

CHRISTOPHER CROSBY

Education

BA – Environmental Studies, University of California Santa Barbara, 2006

BA – Geography, University of California Santa Barbara, 2006

MBA – Business Administration, National University, San Diego, California, 2013



Specialty Certifications/Training

OSHA 40-Hour EPA-Approved Hazardous Waste Operations and Emergency Response Training

Contaminant Chemistry and Transport in Soil and Groundwater and Monitored Natural Attenuation of Petroleum and Chlorinated Hydrocarbons in Soil and Groundwater, Northwest Environmental Training Center, 2010

Professional Experience

Mr. Crosby is a Project Manager at SCS Engineers and has 16 years of professional experience in the environmental consulting field. He successfully manages complex environmental site assessments (ESAs), subsurface investigations, and remediation and construction projects to navigate regulatory requirements and meet client objectives. He has experience investigating and remediating properties that have impacted soil and groundwater by a variety of constituents of concern, including total petroleum hydrocarbons, chlorinated solvents, volatile organic compounds (VOCs), pesticides, lead and other heavy metals, and PFAS. He routinely prepares technical environmental documents clearly describing environmental conditions to meet regulatory agency compliance. These documents include Work Plans, property mitigation plans, soil management plans (SMPs), corrective action plans (CAPs), remedial action plans (RAPs), ESA reports, groundwater monitoring reports, health risk assessments (HRAs), and property closure reports. He has experience managing groundwater monitoring programs, drilling operations (vertical and horizontal), remediation, and construction oversight. He has implemented remedial action Work Plans that include source zone excavation, dual-phase extraction (DPE), soil vapor extraction (SVE), in-situ chemical oxidation, bio-augmentation, and air sparging techniques. He has provided construction quality assurance (CQA) at landfill facilities, routinely manages Brownfield redevelopment excavation and grading projects, and has worked to assess and remediate releases at various military bases and airports.

Mr. Crosby's project experience is summarized below.

Brownfield Redevelopment

Confidential Client, Industrial Manufacturing Facility, San Diego, CA. As Project Manager, Mr. Crosby conducted an environmental site assessment of a +30 acre property consisting of an over 200,000 square foot industrial manufacturing facility with a history of storage/use/treatment/disposal of large quantities of various hazardous substances, petroleum products, and generation of hazardous waste from the 1960s to early 2021. A CLRRRA agreement with the DTSC was negotiated and Mr. Crosby is currently working to implement the additional

assessment and remediation activities so the site can be redeveloped into a +500,000 square foot commercial building.

n-B-tween Affordable Housing, San Diego, CA. As Project Manager, Mr. Crosby conducted site assessment activities to pre-characterize impacted soil in preparation for redevelopment into affordable residential housing units. He oversaw the excavation, grading, and environmental monitoring activities to efficiently excavate and segregate lead-impacted fill soils exceeding residential health risk levels and disposing at a licensed disposal facility.

Pacifica Self-Storage, Brownfields Redevelopment, San Diego, CA. As Project Manager, Mr. Crosby conducted site assessment activities to pre-characterize impacted soil from a former LUST and lead-bearing fill soils in preparation for redevelopment into a 4-story self-storage facility with one level of underground storage. Based on the assessment results he prepared a comprehensive soil management plan to incorporate remedial activities into the normal grading activities for the site, and received regulatory approval from the DEH. He also managed the design of a vapor intrusion mitigation system to mitigation residual VOCs. During construction, he oversaw the excavation, grading, and environmental monitoring activities to efficiently excavate and properly manage lead-impacted fill soils and petroleum hydrocarbon-bearing soil for disposing at a licensed disposal facility.

Comm22 Lot 7, Brownfields Redevelopment, San Diego, CA. As Project Manager, Mr. Crosby conducted site assessment activities to pre-characterize impacted soil in preparation for redevelopment into affordable residential housing units. He managed the excavation, grading, and environmental monitoring activities to efficiently excavate lead- and TPH-impacted soil. He successfully remediated the site by removing 3,730 tons of impacted soil, and met mitigation criteria with a clean soil cap across the site to mitigate risk to future workers and residents at the property. He obtain regulatory case closure from the DEH.

