# Summary of Environmental Qualifications

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

Founded in 1999, Q&S Engineering is San Diego, CA based multi disciplinary consulting firm dedicated to providing *Quality and Service* (Q&S) in the field of environmental, geotechnical, and oceanographic investigations.

Q&S Engineering has the experience and capability to carry out each phase of an environmental project. Q&S has a proven track record of meeting quality, schedule and budgetary requirements.

## Q&S environmental key staff includes:

- environmental engineers
- environmental scientists,
- water quality specialist,
- ecological risk assessor,
- environmental geologist / hydrogeologist,
- hazardous waste specialist, and
- marine biologist / ecologist

## Environmental services include:

- Phase I ESAs / Due Diligence
- Environmental compliance support / audits
- Environmental Impact assessment
- Soil, sediment, and groundwater investigations
- Human and ecological risk assessments
- Water, storm water, and wastewater quality / management
- Marine biology and ecology
- Expert witness and forensic engineering
- Soil and groundwater remediation

## *But why select Q&S Engineering?*

- Experienced staff / consultants
- Multidisciplinary services
- Excellent references
- HUB Zone / SDB / DBE certification,
- A commitment to *Quality* and *Service*

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

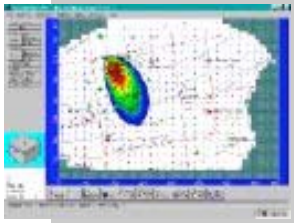
www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

# Select Environmental Experience

## Environmental Investigation, City of Merced, Merced, CA

Q&S was contracted to provide technical support in an environmental soil and groundwater investigation related to a large, multi-source PCE plume impacting municipal drinking water. Duties included reviewing and providing advice of existing soil investigation reports and laboratory data, assessment of potential sources, and the critique of opponents' reports.



## Environmental Site Assessment, FORD Automotive, 2 locations, CA

Q&S was hired to evaluate the condition and possible impact of the subsurface related to past automotive dealership activities. Scope of work included: non-domestic wastewater system cleaning and inspection, subsurface sampling and analysis of 12 exploratory borings per site, removal of former vent pipes, and reporting.

## Groundwater monitoring and MW inspections, 4 California Landfills, San Diego, CA

Q&S staff performed monthly, quarterly and yearly groundwater monitoring at Sycamore, Borrego, Otay, and Ramona landfills located in southern California. Inspected extraction wells, sampled and pumped leachate, measured groundwater levels, collected groundwater samples using designated pumps and hand bailers.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Monitoring Well Installation, IR Sites 2 and 7, US Naval Station San Diego, CA

Installation and development of 40 groundwater MWs at various IR sites. Soil and groundwater sampling; geologic loging, MW permitting; health & safety monitoring, and IDW management. *Q&S received letter of commendation.*

## Groundwater Sampling, MCAS El Toro, CA

Installation of dedicated sampling pumps, micro purging of MWs, collection of GW samples from approximately 35 monitoring wells located at MCAS El Toro, CA.

## Groundwater Monitoring Well Abandonment

Abandonment of approximately 14 groundwater monitoring wells from MCAS Tustin. Implemented work plan for the destruction and abandonment of the monitoring wells, and provided a fuel report.

## Site Assessments, Five International Airports

Q&S staff completed site assessments in order to estimate the vertical and horizontal extent of soil and groundwater impacted by jet fuel at 5 Mexico international airports: Cancun, Mexico City, Merida, and Culiacan. The project included remediation feasibility studies and human health risk assessments. Limestone formations were encountered at three of the five sites. Accomplished geophysical surveys in order to help locate subsurface channels and caverns within the limestone formations that were facilitating preferential migration of the contaminant. Based on the estimated location of the channels and caverns, the soil and groundwater plumes were better identified.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Site Remediation, Railroad Repair and Fueling Facility, Mazatlan, Mexico

Q&S staff used ex-situ and in-situ remediation technologies to remediate soil and groundwater. The ex-situ system consisted of 5 bio-cells of approximately 800 cubic yards each. The in-situ system consisted of approximately eighty CO2 extraction-ventilation wells and sixty five air sparging wells. CO2 data collected from the extraction blower exhaust was converted into pounds of TPH removed and used to estimate advances. Performed confirmatory sampling every six-month in order to evaluate advances. Interacted with environmental authorities on behalf of the client and negotiated soil and groundwater cleanup levels. This project was among the largest full scale federal government sponsored soil and groundwater remediation projects in Mexico.

