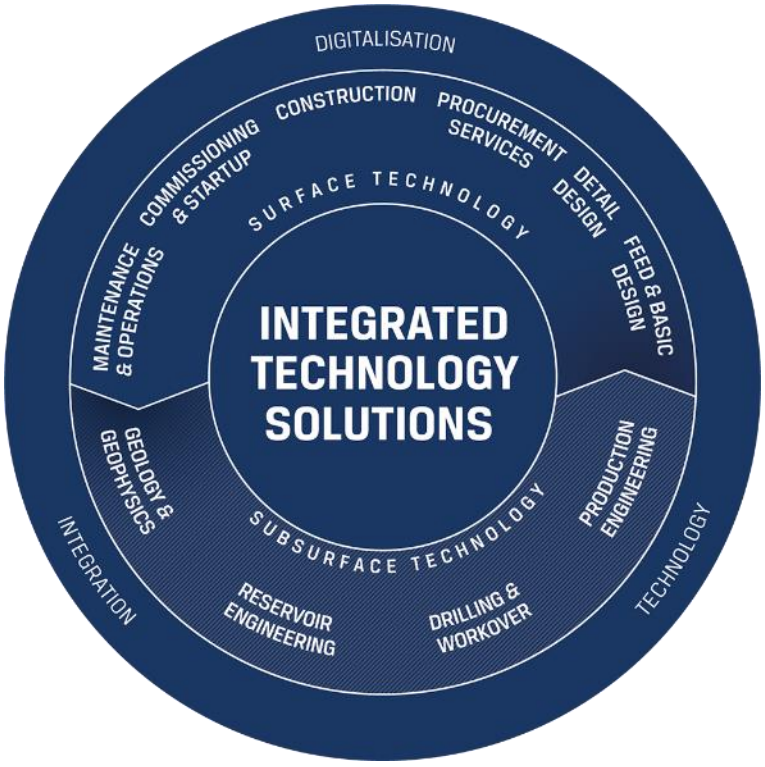
REFERENCE LIST

SURFACE TECHNOLOGY



January 2021

ISO 9001: 2015 Quality Management System
ISO 14001 : 2015 Environment Management System
ISO 45001 : 2018 Occupational Health and Safety Management System
ISO 50001 : 2011 Energy Management System

Certified by TÜV NORD

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SURFACE TECHNOLOGY
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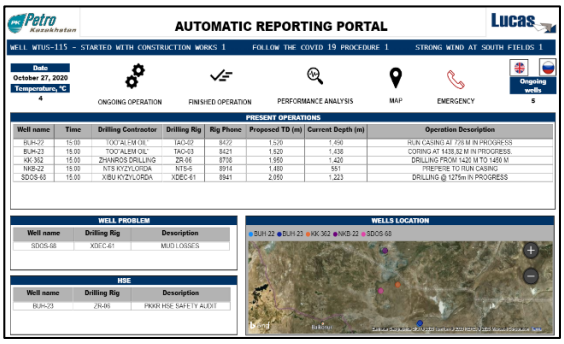
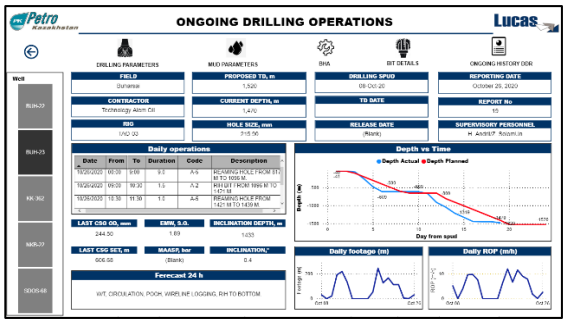
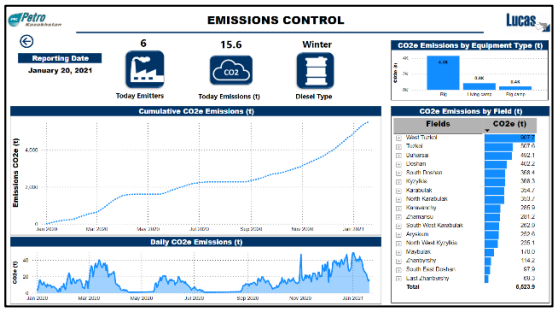
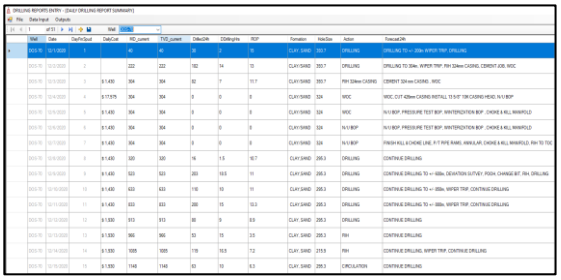








Project: Automatic Drilling Reporting Portal

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

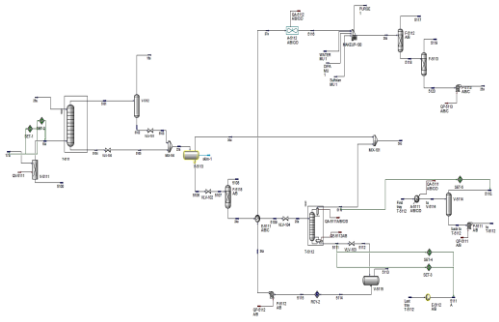
Service: Project

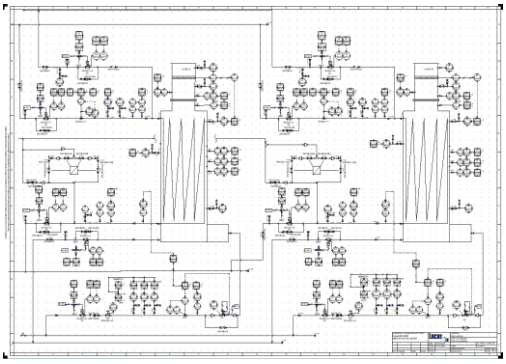
Commencement: April 2020
Completion: Ongoing

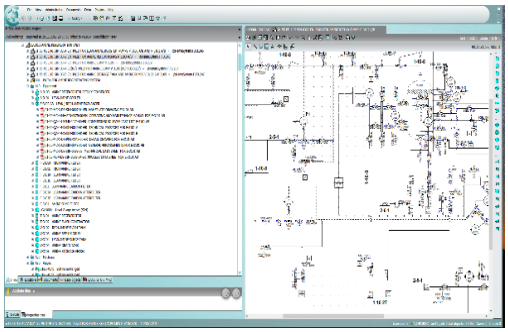
Services include:

1) Data Collection & Storage
   - Data collection from manual inputs, reports
   - Specialised data input forms
   - Data storage for period 2020-2001
   - Reviewing and approval process
   - Different data sources
2) Data Analysis
   - Data cleansing and filtering (pre-processing)
   - Data aggregation and calculations
   - Integration of existing software with DOF
3) Business Processes Orchestration
   - Definition of business processes
   - Developing workflows with RACI matrices
   - Automatization of business processes
4) Automated Reporting System
   - Interactive & intuitive dashboards
   - PDF Reports
   - Data availability (PC, tablet, phone, watch)
   - Role-based approach
   - Real-time monitoring
5) Performance analysis
   - Number of drilled well per year
   - Drilled meters per drilling rig and year
   - Drilling days
   - Average drilled meters per day
   - Average ROP per drilling rig and year
   - Analysis of well problems
   - Operation duration analysis
6) Real time information
   - Well status
   - Current depth
   - Description of current operation
   - Drilling problems
   - HSE accidents
7) Reporting portal services
   - Accurate information in real time
   - Improved operations efficiency
   - Improved operation decisions
   - Accelerated business decisions
   - Reduced diagnostic time
   - Well-structured and easily accessible database

SURFACE TECHNOLOGY
REFERENCE LIST







Project: KPO Sour Gas Processing & Supply to Chinarevskoye Field

Client: Zhaikmunai LLP, Kazakhstan

Services: Front End Engineering Design Project

Commencement: April 2020
Completion: October 2020

Services included:

1) FEED Development
2) New sweetening plant design
3) Process design engineering
4) Mechanical piping design engineering
5) Electrical design engineering
6) I&C design engineering
7) F&G design engineering
8) Fire suppression engineering
9) HYSYS Process Simulations
10) Process design sensitivities analysis
11) Gas Sweetening HYSYS Process Simulations
12) Liquid Sweetening Process
13) Gas Dehydration HYSYS Process Simulations
14) Acid gas compression HYSYS Process Simulations
15) PFD with H&M Balances
16) P&IDs development
17) Equipment Sizing
18) Materials Selection assessment
19) Pipeline Flow Assurance
20) Pipeline hydraulics / capacity evaluation
21) 100km Raw Gas Pipeline Design
22) Pipelines routing assessment
23) Engineering Survey Scope of Work
24) Pipeline materials specifications
25) Mechanical, piping, electrical, I&C specifications
26) General Plans and Key Plans
27) EIA Scope of Work
28) Utilities and infrastructure
29) SCADA control system / Process control philosophy
30) Pipeline control system
31) EPCC Tender, Administrative part
32) EPCC Tender, Technical part
33) Long Lead Process Equipment Tender Packages
34) Long Lead Items Tender Packages

SURFACE TECHNOLOGY
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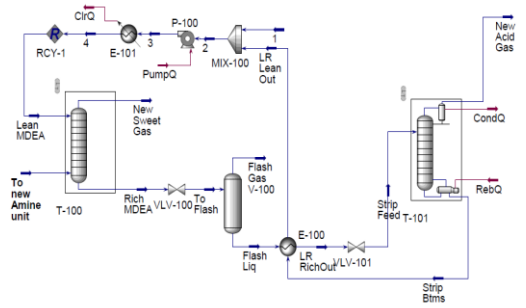
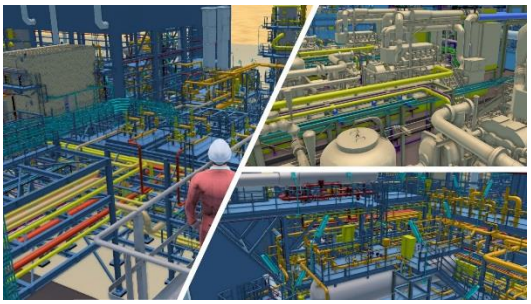
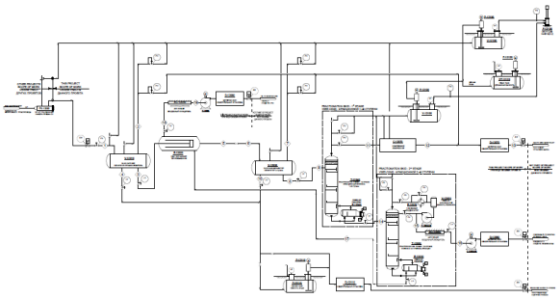






Project: Eight Gas / Oilfield Development Project

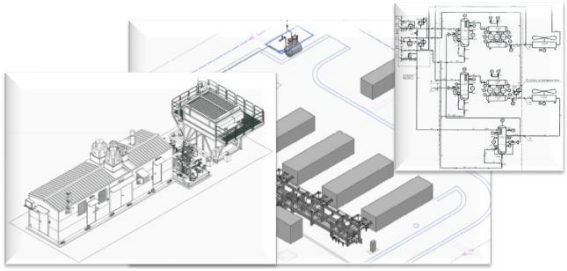
Client: Nostrum Oil & Gas Coöperatief U.A

Services: Full Field Appraisal Development Project

Commencement: January 2019
Completion: December 2019

Services included:

1) Multiphase Development Appraisal Project
2) Development of Engineering Design Packages
3) Process design engineering
4) Mechanical piping design engineering
5) Electrical design engineering
6) Civil design engineering
7) I&C design engineering
8) F&G design engineering
9) Cathodic protection engineering
10) HYSYS Process Simulations
11) Fractionation HYSYS Process Simulations
12) Sulphur Recovery Unit HYSYS Process Simulations
13) Gas Sweetening HYSYS Process Simulations
14) 120km Raw Gas Pipeline Design Package
15) Development of Gathering System for 7 gas-condensate oil field with 120km of pipelines
16) Equipment Sizing
17) Pipelines routing assessment
18) Field Surveying and Routes Selection
19) Site Survey Supervision
20) Engineering Geodetic & Geological Surveying of Raw Gas Pipeline & Gathering System/Facilities
21) Preparation of all required documentation for obtaining Regional and State Approvals
22) Gathering system and surface facilities assessments
23) Environmental Impact Assessment



Project: Extension of Low Pressure System

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: November 2019
Completion: February 2020

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Facility Design
3) Process Flow Diagram
4) P&IDs development
5) Piping 3D Modelling
6) Equipment Sizing
7) Preparation of all required documentation for obtaining Regional and State Approvals