Comm22 Family Housing, Brownfields Redevelopment, San Diego, CA. Mr. Crosby conducted site assessment activities to pre-characterize impacted soil in preparation for redevelopment into a mixed-use affordable housing building. He conducted environmental monitoring during excavation and grading to efficiently segregate lead- and TPH-impacted soil in conjunction with the excavation of over 50,000 cubic yards of soil. He successfully remediated the site by removing 13,510 tons of impacted soil and met mitigation criteria to obtain regulatory case closure.

Comm22 Senior Housing, Site Assessment, San Diego, CA. Mr. Crosby conducted site assessment activities to pre-characterize impacted soil in preparation for redevelopment into a senior living facility. He conducted environmental monitoring during excavation and grading to efficiently segregate lead- and TPH-impacted soil in conjunction with the excavation of over 7,000 cubic yards of soil. He successfully remediated the site by removing 912 tons of impacted soil, reusing soil on site, and met mitigation criteria to obtain regulatory case closure.

Strauss Fifth Avenue Redevelopment, San Diego, CA. As Project Manager, Mr. Crosby conducted soil assessment activities, prepared and implemented a soil management plan and community Health and Safety (H&S) Plan to properly handle and segregate fill soils impacted with heavy metals during grading operations. Additionally, Mr. Crosby coordinated with the developer, general contractor, grading contractor, and regulators to develop a strategy to meet regulatory requirements and to reduce costs to the owner.

Solutions Escondido Brownfields Redevelopment, Escondido, CA. As Project Manager, Mr. Crosby prepared and implemented a soil management plan to properly handle and segregate impacted soil containing pesticides exceeding acceptable residential levels. The soil management plan involved

reuse of pesticide-bearing soil at the site to meet the mitigation criteria. A community H&S Plan was prepared and implemented to minimize exposure to the surrounding occupants during grading and excavation of pesticide-bearing soil. Additionally, Mr. Crosby coordinated with the developer, general contractor, grading contractor, and regulators to develop a strategy to meet regulatory requirements and reduce costs to the owner.

Bridge Housing, Celadon at 9th & Broadway Environmental Monitoring, San Diego, CA. Mr. Crosby conducted environmental monitoring during excavation activities to efficiently segregate lead- and TPH-impacted soil in real time. He assessed features of concern that included two cisterns with burn ash and two burn ash pits, and oversaw removal of four USTs. He successfully remediated the site by removing of over 1,500 tons of impacted soil and obtained regulatory case closure.

Westfield UTC, Contaminated Soil Removal. As Project Manager, Mr. Crosby quickly responded to the client's needs when petroleum hydrocarbon-bearing soil was discovered during mass excavation and grading activities. He was able to mobilize the site and segregate the impacted soil within 24 hours of discovery to avoid delays to construction schedules. Approximately 200 tons of petroleum hydrocarbon-bearing soil was removed from the site and treated for off-site disposal.

RD Brown, Remedial Excavation. Mr. Crosby successfully implemented interim remedial action activities that included planning, oversight, and direction of source zone excavation and soil sampling activities to remove and treat 3,361 tons of petroleum hydrocarbon-bearing soil at a former LUST site.

Harbor Drive Pedestrian Bridge. Mr. Crosby oversaw segregation of soil containing hazardous materials during construction operations. He collaborated with multiple agencies to efficiently segregate, stockpile, profile, and dispose of impacted soil to the appropriate disposal facilities, while minimizing disposal costs and meeting construction deadlines.

Leaking Underground Storage Tanks (LUSTs)

City of El Cajon, Soil and Groundwater Assessments, El Cajon, CA. As Project Manager, Mr. Crosby has managed numerous soil, groundwater, and soil vapor investigations at a former gasoline service station with LUSTs releasing gasoline into the subsurface. This project is an ongoing investigation to meet requirements of the Regional Water Quality Control Board (RWQCB). Grant funding for client through the Underground Storage Tank (UST) Cleanup Fund has reimburse client for over \$560K in investigation and remediation costs.

Former California Linen, Soil, Groundwater, and Remediation, San Diego, CA. This former industrial dry cleaning facility featured nine USTs containing gasoline, diesel, oil, and Stoddard solvent. LUSTs releasing Stoddard solvent into the subsurface resulted in PSH in several site wells up to 3 feet thick. As Project Manager, Mr. Crosby has completed soil and groundwater and SVAs, and was directly involved in design/build activities and the operation, monitoring, and maintenance (OM&M) of a fixed dual-phase groundwater remediation system to remove constituents of concern from groundwater and soil beneath the site. Free product removal was achieved and water quality objectives restored. Regulatory case closure is pending. Obtained grant funding for client through the Orphan Site Cleanup Fund to reimburse client for over \$650K in investigation and remediation costs.

