

# Eric Isaac, PMP

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## (Subsea Metrics: 2020-Present)

### **Confidential Industrial Manufacturing Client; Dock Inspection Project Coordination; Ohio, USA; Subsea Metrics LLC; August 2026 – September 2026**

Engaged as project coordinator and local site liaison for an above-water dock front inspection performed under a separate professional services agreement between the Client and Collins Engineers, Inc. Served as the on-the-ground point of contact between the Client and Collins Engineers for all site access, logistics, and communications, and coordinated Collins Engineers' field team mobilization, including site access arrangements, scheduling, and pre-inspection logistics. Provided the existing bathymetric survey dataset (SSM-2026-010, April 2026) and preliminary visual inspection photographs to Collins Engineers as baseline reference material. Maintained ongoing client communications and status updates between the Client and Collins Engineers throughout the inspection process. Compiled Collins Engineers' PE-stamped inspection report together with Subsea Metrics coordination documentation into a single bound project deliverable. Subsea Metrics LLC provided project coordination services only; all structural inspection, engineering analysis, condition assessment, and report preparation were performed exclusively by Collins Engineers, Inc. under its own professional services agreement, and Subsea Metrics LLC did not review, approve, or make representations regarding that engineering content.

### **Chevron; Anchor & Tahiti Fields; Independent Metrology QC – Subsea Jumper Tie-In Verification; Gulf of Mexico; Remote; January 2026 – July 2026**

Engaged by Chevron as an independent third-party reviewer / SME to verify hub-to-hub jumper metrology results issued by field contractors (Fugro and Oceaneering) across four Gulf of America subsea tie-ins, ensuring dimensional accuracy, data completeness, and compliance with project tolerances prior to Chevron's acceptance of each deliverable. For the Anchor BP006 THS-to-PMFD-ANB01 tie-in (GC806, Oceaneering, m/v Intervention) and the ongoing Anchor AP007 THS-to-IMPS-ANA01 tie-in (GC807, Fugro, m/v Deepwater Titan), followed each project full-cycle from planning through execution and completion — spanning approximately two weeks per engagement — reviewing project execution plans, calibration and QC procedures, offshore data collection methodology, and final reporting. For the Anchor AP004-to-PMFD-ANA02 (GC807) and Tahiti IN003-to-40-PLM-02 (GC596) jumper metrologies, performed independent recalculation and verification of final contractor-issued results as an added layer of risk mitigation, confirming slant range, hub inclination, relative depth, and azimuth solutions against raw acoustic and calibration data. Verified compliance with Chevron's acoustic metrology accuracy standards (slant range  $\pm 5.5$  cm, hub attitude  $\pm 0.25^\circ$ , relative height  $\pm 7.6$  cm) throughout. Reviewed and accepted all four metrology deliverables on Chevron's behalf, coordinating with Chevron's Subsea Intervention Lead on acceptance criteria.

### **TGS; Amendment West 1 – Ocean Bottom Node Deployment; Gulf of America via Remote Survey Control in Gothenburg, Sweden; Ocean Infinity; m/v A8603; February - June 2026**

Led the remote survey control team as onshore manager for ocean bottom node (OBN) deployment and recovery during a 3D multi-client OBN seismic survey covering a 60 x 120 km area in the Gulf of America, supporting a 29-member survey, ROV, and marine crew aboard an 86 m multi-purpose vessel operating between 600 and 1700 m.w.d. offshore Texas, USA. Directed survey quality assurance, deliverable fulfillment, reporting, and communications from an IT-intensive, innovative remote survey

control center in Gothenburg, Sweden, coordinating with the vessel master, TGS onboard party chief, client managers, department heads, and IT and office-based managers; onboard operations were directed by the TGS party chief in accordance with TGS multivessel planning and operational requirements. Ensured adherence to project specifications, safety procedures, and company standards throughout fieldwork execution. Verified data quality and procedural compliance with client and regulatory requirements, delivering progress reports and conducting meetings daily, weekly, and monthly. Reported to the Ocean Infinity project manager, maintaining continuous communication between remote survey control and project leadership. Equipment included Veripos LD900 Ultra2 and Apex2 GNSS; Kongsberg Seapath 385 AHRS; Kongsberg HiPAP 502 USBL; iXBlue PHINS INS; Nortek DVL500 DVL; Tritech Gemini 720is OAS; Valeport Midas SVX2 Sound Velocity; Vaisala PTBU330 barometer; Kongsberg cNode Mini USBL transponder/responder; and Tritech IPS bathymetry. Software utilized by team included MS Office, FileZilla, 4DNav Survey and Video, APOS USBL tracking, Clear-Coms Station-IC communications, and QGIS GIS.

### **Confidential Industrial Manufacturing Client; Ohio Dock Bathymetric Survey; Ohio, USA; Subsea Metrics LLC; HyDrone USV; April 2026**

Engaged as Ohio Licensed Professional Surveyor (PS #S-8074) and NSPS Certified Hydrographer in responsible charge of a single-beam bathymetric survey of a 7.1-acre vessel berthing area (375 ft × 825 ft) along a Lake Erie tributary dock face, producing a complete depth chart in accordance with USACE EM 1110-2-1003. Piloted a HyDrone-RCV survey USV along a systematic pattern of 20 main lines and 3 tie lines (approximately 2 nautical miles total), applying RTK GNSS positioning with NTRIP corrections from the Ohio CORS network to geo-reference each sounding in real time. Applied sound velocity correction (Marczak 1997 freshwater formula) and transducer draft correction and established two permanent PK-nail dock benchmarks to enable datum recovery for any future survey. Validated results through independent lead-line depth verification at six dock-side locations (agreement within ±0.5 ft) and cross-line intersection QC, meeting all USACE EM 1110-2-1003 acceptance criteria. Prepared, signed, and sealed a bathymetric chart, survey report, and sounding data workbook as final deliverables. Equipment included HyDrone-RCV survey USV, HydroLite DFX Plus single-beam echosounder (200 kHz), Trimble R780 GNSS receiver/antenna, Trimble TSC5/Trimble Access field controller, and Trimble Business Center (TBC) for post-processing.

