



info@ifluids.com |www.ifluids.com

ABOUT US

<u>iFluids Engineering</u> is an ISO 9001:2015 certified company in Chennai, India with over 9+ years of experience in Oil and Gas Sector. We are a fast growing, multidisciplinary Engineering consultancy firm with 1100+ successfully executed projects.

We are a team of 200+ skilled Engineers Providing world-class consulting services in the field of Engineering Design and Consulting, Health, Safety and Environment, Risk Management, Asset Integrity & Reliability



iFluids Engineering is a NABET Accredited Environmental Consultant

Providing quality services for Offshore & Onshore - Upstream Midstream & Downstream Industries in Oil and Gas, Petrochemicals, Refineries, Fertilizers, Pharmaceuticals, Power, Pulp & Paper, Infrastructure and Water Industries



Providing EHS training through iFluids training academy for the growth and development of professionals in the Industry.



IFLUIDS GROUP COMPANIES











(QATAR)



(SAUDI ARABIA)



INDIAN GOVERNMENT UNDERTAKING CLIENTS



INDIAN PRIVATE CLIENTS



OVERSEAS CLIENTS



OVERSEAS CLIENTS



APPROVALS

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We are proud to be a certified and pre-qualified vendor for some of the industry's leading companies, including:

iFluids Engineering - Abu Dhabi

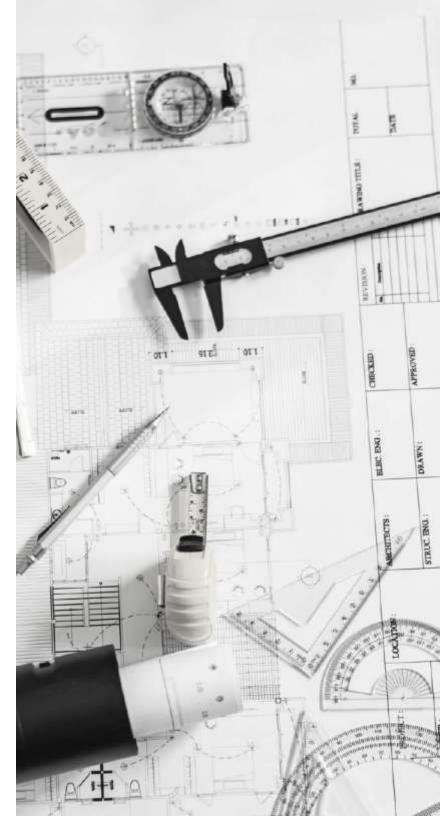
Approved supplier for ADNOC, having also been pre-qualified in HAZOP and SIL work groups

Kuwait Oil Company

We are an approved vendor for conducting Fire & Gas Mapping studies in the South & East Kuwait Areas. KOC/KNPC has a very stringent scrutiny process for finalizing the vendors. We iFluids has successfully completed the process and was approved by KOC/KNPC this establishes our expertise in this field

ENGINEERING SERVICES





FEASIBILITY & PRE BID ENGINEERING

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

FRONT END ENGINEERING DESIGN (FEED) & DETAILED DESIGN

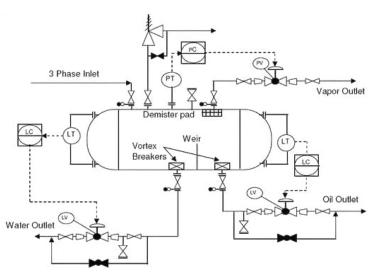
- Project Design Basis
- Project Risk Register

- Equipment List
- Material Selection
- Operation & Control Philosophy
- Multi-Disciplinary Deliverables
- Material Take off
- As-Built, 3D Modelling

PROCESS

- Process Design Basis
- Process Flow Diagrams (PFD)
- Process & Instrumentation
- Diagrams (P&ID)
- Utility Flow Diagrams (UFD)
- Main Process P&ID's
- Utility List
- Equipment list
- Line List
- Process Simulation/ Report

- Pump Sizing
- Valve Sizing
- Equipment Data Sheets
- Hammer Analysis
- Operating, Control & Shutdown
 Philosophies



