in groundwater. Continued involvement in review of groundwater flow and contaminant transport modeling and capping design strategy.

Chemplex Site

Clinton, Iowa

Project Manager for Remedial Design of Chemplex Site, Iowa. Key participant in negotiation of Consent Decree and technical Statement of Work for Design of Soil Vapor Extraction (SVE) and capping remedy and associated performance standards. Direction of Remedial Design and subsequent construction and start-up.

Confidential Site

Salem, Ohio

Project Director for RI/FS. Responsible for negotiating Consent Decree for Interim Remedial Measures involving groundwater/leachate pump and treat, oversight of pilot testing and treatment process selection and design. Analysis of contaminant fate and transport of pesticides in creek and floodplain system involving major wetlands/ecological risk studies and varied modeling approaches. Development of work scopes and review of additional sediment sampling, DNAPL study, human health and ecological risk assessments.

Coakley Landfill

Portsmouth, New Hampshire

Project Director for Remedial Design involving negotiation of Work Plans, wetlands surveys, geophysical surveys, drilling, sampling, and aquifer testing, and bench scale groundwater treatability testing. Negotiated reduced cap cross section using geosynthetic materials.

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P. Stephen Finn

Sharkey's Landfill**Parsippany, New Jersey**

Peer Reviewer for Remedial Design of Sharkey's Landfill, New Jersey.

Pollution Abatement Services, Oswego**New York**

Project Director for Supplemental RI/FS. Oversight of SRI/FS and negotiation of Proposed Plan involving ecological risk assessment, performance evaluation of existing slurry wall containment, and groundwater pump and treat with discharge to local POTW.

Devoe Coatings**Pennsauken, New Jersey**

Project Director for Remedial Investigation of former Devoe Coatings plant, New Jersey. Negotiating and implementation of technical scope of work to address soil and groundwater contamination involving LNAPL and dissolved phase constituents. Development of contracting strategy for interim remedial measures.

Borne Chemical**Elizabeth, New Jersey**

Project Director for RI/FS and Risk Assessment. Waterfront site of former chemical processing and refining operation involving soil and groundwater contamination and potential impacts to adjoining tidal river.

PJP Landfill**Jersey City, New Jersey**

Project Director for PJP Landfill Site, New Jersey. Development of technical approach for drum removal activities and landfill closure design.

Keystone Landfill**Pennsylvania**

Project Director responsible for review of USEPA ROD, site evaluation and negotiation of an Alternative Remedy using Enhanced Landfill Gas Extraction (ELGE) which will save \$5+ million in capital costs. Oversight of field pilot testing. Key participant in negotiating alternate remedy with USEPA and the Commonwealth, including the associated Consent Decree and ROD Amendment.

Caldwell Trucking Site**New Jersey**

Project Director engaged in development and successful negotiation of an Alternate Remedial approach (saving \$10 million in costs) using innovative in-situ passive treatment of chlorinated solvents in groundwater with zero-valent iron and natural attenuation.

Confidential Client**Ross, Ohio**

Project Director for Pond Closure, Chemical Manufacturer, Ross, Ohio. Development of technical and regulatory approach to pond closure involving in-situ sediment stabilization; development of construction contracting strategy.

Bethlehem-Lukens Steel**Pennsylvania**

Project Director for investigation and closure of Electric Arc Furnace (EAF) Dust disposal area. Responsible for technical and regulatory strategy development and negotiation of voluntary remedial action with state agency.

Eaton Corporation**Connecticut**

Project Director for exit strategy development for industrial site with operating bedrock groundwater extraction system.

Confidential**Connecticut**

Strategic advisor and expert reviewer for closure of large manufacturing facility under RCRA.

P. Stephen Finn

Confidential**Pennsylvania**

Strategic advisor responsible for development of remedial approach for closed landfill and provision of technical support during settlement negotiations between responsible parties and regulators.

Confidential**Michigan**

Project Director for Focused Feasibility Study for Alternate Remedy at landfill Superfund site. Included re-negotiation of capping requirements and an innovative groundwater remedy using bio-sparging and monitored natural attenuation.

Superior Services**New Jersey**

Review and oversight of site investigation and remediation of a soil and groundwater releases being undertaken by a former owner.