SURFACE TECHNOLOGY
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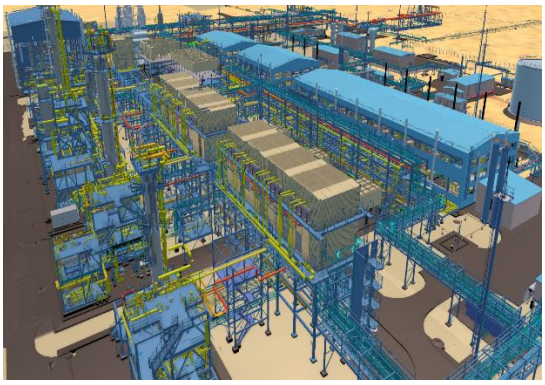

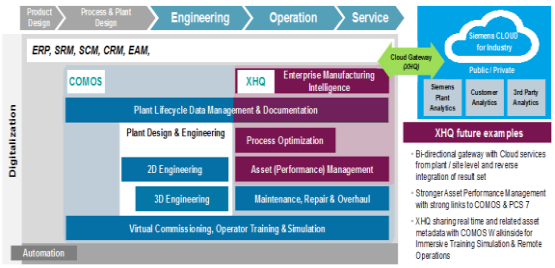

Project: COMOS Pilot Project

Client: ZhaikMunai LLP, Kazakhstan

Service: Pilot Project

Commencement: January 2019
Completion: ongoing

Services include:

1) Project Quality Management
   - Overall Project Management
   - Document revision system
   - Automatic reviewing and approval procedures
2) Document Management System (DMS)
   - Document Planning & Development
   - Automatic numbering procedures
   - Automated document distribution
   - Import, integration and view of external documents
3) Maintenance, Repair, Overhaul (MRO)
   - Maintenance program/strategy (daily, weekly, monthly, yearly planning)
   - Shift management
   - Assign work packages/schedule work & resources
   - Spare parts and stock management
   - Reporting and feedback
   - Risk Assessment
   - Strategy library
4) COMOS Walkinside – 3D Virtual Reality
   - 3D Model Visualisation
   - 3D Integration
   - Start-up Procedures & Scenarios
   - Personnel virtual trainings
   - SCADA Interface
5) Intelligent P&IDs and E&IC diagrams

SURFACE TECHNOLOGY
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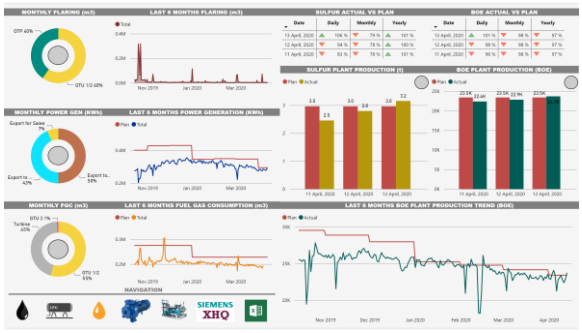
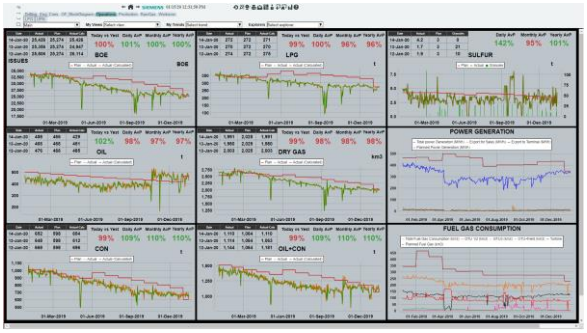
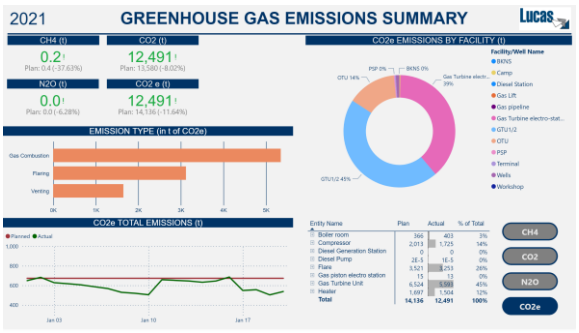






Project: Digital Oil Field

Client: ZhaikMunai LLP, Kazakhstan

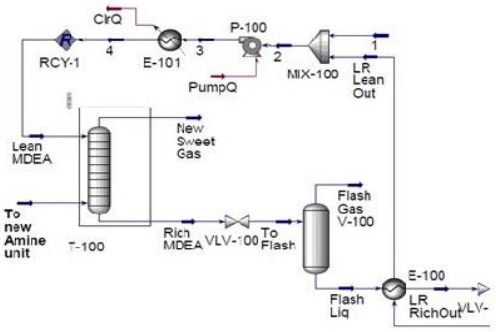
Service: Project

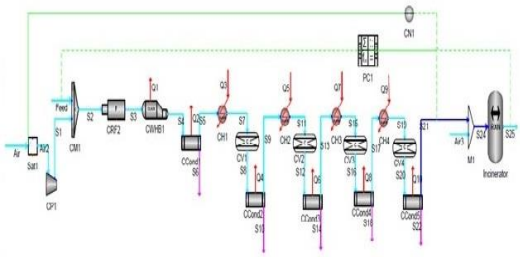
Commencement: April 2018
Completion: December 2019

Services include:

6) Data Collection & Storage
   - Data collection from field instruments
   - Data collection from manual inputs, reports
   - Automatic reviewing and approval process
   - One single data source
7) Data Analysis
   - Data cleansing and filtering (pre-processing)
   - Data aggregation and calculations
     - BOE calculation
     - Units conversion
     - Sales products
     - Oil storage inventory
     - Condensate storage inventory
     - LPG storage inventory
     - Sulfur storage inventory
     - Generated & consumed energy
     - GHG emissions
     - Reservoir contributions
   - ML & AI methods
   - Integration of existing software with DOF
8) Business Processes Orchestration
   - Definition of business processes
   - Developing workflows with RACI matrices
   - Automatization of business processes
9) Automated Reporting System
   - Interactive & intuitive dashboards
   - PDF Reports (government)
   - Data availability (SharePoint, PC, tablet, phone, watch)
   - Role-based approach
   - Real-time monitoring
10) Automated Reporting Portals
   - Facility Operations
   - Wells Production
   - Well Testing
   - Well Interventions
   - Drilling & Workover
   - Engineering & Construction
   - GHG Emissions Control
   - Budget & Cost Control

SURFACE TECHNOLOGY
REFERENCE LIST





Project: Eight Gas / Oilfield Development Feasibility Study

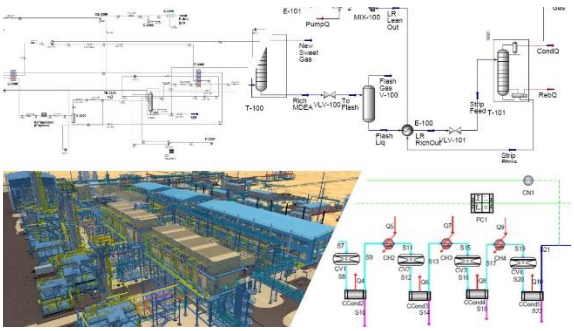
Client: Nostrum Oil & Gas Coöperatief U.A

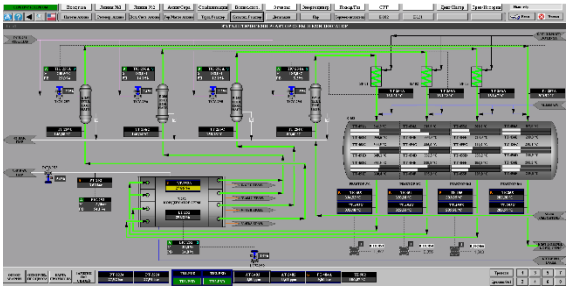
Service: Full Field Appraisal Development Feasibility Study

Commencement: March 2018
Completion: November 2018

Services included:

1) Conceptual technical solutions for group of 8 fields development
2) Gathering system and surface facilities assessments
3) HYSYS Process Simulations
4) Equipment sizing
5) Pipelines hydraulics and sensitivity analysis
6) Flow assurance analysis
7) Pipelines preliminary routing assessment
8) Materials selection assessment
9) Technical and cost comparison between different options for fields development
10) Cathodic protection assessment
11) Utilities and infrastructure availabilities evaluation
12) Power supply evaluation
13) Technical tender specifications for Long Lead Items
14) Cost estimation
15) Pre-Environmental Impact Assessment





Project: HYSYS Ongoing Support
Client: Zhaikmunai LLP, Kazakhstan

Services: Process Simulation Assessments

Commencement: June 2015
Completion: Ongoing (2015, 2016, 2017, 2018, 2019)

Services included:

1) Gas Treatment Unit Complex HYSYS model development
2) Oil Treatment Unit Complex HYSYS model development
3) Maintaining live HYSYS models for existing process facilities per production / operation data
4) Existing process facilities sensitivity analysis
5) Troubleshooting of existing process facilities with problems resolving
6) Equipment sizing
7) Existing equipment rating and efficiency verification for different production flow rates
8) Operation envelope assessment
9) Simulations for estimating products yields
10) Generic model development for gas lift implementation in oil production wells
11) Flow assurance analysis
12) Well HYSYS Generic Model Development
13) Process Plants Optimization
14) Continuous Client Support

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Power Station at West Tuzkol Oil Field

Client: TuzkolMunaiGaz Operating LLP / Kolzhan LLP, Kazakhstan

Services: Detail Design – Process Part & In-House Support

Commencement: February 2018
Completion: July 2018 (design) /December 2019 (support)

Services included:

1) Inlet Data Analyzes Report
2) Development of Process part of design
3) HYSYS Process Simulations, Process calculations and sizing
4) Development of Process Flow Diagrams, Piping & Instrumentation Diagram,
5) Preparation of Technical Tender Specifications for the main Process Equipment Packages
6) Preparation of Explanatory Notes, Design Basis Memorandum
7) In-House Personal Engineering Support
8) Development of Instrumentation & Control and Fire & Gas project parts
9) Planning and scheduling support
10) Cost estimates
11) Procurement support with Technical and commercial Bid Evaluations
12) Review of Vendor documentation
13) FAT of gas turbine
14) Construction SoW and Tender development support
15) Project Authorship
16) Commissioning and Start-up support.

Project: Gas Treatment Unit Complex Control Valves & Pumps Assessment for Facility Minimum Flow

Client: Zhaikmunai LLP, Kazakhstan

Services: Process Assessment

Commencement: November 2018
Completion: January 2019

Services included:

1) Assessment of pumps operability at facility minimum flow rates
2) Assessment of control valves operability at facility minimum flow rates

Project: "Chinarevskoe GTU-1/2 – Piping System Upgrading"

Client: ZhaikMunai LLP, Kazakhstan

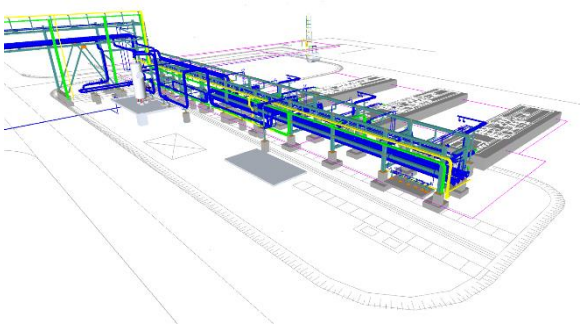
Services: Detail Design

Commencement: November 2017
Completion: March 2018

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Facility Design
3) Process Flow Diagram
4) P&IDs development
5) Tie-in points for installation during shutdown
6) Piping 3D Modelling
7) Technical Tender Specifications
8) Equipment Sizing
9) Preparation of all required documentation for obtaining Regional and State Approvals
10) HAZOP/HAZID Session

SURFACE TECHNOLOGY
REFERENCE LIST



Project: Chinarevskoe Field. LP Gas System Construction

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: October 2016
Completion: Core Project in 2017, Scope Change - Feb 2018

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Facility Design
3) Process Flow Diagram
4) P&IDs development
5) Tie-in points for installation during shutdown
6) Piping 3D Modelling
7) Technical Tender Specifications
8) Equipment Sizing
9) 10kV OH Line Design
10) Preparation of all required documentation for obtaining Regional and State Approvals
11) Ecological Study - Environmental Impact Assessment
12) Engineering Survey
13) Upgrading of Detail Design due to Scope Changes

Project: C-103 & C-104 Compressed Gas Cooling Process Upgrading

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: February 2017
Completion: May 2017

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Materials Selection
3) Piping 3D Modelling
4) Technical Tender Specifications
5) Construction Project Organization
6) Ecological Study - Environmental Impact Assessment

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Oil Pipeline Construction for Connection to KTO Pipeline System

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: April 2016
Completion: December 2016

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Facility Design
3) Oil Pipeline Design c/w optical cables
4) Commercial Metering w. Tie-in to KTO Pipeline
5) Process Flow Diagram and P&IDs development
6) Piping 3D Modelling
7) Equipment Sizing
8) Cathodic protection
9) Road design
10) 10kV OH Lines Design
11) Preparation of all required documentation for obtaining Regional and State Approvals
12) Ecological Study - Environmental Impact Assessment
13) Engineering Survey

Project: GTU-1/2 Manifold Upgrading and Connection to GTU-3

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: June 2016
Completion: August 2016