### **Chevron; Jack – St Malo Phases 4 & 5 Installation Campaign; Gulf of America; *m/v Harvey Deep Sea and pl/v Seven Arctic*; June 2025 - June 2026**

Served as client representative and survey/positioning subject matter expert across the full project lifecycle, from planning through execution to final deliverable acceptance, for deepwater installation campaigns spanning two installation contractors (Oceaneering and Subsea 7) through separate project phases; project execution ran July 2025 – January 2026. During planning, reviewed and validated each contractor's survey project execution plan to confirm fitness for purpose, compliance with Chevron company standards, and alignment with project objectives, establishing sound procedures ahead of mobilization. During execution, supervised survey oversight for site surveys, acoustic array deployment, LiDAR jumper metrology, and as-built verification, ensuring contractor compliance with accuracy and quality standards and specifications throughout deepwater operations in 2100 m.w.d. supporting installation of 2 flexible flowlines, 1 umbilical, 1 suction pile, 1 multiphase pump, 2 UTAs, 1 SDU, 1 CTIS, and numerous flying leads. Conducted daily worksite inspections and performed data QC, coordinating directly with the Chevron lead installation engineer, and served as client representative aboard a 92 m light construction vessel and a 150 m pipelay vessel, both operating with two work-class ROVs. At the conclusion of each contractor's phase, conducted project closeout, addressing lessons learned and improvement recommendations and submitting a final experience report to the subsea installation team; final deliverable acceptance was completed in June 2026 with delivery of the final GIS deliverable to Chevron. Equipment included C-Nav 3050 w/ C2 subscription and X1 w/ Lea Subscription, Veripos Apex2 & Ultra GNSS; Hemisphere Vector VS330 w/ Atlas Subscription & Seapath 320+ GNSS/Heading; Kongsberg MRU5+, Kongsberg Seatex MRU5 & Octans MRU; Kongsberg HiPAP 501 USBL; Sonardyne Range Aided INS; Sonardyne SPRINT INS coupled with

Syrinx DVL positioning; cNode miniS and Maxi TD30V30H USBL Transponders; Valeport Midas SVX2 CTD; Sonardyne 6G+ COMPATTs and ROVNav LBL positioning; Valeport Mini-IPS, IPS2 pressure sensors; Vaisala PTP330 barometer; Tritech Digiquartz SK7044 Depth Sensor; Tritech PA500 Altimeter; IxBlue ROVINS INS; Nortek DVL; Ocean Matrix Innova Multiplexer; Digital Edge & VisualDVR Video Capture; MS100 & Gemini Obstacle Avoidance Sonar; SL4 3D at Depth LiDAR. Software utilized by team included MS Office, EIVA NaviPac Navigation Software, APOS USBL tracking, Sonardyne Fusion LBL acoustic positioning, 3D Collect, 3D Cloud, Cloud Compare, Cyclone, and SharePoint for LiDAR data processing; software used personally included Trimble Business Center for LiDAR data processing QC, MS Project and MS Office 365 for project management, and AutoCAD for engineering design.

## **Instituto Portugues do Mar e da Atmosfera (IPMA); Technical Studies for Offshore Energy Potential; Geophysical and Geotechnical Studies; Offshore Portugal via Remote Survey Control in Gothenburg, Sweden; Ocean Infinity; *m/v A7808*; September - October 2025**

Directed offshore operations as onshore manager and project execution coordinator for geophysical investigation supporting pile foundation and cable route construction. Managed 36-member geophysical, ROTV and marine crew aboard 78 m research vessel operating in 124 to 530 m.w.d. offshore Portugal. Led survey operations from remote control center coordinating with vessel master, client representative, department heads, and office-based managers. Ensured adherence to project specifications, safety procedures, and company standards throughout fieldwork execution. Conducted daily project management, chaired operations meetings, and delivered progress reports at key project milestones. Verified data quality and procedural compliance with contract requirements. Reported to onshore project manager maintaining continuous communication between offshore operations and project leadership. Equipment included Veripos LD900 Ultra2 and Apex2 GNSS; Sonardyne Sprint 500 and Applanix POS MV Oceanmaster INS; Veripos LD900 GNSS Heading; Kongsberg HiPAP 502 USBL; Valeport MiniSVS/P and Midas SVX2 Sound Velocity; Kongsberg EM2040D MBES; Innomar Medium 100 Sub bottom Profiler; Vaisala PTU303 barometer; MacArtney ROTV Focus 2 towed sensor platform; ixBlue Rovins INS, Kongsberg cNode MiniS USBL transponder/responder; Kongsberg 1007 Altimeter, EdgeTech 2200 Side Scan Sonar, EdgeTech DW 106 SubBottom Profiler; TVG Dual Geometrics G-882 magnetometer; Geo-Spark 6kW Series Power Supply; Triple Geo-Source 400 tip surface towed sparker; 3 x 75 m orange HV tow cable; 2 x Geo-Sense single element Mini-streamer; 2 x Geo-Sense 96 channel Gel Filled Streamer with 1m group interval, 75 m tow lead + lead-in buoy, 12.5 m stretch, 95 m active, 12.5 m stretch, rope and tail buoy with DGPS and battery pack. Software utilized by team included MSOffice, Qinsy Nav and Qimera Data Processing Software, APOS USBL tracking, PAM Guard passive acoustic monitoring, Clear-Coms Station-IC communications, Innomar SESWIN, Chesapeake Sonarwiz, GEOSOFT Oasis Montaj and QGIS GIS.

## **Woodside Energy; Shenzi UWILD and Subsea Inspection Project; Gulf of Mexico; *m/v Wyatt Candies*; June 2025**

Served as survey representative for Woodside Energy, ensuring contractor survey execution conformed to the project execution plan, company standards, specifications, and quality requirements. Verified contractor execution of multibeam as-found surveys covering approximately 64 km of flowlines and 40 km of umbilicals in 1300 m.w.d., confirming deliverables satisfied contract documents. Monitored ROV-deployed dual head multibeam sonar, cathodic protection testing, flooding detection, and wall thickness measurement operations for specification compliance and procedural adherence. Conducted daily worksite inspections and monitored contractor performance, promoting HSEQ standards throughout project execution and communicating with Woodside Energy operational units to coordinate project activities. Verified conformance with project goals and objectives through systematic quality control processes. Served as client survey representative aboard an 88 m offshore IMR vessel operating with two work-class ROVs and a 100-ton crane, overseeing survey representation of site surveys, as-found surveys, and tension leg platform inspection operations. Survey equipment included VaNDT, Bathypack 2 depth/altitude sensor, Midas SVX2 sound velocity probe/CTD,

