

Oil & Gas, Petrochemical and Bulk Chemicals Capability Statement

Stopford Projects Ltd



Enquiries:

Stopford Projects Ltd
Custom House
Merseyton Road
Ellesmere Port
Cheshire
CH65 3AD
United Kingdom

tel: +44 (0)151 357 7740
fax: +44 (0)151 345 8087
email: company@stopford.co.uk

www.stopford.co.uk



Total Engineering Solutions Provider
Company Registration No. 1630328 VAT Registration No 388 107 726

'For over three decades Stopford Projects has developed to become the balanced, high quality, skilled, innovative and dedicated team we see today'

Stopford Projects Director, Debnath Pal

Stopford Projects Ltd was formed in 1982 in the North West of England to provide cost effective detailed design and project management services to local industry. Stopford has developed over almost three decades to become the company it is today serving international clients from our offices in Cheshire, Lancaster and Luton. Stopford provide world class consultancy, multi-disciplined engineering design, project management and construction services in a variety of industrial sectors, to both UK and international clients. We offer a comprehensive range of engineering services from concept to complete engineering design through to total project implementation.

We pride ourselves on providing high quality, cost effective services using the latest technology, software and design techniques throughout all areas of our work. All our work is carried out in accordance with the Stopford Quality System and to our ISO 9001:2008 certification.

We work in the following sectors:



Petrochemical &
Bulk Chemical



Fuel Storage &
Distribution



Fine Chemical &
Pharmaceutical



Renewable
Energy



Environment



Biotechnology



Paper



Nuclear



Our client base includes a number of high profile bluechip, national and multi-national companies. This is what some of our clients say about us:

“We recognise the achievement of Stopford’s Designers, Project Managers and Contractors in installing a relatively complicated high value contract into a fully functioning terminal with such minimal disruption to daily loading.”

One of the world’s largest integrated energy companies

“Stopford has comprehensive in house capabilities and extensive project experience which allowed them to perform well and create additional value to our project.”

Prominent fuel and storage company located within the English Channel

“We have been impressed with Stopford’s ability to complete projects and provide resource in areas that we have no knowledge, for example, civil and structural.”

International food producer

“Stopford’s knowledgeable engineering team provided rapid, detailed, accurate delivery of the scope of work, enabling our capital spend to proceed to programme. The services delivered by Stopford were comparable to those of other engineering companies, however Stopford deliver more disciplines in house.”

One of the world’s largest integrated energy companies

Total Engineering Solutions Provider

Company Registration No. 1630328 VAT Registration No 388 107 726

Confidential © Stopford Projects Ltd

Stopford has conducted numerous projects in the petrochemical, oil & gas and bulk chemical sector, thus we have extensive experience in this area. The below gives an indication of the number of projects undertaken for each client of our major clients:

Client	Number of projects
Chevron	57
Nustar	9
BP	16
Falmouth Petroleum Ltd	5
Total	75
Shell	87
Vopak	3
HHOPCo	5
Greenergy	4
Air BP	30
Simon Storage	6

The projects mentioned above have varied widely in terms of the project nature, processes and services provided. In most cases Stopford acted as the consultancy, project manager, designer (multi-disciplined) and was involved in CDM, construction management and commissioning.

The majority of the above followed the traditional staged project lifecycle from FEED study through to basic engineering, detailed design, construction and onto commissioning.

Stopford are widely experienced in all project stages and the production of the deliverables required for production of sanction grade estimate.



Stopford's full range of engineering services include:

- Feasibility studies and conceptual design
- Front End Engineering and Design (FEED) Studies
- Full multidisciplinary engineering design
 - Process
 - Mechanical
 - Piping
 - Electrical
 - Control and Instrumentation
 - Civil and Structural
- Onsite and offsite facility design
- Health & Safety
- Project Management
- Project management and project controls throughout the lifecycle of projects
- Construction, Commissioning and Performance Testing
- Construction supervision and management - Principal Contractor and CDM Coordinator
- EPM Contract (Engineering, Procurement, Management)
- Debottlenecking and troubleshooting

Complementary consultancy services include:

- Process safety consultancy (HAZOP, ATEX, SIL, LOPA, etc.)
- Procurement
- Environmental Consultancy
- Assistance with permitting, environmental control and emission reduction
- Assistance with gaining planning permission
- Research and development
- Bespoke training packages



Technical support services:

Engineering Software:

- AutoCAD
- Auto Track- vehicle movements
- Bentley AutoPlant 3D Modelling (plant & pipework)
- Primavera & MS project- project planning
- PEL Suite of software - piper, Adrian, etc.
- FRED - consequence modelling, dispersion analysis
- CIRRUS- fire modelling
- FLOWMASTER - surge analysis
- CAESAR II – stress analysis
- CSC S - Frame (steelwork) and CSC
- ASPEN PLUS - process modelling
- ADMS 3 – dispersion modelling
- Total Station Laser Surveys
- Bentley Pro Steel 3D Structures



Stopford use 3D CAD modelling as an invaluable design tool, from conceptual models for FEED studies to fully intelligent 3D models. All models are based on the industry standard AutoCAD platform. 3D models are used to collaborate with project teams, identify and rectify clashes and interferences, and gain insight into potential problems before construction begins.

Our intelligent models are generated using the Bentley Autoplant suite of software solutions. Running behind the model is a single Project Database, linking the P&ID's, pipeline schedules, equipment, instrumentation and valve lists and data sheets.

