COMPANY PROFILE



History & Capability Document For Survey & Lean Engineering Solutions GLOBAL EDITION



MIDDLE EAST INDIA THAILAND MALAYSIA SINGAPORE BRUNEI UNITED KINGDOM



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Section 1 - Company History & Profile



2004 UK ISO Certified



2017 India ISO Certified



2013 Thailand ISO Certified



2017 Middle East ISO Certified

2017

Qatar Company Established

2013

Singapore Company Established

2009

Indian Company Established Australian Company Established

2002

Thailand Company Established

1998

Brunei office established at the request of Brunei Shell Petroleum

1989

Shell trial successful. Installation success rate 99.5%. Millions saved for Client

1982

UK Company established for provision of Dimensional Control & Surveying Services

2016

UAE Company Established KSA JV Company Established

2010

UAE Office Established Brunei JV Company Established

2004

Malaysian Company Established

2001

First UK Dimensional Control Company to introduce Rapid Laser Scanning

1994

360 degree digital imaging systems introduced for fast plant capture linked to PDMS

1988

Shell trial to establish survey techniques to eliminate on site welding and clashes



NB Surveys Global are world leaders in delivering proven, cost saving, value added, engineering design support and visual asset database services across a wide range of industrial applications. We value our reputation as one of the most experienced, professional and innovative survey companies operating globally.

NB Surveys Global competitive strength lies in its ability to provide rapid mobilisation of experienced personnel and state of the art equipment in support of projects both on and offshore from our dedicated office facilities strategically located in Aberdeen, Abu Dhabi, Dubai, Doha, Dammam, Doha, Bangkok, Kuala Belait, Miri, Mumbai, and Singapore.

A combination of the technical expertise of our personnel, the latest state-of-the-art technology, bespoke proprietary software and procedures enables us to adapt these capabilities to deliver precise measurement solutions for a wide range of applications both on and offshore worldwide.



Sub-section 1.1 Services

Dimensional Control		page
 Precise Measurement Surveys Static Industrial Laser Scanning Mobile Industrial Scanning Tilt and Settlement Monitoring Underground Scanning 	>= 0.01mm >= 1mm >= 10mm >= 0.01mm >= 2cm	5 7 8 9 11
Visual / Asset Management		
 360 degree Photographic Databases 3D Point Cloud Databases Engineering Drawings 3D CAD Modelling Virtual Reality 		12 13 14 15 16
Lean Engineering		
Low Cost Solutions		17

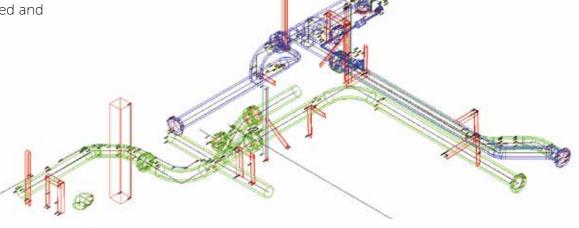


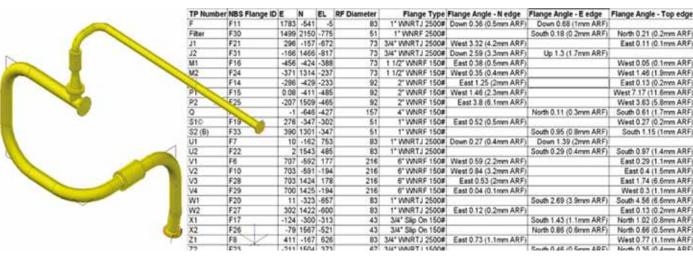
Precise Measurement Surveys – 1mm for green and brownfield

N.B. Surveys Global uses advanced survey equipment combined with proprietary software to facilitate measurements to an accuracy of 1mm or better. Three dimensional CAD models are created by direct measurement to critical plant items such as flange tie-in points, support locations and route corridor models. Effective on fast track jobs, fixed or moving plant environments with instantaneous high accuracy results available. Highly mobile, the system allows measurement to be taken in the most confined and awkward places without loss of accuracy.

Successful installation of the pipe work is achieved by carrying out as-built surveys of every spools before shipping to site. This ensures each spool is built to the required dimensional tolerance and will fit first time. Our Company has a 99.9% success record for this service.









Precision Measurement Surveys – 0.01mm for machine tolerances

Ideal for measuring medium to large parts and providing an ultra-portable solution for large-scale inspection and assembly applications, industrial laser trackers have become an essential piece of metrology equipment in all kinds of industries. Laser trackers offer accurate 3D measurement to reflectors, from surface inspections in the automotive body shop to largevolume measurements in energy industry installations, or metrologyguided automated aircraft assembly systems, the speed, accuracy and portability of laser tracker technology delivers data, when and where it is needed











Static Industrial Laser Scanning – onshore and offshore

N.B. Surveys Global have one of the largest fleets of laser scanners in the world. We own and operate over 50 Z+F laser scanning systems. Rapid laser scanning is the most advanced technology for data capture and measurement. It rapidly collects millions of real world 3D coordinates points to support preparation of either a point cloud, CAD plant model, or 360 degree wrap around panoramic views. The raw point cloud data can be input into existing CAD packages for clash testing

of new design concepts against the real world plant. These systems collect data at such a fine resolution that photographic quality images can be produced from the three dimensional data collected to an accuracy of between 0 – 5mm. The scanner will capture data at distances up to 180 meters in either grey scale of full colour.







Mobile Industrial Scanning

onshore and offshore

Utilising advanced software systems NB Surveys can capture accurate survey data to supplement terrestrial captured scan data from both drones and boats. The systems NB Survey deploys are not just for image capture but are used to create point cloud models for further modelling and data analysis.

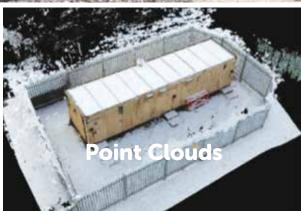
This technique allows remote and inaccessible areas to be as-build without the need for scaffold access. The accuracy of the data will depend on the distance from the object the drone captured the data, but accuracies of around 1-2 cm's can be expected.

Fast as-build data collection and confirmation can be facilitated by the systems.



to







Tilt and Settlement Monitoring – structures

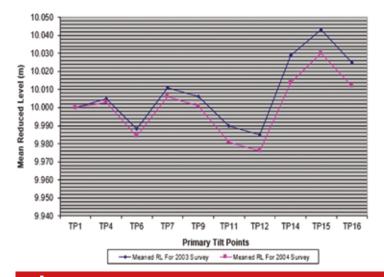
As part of insurance compliance requirements, and to ensure the structural integrity of offshore platforms and drilling derricks, tilt settlement and vertical alignment surveys are required on a recurring basis.

This is particularly important when considering the air gap between the lower platforms decks and the wave crest heights in adverse sea conditions.

N.B. Surveys have been carrying out this services for multiple Operators for over 20 years and on over 100 facilities worldwide.

Utilising state of the art GPS receivers, and high order post processing software, very accurate platform heights can be determined over long base lengths. Coupled with tilt determination, NB Surveys can provide long term monitoring and settlement analysis reports.

Comparison of Tilt Points for Differential Settlement



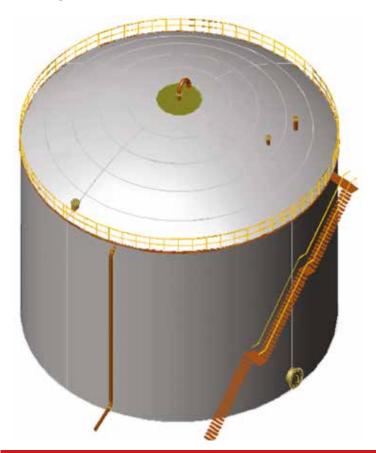




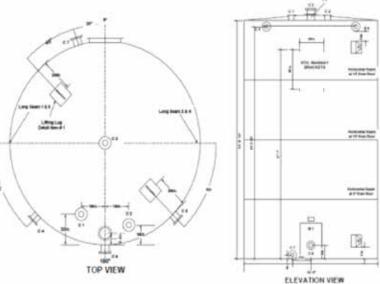
Tilt and Settlement Monitoring – tanks

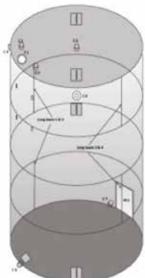
Laser scanner are used to collect all the data required in full "picture quality" detail for :-

Calibration and volume determination, redesign / modification, safety planning / visualization inspections, identify areas for repair, deformation analysis, containment dike analysis









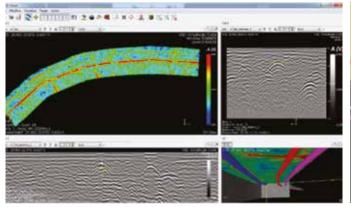


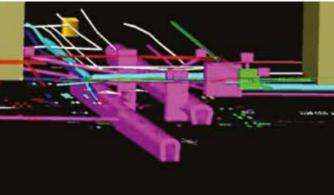
Underground Scanning

Increasingly Clients have requested that as-built underground assets be collected at the same time as laser scanning the above ground assets. To meet client demand NB Surveys Global has invested in the very latest dual frequency ground penetrating radar systems and can offer complete asset collection.

