

## Major International Pipeline Experience

---

### **Algerian Project - Pipeline Engineering and Survey Management**

UPI provided overall Supervision and Quality Control over local survey crews in the routing and preliminary survey of three (3) 48-inch crude oil pipelines in Algeria. UPI provided CAD services out of Houston as part of an integrated project team.

### **Al Raja Expansion Gas Cycling Facilities**

UPI provided construction management, vendor plant, equipment, and material and construction inspection services for the pipeline system for the expansion of Yemen Hunt's world-class gas processing plant facilities in Yemen.

### **Baku-Tbilisi-Ceyhan Pipeline Company, Baku Azerbaijan**

UPI provided more than 100 expatriate personnel to assist with the startup, commissioning, operation and maintenance of the Baku-Tbilisi-Ceyhan Pipeline (BTC) crude oil pipeline. The experts included marine terminal operations experts, marine loading experts, master mariners, pipeline and pump station operations personnel, tank farm operations personnel, offshore operations personnel, vapor recovery system operations experts, instrumentation and electrical commissioning technicians, Health Safety and Environmental (HSE) experts, emergency response experts, spill response specialists, logistical support experts, loss prevention consultants, fire response experts and training specialists, physicians and medical health professionals, pigging advisors, electrical, mechanical and civil engineers, SCADA engineers, rotating equipment specialists, metering experts, health and social services specialists, environmental engineers, technical training experts, certification engineers, materials and procurement specialists, maintenance advisors and numerous other compliance specialists for the safe operation and maintenance of the pipeline, pump stations terminals and related facilities.

### **Bolivia to Brazil Natural Gas Pipeline Project**

UPI provided QA/QC construction management team to the contractor to improve the quality of pipeline welding for the construction of 235 miles of 32-inch pipeline. The construction contractor required UPI's expert assistance in reducing weld rejection rates to acceptable industry standards.

### **Botas Petroleum Pipeline Company – Project Management Consultancy Services**

UPI provided services for the Turkish national pipeline authority (BOTAS) for the 1,077 kilometer, 42-inch Turkish section of the Baku, Azerbaijan to Ceyhan, Turkey crude oil pipeline project. UPI's services included project management, mechanical engineering, pipeline engineering, electrical engineering, instrumentation and SCADA engineering, survey, route selection, GIS/MIS coordination, project scheduling, project cost control, geological consulting, landslide and fault crossing hazard identification and remediation, karsts region crossings design, river crossing design, environmental regulatory compliance, pump station design, meter station design, procurement assistance, logistics, contract preparation, claims resolution, HSE training, HAZOP, Construction support for the pipeline, pump stations and terminals and supporting field services during the detailed design phase of the project.

### **Botas Petroleum Pipeline Company – BTC Project Directorate Technical Integrity Assurance Program**

UPI assisted BOTAS with the development and execution of the technical integrity assurance program (TIP) during the Land Acquisition and Construction Phase of the Baku-Tbilisi-Ceyhan Pipeline (BTC) crude oil pipeline project. This program was the first proactive pipeline integrity program to be implemented prior to commissioning or operating of a pipeline. UPI provided a team of experts in various disciplines from engineers to geologist and environmental specialists to examine the design and construction of the project as it was being performed. The TIP program took a cross section of the project through sampling of the works based upon criticality criteria. The samples were examined and determined to be acceptable from a technical integrity standpoint or as requiring remedial action. The program identified areas of critical concern, provided methods to solve the identified issues and tracked the resolution of each item. The successful resolution of the technical issues raised in the program yielded a reasonable assurance that the BTC Pipeline was technically sound, safe for operation and met the integrity requirements of the lump

## Major International Pipeline Experience

---

sum turnkey agreement signed by Botas. The program was completed prior to the line fill and subsequent loading of the first tanker from the Ceyhan marine terminal.

### **BP Angola Exploration**

UPI provided support to British Petroleum's Exploration operations group in the fields of health and safety inspection and compliance; and Environmental Management in support of their drilling and exploration operations offshore Angola.