R2Sonic 2040 Dual Head Multibeam Echosounder, Kongsberg HiPAP 501 USBL with C-Node transponders, Innova Mux, Mini-Zeus HD Camera, SeaSpectrum Mini IP Boom Camera, iXBlue ROVINS Heading and Attitude, Sonardyne Lodestar Gyro, Impact Subsea Flood Measure Device, Deepwater Poartrak ROV II CP Probe, Sonomatic ultrasonic NDT, and MS Office, AutoCAD, and MS Project software. Field operations included Inspection, Maintenance and Repair (IMR) survey of the entire Shenzi field. Responsible for survey data and video archive oversight and QC of project systems, ensuring QA/QC and HSE standards were met and that procedures followed were in accordance with contract specifications and company procedures.

### **Aker BP; Frosk Attic PP09 Project; Norway; *ssd/v DeepSea Nordkapp*; UTEC / Subsea 7; May - June 2025**

Led jumper metrology operations as party chief managing a 2-member survey team for deepwater measurements in 120 m.w.d. aboard a 122 m semi-submersible drilling vessel. Directed project execution through closeout, including mobilization, calibrations, data acquisition, post-processing, and QA/QC verification. Conducted calculations, data analysis, and reporting to support subsea construction activities and ensure dimensional conformance for jumper installations. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt 6G Dunker, Valeport Mini IPS. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post-processing in Fusion software. Calculated jumper metrology results. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company requirements. Demobilized the metrology spread and conducted project closeout, including lessons learned and project debrief.

### **Equinor PfS Cable Project; Trenching Support Survey; Offshore Norway; Andrews / Helix; *m/v Grand Canyon III*; April – May 2025**

Served as report coordinator ensuring survey data and reporting deliverables conformed to project specifications and contract documents for an umbilical installation and trenching campaign. Verified data quality and reporting compliance for survey, trencher, and ROV crew operations aboard a 127 m offshore supply vessel in 240–300 m.w.d. offshore Norway. Ensured adherence to safety procedures and operational standards throughout construction activities. Verified data quality and procedural compliance with contract specifications and company policy. Delivered field reports at key project milestones documenting progress and conformance. Reported to the party chief, coordinating survey reporting support for installation operations. Equipment included Veripos LD900 c/w Apex corrections GNSS, Kongsberg Seapath 380 MRU, Valeport Midas SVX2 CTD, Valeport Mini SVS, HiPAP 501 USBL, Kongsberg cNode Mini and Maxi transponders, Tritech PA500 Altimeter, R2Sonic 2024 Wideband Dual Head MBES, Teledyne BlueView P900-130 2D Imaging Sonar, Imenco Angel Shark Subsea Laser, Innova Matrix MK2 Multiplexer, VisualSoft DVR/Archive. Software utilized by team included MS Office, AutoCAD, EIVA Nav/Naviscan/Edit/NavisModel Survey Software, Veripos Quantum QC, VisualSoft VisualReview. ROVs included 2 x UHD II Schilling, Helix/Canyon Offshore T1500 jet trencher.

### **TenneT 2 GW UXO Project; Nearshore Export Cable UXO Survey; Offshore Germany; Ordtek; *m/v DEEP Volans*; September – October 2024**

Served as client representative and subject matter expert providing survey oversight for nearshore export cable route development, protecting the client's interests throughout the survey contractor's execution of target identification and route re-engineering to support construction planning and minimize obstacles. Provided oversight of scientists, surveyors, and marine crew aboard a 14 m survey vessel in 5–32 m.w.d. offshore Germany through data acquisition and demobilization phases, with crew operations directed by the party chief. Verified contract compliance including timing alignment with bill of quantities and HSE requirements. Verified data quality and procedural adherence to contract specifications throughout operations. Raised concerns and flagged disputes as necessary to protect project objectives. Delivered progress reports at key operational milestones supporting master target list development for construction execution. Equipment included Septentrio AsteRx-U & Applanix

PosMV Oceanmaster GNSS with Trimble RTX corrections; AML 1-RT and Valeport Swift CTD; Sonardyne Mini-Ranger 2 USBL; Norbit Winghead i77h Multibeam Echosounder; EdgeTech 4200 with integrated ROVINS Side Scan Sonar; Geometrics G-882 mounted on Iron Lady ROTV magnetometer; Innomar Medium 10/15 kHz Sub-bottom Profiler. Software included MS Office, Qinsy 9.6 Survey Software, Innomar SESWIN, Chesapeake SonarWiz, Geosoft Oasis Montaj, and QGIS GIS.

### **Equinor Bacalhau Project; Alongside Brazil; *m/v Island Performer*, Subsea 7; July – August 2024**

Led vessel mobilization operations as party chief for deepwater construction campaign involving LBL array installation, structure placement, jumper metrology, and as-built verification aboard 130 m offshore construction vessel. Managed four-member survey team through mobilization and alongside calibrations ensuring readiness for construction operations and compliance with project contracts and specifications. Conducted project coordination liaising directly with offshore and onshore management to align survey support with construction schedules. Represented survey team at planning and safety meetings integrating survey operations with overall construction execution. Produced mobilization report and daily logs documenting vessel readiness for installation activities. The software and hardware included: AutoCAD, MS Word, MS Excel, MS Projects, Compatt 6G+, Varipos Quantum MRU/GNSS, Compatt ROVNAV, SPRINT-Nav INS/Doppler, iXBlue Rovins INS, Valeport Midas CTD, Valeport Mini IPS, Valeport bathy, Edgetech 2025 Sides Scan Sonar, R2Sonic 2024 multibeam sonar, Innova Mux/Topside, MOXA network switch. Mobilized the construction acoustic spread. Performed party chief duties that included directing vessel and ROV, communications and maintaining records.