NB Surveys Global operates the very latest dual frequency multi antenna systems which can cover up to 14000 square meters per day. GPR can locate metallic and non-metallic pipes, foundations, reinforcements, sewers cables, and ducts and defines position and depth in a single pass. GPR can locate underground services for inclusion in drawings or 3D CAD and provides cost saving from plant strike avoidance, rework, and eliminate trenching.







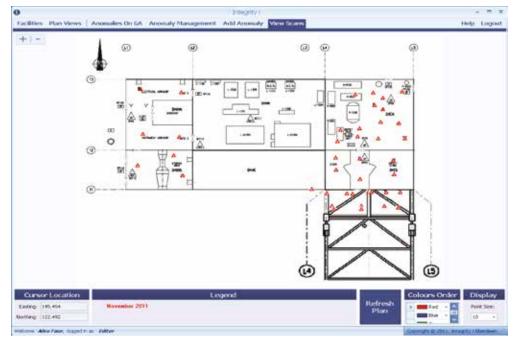


360 Degree Photographic Database

Integrity i is a data management system designed specifically for the management of asset integrity anomalies. Based on 30 years of industrial experience, the system has been developed by NB Surveys using state of the art graphical interfaces, laser scan data, and 3D files working with a database to manage, organise and present digital records of anomalies within industrial plant.

This system gives the plant operator a simple to use method of recording, managing and archiving anomalies within their plants. This facilitates and improves planning and targeted campaigns to rectify the anomalies. By reducing exposure to risk, the HSE safety case is improved. It also proves, to legislative authorities, that the operator has proper controls in place to manage anomalies within their plant and provides a central repository of all data and documents related to the individual anomalies.

It can be used by all levels within an organisation - from senior management for reviews and strategic planning, engineers for analysis and investigation, designers to extract the construction drawings, to the work squad who will repair the anomaly on-site. It can be used to fully plan work and brief work squads WITHOUT visiting the site, thereby reducing safety risk exposure and cost.





Benefits include:

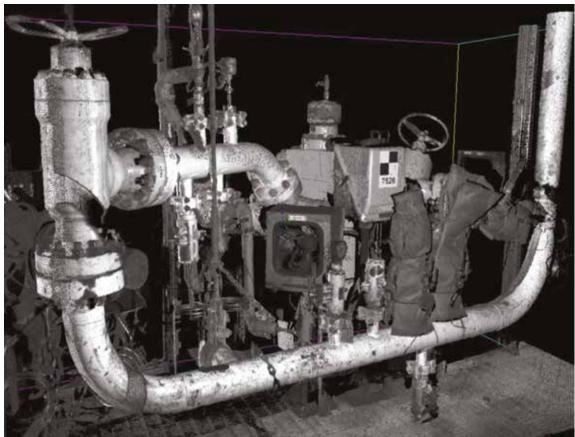
- Improved HSE compliance
- Real time anomaly monitoring
- Full integration with existing asset management systems
- Visual anomaly Management reports
- Reduces the need for site visits
- Reduces personnel exposure
- Provides accurate dimensional data for design use without site visit
- Provides real time management reports on defects and repair issues
- A central location for anomaly and asset data
- Controls defects and repair work pack generation
- An application that links to laser scan data
- Planning and virtual reality immersive visualization at all discipline levels



3D Point Cloud Database

3D Point Cloud Databases are available immediately after the completion of the site survey. They provide a rich, detailed, accurate as-built database from which to start projects. The data can be brought into a 3D CAD environment for utilisation alongside CAD designed systems to check dimension or clashes. Available in either grey scale or standalone full colour visual databases, if required.



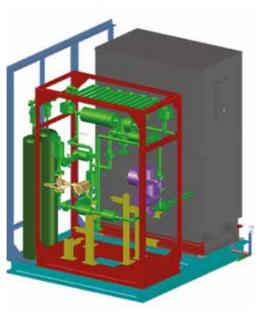




Engineering Drawings

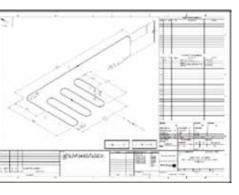
Production of engineering drawings and work packs is generally undertaken from the point cloud models without any return to site visit. Reducing the cost, time and risk involved.

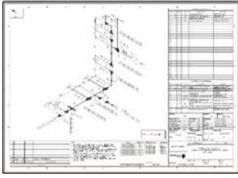
The service can be extended to produce full engineering documentation packages including P&ID's, Instrumentation, Structural, Piping, Electrical, Mechanical, Fire and Safety drawings.



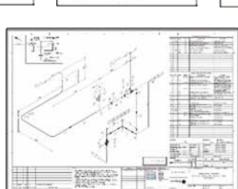


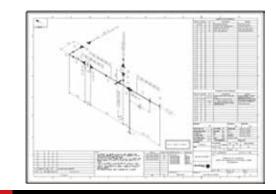






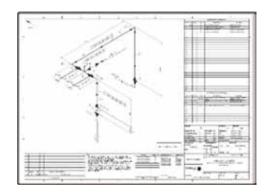


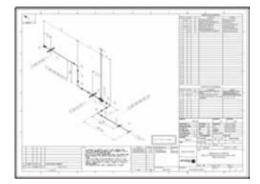














3D CAD Modelling

With our worldwide network of strategic partners, we are able to provide low cost 3D CAD modelling in AUTOCAD, Microstation, PDS and PDMS. For the ultimate in low cost utilisation, the data can simply be supplied as point cloud models, or as free to use "Truview" images.







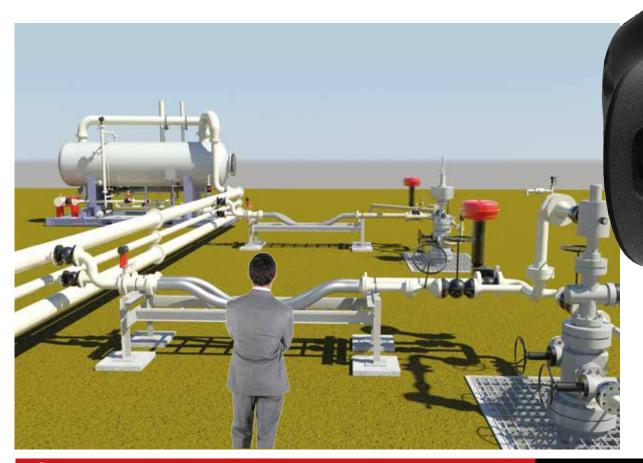
Virtual Reality

NB Surveys virtual reality system will bring you to the worksite. The use of VR headsets and software systems, integrated with our 3D laser scanning and 3D modelling services allow NB Surveys to create the very latest in visual asset management tailor made for your facilities.

Our bespoke software development approach allows customers to tailor make the VR world to meet there engineering and training requirements.

The VR world NB Surveys create is interactive and responsive allowing valuable system analysis and off site training.

This is a fully immersiveVR solution which will dramatically improve asset management, project analysis and learning retention of information and events.



Benefits

- Fully emmersive asset planning
- Reduced site visits and costs
- Inter-continental project collaboration
- Extraction & installation analysis
- Safety & operational training
- Design review



Lean Engineering and Surveys Consultancy Service

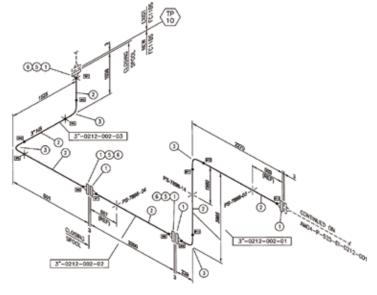
NB Surveys has become a global leader in dimensional control and laser scanning surveys since its foundation in 1982. The service line was developed in 2015 to include design and fabrication utilising our in-house design teams and in collaboration with preferred fabricators.

Today, NB Surveys delivers cost reductions to our Clients, through combined survey and lean engineering solutions, without compromising survey quality or engineering integrity from a single source supply.