We involve our clients in the design process by holding regular reviews of our 3D models. This allows stakeholders who are not necessarily trained engineers, to contribute to the design process. Once approved, detailed drawings are automatically generated directly and efficiently from the model. Finally, the completed model is available as a valuable resource in the construction phase of the project.

For client's to review the models we publish free-to-use software, either Adobe 3D PDF or Navisworks Freedom. Both types of software allow the client to "walk-through" the model. We also produce animations in AVI format using 3D StudioMax software. All 3D drawings can be easily converted to 2D should the client desire.

Design Benefits

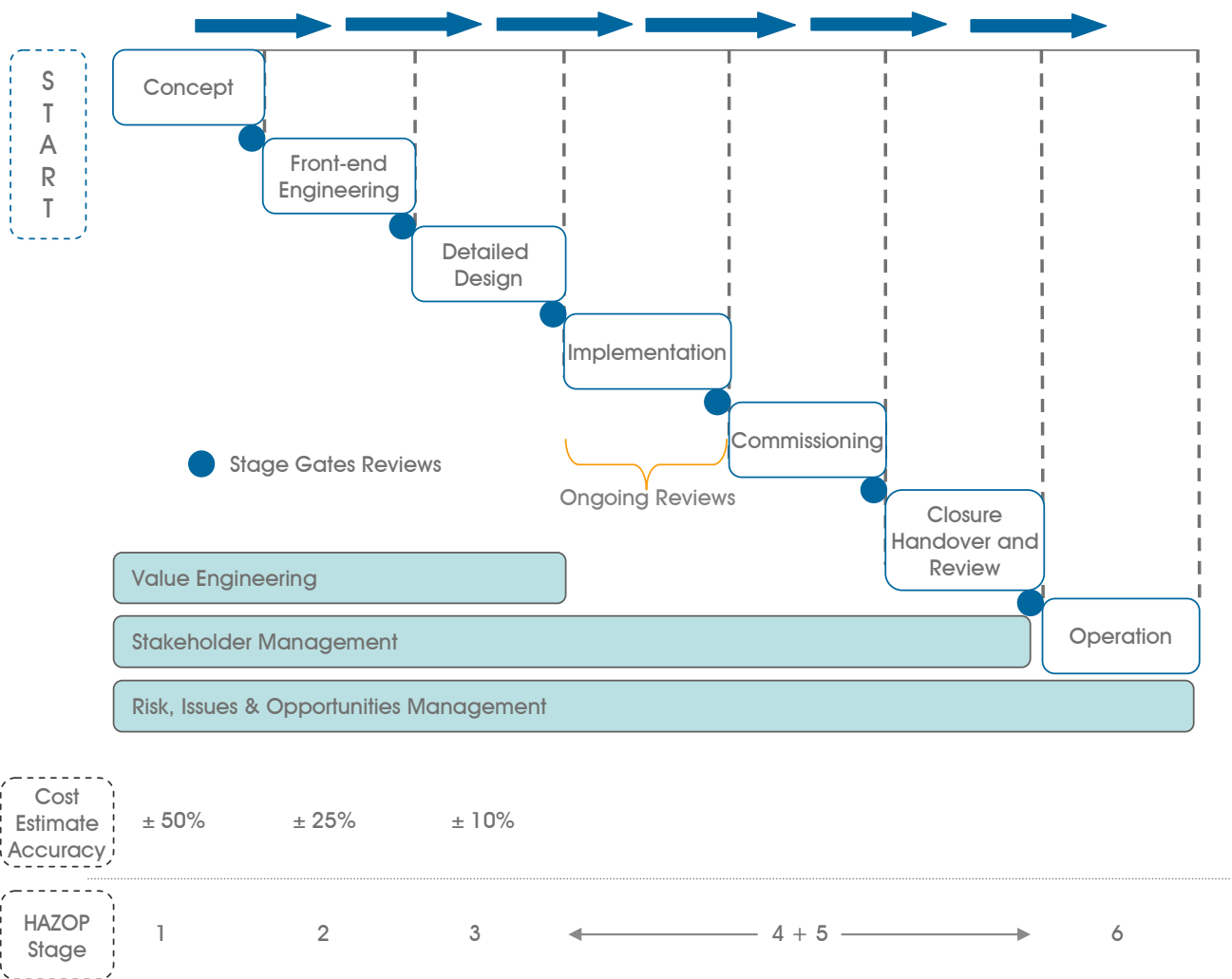
- 1:1 scale 3D models.
- Object based-specification driven-design package.
- Object database generated by default.
- Data shared from a single source ensuring data consistency.
- Design errors eliminated by clash detection and consistency checks.
- Reduced design workload and man hours.
- Enhanced progressive design visualization.
- Multiple documents produced from models.
- Combines with our laser survey techniques, which provide downloadable 3D points

Project & Construction Management

- Engaged by many of our clients as CDM Coordinator and Principal Contractor. We are fully conversant with the CDM regulations.
- Take control of construction site "ring fence" when acting as Principal Contractor.
- Build quality assurance, inspections and witnessing.
- Technical query resolution during construction.
- Experienced and qualified construction, supervision and H&S personnel managed by chartered H & S consultant– all hold CCNSG safety passport as a minimum.
- Integrated construction planning – Primavera and Microsoft Project.
- Construction management and supervision.
- Quality assurance ISO 9001 : 2008
- Integrated construction cost, change control, management and reporting, risk assessment and management.
- Pre-commissioning and commissioning support.
- Turnkey solutions from cradle to grave.



