iFluids® ENGINEERING

MANAGING RISKS, DELIVERING VALUES

A DECADE OF SAFETY, AN AI POWERED FUTURE

www.ifluids.com info@ifluids.com +91 9025400631

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About Us

iFluids Engineering is an ISO 9001:2015 certified consultancy based in Chennai, India. With 200+ Engineers and 1200+ completed Projects, we serve a global Client base across Oil & Gas, Power, Chemical, Pharma, Fertilizers, Automobiles and infrastructure sectors.

Celebrating a decade of Excellence in

- Engineering Design & Consulting
- Process Safety
- Fire Protection
- Asset Integrity
- Loss Prevention
- Environment
- Training

Established in 2015

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IFLUIDS GROUP COMPANIES

iFluids® ENGINEERING

(INDIA)

الاكسير الهندسية
ELIXIR ENGINEERING
Local Focus. Global Perspective.

(OMAN)

اي فلويدز للمهندسة والاستشارات ذ.م.م
IFLUIDS
ENGINEERING AND CONSULTANCY WLL
Global Reach. Local Focus

(QATAR)

آي فلويدز للهندسة أبو ظبي
IFLUIDS
ENGINEERING

(ABU DHABI)

IFLUIDS
ENGINEERING & CONSULTING

(SAUDI ARABIA)

IFLUIDS
MALAYSIA

Vision

To redefine the future of engineering by seamlessly integrating advanced technologies including Artificial Intelligence into every stage of our workstream. We aspire to transform iFluids Engineering into a pioneering engineering technology company that sets new benchmarks in safety, sustainability, and design excellence. Our vision is to empower industries worldwide with intelligent, reliable, and future ready solutions that not only meet today's challenges but also anticipate the demands of tomorrow.

Mission

At iFluids Engineering, our mission is to lead the engineering consulting landscape through innovation, precision, and purpose. We deliver end-to-end expertise in Engineering design, Loss Prevention, Asset integrity, and Environmental solutions backed by a relentless focus on quality, safety, and sustainability.

By harnessing the power of Artificial Intelligence, we are revolutionizing how industries plan, design, and operate. We strive to be more than a service provider. we are a strategic partner who empowers clients to make smarter, faster, and safer decisions. Our mission is to blend engineering excellence with next-generation technology, creating transformative outcomes for our clients while building a safer, cleaner, and more sustainable world.

Objectives

We aim to be more than a service provider we strive to be a trusted partner in each Client's operational journey, from conceptual design to field implementation.

Our Approach

We achieve our objective through:

- Cross functional expertise across engineering, safety, and environmental domains.
- Use of cutting edge software tools.
- Global project experience from India to the Middle East, with a deep understanding of local regulations.
- A culture built on quality, agility, and accountability ensuring every project is delivered with precision and purpose.

What Drives Us

- To provide innovative engineering design solutions and safety studies that optimize plant efficiency and ensure compliance with global standards.
- To empower Industries to minimize downtime, enhance asset performance, and reduce operating costs through effective integrity and reliability programs.

Trusted Across Sectors

With 1200+ Projects successfully delivered worldwide, we serve Industries across the globe with trusted expertise.

Oil & Gas – Upstream, Midstream & Downstream

Petrochemical & Chemical Plants

LNG Terminals & Storage Facilities

Power Plants & Utilities

FPSOs, Offshore Platforms

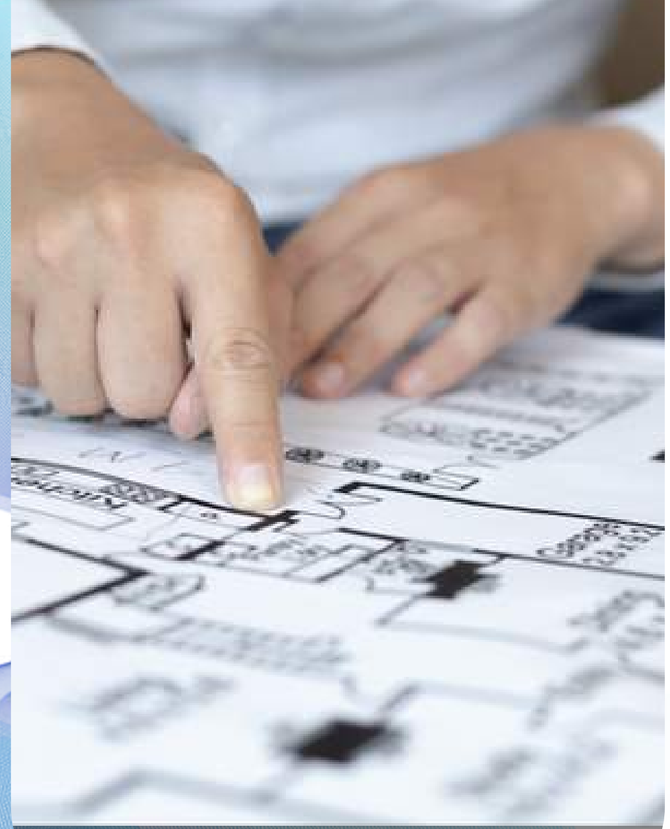
Infrastructure & Industrial Zones

Renewable Energy

Greenfield / Brownfield Projects

Fertilizer Industry

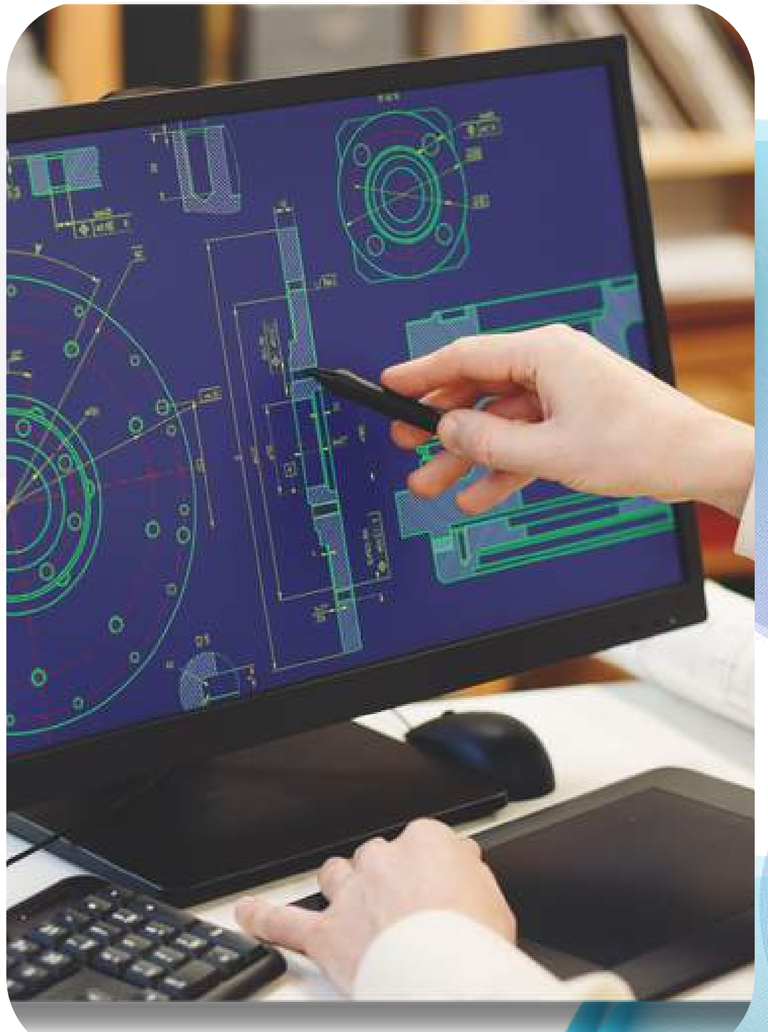
Automobile Industry



Our services

900+ Process safety Projects | 200+ Engineering Projects | 50+ Online & Offline Technical Trainings | 40+ Environmental Projects | 10+ Asset Integrity

- Engineering Services
- Risk Management Services
- Environmental Studies
- Asset Integrity Services
- Technical Trainings



iFluids® ENGINEERING

ENGINEERING SERVICES

iFluids Engineering delivers end-to-end Engineering Services, from conceptual design to detailed engineering. Our expertise ensures safe, reliable, and cost-effective solutions tailored to the unique needs of Oil & Gas, Petrochemical, Power, and Industrial Projects

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PROCESS

- Process Design Basis
- Process Flow Diagrams (PFD)
- Process & Instrumentation Diagrams (P&ID)
- Utility Flow Diagrams (UFD)
- Utility List
- Equipment list
- Line List
- Process Simulation/ Report
- Pump Sizing
- Valve Sizing
- Equipment Data Sheets
- Surge Analysis
- Water Hammer Analysis
- Operating, Control & Shutdown Philosophies
- Hydraulic Analysis
- Flow Assurance Study / Transient Analysis
- Flare & Cold Vent Network Design & Analysis

PIPING & PIPELINES

- Piping Design Basis
- Piping layout/ GA
- Isometric drawings
- Material selection and Sizing
- Piping stress analysis
- Support drawings/ schedule
- Pipes weight calculation
- Valves specification and Datasheets
- Complete Material Take off List – (MTO)

CIVIL & STRUCTURAL

- Design Criteria
- Specification for Topographical study
- Geotechnical Survey Specification
- Pipe Support Analysis
- Structural Calculation
- Equipment Foundation Analysis
- Structural Analysis

