

## **Topsides Experience**

---

### **Addax Petroleum – MOKOKO ABANA FIELD Development/ Gas Lift Injection (Optimization)**

UPI provided facilities engineering support which included process, piping walk-downs and safety system evaluations to create safety flow diagrams. This design was to be in compliance with API RP 14 C. Additionally UPI designed controls systems for the wells.

### **Anadarko – ATP Innovator Decommissioning**

Anadarko took over decommissioning responsibilities for the Innovator after ATP filed bankruptcy. UPI assisted with the topsides and subsea decommissioning in general consulting services, structural design checks at various topsides deck locations, and development of topsides equipment preservation procedures.

### **Anadarko – Powerplay**

Subsea tie-back to Hess Baldpate included design of dual flow lines, SCR's, Umbilical, SUTA, structural modifications for the TUTA and the API 15K Boarding Valves Skid, API 15K Dual Launcher Receiver, Chemical Injection Skid and Upgrading of MCC.

### **Andes Petroleum – Oropendola Facility Upgrade**

UPI evaluated the Remora Energy Columbus Oropendola facility using WinSim (Design II) software. Solutions were provided to aid in oil and water separation, including a larger production separator, addition of heat at the production separator and oil storage, and an additional gun barrel storage tank was assessed.

### **Apache Corp. – Gulf of Mexico Properties Hazard Analysis**

UPI utilized API RP 14J checklist methodology to perform Hazard Analysis for approximately 700 Apache platforms in the Gulf of Mexico. Platforms varied in size and complexity and the associated checklists accommodated these differences.

### **Apache Deepwater – Wideberth**

UPI was contracted by Apache Deepwater to perform all topsides modifications on the Hess owned and operated Baldpate facility, as required to bring on their new Wideberth well. Detailed design of the flow line, heat exchanger and test separator were performed, as well as integration of all new process equipment into the existing facility, structural deck extensions, and all automation & controls upgrades to the facility.

### **Arena – PL 25 – JA Process Equipment Upgrade**

UPI provided preliminary engineering support for the addition of a Line Heater, Oil and Water Separator and Flotation Cell. Continued through detailed design of structural modifications required for the additional equipment.

### **ATP Oil and Gas – Gomez MC-711**

UPI provided ongoing engineering support for brownfield projects. Representative projects included addition of separation and compression equipment, addition of waste heat recovery system, troubleshooting production problems, accommodating additional wells to flow to facility, coordination with BSEE, USCG and ABS, and weight control for FOI classed vessel. It should be noted that all original topsides and subsea equipment were designed by UPI.

### **Bennu Oil and Gas – Various Locations**

UPI was assigned to walk down facilities to capture as-built changes to all required facility documents - P&ID, Safety Flow Diagrams, SAFE Charts, Equipment Arrangements, Area Classifications and Station Bills. All drawings were revised accordingly. Reviewed as-built documentation for compliance with industry standards and regulations. Based on review, prepared action lists describing gaps to be addressed.

UPI provided hydraulic analysis on Fire Water system to check the integrity of the existing system. Made recommendations on changes to deluge nozzle arrangement, confirmed pump capabilities and prepared full report on final system.

## **Topsides Experience**

---

UPI provided Firewater Risk Assessment to justify dry chemical use in lieu of firewater and LOPA Analysis of risk when various equipment were out of service.

### **BHP – Various Locations**

UPI provides ongoing support to BHP for automation upgrades. Work includes design, procurement, fabrication, testing and commissioning of automation panels and equipment.

### **Bluewater/ATP – Gomez Enhanced Recovery**

UPI provided the design and FEED for the Gomez field enhanced recovery project. The ATP Gomez field at Mississippi Canyon 711 experienced a mid-life reservoir pressure decline that led to a decreased production to the existing gas lift system which was unable to effectively alleviate. ATP looked at several alternatives to boost production. UPI's scope was to evaluate concepts then pursue FEED level engineering for jumpers, risers, platts, and topsides modifications and interface with vendors of specialized equipment.

