

# OIL, GAS & PETROCHEMICALS CAPABILITIES



# GLOBAL EXPERTISE LOCAL SOLUTIONS





## OIL AND GAS COMPANIES - BOTH INVESTOR AND STATE-OWNED - REGULARLY TURN TO AECOM FOR COMPREHENSIVE MISSION-CRITICAL SUPPORT FOR THEIR OPERATIONS, FACILITIES, AND DEVELOPMENT PROJECTS AROUND THE WORLD.

With our truly global footprint, broad technical expertise and resources, and well-established Safety, Health and Environment (SH&E) program, AECOM is a single source for integrated services across the entire life cycle of oil and gas assets.

The recent incorporation of URS accelerates our vision to become the world's premier fully integrated infrastructure firm, with nearly 100,000 employees serving clients in more than 150 countries. We work with Upstream, Midstream, Downstream, Petrochemicals, Marketing and Alternative Energy segments on global, regional and portfolio programs.

AECOM is one of the few contractors in the world that can truly help our customers design, build, construct, maintain, and disassemble their facilities.





# SAFETY, HEALTH & ENVIRONMENT

### AECOM HAS ONE OF THE SAFEST WORKFORCES IN THE WORLD. SAFETY IS A CULTURE AT OUR COMPANY, A CORE VALUE, AND A BEST BUSINESS PRACTICE.

### **A PROACTIVE APPROACH**

We are continuously searching for and implementing creative approaches and innovative ideas that will keep our employees safe. The following is a representative list of our innovative safety initiatives:

- >> Learning labs
- >> "Safety in design" program
- >> "Success begins with safety" program
- >> Recognition programs
- >> Behavioral-based safety
- >> Executive-level management participation and accountability





On-site safety learning labs are used as a training tool to ensure all construction workers, employees, and subcontractors are aware of all safety hazards and specific site requirements.

### **OVERVIEW**

900 AECOM staff in CIS







## FROM CONCEPT THROUGH START-UP, WE PROVIDE OUR CUSTOMERS COMPLETE ENGINEERING, PROCUREMENT AND CONSTRUCTION SOLUTIONS.

Toledo, Ohio – In-house maintenance contractor at a U.S. Midwestern refinery for over 50 years; recently celebrated 19 years and over 9 million work-hours without a days-away case (DAWC)

# **COMPLETE LIFECYCLE SOLUTIONS**

### **AREAS OF SPECIALIZATION**

- >> Gas/liquids separation and production
- >> Gas treating/acid gas removal
- >> Sulfur recovery/tail gas clean-up
- >> Acid gas injection
- $\gg$  NGL recovery and processing
- >> Refinery process units (grassroots, expansions, and revamps/ retrofits)
- >> Chemicals and specialty chemicals
- >> Gas dehydration, compression, and storage
- >> Pipelines and ancillary facilities
- >> Enhanced oil recovery
- >> Nitrogen rejection
- >> Helium recovery
- >> Natural-refinery-synthesis gases
- >> LNG (peak shavers, tanks, and regasification)
- >> NOx/HRVOC reduction
- >> Water/wastewater management
- >> Alternative Fuels
- >> Natural-refinery-synthesis gases

### **WE OFFER**

- >> One service provider for the life of a facility
- >> Optimized total cost of ownership and return on investment
- >> Best-in-class, consistent processes and tools
- >> Practical project execution tied to client business needs
- >> Increased productivity by emphasizing employee wellness and professional development
- >> Intercontinental reach, local perspective
- >> Industry leader creating innovative ways to optimize resources
- >> Dependable, responsive service delivery
- >> Dedicated to long-term relationships

### **PROVIDED SERVICES**

- >> Technical consulting
- >> Project/program development
- >> Planning, design, and engineering
- >> Construction and construction management (union and direct-hire)
- >> Facility start-up
- >> Operations and maintenance
- >> Decommissioning and closure
- >> Plant troubleshooting, optimization, and debottlenecking
- >> Process safety management and plant operations manuals
- >> Comprehensive planning, permitting and environmental services

### LIFECYCLE SOLUTION

#### **Environmental & Permitting**

- >> Noise and Vibration
- >> Environmental, Health, and Safety Services
- >> Environmental Impact Assessments and Permitting
- $\gg$  Site Restoration
- >> Sustainability
- >> Environmental Due Diligence and Audits
- >> Site Assessment and Remediation

