

CURRICULUM VITAE

Michael W. Selke, R.G.

PERSONAL

Name: Michael W. Selke, R.G.
Birthdate: July 26, 1949
Birthplace: Redwood Falls, Minnesota
Languages: English

SPECIALIZATION

Geology, hydrogeology and environmental geology, remedial investigations/actions, litigation support, regulatory compliance, aerial photography studies, design and installation of contaminant recovery and monitoring systems, and environmental assessments; permitting, design, drilling and installation, and testing of acid gas injection wells; specialist in quality assurance, risk management and process improvement engineering

EDUCATION

University of New Mexico - 1982
Bachelor of Science - Geology

PROFESSIONAL CERTIFICATIONS AND REGISTRATIONS

Registered Professional Geologist – State of California #4685

EXPERIENCE

July 2012 – Present
Consulting Senior Geologist
Geolex, Inc.
500 Marquette Avenue NW #1350
Albuquerque, New Mexico 87102

Duties, Accomplishments, and Responsibilities:

1. Acted as the onsite geologist and regulatory compliance lead for the drilling and completion of an acid gas injection (AGI) well in western Lea County, New Mexico. Provided oversight of mud logging, geophysical logging and cement bond logging (CBL) of the well and communicated geologic observations to the customer Company Man in support of overall drilling activities. Conducted cement bond pressure testing of surface casing and intermediate casing annular spaces when CBL anomalies were identified in

each causing BLM to suspend all drilling activities. Demonstrated that CBL anomalies were actually a micro annulus condition and successfully negotiated resumption of drilling activities with no further action required. Completed all sundry notices to BLM and NMOCD and received approval for all Form 3160-5 (BLM) and C-103 (NMOCD) submissions.

2. Completed a mechanical integrity test (MIT) and Braden Head Test for a gas plant in northwestern New Mexico. In addition, supported annual kill testing of the three compressors that are part of the AGI system with NMOCD observing and approving.
3. Completed C-108 Application for Authority to Inject at a gas plant in southeastern Lea County, New Mexico and received NMOCC approval for an acid gas injection (AGI) well that will act as a redundant backup to an existing AGI well. Completed three semi-annual mechanical integrity tests (MIT) for the existing AGI well; and submitted a Form C-103 for each test to NMOCD and received approval certifying a successful MIT.
4. Completed C-108 Application for Authority to Inject at a gas plant in Eddy County, southeastern New Mexico; submission to NMOCC for approval for an acid gas injection (AGI) well that will act as a redundant backup to an existing AGI well is pending. Completed the AGI well design and an analysis of the proposed injections reservoir. Completed a decision analysis and resolution (DAR) and cost analysis to aid in the final AGI system design that manages both treated acid gas (TAG) and plant generated wastewater (WW). Completed a mechanical integrity test (MIT) and Braden Head Test for the existing AGI well, as well as a Braden Head Test for the plant's onsite saltwater disposal well (SWD); and submitted a Form C-103 for each test to NMOCD and received approval certifying successful MIT and Braden Head Tests.
5. Supported AGI well design for a gas plant in Lea County, southeastern New Mexico. Completed a decision analysis and resolution (DAR) and cost analysis to aid in the final AGI system design that includes both primary and backup AGI wells that considered several combinations of vertical and inclined AGI wells.
6. Completed a geologic, hydrogeologic and regulatory compliance assessment of a gas plant in southern Texas and supported preparation of an expert report that evaluated the liability of potentially responsible parties over the lifetime of the property and facilities.
7. Supported AGI well design for a gas plant in Lea County, southeastern New Mexico for a new well that will act as a redundant backup to the existing AGI well. Supported re-acidizing activities on the existing AGI well to alleviate hydrate formation in the well.
8. Completed an MIT on an AGI in southeasterN Lea County, New Mexico.
9. Developed and completed a baseline groundwater study for a confidential customer in southeastern New Mexico. The overall scope of the project was to conduct a review of publicly available information to assess and summarize the geology, hydrogeology and groundwater quality within the area of interest (AOI). The study included capture and analysis of groundwater data from publicly available sources to establish a baseline of the hydrogeology and

groundwater chemistry in the AOI and transfer that data to the customer database. Created a database that is compatible with the existing customer database for company-wide hydrogeology and groundwater chemistry data.

February 1985 to May 2012

Geoscience Consultants, LTD

BDM

TRW

Northrop Grumman Mission Systems

As Director of Hydrogeologic Services with Geoscience Consultants, Ltd. (GCL) and BDM (GCL was acquired by BDM in 1996, then by TRW in 1998, and Northrop Grumman in 2002) he participated in most activities related to the environmental field. Managed a group of up to 46 scientists, engineers and technicians, managed laboratory and sample management facilities, as well as managed individual projects and participated in marketing and sales.

