

# Gregory C. Wirsen, MSc

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Principal

**Education:** MSc, Resource Management and Administration, Antioch University, 1995  
BA, Interdisciplinary Law & Legal Studies, Westfield State College, 1991

**Qualifications:**

- OSHA 29 CFR 1910.120 - 40-Hour HAZWOPER
- Massachusetts Certified Asbestos Inspector License # 40102
- OSHA 10-Hour Construction Safety & Health Training
- S.W.A.N.A. Construction and Demolition Debris Manager
- MA Licensed Construction Supervisor

**Present Position:** **GREEN SEAL ENVIRONMENTAL, INC. (GSE)**  
Mr. Wirsen is a principal at GSE and oversees a majority of the solid waste related projects at GSE. Besides solid waste projects, Mr. Wirsen, oversees projects including construction oversight, environmental investigations and regulatory compliance assistance. Mr. Wirsen is also responsible for overall profitability, staffing and growth of the organization.

**Representative Experience:** Mr. Wirsen has over fourteen years experience with environmental and science based organizations with significant experience in project management. Mr. Wirsen has prepared numerous solid waste permit applications for modifying, constructing, and operating solid waste facilities and has authored reports for the permitting and the beneficial reuse of a multitude of waste derived products. In addition, Mr. Wirsen has extensive experience with: health and safety policy and program development/implementation, hydrogeologic investigations, hazardous material response actions, release investigations, site assessments, and has also performed construction oversight and maintenance on various types of remediation systems. Mr. Wirsen is also trained in Information Mapping™.

## **NEW SOLID WASTE FACILITY SITING & DEVELOPMENT**

- Rochester, MA – Mr. Wirsen was the acting project manager for the development of a state-of-the art construction and demolition debris (C&D) processing facility. Project tasks included direct oversight of all phases of local [BOH, Building, Planning, Conservation], state [MassDEP, EEOEA, MA highway], and federal [NPDES] permitting activities. Tasks also included construction oversight, startup and shakedown, and the development of all health and safety related policies and procedures.
- S&J Exco, Inc. - S. Dennis, MA - Mr. Wirsen was the acting project manager for the development of a 140 ton per day solid waste transfer station and a 100 ton per day Wood Waste Reclamation Facility (WWRF). In addition, the facility was permitted to receive and recycle asphalt brick and concrete under a MassDEP Determination of Needs permit approval process. Project tasks included the preparation of all permit applications (local and state) for the development and subsequent operations of the facility. In addition, as part of the permitting process, Mr. Wirsen prepared a hydrogeological study and a majority of the facility specific health and safety training manuals. Daniels Recycling Company, Inc. – Orleans, MA - Mr. Wirsen was the acting solid waste expert that provided significant technical input on the permitting, design and subsequent operation of the facility. The facility, when it was constructed, was permitted to recycle 50 tons per day of C&D and 40 tons per day of wood waste. Mr. Wirsen provided technical testimony

during the Cape Cod Commission and Orleans Board of Health hearings.

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- Hinsdale, NH (private client) – Mr. Wirsen was the lead project manager for the development of a BACT fluidized bed 40 MW C&D derived power generating facility with solid waste processing capabilities. The development was regulated by many local, state and federal regulations and focused on multiple media including groundwater withdrawal, surface water discharge, air emissions and solid waste facility permitting. The project was placed on hold when the State of New Hampshire enacted a moratorium on burning C&D derived biomass. Project development and construction costs were estimated to be greater than \$90 million.

### **SOLID WASTE FACILITY EXPANSIONS & MODIFICATIONS**

- Multiple facilities – Massachusetts & Rhode Island – Mr. Wirsen has been responsible for solid waste facility modifications for facilities located in Taunton, Raynham, Ware, Orleans, Dennis, Brockton, New Bedford, Stoughton, Sandwich, Southbridge, Brewster, Chatham, Harwich, Roxbury, and East Providence. Expansions have consisted of either increasing the allowable daily tonnage or changing the type of waste that is allowed to be accepted/processed/handled at the facility. Modifications have consisted of full scale state-of-the-art facility development (e.g. New England Recycling, Inc. of Taunton, MA – featured in national trade magazines as a leader in the recycling industry), processing line modifications, building and/or infrastructure construction, upgrades to increase throughput or to create controls to enhance environmental protection of multiple medias (soil, groundwater, surface water and air). Many of the modifications required multiple permits through local and state agencies and in some instances (e.g. NPDES Construction and Multi-sector General Permits) from US EPA. Modifications have also included converting wood waste landfills into WWRF's pursuant to MassDEP policy and regulation. Mr. Wirsen has been responsible for the development of three fully permitted and operational WWRF's in Massachusetts.