### **Bluewater/ATP – Gomez Debottlenecking**

UPI debottlenecked existing facility to accommodate three additional subsea wells. This required expansion of the gas capacity to 100 MMSCFD and boosting of the pipeline discharge pressure to 1800 psig. Major process equipment was installed on a new third module and included HP/LP Separation train, Solar Turbine gas compressor, WHRU with Hot Oil Circulation Vessel and Pumps and Shell/Tube Heat Exchangers. Off module additions included Sump Tank, Chemical Injection Skid and MCC Building.

### **Bluewater/ATP – Gomez MC 711**

UPI supported Bluewater and ATP in the development of two subsea wells in approximately 3000 feet of water. FEED study reviewed utilizing a spar and a converted semi-submersible drilling rig, the latter being selected for detailed design. Topsides production facilities were designed to produce 60 MMSCFD, 20,000 BOPD and 15,000 BWPD. All equipment was located within two modules. Major process equipment included HP, LP, IP and Test Separators, Solar Turbine Gas Compression, Glycol Dehydration, Electrostatic Heater Treater, Oil Storage, LACT, Gas Sales Metering, Gas Turbine Generators and chemical injection for topsides and subsea injection points.

### **Bluewater/ATP – Rig Floor Removal and Auduin Well Addition**

UPI provided project management and controls, engineering and design, procurement support, construction support and start-up support for multiple topsides upgrades to ATP Oil and Gas's Innovator facility. Scope included relocating the HP/LP and atmospheric vent booms from the rig floor to allow for its removal, install a new shell and tube heat exchanger on the LP production line, install all topsides piping and appurtenances necessary for the installation of two new flow lines to be brought in through the moonpool, install a new chemical injection skid, update/create all BOEMRE and ABS paperwork, and perform necessary safety and risk analysis for the accommodations building egress during a fire.

### **Chevron – Carter Creek Compressor Station**

The Carter Creek Gas Booster Compression Station is located near Evanston, Wyoming at an elevation of 8100 feet. The project included the installation of two 1500 HP electrically drive sour gas compressors rated for 60MMSCFD, air coolers, inlet slug catcher and separator, centrifugal sour liquid pumps, compressor building and foundation. All mechanical, structural, electrical, as well as automation designs were performed including panels, PLC's and MCC's.

### **Chevron – Debottlenecking Study**

UPI provided gulf-wide debottlenecking study on higher producing fields. The study evaluated oil, water, gas and relief system capacities based on field operating data and know equipment sizing information. Created graphical results of data to clearly identify limiting factors.

### **Chevron – Deep Gas Exploitation**

UPI provided feasibility study for a deep gas development consisting of 14 wells. Responsibility included cost and schedule analysis of various pipeline and platform additions including amine sweetening.

## **Topsides Experience**

---

### **Chevron – East Cameron 272 Upgrades, Hurricane Repairs**

After field was hit by a hurricane, UPI was brought in to evaluate damage to all six platforms then perform necessary structural, facilities and I&E modifications/upgrades found necessary. UPI evaluated existing E-drill, D-Production, D-Drill structures and modified as necessary for storm viability and quarters addition. UPI added 3-story 18-man Quarters to E-Drill platform, evaluated field pipeline network, reconfigured most efficient use to compensate for the loss of “A” facilities and evaluated field compression for best optimization. UPI designed, bid, procured and managed fabrication of new equipment. In addition, UPI provided all the permitting and compliance support. New or modified equipment included sump tanks, potable water system, pipeline pumps, LACT, gas sales meter skid, separator, treater, separator, vent boom and firewater systems and heliport. Supplied support through the fabrication and installation process.

