



PROFESSIONAL PROFILE



Nancy Anglin, PE

Principal Engineer/Operations Manager

EXPERIENCE SUMMARY

Over twenty-eight years' experience: Principal Engineer/Operations Manager at Roux; Associate Principal at Polytechnique Environmental, Inc.; Principal Engineer/Senior Engineer/Project Engineer at Ninyo & Moore; Project Engineer/Staff Engineer at Kleinfelder, Inc.; and Staff Engineer at W.W. Irwin.

TECHNICAL SPECIALTIES

Investigations of proposed construction projects for waste management and worker safety requirements, and evaluations of properties proposed for acquisition to determine the environmental liability the purchaser may be acquiring along with the property. Prepares soil/groundwater/waste management plans and other environmental plans needed for construction projects involving contaminated sites. Prepares bid plans and specifications for the contractors performing the construction activities on contaminated projects, responds to requests for information (RFIs), and assists with implementing grant funding. Extensive experience working in the public sector.

REPRESENTATIVE PROJECTS

- Principal-in-Charge of a team that provided on-site and environmental document review support to a large transportation agency for a \$500 million enhancement project along a 16-mile stretch of a Southern California Interstate. Project tasks included working as the client's site representative; confirming contractor compliance with the project stormwater pollution prevention plan (SWPPP) and other environmental documents; performing weekly SWPPP best management practices (BMP) inspections; reviewing contractor environmental submittals; responding to RFIs; and interpreting regulations.
- Principal Engineer who updated a large transportation agency's environmental-related construction specifications. Section updates included: Health, Safety, and Emergency Response Procedures for Contaminated Sites; Environmental Procedures for Contaminated and Hazardous Substances; Imported Fill, Soil Re-Use, and Soil Export Criteria; Lead-Related Construction Work; Asbestos-Related Construction Work; and Waste Management and Disposal. Prepared a new section titled Contractor Substances and Wastes and prepared a template waste management plan.
- Principal-in-Charge of coordinating between a large transportation agency (client) and the State of California Department of Transportation (Caltrans) for services within Caltrans right-of-way (R/W). Services included preparing an aerially deposited lead (ADL) survey work plan and a site-specific health and safety plan (HASP); performing the ADL survey and a limited subsurface investigation (SI); and providing support through the land transfer process between the client and Caltrans. This support included working on the Caltrans Lanes Closure System website and preparing the Caltrans Hazardous Materials Disclosure Document (HMDD). Work was performed in the existing Caltrans, proposed Caltrans, client, and City R/Ws and required substantial coordination with the various stakeholders.
- Senior Engineer for stormwater sampling services at a large transportation agency's bus and rail divisions for many years. Tasks included providing stormwater compliance training for the client's site personnel, conducting rail safety training for sampling personnel, conducting pre-rain event site visits, preparing, and annually updating a HASP, acquiring specialized equipment for accessing sample points, tracking storms using on-line weather reports, contacting the agency site personnel, mobilizing to the sampling locations, and collecting the

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EDUCATION

BS, Geological Engineering,
Queen's University, Kingston,
Canada, May 1993
Graduate Studies, Civil
Engineering, University of
New Brunswick, Canada

PROFESSIONAL LICENSES

Professional Engineer, No.
C94772 (California)
Qualified Stormwater Pollution
Prevention Plan (SWPPP)
Developer (QSD)
Envision Sustainability
Professional (ENV SP)
National Registry of
Environmental Professionals,
Registered Environmental
Manager (REM) and Certified
Waste Management
Professional (CWMP)

stormwater samples within the first hour of rainfall, and analyzing samples for the chemicals of concern.

- Principal-in-Charge and task order manager for various multiple-award, on-call contracts with Caltrans. Projects included initial site assessments (ISAs) or Phase I environmental site assessments (ESAs), site investigations (SIs) or Phase II ESAs, ADL surveys, methane and hydrogen sulfide evaluations, investigations comparing surface and groundwater properties, preparing National Pollutant Discharge Elimination System (NPDES) permit applications for proposed construction dewatering projects, reflective paint sampling for lead and chromium, pipeline sampling, and sampling of miscellaneous bridge and guard rail material for hazardous building materials. Specific assessments included those related to acquisition programs for multiple individual land parcels of interest to Caltrans for the presence of environmental concerns that could affect the safety of the road widening construction crews and the liability to Caltrans as owner of each property. The following are a few representative projects:

- ISAs and SIs were conducted for sites along a roadway and bridge to be widened in a sensitive habitat (a wetlands overseen by the California Coastal Commission) suspected of containing methane and hydrogen sulfide. The project involved 1,500 feet of suburban roadway and bridge. Due to the proximity of the site to a major oil pipeline and natural gas storage area, the SI included not only a methane and hydrogen sulfide gas survey, but also a volatile organic compound (VOC) vapor survey. Extensive communication and cooperation with the oil company was needed to perform the SI. The SI results were used to establish worker safety requirements for construction activities performed for the road widening.
- Several SIs were performed to facilitate construction water discharge. Samples of surface water and groundwater were collected, and the chemical data was compared to each other and to the NPDES discharge limits for the subject water body. NPDES permit applications were prepared for each site.
- SIs and consulting support were provided for the Ortega Highway/Interstate 5 interchange improvement project. The project involved preparing HMDDs for each parcel to be acquired by Caltrans for the improvement. Five of the parcels were gasoline stations and three had significant environmental releases, including one that impacted local drinking water wells. Part of the preparation of the HMDDs included providing Caltrans with estimates of potential costs to be incurred should Caltrans become

the Responsible Party (RP) of the environmental liability. These cost estimates were designed to be used when negotiating property acquisition prices. Special provisions were also prepared for Caltrans to include in its interchange improvement contractor bid specifications. These special provisions included specifications to allow the contractor to perform underground storage tank (UST), product line, and dispenser removal activities at acquired gasoline stations and to abandon and reinstall groundwater monitoring wells that might conflict with the proposed roadway improvements.

- Principal-in-Charge with over 20 years of experience working as a consultant to cities and agencies that are performing construction activities in Caltrans R/W or under Caltrans management/oversight. As a former contract and task manager for multiple on-call contracts with Caltrans, Ms. Anglin understands their processes. Projects included ISAs, SIs, ADL surveys, methane, and hydrogen sulfide evaluations, NPDES permitting, reflective paint sampling for lead and chromium, pipeline sampling, and sampling of miscellaneous bridge and guard rail material for hazardous building materials. The following is one representative project:
 - On behalf of two Southern California cities, performed an ADL survey and SI of a busy freeway interchange where on- and off-ramp improvements were proposed. The purpose of the ADL and SI was to evaluate recognized environmental conditions (RECs), consisting of suspected ADL, an adjacent former leaking UST case, and the presence of an adjacent former landfill. The ADL was conducted with traffic control and included hand auger borings and sample collection and analyses for lead, Title 22 Metals, pH, and soluble and leachable lead. Based on the results and the statistical analyses that Ms. Anglin conducted, some soil associated with the site would be classified as non-Resource Conservation and Recovery Act (RCRA) California hazardous waste when this soil was disturbed. The SI included soil, soil vapor, and groundwater sampling for analysis of potential impact from the RECs. Analytical results from these analyses were compared to appropriate state and federal human health screening levels. Borings were also advanced and sampled in areas of a proposed box culvert. Results from the groundwater samples were compared to the NPDES criteria. The results indicated some relatively low concentrations of impact from the identified RECs. The results from the ADL and SI were combined into one comprehensive report, which Caltrans approved.

- Principal Engineer provided in-house support for John Wayne Airport (SNA), including leading the industrial stormwater, air quality, and sewer system management teams; creating an environmental desk manual describing the airport's environmental responsibilities; creating a hazardous spill response plan; updating the environmental sections of contracts, leases, and requests for proposals; providing aqueous film-forming foam (AFFF) management; and providing support for the water quality management plan, an irrigation improvement project, hazardous building materials mitigation, and waste optimization. As the industrial stormwater management lead, Ms. Anglin ensured that SNA complied with the Industrial General Permit and their Time Schedule Order. To remain in compliance, Ms. Anglin oversaw the preparation of a feasibility study for on-site treatment of stormwater.
 - Task lead for the development and delivery of five environmental compliance training modules for SNA and Orange County Public Works project managers. The objectives of the training include helping project managers understand compliance requirements, preventing avoidable environmental incidents, and promoting proactive environmental stewardship and sustainability practices. The purpose of the training includes:
 - Providing an understanding and appreciation of the environmental issues impacting the airport.
 - Training and educating project managers on key environmental compliance processes related to their projects.
 - Providing accessibility to resources and subject matter experts.
 - Minimizing delays, costs, and public relations impacts related to environmental non-compliance.
 - The training provides enough information for project managers to recognize when to consult with SNA Environmental.
 - Principal-in-Charge as a subconsultant under a Los Angeles World Airports (LAWA) on-call Architecture & Engineering contract. Ms. Anglin's team conducted environmental compliance reviews for the LAWA Airfield and Terminal Modernization Project (ATMP). This project was to ensure continued compliance with federal, state, and local environmental regulations as the architect completed the design for LAWA's ATMP. To ensure compliance, the team conducted thorough reviews of all relevant documents and files such as project design documents; California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents; historical resource reports; and LAWA's design, construction, and sustainability guidance documents.
- The team made appropriate findings and recommendations based on reviews and presented those to the client to aid its further planning and decision-making processes.
- Technical advisor provided support for site investigation, remediation, and closure activities at a former car rental facility on behalf of LAWA. The site was under the oversight of the Regional Water Quality Control Board (RWQCB) since subsurface impacts from leaks attributed to up to nine USTs and associated piping were discovered in 1992. The primary chemicals of concern are petroleum hydrocarbons from gasoline and diesel fuel. Ms. Anglin supported the team of industry professionals who devised a plan to fully define the lateral extent of the impacted zone and determine if additional remediation techniques were warranted to mitigate the residual contamination. The information obtained from site investigations, groundwater monitoring, and past remediation efforts was used to create a conceptual site model, which outlined a pathway to obtain regulatory case closure for the site. One of the challenges associated with this project was the migration of off-site VOCs onto the site. The team reviewed historical operations, determined that VOCs have not been used or stored at the site, and made a compelling case to the RWQCB. The RWQCB concurred that LAWA was not responsible for the VOC impacts to groundwater at the site and closed the case.
 - Principal Engineer supported environmental compliance for a California State Hospital campus. The 826-bed hospital serves patients from Southern California and offers a range of treatments. Operations at the facility started in 1913, and it was self-sufficient with a farm, dairy, and animals. The campus covers 162 acres and has several large buildings, a central utility plant, and a maintenance yard. Facility equipment includes boilers, chillers, engines, fuel dispensing, forklifts, and fleet vehicles. Ms. Anglin's team was responsible for ongoing air quality compliance, hazardous and non-hazardous waste management, underground and aboveground petroleum storage tank inspections, and spill control prevention for the facility.
 - Technical advisor for multiple on-call agreements with a large water agency. Ms. Anglin provided principal-level document review. Services provided included Phase I ESAs; Phase II ESAs; remediation planning and oversight; groundwater monitoring and sampling; UST removals; industrial hygiene services including polychlorinated biphenyl (PCB), asbestos, lead, and universal waste surveys; abatement plans and specification preparation; and multiple large water basin PCB abatement oversight projects.
 - Principal Engineer and task manager for multiple on-call agreements with a Riverside County transportation agency. For