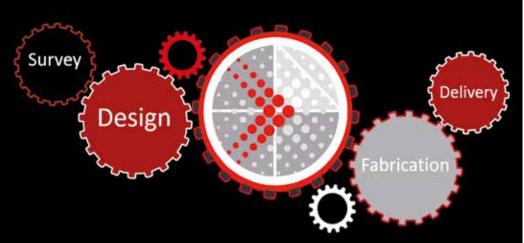
NB Surveys, with the assistance of our local preferred partners, is fully equipped to supply complete, cost effective, engineering solutions to our clients through survey, design and fabrication.

Key Benefits

- Single source for survey, engineering & fabrication*
- Experienced integrated team
- High value low cost solutions
- Responsive and proactive
- Uncompromised quality and integrity
- Four decades of innovative and reliable service









Sub-section 1.2 Project / Client History

This is only a short selection of work carried out Globally over the Company history from each of the principle regional offices.

Europe

Since 1982 we have successfully carried out dimensional control, laser scanning 3D Cad modelling and digital photogrammetry surveys for the following (sample) list of clients and typical contracts.

MAJOR PROJECT LIST

Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
MCP01 Decommisioning	Total	Wood Group	Laser scanning and PDMS 3D modelling	2003	2003
Forties A, B, C various projects.	BP	Apache North Sea	Dimensional control and laser scanning, as-built surveys and consultation	2004	2004
Ninian Field North South and Central	CNR	CNR	Dimensional control and laser scanning, as-built surveys and consultation	2004	2006
Cormorant A Legs internal scanning	Shell	Sigma 3	Dimensional control and laser scanning, as-built surveys and consultation	2005	2005
Dunlin A Legs internal scanning	Shell	Sigma 3	Dimensional control and laser scanning, as-built surveys and consultation	2005	2005
Brent B,C,D LPOP projects+penguins	Shell	Sigma 3	Dimensional control and laser scanning, as-built surveys and consultation	2005	2006
Beryl A Mini cell	Exxon Mobil		Dimensional control and laser scanning, as-built surveys and consultation.	2005	2008
Brae Bravo & East Brae well bays	Marathon		Dimensional control and laser scanning, as-built surveys and consultation	2005	2008
Heather wellbay	Petrofac		Dimensional control and laser scanning, as-built surveys and consultation for flowline installation	2006	2006
Thistle Alpha Modification	Lundin		Dimensional control and laser scanning Thistle A mods 7,8,9,10	2006	2006
Magnus flare replacement	BP		Dimensional control and laser scanning, as-built surveys and for replacement flare deck	2007	2007
Arbroath deck extension	Talisman		Dimensional control and laser scanning, as-built surveys and for deck extension	2007	2007
Montrose sub cellar deck.	Talisman		Dimensional control and laser scanning, as-built surveys for sub cellar deck.	2007	2007
Trident 14 deck extension	Rig Engineering		Dimensional control and laser scanning, as-built surveys and for deck extension	2007	2007
Molikpaq entire platform Sakhalin	Sakhalin Energy		Laser scanning for digital database and remote engineering support	2007	2007

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Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Bourti field DP3 Entire process areas	ENI Libya		Laser scanning for digital database and remote engineering support	2007	2008
Balmoral Brenda & Burley projects	Oilexco		Dimensional control and laser scanning, as-built surveys and consultation	2007	2009
Tweedsmuir project	Amec		Dimensional control and laser scanning, as-built surveys and consultation	2006	2009
Bourti field DP4 Entire process areas	ENI Libya		Laser scanning for digital database and remote engineering support	2008	2008
Claymore wellbay	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Kittiwake Diesel Skid	Lundin		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Auk laydown area	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Monarch Skid beam	Rig Engineering		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Piper B wellbay Trial survey	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Murchison process areas	CNR		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Fulmar process areas + wellbay	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2008	2009
Rosetta P1 entire platform Egypt	Rashpetco		Dimensional control and laser scanning, as-built surveys and consultation	2009	2009
Benchemas wellbay.	Chevron Thailand		Dimensional control and laser scanning, as-built surveys and consultation	2009	2009
Orlan Platform Sakhalin Russia	STSN		Laser scanning for digital database and remote engineering support	2009	2009
Beryl A Rig 1 & Rig 2	Exxon Mobil		Dimensional control and laser scanning, as-built surveys	2009	2009
Al Bazra Offshore Oil Terminal Iraq		SGS	Dimensional control for replacement metering valves	2009	2009
Tern Alpha Drilling Module	Shell	Seawell	Dimensional control and laser scanning, as-built surveys	2009	2009
Beryl Alpha Leg Scanning	Exxon Mobil		Dimensional control and laser scanning, as-built surveys	2010	2010
Murchison Surge Tanks	CNR		Dimensional control and laser scanning, as-built surveys	2010	2010
Dunlin Replacement Spool Programme	Fairfield		Dimensional control and laser scanning, as-built surveys for maintenance scope	2010	2010
Judy Platform	Conoco Phillips		Dimensional control and laser scanning, as-built surveys and consultation	2010	2010



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Tunisia Ashtart Platforms		Serept	Tunisia Ashtart Platforms (Colour scanning)	2010	2010
Murchison well bay		PSN	Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Bruce platform riser & PWRI		PSN	Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Call off contract	Technip Thailand		Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Offshore platforms in India	ONGC		Dimensional control and laser scanning, as-built surveys	2011	2011
Goldeneye Platform	Shell		Dimensional control and laser scanning, as-built surveys and consultation	2011	2011
Wellbay & Separators Laser Scanning		Fabricom	Laser scanning and AutoCAD 3D modelling	2011	2011
Heather		RDS	Laser scanning and AutoCAD 3D modelling	2011	2011
Thistle Rig 111 Mud Pit Room 3D I		RDS	Laser scanning and AutoCAD 3D modelling	2011	2011
Laser Scanning Janice		Petrofac	Laser Scanning	2011	2011
North Bulk Loading Bay Laser Scan		RDS	Laser scanning and AutoCAD 3D modelling	2011	2011
Laser Scanning Stenna		Cadherent	Laser scanning	2011	2011
Laser Scanning Stenna		Cadherent	Laser scanning	2011	2011
Laser Scanning West Franklin		Intech Power	Laser scanning	2011	2011
Laser Scanning Forties Delta	BP	Amec	Laser scanning	2011	2011
Laser Scanning Brae Alpha	BP	Archer	Laser scanning	2011	2011
Laser Scanning Brent Delta	ВР	Archer	Laser scanning	2011	2011
Laser Scanning Ninian Central		WGPSN	Laser scanning	2011	2011
AR0172 Laser Scanning		WGPSN	Laser scanning	2011	2011
Ashtart Project	Tunisia	WGPSN	Laser scanning	2011	2011
Thistle power generation upgrades		Wood Group PSN	Laser scanning	2011	2011