### **Chevron – EI 276 E Vent Boom Relocation**

UPI relocated existing vent boom to allow future drilling rigs to approach facility. Modifications included detailed design of new vent boom, structural analysis as well as sizing for radiation and dispersion. The existing deck was checked and strengthened to hold the new vent boom. Piping modifications were made to route relief lines from vent scrubber to new boom.

### **Chevron – EI 238 E Compressor Install**

UPI provided detailed design of the addition of a compressor at Chevron's EI 238 E facility. Three existing turbine compressors were to be placed out of service as they were oversized for the current compression needs and consumed too much fuel gas. A new reciprocating compressor fit for the current service was installed in their place.

### **Chevron – EI 252 I VRU**

UPI provided process support for 15,000 BOPD GOM facility. Various equipment and heat exchangers analyzed and recommendations made for increase of oil production and LP gas re-routing. Estimate for modifying LP gas equipment. Feasibility study to determine how the addition of a VRU at the facility would work in conjunction with the existing compression system on board.

### **Chevron – Eugene Island 361 A & C Water Flood**

UPI designed and bid on Flotation Cell, Filtration Packages, Interconnect Piping and Pump Packages. UPI re-configured pipeline between A and C for bi-directional flow. Handled all design, specifications, procurement, permitting and compliance. Evaluated existing EI 361-A structure and modified as necessary to receive new equipment. Provided all I&E design, procurement, and support. Supplied support through the fabrication and installation process.

### **Chevron – Gulf of Mexico West Properties - Vent Study**

UPI provided detailed vent system study for 12 high priority platforms. Aspen Hysis, Aspen Flare System Analyzer, Softbits FlareSim, and Curtiss Wright iPRSM software's were being used for this work, as well as various in-house developed sizing programs. Scope included offshore gathering of relief system piping, and equipment data for all relief and control valves, pumps and appurtenances that affected the relief system design, confirmed appropriate sizing of all PSV's based on their intended service, performing contingency analysis to determine appropriate relieving cases, relief header back pressure study, vent scrubber sizing, and radiation/dispersion modeling.

### **Chevron – Gulf of Mexico West Properties - Vent Study**

In an effort to ensure SEMS compliance required current vent studies on each Gulf of Mexico platform, Chevron enlisted UPI to produce high level vent studies for their 70+ Western GOM facilities. Aspen Hysis and Aspen Flare System Analyzer software's were used for this work, and also various in-house developed sizing programs. Scope included offshore gathering of equipment data for all relief and control valves, pumps and appurtenances that affected the relief system design and vent system isometrics.

## **Topsides Experience**

---

### **Chevron – Header Deck**

UPI utilized a reconditioned 4-pile deck, structurally analyzed and modified as necessary for equipment. Designed bridge to SMI 223-A. Designed and bid on Test Separator, Vent Scrubber, Aerial Cooler, Automated Manifold, Fuel Skid, Air Compressor, Generator Building with 2- 400 KW generator sets, ICP, Sump Tank, Chemical and Scavenging Pumping. Supported project through the fabrication and installation process and provided all I&E design, procurement, and commissioning support.

### **Chevron – Jim Bob Mountain, SMI 217 A**

UPI provided concept, FEED and detailed engineering support for the Jim Bob Mountain project in Chevron's South Marsh Island 217 field. Scope included four new remote well sour gas satellite facilities, one new sour gas test facility and major upgrades to the existing Tiger Shoal SMI 217 A facility. These major upgrades included the addition of the following - 120MMSCFD Amine Unit, 300 MMSCFD HP/LP Separation Module, 44.5 MMBTU/Hr. Hot Oil Heating System, 5400 KW Turbine Generator Package, 12 MMBTU/Hr Acid Gas Incinerator, 46 pile structure and a 16-inch pipeline routed to a subsea tie-in 10 miles away.

### **Chevron – SMI 99 Upgrades**

UPI provided FEED Study to review necessary modifications to improve the separation and oil treating capacity of the facility. Scope was to replace the treater and inlet heat exchanger and modify the production manifold, separators, pipeline pumps and oil surge tank. All facilities and structural scopes were addressed.