over 15 years, Ms. Anglin supported environmental projects for this agency for various sites throughout Riverside County where highway/roadway improvements were scheduled. Projects included numerous Phase I and II ESAs, remediation, and abandonments of agricultural wells. The following is one representative project:

- Eminent Domain and Litigation Support – Ms. Anglin oversaw Phase I and II ESAs, prepared a remedial action plan (RAP), and provided remediation cost estimates for a former metal recycling and smelting operation. The site contained elevated levels of heavy metals and fuel products. Due to the site's complexity, the case was overseen by the Department of Toxic Substances Control (DTSC) as the property previously accumulated many hazardous waste violations and cleanup orders, and the owner was served with criminal complaints. Litigation support was provided to the transportation agency who successfully acquired the property through a court decision. Ms. Anglin oversaw the remediation and the DTSC issued an unrestricted closure for the site.
- Principal Engineer and task manager for multiple on-call agreements with an Orange County California transportation agency. One project included Phase I and II ESAs, remediation cost estimating, and remediation specification preparation for the Placentia Avenue/Kraemer Avenue/Burlington Northern/Santa Fe (BNSF) railroad grade separation projects in Anaheim, California. R/W were being acquired from the BNSF railroad and from two industrial properties for construction of the two grade separations. Acquisitions included fee title parcels, permanent utility easements, and temporary construction easements. In addition, rights to excavate soil beneath the railroad R/W for the new road underpass and to install a railroad bridge and other rail improvements over the underpass were being negotiated. The objective of the services was to evaluate site contamination issues associated with each acquisition parcel and to provide estimates of remediation costs to be set aside in an escrow account through the purchase and lease agreements. Tasks included Phase I and Phase II ESAs of parcels identified for acquisition or lease arrangements. Using information from project design engineers, the assessment information was used to generate estimates of remediation costs for the soil contamination identified. Ms. Anglin then prepared detailed remediation construction specifications included in the construction bid specifications and supported contractor requests for information.
- Principal-in-Charge in support of the previously described grade separation project in Fullerton intersecting BNSF railroad R/W on behalf of the city. The project started with a transportation agency, when Ms. Anglin evaluated site contamination issues associated with parcel acquisition and provided remediation bid specifications and estimates of remediation costs to be set aside in an escrow account. For the city, Ms. Anglin's team provided environmental construction support including RFI response, site sampling, interpretation of waste types, and waste profiling.
- Technical advisor for an as-needed agreement with the Los Angeles Department of Recreation and Parks. Services included asbestos, lead, and universal waste surveys of park structures scheduled for demolition or remodeling. One survey included a structure that had recently burned, requiring additional safety evaluations to confirm that the structure was safe to sample. One evaluation included testing a park pond for heavy metals after it was used for a movie shoot, which included discarding several cellular phones in the pond.
- Technical advisor for the environmental services portion of several environmental and geotechnical on-call agreements with the Los Angeles Bureau of Engineering. Ms. Anglin's services included Phase I ESAs, Phase II ESAs, methane surveys, groundwater monitoring and sampling, remediation feasibility studies, and remedial action planning. In her role as technical advisor, Ms. Anglin provided support in her field of expertise to the contract manager, task managers, and support staff. Ms. Anglin also provided senior level review of documents, making waste and worker safety recommendations relating to environmental issues on proposed construction sites.
- Principal-in-Charge for on-call environmental services for the Orange County Great Park. Marine Corps Air Station El Toro was transformed into the Orange County Great Park in the geographic center of Orange County. An area spanning ~4,600 acres, the Great Park master plan includes recreation areas, competitive sports facilities, and parkland; preserves the environment and Orange County's agricultural heritage; and honors the military history of the former air base. As contract manager and principal-in-charge, Ms. Anglin led services including regulatory interpretation; performance of health and safety evaluations; and identification, abatement, remediation, or legal disposal of contaminated soil, lead-based paint, asbestos-containing materials, USTs, drums, wastes, pipelines, and other materials that were used, abandoned, and not documented at a military facility of this type and vintage.
- Task lead for the remediation and restoration of a historical burn site containing hazardous levels of metals in a steep sloped ravine located in a designated open space area. Services included background review, comprehensive site assessment, waste profiling, remedial action plan preparation (including a waste management plan, field sampling and analysis plan, quality assurance/quality control plan, and site health and community health and safety plan), waste removal oversight,

