



Curriculum Vitae

John Quirk Marine Seismic Exploration Specialist



Disciplines

Project Management, Client Representation, Project Supervision, Marine Seismic and Positioning Acquisition, Navigation, Data Processing, Quality Control, Technical Audits, HSE, 4D Planning and Supervision

Qualifications

BEng Parts I & II Engineering Science and Industrial Management

IOSH Managing Safety Certificate.

Background

Over 40 years worldwide acquisition experience.

8 years as an observer, senior observer and party chief with geophysical contractor. Operating as an acquisition consultant since 1991, wide experience of seismic and navigation quality control and data processing. Also has training and experience in project planning and management.

Client List

Afren, AkerBP, Amerada Hess, Apache, Arabian Oil Company, Arco, BG, BHP, BP, British Gas, Cairn Energy, GeoPartners, CGG, Chevron, Chinampa, CPOC, Dana Petroleum, DONG, Enron, Enterprise, Equinor, Fina, Geco Multiclient, GeoPartners, GSPC, Hellenic Petroleum, Hess, INOC, Isramco, Kerr McGee, Kosmos, Marathon, Mobil, MossGas, NAM, Norsk Agip, Nunaoil, Oranto, Petro-Canada, Petrom, Petronas, PGS MC3D, Philips, Philips, Polarcus MultiClient, Primeline, PTTEP, Reliance, Repsol, Saudi Aramco, Searcher Seismic, Shell, Shell US, Shell Norge, Shell Egypt, Statoil, StatoilHydro, Storm Ventures, Texaco, Total, TPAO, Tullow, WesternGeco Multiclient, YPF, Zaratex

Personal Statement

I take great pride in my work and enjoy the opportunity to make a difference. Difficult surveys hold the most interest as I enjoy problem solving and such projects offer some of the best opportunities for me to make a significant contribution.

New and emerging technologies are of keen interest as they present both a challenge and an opportunity to learn. They help me to stay relevant and often provide an opportunity to mix ideas with field leading experts.

The HSE aspect of the role holds special interest. I have a keen and personal interest in seeing improvements being made. I strive to encourage continuous progress in practical aspects of working practices.

Areas of Expertise

Project Management

Planning, management and supervision of marine seismic acquisition projects.

Acquisition

Client representation, supervision and quality control of 2D, 3D, 4D, broadband, multi-component, multi-vessel and OBC acquisition programmes. Recent and historical experience of split offset acquisition.

Navigation

Special respect is given to minimisation of costs. Quality control of towed streamer and OBC surveys.

HSE

Navigation data processing

Processing

HSE monitoring and advancement.

Experience of both QC and on-board production seismic processing systems.

Software

Extensive knowledge of MS Office and many other programmes in popular use. Programming skills in Visual Basic and C.

Several bespoke programmes in use for QC of seismic and navigation data together with survey progress and activity logging.

Mapping / GIS

Preparation of survey maps, charts and attribute displays using GIS software.



Technical Experience

Project Management

Formal management and project control training. Experienced in all aspects of marine survey techniques, specifications, safety, logistics, technical support. Contract design and appraisal. Survey design and planning. Bespoke control and reporting systems.

Instrumentation

Sentinel MS, Isometrix, ION Marine, Geostreamer, WG Q system, NESSIE, Syntrak, MSX, Sercel Seal, TriAcq, DFS V, LRS-16, DSS 240, LRS-16A, WG-24, Ion DigiStreamer,

Energy Sources

Bolt airguns, Sleeve guns, G Guns, Soderia Airguns, Ion Gemini Low Frequency Source

Energy Source Control

TriSource, GCS-90, I/O SSS, Litton LRS-100, GunLink, Class, Gunda, GunCo, Horizon ISC, Tiger, Hydropulse, Big Shot, DigiShot.

Positioning Systems In-Sea Positioning

All GPS and Radio navigation systems. Digicourse full streamer acoustics, Irma Full Streamer Acoustics, rGPS, Lasers

Navigation Systems

SeaNav Pro, Orca, Concept System Spectra & NRT, Western WISDOM, Geco Norstar, Geco TriNAV, SeisNet, QPS Qinsy, NCS.