### **SOLID WASTE FACILITY MONITORING AND COMPLIANCE**

- Mr. Wirsen is responsible for all solid waste compliance services that GSE provides. Services are rendered on a monthly and quarterly basis for many active solid waste management facilities in Massachusetts, New Hampshire, Rhode Island and Connecticut. Compliance services include facility inspections; permit compliance associated with beneficial use determinations (reporting, material sampling for chemical and physical properties, etc.); in-situ monitoring/screening (e.g. landfill gas and leachate monitoring); and, Third Party Audits based on operational permit requirements.

Active compliance related clients include (partial list):

- Casella Waste Services (multiple sites)
- New Bedford Waste Services – New Bedford, MA
- New England Recycling, Inc. - Taunton, MA
- LL&S, Inc - Salem, NH
- E.L. Harvey & Sons, Inc. - Westborough, MA
- Bourne Landfill, Bourne, MA
- Devens Recycling Center, Devens, MA
- Waste Management (multiple sites)
- Stoughton Recycling Technologies - Stoughton, MA
- Daniels Recycling Company, Inc. - Orleans, MA
- S&J Exco, Inc. - S. Dennis, MA
- Pond View Recycling, E. Providence, RI
- Jet-A-Way, Inc. – Roxbury, MA
- ABC&D, Inc., E. Ware, MA

#### **BENEFICIAL USE DETERMINATIONS (BUDS) – REGULATED USES**

- BUDs have been approved for multiple facilities in Massachusetts, New York, Rhode Island, New Hampshire and Connecticut. All of the beneficial use determinations (well over 30) have been prepared for reusing construction and demolition debris materials for:
  - Alternative daily cover (fines)
  - Landfill pre-capping material (fines and residuals)
  - Shaping and grading material (fines and residuals)
  - Roadway stabilization (aggregates, fines and residuals)
  - Internal stormwater controls (aggregates)
  - Erosion control for reduction of storm water velocity and siltation [e.g. rip rap, check dams, temporary sedimentation ponds, etc.] (aggregates)
  - Leachate and landfill gas pipe bedding (aggregates)
  - Leachate and landfill gas drainage layer material (aggregates)

#### **BENEFICIAL USE DETERMINATIONS – RESTRICTED USES**

- Rochester, MA – Mr. Wirsen prepared a restricted BUD for the reuse of recycled aggregated in the construction of a visual barrier and sound attenuation berm. The project allowed approximately 10,000 tons of material to be beneficially reused at the subject site.
- S. Dennis, MA - Mr. Wirsen prepared a restricted BUD for the reuse of dredge spoils as a weekly firebreak at a WWRF. By permitting this use the supplier of the dredge spoils realized significant savings versus conventional disposal and the user of the material realized savings associated with acquiring virgin soils.
- Lakeville, MA – A restricted use beneficial use determination was approved by the MassDEP for reusing soils and waste material for vegetative support purposes at landfills in Massachusetts. The material, which consisted of C&D derived waste, horse manure and natural soils that were subsequently processed to yield over 20,000 tons of a highly organic growth media. By assessing the material through conventional laboratory analyses and coupling the assessment with a risk assessment, the client was able to save well over \$1,000,000 in disposal costs.

#### **BENEFICIAL USE DETERMINATIONS – UNRESTRICTED USES**

- Middleboro, MA – Ocean Spray Cranberries – GSE was able to obtain an unrestricted BUD for the reuse of cranberry pomace for a multitude of uses

including: a mulch bulking agent, an amendment to finished compost, and as a growth medium for various greenhouse applications. Currently over 8,000 tons of pomace are beneficially reused each year.

- Multiple facilities – Massachusetts – GSE was initially retained by ten separate solid waste facilities to assess whether C&D derived “clean” wood could be extracted from the waste stream and be utilized in various unrestricted (e.g. residential setting) land-applied applications. This permitting process statistically compared the chemical and physical characteristic of linier lumber to virgin coniferous and deciduous materials. After multiple studies, GSE was able to obtain the first BUD of its type on Massachusetts for five solid waste facilities. Currently, solid waste facilities are able to recycle this wood into recyclable products.

### **CONSTRUCTION OVERSIGHT**

- New Bedford, MA – Ze-Gen, Inc. – Mr. Wirsen was the construction supervisor of record for the pilot waste gasification plant, which is currently operational. This pilot plant was constructed to study the potential for low emission waste conversion into hydrogen and energy. The pilot plant cost several million dollars to construct and will operate into 2009.
- Multiple Solid Waste Facilities – Mr. Wirsen has provided construction oversight to multiple solid waste facilities including ABC&D Inc., S&J Exco, Inc., Rochester Environmental Park, Trojan Recycling, New England Recycling, and Stoughton Recycling Technologies. Oversight has included management of subcontractors, providing specifications, maintaining permit approval compliance (e.g. MA Wetland Protection Act or MassDEP Authorization to Construct [ATC]) and documentation for controlled construction scenarios.
- Massachusetts Military Reservation – Mr. Wirsen provided construction/health and safety oversight for the tri-town potable water connections, which resulted in 8-month of continuous oversight using several GSE staff members. GSE was acknowledged for providing quality service and “zero incident” performance while performing its duties.