We create value for the client through a project management process which optimises the conceptual, technical and operational aspects of a project's deliverables. This process enables project stages to be reviewed at key points or 'gates' throughout the project. Identified risks and opportunities can be considered, adjustments made and issues resolved at critical points of the project life cycle. Through this process we are able to achieve the most favourable outcome for the project.



Risk Management

The project process adopted by Stopford requires an initial step to define scope and objectives. Beyond this point the risks are identified, assessed and prioritised for further attention. The process then continues with risk response planning; the aim being to avoid, reduce, transfer or, if necessary, accept the risks. The next step is to implement agreed responses followed by interactive review and update throughout the project lifecycle.

Procurement

All procurement procedures, contracting plan, T&C's, etc. Stopford produce will set forth guidelines and processes that are to be followed for the Project Execution phase to ensure measurable and satisfactory performance against contractual obligations. The methodology adopted will be in full compliance with client's contracting and procurement procedures and practices.

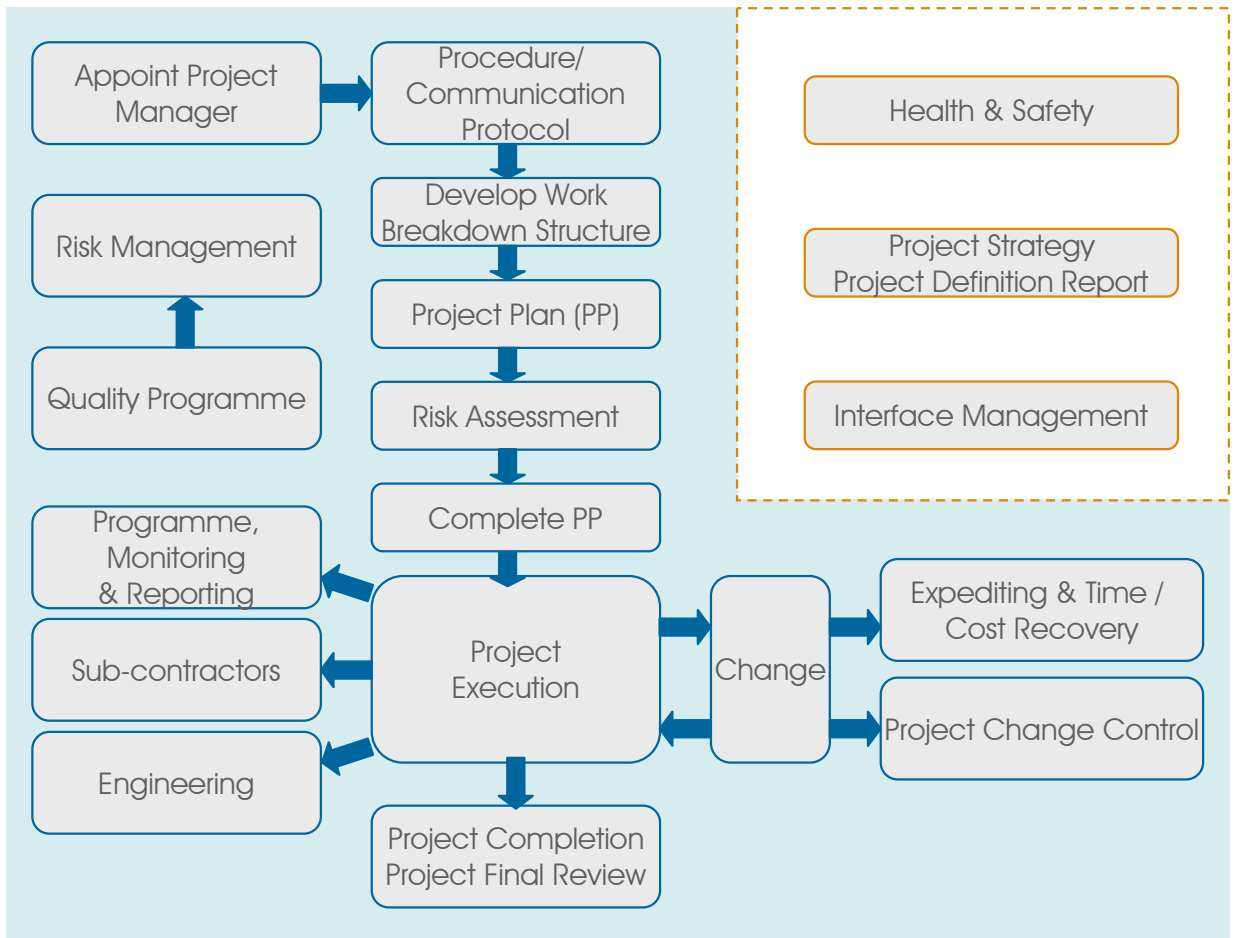
Cost Control

During the execution of a project, the project manager monitors progress and assesses the cost of the work carried out each week. Any deviations from the original schedule or changes from the agreed scope are controlled via the change control process. Scope changes are identified and agreed with the client before authorisation is given to the project team to proceed with variations. A weekly report will be produced from the detailed schedule, man-hour monitoring and forecasting system, and the project cost system showing the status of the engineering and procurement phase progress and costs. Stopford utilises its own bespoke cost control system.

Design Management

A cost/benefit allowance may be carried out in order to provide the optimum capacity requirements at the lowest cost. Stopford systems of design implementation will depend of the nature and the size on the project.