#### **EPC** Capabilities

- >> Project Development
- >> Project/ Program Management
- $\gg$  Site studies
- $\gg$  Geotechnical
- >> Facility design
- $\gg$  Site grading and development
- >> Drainage
- >> Earthworks
- >> Stormwater
- $\gg$  Integrated Supply Chain Management and Logistics Optimization
- >> Subcontracting
- >> Procurement Auditing
- >> Supplier Performance Evaluation
- >> Contract Administration
- >> Safety Program and Performance Monitoring
- $\gg$  Inspection
- >> Claims and Dispute Resolution
- >> Value Engineering

#### **Operations & Maintenance**

- >> Staffing Services
- >> Repair, Renovation, and Predictive and Preventive Maintenance
- >> Health and Safety Services Construction

#### **Facilities Management**

- $\gg$  Facility Startup
- >> Energy Management
- >> Risk Management
- >> Health & Safety Services
- >> Quality Assurance
- >> Materials Management
- >> Field Support Services
- >> Logistics

#### **Quality Programs**

- >> Quality Control and Quality Assurance
- >> Decommissioning & Closure

### COMPLETE LIFECYCLE SOLUTION



ENVIRONMENTAL & PERMITTING

FACILITIES MANAGEMENT



QUALITY PROGRAMS









OPERATIONS & MAINTENANCE





### THE RIGHT CAPABILITIES AND EXPERIENCE





CHEMICALS & PETROCHEMICALS





الماسيان



DOWNSTREAM

IN A COMPLEX AND UNPREDICTABLE WORLD, WHERE GROWING DEMANDS HAVE TO BE MET WITH FINITE RESOURCES, AECOM BRINGS EXPERIENCE GAINED FROM IMPROVING QUALITY OF LIFE IN HUNDREDS OF PLACES.

## SELECTED GLOBAL PROJECT EXPERIENCE



North America (Canada)

>> FEED and EPCm services for a refinery tail gas treating unit (TGTU).

>> FEED services for site preparation and utilities work at a planned oil sands upgrading facility as well as integration and interface management for the entire upgrader complex.

>> EP activities for early works, major cost savings intervention program, and FEED services for site preparation and utilities work at a planned oil sands upgrading facility.



Middle East

>> Conceptual, Pre-FEED, FEED, and EPC services for one of the largest sulfur-handling facilities in the world with a capacity of 12,000 tpd of sulfur (4.75 million tons per year); this facility will collect, granulate, store, and load ships with the sulfur produced by all existing and new on-site gas processing, LNG, and GTL facilities

>> Conceptual and FEED services to develop new fields and reservoirs to increase the sustainable production capacity to 1.8 mmbpd

>> FEED services for two phases of a sulfurhandling terminal expansion



Russia

>>> Prepared conceptual designs, cost estimates, and an ITT tender package for 150 mmscfd gas processing and 50 kbpd oil production facility

>>> Provided project management, detailed design, regulatory support, and procurement support to integrate the interim processing facilities with permanent infrastructure; project completed on schedule and within 10% of unit development cost expectations; achieved an overall 20-month fast-track schedule from award of contract to commencement of operations



North America (Midwest U.S.)

» Construction services for a sulfur block unit associated with a major refinery expansion

>> Engineering support, operations and maintenance, turnaround, and small capital construction services for the last two decades at a major refinery, earning a National Safety Council Milestone Award

>> In-house maintenance contractor for a major refinery for the last 50 years, executing more than 20 million work-hours since contract inception

>> Project engineering, management, surveying, and design of 50 miles of a 24-inch natural gas FERC pipeline



North America (Gulf Coast U.S.)

