Resume – Erik Groenendijk

Erik Groenendijk

Vice-President Processing
ART Engineering, L.L.C.
Tampa, Florida
www.art-engineering.com

Mr. Groenendijk holds the position of Vice-President Processing with ART Engineering, L.L.C. Mr. Groenendijk is responsible for determination of project feasibility including performance of bench-scale treatability studies, project design, process development, design of treatment plants, preparation of specifications and work plans, operating procedures, procurements and regulatory compliance. Mr. Groenendijk provides process engineering support to plants operating in the field by performing inspections, attending project status meetings, and manages contracted activities with outside laboratories. Mr. Groenendijk has worked at multiple sites across the country and is experienced in handling and testing of radioactive soils.

Previously, Mr. Groenendijk was Senior Process Engineer with Surbec-ART Environmental for two years. Before that, Mr. Groenendijk was Senior Process Engineer for the ART Division of ARCADIS Geraghty & Miller (formerly Alternative Remedial Technologies). Prior to joining the ART Division of ARCADIS, Mr. Groenendijk worked for ARCADIS Heidemij Realisatie of The Netherlands and was a member of the Research and Development team. He has extensive experience in soil washing, solid waste recycling and water treatment.

Prior experience includes research on waste characterization and application of mineral processing technology for waste decontamination and waste recycling/reduction at Delft University of Technology, The Netherlands. Mr. Groenendijk is specialized in waste characterization, process development and process modeling. His relevant project experience includes:

Soil Treatment and Soil Remediation Experience, 1992-present

Troy Chemical Company
Process development, economic feasibility and process design for innovative chemical oxidation process for treatment of hazardous waste sediment.

US Oil Company (Confidential)
Process development and economic feasibility studies for recovery of low-grade hydrocarbon from oil sand.

Confidential – France
Performed technical and economic feasibility study for application of soil washing at fixed based soil treatment facilities in France.

Hoffman La-Roche – Nutley, NJ
Performed technical and economic feasibility study for application of soil washing at Hoffman La-Roche, Belleville project site.

AGAS International - Bahrain
Performed technical and economical feasibility study for application of soil washing and thermal remediation for large remediation project in Bahrain.

Education

M.S. Mining and Petroleum Engineering, Delft University of Technology, The Netherlands, 1988

Professional Training

OSHA 29 CFR 1910.120 40-hr HAZWOPER Training

OSHA 29 CFR 1910.120 Eight-House Site Supervisor Training

Radiological Worker Level II Training

Professional Associations

Royal Institution of Engineers, The Netherlands

Society of Mining Engineers, United States

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Confidential Client - Kuwait
Performed technical and economical feasibility study for treatment and recovery of hydrocarbons from contaminated soils for oil lake spill project in Kuwait.

BEFESA - Spain
Lead design engineer for fabrication of multi purpose soil washing plant for BEFESA in Spain. This plant was specifically designed for a wide range of soil types and contaminants as well as expandable for future secondary soil treatments. This plant was build in USA and shipped to Spain. Assisted in the on-site assembly and start-up of the plant at a BEFESA owned landfill in the Rio Tinto region of Spain.

Pennbrook Homes – Bend, OR
Manager for project feasibility study and lead design engineer for lead soil separation plant.

AG Ambiental – Lezo Project, Spain
Manager for project feasibility study and lead design engineer for hydrocarbon soil washing plant for AG Ambiental, Madrid, Spain. Responsible for plant inspections and technical assistance in plant start-up/commissioning and ongoing project support.

Vineland Chemical Superfund Site, NJ
Manager for project feasibility study, technology development and scale-up studies for treatment of 410,000 tons of Arsenic contaminated soils at Vineland Chemical Superfund Site. Responsible for design of $ 6 M soil processing plant, recycle water treatment systems (1500 gpm), plant equipment design & specifications, PFD, mass balances, detailed P&ID diagrams, preparation of equipment specifications, development of plant PLC operating logic, operation manuals and project work plans. Provided operator training and technical support for duration of the project.

Lordship Point, Bridgeport, CT
Manager for project feasibility study for treatment of 60,000 tons of lead contaminated sediments at a former skeet shooting range in Bridgeport, CT. Designed 100 tph lead shot separation process, provided specifications for major plant components and plant start-up support.

Springfield Superfund Site, Davisburg, MI
Manager of a soil washing process development study for treatment of PCB-contaminated soils. Designed soil and water treatment process (600 gpm). Provided plant start-up support, project operations support, waste management and regulatory compliance.

DOE - RMI Titanium Company, Ashtabula, OH
Lead design engineer for the design of a $3 M soil processing plant and water recycling systems to extract uranium from contaminated soils for the RMI Titanium Company Site in Ashtabula, Ohio on behalf of the Department of Energy. Managed feasibility studies

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leading to development of an innovative cost-effective approach for removal of Uranium from clayey soils. Responsible for design of the plant flowsheet, including reactor vessels, clarification, soil dewatering systems including belt filter press, ion exchange system for uranium recovery, salt regeneration and reuse systems, and development of plant control and operations procedures.

DOE - Maywood, NJ

Manager of a soil washing pilot study on 1,500 tons of FUSRAP soils contaminated with radium and thorium from the Maywood, NJ site. Designed soil and water treatment process, performed construction and operation of plant, and evaluated and interpreted resulting data for effectiveness of process. Pilot study was performed at the Envirocare of Utah, Inc. low-level radioactive waste disposal facilities.

