

## ALISSA BARROW, PE, QISP

### Education

BS – Environmental Engineering, University of California, San Diego, 2010

### Professional Licenses

Professional Civil Engineer – California (No. 88186)  
Qualified Industrial Stormwater Practitioner (QISP) (No. 00834)



*Alissa Barrow*

### Specialty Certifications

OSHA 40-Hour EPA-Approved Hazardous Waste Operations and Emergency Response Training  
Qualified Industrial Stormwater Practitioner (QISP, Certification in Process)

### Professional Experience

Ms. Barrow has 11 years of experience as an environmental professional specializing in environmental assessment, remediation, and compliance. She is a registered PE and QISP in the State of California. Her experience includes stormwater compliance; Phase I Environmental Site Assessments (ESAs) and Phase II subsurface investigations; Vapor Intrusion Risk Assessments (VIRAs); groundwater monitoring and reporting (low-flow and traditional purging); groundwater remediation using in situ chemical oxidation and high-vacuum, dual-phase extraction; remediation via soil vapor extraction technology; design, construction, and operation of sub-slab depressurization systems; design, construction, and construction quality assurance for the installation of vapor intrusion mitigation systems (i.e., VIMS or vapor barriers); soil monitoring and remediation during construction, and landfill gas collection and control design improvements and construction quality assurance work. She has experience assessing and remediating properties with soil, soil vapor, and groundwater impacted by petroleum hydrocarbons, chlorinated solvents, heavy metals, and pesticides. After a thorough collection and analysis of data, she prepares technical documents that accurately describe environmental conditions and conform to regulatory agency guidelines. She has written VIRAs, Groundwater Monitoring Reports, Corrective Action Plans (CAPs), Property Mitigation Plans, Soil Management Plans, and Property Closure Reports for many regulatory-driven projects. She has successfully managed many complex site investigations, remediation, and construction projects.

Ms. Barrow has also obtained her Professional Engineer certification for Civil Engineering with an emphasis in Environmental and Water Resources. Her engineering experience includes the following:

- Investigation and analysis of soil and groundwater contaminant plumes.
- Design and implementation of soil-vapor extraction systems and sub-slab depressurization systems.
- Design and implementation of vapor intrusion mitigation systems.

- Engineering analysis of groundwater flow patterns using groundwater elevation and survey data.
- Analysis of contaminants in groundwater using low-flow and traditional groundwater sampling technologies.
- Design of groundwater monitoring well networks.
- Design of groundwater remediation systems.
- Review of land development/grading plans.
- Preparation of design drawings for potable water conveyance, landfill de-watering systems, and landfill gas collection systems.
- Perform survey of proposed and as-built well and piping systems.
- Development of Soil Management and Property Mitigation Plans – calculations to incorporate remediation into excavation and mass grading activities.
- Field re-design of landfill gas extraction wells and groundwater monitoring wells.
- Performance of construction quality assurance services to ensure compliance with construction plans and design standards.
- Performance/preparation of feasibility study reports, health risk assessments, and engineering analysis reports.

### **Design for Landfill Dewatering Systems and Landfill Gas (LFG) Collection Systems**

**Sycamore Landfill, Santee, CA; Otay Landfill, Chula Vista, CA; and Salt River Landfill, Scottsdale, AZ.** Ms. Barrow prepared engineering design plans for LFG collection and control system (GCCS) improvements, oversaw construction and performed Construction Quality Assurance (CQA) to ensure compliance with design standards and construction drawings, prepared CQA technical reports and as-built plans, performed survey of proposed and as-built well and piping systems, and performed quarterly engineering evaluation of performance liquids addition/injection system.

### **Engineering Design Services**

**Guatay Mutual Benefit Company.** Mrs. Barrow prepared a Simplified Preliminary Engineering Report to define a design to connect a new production well to the existing water system, prepare the plans and details for pipeline and appurtenances, pump, and pump house to connect the new well to a transmission main that feeds the existing system reservoir, and will oversee construction and perform CQA to ensure compliance with design standards and construction drawings.