MECHANICAL

- Plot plan
- Equipment layout
- Engineering Design Basis
- 3D Modelling
- Material Take Off & Costing
- Feasibility study of new equipment
- As Built Drawings – Entire plant
- Mechanical design & Fabrication drawings – Tanks/ Pressure Vessel /Heat Exchanger
- Equipment's Data sheets / Technical Bid Evaluation
- Vibration Analysis and Pulsation Study

ELECTRICAL

- Basis of Design / Philosophy
- Protection Design Philosophy
- Equipment Specification & Datasheet
- Preparation of Single Line Diagram
- Electrical Load List
- Cable sizing & Cable Schedules
- Conceptual Cable Routing (Cable Tray/Trench) Layout
- Substation Layouts
- Emergency Power Load Sizing
- SAFOP/ E-HAZOP

POWER SYSTEM STUDIES

- Load Flow Studies
- Short Circuit Analysis
- Motor –Starting Analysis
- Harmonic Analysis
- Transient Stability Analysis
- Protection Relay Coordination
- Switching Transient Analysis (Insulation Coordination)
- Arc Flash Assessment
- Lightning Protection Study
- Illumination Study

INSTRUMENTATION

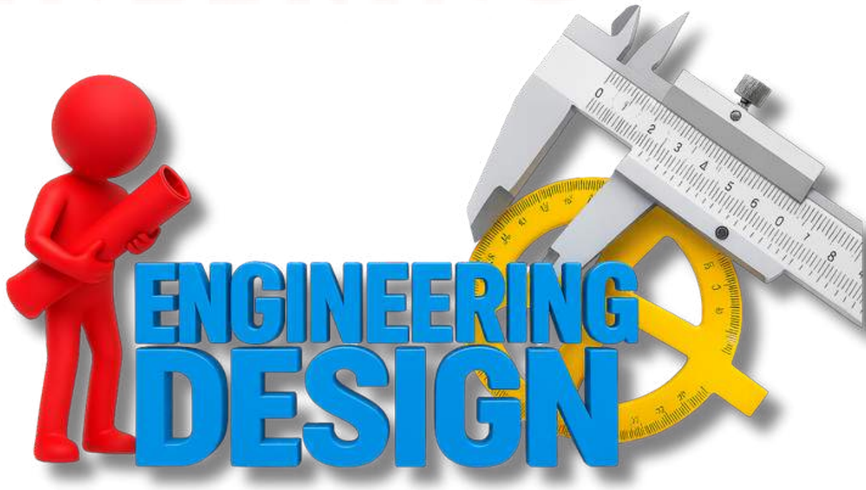
- Instrumentation Design Philosophy
- Instrument Location Layouts
- Instrument Cable Schedule and Diagram
- Instrument Data Sheets
- Integrated Control & Safety system (ICSS) Specification
- Control & Safety System Topology Diagram
- ICSS Database Including I/O Schedule and Index
- Control Room Layout Drawing
- Process & Instrumentation Control Narratives
- C-HAZOP

FEASIBILITY & PRE BID ENGINEERING

- Project Design Basis
- Project Risk Register
- Cost Risk Analysis Methodology
- Preliminary Project Execution Strategy
- Operating Philosophy
- Pre-Project planning activities
- Project / Activity Scheduling
- Feasibility and Concept Overview
- Bid Evaluation Services
- Plant System Design

FRONT END ENGINEERING DESIGN (FEED) & DETAILED DESIGN

- Project Design Basis
- Project Risk Register
- Equipment List
- Material Selection
- Operation & Control Philosophy
- Multi-Disciplinary Deliverables
- Material Take off



FLAGSHIP PROJECTS – INTERNATIONAL

- Detailed Design & Engineering Services for Zero Liquid Discharge – QAFCO.
- Consultancy service contract for Laboratory Integration Front End Engineering Design (FEED) for Oman Oil Refineries and Petroleum Industries Company (ORPIC).
- Front End Engineering Design –Upgrade of Fire Protection system Berth#6. – Qatar Energy
- Engineering Support for 2" Vent Line for the Coke Fine Filtration Skid for Jubail Export Refinery of SAUDI ARAMCO TOTAL Refining and Petrochemical Company.
- Design and Engineering Services of Pig Traps for Central 48" Rich & Lean Gas Segregation Pipeline Project for OQ– Muscat Engineering Consultancy ,Oman.

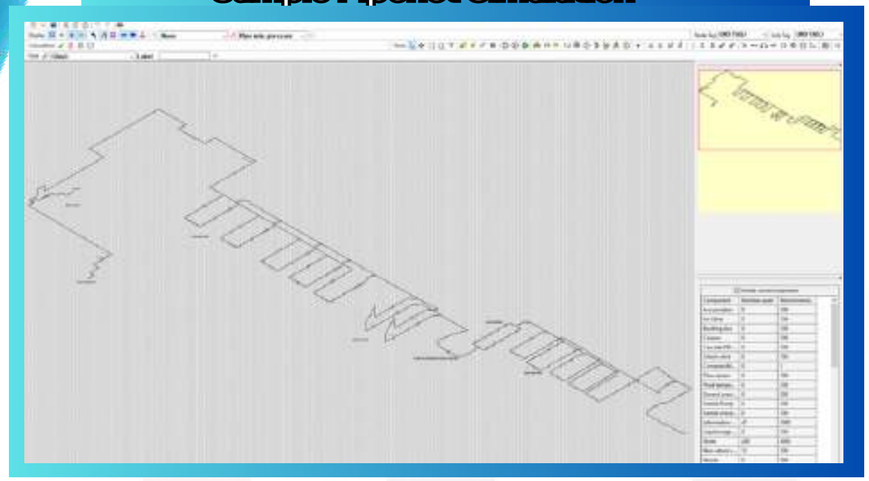
FLAGSHIP PROJECTS – EXECUTED IN INDIA

- Detailed Feasibility study for efficiency improvement & debottlenecking of 18 process furnaces at BPCL Bina Refinery, Madhya Pradesh.
- Two year rate contract for Process Engineering Consultancy Services for Mangalore Refinery and Petrochemicals Limited, Mangaluru.
- Basic Engineering Design Package (BEDP) for Hydrogen Enriched Compressed Natural Gas (HCNG) demo plant of HPCL Bangalore.
- Basic Engineering Design package for HPCL plant based on HP RAMP technology for production of Biogas from Biomass, Mumbai.
- Engineering Design & Detailing for RAIL FED DEPOT at Village Swaipura, Pali.
- Design of Pump & Pipeline systems for 20% ethanol blending for HPCL Terminals of Bangalore, Mangalore, Secunderabad, Suryapet, & Rajamudry.
- Detailed Feasibility Study for Replacement of Two Furnaces in CDU-I with Single Furnace and Thermal Efficiency Study for 5 Major Furnaces at CPCL, Manali Chennai Petroleum Corporation Limited.
- Design adequacy check of the tanks to handle the decomposition of Hydrogen Peroxide in view of over-pressurization & failure of tanks at ETP-PNC IOCL Panipat Refinery & Naphtha Cracker Complex – Indian Oil Corporation Limited.
- Pulsation Analysis Study for 2 pumps as per API 674-Design Approach 2 for WaterInjection Facilities at Sanand GGS of ONGC Ahmedabad.
- Detailed Engineering design of Piping design, Stress analysis, and modelling of Heat exchanger for installing of a standby plate type heat exchanger at Cochin Port, Kerala – Petronet LNG Limited.