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Process Flow Diagrams
3) P&IDs development.
4) Pipeline Hydraulics.
5) Cathodic protection.
6) Ecological Study

Project: N-E Tournaisain Reservoir, Gas-Lift System Development, Phase 2

Client: Zhaikmunai LLP, Kazakhstan

Services: Detail Design

Commencement: June 2016
Completion: September 2016

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Heat and Material Balance
3) Process Flow Diagrams
4) P&IDs development
5) Pipeline Hydraulics
6) Piping 3D Modelling
7) Cathodic protection
8) Ecological Study – Environmental Impact Assessment
9) Engineering Survey

SURFACE TECHNOLOGY
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Project: GTU-1/2 Modernization Phase II

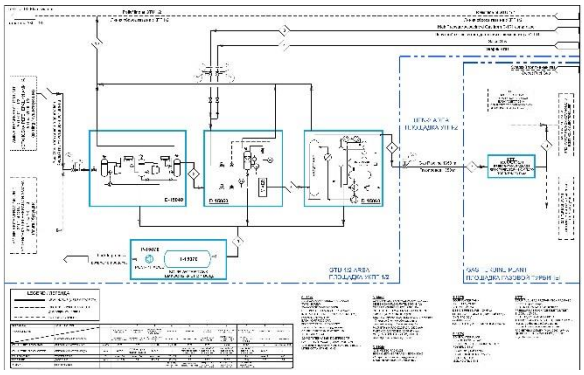
Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: January 2016
Completion: May 2016

Services included:

1) Detail Design and project adaption for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Instrumentation
   - Fire and Gas detection
   - Fire Suppression
2) Project adaption with preparation of all required documentation for obtaining Regional and State Approvals
3) Ecological Study - Environmental Impact Assessment



Project: Sour Gas Utilization as Fuel Gas for AEG 26 MW Turbine

Client: ZhaikMunai LLP, Kazakhstan

Services: Project for Approval and Detail Design

Commencement: December 2015
Completion: May 2016

Services included:

1) Project for Approvals with Explanatory Notes, Development of all required supporting documentation for obtaining Regional and State Approvals
2) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
3) Heat and Material Balance.
4) Process Flow Diagrams
5) P&IDs development
6) Materials Selection for Acid Gas
7) Piping 3D Modelling
8) Equipment Sizing
9) Technical Tender Specifications
10) Cathodic protection
11) Ecological Study - Environmental Impact Assessment
12) Engineering Survey

Project: Fuel Gas Supply System for AEG Gas Turbine 26 MW

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: February 2015
Completion: June 2015

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Heat and Material Balance.
3) Process Flow Diagrams
4) P&IDs development.
5) Pipeline Hydraulics.
6) Piping 3D Modelling
7) Equipment Sizing.
8) Cathodic protection.
9) Explanatory Notes
10) Ecological Study - Environmental Impact Assessment (OOC)
11) Engineering Survey

Project: GTU-3 Inlet Manifold & Gas-Condensate Connection Pipelines

Client: ZhaikMunai LLP, Kazakhstan

Services: Detail Design

Commencement: February 2015
Completion: June 2015

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Heat and Material Balance.
3) Process Flow Diagrams and P&IDs development.
4) Pipeline Hydraulics.
5) Piping 3D Modelling
6) Piping Stress Analyzes
7) Equipment Sizing.
8) Cathodic protection.
9) All disciplines documentation development (process, mechanical / piping, civil, electrical, I&C).

Project: Pump Station to Transfer Oil to CPF Kumkol South Phase 2

Client: VSP International LLP, Kazakhstan

Services: Detail Design & Project for Approvals & Authorship Supervision

Commencement: March 2015
Completion: July 2015

Services included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection

2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise

3) Authorship Supervision

Project: GTP Inlet Manifolds and LP Gas-Condensate Gathering & Treatment System

Client: ZhaikMunai LLP, Kazakhstan

Services: Project for Approvals

Commencement: August 2014
Completion: March 2015

Services included:

1) Project for Approvals with Explanatory Notes, Development of all required supporting documentation for Regional and State Approvals
2) All disciplines documentation development (process, mechanical / piping, civil, electrical, I&C).
3) Heat and Material Balance.
4) Process Flow Diagrams
5) P&IDs development.
6) Equipment Sizing.
7) Technical Tender Specification & Requisitions.
8) Ecological Study - Environmental Impact Assessment (OBOC)
9) Engineering Survey
10) Technical Bid Evaluations and Vendor Document Reviewing

Project: Chinarevskoe West Manifold

Client: ZhaikMunai LLP, Kazakhstan

Services: Project for Approvals

Commencement: August 2014
Completion: February 2015

Services included:

1) Project for Approvals with Explanatory Notes, Development of all required supporting documentation for Regional and State Approvals
2) All disciplines documentation development (process, mechanical / piping, civil, electrical, I&C).
3) Heat and Material Balance.
4) Process Flow Diagrams
5) P&IDs development.
6) Equipment Sizing.
7) Technical Tender Specification & Requisitions.
8) Engineering Survey
9) Ecological Study - Environmental Impact Assessment (OBOC)
10) Technical Bid Evaluations and Vendor Document Reviewing

Project: Konys-Bektas Surface Facilities Performance Analyses

Client: KuatAmlonMunai (KAM) LLP, Kazakhstan

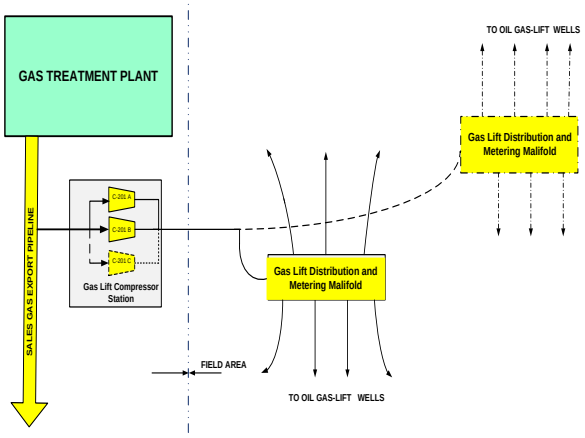
Services: Study

Commencement: Jun 2014
Completion: August 2014

Services included:

1) Data Acquisition.
2) As Built Process Flow Diagrams development
3) Process Description and Facilities overview
4) Equipment List preparation
5) Operations Problems Identification
6) Problem Analyses and Problems solutions / opportunities identification
7) Facilities sizing calculations
8) Future projects/facility scenarios analyses
9) Proposals/Recommendations for facilities optimization, debottlenecking and improvement
10) Cost Estimation for proposed Upgrades

SURFACE TECHNOLOGY
REFERENCE LIST



Project: N-E Tournaisain Reservoir Gas-Lift Compressor Facility & Gas Lift Distributive System Construction

Client: Zhaikmunai LLP, Kazakhstan

Services: Detail Design & Project for Approvals

Commencement: December 2013
Completion: December 2014

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Heat and Material Balance.
3) Process Flow Diagrams and P&IDs development.
4) Pipeline Hydraulics.
5) Piping 3D Modelling
6) Piping Stress Analyzes
7) Equipment Sizing.
8) Cathodic protection.
9) Technical Tender Specification for Gas-Lift Compressors.
10) Technical Tender Specification & Requisitions.
11) Project for Approvals with Explanatory Notes, Development of all required supporting documentation for Regional and State Approvals
12) Ecological Study - Environmental Impact Assessment (OBOC)
13) Engineering Survey
14) Approvals obtaining

SURFACE TECHNOLOGY
REFERENCE LIST

Project: N-E Tournaisain - Reservoir Pressure Maintenance System (RPMS), Phase 2 - Detail Design

Client: Zhaikmunai LLP, Kazakhstan

Services: Detail Design

Commencement: October 2013
Completion: September 2014

Services included:

1) Detail Design for all disciplines (process, mechanical / piping, civil, electrical, I&C).
2) Heat and Material Balance
3) Process Flow Diagrams and P&IDs development.
4) Pipeline Hydraulics
5) Piping 3D Modelling
6) Equipment Sizing.
7) Technical Tender Specification & Requisitions.
8) Explanatory Notes.
9) Ecological Study - Environmental Impact Assessment (OOC)
10) Development of all required supporting documentation for Regional and State Approvals
11) Engineering Survey
12) Approvals obtaining

SURFACE TECHNOLOGY
REFERENCE LIST

Project: West Tuzkol Industrial Development

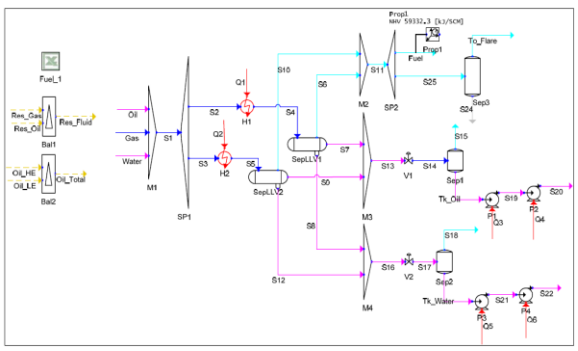
Client: Kolzhan LLP, Kazakhstan

Services: Detail Design & Project for Approvals

Commencement: February 2014
Completion: July 2014

Services included:

1) Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
   - Expertise of energy conservation and energy efficiency
3) Project included:
   - Wells – more than 400
   - Access roads
   - Flow lines – more than 200km
   - Satellites - 25
   - WDM - 11
   - FWKO - 2
   - Field Camp Extension
   - Power Station – 25 MW
   - HV line 35kV & 6 kV
   - Fire and Gas Detection and Fire Suppression
   - Control System
   - Telecommunication System



Project: West Tuzkol development at pilot operation. 2nd stage

Client: Kolzhan LLP, Kazakhstan

Services: Detail Design & Project for Approvals & Authorship Supervision

Commencement: August 2013
Completion: July 2014

Services included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
3) Authorship Supervision

SURFACE TECHNOLOGY
REFERENCE LIST

Project: South-West Karabulak Filed Development at Production Testing. 2nd Stage

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Services: Detail Design & Project for Approvals & Authorship Supervision

Commencement: August 2013
Completion: July 2014

Services included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
3) Authorship Supervision

Project: Pipeline from GS-2 at Kyzylkiya o/f to GS-1 at South-East Kyzylkiya

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

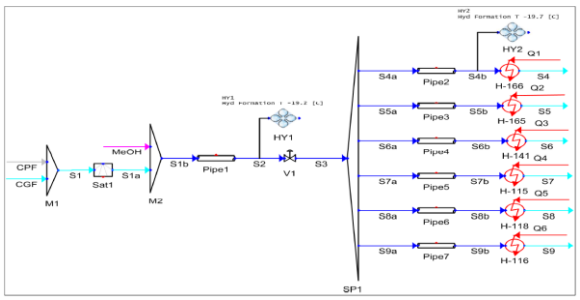
Services: Detail Design & Project for Approvals & Authorship Supervision

Commencement: April 2013
Completion: July 2014

Services included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
3) Authorship Supervision

SURFACE TECHNOLOGY
REFERENCE LIST



Project: Design of Producing wells conversion to gas lift operation method Aryskum o/f

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Services: Detail Design & Project for Approvals & Authorship Supervision

Commencement: April 2013
Completion: February 2014

Services included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
3) Authorship Supervision

Project: Engineering , procurement and construction of the 10 "West Tuzkol - Kumkol oil pipeline"

Client: SPF Montazhspetsstroy" LLP, Kazakhstan

Services: Detail Design & Project for Approvals & Support

Length of pipeline 100km
Start date of the Engineering - 30 April 2013
Project submitted for State Expertise 26 July 2013
State Expertize obtained - 15 August 2013
Start-up of pumps and pipelines January 2014

Services Included:

1) Detail Design for all disciplines:
   - Process
   - Mechanical
   - Civil
   - Electrical,
   - Cathodic Protection
   - Instrumentation
   - Fire and Gas detection
2) Regulatory Authorities and State Expertise :
   - Environmental Assessment
   - Conclusion of Emergency Department
   - Conclusion of SES
   - Conclusion of Ecology Department
   - Safety Declaration
   - Conclusion of State Expertise
3) Support for lend allotment documentation (plan of the pipeline route drawings etc..)
4) Support for approvals such as:
   - Cross-section of the Kazakhstan – Chine oil pipeline
   - Cross-section of the KazGerMunai gas pipeline
   - Cross-section of the KazGerMunai HV 110kV overhead line etc...
5) Support for Topographic and Geologic Survey
6) Support for Procurement
7) Technical analysis of all vendor proposals
8) Technical bid evaluation
9) Support for Construction
10) Authorship Supervision
11) Support for Commissioning
12) Support for Start-up

Project: N-E Tournaisain - Reservoir Pressure Maintenance System (RPMS), Phase 2 Basic Design

Subproject: South Plant Upgrading & North Plant Construction

Client: Zhaikmunai LLP, Kazakhstan

Services: Basic Design

Commencement: June 2013
Completion: August 2013

Services included:

1) Basic Design of two Options for RPMS Project Phase 2 Development. Option 1 is based on utilization of existing water sources: formation water from UPN-1 and artesian water from southern aquifer and upgrading of Water Gathering & Treatment - South Plant with New Field WDM and injection pumps at four injection well sites. Option 2 included construction of new Water Gathering & Treatment - North Plant and utilization of water from northern aquifer as injection water source with -1 and artesian water from southern aquifer and upgrading of Water Gathering & Treatment - South Plant with New Field WDM and injection pumps at four injection well sites.
2) Process and project development for both Options of RPMS Project Phase 2 Development
3) Development of the Design Basis Memorandums.
4) Development of Process Flow Diagrams
5) Development of the Piping and Instrumentation Diagrams
6) Facilities layout for the water injection plant.
7) Preliminary routing of new water transfer and distribution lines.
8) Development of the technical specifications for major equipment procurement.
9) Project cost estimate for both Options
10) Preparation of Technical Specification for major equipment

Project: Chinarevskoe field Gathering system (RE) Development

Client: Zhaikmunai LLP, Kazakhstan

Services: Feasibility Study

Commencement: June 2013
Completion: August 2013

Services included:

1) Studying of ZKM existing gathering system, review and consolidation of overall input data
2) Assessment of current operating conditions in crude oil/gas-condensate gathering systems.
3) Evaluation of available PVT fluid data for wells
4) Preparation of corrected modeled fluid compositions for wells without available PVT analyzes to meet required flow rates.
5) Developing strategy for gathering system upgrading
6) Preparing hydraulic model of new gathering system and evaluating system performances
7) Developing process solution for fluid gathering in the west field area
8) Analyzing and proposing location of West Manifold Facility
9) West Manifold Facility equipment sizing
10) Transfer lines hydraulic calculations
11) Analyzes of future field development, concept of collecting centers
12) Development of Process Flow Diagrams
13) Proposing process solution for handling of Biyski high water cut wells
14) Proposed solution for new wells in central field area
15) Project cost estimation

Project: NW Konys Integrated Oil Field Development Plan (Integration of Subsurface Reservoir Technology and Surface Technology Solutions)

Client: Galaz and Company LLP/ LG International

Service: Conceptual Surface Engineering solutions matched to the production profile of the oil field. Gas Utilization by reinjection to the reservoir plus reservoir pressure maintenance by water injection.

Preparation of EPCC Tender Package including the Long Lead Item equipment tender packages.

Commencement: July 2012
Completion: December 2012

Services included:

1) Development of Project Execution Plan
2) Development of Design Basis Memorandum
3) Process study and modeling and Process Flow Diagram development
4) Heat and Material balance
5) Conceptual Piping and Instrumentation Diagram Development for oil collection, Central Treating, oil export by truck loading and water injection
6) Flowline and Equipment sizing
7) Preparation of equipment technical specifications for tender and procurement
8) Development of Explanatory Notes for Regional and State Approval.
9) Project Cost Estimate for base solution
10) Alternative studies for oil processing variants.

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Pre-Feasibility Study GTP Inlet Gas - Condensate Stream Heating

Client: Zhaikmunai LLP, Kazakhstan

Services: Pre-Feasibility Study

Commencement: February 2012
Completion: May 2012

Services included:

1) Analyzes of GTP operating problems,
2) Evaluation of available PVT fluid data for wells
3) Preparation of corrected modeled fluid compositions for wells without available PVT analyzes to meet required flow rates.
4) Studying of ZKM existing gathering system, review and consolidation of overall input data
5) Analyzes of hydrates forming conditions and prevention program
6) Flowline hydraulic calculations
7) Wellhead Heaters sizing and selection
8) Evaluation of possible fuel sources for heaters
9) Slugging analyzes in gathering system
10) Slug catcher type analyzes
11) Slug catcher sizing and selection
12) New GTP heater sizing and selection
13) Capital and operating cost estimation

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Chinarevskoe Reservoir Pressure Maintenance Facility – EPCC

Client: Zhaikmunai LLP, Kazakhstan

Services: Engineering, Detailed Design, Regulatory and State Approvals, Procurement, Logistics Management for Major Equipment, Construction, Technological Testing of the Facilities and State Act of Commission

Commencement: January 2010
Completion: July 2011

Services and facilities included;

1) Project Management
2) Engineering
3) Construction
4) Commissioning
5) Detailed Design
6) Inlet Header c / w Pig Receiver assemblies,
7) Two Cartridge Filter Sets F-6810/A/B,
8) three Water Injection Pump Sets
9) Two 1000 m3 Water tanks
10) Fire Detection System
11) Water Distribution Manifold for 4 (four) injection wells 53, 115, 118 and 121,
12) Pig Launchers assemblies for 4 (four) injection wells 53, 115, 118 and 121,
13) Chemical Injection Package CI-6850,
14) Nitrogen Generator Package GN-6830 with receiver,
15) Diesel Generator Package Set c / w Day Tank and Enclosure
16) Pipe Rack and Cable Trays as required for interconnection of Equipment
17) Low Voltage MCC
18) Transformer Substation 6/0.4 kV
19) PLC Control System with Uninterruptible power supply
20) Control Room (container 12 m x 2.4 m)

Project: Operations and Maintenance of
Komsomolskoe Oilfield – O&M

Client: OMV Petrom Group on behalf of
Kom Munai LLP, Kazakhstan

Services: Operations and Maintenance Support Services
for the Central Production Facility
at Komsomolskoe and the ORF at Karakuduk

Commencement: November 2009
Completion: February 2011

Services included:

1) Provision of Lead Operations and Maintenance Supervisor for works coordination with Kom Munai.
2) HSE Coordinator to ensure compliance with OMV Petrom HSE requirements.
3) Provision of Specialized Personnel required for the Operations and Maintenance of the following equipment;
   a) Low Pressure Screw Compressors (2)
   b) High Pressure Reciprocating Compressors 3 stage-320 Barg discharge pressure. Sour Service.
   c) Amine based gas sweetening plant.
   d) Fuel gas treatment and operation and maintenance.
4) Provision of Specialized Personnel required for the Operations and Maintenance of the 4 by 2.5 Mw PAES Gas Turbine driven power generation equipment.
5) Specialized personnel in Mechanical Rotating equipment, Electrical and Instrumentation for the Oil Receiving Facility at Karakuduk.
6) Small projects construction support team.
7) Roustabout maintenance personnel.
8) Emergency Response Support in the form of personnel, equipment and machinery.
9) Provision of all test equipment and specialty tools as required for the execution of the contract.
10) On the job training of the Kom Munai Operations and Maintenance staff.

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Pipeline Surveillance for the Komsomolskoe Gathering System and for the Export Oil Pipeline

Client: OMV Petrom Group on behalf of Kom Munai LLP

Services: Pipeline and Gathering System right of way surveillance for Komsomolskoe Oil Export Pipeline (81km), SOR Kaydak Crossing and Komsomolskoe Oil Gather, Water and Gas Injection Systems

Commencement: November 2009
Completion: February 2011

Services included:

1) Provision of all equipment and machinery necessary for the pipeline surveillance program to be execute on dry land, wetland and water submerged territory.
   a. Amphibian Vehicle
   b. Boat and motor
   c. Hover Craft – 2 person
   d. Hover Craft – 10 person
   e. 4 wheel drive Hilux vehicles
   f. Specialty tools
2) Emergency Response Support in the form of equipment and personnel.
3) Weekly survey of the SOR Kaydak – 16 km water crossing.
4) Weekly survey of the Pipeline Right of Way –dry land portion.
5) Weekly survey of the Gathering System –dry land and wet land Right of Ways.
6) Monthly checking of the Cathodic Protection System for the Export Pipeline, Gathering System and CPF Facilities.
7) Execution of the required pigging program for the Export oil Pipeline and oil flowlines.
8) Export Oil Pipeline Block valve station inspection (3) and verification of safety system performance.
9) Oil Gathering System safety system performance verification.
10) Gas Injection System safety system performance verification.
11) Full compliance with OMV Petrom HSE requirements.

Project: Komsomolskoe Permanent Camp - EPCC

Client: OMV Petrom Group on behalf of Kom Munai LLP

Services: Project Management, Engineering, Detailed Design, Regulatory Approvals, Procurement and Logistics Management for Major Equipment, Construction and State Acts of Commission

Commencement: October 2009
Completion: October 2010

Services and Facilities included:

1) 70 person 2 story accommodation block including VIP Rooms.
2) Multipurpose building which combined the kitchen, dining and recreational facilities into a single building.
3) Office block
4) Medical Clinic per OMV International Criteria
5) Fire Post per Republic of Kazakhstan Criteria
6) Multipurpose warehouse and maintenance building.
7) Potable and Technical Water Supply and Storage.
8) Sewage water treatment and disposal.
9) Inter camp roads
10) Site lighting and electrical safety system

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Komsomolskoe Oil Field
Development – EPCC

Client: OMV Petrom Group on behalf of
Kom Munai LLP

Services: Engineering, detailed design, Regulatory Approvals, Procurement, Logistics Management for major equipment, Construction, technological testing of the facilities and State Act of Commission

Commencement: August 2007
First Oil August 2009
Completion: December 2009

Services and Facilities included:

1) Oil Gathering piping network, (trunks, flowlines, pigging facilities, distribution manifolds, various process equipment)
2) Central Processing Facility for oil water and gas separation.
3) Two stages of water separation
4) Three stages of gas separation
5) Two stages of fluids heating with gas and diesel fuel systems.
6) Crude oil desalting facility.
7) Water injection piping distribution network operating at 150 Barg,
8) Gas Injection piping distribution network operating at 320 Barg
9) Amine plant for H2S removal from the utility gas stream
10) Two Sour gas Compression trains consisting of screw compressors for low pressure gas recovery and 3 stage reciprocal compressors for injection.
11) Full gas recovery and utilization
12) Export Oil Storage 2 by 2000m3
13) Export Oil Shipping Pumps
14) Export Metering System for pipeline leak detection
15) Produced water storage 1000m3
16) Produced water pumping station for reinjection into the reservoir as part of the reservoir pressure maintenance
17) Turbine Power Generation units for a total install of 10 MW.
18) Diesel Driven Emergency Generator rated at 2.5 MW
19) Process Control PLC Control System
20) Safety Control PLC System
21) Uninterruptible Power Supply
22) Fire Water Deluge system for Crude Oil Tanks.
23) Plant wide Fire and Gas Detection system with CO2 fire suppression for the compressor buildings and nitrogen fire suppression for the process heaters.
24) Emergency flaring for high pressure and low pressure gases
25) Site Lighting and electrical safety systems

Project: Komsomolskoe to Karakuduk
Export Oil Pipeline – EPCC

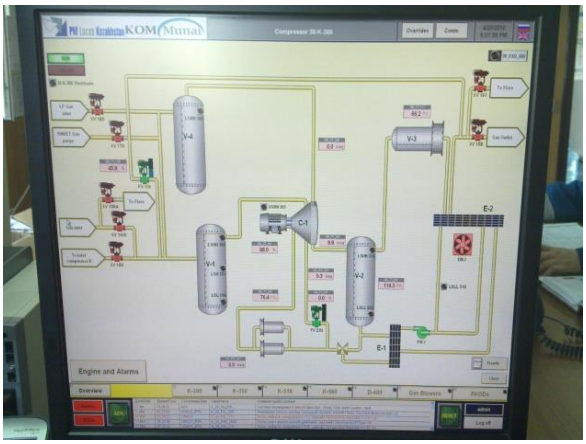
Client: Client: OMV Petrom Group on
behalf of Kom Munai LLP

Services: Engineering,
Detailed Design,
Regulatory Approvals,
Procurement,
Logistics Management for Major Equipment,
Construction,
Technological Testing of the Facilities and
State Act of Commission.

Commencement: October 2007
Completion: December 2008

Services and Facilities include:

1) 81 km by 168 mm by 5.6 mm wall thickness API-5L-X-52 Grade Steel Export Oil Pipeline.
2) 16 km of wetland/ water crossing of the SOR Kaydak.
3) Full set of pigging facilities suitable for intelligent pigging of the pipeline.
4) Remote controlled Emergency Block valve on either side of the SOR Kaydak complete with automatic shutdown system.
5) Wireless Communications System for block valve stations.
   Solar Powered Remote Block valve sites.
6) Supervisory Control and Data Acquisition System
7) Line balancing system for leak detection.



Project: SCADA for Komsomolskoe to
Karakuduk Export Oil Pipeline - EPCC

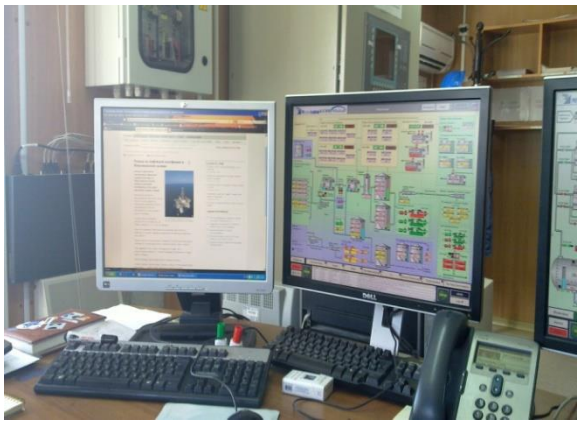
Client: OMV Petrom Group on behalf of KomMunai LLP

Services: Project Management, Engineering,
Detailed Design, Regulatory
Approvals, Procurement,
Installation, Commissioning and
Training of Client Key Personnel.