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P. Stephen Finn

ENVIRONMENTAL DUE DILIGENCE EXPERIENCE**Meridian Industrial Trust****U.S. Wide**

Strategy development and coordination of environmental due diligence assessments at multiple facilities throughout the U.S. for a major property portfolio acquisition.

National Express Group**New York**

Strategy development and oversight of environmental due diligence assessment for privatization of Stewart International Airport. Site assessment and compliance audits involved multiple tenant properties and historic civil and military operations on the site, and recommendations for an Environmental Management System.

Superior Services**New Jersey**

Environmental due diligence for multi-site acquisition by major solid waste company including recycling center/transfer station, sludge treatment operation, office and maintenance facilities.

Confidential**International**

Environmental due diligence for multi-site acquisition of an industrial manufacturing company, including 10 facilities in the U.S., U.K., France and Germany. Coordination of all field activities and provision of strategic advice to client during negotiations on a very short time-scale.

P. Stephen Finn

LITIGATION SUPPORT EXPERIENCE

ACC Chemical Company et. al. vs. Halliburton Company

Iowa

Mr. Finn provided expert deposition testimony in this private cost-recovery action. Mr. Finn's testimony concerned the basis and scope of planned remedial actions for volatile organic and semi-volatile organic compounds in soil and the influence of different sources on various remedy elements.

Kay Bettis et. al. vs. Ruetgers-Nease Corporation et. al.

Ohio

Mr. Finn developed expert reports and provided depositional testimony for the defense in this large toxic tort class action. Mr. Finn's testimony addressed the nature and extent of soil, groundwater, sediment and air contamination, the efficacy of historical remedial measures, contaminant fate and transport of organic compounds and the process for establishing a final remedy for this Superfund site and the adjoining 20+ miles of creek and floodplain. He also assisted counsel in preparing to depose Plaintiff's experts and provided expert advice to address cross-claim issues among the Defendants.

Ruetgers-Nease Corporation vs. Occidental Chemical Corp., et.al.

Ohio

Mr. Finn provided expert report and depositional testimony for this private cost-recovery action. Mr. Finn's work concerned NCP compliance and the extent of investigation and remediation costs attributable to different chemicals associated with various products produced at a former toll manufacturing facility. He assisted counsel in the review of Defendants' expert reports and in their preparation for depositions.

Weyerhaeuser Company vs. Beazer East, Inc.

New Jersey

Mr. Finn provided expert litigation support for this private cost-recovery action concerning a former wood treating facility. His work included review of previous investigations of site conditions, contaminant sources, and fate and transport. Mr. Finn also provided review of Defendant's expert reports, together with assessment of NCP compliance and past and future remedial costs, including Natural Resource Damages.

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Susan A. Sciarratta, P.E.

Education M.S., Environmental Engineering, Drexel University, 1995
B.S., *cum laude*, Chemical Engineering, Tufts University, 1991

Affiliations Society of Women Engineers, Section President (1999, 2000)
Society of Women Environmental Professionals, Member (1998-present)

Registered Professional Engineer, Pennsylvania
40-Hour OSHA Health and Safety Training

RCRA Employee of the Year, USEPA Region III
USEPA Bronze Medal for Commendable Service (3 awards)

Experience

1998 - present **Golder Associates Inc.** **Cherry Hill, NJ**
Senior Project Engineer.
Process engineering of environmental systems for industrial and closed facilities. Process engineering responsibilities include design and analysis of chemical, mechanical, and process control aspects of processes and systems. Projects include design, construction, and operations of groundwater, soil vapor, and landfill gas extraction and treatment systems. Also, provide environmental permitting, auditing, and compliance support services to industrial facilities.

1991 - 1998 **U.S. Environmental Protection Agency, Region III** **Philadelphia, PA**
Environmental Engineer.
As Remedial Project Manager, managed RCRA remedial investigations and cleanups. As Compliance Officer, conducted RCRA inspections, developed enforcement cases, conducted negotiations, and monitored compliance. As Combustion Engineer, implemented Boiler and Industrial Furnace enforcement program. Developed and implemented Region III combustion compliance strategy, oversaw stack tests, and inspected hazardous waste combustors. As State Program Manager, negotiated federal grants of \$1-2M and oversaw State RCRA program activities in West Virginia and Maryland. Regularly educated States, industry, and general public on waste issues.