human health risk evaluation, background study, and removal action completion reporting. Ms. Anglin's role on this project included managing the team to address the issues associated with the waste removal project and coordinating with the city (client).

- Task lead for a large electric utility. Projects included Phase I and II ESAs for a planned transmission project in Kern County, California; Phase I and II ESAs for various sites from existing transformer stations to plant nurseries in California and Nevada; supporting the utility through the Caltrans process providing ISAs, work plans, and SIs; supporting the utility's waste profiling activities for a large portfolio of substation improvement projects; and performing hazardous building materials surveys for renovation and demolition projects.
- Senior Engineer for an oil company in Southern California. Projects included Phase I and II ESAs, feasibility studies, remedial design, remedial action implementation, groundwater monitoring and sampling, and emergency response. The following are a few representative projects:
 - Phase II ESA and remedial action planning for several of its oil production, storage, and distribution facilities within a local port. Services included comparing soil sampling results to the port's surplus soil reuse requirements.
 - Environmental sampling, regulatory support, and permit compliance monitoring services for the removal of "bug farms." The "bug farms" consisted of approximately 217,000 tons of material and were part of the client's petroleum production and exploration operations. The oil company received approximately 22,000 barrels per year of oil field wastes which were placed in the "bug farms." These "bug farms" sat above drilling sumps known to contain elevated levels of chlorinated solvents. Ms. Anglin oversaw the surveying and trenching of the "bug farms" to obtain an approximate volume of material to be removed and to profile for waste characterization. Over 3 months, the "bug farms" were excavated to their bases (above the sumps). About 217,000 tons of material was transported from the site to disposal facilities. Ms. Anglin oversaw the removal activities; environmental sampling; air/dust monitoring; truck weight, speed, and decontamination monitoring; confirmed receipt of loads with the landfills; and monitored the removal contractor's compliance with regulatory permits and the client's site health and safety requirements. After removal of the "bug farms," Ms. Anglin recommended and the RWQCB agreed to closure under the site Waste Discharge Order.
 - Removal of a former washout pit associated with tanker truck cleaning. In the washout pit, solids were settled from wash water used to clean vacuum trucks that transport drilling mud. The water was absorbed by the underlying soil, leaving the solids behind. The removal was conducted similarly to that described above. Around 28,800 tons of material was transported from the site to disposal facilities.
 - In response to an investigative order issued by the RWQCB, performed a Phase II ESA and removal action for an oil production facility. The work investigated the source of crude oil daylighting on the property. Investigation activities included advancing borings, excavation of shallow trenches, cone penetrometer surveys coupled with Laser Induced Fluorescence (LIF) using the Rapid Optical Screening Tool (ROST™) to assess oil impact at depth, and excavation and removal of several abandoned underground pipelines and structures. Based on the investigations, a former oil production well/current water injection well was suspected as the source of the crude oil. Crude oil-impacted soil appeared to originate from historic oil production activities surrounding the well cellar rather than the well itself, and was removed from the site and disposed. Confirmation soil samples were collected to document the removal. The excavations were backfilled with cement slurry and a new well cellar was installed. The results of the investigation and removal activities were submitted to the RWQCB with a request for closure.
 - Phase II ESA and remedial action services for a pipeline release at an oil production, storage, and distribution facility at a local port. The site had been used for oil and gas production since approximately 1939 and was an operating oil field with oil pumps, pipelines, and well cellars. The client's personnel noticed stained surface soil at the site, and it was determined that a pipeline carrying crude oil had an ½-inch diameter hole in the top of the pipe. Oil was found to have entered an on-site Southern California Edison (SCE) utility trench and associated vaults. Excavation of the source area was conducted and extended to 13 feet below ground surface (bgs). At 10 to 11 feet bgs, free oil began seeping from the sidewalls and collecting in the low point of the excavation. The client began pumping oil from the excavation several times a day as it collected. The oil was reprocessed through the client's facilities. Assessment of the release included geophysical surveys, installation of many monitoring points on- and off-site, pothole sampling along about 1,000 feet of