Commencement: August 2007
Completion: May 2009

System included:

1) Process and Safety System PLC for monitoring of the pressure at each of the remote block valve stations and automatic closure of the valve upon loss of pressure.
2) Wireless Communication System to the two Remote Block Valve stations located on either side of the SOR Kaydak water crossing.
3) Satellite Communication system between Karakuduk and Komsomolskoe Oilfield.
4) Emerson Delta V PLC system for interfacing the process parameter monitoring of the Custody Transfer Metering Station at Karakuduk.
5) Fiber Optic interface to KazTransOil for process parameter monitoring of the Custody Transfer metering station at Karakuduk.
6) Satellite Communications equipment
7) UPS Systems for Konys and Kumkol Site.
8) Programming of the PLCs at Konys and Kumkol.
9) Development of the Cause and Effects Matrices for Konys and Kumkol Sites.
10) Factory Acceptance Testing
11) Field Acceptance Testing
12) Key Client Employee Training at the manufacturing facility.



Project: Karakuduk Oil Receiving Facility
and connection to KazTransOil - EPCC

Client: OMV Petrom Group on behalf of KomMunai LLP

Services: Project Management,
Engineering, Detailed Design,
Regulatory Approvals,
Procurement and Logistics
Management for major
Equipment, Construction and
State Acts of Commission

Commencement: April 2008
Completion: July 2009

Services and Facilities included:

1) Project Management
2) Engineering
3) Detail design for all disciplines
4) Preparation of Explanatory Note for Regulatory Approval and State Expertizing
5) Material Procurement and expediting
6) Construction Management
7) Technological testing development program, approval by regulatory and execution of the program
8) Act of State Commission
9) Inlet metering for Leak detection on the pipeline
10) KTO required 100 m3 oil quality storage bullets.
11) Oil Booster pump station
12) Export Oil pumping station
13) Oil Heaters
14) RoK KazInMeter Certified Custody Transfer Oil metering station.
15) Fire Detection System
16) Site Lighting and electrical safety system

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Chinarevskoye Pressure Maintenance FEED Study

Client: Zhaikmunai LLP, Kazakhstan

Services: Front End Engineering and Design of the Pressure Maintenance Facilities Required for the Reservoir.

Commencement: September 2008
Completion: January 2009

Services included:

1) Technical Water Well System Performance investigation and inflow performance assessment and report.
2) Injectivity performance assessment and report.
3) Development of the Design Basis Memorandum.
4) Development of Process model with heat and material balance
5) Equipment sizing
6) Development of the Piping and Instrumentation Diagrams
7) Facilities layout for the water injection plant.
8) Detailed design of the facilities
9) Design of the Technical Water Gathering system design
10) Design of the Water Injection system design.
11) Development of the technical specifications for major equipment procurement.
12) Development of the Explanatory Notes for Regulatory Approval and State Expertizing Approval.
13) Project cost estimate
14) Preparation of Tender Packages for the procurement of major equipment.

Project: Kyzan to Komsomolskoe Service and Access Roads plus Komsomolskoe well sites and well site access roads maintenance contract

Client: OMV Petrom Group on behalf of KomMunai LLP

Services: Road Maintenance Service Contract

Commencement: August 2008
Completion: August 2010

Services included:

1) Supply of all specialized personnel, machinery and equipment as necessary to ensure the 100km of road from Kyzan to Komsomolskoe and the infield access road to the well sites are passable 24 hrs. per day 365 days per year.
2) Provide annual road maintenance plan and execution to ensure the 100km of Category IV and V access roads and infield access roads are kept at as constructed conditions.
3) Provide all repair materials for the servicing of the roads as required per the approved annual maintenance plan.
4) Provide emergency response support in the form of personnel and equipment as requested by KomMunai.
5) Full compliance with OMV Petrom HSE requirements.

SURFACE TECHNOLOGY
REFERENCE LIST

Project: 86km Akshimrau to
Komsomolskoe Category V Access
Road - EPCC

Client: OMV Petrom Group on behalf of KomMunai LLP

Services: Project Management
Engineering, Detailed Design,
Regulatory Approvals,
Procprocurement and Logistics
Management for Materials
Supply, Construction and State
Acts of Commission.

Commencement: March 2007
Completion: December 2007

Services included:

1) Project Management
2) Engineering and detail design of the RoK Category V access road.
3) Regulatory approvals within Mangystau Oblast.
4) State Expertizing of the Project
5) Management of Subcontractors
6) Materials sourcing and supply
7) QA/QC execution per the Normative requirements of Kazakhstan
8) RoK Working Commission
9) RoK State Commission

Project: 14km Kyzan to Akshimrau
Category IV Service Road - EPCC

Client: OMV Petrom Group on behalf of KomMunai LLP

Service: Project Management,
Engineering, Detailed Design,
Regulatory Approvals,
Procurement and Logistics
Management for Materials
Supply, Construction and State
Acts of Commission.

Commencement: March 2007
Completion: July 2007

Services included:

1) Project Management
2) Engineering and detail design of the RoK Category IV service road.
3) Regulatory approvals within Mangystau Oblast.
4) State Expertizing of the Project
5) Management of Subcontractors
6) Materials sourcing and supply
7) QA/QC execution per the Normative requirements of Kazakhstan
8) RoK Working Commission
9) RoK State Commission

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Komsomolskoe Oilfield Drilling
Pads (6) & associated Category V
Access roads- 14 km - EPCC

Client: OMV Petrom Group on behalf of KomMunai LLP

Service: Project Management,
Engineering, Detailed Design,
Regulatory Approvals,
Procurement and Logistics
Management for Materials
Supply, Construction and State
Acts of Commission.

Commencement: March 2007
Completion: Dec 2008

Services included:

1) Project Management
2) Engineering and detail design of the drilling pads for a 2000 HP drilling rig with associated support equipment.
3) Engineering and detail design of the RoK Category V access road.
4) Development of Explanatory Notes for Regulatory approvals and for State Expertizing approval within Mangystau Oblast.
5) Project Management of Subcontractors
6) Materials sourcing, supply and logistics management
7) QA/QC execution per the Normative requirements of Kazakhstan
8) RoK Working Commission
9) RoK State Commission

Project: Associated Gas Utilization Study

Client: OMV Petrom Group on behalf of
Tasbulat Oil Company

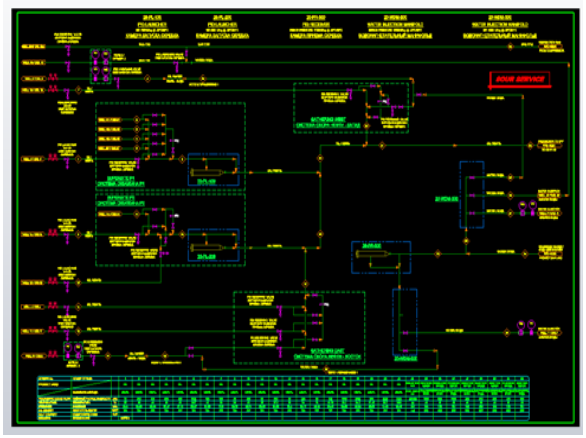
Services: Engineering Conceptualization
Study with Cost Estimate and
Project Execution Schedule.

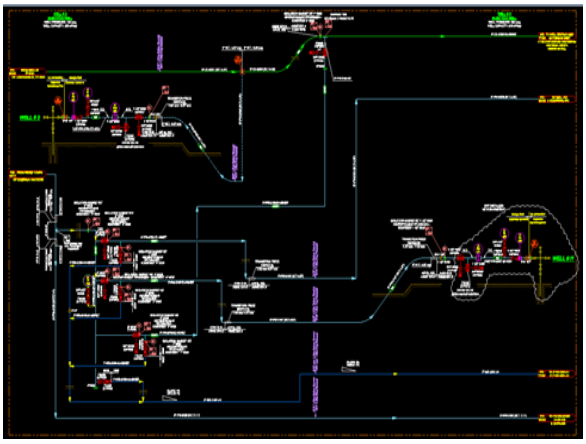
Commencement: June 2006
Completion: October 2006

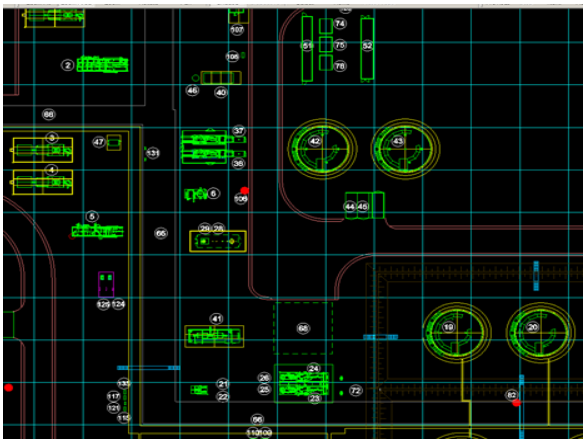
Services included:

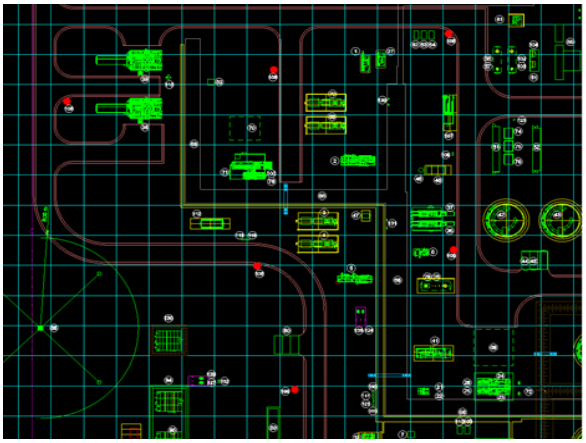
1) Process modelling of the facility and development of heat and material balance.
2) Development of main equipment sizing and equipment list.
3) Development of conceptual cost estimate for the plant and the schedule for realization of the project.

SURFACE TECHNOLOGY
REFERENCE LIST









Project: Komsomolskoe Oilfield
Development Project FEED Study

Client: OMV Petrom Group on behalf of KomMunai LLP

Services: Front End Engineering and Design
of the Komsomolskoe Oil Field
Development Project

Commencement: September 2006
Completion: February 2007

Services include:

1) Assessment of the pre-conceptual FEED documentation and forecasted budget and development of an alternative fit for purpose solution.
2) Development of the Design Basis Memorandum for the oil field development project.
3) Development of the optimized oil gathering system based on the oil well drilling plan.
4) Development of the optimized oil production facility based on 10,000 BPD of average production c/w equipment selection and cost estimate.
5) Development of the oil export strategy from Komsomolskoe to Karakuduk and assess the hydraulic requirements of the pipeline based on oil characteristics.
6) Assess the cost/ benefits relationship between LPG recovery from the associated gas and sales of LPG and sales of export gas versus the reinjection of gas back into the reservoir.
7) Development of the Gas Utilization program and optimization of equipment selection based on a gas having an H2S level of 1500 ppm at the inlet to the CPF c/w equipment selection and cost estimate.
8) Development of the Gas Injectivity report and assessment of surface facility requirements necessary for gas reinjection.
9) Development of the Water Injection Facilities which must consider produced water and technical water as requirements for the reservoir pressure maintenance program c/w equipment selection and cost estimate.
10) Development of the Artificial Lift strategy for the field c/w equipment selection and cost estimate.
11) Development of the Power Generation requirements, equipment selection c/w equipment selection and cost estimate.
12) Development of the Utilities requirements for the Oil Field Development c/w equipment selection and cost estimate.
13) Development of the Operations and Maintenance staffing plan and maintenance plan for the oilfield.
14) Development of the Accommodation and associated infrastructure requirements for the sustained operation of the oil field.
15) Preparation of the Project Execution Plan for integration into the EPCC tender package.
16) Support Kom Munai with the development of the deliverables to be included into the EPCC tender package.
17) Development of the equipment tender packages for all major pieces of equipment and technical assessment of all tender packages as issued by Client to Vendors.
18) Development of the design documentation as required for the commencement of Regulatory Approvals of the project.
19) Management of the Land Allocation permitting and execution for the Client.