### **HAZARDS WASTE SITE INVESTIGATIONS AND REMEDIAL ACTIONS**

- Springfield, MA (private client) - Mr. Wirsen was involved with conducting assessment and field activities to determine many of the on-site impacts associated with the Brownfield site. The assessment identified that the site was impacted with heavy metals, petroleum hydrocarbons and PCB’s within the soil and groundwater. This site was proposed to be remediated and developed into a solid waste facility. GSE was commended by the Pioneer Regional Valley Planning Authority for our effort in trying to redevelop an impacted and unutilized property
- Taunton, MA (Curley’s Restaurant) – Mr. Wirsen was the project manager for a release of gasoline into soils and perched groundwater. The release was identified during the construction of a restaurant and was due to a buried UST from a gasoline station that operated in the 1930’s. By rapidly mobilizing to the site, coordinating subcontractors (e.g. vacuum truck, excavators, laborers, etc.), GSE was able to remove the contaminated soil, impacted groundwater and receive laboratory results within 72-hours, which resulted in no significant lost time for the ongoing construction activities.
- Raynham, MA (Metro Ford) – Mr. Wirsen was the acting project manager for a release of petroleum product and solvents that were found within unidentified

leaching pits that were uncovered during the expansion of a their automobile dealership. Within 72-hours Mr. Wirsen was able to obtain MassDEP approval to remove over 750 tons of impacted soils and confirm that no further removal/remedial activities were required. The GSE team was commended by the client for prompt service and activities, which resulted in only minor construction delays. Osterville, MA (residential dwelling) – Mr. Wirsen was the project manager and construction supervisor for a fuel oil release in an earthen floor basement. Remedial activities required hand digging and vacuum truck removal of soils within very confined areas. Also, based on the age of the structure (registered with the local historical society), significant structural variables (e.g. stone foundation) restricted/hampered the soil removal activities. Based on this GSE supported/lifted the entire structure onto support beams, removed the soils and poured a new supporting foundation. GSE was able to successfully bring the site to closure while satisfying the historical society and Massachusetts State Building Code.

### **STUDIES & RESEARCH**

- New England – (private client) – Mr. Wirsen was the project manager and lead for conducting a fuel-shed analysis for New England and New York. The basis of the study was to determine the amount of C&D derived biomass that could be generated within distinct geographical areas. By performing this study, GSE was able to recommend potential locations for energy facility siting, the size of the facility (mW) based on the availability of fuel and general economics of what the market would yield for the fuel. This information was then used by the client to obtain fuel commitments, which were an integral part of financing a project of this magnitude.
- North Carolina, South Carolina and Florida – (private client) – Mr. Wirsen was the project manager and lead for conducting a fuel-shed analysis within the above referenced states. As with the study conducted in New England, the basis of the study was to determine the amount of C&D derived biomass that could be generated within distinct geographical areas. By performing this study, GSE was able to recommend potential locations for energy facility siting, the size of the facility (mW) based on the availability of fuel and general economics of what the market would yield for the fuel.
- Multiple Sites – (private clients) – Mr. Wirsen has been the project lead on assessing at the viability of siting solid waste facilities throughout New England. By assessing for viability (state and local siting criterion) prior to performing surveying and hard engineering/design, GSE has been able to determine the likelihood of permitability. By performing these service, GSE has saved the client tens of thousands of dollars. Also Mr. Wirsen has been the lead on development pro-formas and business plans to ensure that large scale developments are viable from an economic perspective.
- Salem, New Hampshire (private client) – GSE was the project lead on studying the physical and chemical characteristics of C&D derived biomass to assess how it may be a “certified waste derived product”. Also, Mr. Wirsen performed a macro-scale demonstration project on C&D derived fines to determine how to reduce the potential for the generation of hydrogen sulfide gas in a landfill environment.

**ENVIRONMENTAL PROPERTY AUDITS & ASSESSMENT**

- New England – Mr. Wirsen has acted as project manager on hundreds of environmental site assessments in MA for local and regional financial institution and private clients. Assessments have included limited asbestos surveys, soil and groundwater sampling, historical research, utilizing ground penetrating radar and other ancillary task to identify and quantify if a particular site has been impacted by oils and/or hazardous materials.

**Affiliations:** National Association of Environmental Professionals, Member  
Construction Material Recycling Association, New England Director & Faculty  
MassDEP Solid Waste Advisory Committee  
National Solid Wastes Management Association, Member  
Solid Waste Association of North America, Member & Faculty  
Society of Military Engineers, Member

**Publications:** Construction Materials Recycler (May 21, 1999) “Composition Study on Incoming C&D at Recycling Plant”,  
Construction & Demolition Recycling (May/June, 2004) “A Fine Idea”  
Construction & Demolition Recycling (May/June, 2005) “A Fines Idea – Mixed C&D Processing Focus