Project Management Flow Diagram



Our engineers are passionate about engineering, and strive for excellence in all areas of our business. We work with our clients to tailor our methods in order to provide the best possible solutions.

Deb Pal

Deb joined Stopford Projects as the Process Engineering Manager in 1999 and became its Process Director in 2003. He holds a BEng degree in Chemical Engineering and was elected as a Fellow of the Institute of Chemical Engineers in 2009.

Deb's responsibility is to develop the process engineering and consultancy capabilities of the business as well as carry out Process Safety consultancy, and taking the Responsible Director role for a number of key clients. He has lead over 30 HAZOP studies for a wide variety of clients and carried out training for clients in the areas of DSEAR/ATEX, Dust Explosions and Safety Instrumented Systems and assessment of safety integrity levels using techniques such as LOPA. Stopford is now seen as experts in these fields, providing process consultancy to clients on a world wide basis.

Shem Harper

Shem Harper joined Stopford Projects as a Graduate Project Engineer in 2004 and was promoted to Mechanical Department Manager in 2010. He holds a BEng in Mechanical Engineering and an MSc in Environmental Engineering. Whilst working for Stopford Shem has worked on a wide range of projects for many different clients in the industrial, chemical and petrochemical sectors. For the past 3 years Shem has spent the majority of his time working for major fuel companies on their downstream distribution terminals and has wide ranging experience from concept and front end design through to detailed design, construction, commissioning and also decommissioning of old plant. He carried out successfully major project for Chevron, Total, Vopak, Shell, Air BP, NuStar, Falamouth Petroleum.

Shem creates value through adapting fast track or traditional stage gate project approach. He has an excellent track record of delivering both types of contracts on budget and to agreed time scales.

Neil Thompson

Neil joined Stopford Projects as a Senior Process Engineer in 2009 and became Process Engineering Manager in 2010. He holds a BSc degree in Chemical Engineering and spent 20 years in chemical plant operations before joining Stopford.

Neil's responsibility is to manage the Process Engineering department to ensure compliance with legal and quality standards while delivering a safe and cost effective solution to clients.

Neil has experience of HAZOP as a participant, scribe and also as leader. He has experience of fault trees and LOPA for establishing the required SIL rating of protective systems. He has experience of design, from concept through to commissioning, operation and finally to decommissioning. Neil was the Lead Process Engineer for one phase of the Chevron Bioethanol and Project Manager for Air BP on various consultancy projects. He chaired the HAZOP on the World Fuels Falmouth terminal refurbishment.

John Valavanis

John joined Stopford in July 2008 as the company's Health & Safety Manager. John holds a B.Eng degree in Mechanical Engineering, is a chartered safety and health practitioner (CMIOSH) and registered as an occupational safety and health consultant (OSHCR).

John has 35 years of experience (the last 20 as a H&S specialist) in a wide range of industrial environments including the chemical, petrochemical, pharmaceutical, general manufacturing and construction industries. He has developed and led Stopford's capabilities in Construction Safety, resulting in the successful delivery of construction projects for a number of major blue chip clients.

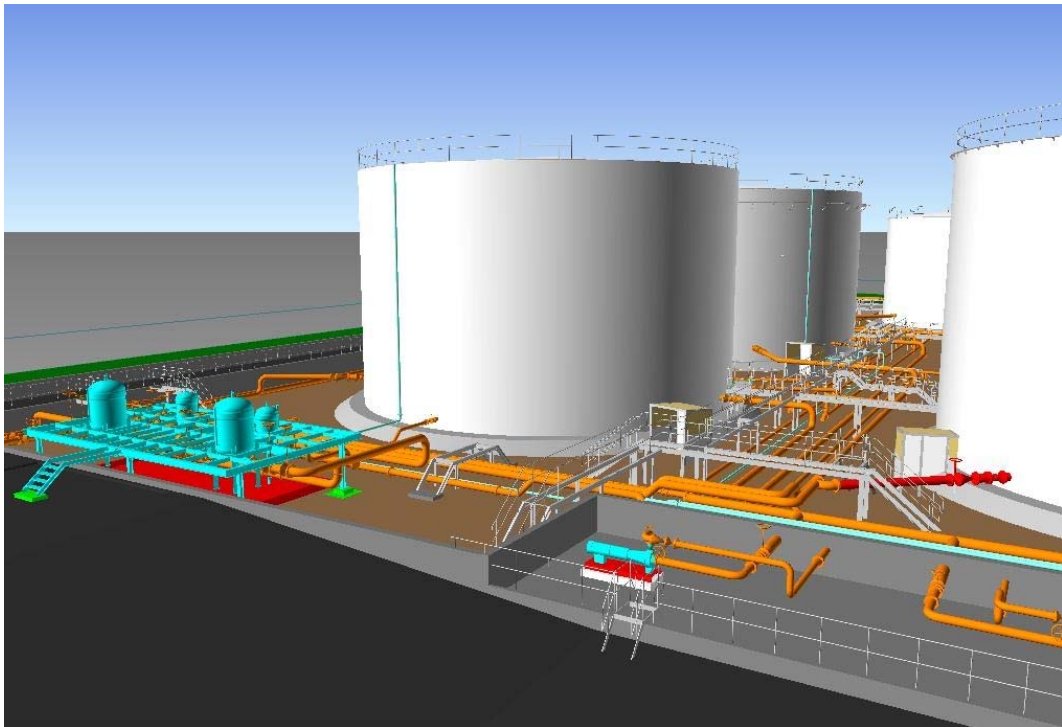
John's background in the chemical engineering and allied sectors has also enabled him to join Stopford's Process Safety department for the undertaking of DSEAR/ATEX studies, ignition risk assessments, fire risk assessments and hazardous area audits.