1988 - 1991 **Massachusetts Public Interest Research Group** **Boston, MA**
Chapter Chair (1990-1991)
Conducted environmental and consumer advocacy, campaign organizing, public outreach and education. Campaigns included Toxics Use Reduction and Recyclable Packaging.

Summer 1990 **Executive Office of Environmental Affairs** **Boston, MA**
Intern
Assisted in State's Environmental Impact Study review process, including the "Big Dig."

1990 **Polaroid Corporation** **Waltham, MA**
Intern
Assisted site engineers with environmental permitting and process engineering at dye manufacturing plant.

Susan A. Sciarratta, P.E.

Presentations

RCRA Reforms. *Regulatory Issues Seminar, Chemical Industry Council of New Jersey, November 1999.*

The Benefits of Professional Licensing. *Regional Conference, Society of Women Engineers, November 1999.*

Options for Handling Remediation Waste. *Society of Women Environmental Professionals, April 1999.*

Environmental Education. Hands-on workshops for secondary school students and teachers, approximately 50 workshops between 1991-1999, including:

Water Distribution System Design and Construction

Incineration and Air Quality

Point Source vs. Non-Point Source Pollution

Household Hazardous Waste

Stream Walk: Assessing a Stream's Health by Physical and Biological Characteristics

Watershed Mapping

Ecology and Food Webs

Deadly Links: Pesticide Bioaccumulation/Biomagnification

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Susan A. Sciaratta, P.E.

**SELECTED PROJECT EXPERIENCE – ENVIRONMENTAL COMPLIANCE
AND REMEDIATION OVERSIGHT**

Environmental Site Assessment / Phase I Audit

Newburgh, NY

Participated in 3-person audit team in conducting a due diligence environmental audit at Stewart International Airport, in accordance with ASTM Phase I standards. The assessment was conducted as part of lease negotiations for the Airport, the first major airport to be privatized in the United States. General issues covered included air emissions, stormwater drainage and discharge, wastewater discharges, asbestos, PCBs, hazardous and solid waste, and materials handling and storage. Assessment included site walkthroughs, personnel interviews, reviews of records and regulatory files, aerial photo analysis, and ownership history search. Conducted follow-up Phase I assessments of the Airport Industrial Park tenants. Prepared recommendations for Phase II sampling and site investigation.

Environmental Site Assessment / Phase I Audit

Pitman, NJ

Conducted a due diligence environmental audit at a plastic tube manufacturing and decorating facility in accordance with ASTM Phase I standards, and evaluated the applicability of the proposed property transaction and facility operations under New Jersey ISRA requirements. Audit included personnel interviews, site reconnaissance, searches of state and federal regulatory program databases, and title search. Provided a report including findings and recommendations for the client, based in Sweden.

Air Operating Permit and Emissions Statement

Egg Harbor Township, NJ

Prepared annual emissions statement for closed municipal landfill with active gas extraction system and leachate management system. Presented calculations for annual emissions of VOCs, NOx, SOx, carbon monoxide, and particulate matter using a combination of emission factors and site-specific operating and gas quality data. Modeled landfill gas generation rates using EPA LandGEM Model, modeled emissions from leachate tanks and sumps, and calculated emissions from enclosed flare operation. Completed renewal application for air operating permit for same facility and conducted Potential To Emit calculations to demonstrate that annual emissions were below Title V permit thresholds.

***RCRA Corrective Action Permitting**

Washington and Rocket Center, WV

Project Manager for RCRA Facility Assessments at GE Plastics and Allegany Ballistics Laboratory. Included reviews of process flow diagrams, plant design, present and historical waste management practices, and site inspections. About 150 solid waste management units and areas of concern were identified at each site. Drafted, negotiated and issued Corrective Action Permit to GE Plastics under authority of the 1984 Hazardous and Solid Waste Amendments to RCRA.

