



Creder Associates LLC

Richard S. Vandenberg CPG, PG Senior Hydrogeologist/Senior Geologist

PROFESSIONAL REGISTRATIONS

Professional Geologist:

ME #GE452

NH #52

AIPG#9627

TRAINING

40 hour, OSHA 29 CFR 1910.120 Hazardous Waste Health and Safety Course and Refresher Course

8 hour, OSHA 29 CFR 1910.120 Hazardous Waste Supervisor Health and Safety Course

EDUCATION & PROFESSIONAL ACTIVITIES

Bachelor of Arts in Geology/chemistry. University of Maine, Farmington, Maine, 1987.

Graduate work toward Master's of Science in Geology. Fort Hays State University, Hays, Kansas 1987 to 1989.

New Hampshire Geologist Society Member

American Institute of Professional Geologist Member

HIGHLIGHTS OF EXPERIENCE

Mr. Vandenberg is a Senior Hydrogeologist with Creder Associates, LLC with over 19 years experience in assessment, investigation, remediation and disposal of petroleum and hazardous wastes, and water related projects. Mr. Vandenberg has managed numerous compliance, assessment, investigation, and remediation projects including Phase I and Phase II environmental site assessments (ESAs), remedial investigations, remedial action planning, 3-D groundwater flow and contaminant transport modeling, groundwater extraction and treatment system design, soil vapor extraction design, soil removals, and in-situ chemical oxidation projects for clients across New England. In addition, Mr. Vandenberg has developed water supplies for communities and commercial/industrial water users in New Hampshire, Vermont, and Massachusetts.

PROJECT EXPERIENCE INCLUDES:

ENVIRONMENTAL PROJECTS:

Brownfields

Mr. Vandenberg has conducted Phase I and Phase II assessment and investigation activities for the USEPA-funded Brownfields commercial redevelopment and revitalization program and review Quality Assurance Project Plan Addendums detailing all investigation, sampling, and analytical testing activities that were submitted to, and approved by the Maine DEP and USEPA. Additional activities at Brownfields sites included the development of conceptual site models, completion of redevelopment feasibility studies, and the characterization and remediation of contaminated media. Mr. Vandenberg has managed projects for Southern Maine Regional Planning Commission, Nashua Regional Planning Commission, Rockingham Planning Commission (New Hampshire), and City of Westbrook, Maine. Mr. Vandenberg has been involved with the following projects:

- Sanford Mill, Sanford Maine
- Hammond Auto, Fremont, NH
- Hampton Landfill, Hampton, NH
- Eastern Fine Paper, Brewer, Maine
- Lincoln Mill, Biddeford, Maine
- Stenton Trust Mill, Sanford, Maine
- North Dam Mill, Biddeford, Maine
- River Dam Mill, Biddeford, Maine
- Majestic Motors, Merrimack, New Hampshire
- Larson's Junkyard site, Westbrook, Maine

Miscellaneous Brownfields Environmental Assessments and Remedial Investigations

Performed all phases of environmental site assessments and remedial investigations for the following projects. Tasks completed include development of scope of work, senior technical review of reports, project coordination, records review for federal, state, and local authorities, site reconnaissance visits, soil and groundwater sampling, and summary report preparation. Representative projects include:

- Global Timber, Hartland, Vermont
- Barre Coal Tar, Montpelier, Vermont

Miscellaneous UST Removals, Investigation and Soil Remediation

Provided field oversight for underground storage tank closures and associated remediation activities. Tasks completed include overseeing proper facility closure, determining when or if discharges of petroleum hydrocarbons have occurred, coordinating removal of contaminated soils, and preparing site assessment closure reports. Representative projects include:

- 7/17 Corner Store, New Haven, Vermont
- West Barnet Garage, West Barnet, Vermont
- Pittsfield Citgo, Pittsfield, New Hampshire
- Enosburg General Store, Enosburg, Vermont
- Meritt Station, New Bedford, Massachusetts
- Cumberland Farms, Manchester, New Hampshire

Treatment System Design

Participated in full-scale design of several groundwater extraction and treatment systems, soil vapor extraction systems, dual phase extraction, and in-situ chemical oxidation on projects in New Hampshire, Massachusetts, and Vermont. Tasks include individual equipment sizing and design, specification of equipment preparation and detailed cost estimation. Unit processes include groundwater extraction, equalization, air stripping, oil/water separation, vapor phase carbon adsorption, aqueous phase carbon adsorption, air sparging and soil vapor extraction, and in-situ chemical oxidation. Representative projects include:

- 7/17 Corner Store, New Haven, Vermont
- Milford Xtramart, 78 Elm Street, Milford, New Hampshire
- Shell Oil Products US, 286 Lincoln Street, Lexington, Massachusetts
- Shell Oil Product US, 188 Princeton Street, Chelmsford, MA
- Confidential Client, Enosburg Falls, Vermont
- West Barnet Garage, West Barnet, Vermont

Dense Non-Aqueous Phase Liquid (DNAPL) Investigation, Unisys Corporation, Sudbury, Massachusetts

Investigation of low-level trichloroethane contamination impacting a 720,000 gallon per day (gpd) public water supply well, Sudbury, Massachusetts. Work involved installing more than 50 deep and shallow monitor wells using hollow stem auger techniques. Several pumping tests were conducted to determine the relationship between the municipal well and contaminant plume. Defined contaminant flow paths from industrial site to municipal well.

Phase II Environmental Site Assessment Field Work, Cumberland Farms, Pennsylvania Turnpike

Mr. Vandenberg managed all field aspects of a Phase II environmental site assessment that was performed at 21 gasoline stations along the Pennsylvania Turnpike and the northeast extension of the turnpike. As a part of the project Mr. Vandenberg directed the installation of 290 shallow borings and 87 deep borings over a five-week period.