Piping & Instrumentation Diagram



PIPING & PIPELINES

- Piping Design Basis
- Piping layout/ GA --E3D/SP3D
- Isometric drawings
- Material selection and Sizing
- Piping Material Specification (PMS)
- Pipe stress design basis
- Stress critical line list (CLL)
- Piping stress analysis CAESAR II
- Support drawings/ schedule
- Special pipe support design, drawing details
- Pipes weight calculation
- Valves specification and Datasheet's
- Complete Material Take off MTO

MECHANICAL

- Plot plan
- Equipment layout
- Engineering Design Basis
- 3D Modelling PV Elite
- MTO & Costing
- Overall project cost estimation
- Feasibility study of new equipments
- As Built drawings Entire plant
- Mechanical design -Tanks/PV/HE
- Fabrication drawings -Tanks/PV/HE
- Detailed Engineering
- Equipment's Data sheets/ TBE





ELECTRICAL

- Basis of Design / Philosophy
- Protection Design Philosophy
- Equipment Specification &
 Datasheet
- Other Electrical Analysis
- Earthing Adequacy Check
- Power System Adequacy Study
- Overall Single Line Diagram
- Electrical Load List
- Cable sizing & Cable Schedules
- Power Layouts
- Conceptual Cable Routing (Cable Tray/Trench) Layout
- Substation Layouts

POWER SYSTEM STUDIES

- Load Flow Analysis
- Short Circuit Analysis
- Motor Starting Analysis
- Harmonic Analysis
- Transient Stability Analysis
- Relay Coordination
- Switching Transient Analysis
 (Insulation Coordination)
- Arc Flash Analysis



INSTRUMENTATION

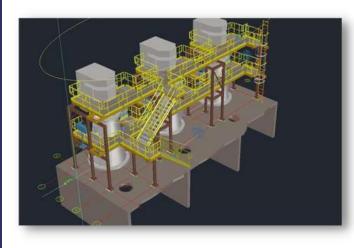
Instrumentation Design

Philosophy

- Instrument Location Layouts
- Instrument Wiring Diagram
- Instrument Cable Schedule
- Instrument Loop Diagram
- Instrument Data Sheets
- Integrated Control & Safety system (ICSS) Specification
- Instrumentation Cable Block
 Diagram
- Control & Safety System Topology
 Diagram
- ICSS Database Including I/O
 Schedule and Index
- Control Room Layout Drawing
- Process Hook up Diagram
- Process & Instrumentation
 Control Narratives

SPECIALIZED STUDIES

- Stress Analysis
- Hydraulic Analysis
- Structural Analysis
- Lightning Protection
 Study
- Dynamic Simulation
- Vibration Analysis and Pulsation Study
- Surge Analysis
- Flow Assurance Study / Transient Analysis
- Flare & Cold Vent Network
- Design & Analysis
- Ergonomic Assessment of workplaces



CIVIL & STRUCTURAL

- Design Criteria
- Specification for
 Topographical study
- Geotechnical Survey
- Specification
- Pipe Supports
- Structural Calculation
- Technological Structures
- Equipment Foundation
- Building Services
 Design HVAC

KEY PROJECTS - DESIGN ENGINEERING

 Engineering Services For EPC Project - Modernization of Bejil EWT Facilities (Stage 1) of Rosneft Middle East WLL. at Kurdistan, Iraq for Petroweld Services Ltd

Two year rate contract for Process Engineering Consultancy Services for Mangalore Refinery and Petrochemicals Limited, Mangaluru

 Engineering drawings for civil and Electrical works related to various schemes and providing services for Engineering department at IOCL Gujarat Refinery

Basic Engineering Design package for HPCL plant based on HP RAMP technology for production of Biogas from Biomass, Mumbai and Hydrogen Enriched Compressed Natural Gas Plant

Detailed Feasibility study for efficiency improvement & debottlenecking of 18 process furnaces at BPCL Bina Refinery, Madhya Pradesh, CPCL Chennai

Detailed Engineering Project for Zero Liquid Discharge at QAFCO (Qatar Fertilizer Company)

Engineering information for Oil Collecting Stations, Early Production Setup, Quick Production Setup / Well Head Setup installations.As-Built P&ID and PFD drawings, Piping & Plant Layout, Electrical, Instrumentation, Optical Fibre cable diagrams, Cable Schedule Layouts, Electrical System & equipment earthing, Fire Fighting System Drawings, Electrical Single Line diagrams (SLDs), SOP's, , of Crude Oil and Natural Gas Production installations at Oil India Limited, Assam