Streamers

Sentinel MS, WesternGeco Nessie 6 (IsoMetrix), PGS Geostreamer, WesternGeco Q, Seal solid & liquid filled, Ion DigiStreamer, LRS-16/16A, Digicon DSS 240, Syntrak 480 & RDA, WG-24, HSSG, NESSIE IV & V, I/O MSX

Navigation Processing

Geometis, Neptune, Sirius, QCPro, Sprint, UnavChk, SeisNav, Qsolve, Spectra NRT.

Seismic Processing

OpenCPS, HoloSeis, Viper, ProMax, Cobra, Tango, Omega, Ramesses, MicroMax, Focus, Cube Manager, Hot Shot, Vista

Technical Audits

Pre-survey tests of seismic recording system and source integrity. Hydrophone sensitivity tests and far-field gun signature tests. Approval of navigation systems and spread geometry. Have developed own NFH testing suite for start up testing and also for continuous monitoring during survey.

Professional Experience

Company	Dates	Description
Geophysical Quality Services Ltd.	2005->	Independent seismic acquisition consultant working both directly for clients and also through agencies. Project management, survey supervision, quality control of seismic and navigation data on marine seismic surveys. HSE monitoring and SIMOPS control.
Exploration Consultants Ltd	1991-2005	Seismic acquisition consultant. Survey supervision, quality control of seismic and navigation data on marine seismic surveys.
Digicon	1983 - 1990	Observer, senior observer and Party Manager of seismic survey vessel.

Areas Worked

Europe	North Sea, Barents Sea, Irish Sea, Celtic Sea, Atlantic Margins, Mediterranean, UK, Norway, Denmark, Holland, Ireland, Greece, Malta, Romania,
Asia	Black Sea, Mediterranean, Atlantic CS, Persian Gulf, Indian Ocean, The Kutch, South China Sea, Coral Sea, Pacific CS, Turkey, Israel, Iran, Saudi Arabia, UAE, Bahrain, India, China, Malaysia, Indonesia, Timor Leste, Thailand, Australia, PNG
Americas	Gulf of Mexico, Atlantic, Davis Strait, Baffin Bay, USA, Greenland, Trinidad, Brazil, Suriname
Africa	Mediterranean, Atlantic, Tunisia, Mauritania, Senegal, Guinea, Cote D'Ivoire, Ghana, Nigeria, Cameroon, Gabon, Guinea Bissau, South Africa, Egypt



Technical Training

Technical Auditing	2015	Verif-i
Project Management	2015	E4J
IsoMetrix	2014	WesternGeco
Geostreamer QC Techniques	2011	PGS
Geostreamer QC Techniques	2010	PGS
Q-Marine Technology	2006	WesternGeco
Neptune Navigation	2002	ECL
Processing		
Navigation Processing	1996	ECL
Internet programming	1996	Liverpool University
Unix	1996	Liverpool University
C Programming	1993	John Moores University

Safety Training

P-Vision, Shell Permit to Work System.	2023	Shell
Shell Risk Analysis modules 1, 2 & 3	2023	Shell
IOGP MM1 HSE Management Systems	2018	RPS
IOGP MAM1 HSE Serious Incident Investigation	2018	RPS
Offshore Survival & HUET with CA-EBS	2018	Fleetwood Nautical College
IOSH Managing Safety	2016	British Safety Council
CA-EBS	2014	Fylde College
Offshore Survival & HUET with Euro extensions	2014	Petans Offshore Survival Centre
Short Range Radio Operator	2008	Safe Water Training Sea School
10m Powerboat Cox	2007	Safe Water Training Sea School
LRAD 1000	2007	CGGVeritas
Defensive Driving Course	2005	Lancashire County Council
Safety Management Course	2002	Thonger GSR
Safety Management Course	2000	PGS
Advanced First Aid	1999	PGS
Safety Management Course	1991	Shell (NAM)

