

Office Location

Sacramento, CA

Years with Firm

1

Total Years of Relevant Experience

13

Education

B.S. Chemical Engineering,
California State University –
Long Beach, 2000

Certifications

Engineer-In-Training,
(EIT 111811), State of
California_07/2001

OSHA 40-Hour Hazardous
Waste Operations and
Emergency Response
Training – 01/27/2002

OSHA Annual 8-hour
Hazardous Waste Operations
Refresher Training -
01/20/2013

CAL-OSHA Competent
Person Training – Trench &
Excavation Standards –
09/19/2012

API Work Safe Certified

BP COW Training

Shell 12 Life Saving Rules
Training

Loss Prevention System
(LPS) Training

Stantec ALLY Training –
01/2013

CPR Certified – 08/11/2011

Smith Defensive Driving
Training – 08/12/2011

Qualifications Summary

Mr. Harrison has over 12 years of experience in the environmental remediation field. Mr. Harrison has been a Project Manager working with numerous clients to design and install various types of groundwater and soil remediation systems. These projects include soil vapor extraction (SVE), groundwater pump and treat, dual-phase extraction, oxygen injection, air sparge systems, and sub-slab depressurization (SSD) systems. As a Project Manager, Mr. Harrison reviews the system design prior to construction to ensure its acceptance by all city and county agencies. He then oversees the construction activities for the system install to ensure that the design specifications are followed and all required inspections are performed. In this role he is responsible for ensuring the project schedule is followed and the project is performed within the approved budget amount. Mr. Harrison also prepares project estimates and works directly with clients to achieve cost effective pricing to ensure the project is completed within the specified budget.

Mr. Harrison has significant expertise and experience in the following:

- Health and Safety
- Project Management
- Performing Project Quality Assurance/Quality Control (QA/QC)
- Construction Management
- Permitting
- Design, permitting, and construction oversight of remediation systems
- Operation, Maintenance, and Monitoring of remediation systems
- Soil vapor extraction (SVE) systems
- Groundwater extraction and treatment (GET) systems
- Dual-phase extraction (DPE) systems
- Sub-slab depressurization (SSD) systems
- In Situ Chemical Oxidation
- Enhanced In Situ Bioremediation
- Data Management/Data Analysis
- Document review, work plan preparation.

Key Project Experience

Project Management, US Naval Fuel Depot, San Pedro, CA

Project Manager responsible for daily operations and obtaining / compiling data from the groundwater treatment system. Mr. Harrison was responsible for maintaining system operation and efficiency to meet run-time requirements. He compiled data from oxygen sensors to measure oxygen biodegradation rates and monitored growth rates and effectiveness of Hybrid Poplar trees for soil and groundwater clean-up. He prepared and submitted quarterly, semi-annual and annual reports to the appropriate agencies.

Project Management, Remediation System Installs, Various Service Stations, Northern & Southern California

Project Manager for numerous clients to install groundwater extraction, soil vapor extraction, dual phase extraction, oxygen & ozone injection and air sparge systems. Responsible for working with design engineers to ensure that the design complies with city and county requirements. Supervise construction crews to install the system and ensure install follows design requirements and passes required inspections. Participate in system start-ups and ensure system runs as designed. Responsible for verifying that health & safety requirements are followed and used to ensure a safe work environment.

Project Management, Oxygen Injection System Expansion, Garden Grove, CA

Designed oxygen injection system addition to existing soil vapor extraction system. Generated design drawings and obtained required city permits to encroach in west bound Garden Grove Blvd. to connect new injection wells. Ensured City of Garden Grove permit requirements were followed when performing approximately 150' of trenching in Garden Grove Blvd. Coordinated with local utility companies to verify underground utility locations to determine exact location of the sparge line trenching.

Project Management, Expansion of Sepulveda & Venice Treatment System, Culver City, CA

Designed underground piping expansion to connect three wells to existing groundwater extraction system. Submitted plans to city and obtained required encroachment permits to perform approximately 2 miles of additional piping through city streets and alley ways. Coordinated street work with the City of Culver City, local utility companies, business owners and other various agencies to minimize the effect of the construction on traffic and the local businesses. Ensured proper traffic control and safety requirements were implemented to ensure safety for workers and the public.

Project Management, Ion Exchange Addition to Existing Stripping Tower, Rancho Cordova, CA

Project Manager for the installation of an Ion Exchange treatment system that was added to an existing stripper tower for the treatment of perchlorate. Oversaw daily construction activities for surface preparation and installation of a new concrete pad. Ensured construction specifications were met and required testing was performed.

Completed on-site take-offs and isometric drawings for the off-site fabrication of steel piping materials. Oversaw daily activities during equipment/piping installation and performed field engineering tasks to ensure/modify fabricated pipe installation.

Project Management, Mercury Contaminated Soil Removal, Shasta Lake, CA

Project Manager for the removal of mercury contaminated soil at the Shasta Sub Station. Removed soil from five locations at the site and prepared soil for transport and disposal at an approved facility. Backfilled excavated areas with clean material and compacted to required specifications. Ensured proper safety procedures and equipment were used when performing work with mercury contaminated soil.