The Monsanto Company, Everett, MA

Process Engineer for full-scale soil washing for The Monsanto Company at a site in Everett, Massachusetts. Responsible for on-site process optimization, data interpretation and field equipment adjustments.

City of Montreal, Montreal, PQ, Canada

Process Engineer for a full-scale soil washing project for the City of Montreal. Responsible for design of the soil washing process, on-site process engineering support, process optimization, data interpretation, and preparation of final report.

DOE - Fernald Environmental Restoration Management Company

Co-author of "Evaluation of Technologies - Uranium Soils Integrated Demonstration Soil Decontamination Technology Evaluation/Demonstration" report prepared for Fernald Environmental Restoration Management Corporation (FERMCO). This report presented the evaluation of five uranium decontamination technology proposals for their potential for full-scale soil remediation at the U.S. Department of Energy (DOE) Fernald Site and other DOE sites.

DOE - Hanford Site, Richland, WA

Process Engineer for a soil washing pilot study of radioactively-contaminated soil at the DOE Hanford Site, WA. Responsibilities included design of the pilot study, design of the pilot system, process optimization, data interpretation, and preparation of report.

King of Prussia Site, Winslow, NJ

Project Manager for the soil washing feasibility studies leading to the final decision to move forward with this project. Process Engineer responsible for the design of the soil washing plant for the King of Prussia Technical Corporation Superfund site in New Jersey.

Expert Services

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Port Heiden, Alaska
Provided consulting and expert witness services related to the failure of the Port Heiden PCB soil washing remediation project. Determined the probable cause of the system failure at the Port Heiden remediation soil washing project. The soil washing system was provided by a third party subcontractor for the US Air Force Center for Engineering and the Environment (AFCEE). Providing ongoing support for litigation.

Buckeye Oil Field, MI.
Provided expert services to Harding Lawson Associates for malfunctioning soil processing plant designed to clean crude-oil impacted soils. Performed a detailed analysis of the project and processing plant design. Prepared a summary report of findings for use in contract settlement negotiations.

Conor Pacific, Edmonton, Canada
Provided expert services to Conor Pacific in support of litigation in the case of a mal-functioning processing plant designed to prepare a feed slurry for a Wet Oxidation system. Mr. Groenendijk prepared summary reports detailing design flaws. Based on the detailed analysis of design flaws for the project, this case was decided in favor of Conor Pacific.

Gould Battery Superfund Site, Portland, Oregon
Consulting Engineer for the Gould Site PRP group for evaluation of design flaws and failed operations of the Gould Battery Superfund Site remediation project in Portland, Oregon. Responsibilities included review and analysis of technical design and design basis for a lead recycling/soil separation system, including water treatment circuits, and assistance in the development of litigation strategies. This case resulted in a $10 M settlement in favor of the Gould Site PRP group.

Other Experience

Heidemij, The Netherlands (1991-1992)
Process Engineer involved in the development and building of the Heidemij fixed-facility soil washing plant at Moerdijk in The Netherlands. Responsible for the development of the soil washing treatment processes for many large projects in The Netherlands.

Delft University of Technology, The Netherlands (1989 – 1991)
Research fellowship on application of mineral processing technology for waste treatment and materials recycling. Specific areas of specialization include: Waste Characterization, Process Development, Process Modeling. Projects included: improved recovery of Tar from Tar Sands through flotation, upgrading of graphite from a mixture of graphite and silicium-carbide, separation of car scrap (jigging/eddy current separation), cleaning of contaminated soils/sediments. Also responsible for organization and oversight of practical lab work performed by students.

Presentations and Publications

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- "RMI Decommissioning Project – Development and Deployment of a Chemical Extraction Treatment Technology for Uranium Contaminated Soil", American Institute of Chemical Engineers, Houston, TX, March 1999.

- "The First Full-Scale Soil Washing Project in the USA, Environmental Progress (Vol. 15, No. 2), 1996.

- "Soil Washing: From Characterization to Implementation", Superfund XVI, Washington D.C. November 1995.

- "Soil Washing as a 'Tailor Made" Solution for Treatment of Lead Paint Manufacturing Contaminated Soils", I&EC special symposium, American Chemical Society, Atlanta, GA, September 1995.

- "Commercial Soil Washing in the US, I&EC special symposium", American Chemical Society, Atlanta, GA, September 1994.

- "Full Scale Soil Washing at the King of Prussia Technical Corporation Superfund Site, I&EC special symposium, American Chemical Society, Atlanta GA., September 1993.

- "Development of a Full Scale Soil Washing System for the King of Prussia Superfund Site, New Jersey, USA – a Case Study", Fourth International Conference on Contaminated Soil, Berlin, Germany, 1993.

- "A more efficient Approach to Contaminated Site Clean-up by Integrated Project Design and Remedial Action; a Case Study", International Conference on the Environment and Geotechnics, Paris, France, 1993.

- "Know-How in linking Characterization and Full-Scale Soil Washing", Workshop ex situ soil and sediment treatment by physico-chemical, thermal and multiple treatment, Eurosol Conference, Maastricht, The Netherlands, 1992.

- "Mineralogical Associations of Heavy Metals in the sediments of a contaminated harbour Site in the Netherlands: a Case Study", Cats Congress on Characterization and treatment of dredged Material, Gent, Belgium, 1991.

- "Characterization of Heavy Metals in Sediments – Stein Harbour, Dommel River and Malburger Harbour - The Netherlands" (in Dutch), February 1990.

- "Flotation of Bitumen from an aqueous Tar Sand Suspension", MSc. Thesis, Delft University, 1988.