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Gas Utilization Project
Implementation Detail Design for
Compression Stations - EPsCsM

Client: Karazhanbasmunai LLP

Services: Project Management,
Engineering, Detailed Design,
Procurement Support,
Explanatory Notes for Regulatory
Approvals, Documentation
Management, Construction
Supervision, State Acts of
Commission

Commencement: July 2006
Completion: July 2008

Services included:

1) Development of the Design Basis Memorandum
2) Process modelling of the facilities and development of heat and material for each of the 6 compressor locations.
3) Equipment sizing and preparation of the technical specification as required for tendering and procurement.
4) Technical evaluation of the tenders and recommendation to Client
5) Development of the complete project detail design documentation as required for regulatory approvals and required for construction.
6) Preparation of the Explanatory notes required for Regulatory Approval and Expertizing of the Projects
7) Construction Supervision support to the client

Project: GZU-34 Process and Safety
System PLC - EPC

Client: KarazhanbasMunai LLP, Kazakhstan

Services: Engineering, Detailed Design,
Regulatory Approvals, Procurement,
Installation, Commissioning and
Training of Client Key Personnel

Commencement: March 2007
Completion: June 2008

Services and System included:

1) Engineering and detail design of the Process and Safety PLC.
2) Preparation of Cause and Effects Matrix for the purpose of equipment tender.
3) Preparation of the technical specifications for the purpose of equipment tender.
4) Preparation of the Tender Package for the Process and Safety System.
5) Process and Safety System PLC supply for GZU-34
6) Interface design to the existing control system.
7) UPS System supply
8) Development of the Cause and Effects Matrices
9) Programming of the PLC
10) Factory Acceptance Testing
11) Installation management
12) Field Acceptance Testing
13) Key Client Employee Training at the manufacturing facility.

SURFACE TECHNOLOGY
REFERENCE LIST

	Project: Engineering Support Services - Es Client: KarazhanbasMunai LLP, Kazakhstan Services: Specialized Engineering Support Commencement: July 2006 Completion: July 2008 Services included: 1) Supply of two Engineering specialists at Client's office for the purpose of technical coordination between Clients Project-Construction Management team and Lucas detail engineering team. 2) Development and execution of small projects within the Clients organization. 3) Development of Tender Packages for 3rd party project execution and construction services
	Project: Hydrogen Peroxide Truck Offloading and Storage Facility - ECsM Client: JV Inkai LLP, Kazakhstan Services: Project Management, Engineering, Detailed Design, Explanatory Notes for Regulatory Approval, Construction Supervision. Commencement: August 2008 Completion: December 2008 Services included: 1) Project Management of Engineering 2) Process design with material and heat balance 3) Piping and Instrumentation Drawings 4) Detail design 5) Process and Safety design 6) Cause and Effects Matrix development 7) Development of Explanatory notes for regulatory approval
	Project: Anhydrous Ammonia Truck Offloading and Storage Facility - ECsM Client: JV Inkai LLP, Kazakhstan Services: Project Management, Engineering, Detail Design, Explanatory Notes for Regulatory Approval, Construction Supervision Commencement: August 2008 Completion: December 2008 Services included: 1) Project Management of Engineering 2) Process design with material and heat balance 3) Piping and Instrumentation Drawings 4) Detail design 5) Process and Safety design 6) Cause and Effects Matrix development 7) Development of Explanatory notes for regulatory approval

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Project Management and
Construction Support Services

Client: JV Inkai LLP, Kazakhstan

Services: Consulting Services at Client Location in the Role of Project Management and Coordination and Additional Consulting Services for Construction Supervision

Commencement: July 2007
Completion: October 2008

Services included:

1) Supply of two Engineering specialists for the purpose of technical coordination between Clients Project-Construction Management team and Lucas detail engineering team.
2) Development and execution of small projects within the Clients organization.
3) Development of Tender Packages for 3rd party project execution and construction services
4) Project Management Services as requested by Client
5) Construction Management and Supervision of Client's projects.

Project: Konys to Kumkol Export Oil Pipeline – EPCM

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Project Management, Engineering, Detailed Design, Regulatory Approvals, Procurement Support, Construction Management, Technological Testing and State Acts of Commission.

Commencement: May 2006.
Completed: May 2007

Services and Facilities included:

1) Project Management
2) Engineering and detail design for the project.
3) Development of Technical Specifications and Tender packages for the Client.
4) Technical bid evaluation of major pieces of equipment for the Client.
5) Preparation of Explanatory Notes as required for Regulatory Approval and State Expertizing Approval.
6) Construction Management of Client's Contractor.
7) Technological testing program development and execution thereof.
8) Supply of the Pumping station at the Konys site rated at 600,000 tonnes per year.
9) Supply of the Metering Station for pipeline leak detection.
10) 72.4 km Export pipeline - 219 mm in diameter with 5.6 mm wall thickness and Class API-5L-X-52. The pipeline is rated for 100 Barg MAWP.
11) Supply of the Pigging facilities suitable for intelligent pigging of the pipeline.
12) Supply of the Oil heating facilities at the Kumkol site.
13) KTO and KazInMeter Certified custody transfer metering facility at Kumkol site.
14) Tie-in to the KTO pipeline

SURFACE TECHNOLOGY
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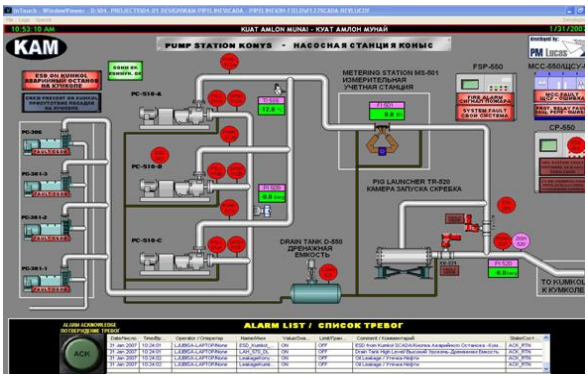
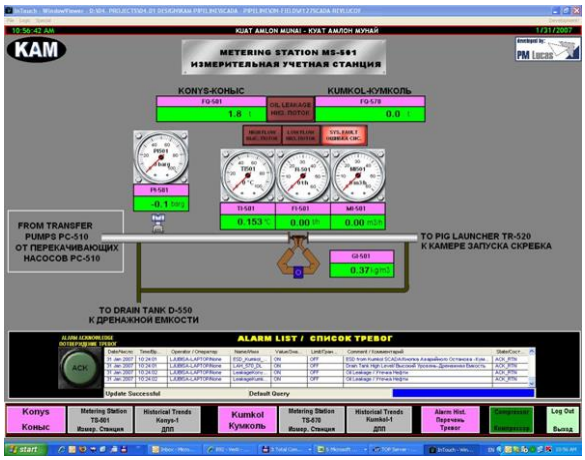




Project: SCADA System for Konys to Kumkol Export Oil Pipeline - EPCC

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Project Management; Engineering, Detail design, Regulatory Approvals, Procurement, Installation, Commissioning and Training of Client Key Personnel.

Commencement: May 2006
Completion: May 2007

Services and System included:

1) Project Management
2) Engineering and detail design of the system.
3) Process and Safety System PLC supply for the Konys Pump Station
4) Process and Safety System PLC supply for the Kumkol Oil Transfer Station.
5) Interface engineering and equipment supply for KazTransOil monitoring of the meter process parameters.
6) Satellite Communications equipment supply
7) UPS Systems supply for Konys and Kumkol Site.
8) Development of the Cause and Effects Matrices for Konys and Kumkol Sites.
9) Programming of the PLCs at Konys and Kumkol.
10) Factory Acceptance Testing
11) Installation Supervision
12) Field Acceptance Testing
13) Key Client Employee Training at the manufacturing facility.

Project: Process Optimization Study

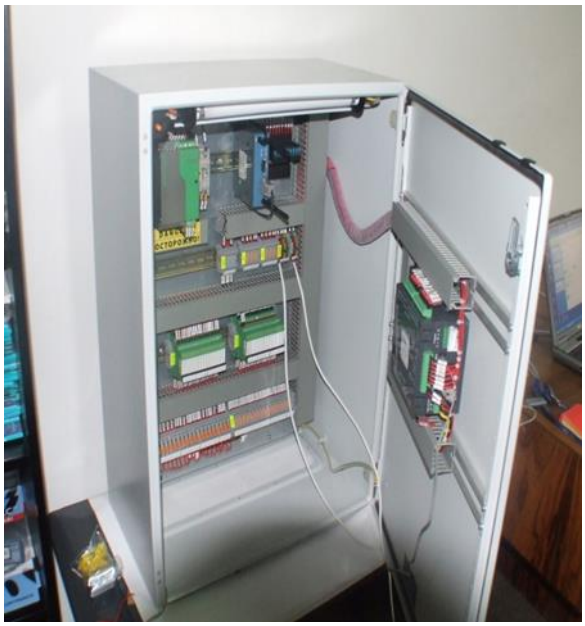
Client: KuatAmlonMunai LLP, Kazakhstan

Service: Engineering Assessment of the Oil Processing Capacity of the Konys CPF with Recommendations for Upgrading Certain Process Pieces of Equipment to Ensure 2000 m^3 Oil Processing Capacity.

Commencement: July 2006
Completion: September 2006

Services included:

1) Updating of the Process Flow Diagram.
2) Updating the Heat and Material Balance tables
3) Assessing existing equipment on site under actual operating conditions
4) Developing the Hysis Model and matching to the existing process.
5) Developing the recommendations for equipment upgrading.
6) Developing the cost estimate for the equipment



Project: SCADA System Expansion for
the Gas Injection Compressor
Phase II - EPCC

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Project Management, Engineering, detail design, regulatory approvals, procurement, installation, commissioning and training of Client key personnel

Services and System included:

1) Process and Safety System PLC supply.
2) Interface to existing system provided with phase 1 project.
3) Development of the Cause and Effects Matrices for the second compressor and integration with existing equipment.
4) Programming of the PLC.
5) Factory Acceptance Testing
6) Installation supervision
7) Field Acceptance Testing
8) Key Client Employee Training at the man

Project: Gas Injection Compressor
Design Project- Phase II - EPCM

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Engineering, detailed design, procurement support, Development of Explanatory Notes for Regulatory approval.

Commencement: August 2006.
Completion: October 2006

Services included:

1) Updating of the process model and verification of support systems hydraulic capacity and utility capacity.
2) Preparation of technical portion of the tender package for Client.
3) Preparation of the Explanatory Notes as required for Regulatory Approval and State Expertizing.
4) Development of detail design package as required for construction.
5) Development of Bills of Material for all construction disciplines
6) Development of technical specifications for procurement of all equipment necessary for project execution.

SURFACE TECHNOLOGY
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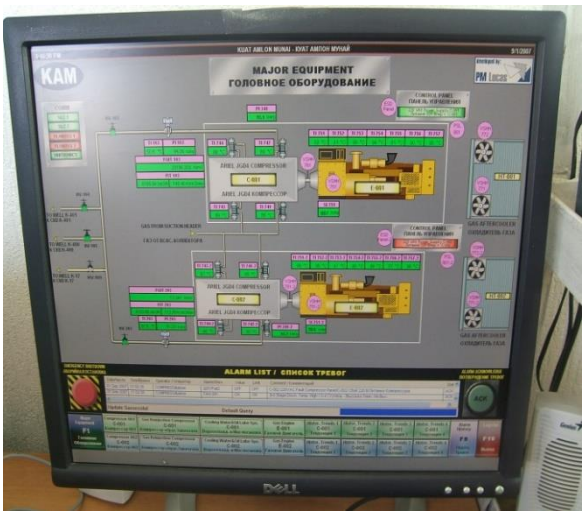

Project: Process and Safety Control System for the Phase-I Gas Injection Compressor - EPCM

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Engineering, Detailed Design, Regulatory Approvals, Procurement, Installation, Commissioning and Training of Client Key Personnel

Services and System included:

1) Project Management
2) Engineering and Detailed Design of the System.
3) Process and Safety System PLC supply.
4) UPS Systems supply for Konys.
5) Development of the Cause and Effects Matrices for the compressor based on vendor and client requirements.
6) Programming of the PLC
7) Factory Acceptance Testing
8) Installation Supervision
9) Field Acceptance Testing
10) Key Client Employee Training at site.

Project: Gas Utilization Program Phase I
Konys Oil Field Development
Gas Re-Injection Facility Installation - EPCM

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Engineering, detailed design, procurement support, development of Explanatory Notes for Regulatory approval.

Commencement: August 2005.
Completion: October 2006

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of Central Production Facility upgrade.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire deluge system expansion
9) Fire Detection System expansion
10) Development of Explanatory Notes for Regulatory Approval.
11) Construction Supervision

SURFACE TECHNOLOGY
REFERENCE LIST

Project name: Aryskum Oil Tank
Addition 2 by 2000m3
Fixed Roof Tanks c/w
Support Utilities and
Process tie-in. - EPsCM

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Services: Engineering, detailed design, procurement support, development of Explanatory Notes for Regulatory approval.

Commencement: March 2006.
Completion: September 2006

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of Central Production Facility upgrade.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire deluge system expansion
9) Fire Detection System expansion
10) Development of Explanatory Notes for Regulatory Approval.
11) Construction Supervision

Project: Aryskum CPF Process and Safety System Upgrade – EPCM

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Engineering, Detailed Design, Procurement, Installation, Commissioning and Training of Client Key personnel

Commencement: May 2006.
Completion: August 2006

Services included:

1) Process and Safety System PLC expansion
2) Interface to existing control system.
3) UPS Systems
4) Programming of the PLC
5) Development of the Cause and Effects Matrices
6) Factory Acceptance Testing
7) Field Acceptance Testing
8) Key Client Employee Training at the manufacturing facility

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Expansion of the Akzhar Oil Gathering and Central Production Facilities - EPsCs

Client: Altius LLP, Kazakhstan

Service: Engineering, Detailed Design, Procurement Support, Development of Explanatory Notes for Regulatory Approval and Construction Supervision.