>> FEED and EPC services for the modernization project of a polyvinyl chloride (PVC) resins production plant; accomplished zero recordable injuries, delivered project early and under budget, and utilized modularization to minimize on-site construction

>> EPC services for a grassroots vacuum distillation and sulfur recovery system

>> FERC 7 (c), FEED, EPC services for a salt cavern gas storage facility

>> EPCm services for a fractionator plant expansion, increasing the plant's throughput from 60,000 bpd to 90,000 bpd



North America (Alaska)

>>> EPC, construction management, and precommissioning for the Kuparuk River Oil Field facilities, the second-largest oil field development on the North Slope

>> Small capital EP services for a major oil company's North Slope assets

>> Management, procurement, and construction services for the Trans-Alaska Pipeline, beginning with construction of a 35-mile segment of the all-weather pipeline used between Brooks Range and Prudhoe Bay

>> Environmental, engineering, safety, and operational support associated with joint use of the Trans-Alaska Oil Pipeline right-of-way

## SELECTED GLOBAL PROJECT EXPERIENCE



Georgia Gulf Chemicals & Vinyls, LLC, PVC Modernization

Project Scope: Polyvinyl Chloride Production Unit

Services: FEED, EPC



Multiple Upstream Gas Programs Scope: Chevron, Exxon and Williams Services: FEED, EPC/Cm



ExxonMobil Piceance Program Scope: Central Treating Facility Services: FEED, EPCm



ConocoPhillips Alaska, Preferred EP Contractor

Scope: New Field Development, Existing Field Expansion, Improvements to Infrastructure

Services: EP Services Contract



Multiple Canadian Upstream

Projects Clients: Spectra Energy,

Project Scope: Gas Processing Facilities Services: FEED, Pre-FEED, EP



Kuparuk River Oil Field Development, North Slope, Alaska

Client: ConocoPhillips Alaska (formerly ARCO Alaska, Inc.) Service: EPCm, Pre- commissioning



ExxonMobil Scope: Multiple Upstream Gas programs Services: Studies, FEED, EPCm



BP-Husky, Toledo Refinery Scope: In-House Maintenance Services: Construction Maintenance



Wild Goose Storage, Natural Gas Underground Storage

Scope: Underground Gas Storage Facility

Services: EPCm



Suncor Energy, Fort Hills Upgrader U&O North and South Sites

Scope: Utilities and Offsites Services: EP activities for "Early Works" and FEED



Point McIntyre Field Development and Lisburne Production Facilities Expansion, ConocoPhillips Alaska (formerly ARCO Alaska, Inc.)

Services: EPCm



Trans-Alaska Pipeline, Valdez to Sourdough, Alaska

Client: Alyeska Pipeline Service Company

Services: Construction

## SELECTED GLOBAL PROJECT EXPERIENCE



ConocoPhillips, Lost Cabin Gas

Plant Scope: Three-Train Gas Plant, Gas Treating

Services: FEED, EPCm



Valdez Marine Terminal, Valdez, Alaska

Services: Construction



Piceance Basin, Colorado Provided Pre-FEED, FEED, EPCm, and direct-hire construction Services: multiple natural gas development programs



La Barge, Wyoming

Provided complete EPC services for the development of a natural gas plant including a dehydration facility and a gas treating facility approximately 45 miles downstream



Exxon Neftgas Limited

Oil and Gas & Infrastructure Development Project, Sakhalin Island, Russia

Services: Design, Engineering Studies, Procurement, and Construction Operation



Client: Exxon Neftgas Limited

Interim Processing Facilities Project, Sakhalin, Russia

Services: Engineering, Regulatory and Procurement Support



Fremont County, Wyoming

Solely responsible for all aspects of engineering and construction, from conceptual design through commissioning, for the Lost Cabin grassroots sour gas treating facility



Gridley, California

Provided EPCm services for the first independent gas storage plant in California; designed both the injection and withdrawal units as well as all associated pipelines



Ras Laffan Industrial City, Qatar

Provided conceptual, Pre-FEED, FEED, and EPC for the largest facility of its type in the world, processing 12,000 tpd of sulfur (4.75 million tons per year) from approximately 18 gas processing facilities



SAGD Facilities and Cogeneration Plant

Construction, model fabrication, construction and pre-commissioning services for steam assisted gravity drainage (SAGD) facilities in Alberta; design, construction and commissioning for a natural gas-fired cogeneration plant, which generates steam for the SAGD facilities.