***RCRA Section 7003 Cleanup Order**

St. Marys, WV

Drafted, negotiated, and issued on consent a RCRA Section 7003 Order at oil refinery for imminent and substantial endangerment to human health and the environment for past releases of solid and hazardous wastes and constituents. Participated in inspection teams to conduct RCRA inspection and multimedia inspection at refinery. Areas covered included: hazardous waste management and disposal, underground storage tanks, asbestos, wastewater management and treatment, and PCB management (i.e., transformers, capacitors).

***Remediation and Redevelopment Strategy**

Bethlehem, PA

Served as interim Project Manager on behalf of USEPA to oversee remediation of a major steel plant with plans for redevelopment under Pennsylvania's Act 2 Program. Developed strategy to involve USEPA in the remediation oversight, in order to protect the Agency's interests/concerns with minimal disruption to ongoing investigations under State oversight. Strategy included communication, coordination, and

Susan A. Sciarratta, P.E.

diplomacy with staff and senior management at PADEP, USEPA, Bethlehem Steel, the local community, and the Smithsonian Institution.

Remedial Project Management*Annapolis, MD**

Reviewed RCRA Verification Investigation, Interim Measures, and RCRA Facility Investigation workplans and reports at U.S. Naval Academy. Oversaw soil and groundwater sampling activities pursuant to remedial investigations. Oversaw the implementation of interim measures to stabilize contaminated soil and groundwater. Conducted similar activities at other sites, including chemical plants and oil refineries.

Compliance Oversight*Newell, WV**

Federal Compliance Officer for multimillion dollar RCRA/CAA Judicial Consent Decree at oil refinery. Reviewed and approved designs for upgrades of existing wastewater treatment units and construction of new wastewater and process units. Reviewed groundwater and soil sampling plans associated with closure of two wastewater treatment units, monitored upgrades to heat exchanger bundle cleaning pad, and monitored implementation of supplemental environmental projects, including a hydrostatic tank gauging system. Reviewed Progress and Expense Reports and oversaw construction and sampling activities for conformance to Consent Decree requirements.

Hazardous Waste Inspections*PA, MD, WV, VA, DE**

Conducted hazardous waste management inspections at small and large quantity generators of hazardous waste and at Superfund sites under the federal RCRA Program. Performed multimedia screening to identify potential areas of concern in other regulatory programs. Conducted inspections at hazardous waste combustion facilities, including incinerators, boilers and industrial furnaces, to ensure conformance with RCRA requirements.

State Program Management*MD and WV**

Administered federal grants of \$1.5 million each to States for the implementation of the delegated portions of the RCRA hazardous waste program. Negotiated annual workplans with State Directors and conducted semiannual reviews of activities performed. Program elements included: permitting, enforcement, corrective action, waste minimization, data management, regulatory development, and authorization.

* - Project work experience prior to Golder Associates Inc.

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Susan A. Sciaratta, P.E.

SELECTED PROJECT RELATED EXPERIENCE -- PROCESS ENGINEERING

Groundwater Extraction and Treatment Facility

State College, PA

Process Engineer for 95% and 100% designs of a 200 gpm treatment plant for removal of volatile organic compounds from groundwater at Superfund site, located at an active chemical manufacturing facility. Treatment unit operations include air stripping, filtration, carbon adsorption, and off-gas treatment via regenerative thermal oxidizer (RTO) and acid gas scrubber with quench. Performed bench scale study to evaluate feasibility of candle filtration to remove iron precipitate from aerated groundwater. Performed design calculations including air flow, heat balance, residence time, scrubbing requirements, quench water requirements, and VOC/HCl concentrations in untreated and treated gas. Drafted technical specifications, bidding documents, and detailed cost estimate for treatment plant design, upgrades to site secondary containment system, and related site work. Evaluated contractor bids and assisted in contractor selection. Prepare CERCLA permit equivalency applications for NPDES discharge, air emissions, and ground water withdrawal. Provide CQA and oversight services for treatment plant construction.

Enhanced Landfill Gas Extraction Feasibility Study

Union Township, PA

Developed workplan, designed and constructed pilot gas extraction system, and executed pilot study to demonstrate the removal of volatile organic compounds via active gas extraction at a closed landfill under a CERCLA Feasibility Study. Pilot study included using a blower to extract gas from extraction well, and monitoring gas quality, flow, and pressure at extraction well and six monitoring probes. Provided air-air heat exchanger, air/water separator, and activated carbon for off-gas conditioning and treatment. Completed Focused Feasibility Study Report to propose enhanced landfill gas extraction, using an innovative site characterization/design approach, as a more effective remedy than the ROD remedy consisting of a cap and methane gas control system. Anticipated savings of implementing the alternate remedy over the existing ROD remedy are \$3-5M.