utility trench, and regular groundwater monitoring and sampling.

- Because the electrical lines were contained in transite pipe, a Procedure 5 Work Plan was prepared in accordance with the South Coast Air Quality Management District (SCAQMD) requirements.
- Oil was found floating on groundwater around the initial release and at the manways associated with the electrical line. An oil removal system was designed and installed at the source so that the excavation could be backfilled to an elevation above the maximum elevation of the oil seeps (approximately 7 feet bgs). Infiltration trenches and riser piping were installed, and the excavation was backfilled to grade. An oil recovery system was installed, and oil and water extracted from the system are transferred into the client's oil processing facilities.
- Phase II ESA and remedial action planning services for several of the client's oil production, storage, and distribution facilities in Long Beach, California. Evaluations included a tank farm; stock consolidation; oil/water separation, storage, and pipeline distribution center; oil wells and sumps site; a subsurface pipeline zone; and a laboratory, oil well, storage, and pipeline distribution facility. Some site contamination by petroleum hydrocarbons and arsenic was found at these facilities. As a result, the client entered the RWQCB Voluntary Cleanup Program.
 - One area was deemed to require remedial action due to the presence of floating oil on the groundwater table at a depth of approximately 7 feet bgs. A RAP and a remediation cost estimate was prepared and, along with an engineering design for the protection of above-ground pipeline runs, was submitted to the RWQCB for review and approval.
 - The remedial activities included excavation beneath active aboveground piping and adjacent to an active transformer. pipe support was installed to hold up the piping. Clean overburden was removed, sampled, found to be acceptable for reuse, and was staged to be used as fill. The area above the identified floating oil contamination was excavated and the source of the release, a broken abandoned pipe containing oil, was identified. The pipe was drained and capped at the lateral limits of the excavation. The

oil and water collected in the excavation were transferred to the client's oil processing facilities. The excavation samples indicated that the remedial action was successful in all directions except where excavation could not be continued due to an active transformer, and closure was requested.

- Principal-in-Charge for the State of California Department of General Services and RWQCB contract to evaluate sites under the Emergency, Abandoned, and Recalcitrant (EAR) program for closure based on historical records and reports. The sites were in Southern California and in various stages of assessment and remediation. The objective was to close the sites following the State's Low-Threat UST Case Closure Policy. Steps included identifying data gaps, establishing a technical approach, developing costs, developing and implementing work plans, and applying for closure. The projects involved close collaboration with the RWQCB and the State Water Resources Control Board (SWRCB).
- Principal-in-Charge for multiple awards of on-call environmental services contracts with the County of Los Angeles Department of Public Works. Projects included regulatory interpretation and coordination; evaluation of asbestos, lead, and mold; UST support; waste management; former landfills; and other contaminants in building materials, soil, groundwater, and air. Typical projects included the preparation of Phase I and II ESAs, plans, drawings, and cost estimates for abatement, remediation, and disposal of contaminants, and many included providing bidding/construction support, abatement monitoring, and site closures. The following is a description of some representative projects:
 - Acted as liaison between the County and the numerous regulatory oversight agencies (various county agencies, Local Enforcement Agency, RWQCB, CalRecycle, DTSC, SCAQMD) on a complicated park project. Managed a large team of staff with diverse expertise to address the many issues associated with the park remodeling project (historic landfill, Solid Waste Assessment Test [SWAT] analysis, Phase I ESA, methane mitigation design, hazardous building materials, geotechnical, etc.), and supporting the county with technical input for its public outreach. A key aspect of the project's success was the team's ability to obtain regulatory agreement of legal interpretations to allow asbestos to remain buried on site.
 - Oversaw the hazardous building materials assessment and abatement monitoring for county projects involving remodeling of existing public structures.

Projects included performing pre-demolition asbestos containing materials and lead-based paint surveys; providing survey reports including estimated quantities requiring abatement, estimated abatement costs, and abatement plans and specifications; and providing abatement monitoring services.