Albian Sands Bitumen Extraction Mine

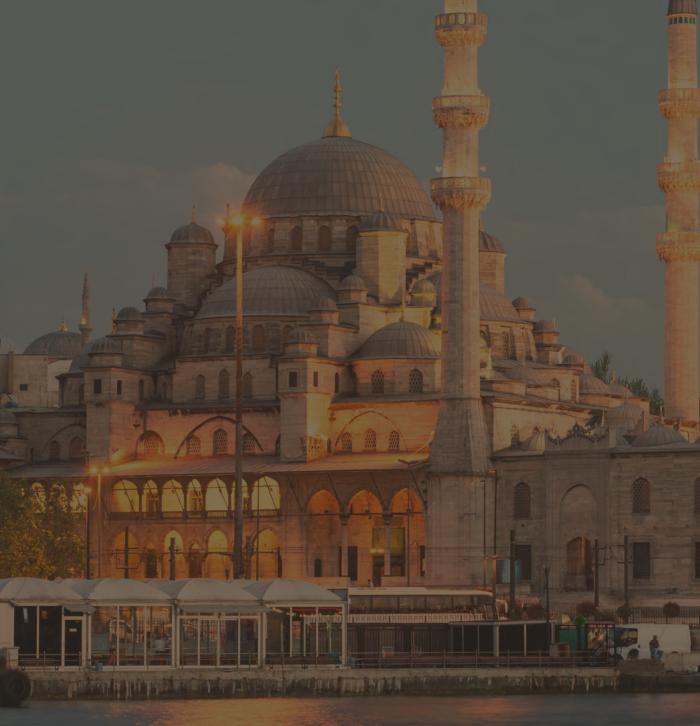
Construction management, model fabrication and field construction services for a froth treatment facility and storage tank farm in Alberta; fabrication of pipe racks and process equipment models, which were then transported and assembled on location.



Baku, Azerbaijan

# SELECTED OIL & GAS PROJECTS IN AZERBAIJAN

NAME	DATE	SERVICES	
Client Confidential	2014-2015	Full Design Services for Modular Building	
Client Confidential	2014	Coastal and Terrestrial Sensitivity by Satellite	
Client Confidential	2014	Overarching Environmental Impact Assessment for Seismic Surveys	
Client Confidential	2014	Environmental Technical Note for waste management facility	
Client Confidential	2014	Laboratory Audits	
Client Confidential	2013-2014	Azerbaijan Wildlife Response Plan Gap Assessment	
Client Confidential	2013-2014	Azerbaijan Oil Spill Environmental and Social. Sensitivity Atlases (Coastal and Pipeline)	
Client Confidential	2013	Best Practicable Environmental Option (BPEO) for Produced sand Disposal	
Client Confidential	2013	Environmental Technical Note for sewage treatment package replacement in Azerbaijan	
Client Confidential	2013	ERA on unavoidable effluent discharges from STP	
Client Confidential	2013	Design, Operating and Monitoring of Fit-For- Purpose Bioremediation Cells	
State Oil Company of Azerbaijan Republic (SOCAR)	2013-ongoing	Environmental and Social Impact Analysis	
Client Confidential	2013	Site Survey at waste management facility	
Client Confidential	2011-2013	Consolidation of waste management documentation	
BP Shah Deniz 2	2012-ongoing	Environmental and Social Impact Analysis	
BP Shah Deniz 1 Flare Project	2012	Environmental Technical Note	
BP Azeri Subsea Project	2012-ongoing	Environmental Engineering and Geotechnical ETN	
Client Confidential	2012	Gas Survey, Report on all items covered in the initial assessment survey with appendices for supporting information, photographs, action log, checklists and materials etc. as well as Checklists for immediate implementation by client.	
BP Shah Deniz 2	2011	Stakeholder and Socio Economic Survey	
BP Shah Deniz 2	2010-ongoing	Environmental, Engineering Support	
BP Chirag Oil Project and Shah Deniz 2 Compliance work	2010-ongoing	COP and SD2 compliane and assurance tasks, including completing Environmental and Social Management and Monitoring Plans (ESMMPs)	
BP Shah Deniz 2 linfrastructure ESIAIA	2010-2012	Environmental and Social Impact Analysis	
BP Shah Deniz 2 Predrill ETNs	2009-2011	Environmental Technical Note	
ACG DQG appraisal and water injection Wells ETNs	ongoing	Four ETNs which cover installation, commissioning and operation onf the associated subsea infrastructure	