### **BP Black Sea Exploration**

UPI developed a world class shore base to support offshore exploration in the Black Sea for British Petroleum. UPI provided to BP Exploration operations: shore base management; contract preparation, contract award and administration; material procurement and logistics support; health and safety inspection and compliance; and Environmental Management in support of the drilling and exploration operations in the Black Sea.

### **Braspetro/YPBF - Rio Grande del Sur**

UPI provided in-country survey and engineering design recommendations for pipeline installation and erosion control measures upon installation to Braspetro / YPBF.

### **Chevron Overseas Petroleum Projects**

UPI provided construction management and inspection services for offshore platforms, offshore pipelines, docks and tankage for Cabinda Gulf Oil Company (Chevron Overseas Petroleum) in Angola, Korea, Kazakhstan, Congo, the United Arab Emirates and Brazil.

### **Cold Peru LNG – CAMISEA Jungle Loop Risk Assessment**

UPI provided risk assessment for 155 kilometers of 32-inch and 24-inch natural gas pipeline in the jungle of Peru.

### **Conoco Ecuador Block 16 Projects**

UPI provided pipeline engineering and technical assistance to Conoco Ecuador Ltd. for route planning, design criteria, pipeline facilities design, alignment engineering, cost estimating and technical specifications for design and construction of over 100 kilometers of dual main pipelines and flow lines to be constructed in the Orient Region of Ecuador as part of the Block 16 Development Program. UPI also provided civil, process, and electrical engineering assistance for Conoco's Block 16 production facilities design. In these efforts UPI has also been advising various Ecuadorian engineering companies in computer aided drafting systems to correlate with Conoco engineering requirements.

### **El Paso Production Measurement Facilities in Brazil**

UPI provided engineering design and drafting, equipment specifications, instrument data sheets, bill of materials, procurement assistance, vendor factory acceptance test, construction support, operations manual, and project data books. The scope of this project involves the installation of measurement facilities to serve as permanent delivery points to Petroleo Brasileiro S.A. ("Petrobras") at their Guamaré processing facility in Rio Grande do Norte, Brazil. The measurement facilities include a natural gas meter station with two 12-inch orifice meter runs with capacity of 60 MMSCFD per run, and a gas chromatograph; a natural gas condensate liquid meter station with two 2-1/2-inch liquid turbine meter runs with capacity of 275 GPM per run, a BS&W monitor, and a small volume prover; and a DAC building accommodates the SCADA system, flow computers, and power distribution equipment.

### **Inter Jordan Gas Pipeline Project**

UPI performed preliminary design, cost estimating, route selection, contractor, evaluation and assistance with permitting and environmental considerations for the installation of a 30-inch pipeline crossing the Gulf of Aqaba between Egypt and Jordan and a 24-inch pipeline between Aqaba and Amman, Jordan together with laterals to various industrial customers and preliminary design for a future compressor station to be located at Aqaba, Jordan. The project is designed to Egyptian natural gas to power plant and industrial

## Major International Pipeline Experience

---

facilities within the Kingdom of Jordan. The Gulf of Aqaba at the crossing location is approximately 13.1 kilometers in width and 900 meters deep. When completed, the crossing would be the deepest 30-inch pipeline crossing in the world. The pipeline between Aqaba and Amman is approximately 330 kilometers in length. The total project length including laterals is 720 kilometers.

### **Middle East Natural Gas Pipeline System Study (Confidential)**

UPI performed both a feasibility study (FEED) and cost estimate for a 500 mile natural gas pipeline system for an international energy company. The proposed pipeline system was to provide 400 MMCFD of natural gas from one Middle East country to fuel power plants and industrial facilities in another Middle East country.

### **New Fortress Energy**

UPI provided engineering, design, procurement, commissioning, and start-up services for the first natural gas pipeline on the island of Jamaica. The pipeline is located near Montego Bay which is on the northwest part of the island. It will transport natural gas from an LNG regasification facility to a dual fuel power plant located 1.5 miles away. UPI has also participated on the Old Harbour Project which will bring natural gas to the Kingston, Jamaica area.