- Oversaw an ADL survey for a street R/W improvement at a county library. Her team prepared a work plan and HASP, performed the survey, and prepared the report for review and approval by Caltrans. Due to elevated lead, the team prepared a lead compliance plan (LCP) for handling the lead-affected soil during the proposed construction.
- Oversaw a state park related project for the county. Her team conducted document collection and a detailed peer review of contamination assessment reports and oil well documents for 11 known oil wells in the project area.
- Oversaw the removal of a UST and the abandonment in-place of another UST formerly associated with a county facility. Her team permitted and performed the UST removal and tank closure report. For the UST to be abandoned in-place, a structural engineer evaluated the location and justified to the local fire department that attempting to remove the UST could affect the integrity of the adjacent structure as the UST was installed approximately 30 feet below grade. The fire department required sampling beneath the UST (which required angle-drilled boreholes) and agreed to the in-place abandonment.
- Task lead for on-call ESA agreements with both the Port of Los Angeles and the Port of Long Beach. Tasks included identification and investigation of potential site contamination; environmental compliance assessments; development of costs, schedules, and remedial strategies associated with cleanup of contamination and reuse of property; and employee awareness training. Work was performed at various port properties including container terminals, former industrial properties, construction sites, and former bulk material yards. All work for the ports complied with their Geographic Information System submittal requirements.
- Senior Engineer for an on-call remediation services contracts with Alameda Corridor Transportation Authority (ACTA). The Alameda Corridor is a 20-mile long, \$2.6 billion high-speed rail corridor connecting downtown Los Angeles with the Ports of Los Angeles and Long Beach. The corridor runs through some of the most historically used industrial properties in the Los Angeles Basin. Ms. Anglin oversaw many environmental

projects for ACTA under numerous on-call agreements. Work performed for ACTA included the following:

- Phase I and II ESAs at selected properties to evaluate suspected contamination through the collection and analysis of soil and groundwater samples, evaluation of methane and hydrogen sulfide in soil vapors, and geophysical surveys to identify possible subsurface structures such as pipelines, sumps, tanks, and other features.
- Abandonment of existing groundwater monitoring wells and the assessment of underground utilities to prepare properties for redevelopment.
- Evaluation of the Commodore Schuyler F. Heim Bridge A work plan was prepared for review and approval by Caltrans, the Ports of Long Beach and Los Angeles, the RWQCB, and ACTA. The approved work plan was implemented, including soil and groundwater sampling. Recommendations and cost information to address contaminants were provided for contaminated earthmoving activities, worker safety, and construction dewatering.
- Senior Engineer for a large California landowner including Phase I and II ESAs, remediation planning, and remediation. The following are descriptions of a few relevant projects:
 - Phase I and II ESAs and remediation at a 10,000-acre and 13,800-acre cattle ranches near Point Conception, California. The Phase I ESAs identified abandoned USTs and several areas of buried ranch refuse and debris dating back to approximately 1913. The USTs were removed under the direction of the Santa Barbara County Fire Department. The buried refuse and debris were removed under clean closure plans (one for each site) prepared for Santa Barbara County Environmental Health Services (SBCEHS) and CalRecycle (formerly the California Integrated Waste Management Board). The removal activities included using geophysical methods over approximately 49 acres of the ranches and building roads to access some areas of refuse and debris. Portions of four ravine areas and a former shop building area were also excavated, and surface debris from two additional ravines was removed. Geophysical results, sample results, a summary of the field activities and materials removed, and disposal documentation were submitted to the SBCEHS and CalRecycle in letter reports requesting clean closure for the sites. Clean closure was granted for both sites.
 - Phase I ESA for a golf course property of approximately 185 acres, which is adjacent to a major military

weapons storage facility, a large military training base, and several leaking UST sites. The site maintains a UST and dispensing facility, an equipment maintenance facility with new and used oil storage and a clarifier, and an irrigation well. The site is also designated as a federal flood reserve.