Past Projects

Client Country	Dates	Survey Description	Responsibilities.
Shell UK	Aug-Sep23	4D monitor survey over Fram and Shearwater fields with obstructions and undershoots. 10 x 4500m Sentinel streamers, 2 x 3000in ² GII sources Main Challenges SIMOPS, close passage to installations.	Lead QC, SIMOPS control, PtW requests.
PGS MC3D Norwegian Sea	Jul-Aug 23	Wide Azimuth 3D Multi Streamer Survey on PGS Hyperion. 14 x 10000m Geostreamers, 3 x 3280 in ³ source. Main Challenges: Fishing, weather	HSE, Lead QC, Seismic, Navigation
Var Energi Barents Sea Norway	May-Jun 23	Wide Azimuth 3D Multi Streamer Survey on PGS Ramform Hyperion. 12 x 7500m, 2 x 10050m Geostreamers, 3 x 3280 in ³ source. 3 x 3280in ³ Bolt Sources Main Challenges: Weather, Fishing	Lead QC, Seismic, Navigation & HSE
Shell Egypt Red Sea, Egypt	Apr-Jul 22	Large 3D Multi Vessel, Multi Streamer, Split Long Offset survey on PXGeo 2 with Fulmar Explorer towing Ion Gemini low frequency source 10 x 8000m & 2 12000m Sentinel Solid streamers, 3 x 3000 in ³ G-gun source & 2 X 8000 in ³ Ion Gemini Point Source Main challenges: diving restrictions, sharks, equipment issues.	Lead QC, Seismic & Navigation.
Ion MC North Sea, UKCS	Sep-Nov 21	3D Multi Streamer Survey on Akademik Nemchinov 4 x 6000m Seal Solid streamers, 2 x 3040 in ³ Bolt Longlife source. Main Challenges: Fishing, weather	Seismic, navigation and HSE
Shell Egypt Nile Delta	Feb-Apr 21	Large 3D Multi Vessel, Multi Streamer, Split Long Offset survey on PGS Tethys with PGS Sovereign towing Ion Gemini low frequency source 12 x 8050m Geostreamers, 3 x 3420 in ³ Bolt point source & 2 X 1000 in ³ Ion Gemini Source	Lead QC.
Spirit Energy Barents Sea	Oct 19	Small 3D Multi Streamer Hi-Res Survey on Amazon Conqueror 6 x 2000m Isometrix streamers, 4 x 720 in ³ Bolt point source. Main Challenges: High data volume, 6.25m SP interval & 3.125m groups.	Supervision, Seismic and HSE



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Lundin Barents Sea	Sep-Oct 19	Small 3D Multi Streamer Hi-Res Survey on Amazon Conqueror 6 x 2000m Isometrix streamers, 4 x 720 in ³ Bolt point source. Main Challenges: New techniques being developed during the project. High data volume, 6.25m SP interval & 3.125m groups.	Supervision, Acquisition QC and HSE
Equinor Norway	August 19	4D Multi Streamer on SW Amundsen 12 x 7000m Isometrix streamers, 2 x 5085 in ³ Bolt steerable source. Main Challenges: Close passes	Supervision, Acquisition QC
CGG MC North Sea, UKCS	Jun-Jul 19	3D Multi Streamer Survey on Geo Coral 12 x 7950m Sentinel MS streamers, 2 x 4360 in ³ G-Gun source. Main Challenges: SIMOPS	Seismic, navigation and HSE
Equinor Norway	April-Jun 19	4D Multi Streamer on Ramform Vanguard 17 x 3600m Geostreamers, 2 x 3860 in ³ steerable source. Main challenges. SIMOPS	Supervision, Acquisition QC
Cairn Suriname	Dec18-Feb 19	2D Survey on Harrier Explorer 1 x 7200 metre Ion Streamer 1 x 3860 in ³ Bolt LLXT array Main challenges. Very strong and unpredictable currents.	Supervision, Acquisition QC
BP North Sea, UKCS	Jul-Aug 18	4D Multi Streamer on Geo Coral 14 x 3600m Sentinel MS streamers, 2 x 4360 in ³ steerable source. Main challenges. SIMOPS, undershooting, use of new technology.	Supervision, Acquisition QC
Oranto, Geopartners Senegal	May-Jun 18	3D Multi Streamer Survey on Ivan Gubkin 10 x 8100m Q streamers, 3 x 2935 in ³ source. Main Challenges: Fishing	Seismic, navigation and HSE
PGS MC Norway CS	Sep-Oct 18	12 x 6000m Geostreamer 3D survey on Sanco Swift. Main challenges: Weather	Supervision, Acquisition QC, Navigation & HSE.
AkerBP Norway CS	Apr-Aug 17	4 x 4D monitor surveys on WG Amundsen 12 x 6000m Isometrix streamers 2 x 3147 in ³ steerable source Main challenges: oilfield obstructions, fishing.	Navigation QC.
Apache UKCS	Aug 16	4D monitor survey on WG Vespucci 11 x 4500m Q streamers 2 x 3147cu in steerable source Main challenges: difficult tidal predictions, oilfield obstructions.	Supervision, Acquisition QC & HSE.