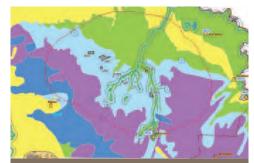
Istanbul, Turkey

# SELECTED OIL & GAS PROJECTS IN TURKEY

UPSTREAM	MIDSTREAM	DOWNSTREAM
Phase I Environmental Site Assessment of Six Oil Exploration Fields Located in Block 12 in Georgia (1998), Frontera Resources	Environmental Due Diligence Study at Four Fuel-Storage Facilities in Turkey (1999), Enron	ATAS Refinery Environmental Health and Safety Assessment in Mersin (2002), ATAS Refinery - BP
EIA Notification and Permitting of Gas Exploration Activities in the Southern Mediterranean Sea Region of Turkey (2002), El Paso Production Company	Environmental Compliance Audit and Subsoil Investigation Studies (2007), Schlumberger	Environmental Health and Safety Due Diligence at TURPAS Refineries (4 Refinery and 1 Petrochemical Plant) in 2005, Eni S.p.A.
EIA Study Associated with Seismic Oil Exploration Activities in the Eastern Black Sea Region of Turkey (2003), BP Exploration Turkiye BV	Environmental and Health & Safety Regulatory Compliance Audit at BP Azerbaijan Business Unit Facilities (2007), BP Safety & Operations Group	Assessment of Environmental Liabilities and Seller Side Due Diligence for privatization of TURPAS Refineries in 2005, TURPAS (Turkish Petroleum Refineries A.S.)
Environmental and Social Impact Assessment Study for Exploration Activities the Eastern Balck Sea Region of Turkey (2005-2006), BP Exploration Turkiye BV	Review & Update of National Environmental Legal Requirements of Baku-Tbilisi-Ceyhan Crude Oil Pipeline Facilities (BTC) at Turkey Section (2008), BTC Co. (Baku-Tbilisi-Ceyhan Pipeline Company)	Investigation and Remediation Studies in many Fuel Retail Service Stations in Turkey (2005-ongoing), Confidential Client
Subsoil investigation of port facilities to support offshore drilling in Black Sea (2008), Petrobas	Subsoil investigation for a petroleum equipment storage facility in Black Sea (2008), Karinca Logistics, Turkey	Investigation and Remediation Studies in two refineries in Turkey (2003-ongoing), Confidential Client
Environmental and Socioeconomic Impact Assessment for Seismic Survey in Black Sea Offshore Turkey (2009), ExxonMobil	Soil and Groundwater Investigations for Environmental and Social Assessment Study for Repair Activities on for a Crude Oil Pipeline in Turkey (2008), Confidential Client	Assessment of Environmental Liabilities of PETKIM Petrochemical Complex Facilities (2007), Akfen Investments, Turkey
Environmental and Socioeconomic Impact Assessment Study for Exploration Drillings in the Black Sea Offshore (2009), ExxonMobil	Phase II Soil and Groundwater Investigations at a Petroleum Equipments Manufacturing Facility in Azerbaijan (2008), Cooper Cameron Petroleum Equipment Group Inc.	Phase II Soil and Groundwater Investigation and Monitoring Studies at Two Retail Gasa Stations and a Terminal in Athens, Greese (2007-2009), Confidential Client
Geotechnical Assessment and subsoil investigation of port facilities to support offshore drilling in Black Sea (2011), ExxonMobil, USA	Health & Safety Regulatory Compliance Audit at BP Gas Terminal in Turkey (2010), BP safety & Operations Group	Emergency response and product recovery studies at an oil storage terminal, after a major spill (2008), Confidential Client
Environmental, Social & Health Impact Assessment for 3D Seismic Survey in Black Sea, Turkey (2013), Shell Upstream Turkey B.V.	TANAP Pipeline Screening Sensitivity Report (2012), Betchtel Oil, Gas and Chemicals, Inc	Completion of the first full scale remediation project in Turkey (2005-2013), Confidential Client

IN A COMPLEX AND UNPREDICTABLE WORLD, WHERE GROWING DEMANDS HAVE TO BE MET WITH FINITE RESOURCES, AECOM BRINGS EXPERIENCE GAINED FROM IMPROVING QUALITY OF LIFE IN HUNDREDS OF PLACES.

