

ALVIN J. SNYDER III, PE, LSP

POSITION	President Environmental Resource Associates, Inc. Greenville, Rhode Island
EDUCATION	Clarkson University, BS Chemical Engineering OSHA 40 hour Personal Protection Training
PROFESSIONAL SOCIETIES	Licensed Site Professional Association American Institute of Chemical Engineers American Chemical Society Safety Association of Rhode Island
REGISTRATION	State of Rhode Island Commonwealth of Massachusetts - Chemical State of Connecticut State of Ohio Commonwealth of Massachusetts – Licensed Site Professional

PROFESSIONAL EXPERIENCE

With extensive experience in industry and environmental consulting, Mr. Snyder has successfully applied his engineering and scientific skills to a variety of projects. As founding principal of Environmental Resource Associates, an engineering company formed in 1976, he is responsible for numerous projects relating to disposal sites, air and water pollution, groundwater and soil remediation, processing, stormwater and regulatory issues. His projects include industrial, commerce, institutional, municipal and governmental clients. Career projects have been both domestic and foreign.

Water Pollution

Mr. Snyder has extensive experience in the testing, design and construction of industrial and hazardous waste treatment facilities for a wide variety of industries. Such projects encompass a full range of activities necessary to define and solve pollution control problems. Bench and pilot scale testing, design, specifications, construction management and startup are typical for these projects. Waste recovery and minimization prior to treatment is sought wherever possible, often with significant savings to the client. Application of his chemical engineering training, knowledge of chemistry, and insight into industrial manufacturing operations is beneficial for solving otherwise difficult environmental problems.

Processes used in Mr. Snyder's projects include physical and chemical treatment, air stripping, steam stripping, pressure and vacuum filtration, dissolved air flotation, adsorption, evaporation, distillation, ion exchange, heat transfer, biological oxidation and other processes dominant in the chemical and environmental engineering fields.

An essential portion for many of his projects is the application of chemical engineering, chemistry, chemical reactor theory, thermodynamics and geochemistry for establishing mass flow

balances and operating parameters. Mass flow balances are often in the form of Excel spreadsheets that incorporate the client's unit processes, flow diagrams and chemical usage. Literature values or predictive modeling (e.g. EPA Minteqa2, USGS Phreeqc) is used to establish physical and chemical characteristics needed for the mass balance, whether the process involves gaseous or aqueous streams.

Past projects include treatment of heavy metals and organics in leachate and groundwater from several landfills and Superfund sites, hazardous Otto II torpedo fuel waste, solvent recovery by distillation, textile latex wastewater, electroplating metal wastewaters, cyanide destruction, dye removal by adsorption, oily wastewater treatment, and iron treatment for acid mine drainage. For one project, he determined the appropriate chemistry and specified equipment for a municipal water supply to economically meet strict lead limits at residential taps. The method was used as a model for other municipalities in the state. For another project, he determined the impact of a planned industrial discharger on the POTW. Another project entailed the development and application of a novel biological process for nationwide sale.

Disposal Sites

Mr. Snyder has primary responsibility for effecting technical solutions and regulatory guidance for numerous disposal sites. Each site has a unique combination of technical and regulatory issues that include impact to public and private drinking wells, sediment contamination, surface water contamination, vapor migration into occupied buildings, floating or sinking solvents, hazardous gaseous clouds, groundwater migration and off-site sources.

Since its inception, the Massachusetts Contingency Plan (MCP) has been a familiar regulation for Mr. Snyder. As one of the first Licensed Site Professionals (LSP) in Massachusetts, he has actively provided clients with professional advice and service for meeting the MCP requirements at industrial, commercial and governmental disposal sites. His sites have encompassed a variety of release situations, assessment criteria, receptors and legal issues. Projects include modeling the migration of groundwater and air pollutants, determining ecological and human risk due to contaminated media such as sediment and surface water, and specifying various forms of remediation including in-situ biological and natural attenuation. For some sites, Activities and Use Limitations (AUL) were implemented to protect human and ecological health.

He was responsible for the study, remedial design and implementation for industrial and NPL sites. These include design, cleanup and remediation at industrial and residential sites where solvents or fuels had contaminated soil and groundwater. In most cases, regulatory permits are needed to complete the tasks. Cases have involved multiple regulatory agencies including wetlands; state and federal transportation departments; state departments for air pollution, groundwater, water pollution, and enforcement; and the town conservation committee. The projects entail such tasks as laboratory and pilot scale process development, field investigations (soil intrusive investigations, soil gas surveys, etc.), air and groundwater modeling, evaluations, reports, equipment design, specification, construction observation, startup services, and regulatory coordination.