## Third Party Review, Subcontractor to Lindmark Engineering, San Diego, CA

Q&S was contracted to provide third party review of assessment of sources and migration of groundwater contamination. Duties included review of background material and critique of draft testimony for litigation

## Expert Witness, FNM (Mexican National Railroad), Guadalajara, Mexico

Expert witness and project manager in support of Mexican Government Railroad (FNM) legal department. Focus of the project involved reviewing site assessment reports by other consultants, related to the subterranean explosions in the City of Guadalajara that caused over $1 billion US Dollars of damage. The regulatory agency (PROFEPA) accused FNM of being the sole responsible party. Review of documents revealed potential multiple sources, other possible responsible parties, and methodology errors in past data. FNM was subsequently acquitted by PROFEPA as a result of the expert witness support

SEMARNAT
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Sampling Strategy Evaluation, Prime Contractor to Preston, Gates, & Ellis, San Diego, CA

Q&S was contracted as the prime contractor in an environmental investigation of a large dairy. Duties included evaluating sampling strategy, environmental site survey for surface water and groundwater flow potential, review of surface water data, and assistance in preparation of program documents

## *Mixed Waste Environmental Investigation, Confidential Client, Tampa, Florida*

Q&S was contracted to provide technical support in a mixed-waste project involving the treatment, transport, and disposal of low-level radiological waste mixed with lead and cadmium contaminated ash from steel mill. Duties included regulatory review, assessment of draft work plans, interview of regulatory staff, and preparation of report with technical advice

## Biological Monitoring Services, Palos Verdes Naval Housing OU-1 Landfill; San Pedro, California

Performed biological monitoring services at a landfill in order to evaluate the conditions of the habitat and population of the Palos Verdes Blue butterfly (Glaucopsyche lygdamus palosverdesensis). The Palos Verdes Blue (PVB) butterfly is considered among the most endangered butterflies in the United States. *Q&S received letter of commendation*

Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

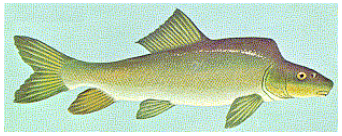
Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

# Environmental Impact and Mitigation for Underwater Blasting

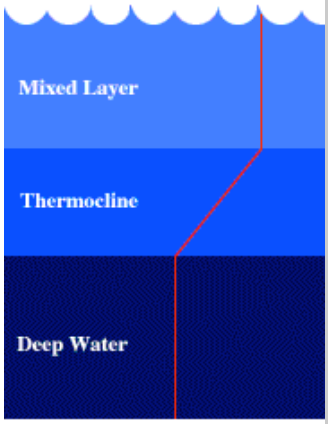
Impact evaluation and mitigation of underwater impacts associated with underwater blasting leading to high visibility project approval located within grey whale migration route and aquaculture facilities. Underwater blasting had been previously expressly prohibited by the regulatory agency at the site due to location and receptors . Q&S suggested appealing the regulatory decision based on a comprehensive / site specific assessment of impacts. The Q&S assessment report included an environmental description of the site, a literature review of blasting effects, a conceptual blasting plan, modeling of biotic impacts, designation of blast safe zones, recommendations for blasting controls, potential impacts on fish and fisheries, and, proposed observation, mitigation, and monitoring programs. The Q&S report helped change the opinion of the regulatory agencies and the client received regulatory approval to perform the blasting. *Received letter of commendation*

# Underwater Blasting Environmental Assessment Lake Mead Water Intake Structure, Nevada

Q&S performed an underwater blasting environmental assessment in support of the Southern Nevada Water Authority's (SNWA) third water supply intake for the Las Vegas metropolitan area. The intake structure is single level, horizontally-configured intake with an opening at 860 feet approx. 300 feet below the current lake level. This was a high visibility project. An endangered species of fish (razorback sucker) was identified



at Lake Mead and the blasting permit requirements were very stringent. Q&S prepared a report that assessed the effect of the blasting on water quality and biological receptors, a technical appraisal of explosive effects, designation of blast safe zones, and a discussion of mitigation measures to minimize potential effects. The blast modeling and assessment included a consideration of water-borne waves' peak pressure and impulse values, particle velocity, shock energy and radiation, bubble pulsation, and potential damping effects of natural physical phenomena such as the thermal gradient of the water column.