Duties, Accomplishments, and Responsibilities:

1. General Electric Aircraft Engines

Served as project manager for the remedial investigation of solvents released to groundwater at an aircraft engine manufacturing facility in southern California. The investigation included the use of wire-line core drilling and geophysical logging to accurately determine the lithology and probable migration pathways, and case-and-bail sampling using air-rotary casing-driver drilling to collect depth-discrete groundwater samples that were analyzed with an on-site mobile laboratory. Analysis of chemical patterns in groundwater samples was used to identify where mixing of solvents from off-site sources is occurring to ensure the investigation was limited to characterizing only those solvents released from facility.

2. General Electric Aircraft Engines

Served as a task leader for an expedited site characterization at a CERCLA site at Albuquerque's South Valley Superfund Site. Tasks included a soil-vapor survey, soil borings and sampling, and Hydropunch™ sampling of groundwater.

3. Axel Johnson

Served as quality assurance officer for a remedial action of solvents released to groundwater at a shopping mall with dry cleaning stores in northern California. The remedial solution for this site was the demonstration that a containment zone would allow long-term monitoring of residual contaminants of concern (COCs) that remained after implementation of active remediation of the hot spots by air sparging and soil vapor extraction.

4. Rexene

Served as project manager for a remedial investigation/design at the site of a former refinery located adjacent to the Rio Grande in south-central New Mexico where hydrocarbons, lead, copper, and other heavy metals were detected in the subsurface. Remedial investigation included soil and groundwater sampling via a trenching, boring, and monitoring well installation program to determine the lateral and vertical extent of contamination, as well as to provide data for feasibility studies of potential remedial technologies. The Stage 1 Abatement Plan-Final Site Investigation Report and the Stage 2 Abatement Plan were the first approved by New Mexico Oil Conservation Division (NMOCD) under the new regulations.

5. Cytex Industries

Served as quality assurance officer for the closure of a RCRA Part A-permitted facility and three USTs in southern California. Soil sampling, geophysical surveys, and chemical analyses from an on-site mobile laboratory were used to determine magnitude and extent of solvent and hydrocarbon contamination at four hazardous waste storage areas and three USTs within plant boundaries.

6. NASA

Served as a task leader on a groundwater investigation for a RCRA-compliance site. Project included the drilling and installation of deep RCRA monitoring wells, borehole geophysical logging, and a site seismic and geologic mapping program. Responsible for designing and implementing a monitoring well drilling plan, supervising BDM staff members conducting extensive field activities, interpreting site geology, and negotiating contracts with subcontractors.

7. Mesa Oil

Served as quality assurance officer on a limited Phase II property audit at a waste oil recycling facility in Albuquerque, New Mexico to identify potential soil and groundwater contamination and determine associated liability and possible impact to property value estimated.

8. GPM Natural Gas Co.

Served as project manager on a site characterization of a hydrocarbon release at a gas plant in southeast New Mexico, and then as quality assurance officer for the remedial design phase of the project. Confirmed release during a Phase II investigation as part of an overall assessment of the client's gas plants in the New Mexico portion of the Permian Basin.

9. Exxon Exploration and Production

Served as quality assurance officer for a site characterization and remediation at a gas plant in west Texas. Project included groundwater modeling to determine if a release from the site could potentially impact nearby water supply wells. Activities at the gas plant included soil boring and sampling; groundwater monitoring system design, installation and sampling; and the installation of a passive soil-vapor venting system in areas of observed surface contamination.

10. Phillips 66 Natural Gas Company

Served as project manager for a groundwater investigation at four gas plants in southeast New Mexico. The project included installation of 16 RCRA monitoring wells, groundwater sampling following RCRA protocol, and plugging and abandonment of 18 previously installed monitoring wells.

11. Exxon Service Stations

Served as project manager on a facility divestiture program for a major petroleum company in New Mexico, western Texas, southern Colorado, and California. Project included risk assessment/sensitive receptors surveys, soil-gas surveys, soil and groundwater investigations, UST removal, and site remediation.

12. Exxon Service Stations

Served as project manager on a remediation feasibility study for a leaking UST site. Program included analysis of site hydrogeology, groundwater monitoring well design and installation, soil and groundwater contamination assessment, and evaluation of site remedial action options.

13. Bloomfield Refining Co., Navajo Refining Co., Giant Refining Co.

Performed site investigations and permitting/compliance activities at all active oil refineries in New Mexico and two inactive refineries. These investigations were carried out under the authority of the WQCC Regulations, RCRA, and/or CERCLA.

14. State of New Mexico Department of Homeland Security and Emergency Management – Interoperable Communications

Provided project management support to DHSEM including Action Item Management, Risk Management, Quality Assurance, Integrated Master Schedule Management and Grant Funding Management. Lead the environmental assessment (EA) task to achieve a finding of no significant impact (FONSI) for 21 communication shelter/tower sites that were scheduled for upgrades under the PSIC grant. Supported antenna design and frequency licensing through the collection, compilation and analysis of existing communication equipment specifications.