PROCESS SAFETY & RISK MANAGEMENT STUDIES





HAZARD IDENTIFICATION

- Hazard & Operability Study (HAZOP)
- Hazard Identification Studies (HAZID)
- Emergency Response & Disaster Management Planning (ERDMP)
- Hazard registers
- Process Safety Management System (PSM)
- Hazard Identification & Risk Assessment (HIRA)
- Electrical HAZOP study (E-HAZOP / SAFOP)

RELIABILITY, AVAILABILITY & MAINTAINABILITY

- Reliability, Availability Maintainability (RAM) Assessment
- Failure mode, effects and criticality Analysis (FMECA)/ FMEA
- Root cause failure analysis (RFCA)
- Electrical Safety Audit
- Intrinsic Safe Loop Verification Audit

FUNCTIONAL SAFETY

• SIL Assessment

- SIL Verification and Validation
- <u>Safety Simultaneous Operations (SIMOPS)</u>
- Safety Requirements Specifications

QUALITATIVE & QUANTITATIVE RISK ANALYSIS

- Quantitative Risk Assessment (QRA)
- Rapid Risk Assessment (RRA)
- Ship Collision Study
- HSE Critical Equipment & Systems (HSECES) Study
- Consequence Modelling

PHA STUDIES

- Bow Tie Analysis
- Design HSE Case Study
- Escape Evacuation Rescue Analysis (EERA)
- Fire & Explosion Risk Assessment (FERA
- Flare Radiation and Dispersion Study
- Process Hazard Review
- <u>Project HSE Review</u>
- <u>Smoke Toxic Gas Dispersion Analysis</u>

LOSS PREVENTION

LIFE SAFETY

- Simulation & Design of egress and escape route
- Adequacy Study for Fire Fighting System
- Fire and Gas Mapping (2D & 3D)
- Fire Safety Audit
- Fire Risk Assessment (FRA)
- Passive Fire Protection Analysis

FIRE PROTECTION SYSTEMS

- Design & Engineering of large fire water networks
- Fire Water demand calculation & network

hydraulics

- Conception, Design & Development of all Active & Passive fire protection systems
- Automatic sprinkler systems
- Foam based fire suppression systems
- Portable firefighting and safety equipment specification

RISK MANAGEMENT – IDENTIFICATION AND MITIGATION

- Hazardous Area Classification (HAC)
 Schedule & Layouts
- Identifying Passive Fire Proofing requirements
- Fire, Hydrocarbon gas & Toxic gas dispersion modelling

OTHER SAFETY STUDIES

- <u>Computational Fluid Dynamics (CFD</u>)
- Behaviour Based Safety (BBS)
- Building Risk Assessment
- <u>Constructability Review</u>
- Health Risk Assessment
- Human Factor Engineering
- Occupational Health Identification
- Pre Start-up Safety Review
- Telemetry Risk Assessment
- <u>Smoke and Gas Ingress Analysis (SGIA)</u>

KEY PROJECTS - PROCESS SAFETY

Bow-Tie Development and other associated MAHM Deliverables for all Production facilities at Qatar Petroleum operational areas - Dukhan & Offshore

 Process Safety Management (PSM) and Behavior Based Safety (BBS) at Brahmaputra Cracker And Polymer Limited (BCPL), Assam

QRA Study using 3D CFD modeling software for MRPL Refinery & Aromatics Complex

HAZOP Study of Gail Pata Petrochemical (PC-I & PC-II) Units, Uttar Pradesh

SIL Assessment as per OISD 152 and IEC 61508 for IOCL Panipat Refinery and Panipat Naphtha Cracker

250+ HAZOP STUDIES

50+ SIL STUDIES

SIL verification Projects Numaligarh Refinery, IOCL Gujarat Refinery, Qatar Lafan Refinery - 2 and SIL Validation Projects at Qatar Mesaieed Refinery

F&G Mapping Study at Numaligarh Refinery and Marketing terminal

50+ FIRE SAFETY & DESIGN PROJECTS

230+ QRA STUDIES

ENVIRONMENTAL STUDIES







Certificate of Accreditation

iFluids Engineering

VP Business centre, No.20 (42), 7th Cross Street, West Shenoy Nagar, Chennai, Tamil Nadu- 600030