4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Environmental Baseline Investigation and Environmental Impact Assessment, LNG Terminal

Q&S staff provided fast-track project management and field investigative support as part of an EIS for a proposed LNG Marine Terminal in Rosarito. The project required computer modeling of wastewater effluent (ocean out fall) in order to evaluate the feasibility of discharging approx. 43,000 m³ /hr at 7 C° below ambient, and with a hypochlorite concentration of 0.05 mg/l; and effects on marine biology. Q&S staff prepared English and Spanish versions of the environmental impact report (MIA) other work included: installation of groundwater MWs, groundwater monitoring, soil sampling, marine and terrestrial biology, air quality sampling, seawater sampling, and noise monitoring. *Received letter of commendation*

## Ecological Risk Assessment, Confidential Client, Train Derailment, Michoacan, Mexico

Responded to train derailment, contained coal-tar spill that migrated into corn field, evaluated the site, and later remediated the site. Collected and analyzed soil samples in order to assess the impact of a spill caused by a train derailment. A PRG was developed for the site based on the toxicity of a specific selected contaminant representative from a hazardous perspective of the spilled compound. Selected PAHs (benzo pyrene) for its potential toxicity. Collected bibliographical data regarding native species that could have been exposed to the contaminant. Used PRG recommended in ecological risk assessment and confirmatory sampling to demonstrate to the authorities that the site did not represent a significant ecological risk after remediation.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Sediment Sampling / Contaminated Sediment Disposal Feasibility Study; Naval Base Ventura County; Port Hueneme Facility, Ventura, CA

Collection of approximately 45 sediment core samples for characterizing bottom sediments; and preparation of contaminated sediment disposal feasibility report. The samples were analyzed for aquatic toxicity, physical, and chemical parameters. The chemical samples were screened against various guidelines including: EPA Region 9 PRGs, SQGs, ERLs, ERMs, AETs, TELs, PELs, SLs, BTs, MLs, STLCs, TTLCs and TCLP. The disposal options included: upland disposal; confined disposal facility (CDF); confined aquatic disposal (CAD); unconfined ocean disposal, cement stabilization / permanent storage at NBVC; beach sand replenishment, temporary storage at NBVC /subsequent disposal at Port of Long Beach (POLB) as fill; and other beneficial uses. Based on the relatively high silt and clay content; the majority of the dredge sediments were not compatible for beach replenishment. Results from the bioassay were compared with reference sediments to evaluate possibility of unconfined ocean disposal. The disposal option was over $2 million less than a previous US Army Corps recommendation for disposal at a Class I Landfill. *Q&S received letter of recommendation*

## Soil, Water, and Sediment Sampling, Naval Command Control and Ocean Surveillance Center (NCCOSC) Morris Dam, IR Site 2, Azusa, CA

Perform drilling and collected soils samples at various locations of IR Site 2. Use small vessels to collect water samples from the reservoir at various locations at 5 foot intervals in depth. Used Vibro-core barge to perform sediment coring and sampling at 9 locations. The project required an innovative approach to assembling and launching the barge since there was no suitable boat ramp in the reservoir.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

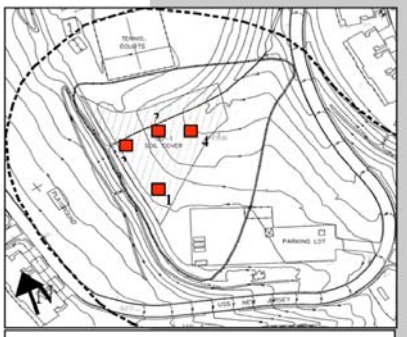
Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Vegetative and Mammals Survey, Palos Verdes Naval Housing; San Pedro, California

Characterization of vegetation and small mammal burrows in the landfill cover area in order to evaluate whether they are compromising the integrity of the engineered soil cover and creating a conduit for contaminants to the under laying aquifer. *Q&S received letter of commendation*



Quadrant Locations

## Ingomar Packing Wastewater Treatment, San Diego, CA

Q&S was contracted for design and construction support for a man-made wetland system for the treatment of industrial wastewater from a tomato packing facility. Wastewater flow was 7.2 million gallons per day, with a high BOD and suspended solids loading. Treatment goal was to allow for the recycling of up to 6 MGD.