**Vapor Intrusion Mitigation System Engineering Design for New Industrial Building, Otay Landfill, Chula Vista, CA;** Ms. Barrow oversaw the vapor intrusion mitigation system for a new, 70,380 square foot industrial building. Ms. Barrow developed the design and oversaw the preparation of formal construction plans and specifications for a vapor intrusion mitigation system to mitigate potential health risks to future building occupants as a result of vapor intrusion of VOCs into occupied building spaces. The construction documents were of sufficient detail for review and

### **Vapor Intrusion Mitigation System Construction Oversight and Quality Assurance**

Ms. Barrow oversaw the construction of a vapor intrusion mitigation system for an equipment shelter at the Otay Landfill for AT&T to service new nearby residential communities. The VIMS was required to prevent methane intrusion into the structure. Ms. Barrow oversaw construction quality assurance to ensure the VIMS was constructed according to the design plans, industry standards, and manufacturer's specifications. Ms. Barrow then prepared an engineer's certification which documented that the VIMS was constructed appropriately.

### **Stormwater**

Ms. Barrow has experience with assisting in Industrial Stormwater compliance and assistance with Industrial General Permit. Industrial Compliance included preparation of ERA Level 1 and Level 2 Assessments and SWPPPs.

**Pacific Steel, Inc., San Diego, CA.** Provided permit assistance for compliance with 2015 Industrial General Permit to validate monitoring requirements, locations, frequency, and new analytical laboratory testing. Conducted wet weather observations. Assisted in the preparation of the Level 1 Exceedance Response Action Technical Report.

**Rainbo Records Manufacturing Corporation, Canoga Park, CA.** Provided permit assistance for compliance with the 2015 Industrial General Permit. Assisted client with response to a notice of permit violation and return to compliance. Prepared a Level 2 Exceedance Response Action Technical Report.

**Eppink of California, Inc., South Gate, CA.** Provided permit assistance for compliance with the 2015 Industrial General Permit. Assisted client with response to a notice of permit violation and return to compliance.

**San Marcos Creek Water Quality Study.** Ms. Barrow conducted long-term groundwater monitoring as part of a study of the San Marcos Creek Valley, in order to understand how lake water levels, surface water flows, and groundwater interact and affect water quality. Using submerged pressure transducers in groundwater wells, she measures and logs groundwater levels in the valley. Quarterly samples were collected from the wells using low-flow sampling techniques, along with quality assurance/quality control (QA/QC) samples. The samples are analyzed for nutrients, and hydraulic conductivity is measured by performing pump tests within the wells. Collected data is incorporated into a database of nutrient levels in the creek valley groundwater. The data are then analyzed to understand how the interaction of surface water flows, groundwater responses, and lake levels affects water quality.

### **Construction and Remediation**

**Confidential Aerospace/Defense Contractor, San Diego, CA.** Ms. Barrow successfully managed this construction remediation project from beginning to end, which included design and construction of vapor barrier. Ms. Barrow conducted site assessment activities to delineate and pre-characterize VOC-impacted soil, reviewed land development/grading plans to integrate remediation with excavation and mass grading activities, prepared a Soil Management Plan (SMP), oversaw the preparation of engineering design plans for a vapor intrusion mitigation system (VIMS), conducted soil remediation and environmental monitoring during excavation activities, used field and laboratory data to guide excavation activities, conducted stockpile management, confirmation soil sampling, and construction quality assurance during implementation of the VIMS to minimize vapor intrusion for future Site occupants, and oversaw health and safety procedures, subcontractor activities, and

soil disposal. Prepared a Property Closure Report (PCR), which provided final documentation of the remediation and obtained regulatory case closure.

**AMCAL Pomona, CA.** Ms. Barrow successfully managed this construction remediation project from beginning to end. Ms. Barrow conducted site assessment activities to delineate and pre-characterize metals-impacted soil across the Site, reviewed land development/grading plans to integrate remediation with excavation and mass grading activities, and prepared an SMP which was approved by the Los Angeles County Fire Department and describes, in detail, the extent of impacted soil and procedures to efficiently segregate this soil during excavation activities. Ms. Barrow implemented the SMP to conduct soil remediation and environmental monitoring during excavation activities, using field and laboratory data to guide excavation activities, Ms. Barrow's strategic stockpiling and soil sampling activities resulted in a cost savings for the project of over \$100,000. Ms. Barrow is in the process of preparing a PCR for the project, which she anticipates will be approved by the agency to obtain regulatory closure for the Site.