## ENVIRONMENTAL PROTECTION IN ACTION



Soil and groundwater remediation guideline, Kazakhstan

AECOM was appointed to evaluate various soil and water remediation strategies, in case of a hydrocarbon spill at an oil, gas and condensate field northwest of Kazakhstan. The study was carried out in two phases.

A vulnerability evaluation of the oil field area was performed using DRASTIC parametric methodologies, from this five sub-areas were characterized by their homogeneous vulnerability and geological settings. Potential exposure pathways and receptors were then identified and the data was used to create a guideline decision matrix.

The decision matrix identifed the best remediation technologies to be applied in the case of an oil spill. The matrix was based on typical vulnerability and contamination scenarios previously identified for each of the five sub-areas.



Oil+gas processing and petrochemical complex, Azerbaijan.

Client: State Oil Company of Azerbaijan Republic

Having been appointed as the environmental consultant for a new oil+gas processing and petrochemical complex near Baku, AECOM was tasked with developing a ESIA in accordance with national and international regulations and standards.

The ESIA included a full set of primary data collected on-site to deepen the knowledge of the environment and potential communities affected by the project activities. This allowed the team to assess environmental and social concerns and suggest mitigation measures where appropriate.

The ESIA ensured that any adverse effects to the natural environment and local community were kept to a minimum during the design and operation of the petrochemical complex.



Decommissioning a floating production storage and offloading vessel, Aliaga-Izmir, Turkey. Client: SAIPEM S.p.A

AECOM was commissioned by SAIPEM to manage decommissioning activities of the Firenze floating production storage and offloading vessel in Aliaga-Izmir, Turkey. The objective was to supervise and coordinate the vessel's decommissioning activities.

Work included managing the removal of asbestos and hazardous waste materials, preparing daily, weekly and monthly reports on work progress, supervising disposal activities and conducting and monitoring assessments to evaluate compliance and work progress.

The team coordinated and supervised the activities of 11 sub- contractors from four different countries, with an average of 20 people working on site daily. The work performed was conducted in line with European and US EPA standards, including best management practices, which were successfully applied to the project.



Remediation of a sludge waste lagoon, Italy

#### **Client:** Confidential

AECOM provided the technical approach for the remediation of a large lagoon containing sludge refinery waste in southern Italy. The site remediation project was developed in two phases. First, the oil sludge removal and second- the remediation of the unsaturated soil below.

This was achieved using thermal treatment technology. During remediation AECOM's role was to manage the technical environmental aspects of the work, which included developing a characterization plan of the landfill area surrounding the lagoon, risk assessments and all remedial design. The team co-ordinated third party field activities, evaluated contractor proposals, reviewed technical reports and provided assistance where necessary.



Sustainable solutions for a groundwater treatment, Italy

#### **Client: Confidential**

A Waste Water Treatment Plant (WWTP) in central Italy looked to us to retro-fit and upgrade their facilities. The WWTP treats groundwater for contaminants such as mercury, nitrates, cadmium, selenium, zinc, TPH, BTEXS and CHC.

The scope of work included a comparative analysis between two possible treatment solutions. The study included the development of a 3D hydro-dynamic contaminant transport model which was used to evaluate the impact of discharged water into the sea and an assessment of environmental sustainability, using life cycle assessment, for the two possible treatment options.

The adopted approach permitted our client to support a cost saving solution, whilst ensuring the global environmental impact was minimalized.



Environmental and social impact assesment, offshore Togo, West Africa

#### Client: ENI

AECOM was appointed to undertake a series of Environmental and Social Impact Assesments (ESIA's) offshore Togo. The ESIA's were legally required by Togolese regulators to ensure a 3D seismic acquisition campaign could take place. The ESIA set out requirements for the protection of marine fauna during the seismic operations.

The dedicated plan was aimed at monitoring marine mammals and sea turtles and recording any other animal occurrences and behaviors. Our team set up public consultations with stakeholders to illustrate the potential environmental and social risks.

The ESIA ensured that any adverse impact to the environment and local population was kept to a minimum during the seismic exploration project.