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Judy UBF, UBW, UBY		Amec	Laser scanning UBF, UBW, UBY	2011	2011
Ashtart Project	Tunisia	Wood Group PSN	Laser scanning	2011	2011
ADMA 24 Offshore Platforms	ADMA	Technip	Laser scanning and PDMS 3D modelling 24 Offshore Platforms	2012	2012
ADMA 36 Offshore Platforms	ADMA	Technip	Laser scanning and PDMS 3D modelling 36 Offshore Platforms	2012	2012
As-build 4 Platforms	Dragon Oil		Laser scanning and PDMS 3D modelling 4 Offshore Platforms	2012	2012
Beryl Bravo		RDS	Laser Scanning & Modelling	2012	2012
Judy	Conoco Phillips	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
BP Clair	BP	PD & MS	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Clyde System upgrades (various)		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
BP Magnus Repair Order survey		WGPSN (PSN)	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Heather Laser Scanning		RDS	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Thistle CFE Survey		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Ninian South HP & LP East Flare	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Magnus Laser scan derrick for BOP	BP	PD & MS	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Arbroath Laser scanning		Fabricom Suez	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Dunlin Repair Orders (various modules)	Fairfield Energy	R&M Engineering (Dunlin)	Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Thistle Power Upgrade		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
BP Magnus upgrades laser scanning	BP	WGPSN (PSN)	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
BP ETAP upgrades laser scanning	BP	WGPSN (PSN)	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
BP Foinaven	BP	Aker Solutions	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Dunlin A Metering Skid Survey.	Shell	Alderley Systems Itd	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
BP Magnus Laser scan	BP	PD & MS	Laser scan derrick for BOP Upgrade scope Project Ref.: P005538	2013	2013
Auk Alpha		Wood Group PSN	Survey repair order pipe work for replacement	2013	2013
North Alwyn Re-route of flowlines	Total	Wood Group PSN	Dimensional control for re-route of flowlines N33 and N41	2013	2013
Montrose		Fabricom Offshore	TP & Laser Scan Survey	2013	2013
Clyde Scanning and IR survey		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Paul B Lloyd Junior	ВР		Paul B Lloyd Junior Scan, photograph and survey the BOP stack.	2013	2013
Anasuria		Amec Bluewater	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Dunlin	Fairfield Energy	R&M Engineering (Dunlin)	Scanning and TP survey	2013	2013
Ninan South Production Shutdown MCDR's	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Captain	Chevron	Archerwell	Laser scan offshore drilling facility, provide point cloud and 3D CAD model	2013	2013
Piper Bravo Derrick	Odfjell Drilling		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Brae Alpha	Marathon		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Brent Bravo Mud suction strainers	BP		Archerwell Laser scan and survey spools for LP Mud suction strainers	2013	2013
Tern Alpha	Shell	Wood Group PSN	Scan Corridor Model and IR Survey TPs	2013	2013
North Alwyn		WGPSN (PSN)	Laser scanning and TP observations of areas yet to be defined	2013	2013
BP Nelson	ВР		Laser scan and survey TPs.	2013	2013
Claymore Alpha lifeboats and CVDC		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Clyde		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Bruce repair orders.	ВР	Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation.	2013	2013
Judy chemical injection tank.	Conoco Phillips	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Cormorant Alpha	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Saltire Wellbay, gas lift line replacement.		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Byford Dolphin cellar and mezz decks inc	dicated in the MR.	PD & MS	Byford Dolphin Laser scan the cellar and mezz decks as indicated in the MR.	2013	2013
Fulmar drilling facilities		Odfjell Drilling	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Montrose exhaust support structures		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Clyde Laser lifeboats and davits.		Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Thistle		Nortech Solutions	TP dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Clyde route & TPs Chemical Injection ski	id & drains CL3852	Wood Group PSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Safe Scandinavia Anchor winch		Remontowa	Laser scan for anchor winch replacement .	2013	2013
Eider three lifeboat stations.	WGPSN / Taqa		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Janice top decks	Conoco Philips	AOC Engineering Ltd	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Bruce Platform repair orders aLScanner.		Wood Group PSN	Survey for various repair orders using TS and Laser Scanner.	2013	2013
North Everest full platform		Amec	Scan full platform for pipework replacement	2013	2013
Piper Bravo	Odfjell Drilling		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Forties Charlie flowlines.	BP	Petrofac	Laser scanning survey for replacement flowlines.	2013	2013
Captain WPP cutting chute	Chevron	WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Heather Laser wellheads		Fabricom Offshore	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
BP Bruce drilling derrick	BP	PD & MS	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
North Cormorant lifeboat stations.	Taqa	WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Clair	BP	PD & MS	Dimensional control and laser scanning, 3D CAD model as-built surveys and consultation	2013	2013
Magnus drilling facillities	BP	PD & MS	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Harding flowline		WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Heather Caisson replacement		RDS	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Complete scan 11 platforms offshore	ONGC		Complete scan and CAD model of 11 platforms offshore	2014	2014
Judy brownfield modifications	Conoco Philips	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Forties MCDR Campaign	BP	CPS	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Magnus Life extension Project		PDMS	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Unity Underdeck modifications		Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Harding Lifeboat replacement	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Judy Riser platform	Conoco Phillips	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Northern Producer Campaign		Fabricom	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Murdoch Brownfield modifications		Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Brae Alpha modifications	Marathon		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Clyde Repair Orders		WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Alba Browfield modifications		Archerwell	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Jade	Conoco Phillips	Amec	Jade laser scan/visual asset management database	2014	2014
Lomond Brownfield modifications		Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Harding Helideck fire monitor upgrades		Costain	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Dunlin MCDRcampaign	Fairfield Energy		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Arbroath Derrick modifications		Fabricom	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
ETAP Brownfield modifications	BP	WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Judy Campaign scopes	Conoco Phillips	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Clare Drilling package upgrades		Costain	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Sean Flowlines		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Murchison Generator Packages	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Ninian South Repair Orders	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Forties Alpha Gas Compressor Upgrade		Apache North Sea	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Rough Process Simplification Project		Fabricom Offshore	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
ETAP Repair Orders	BP		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
East Brae Gas Metering	Marathon		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Montrose full scanning		Petrofac	Full laser scanning of platform	2015	2015
Andrew Repair Orders	BP		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Kittiwake, various modules		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Judy Repair Orders	Conoco Phillips		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Beryl Alpha Flowline Modifications	Apache North Sea		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Unity Drains	BP		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Clipper MCDR	Conoco Phillips		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Shearwater Subsea Tie backs	Shell UK		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Beryl Alpha Flowline Modifications	Apache North Sea		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
ETAP Repair Orders	BP		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Captain "corridor" survey	Chevron	Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Gryphon repair orders	Maersk		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Magnus Drilling Upgrade	BP		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Judy Separator train Modifications	Conoco Phillips		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Judy Repair orders	Conoco Phillips		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Mungo wellbay	BP		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Clair depressurisation line		Costain	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ninian Central repair orders	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Solan As built record	Premier Oil		Laser scan and visual as built record	2016	2016
Shearwater Drilling modifications	Shell		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Hewett Repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ninian Central repair orders	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ketch flowline		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
North Alwyn Weather Deck modifications	Total		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Kittiwake various projects		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Alba North various modification scopes		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Forties Delta NGL modifications	Apache North Sea		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ninian South Module 1 Modifications	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Kittiwake Repair Orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Sean Romeo project		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Clyde Repair Orders		Aker Solutions	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Montrose Flare Upgrade		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Tern PE modification	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Culzean As built record	Maersk		Laser scan and visual as built record	2016	2016
Piper Metering Skid	Repsol Sinopec		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Sean Production and Drilling platform		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ninain central repair orders	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Captain repair orders	Chevron	Petofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Fulmar as built record		Step Change	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Cormorant Alpha Helideck modifications	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Harding Helideck modifications	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Eider Helideck modifications	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
North Cormorant Helideck modifications	Taqa Bratani		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Piper Bravo Gas metering modifications	Repsol Sinopec		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Alba Export and Metering modifications	Chevron		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Claymore repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Fulmar East Boat Line OBM		Step Change	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Anasuria repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Hewett Repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Rough as built record		Fabricom Offshore	Laser scan and visual as built record	2017	2017
North Alwyn Repair Orders		Total	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Clyde Repair Orders		Aker Solutions	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Claymore Drain maintenance and modifica	ation	Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Captain BLP	Chevron	Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
ALBA north flowline		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Tiffany Mod 1	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Topsides					
Piper Bravo Metering skid		Step Change	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
North Alwyn Repair Orders		Total	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Cygnus TEG package modifications		Fabricom Offshore	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Ninian Central Mod4 Firepump	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Ninian South Repair Orders	CNRI		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Alba FSU various project and repair	Chevron		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Alba North Wellbay	Chevron		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Cygnus Export Metering		Fabricom Offshore	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Kittiwake Repair Orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Clair Drilling package Modifications	BP		Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Offshore Vessels / FPSO					
LB200 Stinger	Stolt Offshore		Dimensional control and laser scanning, as-built surveys and consultation	2004	2004
Skandi Navica reel clearance	Subsea 7		Dimensional control and laser scanning, as-built surveys and consultation	2005	2005
Janice PWRI project	Maersk		Dimensional control and laser scanning, as-built surveys and consultation	2006	2006
Big Orange Acid Room	Denholm Shipping		Dimensional control and laser scanning, as-built surveys and consultation	2007	2007
Bbby Saphire deck & hyperbaric lifeboat.	Bibby Offshore		Dimensional control and laser scanning, as-built surveys and consultation	2007	2007
MV Didon deck extension		Rig Engineering	Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Northern Producer process areas drains		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Normand Cutter		Saipem	Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Acergy Discovery Hatches	Acergy		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Vessels / FPSO					
Acergy Eagle Hatches	Acergy		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Polaris J lay system Angola)	Acergy		Dimensional control and laser scanning, as-built surveys and consultation	2009	2009
Triton - Various Modules	Amerada Hess		Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Maersk GP3 Laser scan LP flare header		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Maersk GP3 tie points.		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Curlew various modules	Shell		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Maersk GP3 Laser scan turret pipework		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
PSVM Laser scan Engine rooms	BP	Technip Angola	Laser scanning engine rooms and produce isometric as-build drawings	2013	2013
Maersk GP3 hydraulic systems		Petrofac	Laser scanning hydraulic systems and produce 1000 isometric as-build drawings	2013	2013
Captain FPSO Flare header	Chevron	WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
PSVM Marine Deck and Engine rooms	BP	Technip Angola	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Maersk GP3 hydraulic systems		Petrofac	Laser scanning hydraulic systems and produce 1000 isometric as-build drawings	2013	2013
Captain FPSO Flare header	Chevron	WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Lomond Flotel campaign		Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
PSVM FPSO Engine room	BP	Technip Angola	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Transocean moonpool	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
GP3 Brownfield modifications		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
PSVM FPS0 OSSR mods	BP	Technip Angola	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Maersk Discoverer BOP Modifications	BP	Egypt	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Banff FPSO Brownfield modifications		Step Change	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Athena Brownfield modifications	BW Offshore		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014