**AMCAL 62nd Street, San Diego, CA.** Ms. Barrow conducted site assessment activities to pre-characterize impacted soil across the site. Ms. Barrow reviewed land development/grading plans to integrate remediation with excavation and mass grading activities, conducted environmental monitoring during excavation activities to efficiently identify and segregate lead- and petroleum hydrocarbon-impacted soils, assessed features of concern, collected samples and used field and laboratory data to guide excavation activities, conducted stockpile management and confirmation soil sampling, and oversaw health and safety procedures, subcontractor activities, and soil disposal. Ms. Barrow prepared a Property Closure Report, which provided final documentation of the remediation and obtained regulatory case closure.

**Idea 1 – Lowe Enterprises, San Diego, CA.** Ms. Barrow conducted environmental monitoring during excavation activities to efficiently segregate lead- and petroleum hydrocarbon-impacted soils. She assessed features of concern and supervised the removal of two underground storage tanks (USTs). She conducted stockpile management and confirmation soil sampling, and oversaw health and safety procedures, subcontractor activities, and soil disposal. An on-site mobile laboratory analyzed total petroleum hydrocarbons (TPH) to delineate petroleum hydrocarbon-bearing soil in the vicinity of the former USTs. Data from the laboratory were used to guide excavation activities. Ms. Barrow assisted with the preparation of a Property Closure Report, which provided final documentation of the remediation and obtained regulatory case closure.

**SDG-Leftfield – Sempra Energy.** Ms. Barrow conducted environmental monitoring during excavation activities to efficiently segregate lead- and petroleum hydrocarbon-impacted soils. She assessed features of concern and supervised the removal of an underground storage tank (UST). She conducted stockpile management and confirmation soil sampling, and oversaw health and safety procedures, subcontractor activities, and soil disposal. An on-site mobile laboratory analyzed TPH to delineate petroleum hydrocarbon-bearing soil in the vicinity of the former UST. Data from the laboratory were used to guide excavation activities. Ms. Barrow prepared a Property Closure Report, which provided final documentation of the remediation and obtained regulatory closure.

**Ocean Ranch Estates, Solana Beach, CA.** Ms. Barrow conducted site assessment activities to pre-characterize pesticide-impacted soil across the site, reviewed land development/grading plans to integrate remediation with excavation and mass grading activities, Collect soil samples to assess contaminant plumes, used soil data to estimate volumes of impacted soil and develop remedial strategies.

## Underground Storage Tanks (USTs)

**Former Mobil Station, Chino Hills, CA.** This project involved a former retail fueling facility with four USTs containing gasoline and diesel. Ms. Barrow was directly involved in the design and implementation of a groundwater remediation system to inject hydrogen peroxide into the subsurface to remediate impacts from petroleum hydrocarbons. Ms. Barrow conducted low-flow groundwater sampling to evaluate the efficacy of the remediation system, and prepared engineering analysis reports based on data assessment. Ms. Barrow was integral in obtaining regulatory closure for the Site and coordinated the well destruction and site recommissioning activities per San Bernardino County design standards.

**Opera Development, San Diego, CA.** Ms. Barrow coordinated and conducted Site assessment activities including drilling, installation, and sampling of groundwater monitoring wells at this former gasoline service station. She collected and interpreted soil and groundwater data, and prepared Site Assessment Reports, which include soil lithologic logs, figures, and cross-sections depicting subsurface conditions. Ms. Barrow conducted a soil vapor survey and VIRA, and coordinated permitting and removal of a UST. **San Miguel Fire Station, Spring Valley, CA.** At a fire station with a UST in Spring Valley, Ms. Barrow conducted soil and groundwater assessment activities that included permitting, subcontractor oversight, regulatory communication, and soil and groundwater sampling. She also performed data compilation to develop a complete conceptual site model.