## THROUGHOUT THE PROJECT LIFECYCLE, WE WILL CUSTOMIZE OUR SERVICES TO MEET YOUR UNIQUE REQUIREMENTS.

#### Environmental baseline study, Uganda. Client: TOTAL E&P Uganda B.V

AECOM performed an intensive survey project in the Lake Albert region in Uganda where oil resources have been discovered. AECOM developed Environmental Baseline Study (EBS) covering a large area lying on both the east and west banks of the Albert Nile River. The area stretched 3,600km<sup>2</sup> inland and included Uganda's largest and oldest game reserve, the Murchison Falls National Park.

The purpose of the EBS was to draw up a comprehensive inventory of biological, physical and chemical characteristics of the environment and document this data for future environmental and social impact assessments. The survey included the examination of soil, water, noise and air quality throughout different seasons of the year.







#### Medgaz pipeline installation, Spain and Algeria. Client: SAIPEM S.p.A

AECOM delivered environmental consulting services for a marine pipeline running from Algeria to Spain along the Mediterranean seabed. The project included the installation of a 210km natural gas pipeline in ultra-deep water. The installation included dredging, pulling, earth-moving and backfilling activities.

Prior to the pipeline installation the team developed an environmental monitoring plan that included all the environmental activities that were to be carried out during the pipe laying operation. The plan exposed the impact that the dredging and backfilling activities would have on the biosciences in the area, particularly the sea-grasses.

Campaigns to monitor the environmental impact of the pipeline were carried out before, during and after the installation. AECOM's team ensured that the natural gas pipeline was installed with minimum impact to the environment. The pipeline is now operational and delivers natural gas to Europe.

#### Decommissioning a floating production storage and offloading vessel, Aliaga-Izmir, Turkey. Client: SAIPEM S.p.A

AECOM was commissioned by SAIPEM to manage decommissioning activities of the Firenze floating production storage and offloading vessel in Aliaga-Izmir, Turkey. The objective was to supervise and coordinate the vessel's decommissioning activities. Work included managing the removal of asbestos and hazardous waste materials, preparing daily, weekly and monthly reports on work progress, supervising disposal activities and conducting and monitoring assessments to evaluate compliance and work progress.

AECOM's team coordinated and supervised the activities of 11 sub-contractors from four different countries, with an average of 20 people working on site daily. The work performed was conducted in line with European and US EPA standards, including best management practices, which were successfully applied to the project.



## OUR CAPABILITIES AND CORE SERVICES

OUR MULTIDISCIPLINARY TEAMS OF AWARD-WINNING PROFESSIONALS STRIVE TO FIND SOLUTIONS TO ENHANCE AND MAINTAIN THE WORLD WE LIVE IN. WITH OUR GLOBAL REACH, WE FOCUS ON DELIVERING MANY OF THE LARGE, COMPLEX, MULTIDISCIPLINARY PROJECTS THAT ARE BEING DEVELOPED THROUGHOUT EUROPE THE MIDDLE EAST AND AFRICA.

### REMEDIATION

- >> Environmental investigations (site/subsurface) >> Risk assessments
- >> Remediation design and execution Sustainable remediation
- >> Operation and maintenance of remediation systems
- >> Surface and groundwater modeling/monitoring >> Sediment quality management Waste Water
- Treatment Plant (WWTP) design and optimization Sustainable water management
- >> Remediation consulting and engineering soil and ground water investigations
- >> Remediation construction, site restoration and hazardous material removal
- >> Soil and groundwater investigation
- >> Environmental quantitative risk assessment
- >> Remedial options appraisal pilot tests Design
- >> Operation and maintenance Groundwater
- monitoring programs
- >> Landfill management

### IMPACT ASSESSMENT & PERMITTING

- >> Project permitting program management >> Project feasibility, siting and planning Baseline and benchmark field studies Socioeconomic assessment and stakeholder management support >>Environmental impact assessments and statements
- >> Regulatory interface and negotiation Impact mitigation planning
- >> Technical support for legal requirements

### ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT

>> Health, Safety and Environment (HSE) due diligence and compliance audits HSE cost audits >> HSE management system implementation, maintenance and streamlining