Project: Process Safety Consultancy

Client: Air BP

Stopford was awarded a contract to support Air BP in the provision of process safety consultancy and general engineering services. Safety consultancy work include HAZOP studies, LOPA and SIL assessments. General engineering services include the development and updating of engineering practices for Air BP's global aviation fuel installations.



Project: H&S Consultancy

GENERIC HAZOP

Stopford developed a GENERIC HAZOP system which has now been put into effect at all Air BP sites, worldwide. Stopford wrote the standard system specifically for Air BP, which allows the simple implementation of Hazard studies company wide

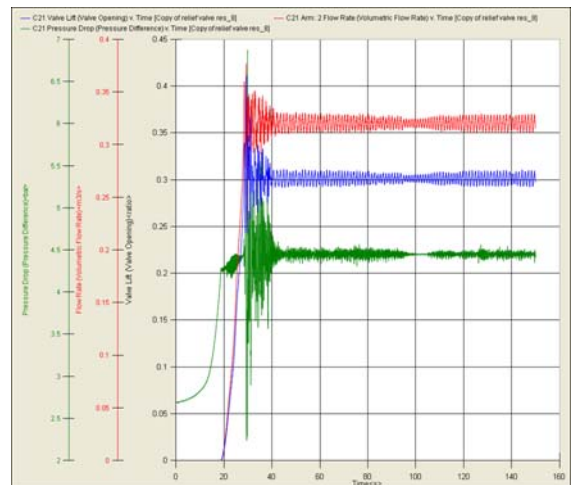
Stopford are assisting Air BP with the implementation of this standard process to all of their sites.

LOPA – Excel Tool

Stopford developed an Excel spreadsheet tool to enable LOPA screening to be conducted effectively at Air BP's 400+ sites

LOPA consultancy was carried out by Stopford at the following facilities:

- Sharjah, UAE
- Anabeeb import terminal, UAE
- Dulles Airport, Washington, US
- San Juan Airport, Puerto Rico
- Cleveland Hopkins Airport, Ohio, US
- Otopeni Airport, Romania
- Constanza Airport, Romania
- Prishtina Airport, Kosovo
- Budapest Airport, Hungary
- Tirana Airport, Albania
- Prestwick Airport, Scotland
- Walton Weir pump station-Heathrow



SURGE ANALYSIS

Stopford undertook surge analysis using FLOWMASTER – Providing recommendations on valve opening times

Project: Design Study

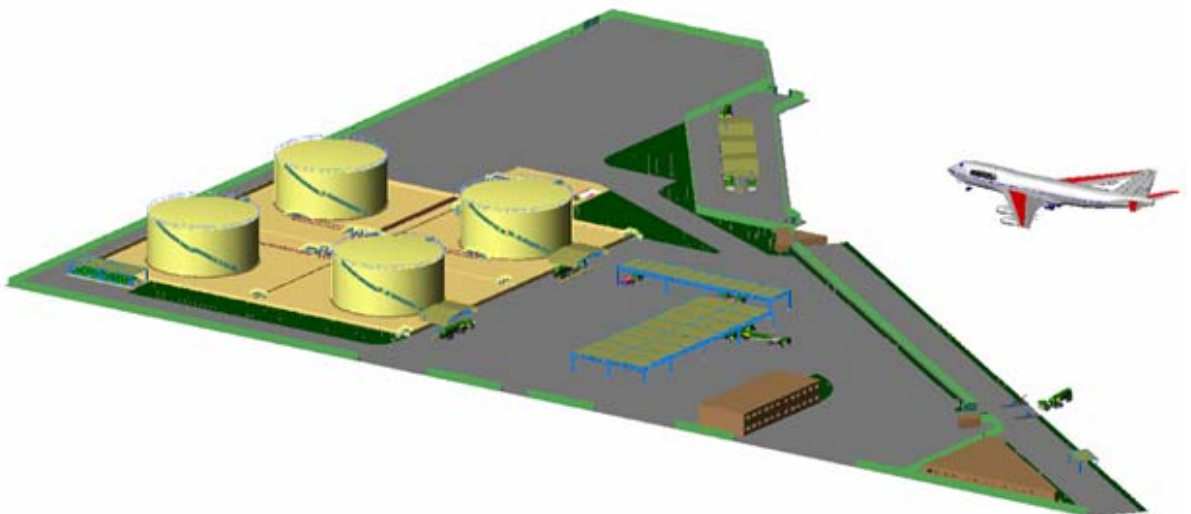
Location: Air BP-Bahrain Airport

This design study involved the development of the following:

- P&ID's
- An equipment list
- 3D models
- Civil and E&I scope of work
- Layout optioneering

Additionally:

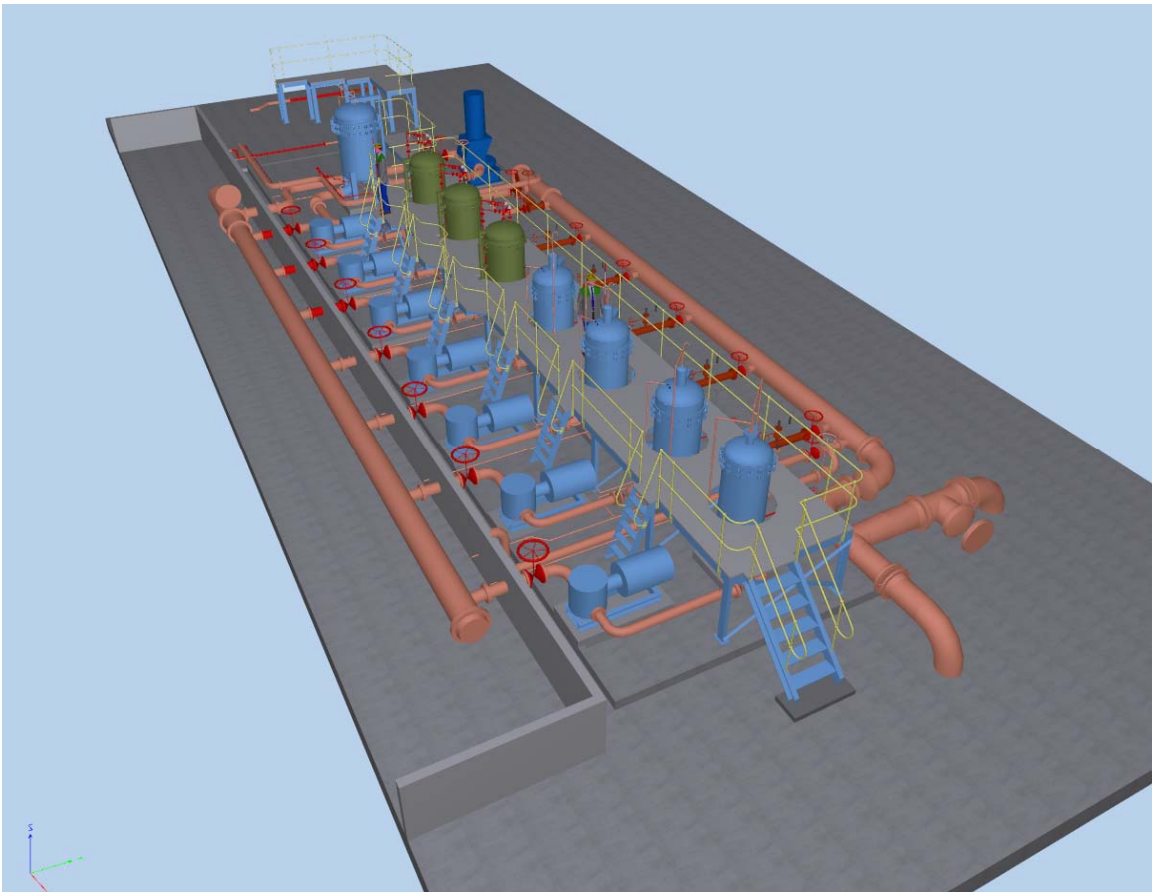
Bahrain- Stopford consultants produced the specification and tender documents for the replacement of all electrical and instrumentation systems at the Arad Depot. The implemented systems are necessary to manage all systems associated with pipeline receipt, storage, transfer and hydrant pumping and product recovery in the facility. Stopford provided technical support to the client during the procurement, development and commissioning of this comprehensive 7 year project.



Project: Aviation Fuel Hydrant Filter Upgrade

Location: Cargo Terminal

Stopford are undertaking a design and project management project for the installation of new double block and bleed valves and JIG compliant filter water separators on the fuel hydrant system at the cargo terminal. The project involved conducting a HAZOP study, pump NPSH calculations, generating mechanical and process datasheets and construction management.

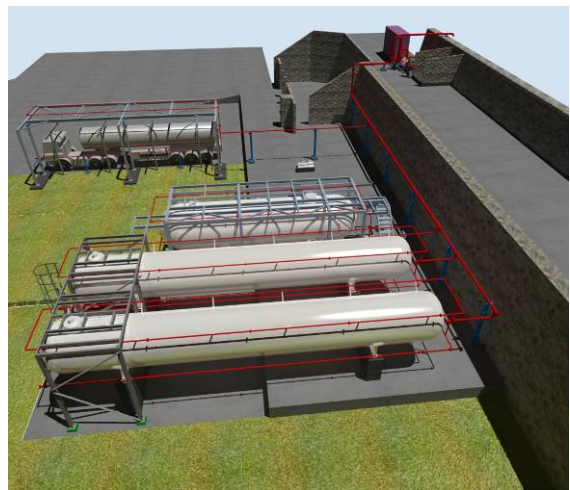
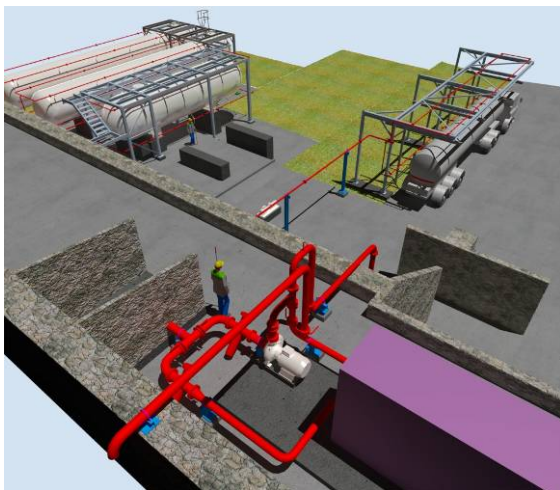




Project: Aviation Fuel Handling Rig

Location: Cheshire

Stopford undertook a major design study on Shell's aviation fuel rig. The project focussed on the high efficiency filtration of jet A1. The work included major modifications to Shell's existing hydrant facility at Thornton Research Centre. Stopford provided all the process engineering, hazard operability studies and SIL assessments.