Mr. Snyder has participated in various phases of study, risk characterization, design and implementation for Superfund and NPL sites including Western Sand and Gravel, Sylvester Site (NH), and Love Canal. For the Western Sand & Gravel NPL site in Burrillville, RI, he was instrumental in testing and designing a mobile and permanent system for capturing and treating contaminated groundwater. In addition, he performed conceptual designs and cost evaluations for remedial alternatives as part of a RI/FS and Risk Assessment.



Another site involved a significant release of No. 6 fuel oil to a major urban river that initially contaminated several miles of water and riverbank. Following months of cleanup, Mr. Snyder directed and employed forensic analytical techniques to demonstrate that the client did not cause the vast majority of oil remaining in river sediment. Another site involved very high concentrations of cadmium in a wetland and stream.

Mr. Snyder has conducted numerous investigations of industrial and commercial sites for environmental impact due to hazardous waste and materials as part of real estate transfers. His knowledge of industrial processes and practices assists in identifying historical uses that are environmental concerns while eliminating inconsequential uses.

Air Pollution

Many of Mr. Snyder's projects entail air pollution control and permitting for existing plants, plant expansions and grass root facilities. He had advised clients of the optimum plant capacity and obtained state interim approval for fast track projects.

Air pollution projects span permitting and compliance determinations, emission credits, bubble permits, waste recovery, emission rates, emission audits, opacity, odor, BACT, LAER, and equipment design and specification. Mr. Snyder uses EPA and state approved computerized numerical air modeling techniques to estimate on-site and off-site odor and pollutant concentrations. Air pollution projects include uranium ore processing, large hospital, industrial and governmental establishments.

His projects include design and multiple permitting for one of the largest VOC emission source in Massachusetts, and Operating Permit documentation for the largest emission source in Rhode Island. Other projects are source identification, quantification and permitting for a DOD base complex; solvent recovery; fume incineration for BACT and LAER; and process investigations to reduce pollution, odor and visible smoke. Some projects related to workplace air quality.

Regulatory Compliance

Compliance with various environmental regulations is an important segment of Mr. Snyder's expertise and service. Utilizing his environmental and chemical skills along with experience with industrial and commercial processes, Mr. Snyder assists his clients in achieving and maintaining compliance with a variety of environmental regulations including those for air emissions, hazardous substances, discharges to the sewer and surface waters, and chemical or petroleum releases.

He has personally prepared numerous environmental compliance reports including such areas as air source registrations or emission statements, discharge monitoring, Greenhouse Gas, RCRA groundwater monitoring, Tier reports for EPCRA, Toxic Release Inventory (TRI), Form R, TURA, Massachusetts Contingency Plan (MCP) for various response actions, tank closures, Site Investigation Reports, risk assessments, air and groundwater modeling, BACT determinations and SPCC plans.

In his capacity, Mr. Snyder has given numerous seminars and presentations before professional organizations regarding environmental regulations, their requirements and typical compliance and noncompliance issues.



PUBLICATIONS

Snyder, A. and T. Alspough. "Catalyzed Bio-oxidation and Tertiary Treatment of Integrated Textile Wastewaters", Environmental Protection Agency (Grant Project No. 1Z090 HL00).

Snyder, A. and A. Perrotti. "Pilot Scale On-site Evaluation of Activated Carbon for Rapid Oxidation of Ferrous Iron in Acid Minewater", U.S. Department of Interior, Bureau of Mines (Contract No. J0395036).

PAPERS

Gushue, J., J. Ayres, and A. Snyder. "Hazardous Waste Site Investigations, Sylvester Landfill, Nashua, New Hampshire", National Conference on Management of Uncontrolled Hazardous Waste Sites, October, 1981.

PRESENTATIONS

"Defining and Solving Waste Treatment Problems", Conference on Treatment of Metal-Bearing Wastes, Co-sponsored by Texas Instruments and National Resources Defense Council, January 17, 1985.

"Environmental Challenges for Industry", presentations to the Massachusetts Manufacturing Extension Partnership, November 2008; Society of Manufacturing Engineers, January 2009; EASTEC 2009 Exposition, Springfield, MA, May 2009; American Society for Quality (RI Section), February 2010.

"Our Environment – Making a Difference", The Foreman's Club, Attleboro, MA, May 2009.