### **Chevron – SMI 217 A Debottlenecking and Upgrades**

UPI evaluated gas sweetening, gas processing, oil processing, water processing, and relief system requirements for facility to handle a total rate of 350 MMSCFD. Upgrades included new Flotation Cell, Skimmer, Vent Scrubber, CPL Meter Skid, Oil Pumping and all related interconnect piping. Primary tasks included detailed design of all equipment, bid package preparation, procurement, fabrication management, permitting and compliance. In addition to new 4-pile Vent Scrubber platform and 8-pile Water Treating platform were designed as necessary to locate the new equipment. Instrumentation and electrical design and procurement were provided for all upgrades.

### **Chevron – SS 182 Oil Storage Tank Replacement**

UPI provided detailed design of oil storage tanks and pumping skid and interconnect piping for installation on existing facility. All facilities, structural, and I&E scopes of work were completed and included fabrication, installation and commissioning support.

### **Chevron – Various Locations**

UPI provides ongoing engineering support for brownfield and greenfield projects for Gulf of Mexico facilities. Projects include but are not limited to debottlenecking studies, field development studies, equipment and/or deck replacements, new installations, regulatory compliance reviews, vent studies, documentation verification and updates. Work requires mechanical, process, structural and I&E disciplines. Significant automation upgrades made to all Chevron properties over the years.

### **Enbridge – SS 332 Upgrades**

UPI upgraded existing facility to accommodate changes in sales points on gas throughput at the facility. Temporary 3" piping and permanent 10" piping arrangements were designed and executed. Also redesigned the HP Vent Header in order to accommodate additional sources as well as simplify the existing routing of the deteriorating piping. A study on the PSV's feeding the header was performed and recommendations made. Additionally as-built the entire facility P&ID's and performed a 14C analysis of the safety systems installed. Hazop's performed on changes made.

### **ENI – Appaloosa Compressor**

As the pressures were depleting at their subsea wellheads, ENI looked to lower the platform arrival pressure thus allowing the wells to continue to flow at desired rates. With this lowering of the arrival pressure came the need to install a compressor to boost the gas pressure back to sales pipeline pressure. UPI was asked

## **Topsides Experience**

---

to perform project management duties for ENI for the FEED level design of this compressor addition to their Allegheny platform.

### **ENI – Kodiak SSTB**

UPI provided project management services for ENI during the design, installation and commissioning stages of the addition of a subsea tieback of the DGE owned Kodiak well. Coordinated multiple companies, operators and engineering, in order to bring the project together. Additionally assisted with the various Hazops performed.

### **EOG Resources – Certified Verification Agent**

UPI served as the CVA for a Water Skimmer addition to EOG's Osprey platform. Review of three primary phases of the project included design, construction, and installation and commissioning verification.

### **ExxonMobile Pipeline – GA 244 Launcher/Receiver**

UPI assisted in the design of a smart pig capable pig receiving and launching system to be installed on the Williams GA A244 platform. Scope included design of a 14ft X 69ft deck extension to accommodate the pig launcher/receiver, which was designed for nominal ANSI 900# pressure rating; MAOP to be 2122 psig to match existing incoming and departing pipelines.

### **ExxonMobile – Zafiro Producer Concept Evaluation**

UPI provided concept study to evaluate options for replacement of aging FPSO.

### **Hess – Akom North G-19**

Hess Equatorial Guinea engaged UPI for engineering consultancy and project management services for the AKOM North subsea tie-back project. Scope included concept and FEED with detailed cost estimates, detailed design, project management, bid documents and RFQ preparation, procurement of long lead items, construction management, supervision and commissioning support.