### **Ocensa Pipeline, Columbia, S.A.**

UPI performed an evaluation of Ocensa's pipeline segment between stations at Cusiana and Covenas to provide confirmation that it exceeded North American codes, standards and best practices. In addition, an evaluation was performed to confirm that the physical, mechanical and civil emergency response and preparedness between Cusiana and Covenas implemented, exceeds North American codes, standards and best practices. Finally, a review of the maintenance programs and system modifications and/or repairs, have complied with and are consistent with, North American codes, standards and best practices.

### **Occidental Eden Yuturi Development Project**

UPI provided Santos CMI Construction, Inc. with completion of engineering and procurement efforts to support the overall project schedule requirements for the project to provide crude oil to the OCT Pipeline Project in Ecuador. Santos is part of a joint venture PMT located in Quito and Houston, Texas. Project includes a 40,000 BPD (expandable to 80,000 BPD) central production facility and 80 kilometers pipeline to tie into OCP.

### **PetroChina Company Limited Chaoyang District, Beijing, China Jingbian Compressor station No. 8**

UPI provided engineering services for preparation of construction packages for the PetroChina Company Limited's (PetroChina) gas turbine driven compressor station at Jingbian, located on the 40-inch West to East Pipeline. UPI developed the detailed design and drawings for the Compressor Facilities consisting two (2) 30,000 Hp Cooper Rolls-Royce RB 211 gas turbines driving RF 36 Centrifugal Compressors for a total of 60,000 installed Hp. Services included the design engineering, drafting, and preparation of specifications not available from PetroChina, preparation of bid solicitation drawings and specification packages for miscellaneous materials and equipment, material procurement assistance and the preparation of detailed 3D construction drawings and specifications packages for construction. The project involved the complete installation of two turbine driven centrifugal compressors, automated valves, unit suction, discharge and recycle piping, suction and discharge headers, lube oil and gas recycle coolers, associated Auxiliary Building and Compressor Building, un-interruptible backup power supplies (instrument voltage and control voltage UPS), instrument air compressor/dryer reservoir system, unit and station control systems, low voltage motor control, station emergency shutdown system (ESD), and compressor unit shutdown system (USD). The station is designed for unmanned operation with remote monitoring and control.

UPI provided the design of the medium and low voltage electrical distribution systems, compressed air system and fire detection system for the Compressor and Auxiliary Buildings. Design included building structural, heating and ventilation, communication and electrical equipment installation in the buildings. UPI's electrical design included installation of dual 10 KV Transformers (main-tie-main bus configuration) and associated motor control.

## Major International Pipeline Experience

---

UPI provided the design of the medium and low voltage electrical distribution systems, compressed air system and fire detection system for the Compressor and Auxiliary Buildings. Design included building structural, heating and ventilation, communication and electrical equipment installation in the buildings. UPI's electrical design included installation of dual 10 KV Transformers (main-tie- main bus configuration) and associated motor control and power distribution equipment.

### **PetroChina West-East Natural Gas Pipeline Project Study**

UPI performed a feasibility study, developed cost estimate and completed basic engineering for the PetroChina 4,000 kilometers, a 40-inch natural gas pipeline from Western China to Shanghai to provide natural gas to fuel electric power plants for use peaking power demand periods. UPI will provide construction assistance personnel to ensure compliance with the basic design and specifications developed in the study. Also, develop overall implementation plans for project construction, inspection, safety, and training.

### **Southeast (SE) Asia Crude Oil Pipeline and Facility Study**

UPI performed crude oil pipeline system feasibility study and developed the cost estimate for an international energy company. The proposed pipeline system was to provide imported crude oil to proposed refinery. Scope of study included 100 mile, large diameter pipeline, SPM offshore unloading facility, onshore crude oil storage, metering facilities and pump stations

### **Venezuela Very Heavy Oil Pipeline (VEHOP) Project**

UPI provided construction inspection and engineering services during construction of the 300 mile dual 24-inch and 36-inch pipeline for Petrozuata Conoco Venezuela.

### **TransCanada – Manzanillo to Guadalajara Pipeline**

UPI provided detailed engineering, procurement services, permitting and construction support for a 298 kilometers of 30-inch and 6 kilometers of 24-inch gas pipeline