Project Title	Ultimate Client/ Country	Name of Main Contractor	Work scope	Start Date	Complete Date
Offshore Vessels / FPSO					
GP3 MCDR Campaign		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Captain FPSO brownfield modification		Archer	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Aoku Mizu Main Deck Modifications	Bluewater		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
PVSM Firewater modifications	Technip Angola		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Galaxy BOP	ВР		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Haewene Brim Repair orders	Bluewater		Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Mariner B - full as built record	ВР	Oceaneering	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Anasuria Repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Ballast tank modifications		Petrofac	Dimensional control ad laser scanning, as-built surveys and consultation	2016	2016
FPF1 Various structural and repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
FPF1 Deluge modifications		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Haewene Brim Repair orders	Bluewater		Haewene Brim Repair orders survey, produce engineering drawings and workpacks	2017	2017
Bleo Holm Repair orders		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2017	2017
Offshore Subsea					
Starling manifold	Shell		Laser scanning, as-built documentation	2007	2007
Don manifold		Petrofac	Laser scanning, as-built documentation	2008	2008
Don SAL		Petrofac	Laser scanning, as-built documentation	2008	2008
Bardolino structures	Subsea 7		Laser scanning, as-built documentation	2009	2009
Subsea structures as built record		Senergy	Laser scanning, as-built documentation	2014	2014
Subsea structures as built record		Harkand	Laser scanning, as-built documentation	2014	2014



Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
Offshore Subsea					
Subsea structures as built record	Subsea 7		Laser scanning, as-built documentation	2015	2015
Shaw Subsea Tree as built record	Subsea 7		Laser scanning, as-built documentation	2017	2017
Shaw WI structure as built record	Subsea 7		Laser scanning, as-built documentation	2017	2017
Onshore Engineering					
BOP scans		Rig Engineering	Laser scanning, as-built documentation	2007	2007
Nuclear power station cells.	Aktiv Nuclear		Nuclear power station cells as build survey and modelling	2007	2007
Peterhead pumping station	Scottish water		Laser scanning, as-built documentation	2007	2007
Sullom Voe	BP		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
St Fergus Import line modelling	Exxon Mobil		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Sullom Voe	BP		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Ayr road pumping station	Scottish water		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Cruden Bay	BP		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Aberdeen WWTP	Yorkshire water		Dimensional control and laser scanning, as-built surveys and consultation	2008	2008
Laser scanning turbine test hall		Wood Group	Dimensional control and laser scanning, as-built surveys and consultation	2011	2011
Super-M2 Jack-up leg survey	BP		Dimensional control and laser scanning, as-built surveys and consultation	2012	2012
Arkwright Riser Investigation Project	Talisman		Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Hannibal scopes and survey TPs.		Genesis Oil & Gas	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
Hannibal Laser scan J08634C TPs.		Genesis Oil & Gas	Dimensional control and laser scanning, as-built surveys and consultation	2013	2013
As Build record 2 No. vessels		WGPS	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
As built record new lifeboat design		Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014



MAJOR PROJECT LIST

Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
Onshore Engineering					
Theddlethorpe brownfield	Theddlethorpe Power	Amec	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
St Fergus WHR project	Shell		Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Bacton Terminal Brownfield modifications		AJS	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Cramlington MCDR campaign		WGPSN	Dimensional control and laser scanning, as-built surveys and consultation	2014	2014
Ruwais Brownfield modifications		Fluor (Abu Dhabi)	Laser scanning for brownfield modifications	2015	2015
Bacton Terminal Brownfield modifications		AJS	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Saudi Terminal brownfield modifications		McDermott	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Pickering Generator Room	Shell		Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Sullom Voe Upgrades		Petrofac	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Barrow Terminal Gas Receiver Modification	S	AMEC FW	Dimensional control and laser scanning, as-built surveys and consultation	2015	2015
Hasdrubal modification scopes		Genesis Oil & Gas	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016
Burghausen Polyethelyne Plant as built reco	ord	Aiotec GmbH	Plant as built record	2016	2016
Middlesborough, Gas terminal modification	IS	Subsea 7	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016

Middle East

This is only a small sample of work carried out in the Middle East since the initial establishment.

10 Slipover Platform Safanya	Saudi Aramco	McDermott	Laser scanning and PDMS 3D modelling	2018	2018
Doha Car park Project	Qatar	Pinnacle	Laser scanning for Revit model	2017	2018
Jebel Ali Expansion Project	ENOC	Technip	Laser Scan of existing plant area	2017	2018
Zuluf and GOSP	Saudi Aramco	Saipem	Laser scanning of offshore platforms	2017	2017
Site project	GASCO	CH2MHILL	Dimensional control and laser scanning, as-built surveys and consultation	2016	2016



Middle East (cont)

Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
LTA & LSTK	Saudi Aramco	McDermott	Laser scanning and PDMS 3D modelling 31 platforms	2015	2016
Restricted Project	Iraq	Worley Parson	Laser scan data preparation for 3D Modelling	2015	2015
Marjan GOSP	Saudi Aramco	McDermott	Laser scanning and PDMS 3D modelling 5 platforms	2015	2015
Design review for 30 offshore platforms.	ADMA	NPCC	Review of drawing designs to eliminate the need for site fitted welding	January 2015	2017
Full asset as-build Turkmenistan	Dragon Oil	Clients Rep	Dimensional control, laser scanning, 3D PDMS models and all plant drawings $-$ 16 assets	October 2014	March 2017
As-built Oil platforms	Dubai Petroleum	Clients Rep	Dimensional control, laser scanning and production of 3D CAD models.	September 201	14 2017
As-built onshore refinery	KNPC Kuwait	Petrofac	As built of Onshore Petrochemical plant.	October 2014	2015
As-built onshore refineries	GASC0	Punj Llyod	Laser scanning of ASAB, Buhasa and Ruwais plants	January 2015	January 2017
AKK5 Platform	ADMA Abu Dhabi	Total	Dimensional control and laser scanning, as-built surveys and consultation.	February 2014	December 2014
Dimensional Control	ADCO	Fortune Oil	As built of Onshore Petrochemical plant trains	February 2014	February 2014
As-built Oil platforms	ADMA	McDermott	Dimensional control, laser scanning and PDMS modeling of four offshore platforms.	January 2014	March 2014
NASr Facility revamp	ADMA	Total	Dimensional control and laser scanning, as-built surveys and consultation	January 2013	December 2013
Critical Lines Project Phase 2	ADMA	Technip	Dimensional control, laser scanning and PDMS modeling of thirty offshore platforms. Abu Dhab	oi October 2011	January 2012
As-built Oil platforms	ZADCOAbu Dhabi	L&T	Dimensional control, laser scanning and PDMS modeling of three offshore platforms.	October 2011	February 2012
Critical Lines Project Phase 1	ADMAAbu Dhabi	Technip	Dimensional control, laser scanning and PDMS modeling of twenty eight offshore platforms.	February 2012	April 2013
Full asset as-build Turkmenistan	Dragon Oil UAE	Clients Rep	Dimensional control, laser scanning, 3D PDMS models and all plant drawings -4 assets	March 2012	March 2013
Samref Refinery Extended Scope	Samref Saudi Arabia	Worley Parson	Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Samref Refinery	Samref Saudi Arabia	Worley Parson	Dimensional control and laser scanning, as-built surveys and consultation	March 2010	July 2010
West Harbour refinery	Egypt	Genisis Oil & Gas	Dimensional control and laser scanning, as-built surveys and consultation	2010	2010
Karachaganack refinery re-vamp	KP0	KP0	Clients dimensional control representative	June 2007	June 2010
Hassi Messaoud refinery	Sonatrach Algeria	Shaw Group	Complete as-build archive database collection	2007	2007



India

MAJOR PROJECT LIST

Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
NRDP Scan and model		L&T	Laser scanning and generation of PDMS model for 5 wellhead platforms	2017	2017
Neelam project	ONGC	L&T	Laser scan, model and extract dimensional drawings for 6 platforms	2016	2017
Life Extension Project	ONGC	NPCC	Laser scan, model and extract dimensional drawings for 10 platforms	2016	2017
CCR Unit RIL Jamnager	Engineering Concep	t	Laser scanning and Dimensional control with creation colour trueviews	2016	2016
BE and BA offshore platforms	ONGC	Aker Power and Gas	Laser scanning and generation of PDMS model for 2 platforms	2014	2014
WIN Revamp Project	ONGC	Leighton Contractors	Laser scanning of the offshore structures	2011	2011
WIS and SA Platforms	ONGC	Perfect Solutions	Laser scanning of the offshore structures BA, BPA,WIN, WIS & SA	2010	2010

Asia - Thailand

This is only a small sample of work carried out in Thailand since the initial establishment.