### **Hess – Equatorial Guinea**

UPI provided design and engineering services to Hess Equatorial Guinea for the FPSO Sendje Ceiba to remove and replace one steam driver from an existing Cargo Offloading Pump (COP) and replace the driver with a mechanical variable speed fluid coupling and single speed electrical motor driver. Scope included installation of the motor/coupling driver, upgrade of material handling equipment from the FPSO main deck to the lower level of the engine room where the turbine drivers are located, construction drawings for power distribution, controls and grounding systems, and piping for new motor's lube oil and cooling systems.

### **Hess – Penn State Deep**

Subsea tie-back to Hess Baldpate included design of single flow line, SCR, Umbilical, SUTA, TUTA, API 15K Boarding Valve Skid, Chemical Injection Skid, and structural modifications for new MCC building.

### **Hess – Sendja Ceiba Crude Loading**

UPI provided pipe stress analysis of crude loading and distribution system which was previously retrofit onboard the ship to accommodate oil produced from a satellite oil field. Work included onsite verification of as-built drawings for the load piping, pipe stress analysis per ASME B31.3 for pressure, temperature, and dynamic fluid forces, verification that existing pipe supports provide adequate support for piping and possess adequate strength and stiffness, and design of new required supports or modification to existing supports.

### **Hess – Sendja Ceiba Inert Gas Generator**

UPI provided structural, facilities, electrical and automation engineering for the installation of new 8000 M3/H inert gas generator package. Structural design of package support substructure, access walkways, stairways and catwalks, interconnect piping & pipe support for inert gas, cooling water, gas and diesel fuel systems, MCC modifications and power cabling design, control interfacing between self-contained inert gas

## **Topsides Experience**

---

package control module and other ship control systems, onsite design verification, and preparation of design document package for DNV review.

### **Hess – Sendja Ceiba Produced Water Treating Upgrade**

UPI was awarded the contract to conduct concept/FEED study for a proposed additional 120,000 BWPD upgrade to the FPSO's water production capabilities. UPI provided engineering and drafting during the FEED stage. Project carried through to detailed design, which included all piping, structural, automation and electrical shipboard modifications as well as coordination with Cameron, the provider of the new equipment module.

### **Hess – Sendja Ceiba Slops Transfer Pump**

UPI provided structural, facilities and electrical engineering for the installation of a new 150 M3/H electric motor-driven centrifugal slops transfer pump system in the ship's pump room to replace an existing steam-driven positive displacement pump. Work included pump selection, interconnecting piping and pipe support design, MCC modification and power cabling design, onsite design verification and preparation of design document package for DNV review.

### **Kinder Morgan CO2 – Sacroc**

UPI added a 3rd process train rated at 240MMSCFD to expand the existing CO2 treating facility. Installation included slug catchers, inlet coalescer, solid desiccant dehydrators, hot oil system, heat media system, propane refrigeration system for NGL extraction, cooling water system and multiple skid membrane system to separate the non-Co2 process stream. All foundation and structural steel design were provided, as well as PCL interface design and programming. Electrical scope included substation transformers for 4160V and 480V motor loads, 35 kV primary switchgear and motor control centers, construction drawings for all power and lighting and electrical equipment specifications.

### **Nexen – Various Locations**

UPI walked down facilities to capture as-built changes to P&ID, Equipment Arrangements, Area Classifications and Station Bills. All drawings were revised accordingly. Reviewed as-built documentation for compliance within industry standards and regulations. Based on review, UPI prepared action lists describing gaps to be addressed. Additionally, UPI provided HAZOP or revalidated existing HAZOP upon completion of updates. Where found necessary, UPI updated vent studies for each facility and also provided ongoing compliance support for all GOM facilities.

### **Niska Gas Storage – Wild Goose Storage Expansion**

Niska Gas Storage made additions and modifications to their Wild Goose Gas Storage Facility located in northern California. The Facility injection and withdrawal rates were increased by 200/250 MMSCFD respectively. To achieve this, a third train of equipment and essential utilities will be added and consists of the following; Two Caterpillar 3612 gas engine-driven Ariel JGD-6 single stage reciprocating gas compressors with associated jacket and auxiliary water coolers and gas after-coolers, Compressor Discharge Coalescing Filters, Inlet Slug Catcher and Gas Filter, Glycol Regeneration Skid with TEG Contactor and After Scrubber, Modifications as necessary to debottleneck existing plant piping, Interconnect Piping, MCC Building, Back-up Generator and Instrument Air Skid.