"Keeping Your Home Safe from Environmental Hazards", workshop presentation at the Apeiron RI Sustainable Living Festival & Clean Energy Expo, June 2009.

"Regulatory Compliance and Green Initiatives", Association for Facilities Engineering (RI Chapter), October 2009.

"Understanding and Achieving Environmental Compliance, American Association of Textile Chemists and Colorists", November 2009.

"Understanding and Achieving Environmental Compliance", Massachusetts Water Pollution Control Association, December 2009.

"Understanding and Achieving Environmental Compliance", American Society for Quality (Boston Section), May 2010.

"Major Environmental Regulations and How They Affect Everyday Business Operations", Safety Association of Rhode Island, October 2010.

"Understanding and Achieving Environmental Compliance", Association for Facilities Engineering (Worcester Chapter), November 2010.

"Environmental Regulations – The Nature of the Beast", American Chemical Society (RI Chapter), October 2011.



“Water Reuse in Energy Production: Systems Analysis of Closed Loop Systems”, American Water Works Association, Water Quality Technology Conference and Exposition, Salt Lake City, UT, November 2015.

CONTINUING EDUCATION

2D and 3D Environmental Data Visualization
Addressing Indoor Air Contamination: Measurements and Models
Advanced Tools for In-Situ Remediation
Application of MNA for Groundwater Remediation Using BIOCHLOR, BIOSCREEN, and Source DK Software Models
Aqueous Organic and Metals Geochemistry
A Short Course in Statistics for LSPs Risk Characterization Under the MCP
Assessment of LNAPL Mobility and Recoverability
A Toolbox of Techniques to Generate Data for Environmental Risk Characterization
Beyond TPH – Understanding and Using the new VPH/EPH Approach
Biostimulation of Aquifers Using O2 Releasing Compounds and Other Additives
Determining Hydraulic Conductivity While Low Flow Sampling
Enforcement Under Chapter 21E
Environmental Chemistry and the Emergence of Forensic Geochemistry (2 day course)
Field Screening Petroleum Hydrocarbons using Ultraviolet Fluorescence Technology
Fundamentals of Organic Chemistry
Glacial Geology of Northward Flowing Watersheds-Field Trip through the Nashua and Concord River Watersheds
Greener Cleanups Under the MCP
Groundwater Flow and Contaminant Transport in Bedrock Aquifers
Groundwater Flow in Fractured Bedrock
Groundwater Sampling Field Course
Hydrogeology of Massachusetts
Immunoassay Field Testing
Introduction to Environmental Forensics of Organic Chemicals: Survey of Applications, Approaches, Capabilities, and Limitations
Introduction to Short Forms for Human Health Risk Assessment
LNAPL Mass, Mobility and Recoverability Assessment
LSP Professional Conduct Course
MCP Audit 2010/2011
MCP Audit 2006 – A Case Study Approach
MCP Audit and Regulatory Training
MCP Audit / Enforcement 2016 – Case Studies
MCP for Everyone
MCP Regulatory Reform Training Initiative 2014
MCP Remediation Waste Management
MCP Revisions 2007
MCP Revisions & Case Studies 1999
Meeting all Appropriate Inquiry in Accordance with State and Federal Regulations
Method 2 Risk Characterizations
Method 3 Ecological Risk Assessment
Monitored Natural Attenuation
Natural and Historic Fill Soils – Formation and Chemical Quality
Natural Attenuation of Chlorinated Solvents in Groundwater (2 day course)
PCBs for Environmental Professionals
Pneumatic Slug Test Field Course
Practical Methods in Applied Contaminant Geochemistry



Preparing Conclusive MCP Phase Reports
Quantitative Hydrogeology
Regulatory Overview of MCP Remediation Waste Management
Remedial Technologies for Contaminated Groundwater
Site Characterization & Remediation for DNAPLs
Siting Renewable Energy on Contaminated Land in Massachusetts
Statistical Applications
Technical Updates to Ecological Risk Assessment
The Vapor Intrusion Issue and What We Have Learned: an Updated Perspective on Investigating the Pathway, Sampling Techniques and Effective Mitigation Measures
Understanding Subparts C and D of the MCP
Understanding Subparts I and J of the MCP
Vapor Intrusion and Mitigation Issues facing LSP's with Special Emphasis on Sampling and Analysis
Waste Site Cleanup-Learning From Experience
Wetlands, Wetland Regulations and the MCP