Commencement: April 2005
Completion: May 2006

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of gathering system upgrade.
5) Detail design of Central Production Facility upgrade.
6) Equipment sizing
7) Equipment tender assessment and recommendation to client.
8) Process and Safety System development c/w cause and effects matrix.
9) Development of Explanatory Notes for Regulatory Approval.
10) Construction Supervision

Project: Kyzylkia Water Injection Facility (BKNS) Facility - EPsCs

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Engineering, Detailed Design, Procurement Support, Development of Explanatory Notes for Regulatory Approval and Construction Supervision.

Commencement: 2005.
Completion: 2006

Services Included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of water injection pumping facility and injection piping network.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire Detection System
9) Development of Explanatory Notes for Regulatory Approval.
10) Construction Supervision

SURFACE TECHNOLOGY
REFERENCE LIST

Project: South Kumkol Water Injection (BKNS) Facility - EPsCs

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Engineering, Detailed Design, Procurement Support, Development of Explanatory Notes for Regulatory Approval and Construction Supervision.

Commencement: 2005.
Completion: 2006

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of water injection pumping facility and injection piping network.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire Detection System
9) Development of Explanatory Notes for Regulatory Approval.
10) Construction Supervision

Project: Konys CPF As Built Documentation Development Complete with Operations and Maintenance Manual Development

Client: KuatAmlonMunai LLP, Kazakhstan

Services: Engineering, Detailed AutoCAD Design, Equipment Sizing and Main Equipment List, Documentation Register Development, Document Management System and Development of the Operations and Maintenance Manuals for the Central Production Facilities

Commencement: April 2005
Completion: October 2005

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Bektas Gathering System

Client: Altius LLP, Kazakhstan

Service: Conceptual Design

Commencement: 2005.

Services included:

1) Engineering
2) Facilities design and optimization of gathering system
3) Cost estimate

Project: Aryskum 2000 m3 Tank Installation - EPsCs

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Detailed Design, Construction support

Commencement: February 2005.
Completion: June 2005

Services Included:

1) Process Study and Modelling
2) Heat and Material Balance
3) Piping and Instrument Diagram Development
4) Detailed Design of Water Injection Pumping Facility and Injection Piping Network.
5) Equipment Sizing
6) Equipment Tender Assessment and Recommendation to Client.
7) Process and Safety System Development C/W Cause and Effects Matrix.
8) Fire Detection System
9) Development of Explanatory Notes for Regulatory Approval.
10) Construction Supervision

.

Project : Process Upgrade – Additional 3 Phase Separator Konys Central Production Facility - EPCM

Client: KuatAmlonMunai LLP, Kazakhstan

Service: Engineering, Procurement, Construction

Commencement: February 2004
Completion: October 2004

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Early Sales Gas Production Facility
Capacity 2100 Sm3/hr.
Akshabulak Oil Field - BOOM

Client: KazGerMunai LLP, Kazakhstan

Service: BOOM (Build, Own, Operate and Maintain) solution for Gas Production Facility at Akshabulak

Commencement: June 2004.
Completion: October 31st, 2004 of Construction
Operation: November 2004 until September 2006

Services and Facilities included:

1) Project Management
2) Process modeling with heat and material balance
3) Engineering
4) Piping and Instrumentation Diagrams
5) Detail Design
6) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
7) Material procurement and expediting
8) Construction Management/ Supervision
9) Technological Testing
10) Production of specification export gas for transfer into KazTransGas Pipeline.
11) RoK State Act of Commissioning
12) Operation and Maintenance of Facility 24/7
13) Spare Parts Management

Project name: Gas Utilization Treatment Plant – wet gas processing at 300 mm Sm3/year - EPs

Client: GU KazGerMunai LLP a JV of RWE-Dea AG, Erdgas-Erdöl GmbH, IFC and PetroKazakhstan Kumkol Resources JSC

Service: Engineering,
Detailed design,
Explanatory notes for regulatory approval,
Procurement support,
Technological testing and State Act of Commission.

Commencement: May 2004
Completion: October 2005

Facilities and Services included:

1) Standalone new facility which take associated gas from the existing Oil Treating Facility
2) Low Pressure Inlet Compressor
3) Gas Treatment Refrigeration Plant
4) Sales Gas Compressor with a capacity of 150 MM Sm3/ year
5) 12,500 tonnes per year of LPG Recovery by Demethanizer Fractionation Tower and Debutanizer Fractionation Tower
6) C5+ Condensation recovery and reinjection into Crude Oil Sales.
7) Transfer of Sales quality gas to KazTransGas for shipment to the City of Kyzylorda.

Project: A 12,500 tonne LPG Storage Facility with Custody Transfer metering and Truck Loading at Akshabulak oil Field - EPs

Client: GU KazGerMunai LLP a JV of RWE-Dea AG, Erdgas-Erdöl GmbH, IFC and PetroKazakhstan Kumkol Resources JSC

Service: Project Management,
Engineering,
Detailed design,
Explanatory notes for regulatory approval,
Procurement support,
Technological testing and State Act of Commission

Commencement: May 2004.
Completion: October 2005

Services and Facilities included:

1) Project Management
2) Process Engineering with heat and material balance.
3) Piping and instrumentation diagrams

The LPG from the Gas Treatment Plant process is pumped to the LPG storage facility to be located on an adjacent site to the GTP facility.

Therefore PM Lucas has designed Liquefied Petrol Gas storage and tank cars loading facility, with the following capacities:
Storing capacity: 12 above ground bullets, 200 m3 each, 2400 m3 total capacity.
Loading capacity: three pumps and three tank loading stations 45 m3/h unit capacity

Project: Early Oil Production Facility
Akzhar Field Development - EPsCsCs

Client: Altius Holdings

Commencement: April 2004
Completion: December 2005

Service: Engineering, Procurement Support, Commissioning Support, Construction Supervision

The Main Facility (CTPF) would be designed to handle 5000 BFPD with a 20% water cut and design GOR of 4m3/m3 and would include all tankage, utilities and water injection equipment to handle this. Provisions for installation of future required equipment necessarily for handling the flow rate of 7500 BOPD with 40% water cut will be provided. The key element of the approach is to install the CTPF in three distinct stages to match the cash flow with the drilling and overall development. The first stage would provide for the expected production from the existing wells and the 2004 drilling program together with the basic infrastructure. The second stage would provide for additional production and/or increased water cut or special additions to handle operational problems that may have arisen after the initial phase. The final phase would bring the facility to full throughput with any additional tankage and pumping or to address operational problems. The test and group lines from the North and Southeast wing will be flowlined to the main facility with suitable inlet manifolding and test separation.

The Main Facility (CTPF) is designed to handle 5000 BFPD with a 20% water cut and design GOR of 4m3/m3 and includes all tankage, utilities and water injection equipment to handle this. Provisions for installation of future required equipment necessarily for handling the flow rate of 7500 BOPD with 40% water cut will be provided. The test and group lines from the North and Southeast wing are flowlined to the acility with suitable inlet manifolding and test separation.

SURFACE TECHNOLOGY
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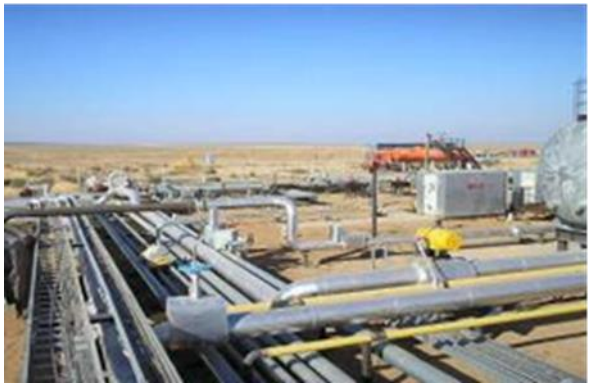

Project: Oil Gathering System
Akzhar Oilfield Development - EPsCs

Client: Altius Holdings

Services: Engineering,
Detailed Design,
Procurement Support,
Development of Explanatory notes for regulatory approval and Construction Supervision.

Commencement: February 2004
Completion: October 2004

Services included:

1) Hydraulics study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of oil gathering system with Group Stations and Metering Stations.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire Detection System
9) Development of Explanatory
10) Notes for Regulatory Approval.
11) Construction Supervision

Project: Oilfield Gathering System
Konys Oilfield Development- EPsCs

Client: KuatAmlonMunai LLP, Kazakhstan

Service: Engineering,
Detailed Design,
Procurement Support,
Development of Explanatory notes for regulatory approval and Construction Supervision.

Commencement: February 2004
Completion: December 2004

Services included:

1) Hydraulics study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of oil gathering system with Group Stations and Metering Stations.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire Detection System
9) Development of Explanatory
10) Notes for Regulatory Approval.
11) Construction Supervision

SURFACE TECHNOLOGY
REFERENCE LIST

Project: Gas Re-Injection Plant
Aryskum Oil Field Development - EPsCs

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Engineering,
Detailed Design,
Procurement Support,
Development of Explanatory notes for regulatory approval and Construction Supervision

Commencement: September 2003
Completion: September 2004

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of gathering system upgrade.
5) Detail design of Compressor Facility and interface into existing facilities.
6) Equipment sizing
7) Equipment tender assessment and recommendation to client.
8) Process and Safety System development c/w cause and effects matrix.
9) Development of Explanatory Notes for Regulatory Approval.
10) Construction Supervision

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Project: Upgrade of Electrical Distribution System
Konys Oil Field - EPsCs

Client: KuatAmlonMunai LLP, Kazakhstan

Service: Engineering,
Detailed Design,
Procurement Support,
Development of Explanatory notes for regulatory approval and Construction Supervision

Commencement: Aril 2003
Completion: November 2003

Services included:

1) Electrical Load Study and modelling
2) Single Line Diagram development
3) Detail design of electrical system upgrade.
4) Detail design of Generator Building
5) Equipment sizing –emergency generator, distribution panel, lighting system and electrical safety system.
6) Equipment tender assessment and recommendation to client.
7) Development of the Cause and Effects matrix.
8) Development of Explanatory Notes for Regulatory Approval.
9) Construction Supervision

SURFACE TECHNOLOGY
REFERENCE LIST

Project Akshabulak Water Injection Unit - BOOM

Client: KazGerMunai LLP, Kazakhstan

Service: BOOM (Build, Own, Operate and Maintain) solution for Water Injection Facility at Akshabulak

Commencement: May 2003
Completion: September 2003
Operation: October 2003 until December 2004

Services and Facilities included:

1) Project Management
2) Process modeling
3) Engineering
4) Piping and Instrumentation Diagrams
5) Detail Design
6) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
7) Material procurement and expediting
8) Construction Management/ Supervision
9) Technological Testing
10) RoK State Act of Commissioning
11) Operation and Maintenance of Facility 24/7

Spare Parts Management

Project: Supervisory Control and Data Acquisition System for the Kumkol to Dzhusaly Export Pipeline and Dzhusaly Storage and Rail Car Loading Facility-EPCM

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Project Management, Engineering, Detailed Design, Procurement Support, Construction Management and Technological Testing Support.

Commencement: August 2002
Completion: May 2003

Services included:

1) Project Management
2) Engineering
3) Detail Design of the equipment and installation requirements
4) Development of the Cause and Effects Matrices for the Kumkol Pump Station, Aryskum Pump Station, Dzhusaly Storage Terminal and Dzhusaly Railcar Crude oil loading facility
5) Development of the FAT Testing Program and execution of the FAT on behalf of the Client
6) Construction installation supervision of the subcontractor
7) Development of the Field Acceptance Program and execution of the Acceptance Program on behalf of the Client.
8) Training of the Operations and Maintenance staff of the Client
9) Development of the Fibre Optic Communications system and development of the installation method statement.
10) Construction installation supervision of the fibre optic cable and commissioning of the communications system for Voice and Data.

Project: Oil Rail Car Loading Facility c/w Railway Infrastructure, Dzhusaly Terminal - EPCM

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Project Management,
Engineering,
Detailed Design,
Procurement Support,
Development of Explanatory notes for Regulatory Approval and State Expertize approval
Construction Supervision and Technological Testing

Commencement: October 2001
Completion: June 2003

Services included:

1) Project Management
2) Engineering for the Rail Car loading gantry for 360 rail wagons per day and 6.5 million tonnes of oil per year.
3) Detail design of the facilities required to take the oil from the storage tanks to the rail car loading facility
4) Detail design of the process and safety systems
5) Hermetically closed dome loading system for 60 railcars.
6) Rail track infrastructure designed per the requirements of the Temir Zholy State owned rail Company.
7) Railcar vapor management system and integral flare complete with back flash explosion protection.
8) Construction Supervision of the Rail Loading and Rail track infrastructure.

Project: Kumkol Initiating Pump Station
Kumkol to Dzhusaly Pipeline System - EPCM

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan

Service: Project Management, Engineering, Detailed Design, Procurement Support, Development of Explanatory Notes for Regulatory Approval and State Expertise Approval, Construction Supervision and Technological Testing

Project name: Initiating Pumping Station at Kumkol for the Kumkol to Dzhusaly Pipeline Project

Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan
Service: Engineering, Commissioning Supp., Construction Supp.
Year: 2003.