### **LLOG & TecnipFMC; Buckskin Project; Gulf of Mexico; *mp/s/v Harvey Sub-Sea*, UTEC; May – June 2024**

Served as LBL surveyor supporting deepwater construction in 2000 m.w.d. aboard a 104 m multi-purpose support vessel, ensuring the LBL array was deployed and operated in accordance with project specifications. Ensured proper deployment and calibration of the 12-beacon array providing positioning infrastructure for construction activities. Performed mobilization, calibrations, data acquisition, QA/QC, and reporting, verifying survey readiness for pipeline installation operations. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion 2, Compatt 6G, Compatt ROVNAV, Valeport Midas CTD, Valeport Mini IPS, Valeport Bathy, iXBlue ROVINS Gyro/MRU, Vaisala Barometer, Innova Mux/Topside, MOXA Network Switch. Mobilized the Sonardyne 6G system and acoustic spread. Performed online surveyor duties including verifying offset measurements for accuracy and maintaining logs. Demobilized the LBL spread.

### **Ørsted Hornsea Project Three; UXO Inspection and Disposal; Offshore UK; N-Sea; *m/v 4 Winds*; May 2024**

Directed offshore operations as offshore manager and party chief for UXO clearance supporting windfarm export cable route construction. Managed 39-member marine, survey, UXO and ROV crew aboard 60 m subsea support vessel in 8.5-40 m.w.d. offshore England. Supervised ROV and UXO identification operations ensuring safe working practices and procedural adherence throughout survey, inspection and dredging activities. Coordinated with vessel master, client representative and office-based managers maintaining alignment between offshore execution and project objectives. Ensured data quality and contract specification compliance throughout operations. Conducted daily project management, served as liaison between departments, and delivered progress reports at key operational milestones. Reported to onshore project manager supporting construction readiness for cable installation. Equipment included Fugro MarineStar GNSS with G4 + PPP corrections, C-Nav GNSS with SF2 + PPP corrections, iXBlue Hydrins IMU & Heading and Kongsberg MRU5 MRU, AML 3 LGR and Valeport Swift CTD, HiPAP501 USBL, Valeport BFM106 Current Meter, Kongsberg cNode min and Maxi transponders, Innova Matrix MKII Multiplexer + Bottle, TriTech SeaKing 704-7 Depth and Altitude Sensor, iXBlue ROVINS INS, Nortek 1000 Doppler Velocity Log, Trittech Gemini 720iS Obstacle Avoidance Sonar, ARIS Acoustic Camera, Teledyne TSS440 Pipe Tracker, Piranha 6” Dredge Pump, Norbit WBMS Multibeam Echosounder, IME T6 Angel Sark Subsea laser.; Software utilized by team included MSOffice, Qinsy Nav and Qimera Data Processing Software, APOS USBL tracking, Digital Edge Subsea Camera and Sonar recording and QGIS GIS.

### **Ørsted Hornsea Project Three; UXO Inspection and Disposal; Offshore UK; N-Sea; *m/v Braveheart Spirit*; April 2024**

Managed night shift operations as supervisor and report coordinator for UXO survey supporting windfarm construction. Supervised 11-member survey, UXO and ROV crew aboard 70 m offshore supply vessel in 10-40 m.w.d. offshore England. Coordinated offshore reporting and ensured adherence to safety procedures and operational standards throughout survey activities. Oversaw online operations serving as liaison between departments to maintain continuous project execution. Verified data quality and procedural compliance with contract specifications and company policy. Delivered field reports at operational milestones documenting progress for construction planning. Reported to offshore manager supporting 24-hour operations for cable route clearance. Equipment included Starpack Omnistar XP2/G4 and Septentrion AsteRx U3 GNSS, iXBlue Hydrins and Kongsberg Seatex MRU, AML 3 LGR and Valeport Swift CTD, HiPAP 501 USBL, Valeport BFM308 and BFM106 Current Meters, Kongsberg cNode min and Maxi transponders, TriTech SeaKing 704-7 Depth and Altitude Sensor, iXBlue ROVINS INS, Nortek 1000 Doppler Velocity Log, Tritech Gemini 720iS Obstacle Avoidance Sonar, ARIS Acoustic Camera, Teledyne HydroPACT440 Electromagnetic system 6" Vortex Dredge Pump, Norbit WBMS Multibeam Echosounder, IME T6 Angel Sark Subsea laser.; Software utilized by team included MS Office, Qinsy Nav and Qimera Data Processing Software, APOS USBL tracking, Digital Edge Subsea Camera and Sonar recording and QGIS GIS.

### **Equinor Wind U.S., Beacon Wind; Massachusetts, USA; *o/s/v Berto L Miller* and *m/v Joseph E Pearce*; December 2023 – March 2024.**

Led decommissioning operations as client vessel representative managing technical oversight for recovery of five oceanographic meteorological moorings. Directed contractor performance ensuring specification compliance and adherence to project execution plan and HSE bridging document. Promoted HSEQ standards throughout operations and ensured personnel received appropriate inductions. Conducted daily worksite inspections and monitored contractor compliance with deployment/recovery scope of work. Performed daily planning and project management coordinating with Equinor operational units as required. Investigated all hazards, accidents/incidents and near misses reporting to Equinor onshore management. Exercised stop work authority when unsafe acts were observed maintaining project safety standards. Delivered project closeout debrief to onshore management including contractor performance appraisal, lessons learned and recommendations for future operations.

### **Chevron; Anchor, Ballymore & Neptune Projects; Gulf of Mexico; *o/s/v Brandon Bordelon*; October - November 2023.**

Led drilling site preparation operations as client representative managing technical oversight for four proposed well sites with alternate locations in 1500-2000 m.w.d. Directed LBL acoustic array deployment/calibration and buoy placement establishing positioning infrastructure for drilling operations. Oversaw ROV investigations of 16 sonar contacts identifying objects for future recovery to support site decommissioning. Promoted HSEQ standards throughout project execution and conducted daily worksite inspections monitoring contractor performance. Coordinated with Chevron operational units ensuring alignment with drilling program requirements. Served as sole client representative aboard 78 m offshore supply vessel operating with one work-class ROV and 60-ton crane managing all aspects of site preparation activities. Survey equipment included Paroscientific Digiquartz depth sensor, mini SVX sound velocity probe, Seabird CTD, Compatt/RovNav 6G LBL and MS Office software. Field operations included LBL mobilization, LBL array deployment/calibration, and seabed buoy installation using LBL tracking for location at well sites. Responsible for positioning and video archive oversight and QC of project systems. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Ørsted Offshore Wind Power North America LLC; Southfork Monopile Installations; Offshore USA; Boskalis; HLCV Bokalift 2; August 2023.**