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CGG Norway CS	Jun-Jul 16	BroadSeis 3D on Geo Caspian 12 x 7950m Sentinel solid streamers, 2 x BroadSource arrays. Main challenges: fishing activity.	Supervision, Acquisition QC & HSE
Hellenic Petroleum Greece	Dec 15-Feb 16	12 x 8000m 3D & 1 x 12000m 2D on Polar Empress Main challenges: Second hand Q-Marine System with low level of crew experience of system. Enclosed, shallow water area between islands and coast, contractor with financial restraints.	Supervision, Acquisition QC, Navigation & HSE.
PGS MC3D North Sea	Aug-Oct 15	10 x 6000m Geostreamer 3D survey on Ramform Explorer. Main challenges: Weather, SIMOPS, constantly changing priorities.	Supervision, SIMOPS, Acquisition QC, Navigation & HSE.
Searcher Seismic Ireland	Mar-Jul 2015	2D Survey on GD Nalivkin: 10km Seal Solid streamer, 1 x 3480 in ³ source. Main challenges: Weather, environmental restrictions, immature contractor.	Supervision, Acquisition & Navigation QC
Polarcus MC Guinea Bissau	Oct-Dec 2014	3D Survey on Polarcus Alima: 10 x 7500m Seal solid streamers, 2 x 3480 in ³ source. Main challenges: Currents, Fresnel binning,	Supervision, Acquisition QC, Navigation & HSE.
Afren Cote d'Ivoire	Oct-Nov 2014	3D Survey on Polarcus Alima: 10 x 7200m Seal solid streamers, 2 x 3480 in ³ source. Main challenges: Fishing, currents, Fresnel binning,	Supervision, Acquisition QC & HSE.
Shell Dutch Sector North Sea	Jun-Aug 2014	4D Survey on Artemis Arctic: 6 x 3000m solid streamers, 2 x 3490 in ³ . Main Challenges: Oilfield installations, traffic, fishing, irregular SP interval.	Supervision, Acquisition QC & HSE.
WesternGeco Multiclient Barents Sea	May-June 2014	3D Isometrix Survey on Western Trident: 12 x 7000m 4C streamers, 2 x 5085 in ³ source. Main Challenges: New 4C recording system with massive amounts of data to QC.	Supervision, Acquisition QC, Navigation & HSE.
Afren Nigeria	March-May 2014	3D Survey on Polarcus Nadia: 10 x 6000m streamers, 2 x 3480 in ³ source. Main challenges: Fishing, dynamic vessel control of anchorage, currents, Fresnel binning,	Supervision, Acquisition QC & HSE.
PGS Multiclient Cote d'Ivoire	Nov 13 - Feb 2014	3D Survey on PGS Ramform Challenger: 12 x 6000m geostreamers, 2 x 4135 in ³ source. Main challenges: currents	Supervision, Acquisition QC, Navigation & HSE.