Project Management, System Demolition, Various Site Locations, Northern & Southern California

Project Manager for various system and structure demolitions for a variety of clients. Responsible for scheduling projects and coordinating disposal of material. Materials include hazardous waste and equipment that is contaminated with petroleum hydrocarbons, chemicals, and other substances that cannot be disposed of at a landfill. Coordinated cleaning of such equipment and the removal and disposal of the cleaning agent. Obtained necessary certifications to verify proper disposal was performed.

Construction Oversight, Sidewalk and Fence expansion/upgrade, PG&E Sub-Station, Oakland, CA

Provided construction oversight for the removal and replacement of the City sidewalk and slatted chain link fence located around PG&E Sub-Station. Coordinated construction crews, sub-contractors, material delivery/pick-up and ensured PG&E safety protocols and specifications were followed. Coordinated schedule with contractors performing sub-station upgrade.

Project Management, Various Construction Activities, Various Site Locations, EBMUD

Project Manager for various EBMUD construction projects in the Northern California Bay Area. Worked with a local consultant to completed numerous BMP installations, upgrades, and maintenance at several different locations. Also performed structural demolition and soil removal at several EBMUD locations in northern California with the same consultant.

Project Management & Construction Oversight, Rebuild 600Inft of Levee, Naval Depot, Concord, CA

Project Manager for the rebuild failing levee that separated the bay from the on-site holding pond. Coordinated material/equipment delivery and pick-up to raise levee height approximately 6' to ensure separation between bay water and holding pond. Provided on-site daily construction oversight to log daily activities, track amount of base rock installed, and ensure construction standards were followed.

The existing site locations required the grubbing of shrubs and foxtail bushes that had overgrown in the area of the settling/eroded levee before any new material be placed. Heavy duty geo-fabric material was required to be placed on top of the existing earthen surface to help create a solid surface for the new material to be placed on and minimize any future settling. New base rock was placed on-top of the geo-fabric material and compacted in lifts to increase the elevation of the eroded levee.

Project Management, Removal of Contaminated Concrete in Hazardous Location, San Francisco, CA

Project manager for removal of approximately 80 tons of contaminated concrete from basement location in S.F. Scope of Work (SOW) included saw cutting approximately 500Inft of 12"-24" thick concrete of the basement floor, removal of concrete, and installing a subsurface concrete trench bottom to allow for the installation of the future electrical and plumbing lines.

Initial testing showed the presence of H₂S gas and E-coli contaminated soil/water below the concrete floor. Two separate containment zones were create (around the two work areas) using visqueen sheeting along the roof and walls which allowed for separation between work areas and clean areas. Positive displacement blowers were installed to create a negative pressure work area and ensure continuous air recirculation occurred throughout each work zone. Continuous air monitoring was performed and personal H₂S were worn to ensure safe working conditions.

Employees were required to use intrinsically safe equipment and lighting inside negative pressure exclusion zone. The concrete from the trenches was broken into small pieces, treated with bleach solution, loaded into plastic totes, removed from basement via conveyor belts, and disposed of. Approximately 30 tons of soil was also removed

from the trenches in order to allow a false trench bottom to be installed. Rebar was dowelled into the existing concrete slab (floor) and a rebar cage was built to create a new concrete trench bottom. Approximately 50yds³ of new 3,500psi XYPEX treated concrete was pumped into the basement and placed in the bottom of the trenches to create a waterproof-vapor seal between the basement floor and the contaminated subsurface environment. The concrete was observed for leaks and area was tested for H₂S before the areas were cleaned with a bleach solution, the containment zones removed, and the plumbing/electrical contractors were allowed in to perform their SOW.

Project Management, Expansion of SVE System, Port of Oakland, Oakland, CA

Project Manager for installation of approximately 1,400lnft of subsurface piping for the connection of 22 new SVE wells at the Port of Oakland. Responsible for ensuring that all Port of Oakland safety and construction protocols were observed and followed. Ensured that material specifications were followed and all testing procedures were completed. Coordinated material delivery and sub-contractor entrance to the Port of Oakland, e.g., all notifications were made and all documentation was submitted prior to arriving to the site.

Project Management, Sub-Slab Depressurization (SSD) System Install and Testing, Mountain View, CA

Project Manager for the installation and implementation of a SSD system. Oversaw installation of three extraction and three monitoring points in commercial building footing for feasibility test for large scale SSD system.

A Ground Penetrating Radar (GPR) survey was performed on the face of the building footing to ensure that core holes would not cut through rebar/supports in concrete footing. A 1.5x larger diameter hole than the conveyance piping to be installed was cored through the face of the footing and extended approximately 4'-6.5' below building. Material samples were taken to verify that the core was completed and terminated in the gravel sub-surface level below the buildings concrete pad. PVC conveyance lines were installed in the core and two Link-seals with non-shrink grout were installed to create an air tight seal between the building sub-surface and the outside environment. Steel well boxes were set in concrete at the buildings edge where the conveyance piping exited the building footing to allow for monitoring and extraction purposes.

After completion of the test locations, Mr. Harrison worked with the lead consultant to budget and schedule the implementation of a full-scale permanent SSD system for four buildings. The permanent system would include approximately 18 additional extraction and 24 additional monitoring locations with associated trenching for sub-surface conveyance and electrical lines.