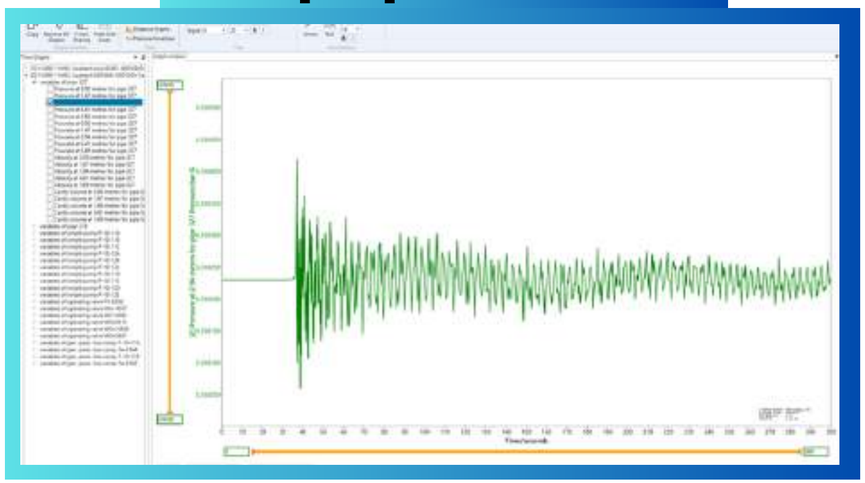
SOLUTIONS IN ACTION

PROCESS DESIGN ENGINEERING

Sample Pipenet Simulation

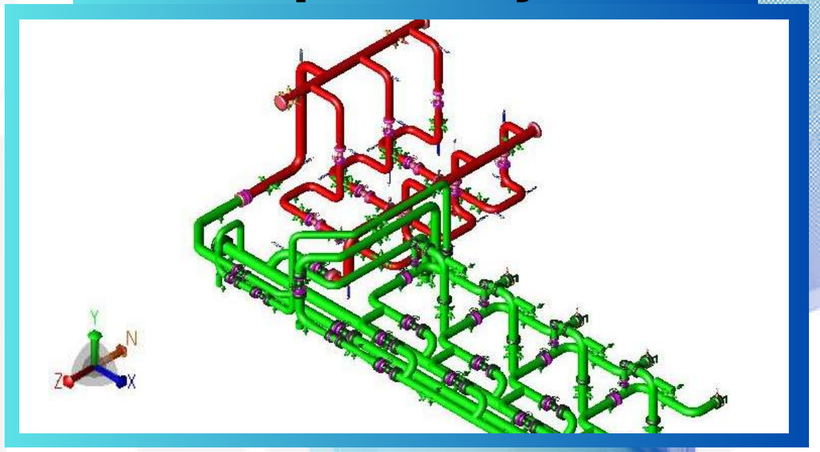


Sample Pipenet Simulation



PIPING & MECHANICAL

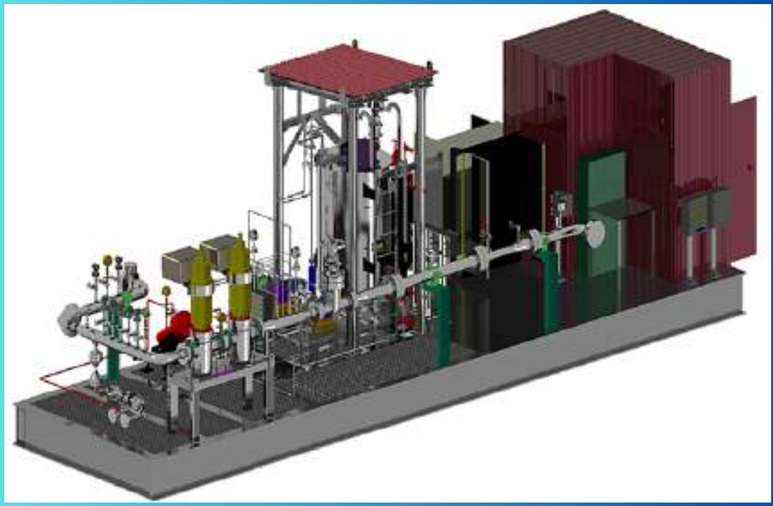
Sample Stress Analysis



Sample Static Equipment Layout

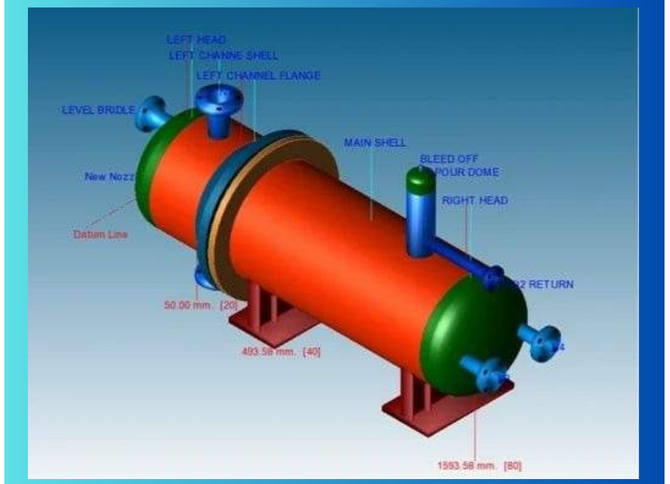
SOLUTIONS IN ACTION – CIVIL ENGINEERING

GAS MODULAR SKID

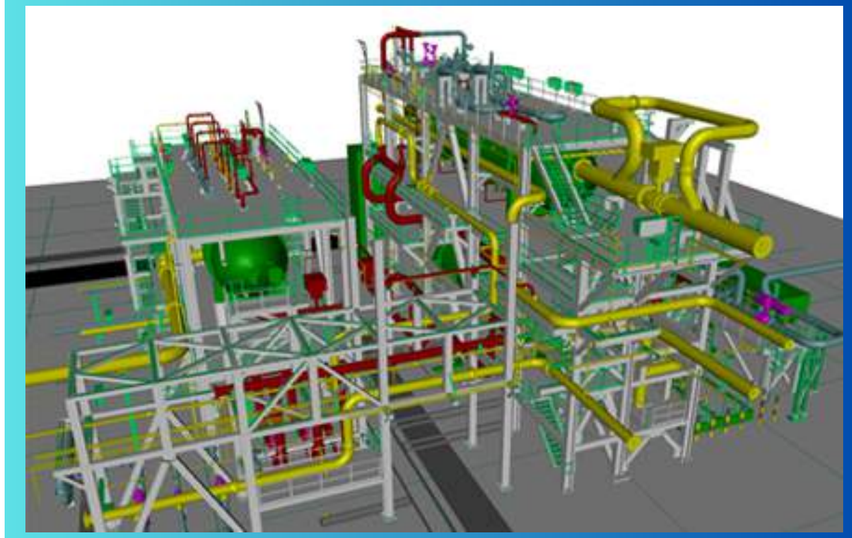


DISTILLATION PLANT

PRESSURE VESSEL



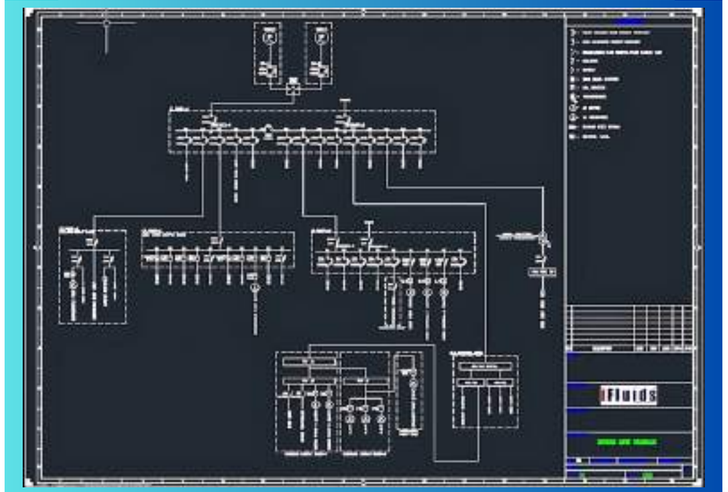
WATER MANAGEMENT FACILITIES



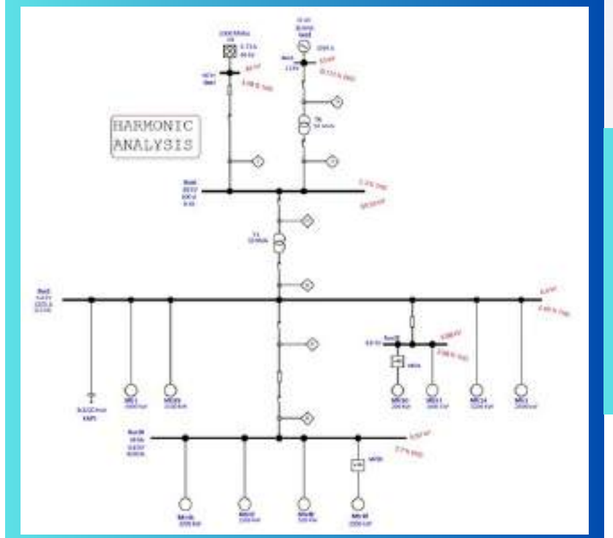
SOLUTIONS IN ACTION

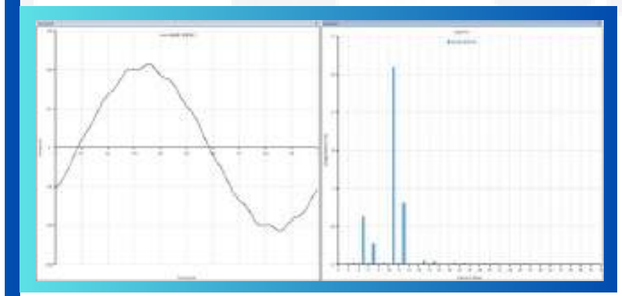
ELECTRICAL ENGINEERING

Sample Single Line Diagram



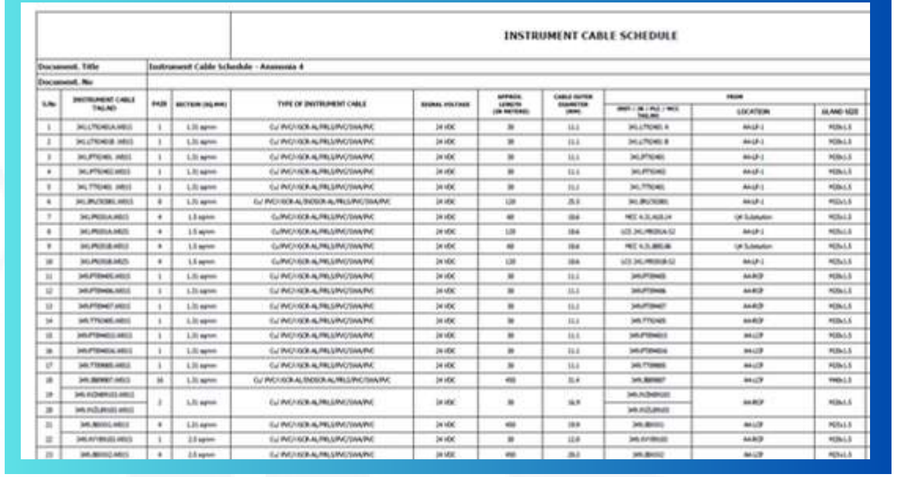
Sample Harmonic analysis





INSTRUMENTATION ENGINEERING

Sample Instrument Cable Schedule



INSTRUMENT CABLE SCHEDULE

Document. Title: Instrument Cable Schedule - Annexure 4

Document. No:

S.No	INSTRUMENT CABLE TAG.NO	PAIR	SECTION (SQ.MM)	TYPE OF INSTRUMENT CABLE	SIGNAL VOLTAGE	APPROX. LENGTH (IN METERS)	CABLE OUTER DIAMETER (MM)	FROM		
								(INST. / DB / PLC / MCC TAG.NO)	LOCATION	ISLAND SIZE
1	341.LT7040A.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	341.LT7040 A	AH.LP-1	FCDs1.5
2	341.LT7040B .M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	341.LT7040 B	AH.LP-1	FCDs1.5
3	341.PT7040 .M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	341.PT7040	AH.LP-1	FCDs1.5
4	341.PT7041 .M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	341.PT7041	AH.LP-1	FCDs1.5
5	341.TT7040 .M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	341.TT7040	AH.LP-1	FCDs1.5
6	341.JBU7030.M01	8	1.31 sqmm	Cu/ PVC/ SCR-AL/ENDER-AL/PBL/LPVC/SWA/PVC	24 VDC	120	25.3	341.JBU7030	AH.LP-1	FCDs1.5
7	341.PE001A.M01	4	1.5 sqmm	Cu/PVC/SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	60	18.6	MCC 4.11.A10.14	LH Substation	FCDs1.5
8	341.PE001A.M01	4	1.5 sqmm	Cu/PVC/SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	120	18.6	LCD 341.PE001A-52	AH.LP-1	FCDs1.5
9	341.PE001B.M01	4	1.5 sqmm	Cu/PVC/SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	60	18.6	MCC 4.11.B01.06	LH Substation	FCDs1.5
10	341.PE001B.M01	4	1.5 sqmm	Cu/PVC/SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	120	18.6	LCD 341.PE001B-52	AH.LP-1	FCDs1.5
11	345.PT0040.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.PT0040	AH.RCP	FCDs1.5
12	345.PT0040A.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.PT0040A	AH.RCP	FCDs1.5
13	345.PT0040T.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.PT0040T	AH.RCP	FCDs1.5
14	345.TT0040.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.TT0040	AH.RCP	FCDs1.5
15	345.PT0040.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.PT0040	AH.LCP	FCDs1.5
16	345.PT0040A.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.PT0040A	AH.LCP	FCDs1.5
17	345.TT0040.M01	1	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	11.1	345.TT0040	AH.LCP	FCDs1.5
18	345.JB0007.M01	16	1.31 sqmm	Cu/ PVC/ SCR-AL/ENDER-AL/PBL/LPVC/SWA/PVC	24 VDC	450	31.4	345.JB0007	AH.LCP	FMDs1.5
19	345.H2O40V101.M01 / 345.H2O40V102.M01	2	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	16.9	345.H2O40V101 / 345.H2O40V102	AH.RCP	FCDs1.5
20	345.H2LB101.M01									
21	345.B0101.M01	4	1.31 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	450	19.9	345.B0101	AH.LCP	FCDs1.5
22	345.AY7B101.M01	1	2.5 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	30	12.8	345.AY7B101	AH.RCP	FCDs1.5
23	345.B0102.M01	4	2.5 sqmm	Cu/ PVC/ SCR-AL/PBL/LPVC/SWA/PVC	24 VDC	450	26.3	345.B0102	AH.LCP	FCDs1.5

Sample Cable Routing Layout

iFluids® ENGINEERING

PROCESS SAFETY & RISK MANAGEMENT STUDIES

At iFluids Engineering, we help industries build safer and more resilient operations through effective Process Safety & Risk Management. Our services focus on identifying risks, preventing incidents, and ensuring compliance protecting people, assets, and the environment while supporting sustainable growth.

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PHA STUDIES

- HAZID
- Hazard and Operability (HAZOP) Workshop
- Event Tree
- Fault Tree
- Bow-Tie Analysis
- What-if Analysis
- Failure Mode And Effects Analysis (FMEA)
- Preliminary Hazard Analysis
- Quantitative Risk Assessment (QRA)
- Root Cause Analysis
- Inherent Safety Review

Technical Safety Studies

- Fire and Explosion Risk Analysis
- Escape Evacuation and Rescue Analysis
- Emergency System Survivability Analysis
- Project Health Safety and Environment Review
- H2S Zoning /Toxic Risk Assessment
- Smoke and Gas Detection Study
- TRIA :Temporary Refuge Impact assessment
- Shelter in Place Assessment
- Passive Fire Protection Assessment
- Active Fire Protection Assessment
- Rapid Risk Assessment
- Fire Risk Assessment
- Building Risk Assessment
- Ship Collision Studies
- Vehicle impact Assessment
- Dropped Object Study
- Process Safety Management Studies

PNGRB Regulatory Compliance Studies

- Emergency Response Disaster Management Plan – Risk Management Studies
- Integrity Management Studies – Asset Integrity Study

Functional Safety studies

- SIL Assessment (Using Layer of Protection Analysis (LOPA), Fault Tree Analysis & Risk Graph Method)
- SIL Verification
- SIL Validation
- ALARP Demonstration Workshop
- SIMOPS

Loss Prevention

- Fire Water Demand and Hydraulic Calculations
- Safety Equipment Datasheet and Specifications
- Fire safety adequacy review
- HSE and Fire Protection Design philosophies
- Reliability Availability and Maintainability Study (RAM)
- Fire & Gas Mapping studies 2D & 3D
- Fire & Gas Layout Preparation
- Hazardous Area Classification Study (HAC)

Human Factors Engineering (HFE) Studies

- Ergonomic Risk Assessments
- Procedural & Operational Human Factors
- Emergency & Evacuation Human Factors
- Human Error Analysis
- Behaviour Based Safety (BBS)

Safety Audits

- Electrical Safety Audit
- Fire Safety Audit
- Environmental Audit
- Water Audit
- External Safety Audit as per IS 14489 and OISD Standards (Multi Discipline)
- Life Safety Audit
- Chemical and Process Risk Audit

Design Review Studies

- Design Safety Review (DSR)
- Inherent Safety Design (ISD)
- Piping and Instrumentation Diagram Reviews
- Material handling reviews
- Layout Safety reviews
- Constructability reviews and Audits
- Independent Verification Review (IVR / IVB) Services
- Optimization / Cost-Benefit Study
- Value Engineering

FLAGSHIP PROJECTS

HAZOP	QRA	SIL
HAZOP Study for Sulphur recovery unit, OM&S – offsite facilities, TPS & utilities, MSQ Nitrogen plant, CRU Nitrogen plant, Effluent Treatment plant, Fire Station, Service Facility, Upcoming Units/ facilities of Indian Oil Corporation Limited (IOCL) Barauni Refinery.	Three-year rate contract for QRA study as per the PNGRB guidelines 22 root causes for threat to pipeline integrity for 3631 Kms Jagdishpur-Haldia-Bokaro-Dhamra Pipeline of GAIL.	Safety Integrity Level (SIL) Assessment for Process Units of IOCL, Gujarat Refinery.
HAZOP Study of all Process Units, Hydrocarbon Storage Facilities, Tank Wagon Unloading/Loading Facilities for Hydrocarbons, Effluent Treatment Plant, Fire Station/ Fire Pump House, All Auxiliary Facilities of Chennai Petroleum Corporation Limited, Manali.	QRA study on Crude Oil and Natural Gas Production installations at Oil India Limited, Assam.	SIL for HPCL Chennai New Terminal Hindustan Petroleum Corporation Limited.
HAZOP Study for Liquid Cargo Jetty at Jawaharlal Nehru Port Container Terminal, Maharashtra, Bharat Petroleum Corporation Limited.	QRA at Barauni Terminal - Indian Oil Corporation Limited	SIL for EPMC of GGS Lakwagaon of Oil India Limited, Assam.
HAZOP Study for Development of Treatment & Infrastructure Facilities at Jhagadia Pumping Station, NCT,Gujarat.	QRA study for HPCL Loni Terminal - Hindustan Petroleum Corporation Limited	SIL Assessment & SIL Verification as per IEC 61511 / 61808 /61508 for Wardha depot of Nayara Energy Limited, Maharashtra.
HAZOP study for all process units, Offsites, LPG storage in Mounded Bullets & Transfer facilities, and Integrated Effluent Treatment Plant (IETP) with total P&IDs of 1512 for HPCL Mumbai Refinery.	QRA for Hazira Plant of Oil and Natural Gas Commission.	SIL study for Produced Water System at the Cairn India Mangala Plant.
HAZOP study of Crude oil and Natural Gas Production installations, Scrapper trap area, and associated pipelines of Oil India Limited, Assam.	Quantitative Risk Assessment for 71 Nos of CNG stations at Kottayam, Idukki, and Pathanamthitta GAs of Kerala – Sholagasco Pvt Ltd.	SIL Assessment and Verification Study for Oman Oil Refineries and Petroleum Industries Company (ORPIC) & SIL Validation Projects at Qatar Mesaieed Refinery.