## Storm Water Monitoring / Observations, Naval Air Station El Centro, CA

Q&S provided personnel to be available within 24 hours notice of an anticipated rain. After collection of the storm water samples, Q&S submitted the samples directly to an environmental laboratory for testing.

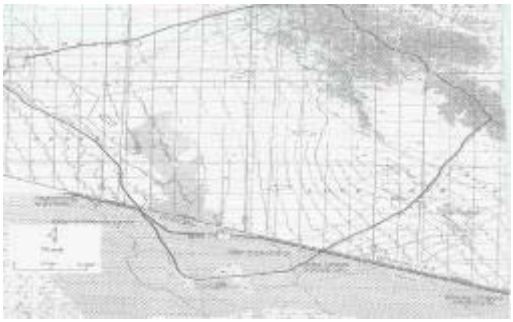
4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

# Storm Water Management and CWA Compliance, MCAS Yuma, Yuma Arizona



The objective of the project was to determine the potential for storm water discharges from MCAS Yuma Munitions Treatment Range (MTR) to reach Waters of the United States, and confirm the assumption that a NPDES permit was not required. Q&S identified the closest down gradient Water of the United States, evaluated the topography of the basin, mapped surface materials, and the evaluated drainage patterns up gradient and down gradient of the MTR.

Existing detailed USGS topographic maps were not available. Rather than requesting for a change order for aerial detailed mapping, Q&S used USGS National Elevation Data (NED) data files to develop a project contour map (innovative approach not requested in the SOW) for an approximate 80 square mile area from a compilation of 15 seven-mile plots (approx. 200,000 elevation data points each). The resolution on each data set made it possible to identify potential discernable stream paths. Review of the drainage overview indicated that there was not a discernable pathway to Waters of the United States. Discharge from the MTR reached a down gradient desert fan area with high permeability sandy soil. Q&S concluded that storm water discharge from the MTR would not reach Waters of the United States and therefore, a National Pollutant Discharge Elimination System (NPDES) storm water permit was not required (innovative compliance).

Q&S used engineering assumptions and calculations to estimate the infiltration capacity of the down gradient desert fan area. The area required to dissipate the volume of storm water was then calculated based on this infiltration capacity.

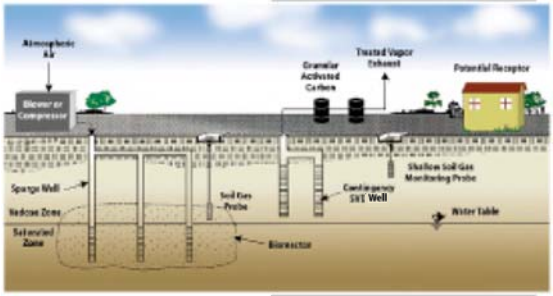
4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Proposed Plan for Operable Unity 5, Alameda Point



A Remedial Investigation/Feasibility Study (RI/FS) for groundwater was completed on former Naval Air Station Alameda (now Alameda Point) Site 25 and Alameda Annex Installation Restoration Site 02. The RI/FS describes the results of prior environmental investigations, the cleanup alternatives evaluated for the contaminated groundwater, and the Navy's proposed preferred remedial action alternative to remediate OU-5 groundwater. The Proposed Plan is a brief, generally non-technical summary of the site and the remedial action proposal. The proposed plan provided a summary of the RI/FS and presented supporting information for the Navy's proposed preferred remedial action alternative for the impacted groundwater. Q&S worked with the Alameda Point BRAC Cleanup Team, made up of representatives from the Navy, U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB)

## Other Environmental Liabilities (OEL) Project, Southwest Naval Division, CA and NV

Performed environmental compliance for the Navy's Southwest region at various installations in CA, AZ and NV. The project required detailed assessment of Navy-owned equipment that may possess an inherent environmental liability and/or associated contingent environmental hazard. Field data was analyzed and cost estimates were created to develop a budget for the Navy to predict potential closure costs and to develop a baseline inventory of equipment. Subsequently provided hazardous materials specialist, environmental geologist, and environmental specialist to assist in preparation of regional report.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Preparation of Pollution Prevention Plan (P2 Plan), Hazardous Waste Management Plan, and Solid Waste Management Plan, Naval Medical Center San Diego

Updated P2 Plan, HWMP, and SWMP. The plans were updated using state and federal regulatory framework for waste management. The plans were inclusive of 32 facilities within the NMC command.