BMB Pig Launcher Installation	Carigali-PTTEPI	Thai Nippon Steel	Laser Scanning of BMB platform for clash check corridor routing of new Pig Launcher and associated pipework. Deliver Red Line Markups ofnew piping and structure.	Mar,2013	Mar,2013
Bongkot WP16 ESP Pilot Project	PTTEP, Thailand	CES	Laser Scanning of Bongkot WP16 platform for clash check corridor routing of new ESP pipework. Deliver Red Line Markups of new piping and structure.	July,2013	Sept,2013
Bongkot PP Condensate De-Bottlenecking	PTTEP, Thailand	CES	Laser Scanning of Bongkot WP16 platform for clash check corridor routing of new Condensate De-Bottlenecking pipework. Deliver Red Line Markups of new piping and structure.	July,2013	July,2013
Bongkot PP 32" Export Riser	PTTEP, Thailand	Thai Nippon Steel	Laser Scanning of Bongkot PP for Generation of lifting plan for Riser replacement project.	Jan,2013	Jan,2013
Tox-8500 Column Verticality Survey	SCG DOW Petro	DOW	Dimensional Control of existing column to check for Plumbness.	Aug,2013	Aug,2013
Zawtika ZWP03 WeII Hook-Up	PTTEPI, Myanmar	PTSC Vietnam	Laser Scanning of Zawtika ZWP03 wellbay area for clash check corridor routing of new flowline pipework. Deliver Red Line Markups of new piping and structure.	June,2013	June,2013
Platong CPP1 Compressor Replacement	Chevron, Thailand	Chevron	Laser Scanning of Platong PP Booster Compressors and surrounding area for clash check corridor routing routing of new compressors and associated pipework. Deliver Red Line Markups of new piping and structure	. Feb,2014	Feb,2014
PG Plant as-Built Laser Scanning	SCG DOW Petro	DOW Chemicals	Laser Scanning for purposes of plant As-Built condition capture	Jan,2014	Dec,2014



Asia - Thailand (cont)

MAJOR PROJECT LIST

Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
Pipe Bridge Installation	PTT, Thailand	Tesco Engineering	Dimensional Control Survey for virtual fit up of bridge sections prior to major heavy lift.	May,2014	May,2014
Bongkot FS02 Deisel Line Replacement	PTTEP, Thailand	LS Engineering	Laser Scanning of Bongkot FS02 Engine romm areas for clash check corridor routing of new pipework.	March,2016	April,2016
Racetrack Survey	Bangsean Racing,	AAM	Topogaphic GNSS Survey of racetrack routing.	Jun,2016	Jun,2016
Barge Layout and Sea Fastening Survey	Chevron, Thailand	BAGGIO LTDA	Setting Out survey of barges for Deck Grillage and Sea fastenings	Oct,2016	Oct,2016
ZOC Plant As-Built Laser Scanning	PTTEPI, Myanmar	Thai Nippon Steel	Laser Scanning for purposes of plant As-Built condition capture	Nov,2016	Nov,2016
Siam Gulf Plant As-Built Laser Scanning	Siam Gulf Peroleum	Benham Engineering	Laser Scanning for purposes of plant As-Built condition capture	Dec,2016	Jan,2017
Siam Gulf Plant As-Built Topograph Survey	Siam Gulf Peroleum	Benham Engineering	Topographic Survey of Siam Gulf Refinery	Feb,2017	March,2017
Modular fabrication Dimensional control	Evonik, Thailand	Hiapseng Engineering	Dimensional Control of pipe rack modules during fabrication.	July,2017	Oct,2017
SPRC RFCCU Plant As-Built	Star Petro Refining	SPRC	Laser Scanning for purposes of plant As-Built condition capture	July,2017	Oct,2017
Gas Regen Plant As-Built Laser Scanning	PTT Gas Seperation	Thailand	Experteam Laser Scanning for purposes of plant As-Built condition capture	Aug,2017	Aug,2017
Production Line Calibration	Freyssnet, Thailand	Freyssnet	Dimensional Control Survey to calibrate production line product measurement system	Sept,2017	Sept,2017
ERP Riser Clamp Replacement	PTTEP, Thailand	LS Engineering	Laser Scanning of Erowan Riser Platform for Generation of lifting plan for Riser Clamp replacement project	. Sept,2017	Sept,2017
BEWC Booster Compressor Skid As-Building	Chevron, Thailand	Chevron	Laser Scanning and 3D Modelling for purposes of plant As-Built condition capture	Oct,2017	Oct,2017
Nong Yao WPPA Deck Extension	Mubadala Petroleum	Thai Nippon Steel	Laser Scanning of Nong Yao Alpha Platform for clash check corridor routing of new pipework and structure. Deliver Red Line Markups of new and structure.	Dec,2017	Feb,2018
Production Line Alignment Survey	Freyssnet, Thailand	Freyssnet	Alignment Survey of production line machinery	Dec,2017	Dec,2017

Asia - Brunei

This is only a small sample of work carried out in Brunei since the initial establishment. Brunei total projects since establishment currently stand at 1000 plus.

AMDP06 SWA299 Flowline	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	Jan 2017	Ongoing
BSM Muara Loading Gantry	BSM, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	Sep 2016	Oct 2016
IDCX01 & CWDP01	BSP, Brunei	PUSB	Laser Scanning & Development of 3D PDMS Model	Aug 2016	Ongoing



Asia - Brunei

This is only a small sample of work carried out in Brunei since the initial establishment. Brunei total projects since establishment currently stand at 1000 plus.

MAJOR PROJECT LIST

Project Title	Ultimate Client/	Name of Main	Work scope	Start Date	Complete Date
	Country	Contractor			
Champion 7 Complex	BSP, Brunei	Damit Worley	Laser Scanning & Development of 3D PDMS Model	Feb 2016	Ongoing
AMDP30 & EGDP01	BSP, Brunei	Damit Worley	Laser Scanning & Development of 3D PDMS Model	Nov 2015	Feb 2016
Champion Waterflood B23	BSP, Brunei	Aker	Laser Scanning & Dimensional Control to Reduce Offshore Hotwork	Oct 2015	Mar 2016
Pipeline Replacement	BSP, Brunei	Damit Worley	Laser Scanning & Development of 3D PDMS Model	May 2015	Jul 2015
East Asset Instrument Air System	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	Oct 2014	Nov 2015
Champion 7 Compression	BSP, Brunei	Damit Worley	Laser Scanning & Development of 3D PDMS Model	Apr 2014	Aug 2014
Seria Refinery Pump Seal Improvement	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	Dec 2013	May 2014
Offshore Facilities Maintenance	BSP, Brunei	PUSB	Laser Scanning to Produce As-Built Info for Workpack DevelopmentJun	2013	Dec 2014
BLNG IA-N2 Laser Scanning	BLNG, Brunei	PUSB	Laser Scanning & Development of 3D PDMS Model	May 2013	Jun 2013
Tank Inspection	BSP, Brunei	Astrata	Laser Scanning for Tank Calibration and Inspection	Jan 2013	Sep 2014
BLNG ETP Underground	BLNG, Brunei	PUSB	Underground Utilities Detection & Development of 3D PDMS Model	Mar 2012	Apr 2012
Offshore Facilities Maintenance (WON)	BSP, Brunei	SKS Wood	Laser Scanning of 25 Offshore Platforms & Development of Truview Portals	Jan 2012	Jun 2012
Glass Level Gauges	BLNG, Brunei	PUSB	Laser Scanning & Dimensional Control of Existing Level Gauges & Clash Study of Replacement	Sep 2011	Jun 2012
CWF B2 BF DD L	BSP, Brunei	Damit Worley	Laser Scanning & Development of 3D PDMS Model	Aug 2011	Jan 2012
SCOT Asset Integrity Phase 3	BSP, Brunei	PUSB	Underground Piping Detection for Concept Selection & Basis for Design	Nov 2010	Feb 2011
Well Tie In Projects	BSP, Brunei	Sahid	Dimensional Control of Flowline, Gaslift & Blowdown Lines	Mar 2008	Dec 2016
CPWA07	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	2009	2009
CPDP37	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	2009	2009
CPDP38	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	2009	2009
Mampak Wellbay	BSP, Brunei	PUSB	Laser Scanning & Dimensional Control to Produce Clash Free Design	2008	2008
Magpie Complex As building	BSP, Brunei	PUSB	Laser Scanning & Development of 3D PDMS Model	2007	2007
Champion 7 As building	BSP, Brunei	PUSB	Laser Scanning & Development of 3D PDMS Model	2006	2006