Bob's Auto, Soil, Groundwater, and Soil Vapor Assessments (SVAs), San Diego, CA. The automotive repair facility had a former LUST releasing gasoline into the subsurface. As Project Manager, Mr. Crosby has completed soil and groundwater assessments, SVAs, and interim remedial action at the site. PSHs up to 4 feet thick were discovered through the groundwater monitoring well data, resulting in the preparation of a remedial action plan for the site, which was approved by the

RWQCB. Currently preparing a grant application on behalf of the owner to obtain grant funding assistance to pay for the pending remedial action and post-remediation activities.

Appleton Brookhills Development, Groundwater Monitoring and Remedial Action, Fallbrook, CA.

The residential housing development site contained LUSTs releasing gasoline into the subsurface that was discovered during grading activities. As Project Manager, Mr. Crosby has led ongoing investigations that included groundwater monitoring, interim remedial action to remove Phase-separated hydrocarbons (PSHs) from groundwater, designed a remedial action plan, and successfully implemented remedial action in 2018 to remove approximately 7,000 pounds of hydrocarbons from the subsurface. The site received regulatory case closure from the DEH.

Groundwater Remediation System, Chino Hills, CA. Mr. Crosby contributed to the design and development of a groundwater remediation system injecting hydrogen peroxide into the subsurface in efforts to remediate impacted groundwater from a former petroleum hydrocarbon release. He obtained regulatory case closure.

Former Chevron Remedial Excavation. Mr. Crosby implemented remediation through excavating and sampling soil in efforts to remove petroleum hydrocarbon-bearing soil. The vicinity contained former USTs, dispensaries, and associated piping based on the approved CAP. He obtained necessary permits; provided public notification according to the H&S plan; conducted vapor monitoring, stockpile management, and confirmation soil sampling; and oversaw H&S procedures, subcontractor activities, dewatering activities, and soil disposal. An on-site mobile laboratory was utilized to efficiently guide excavation activities. Approximately 3,465 tons of TPH-impacted soil was successfully removed. He prepared a site closure report and obtained regulatory case closure.

Palomar Airport, County of San Diego, Department of Public Works (DPW). Under this contract, the County of San Diego DPW contracted with SCS to permit and properly abandon groundwater monitoring wells at the Site to receive regulatory case closure from the DEH. As Project Manager, Mr. Crosby successfully completed the project on time and within budget to obtain regulatory case closure.

Palomar Airport, Jet Source, UST Investigation. A release of fuel from USTs at the Palomar airport were discovered and an unauthorized release case was opened by the DEH. Mr. Crosby conducted subsurface assessments including soil and groundwater sampling per DEH requirements to assess the extent of the release. DEH case closure was obtained and groundwater monitoring wells were properly abandoned.

Estate of Agnes Barber, Soil, Groundwater, and SVAs, National City, CA. The vacant property contained four former LUSTs releasing gasoline and diesel into the subsurface. As Project Manager, Mr. Crosby managed and completed soil, groundwater, and SVAs at the site. Eight groundwater monitoring wells were installed to a depth of 110 feet to monitor groundwater concentrations. A CAP was prepared for the site in 2015, and regulatory case closure was achieved in 2017. Obtained grant funding for client through the UST Cleanup Fund to reimburse client for nearly \$475K in investigation costs. Additionally, Mr. Crosby assisted the client with a follow-up lead and asbestos survey, and abatement monitoring for the site building, and managed the demolition and removal of the site building to prepare for the sale of the property.

Frank Motors, Groundwater Investigations, National City, CA. The car dealership had impacted soil and groundwater from a former UST. As Project Manager, Mr. Crosby managed groundwater investigations to assess the subsurface impacts and a DPE pilot study to assess remediation options. A CAP was approved and Mr. Crosby obtained regulatory case closure in 2014. Obtained

grant funding for client through the UST Cleanup Fund to reimburse client for over \$710K in assessment costs.