## Hazardous Waste Characterization Study, Naval Medical Center, San Diego

Q&S performed a waste characterization study of the 13 waste streams at the Naval Medical Center. The scope of work included site visits to each process, interviews with staff with knowledge of each waste stream process, collection of MSDS for each of the chemicals the formulate each waste streams, development of process flow information / diagrams, generator history, regulatory classification / determination / or finding, and transport / disposal criteria relevant to the waste streams; and collection of available general information / documentation used to make a determination if the waste stream is hazardous or non hazardous.

## Preparation of Oil, Hazardous Substances, and Spill Prevention Control and Countermeasures (SPCC) Plan, Naval Medical Center, SD

Performed reconnaissance and completed plans as per the applicable state, federal and local requirements for each activity the exceeded the regulatory threshold. The stand alone plans were accumulated into a single source document (*Integrated Contingency Plan)* designed to meet the regulatory requirements of the US Environmental Protection Agency (EPA) Spill Prevention Control and Countermeasure (SPCC) Plan. The plan also addresses the emergency planning, notification, and response actions directed by the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Occupational Safety and Health Administration (OSHA). The plan was consistent with the National Contingency Plan (NCP), the San Diego Area Contingency Plan (ACP) and complies with the Oil Pollution Act of 1990 (OPA 90).

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com

Q&S Engineering
Providing Innovative Solutions for Earth and Ocean Environments

## Essential Fish Habitat Assessment, West Coast Navy Tactical Training Theater Assessment and Planning (TAP) Program, SOCAL EIS


Q&S completed the EFH Assessment for the U.S. Navy SOCAL Range Environmental Impact Statement (EIS). The SOCAL Range Complex is a 120,000 square nautical mile area that includes four southern California Channel Islands. This EFH was one of the most wide-ranging and complex assessments prepared under the new fish habitat conservation requirements for Federal Agencies.

The Sustainable Fisheries Act (SFA) established a new habitat conservation tool: the Essential Fish Habitat (EFH) mandate. The SFA requires that EFH be identified and mapped for each species covered under Fishery Management Plans. An Essential Fish Habitat Assessment, required for actions and activities in coastal waters with potential impacts to EFH, includes a description of the proposed action, an analysis of the effects of the action on EFH, and proposed mitigation, if applicable.

## Essential Fish Habitat Assessment, East Coast Navy TAP Program, EIS Support / EFH

Q&S completed EIS support work at 3 east coast range complexes. The assessment of the impact of Navy training on "Essential Fish Habitat" (EFH) covered regulatory issues, fishery management plans and Managed Species, the project area, proposed actions, impacts, and mitigation measures. East coast NAVFAC experience includes:

- Cherry Point Range Complex, North Carolina;
- Jacksonville Range Complex, Florida;
- Virginia Capes Range Complex, Virginia

## *About Our Organization…*

Q&S was founded in 1999, as a (HUB Zone / SDB / DBE) that provides added value / resources of a large firm, and flexibility / cost effectiveness of a small business. Q&S is dedicated to providing *Quality* and *Service (Q&S)* in the environmental, geotechnical, and oceanographic fields. Our definition of *Quality* is deliverables that meet or exceed expectations. Our definition of *Service* are deliverables that are provided on schedule, safely, and within the agreed upon budget.

Q&S staff include: environmental scientists, engineers, geologists, hydrogeologists, hazardous waste specialist, terrestrial biologist, marine ecologist, risk assessor, coastal engineer, oceanographer, and marine surveyor. Most have advanced degrees, and all have US Navy and international experience.

4445 Eastgate Mall
Suite 200
San Diego, CA 92121

Tel: 858.812.2055
Cel: 858.232.7169

www.qsengineering.com