Section 2 - Infrastructure & Resources

United Kingdom



182 Market Street, Aberdeen, AB11 5PQ, United Kingdom

United Arab Emirates



Office 104, Zayed 2nd Street, Electra Road, Abu Dhabi

Kingdom of Saudi Arabia



P.O. Box 76561, Al Khobar 31952, Kingdom of Saudi Arabia

India



Maker Chambers V, 7th Flor, Suite 713, 221 Nariman Point, Mumbai 400 021, India

Malaysia



No 8 Jalan PJV 5/15 Kota Damansara 47810, Selangor, Kuala Lumpur

Singapore



10 Hoe Chaing Road, 13-01 Keppel Towers, Singapore 089315

Thailand



61/25 Sukhumvit Soi 26, Sukhumvit Road, Klongton, Bangkok 10110 Thailand

Brunei



Lot 4923, Jalan Sg Pandan, Kg Pandan, KA 1931, Kuala Belait, Brunei

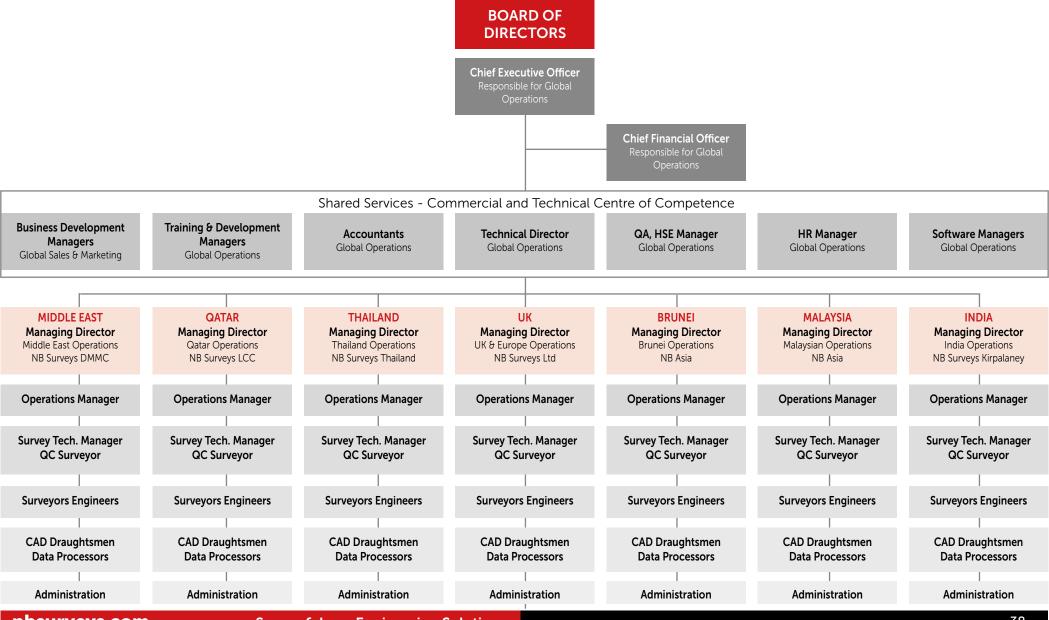
Qatar



D Ring Road, Al Mataar, Al Qadeem District, Doha, 32522, Qatar



Sub Section 2.1 - Organisation Chart





Sub Section 2.2 - Personnel

NB Surveys Global employs a multi-national and multi-disciplined workforce to support its onshore and offshore activities all of whom are specialists in their own area of expertise including: Project Managers, Laser Scanning

Surveyors, Dimensional Control Surveyors, Software Programmers, Data Processors, 3D Modellers and Multidiscipline Draughtsperson. All personnel have relevant HSE training for both on and offshore projects.

Personnel Resources

Total Forecasted

Personnel Resources Discipline	Full time Employees	Outsource Personnel	Total	
Safety and Quality Assurance				
Safety Personnel		1	1	
QA/QC Personnel		1	1	
Operations				
Operations Managers	5		5	
Senior Surveyors	50		50	
Surveyors	50		50	
Data Processors	4		4	
CAD Draughting/modelling Personnel	10	Up to 300	Up to 310	
Piping Designers	8	Up to 150	Up to 158	
Structural Designers	8	Up to 150	Up to 158	
Management				
CEO	1		1	
Directors	14		14	
Managing Directors	6		6	
Operations Managers	5		5	
Survey Managers	5		5	
Accountants	6			
Others	3		3	
TOTAL			Up to 602	

Some resources may hold joint responsibilities



Key Technical Personnel & Number of Years Experience

EUROPE



Michael Cowe 34 years



Allan Pringle 32 years



Wayne Longden 34 years



Duncan Wilson 34 years



John Smith 22 years



Sebastian Czapnik 14 years



Mike Burke 28 years



Gary Core 26 years



Rachel Duncan 12 years



Douglas Niven 42 years



Gordon Niven 38 years



Steve Jones 38 years



Alex Nive 7 years



Ramon Kirpalaney 38 years



Pete Hynes 38 years



Christine Joy 8 years

MIDDLE EAST & INDIA



James Wilson 14 years



Adam Williams 18 years



Chaiwat Assawabenjang 7 years



Tony Wong 18 years



Albert Duncan 32 years



Kee Tuuan Chew 18 years

ASIA



Sub Section 2.3 - Equipment

NB Surveys Global continually invest in innovation, utilising the best in class laser scanners for quality, accuracy, repeatability, measurement speed and portability, providing the best 3D survey solutions to owner operators, asset managers and engineers across the Oil & Gas and petrochemical sector.

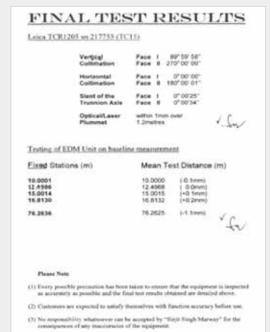
List of available survey equipment:

Item Description- KEY IT	Owned	
High order Total stations	0.005mm	3
High order Total stations	1.0mm 1"	100
Precise levels	+/- 1mm per km	52
Rapid laser scanners	+/- 3mm	55
360 Colour panorama un	20	
Portable site computer sy	75	
GPR multi sensor units	4	
GPS positioning systems	8	
Site Computer systems	100	

Equipment is calibrated for accuracy and certified for safety as required







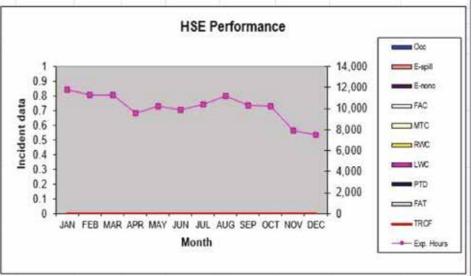




Sub Section 2.4 - Safety Statistics

	HSE Key Performance Indicators 2017														
Data	Exposure hours	No. of Fatalities	No. of Permanent Total Disabilities	No. of Lost Workday Cases	No. of Restricted Workday Cases	No. of Medical Treatment Cases	No. of First Aid Cases	Total number of env. non- conformance	Total number of e-spils	Total number of Occ. Illnesses	No. of Lost Time Injuries	Total Recordable Cases	Total Recordable Cases Frequency	Cumulative Manhours Without TRC	Cumulative Manhours Without LTI
Date	Exp. Hours	FAT	PTD	LWC	RWC	MTC	FAC	E-nonc	E-spill	Occ	LTI	TRC	TRCF	1036767	2730235
JAN	11,768	0	0	0	0	0	0	0	0	0	0	0	0.0	1,048,535	2,742,003
FEB	11,319	0	0	0	0	0	0	0	0	0	0	0	0.0	1,059,854	2,753,322
MAR	11,263	0	0	0	0	0	0	0	0	0	0	0	0.0	1,071,117	2,764,585
APR	9,569	0	0	0	0	0	0	0	0	0	0	0	0.0	1,080,686	2,774,154
MAY	10,253	0	0	0	0	0	0	0	0	0	0	0	0.0	1,090,939	2,784,407
JUN	9,884	0	0	0	0	0	0	0	0	0	0	0	0.0	1,100,823	2,794,291
JUL	10,371	0	0	0	0	0	0	0	0	0	0	0	0.0	1,111,194	2,804,662
AUG	11,200	0	0	0	0	0	0	0	0	0	0	0	0.0	1,122,394	2,815,862
SEP	10,326	0	0	0	0	0	0	0	0	0	0	0	0.0	1,132,720	2,826,188
OCT	10,194	0	0	0	0	0	0	0	0	0	0	0	0.0	1,142,914	2,836,382
NOV	7,890	0	0	0	0	0	0	0	0	0	0	0	0.0	1,150,804	2,844,272
DEC	7,490	0	0	0	0	0	0	0	0	0	0	0	0.0	1,158,294	2,851,762
TOTAL	121,527	0	0	0	0	0	0	0	0	0	0	0	0.0		

HSE Improvement Activities							
Quarterly Campaigns	Observations	comments on follow-up					
I: Office Equipment	Complete	Several chairs removed from circulation and replaced. Staff comments positive.					
II: PPE Awareness	Complete	General PPE maintained in good state of repair. Personnel readily request replacements if required. Highlighted lack of record keeping.					
III: Incident Reporting	Complete	Low incident reporting indicated, by sun teams, as reflective of low number of incidents occurring. Awareness of report requirement was high.					
IV: Compliance	Ongoing	This issue has proven hard to progress, due mainly to Client resistance to allowing copys of Toolbox Talks to be made. Ongoing.					





DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 8328-2007-AQ-GBR-UKAS

Initial certification date: 22 December 2004

Valid:

22 December 2016 - 15 September 2018

This is to certify that the management system of

N.B. Surveys Ltd

182 Market Street, Aberdeen, AB11 5PQ, United Kingdom

has been found to conform to the Quality Management System standard:

ISO 9001:2008

This certificate is valid for the following scope:

Provision of 3D laser scanning, dimensional control, surveying, engineering design and associated services.

Place and date: Lendon, 04 May 2017



for the issuing office: DNV GL Business Assurance UK Limited, Vive Building, 30 Stamford Street, SE1 9LQ, London, United Kingdom

Richard Redmond Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate Invalid. ACCREDITED LINET: DAY GI, Submert Assurance LK United, Vivo Building, 30 Stamford Street, London, SE1 9LQ, United Kingdom. 181.—44(0) 207-337 data. Sessingnes Shedji com





EU CERTIFICATE OF CONFORMITY

In accordance with the requirements of the Pressure Equipment
Directive 2014/68/EU and the Pressure Equipment (Safety)
Regulations 2016,
UK Statutory Instrument 2016 No. 1105

This is to certify that the Quality Management System of:

NB Surveys Limited Aberdeen Aberdeenshire United Kingdom

has been assessed against the requirements of Annex III, Module H of the Pressure Equipment Directive 2014/68/EU, and Schedule 4, Module H of The Pressure Equipment (Safety) Regulations 2016 and conforms to the requirements for the products shown below:

Design and Manufacture of Pipework in Carbon Steel, Stainless Steel and Duplex Steel

Approval is subject to the continued maintenance of the quality system in accordance with the requirements of the above Directive and Regulations.

Authorisation is hereby given to use the LRV Notified Body Identification Number in accordance with the requirements of the specified Directive and Regulations in relation to the products as identified above.

Certificate No: COV1711397/2

Original Approval: 15 June 2017

Current Certificate: 15 June 2017

Certificate Expiry: 15 September 2018

LRV Notified Body Number 0038

5 M William

5. M. Williams on behalf of Lloyd's Register Verification

Unjul's Auguster Verefaulten Limited (Reg. no. #82/92/8) is a limited company registered in England and Wides. Registered office: 71 Ferchurch Street, London, 8C (MM 485, UK. A. subsidiary of Light's Register Group Limited

Doyd's Register Group Limited, its affiliates and subsidiares and their respective officers, employees or aperts are, individually and collectivity, referred to in this cleare as the Libyd's Register. Libyd's Register assumes no responsibility and shall not be safe to any person for any liby, deviage or expense caused by relating on the information or advant on the information of the information or advant in this stochaster in the information of the information or advant and the release to Ligid's Register entire, for the process of the information or advant and the conditional and in the conditional and not information or advant and the conditional and not information or advant and the conditional and not information.

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NB SURVEYS (THAILAND) CO., LTD.

61/25 SUKHUMVIT SOI 26, SUKHUMVIT ROAD, KLONGTON, KLONGTOEY, BANGKOK 10110 THAILAND

Bureau Verius Certification Holding SAS - UK Branch certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

Steedards

ISO 9001:2008

Scope of certification

PROVISION OF 3D LASER SCANNING, DIMENSIONAL CONTROL SURVEYING, 3D CAD MODELLING AND ASSOCIATED SURVEY SERVICES.

Certification cycle start date: 3 June 2016

Subject to the continued satisfactory operation of the organisation's Management System,

this certificate expires on. 15 September 2018

Original certification date: 3 June 2013

Certificate no. TH008760 Version 01, Revision date: 02/06/2016

Signed on behalf of BVCH SAS UK Branch

UKAS

800

Sertification budy addraw 60 Proceed Struct, London, 313 8165, United Kingdom.
Local office Thereway Veries Conflication (Chidney), Ltd. 16th Flows, Deeploth, Towar, 25 09 New Positions Biomi,
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Certificate of Registration issued to

B SURVEYS DMCC

having been assessed by QFS MANAGEMENT SYSTEMS LLP for compliance is certified to be registered in the List of Registered Organizations with regard to the standard and scope of supply as detailed below from their site: 1171, DMCC BUSINESS CENTRE, LEVEL NO. 1, JEWELLERY & GEMPLEX 3, DUBAL, **UNITED ARAB EMIRATES**

ISO 9001:2015 (QMS)

For the following scope: 3D LASER SCANNING, DIMENSIONAL CONTROL, SURVEYING AND ASSOCIATED SERVICES.

Certificate Number: IS/1712NB/342

Initial Date of Certification: 18.12.2017

Date of Certificate: 18.12.2017 Date of Expiry: 17.12.2020

Date: 18.12.2017

1st Surv. Due on: 17.11.2018 2nd Surv. Due on: 17.11.2019





This Certificate is issued in accordance with the procedures for certificate registration and is valid only until the date of expiry or earlier if so advised, in writing to the certificated organization by QFS. It is issued subject to the continued availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFSTerms and Conditions.

OFS MANAGEMENT SYSTEMS LLP

D-54, Sector-2, Noida-201301, U.P., India www.qfscerts.com

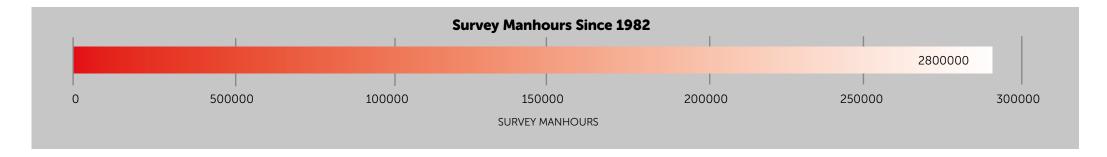
This Certificate remains the property of QFS

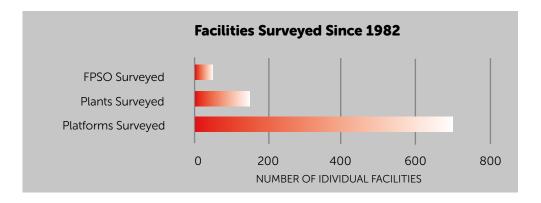


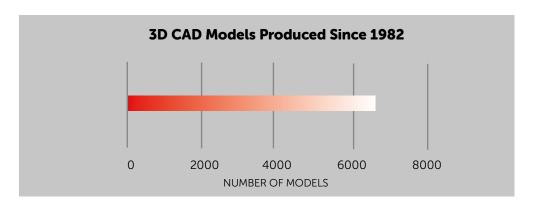


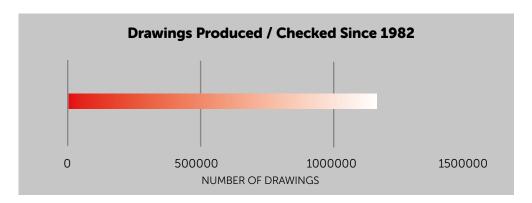


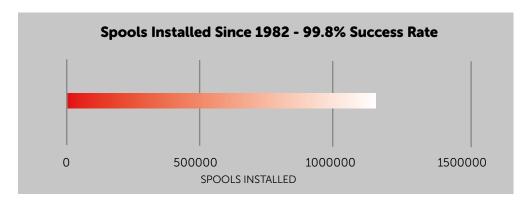
Section 3 - Track Record Statistics













Appendix - A

Sample Case Studies: Supplied as separate document

Software Solutions: Supplied as separate document