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PGS Multiclient North Sea	Oct - Nov 13	3D Survey on PGS Ramform Challenger: 12 x 6000m geostreamers, 2 x 4135 in ³ source. Main challenges: currents	Supervision, Acquisition QC, Navigation & HSE.
PGS Multiclient North Sea	Sept-Oct 2013	3D Survey on PGS Ramform Valiant: 12 x 6000m geostreamers, 2 x 4135 in ³ source. Main challenges: timeshare, oilfield obstructions.	Supervision, Acquisition QC, Navigation & HSE.
Polarcus MultiClient	Jun-Aug 13	Series of small 3D surveys on Polarcus Nadia. 8 x 6000m Seal Solid Streamers, 2 x 2830cu in Bolt LL arrays. main challenges: tidal shooting and flexible planning.	Supervision, Acquisition QC, Navigation & HSE.
Repsol, Australia	May 2013	3D Survey on Polarcus Alima 12 x 8100m Seal Solid Streamers, 2 x 3480 in ³ Bolt LL Airguns. Full streamer Digicourse acoustics with Digifins.	Supervision & Acquisition QC
Storm Ventures Tunisia	Apr 2013	2D Survey on Artemis Atlantic, 1 x 5000m DigiStreamer, 1 x 3590 in ³ source. Easy open water survey.	Supervision & Acquisition QC
PTTEP Thailand	Nov 2012 - Jan 2013	3D Survey on HYSY 719, 6 x 8000m streamers. Main challenges: Chinese vessel & crew. Low specification for equipment and software. Strong and erratic currents.	Navigation.
BG Trinidad & Tobago	Oct-Nov 2012	3D Marine. Polarcus: 10 x 8000m Seal solid streamers. Full streamer Digicourse acoustics with Digifins.	Supervision & Acquisition QC
Total Netherlands	Mar-Sept 2012	3D Survey: Geo Caspian, 12 streamers & SeisQuest, 8 streamers. Main challenges: 22 undershoots, simops, oilfield activities, busy shipping lanes, high level of fishing activity, shallow water, strong currents.	Project Manager
Chinampa Papua New Guinea	Nov 2011 - Jan 2012	3D Survey on BGP Prospector: 10 x 6000m Ion DigiStreamers, 2 x 4200 in ³ source. Main challenges: Inadequate contractor in-house QC system, inexperienced crew, new vessel not fully set up, strong and erratic currents.	Supervision, HSE & Acquisition QC.
PGS Multiclient North Sea	Jun-Sep 2011	3D Survey on PGS Apollo: 10 x 7000m Geostreamers, 2 x 4135 in ³ source. Main challenges: Seismic interference, weather, feather matching.	Supervision, Acquisition, Navigation & HSE.



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Chinampa Papua New Guinea	Feb-Apr 2011	3D Survey on BGP Explorer: 3 x 6000m mixed Seal solid/liquid streamers. Main challenges: Very poor HSE regime, Feather matching, HSE, inexperienced crew.	Supervision, HSE & Acquisition.
CPOC Thailand	Nov-Dec 2010	3D Survey on Fugro RV SeisQuest: 8 x 6000m Seal solid streamers. Full streamer Digicourse acoustics with Digifins. Main challenges: Feather matching.	Navigation.
StatoilHydro North Sea	Oct 2010	4D Survey on PGS Ramform Valiant: 12 x 6000m Geostreamers, 2 x 4135 in ³ source. Main challenges: Feather matching.	Supervision, Acquisition, Navigation & HSE.
PGS Multiclient North Sea	Jul-Oct 2010	3D & 4D Surveys with undershoot. PGS Ramform Valiant: 12 x 6000m geostreamers, 2 x 4135 in ³ source. Main challenges: new technology (geostreamer), software upgrade (Orca v1.8 with patches), timeshare, oilfield obstructions, dual axis binning grid, undershoot.	Supervision, Acquisition, Navigation & HSE.
Petrom Romania	Oct-Nov 2009	3D Survey on Fugro Geo Celtic: 10 x 8000m steerable streamers, 2 x 4300 in ³ source. Main challenges: strong unpredictable currents.	Navigation.
Zaratex Sumatra	July-Sept 2009	3D Survey on CGGV Geowave Champion: 10 x 6000m streamers, 2 x 3460 in ³ source. Main challenges: Fixed fishing equipment, strong currents, shallow water, heavy traffic, unsuitable vessel.	Supervision, Acquisition.
TPAO Turkey	Dec 2008- June 2009	2D & 3D Surveys on CGGV Viking Vanquish: 10 x 8000m streamers, 2 x 5085 in ³ source. Malene Ostervold, 1 x 8000m streamer, 1 x 4100 in ³ source. Main challenges: strong unpredictable currents.	Supervision, Acquisition, Navigation, Technical Audit, HSE.
PGS Norway	July-Oct 2008	3D Survey on PGS Ramform Vanguard: 8 x 6000m streamers, 2 x 3090 in ³ source. Main challenges: straight forward open water survey.	Navigation.
StatoilHydro Norway	May-July 2008	3D & 4D Surveys on Multiwave, GeoWave Champion: 8 x 5000m streamers, 2 x 3460 in ³ source. Main challenges: fishing, oilfield obstructions.	Supervision, Acquisition, Processing & HSE.