The organization is accredited as Category-A under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Control Description	Sector		
	Sector Description	NABET	MoEFCC	Cat.
1	Thermal power plants	4	1 (d)	Α
2	Petroleum refining industry		4 (a)	Α
3	Synthetic organic chemicals industry	21	5 (f)	Α
4	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	24	5 (i)	A
5	Building and construction projects	38	8 (a)	В
6	Townships and Area development projects	39	8 (b)	В

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IAAC minutes dated September 23, 2022 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2586 dated November 21, 2022. The accreditation needs to be renewed before the expiry date by iFluids Engineering, Chennai following due process of assessment.



iFluids Engineering is a Category "A" accredited Environmental Consultant by National Accreditation Board for Education & Training (NABET), Quality Council of India (QCI)

ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT

- Environmental Impact Assessment (EIA)
- Studies Coastal Zone Regulation (CRZ) Approvals
- Construction Environmental Management Plan (CEMP)
- Demolition Environmental Management Plan (DEMP)
- Operational Environmental Management Plan (OEMP)
- Environmental & Social Impact Assessment Studies (ESIA)
- Social Impact Assessment (SIA)
- Noise Impact Assessment (NIA)
- Environmental Management Framework (EMF)
- Flood Risk Assessment & Storm Water Management Studies
- Biodiversity Management Studies

MODELLING STUDIES

- Air Dispersion Modelling
- Vehicular Traffic Modelling
- Noise Dispersion Modelling
- Hydrogeological Modelling
- Vibration Modelling

ENVIRONMENTAL AUDIT

- Environmental Audit Studies
- Water Audit
- Environmental Risk Assessment Studies (Construction/Operation
- Environmental Due Diligence
- Environmental Impact Identification (ENVID)
- Environmental Compliance Assurance and Implementation Support
- Environmental Regulatory Assurance
 Services

SPECIAL STUDIES

- Site Selection and Liability Studies
- Land use/Land Cover Mapping
- Sustainability studies
- Emission Estimation and Regulatory
 - Reporting
- Vibration Studies

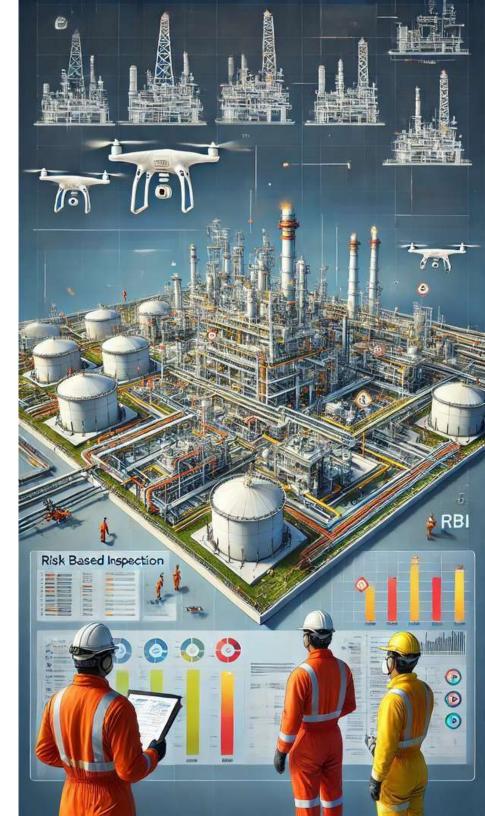
KEY PROJECTS - ENVIRONMENTAL STUDIES

- Noise Mapping Study for Caustic Wastewater Treatment Plant for Oil Tech Engineering Netherlands - ECO Services, Chennai
- Air Dispersion Modelling to analyse the ambient air quality inside and outside IOCL Haldia Refinery, West Bengal
- Stack Height Assessment and Air dispersion modelling using AERMOD for TCL Specialities LLC - Snakard Consulting Group, Qatar
- Environmental, Social and Governance (ESG) at Sipcot Industrial Complex EPIP, Gu₎mmdipoondi, For Anjan Drug Private Limited
 - Environmental Impact Assessment (EIA) for Qatar Petroleum -Black Cat Consulting & Engineering services W.L.L

Environmental Impact Identification (ENVID) for ORYX GTL

IMPLEMENTATION OF RBIAS PER API 580/581/S-RBI METHODOLOGIES & OTHER ACTIVITIES





API580 / API581 / S-RBIMETHODOLOGIES

- Semi quantitative analysis methodology as per API 580.
- Quantitative analysis based on models & API 581 detailed methods.
- S-RBI, Shell's Risk based inspection methodology simplified Semi-quantitative analysis.