Soil Vapor Extraction System Operations Support

Clinton, IA

Perform engineering and operations support to landfill gas extraction and treatment system at Superfund site. Includes evaluating options to upgrade and optimize system, selection and installation of new equipment, and operational data management and programming. Coordinate activities with site O&M contractor. Monitor conformance with overall system performance requirements. Prepared catalytic oxidizer performance test report, in order to demonstrate the destruction efficiency of the oxidizer. Conduct vapor sampling at gas extraction wells to evaluate progress in meeting concentration-based performance standards. Prepare quarterly reports including calculations of mass removal rates, HCl emission rates, condensate and LNAPL removal rates, gas quality trends, and evaluation of efficiencies of individual gas extraction wells.

Landfill Gas-to-Energy Conceptual Analysis

Egg Harbor Township, New Jersey

Using a proprietary model developed by Golder Associates Inc., based on first-order reaction kinetics, modeled long-term gas generation and capture rates for a closed landfill with an active gas extraction system comprised of about 90 gas wells. Based on future gas generation capacity and estimated fuel value of the gas, sized an electrical generator (genset) for the conversion of heat energy from landfill gas to electrical energy to meet a portion of the electrical demand from the landfill O&M operations.

***Wastewater Treatment System and Pollution Prevention Measures**

Newell, WV

Project Manager for the review and approval of design drawings and construction of upgrades to a wastewater treatment plant and related operations at a lube oil refinery, pursuant to a federal Consent Decree. Upgrades included reconstruction of a heat exchanger bundle cleaning pad, closure of an inground aeration basin and 300,000 gallon stormwater/equalization basin, construction of two aboveground stormwater tanks and lift station, retrofitting of two API oil/water separators, and addition of a desalter aftersettler. Pollution prevention measures included the design and installation of a hydrostatic tank

Susan A. Sciarratta, P.E.

gauging system and central monitoring station, and the addition of oil/water separators to pre-treat decant water from the tank farm.

Evaluation of Failed Land Treatment Unit*Delaware City, DE**

Assisted in evaluating performance of hazardous waste land treatment unit (LTU) at oil refinery against sound engineering practices and regulatory standards. Involved analysis of LTU design, operations and maintenance, ability to degrade organic waste, and fate/transport of hazardous inorganic constituents beyond the treatment zone. Issued a Statement of Basis on behalf of EPA to deny permit for continued LTU operation to refinery. Decision was appealed by refinery. Drafted a Response to Appeal that was upheld in EPA's favor by the federal Environmental Appeals Board.

Hazardous Waste Combustion Unit Operations*MD, PA, DE, WV, VA**

Evaluated design, testing and operations of hazardous waste combustion units and associated air pollution control devices, including boilers, cement kilns, lightweight aggregate kilns, and sulfuric acid recovery furnace. Based on combustion chemistry, thermodynamic principles, mass and energy balances, and regulatory requirements, evaluated stack test protocols to determine whether proposed operating conditions at combustion units were achievable and consistent with design specifications and good engineering practices. Conducted in-depth site inspections, including the evaluation of operations and maintenance practices, process control systems, secondary containment systems, fugitive emissions controls, waste analysis, and air pollution control system operations and efficiency.

Waste Analysis Guidance*Washington, DC**

Participated in national workgroup to draft USEPA Guidance for analyzing hazardous waste and fuel streams burned in boilers, industrial furnaces and other combustion units. Assisted in developing and promoting an upper tolerance limit statistical methodology for characterizing waste streams generated and burned on-site. Advised on considerations associated with the use of statistical methods, such as tests for normality and dealing with non-detected constituents. Also advised the regulated community on the implementation of this Guidance to ensure conformance on a daily basis with feed rate limits for hazardous constituents, including metals, ash and chlorine.

* - Project experience prior to Golder Associates Inc

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