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Petronas Timor Leste	Sep-Oct 2007	3D Survey on CGGV MV Orion: 6 x 6000m streamers, 2 x 2940 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, Processing & HSE.
Petronas Malaysia	Sep 2007	3D Survey on CGGV MV Orion: 6 x 6000m streamers, 2 x 2940 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, Processing & HSE.
TPAO Turkey	June -Aug 2007	3D Survey on Western Monarch: 10 x 6000m Q-Marine streamers, 2 x 3147 in ³ source. Main challenges: strong unpredictable currents.	Supervision, Acquisition, Navigation, Processing & HSE.
TPAO Turkey	May 2007	2D Survey on Fugro, Geo Arctic: 1 x 7200m streamer, 1 x 3410 in ³ source. Main challenges: strong unpredictable currents.	Supervision, Acquisition, Navigation, Technical Audit, HSE
TPAO Turkey	July 2006- Jan 07	3D Survey on Western Pride: 8 x 6000m Q-Marine streamers, 2 x 3147 in ³ source. Main challenges: strong unpredictable currents, weather.	Supervision, Acquisition, Navigation, Technical Audit, HSE
TPAO Turkey	July-Dec 05	2D Survey on Multiwave C-Orion: 1 x 8000m streamer, 1 x 5100 in ³ source. Main challenges: strong unpredictable currents, weather.	Supervision, Acquisition, Navigation, Technical Audit, HSE
Kosmos Ghana	Feb-Mar 05	3D Survey on Veritas SeisQuest: 8 x 4500m streamers, 2 x 3600 in ³ source. Main challenges: straight forward open water survey.	Navigation
TPAO Turkey	Apr-Oct 04	2D Survey on Fugro Nalivkin: 1 x 6000m streamer, 1 x 4600 in ³ source. Main challenges: strong unpredictable currents, weather, close coastal approaches.	Supervision, Acquisition, Navigation, HSE
INOC Iran	Apr 04	3D Survey on Pejwak: 4 x 3000m streamers, 2 x 3000 in ³ source. Main challenges: equipment deficiencies.	Acquisition, Navigation
Reliance India	Oct 03-Jan 04	2D & 3D Survey on PGS Ramform Challenger: 8 x 6000m streamers, 2 x 3090 in ³ source. Main challenges: fishing, currents.	Supervision, Acquisition, Navigation, HSE
Petro-Canada Tunisia	Aug-Sept 03	2D Survey on Wavefield Discoverer: 1 x 4050m streamer, 1 x 3000 in ³ source. Main challenges: shallow water, fishing.	Supervision, Acquisition, Navigation, HSE



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GSPC. India	Mar-Jun 03	3D Marine. PGS, Ramform Vanguard: 8 x 4800m streamers, 2 x source. Nordic Explorer: 6 x 4800m streamers, 2 x 3090 in ³ source. Main challenges: shallow water, fishing.	Supervision, Acquisition, Navigation, HSE
Reliance India	Sep 02-Feb 03	3D Marine. PGS, Ramform Vanguard: 8 x 6000m streamers, 2 x 3090 in ³ source. Main challenges: currents, fishing.	Supervision, Acquisition, Navigation, HSE
Amerada Hess Malaysia	May-July 02	3D Marine. WG, Geco Eagle: 8 x 6000m streamers, 2 x 3147 in ³ source. Main challenges: straight forward open water survey.	Processing
Reliance India	Sep 01-Feb 02	2D & 3D Marine. Shore based coordinator for four surveys. Main challenges: merging client and contractor expectations.	Project Management
Nunaoil, DONG Greenland	Aug-Sept 2001	2D Marine. TGS, Zephyr 1: 1 x 6000m streamer, 1 x 2940 in ³ source. Main challenges: currents.	
Chevron China	July 2001	3D Marine COGNC, Dong Fang Ning Zhu: 4 x 6000m streamers, 2 x 3000 in ³ source. Main challenges: currents.	
Tullow India	Apr-May 01	2D Marine. PGS, Orient Explorer: 4 x 4500m streamers, 2 x 2500 in ³ source. Main challenges: currents.	Supervision, Acquisition, Navigation, HSE
Cairn Energy India	Jan-Apr 01	3D Marine & Undershoot. WG, Western Horizon: 2 x 2000m streamers, 2 x 1500 in ³ source. Main challenges: currents, oilfield obstructions.	Supervision, Acquisition, Navigation, HSE
Dana Petroleum Mauritania	Oct-Dec 2000	2D Marine. Veritas, New Venture: 1 x 6000m streamer, 2 x 3450 in ³ source. Main challenges: straight forward open water survey, weather.	Supervision, Acquisition, Navigation, HSE
Phillips & NunaOil Greenland	Jul-Sep 2000	2D Marine. HMDS, Thetis: 1 x 6000m streamer, 1 x 4100 in ³ source. Main challenges: currents.	Supervision, Processing, Acquisition, Navigation, HSE
MossGas South Africa	Apr-Jun 2000	3D Marine. Aker, Aker Amadeous: 8 x 6000m streamers, 2 x 3600 in ³ source. Main challenges: fishing.	Navigation