RBIRELATED STUDIES:

- Corrosion control documents Preparation & updation
- Application of API 970 standard for corrosion loops.
- Conduct corrosion studies & assign damage mechanisms.
- IOW optimization & barrier analysis studies
- Application of API 584 standards for IOW optimization
- Equipment / piping material selection studies & materials selection diagrams
- Remaining life calculations , fixing next inspection dates.
- TML / CML studies & optimization strategies.
- Reliability centered maintenance studies & implementation.

FIELD ASSISTANCE ACTIVITIES

- Inspection of static assets Piping, vessels, storage tanks
- Verifying & Mapping dead legs in piping systems to Isometrics / as- built drawings.

- UT testing & other NDE methods.
- FEED studies.
- New construction testing activities.

TRAINING SUPPORT ACTIVITIES

- Introduction to RBI
- Risk based inspection implementation as per API 580
- How to use API 581 for quantitative analysis.
- Inspection methods for monitoring corrosion in refining fixed equipment
- Repairs as per ASME PCC 2 standards
- Codes & standards for inspection
 Professionals Mechanical
- Overview of API 571 and its application.
- Refinery inspection standards & application
- API 653 / 510 /570 / API 580 application knowledge.

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.



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

KEY PROJECTS - ASSET INTEGRITY SERVICES

Data Acquisition and Risk Based Inspection (RBI) Analysis for New Equipment of AGRP in Dukhan Fields of Qatar Petroleum, Qatar

Implementation of Risk Based Inspection for 8 process units (CDU 1, CDU 2, CCR 2, CHTU, DCU, PPU, HGU 3, DHDT) in Cenosco AIMS software in MRPL (Mangalore Refinery & Petrochemicals Limited), Karnataka

 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 20.5MD*13MH, 37.5MD*18MH, 23MD*13M H,15.5MD*9MH & Visual & Ultrasonic test Inspection of Pipelines for HPCL (Hindustan Petroleum Corporation Limited (HPCL) Suryapet Terminal

RCM and RBI Studies for MGP Brownfield Modification for Onshore Depletion Compression for OQ, Oman

TECHNICAL TRAINING





- iFluids Engineering is committed to support the growth and development of professionals in the industry by providing training opportunities to empower individuals to acquire new skills and enhance their employment prospects.
- We provide hands-on training in Process Safety Management, Process Hazard Analysis, Safety Integrity Level, Environment Studies design, Construction, Maintenance of Piping & Pipeline Systems Design of piping / Pipeline systems as per ASME B 31.3/31.4 / 31.8 code of practice and numerous other topics under <u>iFluids Training Academy</u>
- Emerging technologies studies: such as Carbon Capture Utilization Sequestration (CCUS) studies, Hydrogen Economy & Emerging Technologies adoption studies & consulting services
- Over the Years we've trained over **3000+ Individuals** through **50+** Free Trainings & Webinar programs.

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

IFLUIDS TRAINING BENEFITS

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 Assesment using LOPA
- 4. Preparation of Piping and Instrumentation Diagram (P&ID's)

KEY TECHNICAL TRAININGS

- API-510 at IOCL Panipat Refinery & Petrochemical Complex, Haryana
- Training program on API RP 583 (Corrosion under Insulation And Fireproofing) for IOCL Haldia Refinery

 Risk Management training for Adani Employees
 API 570 (In-service Inspection, Rating, Repair, and Alteration of Piping Systems) training at Paradip ,IOCL Refinery Odisha







WE BUILD ENGINEERING PRACTICES OF THE FUTURE





Contact Us



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

└── info@ifluids.com



+9144 4265 8747

+919025400631

Office No - 202, Second Floor, Guardian Tower P.O Box: 2621, Abu Dhabi UAE

info@ifluids.com
 +97150 7814251
 +97154 236 2514