Served as senior surveyor operating survey instrumentation supporting 90-meter monopile installations in 40 m.w.d. utilizing a 4000-ton crane. Operated surface positioning equipment and performed calibrations supporting dimensional control and installation accuracy throughout foundation construction activities. Surface positioning spread included AsteRx-U Marine Septentrio GNSS RTK & PPP Positioning, Heading, Pitch and Roll, Fugro Marine Star Corrections, Trimble SPS855 CenterPoint RTX GNSS, Trimble SPS930 Tracking Total Station, Octans Surface Gyrocompass and Motion Sensor, Velodyne LiDAR Puck Sensor, Dredgeview Tug Management System (TMS), and Crane Monitoring System (CMS) Unix Software. Provided positioning during pile transfer from transport vessel to upending hinge. Performed calibration of heading misalignment between pile north and flange lifting tool (FLT). Monitored final pile position as coordinated between vessel DP and motion-compensated pile gripper frame (MCPGF); within the MCPGF, the Pliant scanner provided monopile verticality, with heading determined from the calibrated FLT. Performed online survey duties, maintained logs, and generated daily field reports and project communications. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications.

## **Copenhagen Infrastructure Partners/Changfang Wind Power Generation Co; Changfang Wind Turbine Jacket Installations; Offshore Taiwan; Boskalis; HLCV Bokalift 1; June–July 2023.**

Led construction support operations as survey party chief managing surface and subsurface positioning for 1200-ton jacket installations in 40 m.w.d. utilizing 3000-ton crane. Directed crane management, land survey and dimensional control operations ensuring accurate placement and structural alignment throughout offshore platform construction activities. Surface positioning spread included Trimble SPS855 CenterPoint RTX GNSS, Trimble SPS552H RTK GNSS Heading, Trimble SpS852 Rover, Kongsberg HiPAP 502 and cNode mini USBL, Valeport miniSVS, Saiv SD204 CTD, Easy Laser Flange Measuring Laser, Sokia Digital Level, COAS CCTV, Dredgeview Dive Support Vessel (DSV) and Crane Monitoring System (CMS) Unix Software. Observation class ROVs deployed from the vessel configured for installation support operations included cNode USBL, altimeter, strain-gauge depth transducer, Simrad Sonar, Compass and Video overlay positioned with APOS navigation software. Acoustic Doppler current profiler installed on vessel and operated for real-time current data. Conventional land survey instruments used to control jacket level. Flange flatness measured with flange specific laser. Generated field reports and project communication. Ensured standards were met for QA/QC and HSE and that the procedures followed were in accordance with contract specifications.

## **Equinor ASA, Norwegian Continental Shelf MetOcean Campaign; Norway; MS Elisabeth; April-May 2023**

Led installation and servicing operations as client vessel representative managing technical oversight for fifteen oceanographic, meteorological and wildlife moorings. Directed contractor performance ensuring specification compliance and adherence to project execution plan and HSE bridging document. Promoted HSEQ standards throughout operations and ensured personnel received appropriate inductions. Conducted daily worksite inspections and monitored contractor compliance with deployment/recovery scope of work. Performed daily planning and project management coordinating with Equinor operational units as required. Investigated all hazards, accidents/incidents and near misses reporting to Equinor onshore management. Exercised stop work authority when unsafe acts were observed maintaining project safety standards. Delivered project closeout debrief to onshore management including contractor performance appraisal and lessons learned for future campaigns.

## **Equinor ASA, Gullfaks/Gina Krog Debris Clearance; Oseberg Pipeline IMR; Offshore Norway; i/m/r/v Havila Subsea; December 2022**

Led pipeline IMR and debris clearance operations as client vessel representative managing technical oversight in 90-100 m.w.d. offshore Norway aboard 98 m IMR vessel. Supervised survey contractor execution of calibrations, geophysical surveys, debris clearance, pipeline inspection and reporting ensuring compliance with project contracts and specifications. Conducted daily planning and project management coordinating with vessel master, offshore manager and survey party chief. Communicated with Equinor operational units as required and represented Equinor at planning and safety meetings. Produced permits, management plans, reports and daily logs documenting operational progress. Investigated all hazards, accidents/incidents and near misses maintaining project safety standards throughout IMR campaign. Equipment included Kongsberg DPS 232 GNSS, Kongsberg Seapath 300 & MRU 5 Attitude Sensors, Valeport mini-CT CTD, HiPAP 502 USBL, CNode Transponders, IxBlue PHINS, ROVINS, Octans ROV Heading & Attitude, R2Sonic 2024 MBES, Nortek DVL1000 Doppler, Valeport IPS Depth Sensor, Tritech PA500 Altimeter, Edgetech DW106 SBP 300/600 SSS. Software included MS Office, QINSy Navigation, EIVA NaviSuite Data Processing Software, SonarWiz SSS Processing, Kongsberg APOS USBL, HIS Kingdom SBP software, AutoCAD and Global Mapper GIS.

## **Equinor Wind U.S., Beacon Wind; Massachusetts, USA; osv Josephine K Miller; November 2022**

Led mooring servicing operations as client vessel representative managing technical oversight for five oceanographic meteorological moorings. Directed contractor performance ensuring specification compliance and adherence to project execution plan and HSE bridging document. Promoted HSEQ standards throughout operations and ensured personnel received appropriate inductions. Conducted daily worksite inspections and monitored contractor compliance with deployment/recovery scope of work. Performed daily planning and project management coordinating with Equinor operational units as required. Investigated all hazards, accidents/incidents and near misses reporting to Equinor onshore management. Exercised stop work authority when unsafe acts were observed maintaining project safety standards. Delivered project closeout debrief to onshore management including contractor performance appraisal and lessons learned for future operations.

## **Xlinks; Morocco-UK Power Project; Onshore Zwevegem, Belgium and remote; GEOxyz; Sept – Oct 2022**

Led survey planning and project management as project surveyor for 3800 km HVDC interconnector cable route between Morocco and UK. Directed management of geophysical, geotechnical, environmental and ROV crossing inspection surveys supporting construction planning. Developed vessel efficiency models and project schedules using Excel and MS Project, optimizing timings based on weather statistics and permit availability scenarios. Designed line and vessel plans to fulfill contract requirements most economically. Coordinated multidisciplinary teams including management, survey,

engineering, geophysics, GIS, data management, HR and commercial departments through conference calls and project workshops. Managed supplier coordination and conducted routine client meetings ensuring alignment with project objectives and construction schedule requirements.