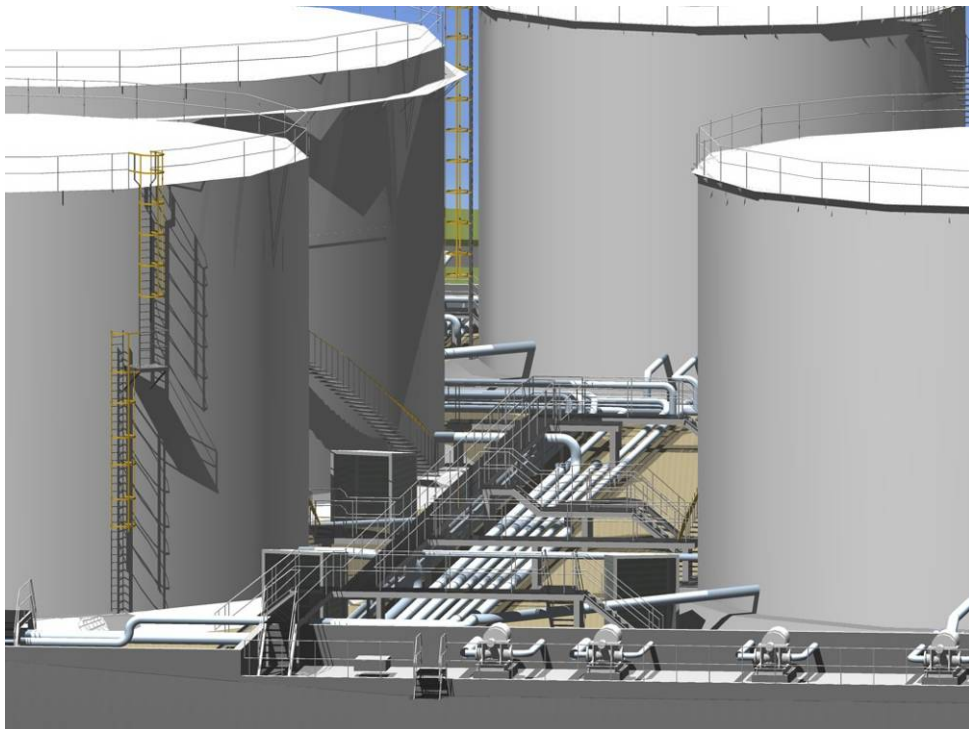


TOTAL

Project: Design Study

Location: WOSL Terminal

Stopford undertook the design study of an ethanol storage and blending facility for Total's WOSL Terminal. The study included all process engineering, E&I, mechanical and civil/structural activities for the off-loading and blending of ethanol via road and rail.





Project: Bioethanol Storage & Blending

Location: Chevron, Nationwide

Stopford is providing a full range of engineering design and project management services to 5 of Chevron's fuel storage terminals. This work will ensure they gain full compliance to the Renewable Transport Fuel Obligation (R.T.F.O) for bioethanol storage and blending.

Stopford have been engaged as the Main Contractor on the project from scope and FEED development through to planning, design, specification, procurement, construction management and commissioning. Stopford have also been engaged as CDM Coordinator and Principal Contractor. Stopford took ownership of the construction area for the duration of each project. Stopford's in-house multi-disciplined resources were utilised throughout all the projects.

Project: Demolition

Location: Chevron, Poole Terminal

Stopford was required to supervise of the demolition of the terminal by KDC, on behalf of Chevron. The project involved:

- Demolition of all tanks, equipment and buildings.
- Removal of all vertical cylindrical tanks.
- Removal of all horizontal cylindrical tanks, including buried tanks.
- Demolition of all pipe work, including fire water and buried pipe work.
- Removal of all pipes, structures, equipment, electrics on the jetty.
- Demolition of all pipe supports, structures, fences, etc.
- Removal of all drains and separators.
- Removal of electrical works.
- Removal of all buildings and foundations.
- Re-storing site as required.



Chevron's terminal at Poole was located in a busy working port area, adjacent to an operational quay. Surrounding it was a cement plant, industrial warehouses and a factory producing luxury power boats and cruisers.



Project: Design and Development

Location: BP, Oil Plant

Stopford were awarded 4 design and development projects by BP. All of which required a fast track development approach for the design to ensure allocation of capital within a calendar year:

IBC Filling

Stopford were required to redesign and develop an existing filling line to allow the use of standard IBC's. The work included rationalisation of operations with a view to a phased upgrade and production of a long term development plan.

Pigging Facility Upgrade

This project involved the design and development of 2 existing ship fill line pigging systems to current standards, including the development of potential options to improve operator conditions and safety.

Transfer pumps

This multi-disciplined project involved;

- Specification and design of 2 new, fully automated tank to tank transfer pumps and piping systems.
- Facilities and integrated office improvements
- Development of existing out-dated facilities to modern standards
- Design of improved layout options for agreement with site personnel.

Project: Ethanol Blending and Addition

Location: BP Oil terminals (4 sites)

Stopford undertook the redevelopment of 4 of BP's fuel terminal in order for them to gain full compliance to the R.T.F.O for bio-ethanol storage and blending. This required the delivery of our full engineering design and project management service.