FLAGSHIP PROJECTS

F&G MAPPING STUDY

- 3D F&G Mapping study for FEED Services on Onshore Gas Plant #2 in Sarawak Integrated Sour Gas Evacuation System (SISGES) Development Project of PTTEP -Monaco Engineering Solutions (MES).
- 3D F&G Mapping Study (Gas Detection Review Study) For MRPL Devanagonthi Project
- 3D F&G Mapping for Floating Production Storage and Offloading (FPSO) Unit of M/s. HBA Offshore Private Limited.
- F&G 3D Mapping Study at LPG Plant, Duliajan, Assam for Oil India Limited
- 2D Fire and Gas (F&G) Mapping at IOCL Ennore Jetty
- F&G Detection Mapping Study at Shahdol-Phulphur Gas Pipeline (SHPPL) Compressor Station of Reliance Gas Pipelines at Shahdol, Madya Pradesh

DISPERSION STUDY

- Dispersion Analysis for Technical Ammonium Nitrate project of Chambal Fertilizers and Chemicals Limited.
- Flare Radiation and Gas Dispersion Study for Utility Flare of UOP (Malaysia) Sdn. Bhd for M/s. NRC Engineering.
- Flare Radiation & Dispersion Analysis for ADNOC Offshore Abu Dhabi.
- Stack Height Assessment and Air dispersion modelling for TCL Specialities LLC
- Dispersion Analysis for Vent/QOEC Receipt Terminal, of Singasandra – Krishnagiri Natural Gas pipeline (SKPL) of Gail.
- Air Dispersion Modelling to Analyse the Ambient Air Quality Inside and Outside IOCL Haldia Refinery, West Bengal.

SIMOPS

- SIMOPS study for DHDT project and LPG Mounded Bullet and LPG bottling plant upgradatjon project of Numaligarh Refinery Limited (NRL).
- SIMOPS Studies For Engineering Disciplines For Rerouting Of EGC's Seal Gas, Settle-Out Gas And HP Fuel Gas of Dolphin Onshore Plant, Qatar.
- SIMOPS & Building Risk Assessment for FEED for Common Cooling Water System (CCWS) Phase IV For NFS expansion project of Qatar Gas RLIC.
- SIMOPS for New Port Control Tower– Ras Laffan Industrial City for Qatar Energy LNG.
- SIMOPS Study for FEED & DED Underground Coolling Water Line Repair of ORYX GTL,Qatar.

FLAGSHIP PROJECTS

RAM

- RAM Study (Reliability, Availability and Maintainability) for IDOM- ACWA Power Plant, Uzbekistan - Bureau Veritas.
- Reliability, Availability and Maintainability (RAM) & Noise study for TOTAL E&P at Dunga Field, Kazakhstan.
- RAM Study for FEED to improve Reliability of Gas supply to power plants of Qatar Energy.

HYDRAULIC ANALYSIS

- Fire Water Hydraulic Analysis for FPSO for M/s. HBA Future Energy.
- Hydraulic Analysis for the Stabilization of Header Pressure in Pipeline Network for Great Eastern Energy, West Bengal.
- Hydraulic and Surge Analysis for FEED study for TCW long-term solution phase-1 project of Dohphin Energy, Qatar.
- Hydraulic study and Process simulation for offshore loading arms Project – Berth – 3,4,5 and 6 at ADNOC OFFSHORE JETTY – JEBEL DHANNA.
- Fire Water Hydraulic Analysis and adequacy study of fire protection facilities at Mathura Refinery of Indian Oil Corporation Limited.
- Hydraulic Surge Analysis Revalidation for QAFAC Berth/Jetty upgrade Project (loading arm), Qatar – Chiyoda Almana.

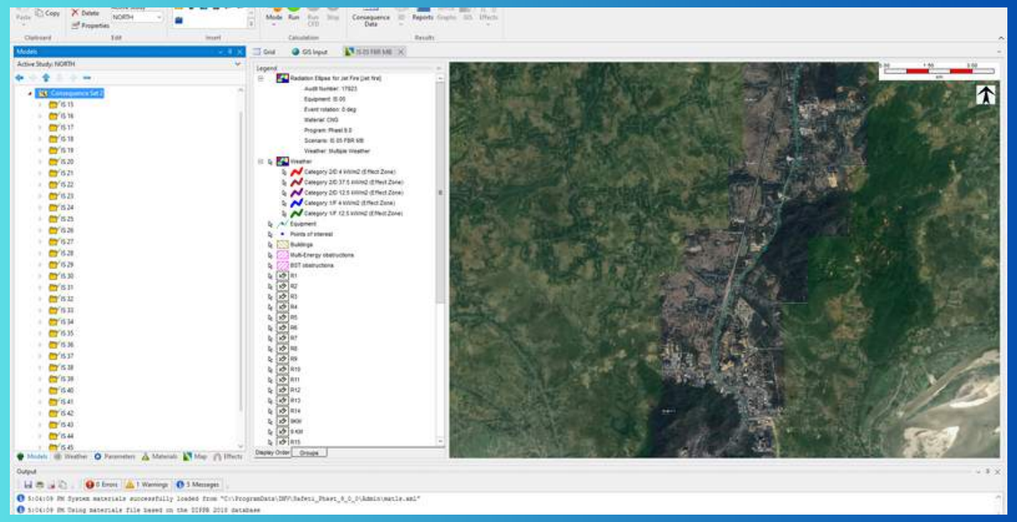
SAFETY AUDITS

- Safety Audit at Haldia Refinery of Indian Oil Corporation Limited as per MSIHC Rule and IS 14489.
- Electrical Safety Audit & Thermography for ICICI Bank.
- External safety audit for compressor stations including pipeline and GPU under central region for GAIL.
- Customised Safety Assessment (Audit) as per OISD Standards for IndianOil Skytanking.
- External Safety Audit for Nayara Energy's Vadinar Refinery.
- Fire, Life Safety, Electrical Risk, Chemical and Process Risk Audit for Berger Paints, Puducherry and Andhra Pradesh plant.

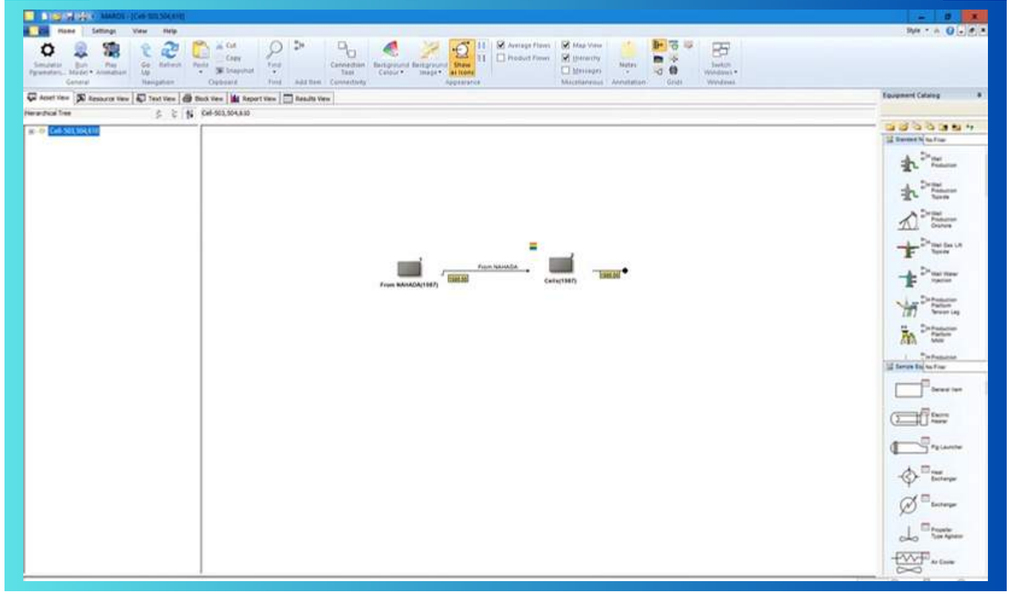
SOLUTIONS IN ACTION

Sample F&G Mapping Study 3D

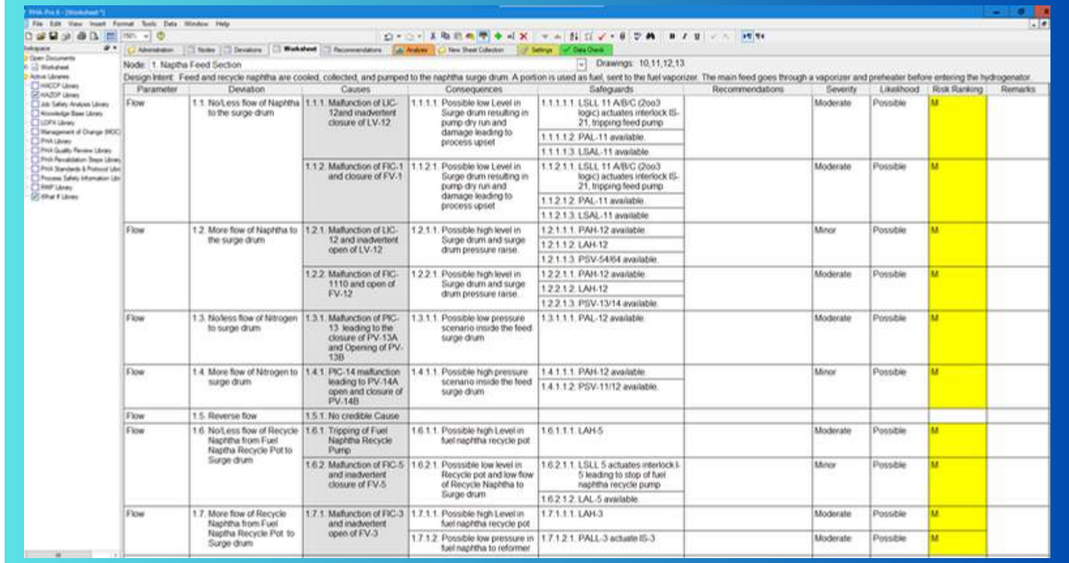
Sample QRA using DNV Phast & Safeti



RAM Study using DNV MAROS



Sample HAZOP Worksheet



Node: 1. Naphtha Feed Section — Drawings: 10,11,12,13

Design Intent: Feed and recycle naphtha are cooled, collected, and pumped to the naphtha surge drum. A portion is used as fuel, sent to the fuel vaporizer. The main feed goes through a vaporizer and preheater before entering the hydrogenator.