## **Chevron; Tamar Southwest Project; Israel; m/v Nor Naomi; Interocean; August 2022**

Led jumper metrology operations as party chief managing 5-member survey team for deepwater measurements in 1675 m.w.d. aboard 86 m multipurpose offshore vessel. Directed project execution from planning through delivery including mobilization, calibrations, data acquisition, post-processing, and QA/QC verification. Conducted calculations, data analysis, and reporting to support subsea construction activities and ensure dimensional conformance for jumper installations. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, EIVA, APOS, Compatt 6G, Compatt ROVNAV, Valeport CTD, Valeport mini IPS, Valeport Minis SVX, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated jumper metrology results. Prepared final report complete with data sheets in ACAD for presentation to client. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures. Demobilized metrology spread, conducted project close out including lessons learned and thorough project debrief.

## **Infratel Italia; Minor Islands Submarine Cable System Design Geophysical and Geotechnical Survey Campaign; Offshore Italy; GeoTeam; osv Urbano Monti; July 2022**

Served as report coordinator managing survey reporting for a geophysical and geotechnical survey campaign along 300 km of proposed cable corridors supporting offshore construction planning. Compiled and coordinated reporting for an 11-member survey crew aboard a 60 m offshore supply vessel in 15–1300 m.w.d. offshore Italy, covering side scan sonar, sub-bottom profiler, multibeam, gradiometer, CPT, gravity core, and grab sample surveys. Ensured data quality and procedural compliance with contract specifications as reflected in reporting. Delivered field reports at key project milestones documenting site conditions for cable installation design and construction execution. Equipment included Kongsberg Seapath 330 and C&C C-Nav 3050 GNSS, Octans Attitude Sensor, Valeport Midas CTD, HiPAP 501 USBL, Teledyne T150-P and Seabat 7150 MBES, EdgeTech 2000 SSS/SBP, Geometrics G-882 Gradiometer, Neptune 3000 CPT, custom-built gravity core, and Van Veen grab sample. Software utilized by team included MS Office, QINSy Nav and Qimera Data Processing Software, SonarWiz SSS and SBP, Oasis Montaj Gradiometer Processing, AutoCAD, APOS USBL tracking, Global Mapper GIS.

## **Equinor Wind U.S., Beacon Wind; Massachusetts, USA; osv Josephine K Miller; June 2022**

Led mooring servicing operations as client vessel representative managing technical oversight for five oceanographic meteorological moorings. Directed contractor performance ensuring specification compliance and adherence to project execution plan and HSE bridging document. Promoted HSEQ standards throughout operations and ensured personnel received appropriate inductions. Conducted daily worksite inspections and monitored contractor compliance with deployment/recovery scope of work. Performed daily planning and project management coordinating with Equinor operational units as required. Investigated all hazards, accidents/incidents and near misses reporting to Equinor onshore management. Exercised stop work authority when unsafe acts were observed maintaining project safety standards. Delivered project closeout debrief to onshore management including contractor performance appraisal and lessons learned for future operations.

## **Harbour Energy PLC, Southern North Sea Debris Clearance Campaign; England, UK; Gardline; r/v Ocean Resolution; April 2022**

Led geophysical UXO clearance operations as party chief managing 13-member survey team supporting mobile offshore drilling site preparation in 20-50 m.w.d. offshore UK aboard 79 m research vessel. Directed survey operations across five proposed 500m x 500m drilling sites executing sub-bottom profiler, multibeam, magnetometer, side-scan, MMO and passive acoustic monitoring surveys. Supervised multidisciplinary team including geologists, environmentalists, data processors, and survey engineers ensuring coordination throughout operations. Completed offshore and alongside calibrations including GNSS position verification, gyro and USBL calibrations, side scan sonar and magnetometer verifications, multibeam patch test and sub-bottom profiler dynamic range test. Performed analysis and QC prior to client presentation ensuring data quality and QHSE compliance. Maintained communications with client representative, marine crew and onshore management. Delivered field reports at key project milestones documenting site conditions for drilling operations. Equipment included Hemisphere VS1000 & CNAV 3050 GNSS, Kongsberg Seapath 380 & MRU 5 Attitude Sensors, Valeport Midas SVP, HiPAP 502 USBL, Kongsberg EM 2040C MBES, 16-Element GeoPulse 5430A Pinger SBP, Geometrics G882 Transverse Gradiometer, EdgeTech 4200 100/400 kHz Side-scan sonar; Software included MS Office, MS Projects, Voyager Navigation, GeoFusion and Caris HIPS/SIPS Data Processing Software, Oasis Montaj Gradiometer Processing, Kongsberg APOS USBL, HIS Kingdom SBP software, AutoCAD and Global Mapper GIS

## **US Navy Facilities Engineering Command, Propulsion Welding Shop Fragment Analysis; Naval Air Weapons Station**

## **China Lake, China Lake, California, Construction Quality Control Manager (CQCM), California, USA; Jan-Feb 2022**

Directed Quality Control operations as Construction Quality Control Manager for \$1.5M design-build facility improvement and repair project at NAVFAC installation in California. Managed QC organization serving as contractor's representative for all quality matters throughout building construction. Coordinated three-phase control system for all Definable Features of Work (DFOW) aligned with construction schedule. Ensured no construction commenced before Designer of Record (DOR) finalized design segments and construction submittals received approval. Reviewed and approved design and construction submittals prior to material delivery and work authorization; maintained submittal register tracking all approvals. Verified contract activities conformed to plans and specifications throughout project execution. Led weekly Quality Control meetings and special coordination sessions; created agendas, schedules and meeting reports. Coordinated factory tests/inspections and scheduled onsite verifications. Prepared QC documentation and daily reports recording construction events. Communicated with project team, submitted deliverables, and met all deadlines and milestones ensuring project quality standards.