- >> Health and safety risk assessments Waste management
- >> HSE litigation support Asbestos surveys
- >> HSE Decommissioning management
- >> HSE Due diligence for transactional processes
- >> Air Quality and Climate Adaptation Services >> Waste Services
- >> Water Resource Management and Supply
- >> Due diligence Water quality
- >> Ecology/biodiversity Light and noise
- >> Climate change/sustainability Building/Housing Work camps/housing Office fit out Laboratories
- >> Mechanical, electrical and plumbing
- >> Optimization study/space planning Sustainable design
- >> Master planning Raw water pipeline watewater treatment Stormwater Desalination

AECOM DELIVERS A WIDE RANGE OF TECHNICAL EXPERTISE, INCLUDING GEOLOGISTS, HYDROGEOLOGISTS, AGRONOMISTS, MINING & CHEMICAL ENGINEERS, BIOLOGISTS AND ENVIRONMENTAL SCIENTISTS.

# **GLOBAL SOIL AND WASTEWATER** PROJECTS

AECOM IMPLEMENTS AND MAINTAINS A FORMAL MANAGEMENT SYSTEM AND SEVERAL ACCREDITATIONS, INCLUDING:

>> MANAGEMENT SYSTEM BASED ON ISO 9001

- >> SOIL AND GROUNDWATER SURVEYS ACCORDING TO ISO/IEC 17020
- >> BIOLOGICAL AND PHYSIC-CHEMICAL TESTS IN WATER ACCORDING TO ISO/IEC 17025
- >> ACCREDITED BY THE ENVIRONMENTAL MINISTRY OF SPAIN AS "WATER BASINS AUTHORITIES COLLABORATOR ENTITY"
- » ENVIRONMENTAL MANAGEMENT SYSTEM ACCRODING TO ISO 14001
- >> SAFETY MANAGEMENT SYSTEM ACCORDING TO OHSA 18000



Groundwater monitoring programme at a petrochemical complex, Sines, Portugal Client: Repsol

SERVICES EMPLOYED

>> Groundwater Monitoring >> Environmental Assessment >> Conceptual Site Modelling



Development of technical guidance the storage, transport and retail of petroleum products, Portugal

Client: APETRO, Portuguese Oil Industry Association

SERVICES EMPLOYED

>> Environmental Technical



caused by an accidental spill of fuel

Location Jinamar (Gran Canaria) **Client Disa** 



Homogenization of Quantitative Risk Analysis for Human Health in CEPSA retail sites

Year 2009-2011

Location CEPSA Retail sites Budget 370 000 €

**Client CEPSA** 



Development of technical guidelines for the evaluation of socil contamination, remediation and prevention measures, Portugal

Client: APA (Portuguese Environment Agency

SERVICES EMPLOYED

>> Environmental Technical

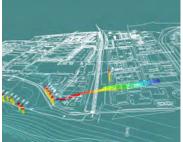


Environmental subsoil investigation chemical plant, Bilbao, Spain

Client: One of the world's leading

SERVICES EMPLOYED

>> Soil and Groundwater Investigatigation >> Geo-statistical Modelling >> Geo-physical Survey



Subsoil remediation at a petrochemical complex, Tarragona, Spain

Client: Global Oil Company

SERVICES EMPLOYED

>> Environmental Risk Assessment Soil and Groundwater Remediation >> Liaison with Goverment Agencies >> Environmental Management and Programs

>> Ecological Monitoring



Soil remediation at the former Sant plant, Barcelona, Spain

Client: Spanish Power Generation

SERVICES EMPLOYED

>> Liaison with Government Agencies >> Groundwater and Soil Remediation

#### About AECOM

With nearly 100,000 employees — including architects, engineers, designers, planners, scientists and management and construction services professionals — serving clients in more than 150 countries around the world following the acquisition of URS, AECOM is a premier, fully integrated infrastructure and support services firm. AECOM is ranked as the #1 engineering design firm by revenue in Engineering News-Record magazine's annual industry rankings. The company is a leader in all of the key markets that it serves, including transportation, facilities, environmental, energy, oil and gas, water, high-rise buildings and government. AECOM provides a blend of global reach, local knowledge, innovation and technical excellence in delivering solutions that create, enhance and sustain the world's built, natural and social environments. A Fortune 500 company,

AECOM companies, including URS, had revenue of \$19.2 billion during the 12 months ended June 30, 2014. More information on AECOM and its services can be found at www.aecom.com.

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