- Preparation of detailed costs to remediate an 80-acre oil well field containing more than 70 active and inactive oil wells, associated sumps, and pipelines to local and residential standards. The site is in an area considered to be coastal wetlands and is the nesting ground for many species of coastal birds. The project involved a Phase I and Phase II ESA and an inventory of the property and facilities to generate a baseline environmental status. From that information, different remedial alternatives were used to model clean-up times and costs, and a detailed remediation strategy was adopted. The assessment activities included drilling to collect soil samples, trenching to identify sumps, asbestos sampling, and lead-based paint sampling. In addition to the oil wells, there were three existing and former tank farms; a wastewater treatment facility; an existing and former cooling tower; several electrical transformers, poles, and a substation; and an operations building with offices. Funds in the amount of the costs to remediate were to be set aside by the property owner to be used for future development of the site into a wetland.
- Phase I and II ESA and risk assessment for a strip mall facility subject to a real estate transaction. Elevated levels of tetrachloroethene (PCE) were detected in the soil vapor and groundwater beneath the site. An environmental case was opened with the RWQCB, groundwater wells were installed, and a quarterly groundwater monitoring program was initiated. Additional assessment activities were performed including drilling and sampling of soil borings, the installation of nested soil vapor probes, and the installation of groundwater monitoring wells. A health-based risk assessment was conducted for the site. The results indicated that the contamination present at the site does not pose an unacceptable risk to the community or the environment. The RWQCB agreed, the case was closed, and the wells and probes were abandoned.
- Senior Engineer for an automotive dealership company with facilities throughout Southern California. Ms. Anglin managed several projects providing environmental engineering services including Phase I and II ESAs, remediation planning, and remediation. The following is a description of a few representative projects:
 - Phase I and II ESA and an asbestos survey for a real estate transaction at an automobile dealership. Based on the results of the Phase I ESA, specific environmental concerns were identified at the site. The scope of work included subsurface soil sampling and contaminant analysis from borings near the hydraulic hoists, near the paint spray and storage areas, the clarifier, the fuel UST, the waste oil UST, and the fuel dispenser area. The buyer and seller were comfortable with the results of the investigations, and the real estate transaction proceeded on schedule.
 - Subsurface soil and groundwater investigation that included the removal of a large four-stage clarifier; remediation of the soil surrounding the clarifier by excavation (the soil was impacted with chlorinated solvents); removal of mixed soil and gravel backfilled in former UST excavations that were saturated with waste oil; removal of soil surrounding 55 former hydraulic hoists and 310 feet of hydraulic hoist and waste oil piping that had significant leaks; and removal of three large sumps. Prior to conducting the subsurface investigation, the site was already an open environmental case due to a previous fuel release from a former UST. The property was assessed and remediated to the satisfaction of the RWQCB and received closure from the RWQCB and the Los Angeles County Department of Public Works.
 - Phase I ESA for a lease turnover at an automobile dealership. Based on the results of the Phase I ESA, specific environmental concerns identified were the need to investigate around the hoists and the oil/water separator, poor housekeeping, inadequate containment of the car wash water, and the need for an oil/sediment/water separator at the storm drain inlet to a sensitive habitat creek. The consultant for the tenant leaving the property conducted the Phase II ESA, and Ms. Anglin performed a third-party review of the documents and provided litigation support for the client. Several years later, Ms. Anglin supported the facility in complying with updated storm water discharge requirements by installing a catch basin at the low point of the site to treat water prior to discharging into the adjacent creek.
- Technical adviser and Senior Engineer for multiple on-call agreements with the Community Redevelopment Agency of Los Angeles (CRALA). Services provided included third-party review, Phase I ESAs, Phase II ESAs, remediation feasibility studies,

remedial action planning, hazardous building material surveys, preparation of abatement specifications, abatement oversight, remediation cost estimating, and emergency response. Work was performed in support of its community redevelopment program, including its Brownfields Revitalization Program.

- Principal Engineer for several independently owned and operated retail service station sites with open cases in Orange and Los Angeles Counties. The sites were in various stages of assessment and remediation and required a diligent three-bid approach and a special invoice format to stay in compliance with the Underground Storage Tank Cleanup Fund (USTCF) program. The following are two representative projects:
 - The site contained elevated concentrations of methyl-tertiary butyl ether and tertiary butyl alcohol (TBA), which were successfully remediated by oxygenating the groundwater through injection of a slurry containing a compound able to release high levels of dissolved oxygen. Bench scale studies were performed confirming that this was the most effective method to remediate the associated TBA at this site. The site was granted closure through the SWRCB's Low-Threat UST Case Closure Policy.
 - The site had over 2 feet of floating fuel on groundwater, which was present at approximately 100 feet bgs. The site was assessed, and a remediation pilot study confirmed soil vapor extraction (SVE) as the best remedial alternative. An SVE system was installed and operated for approximately 18 months. The site was closed under the SWRCB's Low-Threat UST Case Closure Policy.
- Senior Engineer for environmental support of the Keller Yard Layover Facility Project near Union Station in Los Angeles. The project included:
 - ~7,340 linear feet of new railway construction consisting of four new railcar storage tracks
 - A new railway roundhouse lead track and a new railway crossover track
 - 1,830 linear feet of new retaining wall construction

The construction site was at a former manufactured gas plant with a DTSC land covenant. Ms. Anglin prepared an environmental management plan that included the following: stormwater pollution prevention plan, soil management plan, health and safety plan, dust control plan, noise control plan, and SCAQMD-approved Rules 403, 404, and 1166 compliance plans. Ms. Anglin provided experienced environmental monitors to perform X-Ray fluorescence and photo-ionization detector field screening of soil disturbed during project

excavation and perimeter air monitoring in compliance with the DTSC requirements.