15. Space Test and Evaluation Contract (STEC)

Mission Assurance Lead on the Space Test and Evaluation Contract (STEC) for the U.S. Air Force Space Command served as the QA Manager, Risk Manager, and Process Engineering Lead. As the STEC QA Manager, conducted audits of processes, services and products. Witnessed testing and requirements verification activities. Observed launch rehearsal activities and participated in rehearsals as a member of the Rehearsal Evaluation Committee. Reviewed project processes and documentation and assessed compliance with Northrop Grumman policies and procedures, industry/military standards such as CMMI, ISO9001 and AS9100, and contract requirements. Participated in the STEC Change Control Board.

As the STEC Risk Manager, stood up a CMMI-compliant STEC Risk Management Plan and Risk Management Process. Managed program and project risks utilizing Risk Manager Assistant (RMA) database. Chaired the Risk Management Board. Provided Risk Management training and orientation to staff. Presented program and project risks to the Program Review Authority (PRA). Point of contact for all risk management issues on the project.

As the STEC Process Engineering Lead was responsible for implementing and maintaining STEC processes, responding to process audit findings, maintaining the STEC Corrective and Preventive Action System (CPAS), and was the overall point of contact for all process related activities, including

16. New Mexico Department of Labor (NMDOL)

Provided independent verification and validation (IV&V) services to the New Mexico Department of Labor (NMDOL) Unemployment Insurance (UI) Claims project. Provided a risk-based IV&V assessment of the re-engineering of the UI Claims project. Reported in parallel to both NMDOL Chief Information Office and the New Mexico State Chief Information Office.

New Mexico Department of Human Services – Income Support Division Integrated Services Division

Provided project transition support for Northrop Grumman Information Technology's assumption of the New Mexico Department of Human Services (NMDHS) Income Support Division Integrated Services Delivery (ISD2) project. Developed CMMI-compliant plans and manuals including: Risk Management Plan (RMP), Decision Analysis and Resolution (DAR), Measurement and Analysis Plan, Configuration Management Plan (CMP), etc.

17. Arkansas Department of Human Services (ADHS)

Served as quality assurance auditor to evaluate processes and procedures for Arkansas Department of Human Services Information Systems Support project. Developed plans and procedures including System Integration Test Plan and User Acceptance Test Plan. As the Training Lead developed and presented training to the customer on the testing lifecycle. Provided senior leadership for the system integration test as well as directly participated in test preparation and execution.

18. New Mexico Taxation and Revenue Information System (TRIMS)

Served as Document Review Task Leader for the State of New Mexico's Taxation Revenue Information System (TRIMS) program. Served as IV&V's Lead Representative for Registrations and Data Capture, Overpayments and Refunds, and Collections functional area JAD sessions. Served as Test and Evaluation Analyst for IV&V testing of the TRIMS' Client and PIT modules. Provided User Acceptance Testing support with training, mentoring and real-time testing support. Was a liaison between Users and the Development Team.

19. Defense Threat Reduction Agency (DTRA)

Served as a test specialist for system testing of the Unconventional Nuclear Weapon Defense (UNWD) system developed for the Defense Threat Reduction Agency (DTRA). The UNWD is a prototype system created to assess the capability and limitations of an unconventional nuclear materials detection system for the DTRA at several Department of Defense (DoD) facilities. Participated in land vehicle testing with both static and hand-held detection instrumentation. In addition, Mr. Selke managed radiation safety (including training and a dosimetry program) for the testing at three sites.

20. Aircraft Alerting Communications EMP (AACE) System

BDM International, Inc. (acquired by TRW), designed, developed, and produced the Aircraft Alerting Communications EMP (AACE) system in the mid-1980's to protect Strategic Air Command's (SAC) alert aircraft communications from electromagnetic pulses (EMP) resulting from a high altitude nuclear detonation. The system is composed of thousands of parts and components. To aid in ongoing maintenance Mr. Selke developed a database inventory of all of the individual parts and components organized according to the fifteen configured items of the AACE system.

August 1982 to December 1984

NICOR Mineral Ventures

Geologic Technician

Performed geologic mapping and geochemical sampling at gold and silver prospect locations in New Mexico, Arizona, Nevada and California. Supervised the reopening of underground mines in the Cochiti Mining District in New Mexico and conducted geologic mapping and geochemical sampling of the underground workings to evaluate potential remaining ore reserves and to support surface exploratory drilling. Supervised wire-line core exploratory drilling, conducted core logging and

surface and underground geologic mapping and geochemical sampling at the Cochiti and Red River Mining Districts as well as numerous other existing mining districts and grass-roots exploration prospects in the southwestern United States.

March 1980 to June 1982

Energy Reserves Group

Geologic Technician

Performed library research, drafting, ore reserve calculations as well as developing geologic logs of hand borings from cuttings. Support exploration geologists as needed for both uranium and precious metals exploration programs.

PUBLICATIONS

Selke, Michael W., RG and Gutierrez, A.A., RG, Case and Bail Method Finds Deep Data, *Soil and Groundwater Cleanup*, April 1996