Parameter	Deviation	Causes	Consequences	Safeguards	Recommendations	Severity	Likelihood	Risk Ranking	Remarks
Flow	1.1. No/Less flow of Naphtha to the surge drum	1.1.1. Malfunction of LIC-12and inadvertent closure of LV-12	1.1.1.1. Possible low Level in Surge drum resulting in pump dry run and damage leading to process upset	1.1.1.1.1. LSLL 11 A/B/C (2oo3 logic) actuates interlock IS-21, tripping feed pump 1.1.1.1.2. PAL-11 available. 1.1.1.1.3. LSAL-11 available.		Moderate	Possible	M	
		1.1.2. Malfunction of FIC-1 and closure of FV-1	1.1.2.1. Possible low Level in Surge drum resulting in pump dry run and damage leading to process upset	1.1.2.1.1. LSLL 11 A/B/C (2oo3 logic) actuates interlock IS-21, tripping feed pump 1.1.2.1.2. PAL-11 available. 1.1.2.1.3. LSAL-11 available.		Moderate	Possible	M	
Flow	1.2. More flow of Naphtha to the surge drum	1.2.1. Malfunction of LIC-12 and inadvertent open of LV-12	1.2.1.1. Possible high level in Surge drum and surge drum pressure raise.	1.2.1.1.1. PAH-12 available. 1.2.1.1.2. LAH-12 1.2.1.1.3. PSV-54/64 available.		Minor	Possible	M	
		1.2.2. Malfunction of FIC-1110 and open of FV-12	1.2.2.1. Possible high level in Surge drum and surge drum pressure raise.	1.2.2.1.1. PAH-12 available. 1.2.2.1.2. LAH-12 1.2.2.1.3. PSV-13/14 available.		Moderate	Possible	M	
Flow	1.3. No/less flow of Nitrogen to surge drum	1.3.1. Malfunction of PIC-13 leading to the closure of PV-13A and Opening of PV-13B	1.3.1.1. Possible low pressure scenario inside the feed surge drum	1.3.1.1.1. PAL-12 available.		Moderate	Possible	M	
Flow	1.4. More flow of Nitrogen to surge drum	1.4.1. PIC-14 malfunction leading to PV-14A open and closure of PV-14B)	1.4.1.1. Possible high pressure scenario inside the feed surge drum	1.4.1.1.1. PAH-12 available. 1.4.1.1.2. PSV-11/12 available.		Minor	Possible	M	
Flow	1.5. Reverse flow	1.5.1. No credible Cause							
Flow	1.6. No/Less flow of Recycle Naphtha from Fuel Naphtha Recycle Pot to Surge drum	1.6.1. Tripping of Fuel Naphtha Recycle Pump	1.6.1.1. Possible high Level in fuel naphtha recycle pot	1.6.1.1.1. LAH-5		Moderate	Possible	M	
		1.6.2. Malfunction of FIC-5 and inadvertent closure of FV-5	1.6.2.1. Possible low level in Recycle pot and low flow of Recycle Naphtha to Surge drum	1.6.2.1.1. LSLL 5 actuates interlock I-5 leading to stop of fuel naphtha recycle pump 1.6.2.1.2. LAL-5 available.		Minor	Possible	M	
Flow	1.7. More flow of Recycle Naphtha from Fuel Naphtha Recycle Pot to Surge drum	1.7.1. Malfunction of FIC-3 and inadvertent open of FV-3	1.7.1.1. Possible high Level in fuel naphtha recycle pot	1.7.1.1.1. LAH-3		Moderate	Possible	M	
			1.7.1.2. Possible low pressure in fuel naphtha to reformer	1.7.1.2.1. PALL-3 actuate IS-3		Moderate	Possible	M	

iFluids® ENGINEERING

ENVIRONMENTAL STUDIES

Our expertise covers Environmental Impact Assessments (EIA), Environmental Management Plans (EMP), Environmental Monitoring & Audits, and Risk Assessments. With a strong focus on sustainable development, we provide customized solutions that minimize environmental footprints while ensuring operational efficiency.

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ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT

- Environmental, Social, and Governance (ESG) Assessments
- GHG Protocol & Carbon Footprint Audit
- Construction Environmental Management Plan (CEMP)
- Demolition Environmental Management Plan (DEMP)
- Operational Environmental Management Plan (OEMP)
- Waste Management Plan (WMP)
- Environmental & Social Impact Assessment (ESIA)
- Environmental Management Framework (EMF)

Statutory Approvals

- Environmental Impact Assessment (EIA)
- Coastal Regulation Zone (CRZ) Clearance
- Consent to Establish (CTE) – New & Expansion
- Consent to Operate (CTO) – New & Expansion
- CGWA Groundwater Clearance
- Land Use & Layout Approvals

MODELLING STUDIES

- Air Dispersion Modelling
- Noise Modelling – Environmental Acoustics, Workplace Noise, Vehicular Traffic Modelling
- Noise & Vibration Modelling Studies
- Hydrogeological Modelling
- Life Cycle Assessment (LCA) Studies

Environmental Audit & Compliance

- Environmental Impact Identification (ENVID) Studies
- Water & Waste Audits
- Environmental Due Diligence & Compliance Support

SPECIAL STUDIES

- Site Selection & Liability Assessment
- Land Use / Land Cover Mapping (LULC)
- Flood Risk Assessment & Storm Water Management Studies
- Baseline Environmental Studies (on-site)– Air, Surface Water, Groundwater, Soil, Noise
- Hydrology Studies & Groundwater Studies
- Ecological and Biodiversity Studies
- Emission Estimation & Regulatory Compliance

FLAGSHIP PROJECTS

- ENVID study for EPIC of Instrument Air Compressor Package for BMS – QatarEnergy Refinery.
- ENVID study for EPIC For Desalter Upgrade at QatarEnergy Refinery, Mesaieed – QatarEnergy Refinery.
- Air Dispersion Study for LP Flare, Far West Station – Occidental (OXY), OMAN.
- Environmental Clearance for Technology Business Office – “TANNY CAG TECH PARK” – Tanny Shelters Private Limited – Tamil Nadu, India.
- Environmental Impact Assessment and Environmental Clearance for Proposed Mini Refinery – M/s. Rahul Petronet Private Limited.
- Environment Management Plan (CEMP) for EPIC of Instrument Air Compressor Package BMS Construction – QatarEnergy Refinery.
- Environmental Clearance for Industrial/Warehouse Buildings – One box Warehouse Private Limited India.

iFluids®
ENGINEERING

ASSET INTEGRITY SERVICES

We develop Integrity and Maintenance Management plans that identifies the best methods and the optimized frequency of inspection for reducing costs while maintaining your assets in their best-possible state.

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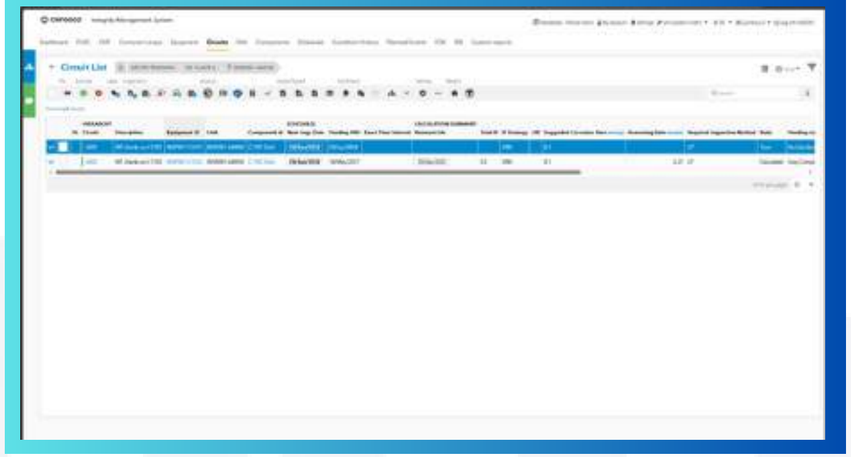
ASSET INTEGRITY SERVICES