- Senior Engineer for a 400-acre nursery property. Services included sediment sampling in settling ponds, investigation of a pesticide mixing area, testing for legacy pesticides in a former avocado grove/strawberry farm area, and an emergency response removal after an oil spill from a 500-gallon aboveground storage tank.
- Principal-in-Charge for hazardous building materials services contracts with various public school and college districts. Services included asbestos, lead, and universal waste surveys; preparation of abatement specifications; and abatement monitoring services associated with planned facility improvements. Ms. Anglin's team ensured that engineering controls were in place as adjacent school buildings were often occupied, that all hazardous building materials were removed from the buildings prior to demolition or remodeling, and that the client was in compliance with SCAQMD, EPA, and DTSC rules.
- Principal-in-Charge and Task lead for DTSC school site environmental services for various K-12 public school districts. Projects included Phase I ESAs, preliminary environmental assessments (PEAs), supplemental site investigations (SSIs), removal action work plans (RAWs), and removal action (RA) oversight, and removal action completion reports (RACRs) for proposed public school sites. Activities were conducted under DTSC guidelines and oversight. Some representative projects are described below:
 - One project Phase I ESA and PEA revealed areas of residual pesticides at concentrations that were determined by the human health screening evaluation (HHSE) to present an unacceptably high risk. An SSI was completed, which resulted in recommending RA at the site. A DTSC-approved RAW was prepared and implemented, and a risk level of 3×10^{-6} for the chemicals of concern at the site was successfully negotiated with the DTSC. The implementation of the RAW included preliminary weather pattern monitoring, SCAQMD Rule 403 dust monitoring, a site transportation plan, and confirmation sampling. Unanticipated subsurface conditions were encountered during RA activities, including encountering an ~120-foot-deep irrigation well. Ms. Anglin and her team were able to permit and abandon the well concurrently with the RA without impacting the schedule. The team completed the RACR and obtained site closure from the DTSC. The team also performed a Community Outreach Program for the site in accordance with the DTSC's Public Participation Manual. Tasks included preparing mailing

lists, a community profile and public participation plan, a site fact sheet, and a public notice; conducting a baseline community survey and public meetings; and posting documents in public repositories. All public participation documents and presentations were made available in two languages (English and Vietnamese).

- Oversaw the implementation of a large RA for a proposed school site in Los Angeles impacted with PCE vapors. The RA included excavation and clean import backfill to 30 feet, soil vapor confirmation sampling, risk assessment, installation of vapor cutoff wells between the school and the upgradient PCE source, and installation of a sub slab vapor barrier prior to construction of the school.
- Oversaw an ADL survey for a planned roadway widening adjacent to a high school. Services included preparing work plan and HASP, performing the survey, and preparing the report for review and approval by Caltrans. Because of the presence of elevated lead, Ms. Anglin prepared an LCP and an excavation and transportation plan for handling of the lead-affected soil during the proposed construction.
- Task lead supporting the Prime consultant with the implementation of a sampling and analysis plan for soil and vapor sampling at the Los Angeles Department of Water and Power's (LADWP's) Western District Headquarters in Los Angeles; with groundwater sampling at LADWP's Chatsworth Reservoir; and with a methane investigation of an LADWP property in the Methane Buffer Zone in Los Angeles.
- Senior Engineer for a remedial design investigation of several installation restoration program sites on the former Marine Corp Air Station (MCAS) Tustin. The site soils and three aquifers were impacted with trichloroethene (TCE) and 1,2,3-trichloropropane. The remedial design investigation involved soil and groundwater sampling, groundwater well installations,

and aquifer pumping test design and completion. Ms. Anglin performed the pre-design investigation for base cleanup and managed the Phase II ESA in conjunction with preparing a remedial design for a portion of MCAS Tustin. The project involved generation and implementation of a work plan to define excavation units for shallow TCE-impacted soil excavations and to complete several aquifer pumping tests in multiple aquifers. After completion of the remediation, the sites were to be turned over to the City of Tustin, California, for redevelopment.

- Program manager for a major oil client. This program included a constant project load of over 50 retail gasoline service stations with open environmental cases throughout Southern California. The sites were in various stages of assessment and remediation leading to closure. In addition, numerous properties required Phase I and II ESAs for the purpose of real estate transactions, and many properties required UST and dispensing system replacements to keep the facilities in compliance with regulations.

PROFESSIONAL TRAININGS

OSHA 40-Hour HAZWOPER with Annual 8-Hour Refresher

OSHA 8-Hour HAZWOPER Supervisor Training

OSHA 24-Hour First Responder Operations Level

OSHA Excavation Competent Person Certification

Department of Toxic Substances Control (DTSC) California Hazardous Waste Classification

Confined Space Entry

First Aid, Cardiopulmonary Resuscitation (CPR)/Automated External Defibrillator (AED)

PROFESSIONAL AFFILIATIONS

Institute for Sustainable Infrastructure

Women's Transportation Seminar (WTS) International