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PGS Australia	Jan-Mar 2000	3D Marine. PGS, Ramform Challenger: 8 x 4500m streamers, 2 x 3090 in ³ source. Main challenges: straight forward open water survey, currents.	Supervision, Acquisition, Navigation, HSE
Arabian Oil Company Saudi Arabia	Oct-Dec 1999	3D Marine & Undershoot. Western Geophysical, Western Horizon: 2 x 4000m streamers, 2 x 1500 in ³ source. Main challenges: oilfield obstructions, traffic.	Supervision, Acquisition, HSE
Philips Greenland	July-Aug 1999	2D Marine. TGS, Polshkov: 1 x 6000m streamer, 1 x 3800 in ³ source. Main challenges: straight forward open water survey, currents, vessel & equipment.	Supervision, Acquisition, Navigation, HSE
YPF Brazil	May-July 1999	3D Marine. Western Geophysical, Western Atlas: 4 x 4800m streamers, 2 x 3000 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, HSE
PGS Australia	Dec 1998 - March 1999	3D Marine. PGS, Orient Explorer: 4 x 3750m streamers, 2 x 2500 in ³ source. Main challenges: shallow water, currents.	Supervision, Acquisition, HSE
Norsk Agip Norway	Oct-Nov 1998	3D Marine. Fugro, Geo Pacific: 6 x 2600m streamers, 2 x 1940 in ³ source. Main challenges: straight forward open water survey, inexperienced crew.	Supervision, Acquisition, Navigation, HSE
Arco Irish Sea	Sept 1998	3D Marine. Horizon, Labrador Horizon: 4 x 8000m streamers, 2 x 1500 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, HSE
Nunaoil/DONG Greenland	July-Aug 1998	2D Marine. HDMS, HDMS Thetis: 1 x 6000m streamer, 1 x 4100 in ³ source. Main challenges: straight forward open water survey, currents.	Supervision, Acquisition, Navigation, HSE
Primeline China	Apr-June 1990	2D Marine. COGNC, Bin Hai 512: 4 x 6000m streamers, 1 x 2850 in ³ source. Main challenges: straight forward open water survey, inexperienced crew.	Navigation
DONG Denmark	Apr 1998	2D Marine. HDMS, HDMS Thetis: 1 x 6000m streamer, 1 x 4100 in ³ source. Main challenges: straight forward open water survey, currents.	Supervision, Acquisition, Navigation, HSE