Engineering work implemented a system to store and blend bio-ethanol into gasoline

Project tasks included;

- Preparing the application support drawings.
- Full multi disciplinary engineering design including process, mechanical & piping, tank design, E&I, civil and structural.
- Conducting detailed design.
- Conducting a $\pm 10\%$ capital estimate for all the sites.
- Production of a 3D Autocad model of the facility.





Project: Petroleum Storage Facility

Client: Falmouth Oil Services Ltd

Stopford conducted a FEED study and produced a +/-30% estimate for the installation of a petroleum storage facility. The work included the specification of 3 x 6000m³ tanks, marine off loading facility, tanker loading facility, bunding requirements, H/C detection system, fire fighting system and ethanol blending facility.



Project: Terminal Refurbishment

Location: Falmouth Docks

Falmouth Oil Services, in association with World Fuels has begun a major refurbishment project for the Falmouth Oil Services site on Falmouth Docks. Stopford has been engaged to carry out the following scope of work for the project, involving all Stopford's engineering disciplines:

- Bund design
- Pipe rack design
- Storage tanks and bases for distillates
- Site drainage
- Electrical supply, switchgear and associated equipment
- Totally distributed control system
- Pumps and pumping arrangements for distillates and HFO
- Blending solution
- Road loading racks distillate and fuel oil
- Boiler design (steam/thermal oil).



bulk liquid & gas network

Project: Storage Modification Design

Location: Immingham

Stopford was engaged as the designer for the second phase of the Greenergy Immingham Biodiesel Storage project. The project involved major modifications to the existing facility along with the addition of new and extended storage capabilities. The project required mechanical, piping, civil and structural design element, which were implemented using Laser survey techniques and 3D AutoPlant design software. The work was extended during the course of the project to include other minor to medium sized projects with the use of 3D models.



Project: ATEX / DSEAR Support Work

Location: Bromborough

Stopford provided ATEX/DSEAR support work to the Bromborough site. The project involved reviewing and updating area classification drawings, updating existing LEAC, carrying out detailed inspections and providing certification. The project also included the completion of a mechanical risk assessment and reviewing the explosion protection documentation.



Project: Review & updating of engineering procedures, standards and pipework

Location: Eastham

Engaged to review and update NuStar engineering procedures and standards. Total revamp of tank storage pipework in two banded areas at Eastham to accommodate new storage duty. This involved full laser survey 3D AutoPlant layout and the production of piping general arrangements, isometrics and pipe supports from the model.



Project: ROSOVs and BIVs

Location: Total Nationwide

Stopford have completed detailed design work for the installation of tank side and battery limit Remote Operated Shut Off Valves and Bay Isolation Valves for two terminals

Project: Tank High Level Systems

Stopford provided detailed design, construction supervision and commissioning services for the development of a new tank gauging system for two terminals, including the implementation of independent high level alarm systems.

This also involved the provision of a LOPA (layers of protection analysis) study. This analysis was required to specify the SIL (safety integrity level) for the system.

Minor Projects

Stopford continue to undertake small to medium engineering projects in all disciplines for the majority of Total UK terminals. Recent projects have included pump replacements and relocations, fire water systems, concrete hard standings, bund compliance surveys, designs for secondary and tertiary bund improvements, bund drain valve automation, replacement air compressors, pipeline stress analysis, electrical switch room design, site project management, pump operability investigations and slops tank replacement.

Client: Confidential

Project: Expert Witness

Location: Teesside

Stopford undertook an independent audit to assist the client in an arbitration dispute where a critical analysis of various influencing factors was required. The audit process included:

- Interviews of both contractual parties.
- A detailed analysis of expected, actual, abortive and accelerated costs.
- A review of the project management processes and management of timescales relative to industry expectations.
- A review of the contractual agreements between all parties.
- A full report for distribution to management of both companies.



Project: Rail Terminal Refurbishment

Location: Teesside

Engaged in the design of a £4.5m rail loading facility at Teesside. The project involves the construction of two new rail sidings and a loading platform at the existing Vopak terminal at Seal Sands. This will allow the transport by rail of petroleum products to other Greenergy rail terminals, thereby reducing lorry movements.

Stopford have completed a front end engineering design study and produced a construction estimate. We have now been engaged to carry out the detailed design of the project works.

- We have provided comprehensive consulting services to a numerous terminal projects. Stopford is currently working at a number of storage and distribution terminals around the UK, performing engineering and consultancy services in compliance with the current regulations and good engineering practice. We have accumulated extensive experience in fuel handling, storage and distribution, including bio-fuel blending and addition.
- Stopford have an in-depth understanding and significant project experience in the oil and gas sector.
- We offer engineering consultancy support to a wide scope of activities. Including engineering design, site layouts, process safety consultancy, construction and build (principal contractor and CDM coordinator), planned maintenance, operator training, process engineering and management procedures.
- Our Project Management services assist with the design, procurement, installation and commissioning of all equipment and infrastructure for facilities. This includes start-up and development of existing facilities.
- We have developed strong associations with some of the UK's leading Universities in the development of novel environmental technologies. We are now an Associate Company of Lancaster University's Environment Centre.
- We pride ourselves on providing high quality and cost effective services using the very latest technology, software and design techniques throughout all areas of our work.
- We have a flexible approach to project development, which ensures we are able to deliver the most appropriate service to achieve project goals. We have vast experience of completing project using the traditional approach and also by implementing a fast track approach.
- We are an ISO 9001:2008 Certified Quality Assured Company. We have a reputation as a market leader for service, quality and reliability with a successful cost and schedule track record. We are committed to a process of continuous improvement.