County of San Diego, Department of Public Works (DPW), UST Site Investigations. Under this contract, the County of San Diego DPW had six leaking UST cases located throughout the County. Mr. Crosby conducted site investigations that involved groundwater monitoring and sampling for PSHs, VOCs, and other constituents of concern. Collected data were analyzed for quantitative trends in constituents of concern. Mr. Crosby also prepared site conceptual models and hydrographs, which demonstrated that constituents of concern were generally stable or decreasing. By the completion of the term of the contract, all six leaking UST cases had received regulatory case closure.

National City Transfer and Storage, Soil and Groundwater Assessment, National City, CA. The storage facility had impacted soil and groundwater from a release from a former UST and dispensary. Mr. Crosby performed soil, groundwater, and SVAs to investigate subsurface impacts and potential health risks. Regulatory case closure was obtained in 2014. Grant funding for client through the UST Cleanup Fund to reimburse client for nearly \$185K in investigation and remediation costs.

Former Jacumba Texaco, Site Assessment and Remediation, Jacumba, CA. Mr. Crosby conducted assessment activities, including product removal, groundwater assessment, and SVAs associated with a release from a UST at the Jacumba Texaco station. Based on assessment results, a pilot test for remediation of petroleum hydrocarbons in the groundwater was conducted and a corrective action plan prepared. Corrective action measures were implemented and, after post-remediation monitoring, regulatory case closure was obtained in 2012.

Shuster Oil, Groundwater Assessment, Escondido, CA. Mr. Crosby conducted numerous groundwater assessments and remediation at the site.

El Capitan Oil, Soil, Groundwater, and SVAs, Santee, CA. Mr. Crosby completed on- and off-site assessment activities addressing impacted soil and groundwater. This included permitting; subcontractor management; groundwater, soil, and SVA sampling; and HRA. He developed a work plan to conduct a DPE pilot test and obtained the implemented interim remediation.

Action Car Wash, Soil and Groundwater Investigations. The automobile car wash and detailing facility had three USTs, fuel dispensers, and pipelines removed from the site in 1994. Mr. Crosby completed soil and groundwater investigations and used the data collected to remediate the site to appropriate cleanup levels using DPE to obtain site closure.

Dry Cleaners

Confidential Site, San Diego CA. As Project Manager, Mr. Crosby managed end-to-end assessment and mitigation of a release of chlorinated solvent from the former on-site dry cleaning operations. Assessment activities included soil vapor sampling, sub-slab vapor sampling, indoor air sampling, radon tracer study, health risk assessment, soil vapor extraction pilot test, remedial design, and construction and operation of a soil vapor mitigation system. A creative mitigation design utilizing horizontal drilling techniques were designed and implemented by Mr. Crosby to install soil vapor extraction wells beneath the hotel basement slab. He provided oversight of client and hotel management correspondence, subcontractor management, and staff oversight.

Former Marston Cleaners, San Diego, CA. As Project Manager, Mr. Crosby has investigated a release of chlorinated solvent from a former dry cleaner. Assessment activities include groundwater monitoring and sampling, soil vapor and indoor air sampling and human health risk analysis.

Continental Cleaners, Remedial Action, San Diego, CA. As Project Manager, Mr. Crosby is managing the operation of a soil vapor extraction system to remediate a release of chlorinated solvents from dry cleaning operations.

Martinizing Dry Cleaners, Soil and Groundwater Investigations, San Diego, CA. Mr. Crosby performed soil and groundwater investigations to address a chlorinated solvent release. Site investigations included obtaining city and county permits, subcontractor oversight, regulatory communication, and soil and groundwater sampling.

Former Dutch Dry Cleaners, Soil and Groundwater Investigations, Temecula, CA. Mr. Crosby performed soil and groundwater investigations to address a chlorinated solvent release at the dry cleaning facility. Remedial actions included SVE and DPE. Regulatory site closure was obtained from the RWQCB.

Former Inland Empire Cleaners, Soil and Groundwater Investigations, Riverside, CA. Mr. Crosby performed soil and groundwater investigations to address a chlorinated solvent release at the dry cleaning facility. Investigations included permitting, subcontractor oversight, regulatory communication, and soil and groundwater sampling. Regulatory site closure was obtained from the RWQCB.

Per- and Poly-Fluoro Alkyl Substances (PFAS)

Santa Maria Public Airport, Soil and Groundwater Investigation, Santa Maria, CA. As Project Director, Mr. Crosby and team responded to an investigative order from the State Water Resources Control Board (SWRCB) to keep the airport in compliance by designing and implementing a subsurface investigation of PFAS at the airport due to the use of firefighting foam called AFFF (aqueous film forming foam), which contains PFAS constituents. The initial investigation included sampling groundwater, surface water, and soil to assess multiple areas across the airport and surrounding supply wells and sampling. The investigation is ongoing.