Creosote Contamination Well Rehab Project, Beazer East, Nashua, New Hampshire

Designed and performed oversight of the rehabilitation 28 interceptor wells at a site of creosote contamination, Nashua, New Hampshire. The interceptor rivers were instrumental in preventing the active migration and contamination of creosote into the Merrimack River. Rehabilitation program resulted in an average of more than a 35% increase in pumping efficiency from the interceptor wells.



GROUNDWATER MODELING PROJECTS:

Groundwater Flow and Contaminant Transport Model, West Barnet, Vermont

Preparation of a three dimensional ground water flow and contaminant transport model of a leaking UST site where hydrocarbon contamination threatened several drinking water supplies. Modeling was performed using the MODFLOW and MT3D models. Model was successfully employed to achieve predict groundwater and contaminant loading to the small stream.

Groundwater Flow Model, Queens, New York

Preparation of an analytic groundwater model to determine volume of water necessary to dewater a ½ acre property during construction of a 22-story condominium complex in Queens, New York. Analysis lead to the successful dewatering of more than 2,000 gallons per minute (gpm) from the Site. Groundwater was dewatered for 120 days with no groundwater observed above the critical depth. The model developed as a part of this project correctly predicted the volume necessary to be pumped.

Groundwater Flow Model, Brooklyn, New York

Preparation of 3-D groundwater flow model to determine volume of water necessary to dewater a 60 foot by 100 foot area during construction of the basement of 5-story office building located at 1702 Avenue Z in Queens, New York. Analysis led to the successful dewatering of more than 800 gpm from the Site. The model developed as a part of this project correctly predicted the volume necessary to lower the groundwater below the critical depth in the client defined area. Groundwater was dewatered for 60 days with no groundwater observed above the critical depth.

Groundwater Flow and Nitrate Model Preparation, various sites in New Jersey

Preparation of groundwater flow and contaminant transport model to determine if nitrate emanating from a proposed waste water system would impact nearby potential receptors. Model results were successfully used to obtain a waste water permits for 200,000 to 350,000 square foot shopping centers.

WATER SUPPLY PROJECTS:

Performed oversight of a variety of water supply related investigations related to the development, replacement and/or evaluation of water supplies. These projects have involved assisting water users in grant writing, conducting specific water source evaluation, and permitting. Assignments have included the following:

Gravel Based Water Supply, North Stratford, NH

Developed a gravel-based potable water supply capable of water supply capable of 420,000 gallon per day (gpd) for the Town of North Stratford, New Hampshire. Located gravel a small unmapped splinter of a aquifer, assessed potential, designed and implemented field program, worked on all aspects of the source permitting with the New Hampshire Department of Water Supply Engineering. Two gravel wells were completed for the town on time and within budgetary constraints.

Gravel Based Water Supply, Wallingford, Vermont

Developed a gravel-based potable water supply capable of water supply capable of 1,700,000 gpd for Wallingford Fire District No. 1, Wallingford, Vermont. Assessed aquifer potential, designed and implemented field programs, worked on all aspects of the source permitting with the Vermont Water Supply Division, and designed the finished product well. The well and all permitting work were completed for the fire district on time and within budgetary constraints.

Gravel Based Water Supply, Pownal, Vermont

Developed a gravel-based potable water supply capable of water supply capable of 1,700,000 gpd for Pownal Fire District No. 2, Pownal, Vermont. Assisted Fire district with replacing antiquated and unhealthy surface water supply to a gravel



based water source. Assessed aquifer potential, conducted geophysical surveys, designed and implemented field programs, worked on all aspects of the source permitting with the Vermont Water Supply Division, and designed the finished product well. The well and all permitting work were completed for the fire district on time and within budgetary constraints.

Gravel Based Industrial Water Supply, North Adams, Massachusetts

Developed a gravel-based industrial water supply capable of water supply capable of 7,000,000 gpd for Specialty Minerals of North Adams, Massachusetts. Assessed aquifer potential, conducted geophysical surveys, designed and implemented field programs, and designed the finished product well.

Bedrock Based Water Supply, Chelsea, Vermont

Developed a gravel-based potable water supply capable of water supply capable of 28,000 gpd for Chelsea Fire District No. 1, Wallingford, Vermont. Assessed aquifer potential, designed and implemented field programs, worked on all aspects of the source permitting with the Vermont Water Supply Division, and designed the finished product well. The well and all permitting work were completed for the fire district on time and within budgetary constraints.

Bedrock Based Water West Dover, Vermont

Developed a gravel-based potable water supply capable of water supply capable of 65,800 gpd for proposed condominium community. The difficult challenge about developing water supply is avoiding interference effects from other nearby water sources. This supply was develop without any unacceptable interference being noted and the well was permitted as designed which means that the property was able to fully build out the project as designed.

Bedrock Based Water West Dover, Vermont

Developed a gravel-based potable water supply capable of water supply capable of 72,000 gpd for proposed condominium community. The difficult challenge about developing water supply is avoiding interference effects from other nearby water sources. This supply was develop without any unacceptable interference being noted and the well was permitted as designed which means that the property was able to fully build out the project as designed.

Various Wellhead Project Area (WHPA) Projects

Developed more than 50 wellhead protection areas (WHPAs) and source protection plans (SPPs) for Town and Fire Districts throughout Vermont and New Hampshire. The development of WHPAs often require the use of groundwater flow models to predict areas of contribution to a given well within its watershed. The projects have all been successfully permitted by the various state agencies worked with.