**Rosecrans, San Diego, CA; 1010 Linda Vista Drive, San Marcos, CA.** Ms. Barrow coordinated and conducted soil and groundwater assessment activities, including permitting, drilling, installation, and sampling of groundwater monitoring wells, subcontractor oversight, regulatory communication, and soil and groundwater sampling. She also prepared engineering analysis reports based on data assessment. Ms. Barrow obtained regulatory closure these Sites and oversaw final closure and well destruction activities per San Diego County design standards.

**Shuster Oil Petroleum Distribution Facility, Escondido, CA.** Ms. Barrow conducted groundwater assessment and remediation activities via high vacuum dual phase extraction, and assisted with corrective action measures and groundwater monitoring and sampling activities to evaluate the effectiveness of the remediation and prepared engineering analysis reports based on data assessment. Ms. Barrow obtained regulatory closure for Site oversaw final closure and well destruction activities per San Diego County design standards.

**San Diego County Leaking Underground Storage Tank (LUST) Sites.** San Diego County Public Works Department has seven LUST sites at their facilities. SCS has investigated these sites and developed an approach to achieve regulatory agency closure. Ms. Barrow is responsible for conducting groundwater monitoring and analysis that includes evaluating groundwater elevations and hydraulic gradient, monitoring for phase-separated hydrocarbons, and sampling for petroleum hydrocarbons and volatile organic compounds (VOCs). Collected data is analyzed for quantitative trends in constituents of concern, and to prepare site conceptual models and CAPs.

## Brownfields

**Corona Community-Wide Brownfields Assessment.** SCS assisted with the Corona Community-Wide Brownfields Assessment, funded by a US Environmental Protection Agency (EPA) Brownfields Program grant. The assessment includes subsurface investigations at selected sites with the potential to be returned to beneficial use. Ms. Barrow completed subsurface investigations at two of these sites. At a 27-acre commercial site with historical industrial and commercial land uses, the investigation included a geophysical survey to locate features of concern, such as USTs and mechanics pits. Soil, soil vapor, and groundwater sampling was conducted to assess the presence

and concentration of petroleum hydrocarbons associated with a reported historical release of jet fuel. The other investigation was completed at a vacant lot with historical agricultural land uses and stockpiles of unknown origin. Soil sampling locations at the vacant lot were selected based on California Department of Toxic Substances Control (DTSC) guidelines for pesticides sampling for school sites, because the site is planned for housing. The investigations were completed according to approved EPA Sampling and Analysis Plans (SAPs) prepared by SCS.

### **Dry Cleaners**

**Diane Village, San Diego, CA.** Ms. Barrow conducted subsurface assessment and remediation activities to delineate impacts to soil and soil vapor caused by a release of dry cleaning solvent containing chlorinated hydrocarbons to the subsurface. Ms. Barrow designed and implemented a sub-slab depressurization system to mitigate potential risk to building occupants due to vapor intrusion, and is responsible for ongoing operation and monitoring for the system.

**Link OC, Anaheim, CA.** Ms. Barrow designed and oversaw the implementation of a sub-slab depressurization system, utilizing horizontal drilling technology to maximize efficiency for the system. She is responsible for ongoing operation and monitoring for the system.

**Frame Marital Trust, San Diego, CA.** Ms. Barrow oversaw the implementation of a soil vapor extraction system to remediate a release of chlorinated solvents to the subsurface from a former dry cleaner operation. She is responsible for ongoing operation and monitoring for the system, and conducts periodic soil vapor sampling to assess the progress of the remediation.

**Poway Square, Poway, CA; Continental Cleaners, San Marcos, CA; and California Republic Bank, San Diego, CA.** Ms. Barrow has performed soil and groundwater investigations at several dry cleaning facilities in San Diego County with chlorinated solvent releases. Activities included permitting, soil, soil vapor, and groundwater sampling, design and implementation of soil vapor surveys, interpretation of soil vapor data to assess contaminant plumes, conducting human health risk assessments to assess potential human health risk due to soil vapor migration of contaminants, and remedial design and implementation.