## **Equinor Wind U.S., Beacon Wind; Massachusetts, USA; osv Berto L Miller; Nov 2021**

Led mooring installation operations as Equinor vessel representative managing 12-member oceanographic and marine team aboard 50 m supply vessel. Directed deployment of five oceanographic/meteorological moorings (one Floating LiDAR, two Wave/Met buoys and two Current Moorings) within Massachusetts Beacon Wind lease area in 40-60 m.w.d. Supervised contractor performance ensuring specification compliance and adherence to project execution plan and HSE bridging document. Promoted HSEQ standards throughout operations and ensured personnel received appropriate inductions. Conducted daily worksite inspections and monitored contractor compliance with deployment/recovery scope of work. Performed daily planning and project management coordinating with Equinor operational units as required. Investigated all hazards, accidents/incidents and near misses reporting to Equinor onshore management. Exercised stop work authority when unsafe acts were observed maintaining project safety standards. Delivered project closeout debrief to onshore management including contractor performance appraisal and lessons learned for future campaigns.

## **Ørsted Wind Power North America, Skipjack 2 Windfarm; Delaware, USA; Gardline; r/v Ocean Endeavour; Sep-Oct 2021**

Led geophysical UXO clearance operations as party chief managing 22-member survey team supporting wind turbine development site preparation in 15-40 m.w.d. offshore USA aboard 72 m research vessel. Directed survey operations across proposed 500m x 210m turbine site executing surface-acquired and towed sparker, sub-bottom profiler, multibeam, gradiometer and side-scan surveys. Supervised multidisciplinary team including geologists, environmentalists, data processors, and survey engineers ensuring coordination throughout operations. Completed comprehensive offshore and alongside calibrations including GNSS position verification, gyro and USBL calibrations, side scan sonar and transverse gradiometer verifications, multibeam patch test, sub-bottom profiler dynamic range and ping rate tests, noise removal and multi-channel ultra-high resolution seismic source, streamer noise and positioning system tests. Performed analysis and QC prior to client presentation ensuring data quality and QHSE compliance. Maintained communications with client representative, marine crew and onshore management. Delivered field reports at key project milestones documenting site conditions for turbine installation. Equipment included Hemisphere VS1000 & CNAV 3050 GNSS, Kongsberg Seapath 380 & MRU 5 Attitude Sensors, AML MVP SVP, Sonardyne Ranger 2 USBL, Kongsberg EM 2040D MBES, Innomar SES-2000 Medium-100 SBP, AAE Dura Spark 200 tip 1 channel, 8 element S-UHRS, Geometrics G882 Transverse Gradiometer, EdgeTech 4205 230/540/850 kHz Side-scan sonar; Software included MS Office, MS Projects, Voyager Navigation, GeoFusion and Caris HIPS/SIPS Data Processing Software, Oasis Montaj Gradiometer Processing, Sonardyne Cassius USBL, RadExPro SBP software, AutoCAD, APOS USBL acoustic positioning, and Global Mapper GIS.

## **US Navy Facilities Engineering Command, Building 16 Gym Improvements; Naval Weapons Station Seal Beach, Seal Beach, Pre-Construction Manager, California, USA; August 2021**

Directed pre-construction planning and HSEQ development as Pre-Construction & HSEQ Manager for \$1M design-build facility renovation project at NAVFAC installation in California. Evaluated government request for proposal and construction site developing methodology, scope of work, resource planning, task plans, checklists, and procedures to meet contract requirements. Prepared comprehensive Quality Control Plan and Accident Prevention Plan satisfying NAVFAC standards for construction execution. Coordinated with project team ensuring deliverable submissions and milestone achievement throughout pre-construction phase.

## **US Marine Corps, Lighterage Wharf Lift Launch and Pier Project; Topographic, Utility and Hydrographic Surveys, Olin Hydrographic Solutions; Blount Island Marine Base, Jacksonville, Florida, USA; March 2021**

Led site survey operations establishing RTK survey control points to support engineering design and construction planning. Directed drone operations designing flight plans and acquiring aerial coverage of project area. Processed topographic data utilizing Pix4D mapping software and aerial photographs. Located and mapped above ground utilities using Trimble RTK GPS. Executed bathymetric mapping within project area using Trimble RTK GPS and SonarMite echosounder. Compiled existing underground utility records with photogrammetrically derived features, bathymetry and topography creating comprehensive base map in AutoCAD Civil3D for engineering design and construction execution.

## **Lennar Homes, Keys Gate II Lake Surveys Project; Hydrographic Surveys, Olin Hydrographic Solutions; Miami, Florida, USA; February 2021**

Led hydrographic survey operations establishing RTK survey control points to support subdivision development planning. Executed bathymetric mapping within project area using Trimble RTK GPS and SonarMite echosounder. Processed bathymetric data generating contour maps of golf course lakes; calculated areas and fill volumes for engineering design of future subdivision construction.

## **PROJECT EXPERIENCE (Ballard Marine: 2019 – 2020)**

### **Great Lakes Water Authority, Design-Build/Repair for Portions of the Pennsylvania, Springwells and Northeast Raw Water Tunnels, Detroit, Michigan, USA; September – December 2020.**

Responsible charge as QC manager responsible for implementation and management of the QC Program for an \$80 million design-build project, overseeing a team of three QC engineers, consultants, suppliers, testing labs, vendors and sub-contractors. Responsible for attending the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control except for those phases of control designated to be performed by QC Specialists, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required by the contract. Inspect the work performed daily for compliance with current plans and specifications. Responsible for inspecting and certifying that all materials and equipment delivered to the job site meet required specifications. Ensure that all test and/or inspections required or necessary are performed and report the results in the Contractor Quality Control (QC) Report. File certified daily reports on the required forms. These reports cover all work and tests performed, inspections completed, all material and equipment received at the job site on that day, all corrective action items identified and completed that day.