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Kerr McGee China	Nov 1997– Mar 1998	OBC. COGNC, Bin Hai 504. Main challenges: inexperienced crew, fishing, weather.	Navigation
Nunaoil/DONG Greenland	Jun-Sept 1997	2D Marine. HDMS, HDMS Thetis: 1 x 6000m streamer, 1 x 4100 in ³ source. Main challenges: straight forward open water survey, currents.	Supervision, Acquisition, Navigation, HSE
BHP Australia	Mar-Apr 1997	3D Marine. PGS, Orient Explorer: 4 x 4050m streamers, 2 x 2500 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, HSE
Enterprise UAE	Dec 1996– Feb 1997	OBC PGS, Jonathon Chouest. Main challenges: unreliable equipment.	Navigation
Shell USA	Nov-Dec 1996	Split offset 3D Marine PGS, Ramform Explorer: 14 streamers, 4 x 3090 in ³ source. Main challenges: new techniques to be learnt.	Navigation.
Petro-Canada Nigeria	Oct-Nov 1996	3D Marine. Geco, SeisRanger: 5 x 3984m streamers, 2 x 3000 in ³ source. Main challenges: straight forward open water survey.	Navigation.
Shell North Sea	Sept 1996	3D Marine. CGG, Harmattan: 5 x 6000m streamers, 2 x x 3100 in ³ source. Main challenges: straight forward open water survey.	Navigation.
Shell North Sea	July-Aug 1996	3D Marine. CGG, Mistral: 4 x 6000m streamers, 2 x 3100 in ³ source. Main challenges: straight forward open water survey.	Navigation.
Hess North Sea	July 1996	2D Marine SeaTeam, Mirfaks: 1 x 4500m streamer, 1 x 1500 in ³ source. Main challenges: unreliable equipment incorrectly set up.	Processing.
Kerr McGee North Sea	Sep 1995– Jan 1996	3D Marine, Polar Search: 5 x 6000m streamers, 2 x 4000 in ³ source. Main challenges: weather.	Supervision, Acquisition, HSE
Isramco Isreal	Oct 1994– July 1995 Oct 1994	Software Engineering course. Liverpool University. 2D Marine. Geco, SeisVenture: 1 x 6000m streamer, 1 x 4500 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, Navigation, HSE



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Fina North Sea	June-Sept 1994	3D Marine. Western Geophysical, Western Monarch: 4 x 3000m streamers, 2 x 2250 in ³ source. Main challenges: time sharing, currents.	Supervision, Acquisition, HSE
Marathon North Sea	Mar-April 1994	3D Marine. Western Geophysical, Western Monarch: 4 x 3000m streamers, 2 x 2250 in ³ source. Main challenges: time sharing, currents.	Supervision, Acquisition, HSE
Geco North Sea	Sep 1993-Feb 1994	3D Marine. Geco, Geco Topaz: 6 x 6000m streamers, 2 x source. Main challenges: fishing, weather.	Supervision, Acquisition, HSE
NAM North Sea	May-July 1993	QuadQuad 3D Marine. Geco, Geco My: 4 x 4500m streamers, 4 x source. Main challenges: multi-vessel operations, currents.	Supervision, Acquisition, HSE
Enron Trinidad	Jan-Apr 1993	Two Boat 3D & Undershoot. Digicon, Digicon Explorer: 1 x 600m streamer, 1 x source. Main challenges: weather, currents, oilfield obstructions.	Supervision, Acquisition, Navigation, HSE
Saudi Aramco Saudi Arabia	Nov-Dec 1992	3D Marine & Undershoot. Western Geophysical, Western Pride: 6 x 6000m streamers, 2 x source. Main challenges: oilfield obstructions.	Supervision, Acquisition, HSE
NAM North Sea	Jun-Sep 1992	QuadQuad 3D Marine. Geco, Geco My: 4 x 3000m streamers, 4 x 3162 in ³ source. Main challenges: multi-vessel operations, currents.	Supervision, Acquisition, HSE
Statoil North Sea	Dec 1991-May 1992	QuadQuad 3D Marine. Geco, Geco Rho/Tau: 4 x 4500m streamers, 4 x source. Main challenges: multi-vessel operations, currents, weather.	Supervision, Acquisition, HSE
Shell Norge North Sea	Sep-Nov 1991	QuadQuad 3D Marine. Geco, Geco Sigma/My: 4 x 4500m streamers, 4 x source. Main challenges: multi-vessel operations, currents, weather.	Supervision, Acquisition, HSE
NAM North Sea	Apr-Aug 1991	2D & 3D Marine. Western Geophysical, Western Wave: 1 x 4500m streamer, 1 & 2 x source. Main challenges: currents, unreliable equipment, crew.	Supervision, Acquisition, HSE
Mobil North Sea	Apr 1991	VSP Maersk Highlander. Main challenges: weather.	Supervision



Client Country	Dates	Survey Description	Responsibilities.
British Gas Gabon	Feb 1991	2D Marine. Geco, Geco Searcher: 1 x 3000m streamer, 1 x 6324 in ³ source. Main challenges: straight forward open water survey.	Supervision, Acquisition, Navigation, HSE
Texaco Malta	Jan-Feb 1991	2D Marine. Teledyne, Casey Chouest: 1 x 3000m streamer, 1 source. Main challenges: weather, unorthodox vessel, unorthodox equipment.	Supervision, Acquisition, Navigation, HSE