Brief Description: Two centrifugal series connected pumps were installed with the capacity of 1260 m3/h at differential pressure from 38 bars. The main task is to enable crude oil shipment from Kumkol Tank Farm to Dzhusaly Terminal.

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	Project: Aryskum Booster Pump Station Kumkol to Dzhusaly Pipeline System - EPCM Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Project Management, Engineering, Detailed Design, Procurement Support, Development of Explanatory Notes for Regulatory Approval and Sate expertize approval, Construction Supervision and Technological Testing Engineering Supp., Commissioning Supp., Construction Supp. Year: 2003. Brief Description: Two centrifugal serial pumps were installed with the capacity of 1260 m3/h at differential pressure of 48 bars. The main task is to allow crude oil shipment from Aryskum Pump Station to the Dzhusaly Terminal.
 	Project: Kumkol to Dzhusaly Pipeline System - EPsCsM Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Project Management, Engineering, Detailed Design, Procurement Support, Development Of Explanatory Notes For Regulatory Approval and State Expertise Approval, Construction Supervision and Technological Testing Services included: 1) Project Management 2) Engineering including hydraulics modeling 3) Heat and material balance and pour point assessment of the crude oil 4) Detailed design of the 176 km by 406.4 mm diameter pipeline. API-5L-X-52 Grade Steel pipe. 5) Fully line cathodic protection by impressed current system. 6) MAWP of 100 Barg
	Project: Kyzylkia to Aryskum Oil Export Pipeline - EPsCM Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Project Management, Engineering, Detailed Design, Procurement Support, Development Of Explanatory Notes For Regulatory Approval and State Expertise Approval, Construction Supervision and Technological Testing Commencement: January 2003. Completion: October 2003 Services included: 1) Engineering including hydraulics modeling 2) Heat and material balance and pour point assessment of the crude oil 3) Detailed design of the 28 km by 168 mm diameter pipeline. API-5L-X-52 Grade Steel pipe. 4) Fully line cathodic protection by impressed current system. 5) Development of Explanatory Notes for Regulatory Approval. 6) MAWP of 100 Barg 7) Construction Supervision

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	Project name: Aryskum TOLF Export Oil Pipeline - EPsCM Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Project Management, Engineering, Detailed Design, Procurement Support, Development Of Explanatory Notes For Regulatory Approval and State Expertise Approval, Construction Supervision and Technological Testing Commencement: January 2003. Completion: October 2003 Services included: 1) Engineering including hydraulics modeling 2) Heat and material balance and pour point assessment of the crude oil 3) Detailed design of the 22.5 km by 200 mm diameter pipeline. API-5L-X-52 Grade Steel pipe. 4) Fully line cathodic protection by impressed current system. 5) Development of Explanatory Notes for Regulatory Approval. 6) MAWP of 100 Barg 7) Construction Supervision
	Project name: Kumkol Oil Collector Debottleneck - EPsCM Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act of Commission. Commencement: February 2003 Completion: October 2003 Services included: 1) Engineering hydraulics assessment of requirements 2) Heat and material balance 3) Detail design of required piping changes 4) Development of Explanatory notes for Regulatory approval
	Project: South Kumkol Oil Collector Debottleneck - ECs Client: PetroKazakhstan Kumkol Resources JSC, Kazakhstan Service: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act Of Commission. Commencement: February 2003 Completion: October 2003 Services included: 1) Engineering hydraulics assessment of requirements 2) Heat and material balance 3) Detail design of required piping changes 4) Development of Explanatory notes for Regulatory approval

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	Project name: LPG Rail Car Bottom Loading Facility – EpsCs Client: PetroKazakhstan Oil Products LLP (Shymkent Refinery) Services: Engineering, Detailed Design, Procurement Support, Construction Supervision and Technological Testing. Commencement: May 2003. Completion: October 2003 Brief Description: The Project included upgrading of the existing LPG top loading system by providing bottom loading to railway containers. The complexity of the project is aggravated by hazardous conditions and reconstruction of the old Russian-made piping arrangement and it's modification to the ANSI standards. After upgrading, the new installation provides non-simultaneous top or bottom LPG loading at the same loading spot. The complete work, from design and equipment purchase to the first loading was completed in four months.
	Project name: CPF Inlet Manifold Debottlenecking - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: Due to a great pressure drop at the Kumkol CPF incoming inlet collectors, and the resulting vibrations, fluctuations and pumps operating problems, all piping at the CPF inlet was upgraded. The most important attribute for this project is installation of a new piping arrangement in the existing system without closing of the facility.
	Project name: BAGA Terminal Tank Farm Extension Service: Engineering Year: 2003. Brief Description: The design includes conversion of four existing 3,000 m3 diesel and gasoline storage tanks to crude oil service. The conversion required capital expenditures, both on the BAGA terminal and PKOP refinery. Conceptual and detailed engineering of upgraded facility, including piping modifications on the PKOP and BAGA sites, were provided within the Project. The Project resolved heating technology of the crude oil tanks by installing both oil heater and circulation pump, as well as crude oil transportation through 1,500 m long pipeline between the Terminal and Refinery in Shymkent in both directions and flushing of the pipeline by diesel during winter period.
	Project name: Mini FWKO at GS-24 - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: For the purpose of removing the increased quantity of produced water from the Gathering Station 24, a new water separation facility was installed, with a new 100 m^3 separator installed between the existing sputnik equipped with spider valve and the existing group separator. Oil and gas return to the existing separator and the produced water is pumped to the water injection facility. The facility is designed to handle 3,500 m3/d of Oil, 8,000 m3/d of Water and 350,000 Sm3/d of gas. Eigenvalue equipment: 100 m3 three phase separator, produced water transfer pumps, 400 produced water break tank, upgraded flare system, chemical injection skid packages, drain vessel, etc.

	Project name: Mini FWKO at GS-04 - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: With the aim to remove the increased quantity of produced water from the Gathering Station 04, a new water separation facility was installed, with a new 100 m3 separator installed between the existing sputnik equipped with spider valve and the existing group separator. Oil and gas return to the existing separator and the produced water is pumped to the water injection facility. The facility is designed to handle 3,500 m^3/d of Oil, 5,000 m3/d of Water and 250,000 sm^3/d of gas. Eigenvalue equipment: 100 m3 three phase separator, produced water transfer pumps, 400 produced water break tank, upgraded flare system, chemical injection skid packages, drain vessel, etc.
	Project name: South Kumkol Free Water Knock Out - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: To remove the increased quantity of produced water from the Gathering Stations, a new FWKO facility on the Central Plant Facility (CPF) oil inlet collector was installed. Produced water is pumped to the Water Injection Facility while oil is pumped to the CPF. The facility is designed to handle 6,100 m3/d of Oil, 11,000 m3/d of Water and 13,000 sm3/d of gas. Eigenvalue equipment: 200 m3 three phase separator, crude oil transfer pumps, produced water transfer pumps, 400 produced water break tank, flare system including flare stack, arrestor and flare knock out drum, chemical injection skid packages, drain vessel, etc.
	Project name: KAM Fields Development - Kumkol 28,000 tones Crude Oil Storage (CPF Tank Farm Expansion) - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: Kumkol Central Production Facility (CPF) is the main supply source for shipment of crude oil in the new NPS 16 KAM pipeline from Kumkol to Dzhusaly. The Kumkol CPF tank farm consisted at that time of 6 large oil storage tanks feeding the KTO pipeline. All crude oil from these tanks is shipped to Shymkent. New tanks were added to increase oil storage capacity at Kumkol and allow shipment of crude oil in both the KTO and KAM pipelines at the same time without breaking normal daily operations. The main task is to allow crude oil shipments to the KAM pipeline and determine and design facilities necessary for re-cycling off-spec oil from any of these tanks to the existing onsite process separator (TDE). The initial design flow rate for the KAM pipeline is 900 m3/h. The Facility was designed for a nominal flow rate of 1260 m3/hr.

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	Project name: KAM Fields Development - Aryskum Truck Off Loading Facility - EsCsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2003. Brief Description: Aryskum TOLF is the central process facility for the KAM Oil Field. Oil from Kyzylkia oil field coming through 6" oil pipeline, oil gathered at Aryskum oil field and oil trucked off from all KAM field single wells is processed at this facility. Besides inlet manifold and truck off-loading station, the facility includes 100 m3 three phase separator, storage – settling 2 x 1,000 m3 oil tanks, flare and drain system, production heaters, glycol system for oil and fire water tank heating.
	Project name: Electrical Submersible Pump Installation Phase 1 & 2 - ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2002 - 2003. Brief Description: The Customer, according to the business schedule, planned to apply ESP Artificial Lift System on certain numbers of main production field wells, instead of the existing artificial lift methods (PCP). This substitution is followed by a significant production increase, requiring adequate updated and modified gathering station piping arrangement.
	Project name: KAM Fields Development – Oil Gatherings – ECsCs Service: Engineering, Commissioning Support, Construction Support. Year: 2002. Brief Description: Crude oil from specific well heads is gathered through the system of flow lines from production wells to the manifolds of the gathering stations or trucked off as done at Aryskum and Maibulakh Oil fields. Design includes installation of line heaters and pigging devices.
	Project: Water injection System Maybulak Oil Field - Es Client: PetroKazakhstan Kumkol Resources JSC Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act of Commission. Commencement: January 2002 Completion: November 2002 Service: Engineering Support Year: 2002. Brief Description: Produced water from Kyzylkia CPF is transported by trucks to Maibulakh Water Injection Facility. The facility consists of 40 m3 Off Loading Break Tank, 1,000 m3 produced water storage tank and skid mounted high pressure pump station. The pump station includes booster and high pressure produced water injection pumps (capacity of 3 x 21 m3/h @ 115 bars). Make up water is provided by raw water well and submersible electrical pump. From this pumps station the water is taken by four discharge high pressure produced water flow lines to water injection wells.

Project: CPF Upgrade for Water and additional Gas Separation at Kyzylkia Oil field - ECsM

Client: PetroKazakhstan Kumkol Resources JSC

Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act Of Commission.

Commencement: January 2002
Completion: October 2002

Services included:

1) Process modeling with heat and material balance
2) Engineering
3) Piping and Instrumentation Diagrams
4) Detail Design
5) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
6) Material procurement and expediting
7) Construction Management/ Supervision
8) Technological Testing
9) Production of specification export gas for transfer into KazTransGas Pipeline.
10) RoK State Act of Commissioning

Project: Mini Free Water Knockout at GS-14 Kumkol Oil Field - ECs

Client: PetroKazakhstan Kumkol Resources JSC

Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act of Commission.

Commencement: January 2002
Completion: October 2002

Services included:

1) Process modeling with heat and material balance
2) Engineering
3) Piping and Instrumentation Diagrams
4) Detail Design
5) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
6) Material procurement and expediting
7) Construction Supervision
8) Technological Testing
9) Production of specification export gas for transfer into KazTransGas Pipeline.
10) RoK State Act of Commissioning

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Project: Free Water Knockout 2, Kumkol Oil Field - ECs

Client: PetroKazakhstan Kumkol Resources JSC

Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act of Commission.

Commencement: January 2002
Completion: October 2002

Services included:

1) Process modeling with heat and material balance
2) Engineering
3) Piping and Instrumentation Diagrams
4) Detail Design
5) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
6) Material procurement and expediting
7) Construction Supervision
8) Technological Testing
9) Production of specification export gas for transfer into KazTransGas Pipeline.
10) RoK State Act of Commissioning

Project: Water Injection System (BKNS)
Kumkol Oil Field - ECs

Client: PetroKazakhstan Kumkol Resources JSC

Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act Of Commission.

Commencement: February 2001
Completion: November 2001

Services included:

1) Process study and modelling
2) Heat and material balance
3) Piping and Instrument Diagram development
4) Detail design of water injection pumping facility and injection piping network.
5) Equipment sizing
6) Equipment tender assessment and recommendation to client.
7) Process and Safety System development c/w cause and effects matrix.
8) Fire Detection System
9) Development of Explanatory notes for Regulatory approval.
10) Construction Supervision

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Project: Early Oil Production Facility
Kyzylkia Oil Field - ECs

Client: PetroKazakhstan Kumkol Resources JSC

Services: Engineering, Detailed Design, Explanatory Notes for Regulatory, Construction Supervision and State Act of Commission.

Commencement: March 2001
Completion: December 2001

Services included:

1) Process modeling with heat and material balance
2) Engineering
3) Piping and Instrumentation Diagrams
4) Detail Design
5) Preparation of Explanatory notes for Regulatory Approvals and for State Expertise Approval
6) Material procurement and expediting
7) Construction Management/ Supervision
8) Technological Testing
9) Production of specification export gas for transfer into KazTransGas Pipeline.
10) RoK State Act of Commissioning

Project: Free Water Knockout #01
Kumkol Oil Field - Cs

Client: PetroKazakhstan Kumkol Resources JSC

Services: Construction Supervision

Commencement: May 2001
Completion: November 2001

Services included:

1) Civil construction supervision
2) Mechanical fabrication and installation construction supervision
3) Instrumentation and electrical installation construction supervision
4) QA/QC Control for all construction disciplines
5) Technological testing of the facility