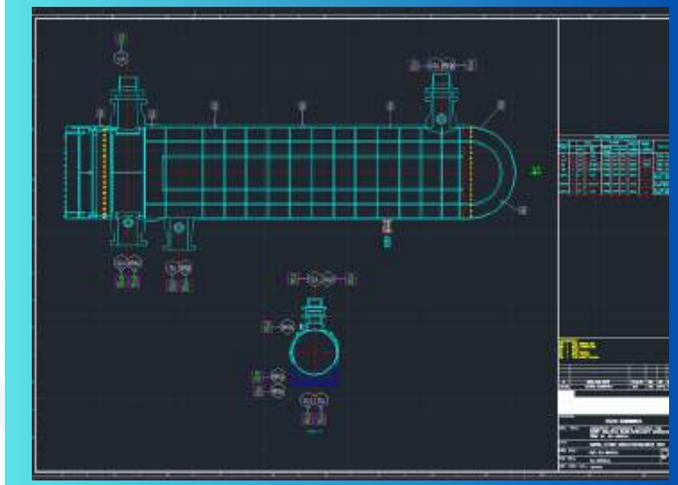
- Risk Based Inspection (RBI)
- Asset Management Consulting Services
- Material Management Consulting
- Master Data Services
- Structural Integrity Assessment
- Reliability Centered Maintenance (RCM)
- Root-Cause Failure Analysis
- Equipment Criticality Analysis
- Shut Down / Turn Around Optimization
- Non Destructive Testing

SOLUTIONS IN ACTION – RBI

Sample Circuit List

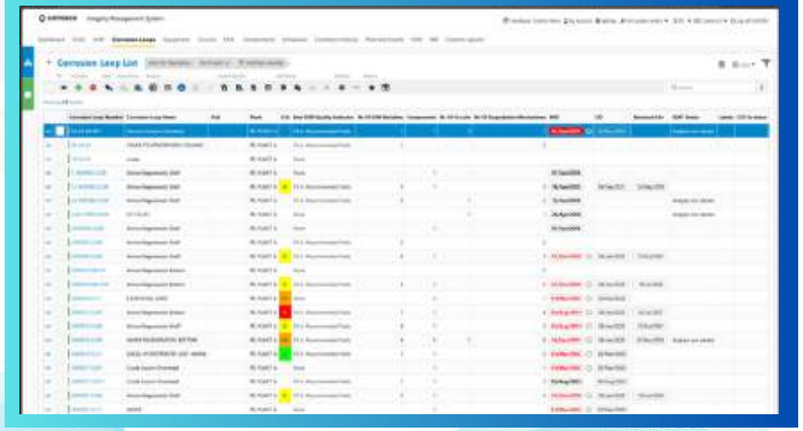


CML marked Equipment AutoCAD drawing



Sample CML Marked AutoCAD drawing

Sample Corrosion Loop List



FLAGSHIP PROJECTS

- Implementation of Risk Based Inspection for 8 process units in Cenosco AIMS software at Mangalore Refinery & Petrochemicals Limited, Karnataka.
- Data Acquisition and Risk Basked Inspection (RBI) Analyses for New Equipment of AGRP at Dukhan Fields of Qatar Petroleum, Qatar.
- RBI Studies for MGP Brownfield Modification for Onshore Depletion Compression for OQ, Oman.
- External Inspections of Tank & Pipeline including Visual & Ultrasonic test and hydraulic analysis of existing fire water network and foam pipelines of existing MV spray Water Spray system for above ground storage tanks at HPCL (Hindustan Petroleum Corporation Limited (HPCL), Secunderabad Terminal.
- External Inspection of Tanks, Visual & Ultrasonic test Inspection of Pipelines for HPCL (Hindustan Petroleum Corporation Limited (HPCL) Suryapet Terminal.

iFluids® ENGINEERING

TECHNICAL TRAINING

iFluids Engineering supports industry professionals through expert-led training programs that build skills and boost career opportunities.

We offer hands-on courses in Process Safety, Hazard Analysis, SIL, Environmental Studies, and more under the iFluids Training Academy.

Over the years, we've trained 3,000+ individuals through 50+ free webinars and training sessions.

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IFLUIDS TRAINING BENEFITS

ORGANIZATIONS

Complying with National and International regulations including Company HSSE objectives

Satisfying clients expectation and quality regarding HSE

Minimizing the consequences of process safety incidents

Enhancing business performance, Reliability and Availability

Ensuring strategic and competitive advantage

INDIVIDUALS

Helps participants to be proficient in Process Hazards Analysis techniques like, HAZID, HAZOPs, SIMOPS, What-If, What-If/Checklist, LOPAs, SIL etc.

Empowers participants to be better informed and help to achieve Company Objective and productivity

Enhances career prospects and helps value greater responsibility towards health, safety and environment

LIST OF FEW TRAININGS & LIVE WEBINARS CONDUCTED

1. The Fundamentals of HAZOP Study – iFluids Online Training
2. Fire and Gas Mapping Basics
3. SIL Assessment using LOPA
4. Preparation of Piping and Instrumentation Diagram (P&ID's)

iFluids ENGINEERING

Our Quality System

iFluids Engineering, we are an ISO 9001:2015, ISO 14001:2015, ISO 27001:2013 and ISO 45001:2018 – certified organization

Policy – We strive to provide exceptional and reliable services

Quality Focus – We foster a learning-driven culture where our people, tools, and processes are continuously enhanced.

Our HSE Policy – We integrate HSE principles across all service areas, ensuring regulatory compliance while minimizing environmental impact and promoting sustainable practices.

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ISO 9001:2015 – Quality Management

Ensures consistent delivery of products and services that meet customer and regulatory requirements, with a focus on continual improvement.

ISO 14001:2015 – Environmental Management

Helps organizations reduce environmental impact, comply with regulations, and promote sustainability.

ISO 27001:2013 – Information Security

Protects sensitive information by managing risks and ensuring data confidentiality, integrity, and availability.

ISO 45001:2018 – Occupational Health & Safety

Provides a framework to prevent workplace injuries, improve safety, and promote employee well-being.

Approvals

iFluids Engineering – Approved Contractor for HAZOP Study, SIL Assessment, QRA, Fire & Gas Mapping Study and Safety Engineering Support.

iFluids Engineering is a trusted leader in process safety and risk management, delivering world-class Safety studies and Engineering support tailored for the Oil & Gas Industry. Recognized as an approved contractor with Kuwait Oil Company (KOC), and ADNOC we combine technical expertise with Industry best practices to strengthen operational safety and Engineering support.

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KUWAIT PETROLEUM CORPORATION AND SUBSIDIARIES
CENTRAL PRE-QUALIFICATION TEAM

M/s. iFLUIDS ENGINEERING
Account ID #: 28918
Fax: +914466450815
E-mail: info@ifluids.com
Country: INDIA

Date: 15 MAY 2025
Ref: No. TLCPQ/FSK/SYA/25/412

SUBJECT: PRE-QUALIFICATION OF CONTRACTORS

REF.: PQ APPLICATION REFERENCE NUMBER: ASM_45530

DEAR APPLICANT,

WE ARE PLEASED TO INFORM YOU THAT YOUR PRE-QUALIFICATION PQ APPLICATION - ASM_45530 HAS BEEN REVIEWED AND APPROVED FOR TIER G - ABOVE 75K UP TO 250K, AND YOUR COMPANY HAS BEEN INCLUDED IN K-TENDERING APPROVED CONTRACTORS LIST FOR THE CATEGORY AS MENTIONED BELOW:

NAME OF THE CONTRACTOR	M/S. iFLUIDS ENGINEERING
CATEGORY OF WORK:	K 20.08 - HAZOP ASSESSMENT
MONETARY CATEGORY:	TIER G - ABOVE 75K UP TO 250K
NOTE:	

PLEASE ENSURE TO QUOTE THE ACCOUNT ID AND PQ REFERENCE NUMBER IN ALL FUTURE RELATED CORRESPONDENCE.

APPROVAL VALIDITY IS UP TO: 13-MAY-2028

Jasem AlDrees
Team Leader Central Prequalification

K-help@kipic.com.kw
+965-23898811

PLEASE REFER OVERLEAF FOR INSTRUCTIONS

HAZOP KOC Approval Letter

KUWAIT OIL COMPANY (K.S.C)
COMMERCIAL SUPPORT GROUP
SUPPLIER RELATIONSHIP MANAGEMENT TEAM
FAX NO. (965) 23980429

To : **M/s. IFLUIDS ENGINEERING**
Fax : **+914466450815**
E-mail : info@ifluids.com

Date : 15 OCT 2023
Ref. No. : **TLSRM/YYH/23/FX/** 691
Vendor Code: **40969**

Subject: : **SHORTLIST EXERCISE (SL-23/01) CONSULTANCY SERVICES FOR FIRE & GAS MAPPING STUDIES IN S&EK AREAS**

Ref.: Shortlisting Application dated January 31, 2023.

Dear Sirs,

With reference to the above mentioned subject, we are pleased to inform that your company has been approved for inclusion in the list of contractors shortlisted for the exercise as per the details below.

Name of the Contractor: M/s. IFLUIDS ENGINEERING
Vendor Code – 40969

Please ensure to quote the vendor code in all your future correspondence.

Please note that the above approval is for the related exercise only and the same shall not be considered as approval / guarantee for participation in any of the future / upcoming tender.