Landfill

Construction Quality Assurance (CQA) Activities at California Landfills. Mr. Crosby has provided CQA during installation and destruction of landfill gas recovery wells, monitoring probes, and piping. He participated in the collection of condensate samples for the optimization of condensate disposal at several landfill sites. He has worked on the following active and closed landfill sites:

- Otay Landfill, Chula Vista.
- Sycamore Landfill, San Diego.
- Ramona Landfill, Ramona.
- South Chollas Landfill, San Diego.
- San Marcos Landfill, San Marcos.
- Miramar Landfill, San Diego.
- Palomar Airport, Carlsbad.
- Gillespie Landfill, El Cajon.
- Jamacha Landfill, El Cajon.

Air Monitoring and Odor Study at Miramar Landfill, San Diego, CA. Conducted air monitoring and odor study in surrounding neighborhoods at the Miramar Landfill.

Military Bases

EPA Streams Project, Lemoore NAS, CA. Mr. Crosby was the primary field scientist for the design and implementation of an EPA study to test the vertical distribution of soil vapor concentrations, the influence of a concrete slab on soil vapor concentrations, side-by-side comparison of three current soil vapor sampling techniques, and a comparison of six different types of sample tubing. His responsibilities included the setup and supervision of subcontractors; direct push drilling; soil and groundwater sampling and logging of samples; installation of soil vapor probes; meetings with clients; and up to 65 soil vapor samples per day, collected and analyzed by a mobile lab.

EPA Soil Vapor Study at IRP Site 15, Vandenberg AFB, CA. As Primary Field Scientist, Mr. Crosby designed and implemented an EPA study to test the influence of temporal variation on active soil vapors, including temperature (ambient and subsurface), pressure (barometric and subsurface), precipitation and soil moisture, and wind speed.

Basewide Groundwater Monitoring Program, Vandenberg AFB, CA. Mr. Crosby was the lead Field Scientist in the basewide groundwater monitoring program, which consisted of 27 sites and the collection of samples from over 320 groundwater monitoring wells, groundwater seeps, and surface water locations on a quarterly basis. His responsibilities also included preparing quarterly reports for four IRP sites, in addition to peer reviewing other site reports, and compiling all site reports into a single deliverable on a quarterly basis.

Bioremediation at IRP Site 8, Space Launch Complex 4 East, Vandenberg AFB. Mr. Crosby assisted with the design, construction, and implementation of remedial action to cleanup chlorinated solvents in groundwater beneath a rocket launch pad. He conducted a pilot study to determine the distribution of injectate, and oversaw drilling for the installation of monitoring and injection wells, using a hollow stem auger to a maximum depth of 125 feet. His responsibilities included oversight of the drilling crew, soil logging, soil and groundwater sampling, in situ monitoring, injection design, batch mixing, and deploying injectate. The project involved mixing and injecting approximately 75,000 gallons of water and lactate mixture into various injection wells across the site.

Bioremediation at IRP Site 13 Cluster, Vandenberg AFB, CA. Mr. Crosby implemented the remediation of chlorinated solvents in groundwater, injecting water and lactate mixture with dehalococoides and appropriate amendments into various injection wells across the site. He oversaw drilling and installation of monitoring and injection wells using a sonic drill rig. Remediation activities successfully cleaned up the site to acceptable water quality standards.

Soil Investigation at IRP Site 20, Vandenberg AFB, CA. As Deputy Site Manager, Mr. Crosby conducted a contaminated soil investigation with responsibilities involving the coordination of subcontractors, soil sampling, and interpreting data.

IRP Site 3, Vandenberg AFB, CA. Mr. Crosby conducted a soil and groundwater investigation to determine the degree of contamination from a former wastewater pipe and LUSTs. His responsibilities included utility monitor coordination, direct push drilling, soil sampling, groundwater sampling, well development, and long-term monitoring.

Main Base Landfill, Edwards AFB, CA. As the Primary Field Scientist, Mr. Crosby conducted a soil and groundwater investigation with responsibilities involving the coordination and oversight of subcontractors, meetings with clients, groundwater sampling, soil sampling, bedrock sampling, design, and elimination of ponding issues.