### **PEMEX – Citam-A / Bolontiku-A**

UPI provided selection of the most suitable structural configuration for the 12 oil wells to minimize weight and installation costs. Each platform was designed to have production test equipment, primary production separation and a platform mounted drilling rig.

### **PetroQuest – SEMS Compliance**

UPI assisted PetroQuest with development of their SEMS program for them to be in compliance with new regulations. Additionally, UPI utilized API RP 14J checklist methodology to perform Hazard Analysis for approximately 20 platforms in the Gulf of Mexico. Scope also included detailed review of major platforms'

## **Topsides Experience**

---

BSEE compliance documentation -Safety Flow Diagrams, SAFE Charts, Equipment Arrangements, Fire and Safety Plans and Electrical Area Classifications.

### **PetroQuest – Thibodeaux #1 Well**

PetroQuest contracted UPI to assist in the design of required facilities to process the Thibodeaux #1 well. Facilities design included a 15K flow line and line heater, as well as sizing verification of vendor provided separation, compression, pumping and oil storage equipment. Structural pile design for the deck was additionally provided.

### **Rooster Petroleum – Grand Isle 70 Deck Refurbishment**

UPI provided preliminary engineering and design for client's Production Platform and 4" Gas/Condensate Pipeline (P/L) for the Grand Isle Block 70 "A" (GI 70 "A") Project. The project scope included the development of the Facilities and Pipeline Permits as well as engineering and drafting for removal of old equipment and installation of new separation equipment.

### **Stone Energy – SEMS Compliance**

UPI utilized API RP 14J checklist methodology to perform Hazard Analysis for all Stone platforms in the Gulf of Mexico.

### **Swift Energy - CM3**

Scope included a system upgrade to the existing infrastructure of the Louisiana inland water production facility, which added additional gas treating and compression capacity. The project scope also included the addition of a moored barge facility with separation, oil treating, gas compression and power generation. Services included all facilities, structural and electrical design, as well as the development of a new Wonderware SCADA control system, including the emergency safety shutdown (ESS) and process control system (PCS).

### **Swift Energy – Shasta Well**

UPI provided design of 10K PSIG flow line and line heater for the Shasta Well addition. Scope included structural deck design and automation of new equipment.

### **Swift Energy – Westside**

UPI was responsible for I&E, Facilities and Structural design for a major inland waters grass-roots 20,000 BOPD production complex. In addition to engineering and design, UPI supplied inspection and construction supervision personnel, document control and project management. Facilities included oil, gas and water processing, compression and sales equipment located on steel and wooden structures, steel and concrete barges. Design included consideration for potential sour gas production. UPI provided engineering and design services from conceptual through startup and commissioning, and provided ongoing support.

### **Walter Oil and Gas – Certified Verification Agent**

The Walter Oil & Gas Platform, located in Ewing Bank Block 843, is installed in 1,186' of water. The overall height of the platform is greater than 1,300', excluding the length of the piling below the seabed and the height of the vent boom extending above the top of the deck. For this structure, UPI performed the Design, Fabrication, and installation CVA (Certified Verification Agent) work as well as the Marine Warranty Survey work. The 3D computer program, SACS, was used extensively on this project.

### **Williams – Spar Concept Study**

UPI reviewed Conceptual Design Basis and Topsides Equipment Arrangements for Spar facility.

### **W&T – MC 243 A**

UPI provided FEED and continued into detailed design of an upgrade to the water injection system on the facility. Scope included the addition of seawater pumps and modifications to the existing pump and piping system.