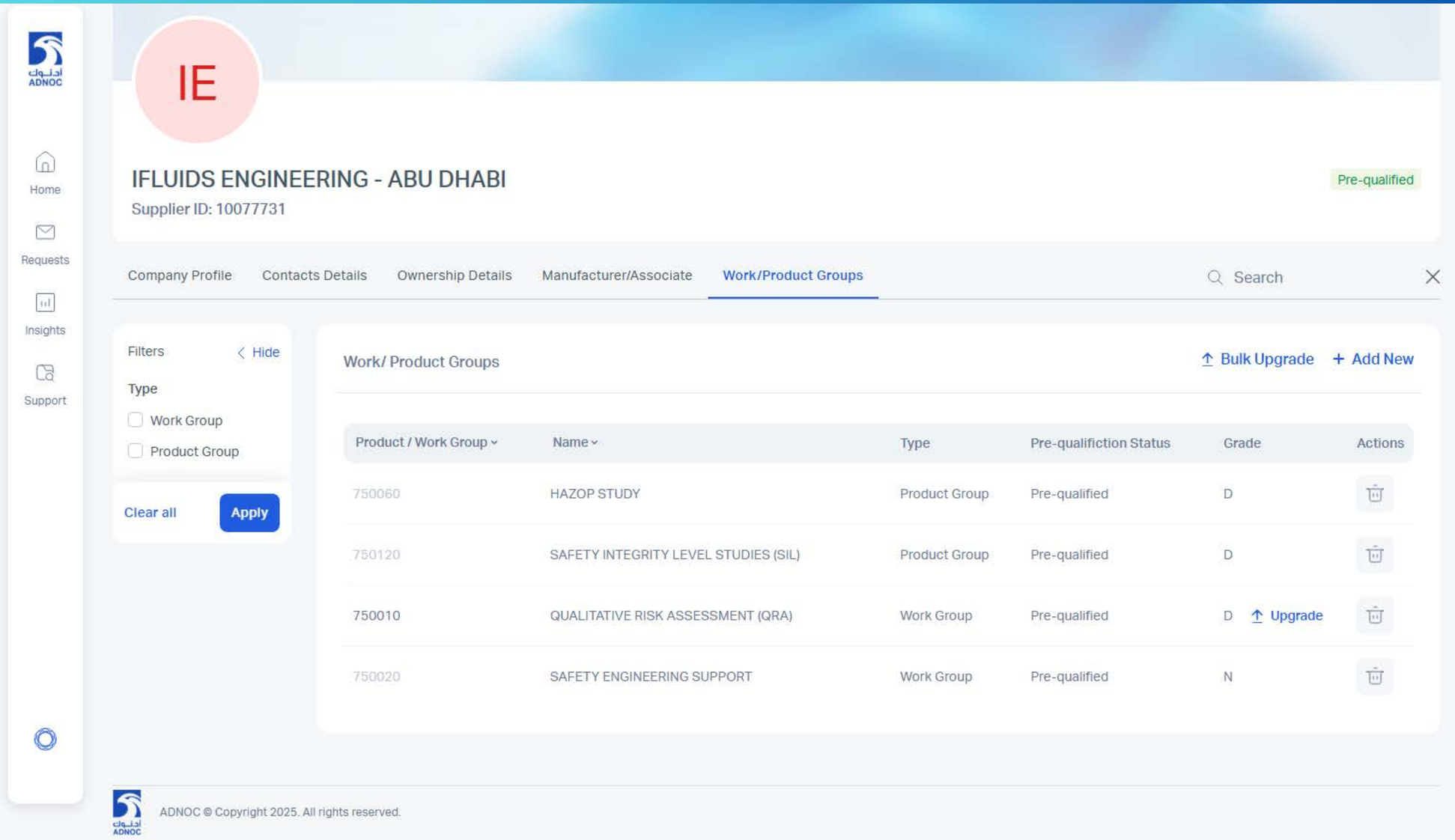
The Company looks forward for professionalism, high standards and efficiency in fruitful partnership for the mutual advantage.

For Kuwait Oil Company

ABDUL AZIZ REDHA HUSSAIN
Team Leader- Supplier Relationship Management

F&G Mapping KOC Approval letter

ADNOC Approval



Why iFluids Engineering

At iFluids Engineering, we don't just deliver services we build long-term partnerships based on trust, technical excellence, and results.

With over a decade of specialized experience in process safety, engineering consulting, and risk management, we've become a trusted name across critical industries like Oil & Gas, Petrochemicals, Power, LNG, Pharma, and Infrastructure.

We bring:

- Deep domain expertise in Oil & Gas, Petrochemicals, LNG, and Pharma
- End-to-end capabilities from FEED to SIL & CFD
- Global tools, local compliance knowledge
- 200+ skilled professionals and 3050+ trained individuals
- A proven record across India and the Middle East

OFFICE INFRASTRUCTURE

- Leased Internet Lines & IP Telephony
- 3D Software – Compatible Workstations & Laptops
- Fireproof Local + External Data Backup Systems
- Video Conferencing (VC) & Public Address (PA) Systems
- Licensed Engineering Software
- High-Speed Peripherals: Plotters, Printers, Copiers
- Custom In-House Applications for optimized project execution
- Built with sustainability in mind, our facility embraces environmentally responsible design and operations.
- Advanced Access & Surveillance Systems for fire safety and control
- Ergonomic Design to improve comfort and reduce environmental impact

INDIAN GOVERNMENT UNDERTAKING CLIENTS

ONGC

एम आर पी एल MRPL

NRL

गेल GAIL

GAIL (India) Limited

बी एच ई एल BHEL

इंडियनऑयल IndianOil

ऑयल इंडिया लिमिटेड

Oil India Limited

एन एफ एल NFL

National Fertilizers Limited

CPCL

GP

Gujarat State Petronet Ltd.

HP

FACT

PIONEERS IN PROGRESS

IFFCO

Wholly owned by Cooperatives

कोंकण एलएनजी लिमिटेड

Konkan LNG Limited

(गेल (इंडिया) लिमिटेड की सहायक कंपनी)

(Subsidiary of GAIL (India) Limited)

Bharat Petroleum

INDIAN PRIVATE CLIENTS

OVERSEAS CLIENTS

قطر للطاقة QatarEnergy

قطرغاز QATARGAS

قطر ستيل QATAR STEEL

Gulf Spic General Trading & Contracting Company W.L.L
A Company of Focus, Visions & Values

DOLPHIN ENERGY دولفين للطاقة

وقود WOQOD

T.EN TECHNIP ENERGIES

PetroWeld
oilfield Services

CHIYODA ALMANA ENGINEERING LLC

KENTZ
Engineers & Constructors

trags

MEDGULF

AEB

SASEC ENGINEERING

DOPET

OVERSEAS CLIENTS

iFluids® ENGINEERING

Contact Us

Phone

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Email

info@ifluids.com

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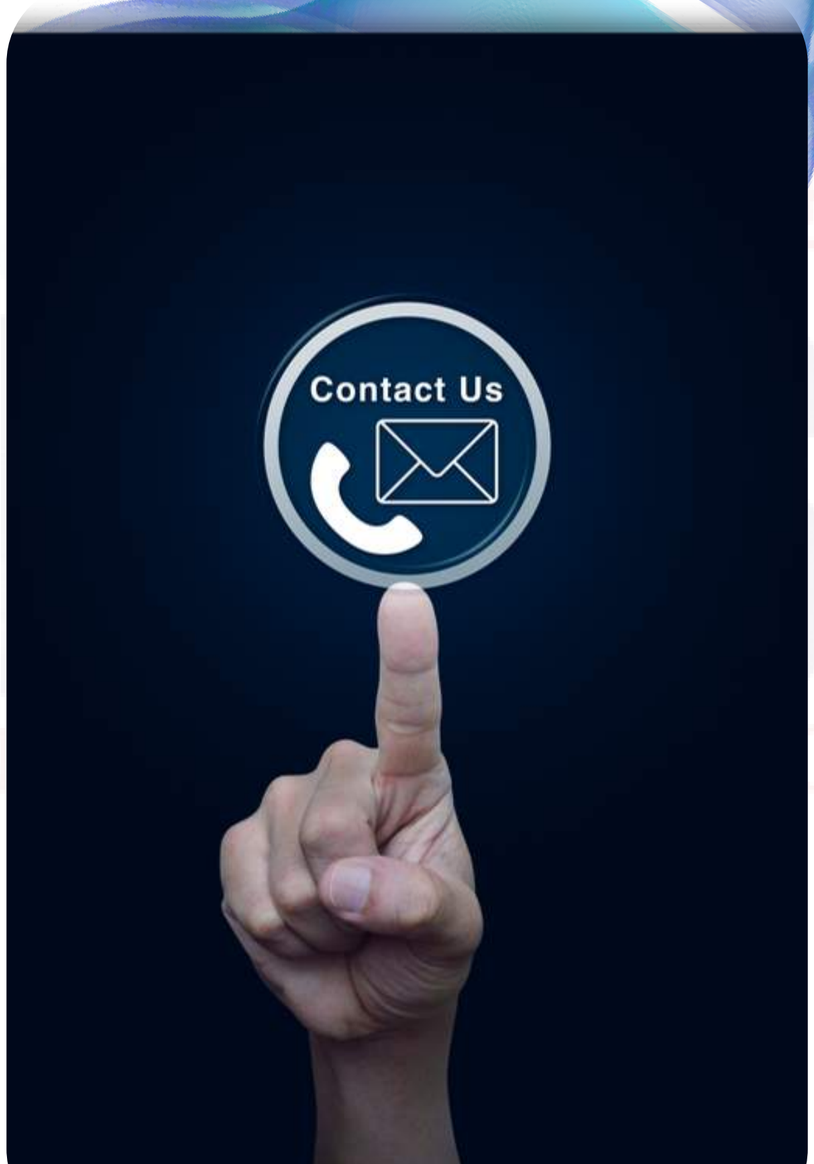
www.ifluids.com

Address

VP Business Centre No-20(42), 7th Cross Street, West Shenoy Nagar, Chennai -600030



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Thank You

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