## **Enbridge Energy, Straits of Mackinac Line 5 Inspection, Maintenance and Repair Project, Mackinaw City, Michigan, USA; May 2020 – August 2020.**

Responsible charge as hydrographic operations manager overseeing a 20-30-member survey, ROV, AUV, diving, engineering and construction team during a \$5 million, 2 x 6 km pipeline inspection, maintenance and repair operation in 10-70 m.w.d. in the Great Lakes, USA. Completed dive, ROV and AUV inspections/ mapping, free-span stabilization and coating repair from a 7m survey boat and spud-barge platform towed by tugboat. Executed GNSS Position Verification; Gyro & USBL calibrations; Side Scan Sonar verification, multibeam patch test, Sub bottom profiler dynamic range test, ping rate test and noise removal. Responsible for supervision and coordination of ROV pilots, surveyors, AUV operators and survey engineers. Ensured operations were according to QHSE standard. Maintained communications with client rep, marine/dive/construction crew and stakeholder onshore. Delivered reports at various stages of operations. Equipment included Trimble SPS461 RTK Heading & Positioning, Coda Octopus F175 Pitch & Roll, CSI Vector GPS Heading, Pitch and Roll, Link Quest TrackLink 1500 USBL, Teledyne Odom Digibar Pro Velocity Probe, Valeport 106 Current Meter, VideoRay Pro 4 ROV, Teledyne Seabotix vLBV 950 ROV, Kongsberg Hugin AUV, Kongsberg NavP aided inertial navigation system (AINS) with Honeywell HG9900 IMU, cNODE acoustic positioning telemetry link, RDI Workhorse 300kHz DVL, Paroscientific Digiquartz depth/pressure transducer, EdgeTech 2205 dual frequency SSS, Kongsberg EM2040 MBES, SAIV SD208 CTD sound velocity probe, Neo Digital Underwater Camera, CathX Ultra High-Resolution Camera, AutoCAD and Digital Edge DVR.

## **Web Water Development Association, Intake Structure Survey & Inspection, Mobridge, South Dakota, USA; June 2020.**

Responsible charge as hydrographic operations manager & surveyor overseeing a 2-member survey/ROV and 4-member dive inspection crew in 3-25 m.w.d. Completed dive/ROV inspections and multibeam sonar mapping for a 450m raw water intake pipe from a lakebed intake crib to a water plant on shore using a 7m survey boat in Lake Oahe, South Dakota. Executed GNSS Position Verification; a gyro calibration and a multibeam patch test. Prior to survey, conducted dimensional control of survey vessel and sensors with Topcon GTS-213 Total Station. Ensured operations were according to QHSE standard. Maintained communications with client representatives, dive crew and stakeholders inside and outside the organization. Prepared and delivered charts and a final report presenting the results. Equipment included Kongsberg M3 multibeam sonar, Trimble SPS461 RTK Heading & Positioning, Coda Octopus F175 Pitch & Roll, TSS DMS 12 motion sensor, Digibar Pro Velocity Probe, Teledyne Seabotix vLBV 950 ROV & AutoCAD.

## **Port City Tug, Kinnikinic River Dock Wall Inspection, Milwaukee, Wisconsin, USA; April 2020.**

Responsible charge as hydrographic operations manager & ROV operator of a 2-member ROV crew in 3m w.d. at the Kinnikinic River dock in Milwaukee, Wisconsin. Completed ROV video inspections of the dock wall to identify and distinguish new damage vs. old damage after a collision by a tug caused damage. Ensured operations were according to QHSE standard. Maintained communications with client representatives and stakeholders inside and outside the organization. Prepared and delivered images, drawings and a final report presenting the results. Equipment included Video Ray Pro 4 ROV & AutoCAD.

## **PROJECT EXPERIENCE (SUBSEA METRICS: 2001-2019)**

### **Shell New Energies US, Atlantic Shores Offshore Wind; New Jersey, USA; TerraSond; r/v Geosea; October 2019**

Responsible charge as party chief overseeing a 22-member survey team during a geophysical survey in 17-40 m.w.d. offshore USA. Completed offshore and alongside calibrations that included GNSS Position Verification; Gyro & USBL calibrations; Side Scan Sonar and Transverse gradiometer verifications, multibeam patch test, Sub bottom profiler dynamic range test, ping rate test and noise removal and multi-channel ultra-high resolution seismic source, streamer noise and positioning system tests. Carried out surface-acquired and towed, sparker, sub-bottom profiler, multibeam, gradiometer and side-scan surveys within a proposed 500m x 210m wind turbine development site. Responsible for supervision and coordination of geologists, data processors, online surveyors, GIS technicians and survey engineers. Performed analysis and QC prior to presentation of results to the client. Ensured operations were according to QHSE standard. Maintained communications with client rep, marine crew onboard and management onshore. Delivered field reports at various stages of operations. Equipment included Applanix POSMV OceanMaster & CNAV 3050 GNSS, Applanix POSMV OceanMaster Attitude Sensor, Valeport SWiFT & AML Micro X SVP, Sonardyne Ranger 3 USBL, Teledyne T50 Dual Head MBES, Innomar SES-2000 Medium Parametric SBP, Geometrics G882 Transverse Gradiometer, Geomarine Sparker, EdgeTech 4200 300/600 kHz Side-scan sonar; Software included MS Office, MS Projects, QINSy Nav and Qimera 2.0.1 Data Processing Software, Oasis Montaj Gradiometer Processing, Sonardyne CASIUS, RadExPro SBP software, AutoCAD, APOS USBL acoustic positioning, and Global Mapper GIS

### **Shell Renewables, Mayflower Wind; Geophysical Site Investigation Survey; Offshore Massachusetts, USA; TerraSond; r/v Geosea; August-September 2019**

Responsible charge as party chief overseeing a 22-member survey team during a geophysical survey in 15-60 m.w.d. offshore USA. Completed offshore and alongside calibrations that included GNSS Position Verification; Gyro & USBL calibrations; Side Scan Sonar and Transverse gradiometer verifications, multibeam patch test, Sub bottom profiler dynamic range test, ping rate test and noise removal and multi-channel ultra-high resolution seismic source, streamer noise and positioning system tests. Carried out surface-acquired and towed, sparker, sub-bottom profiler, multibeam, gradiometer and side-scan surveys within a proposed wind turbine development site. Responsible for supervision and coordination of geologists, data processors, online surveyors, GIS technicians and survey engineers. Performed analysis and QC prior to presentation of results to the client. Ensured operations were according to QHSE standard. Maintained communications with client rep, marine crew onboard and management onshore. Delivered field reports at various stages of operations. Equipment included Applanix POSMV OceanMaster & CNAV 3050 GNSS, Applanix POSMV OceanMaster Attitude Sensor, Valeport SWiFT & AML Micro X SVP, Sonardyne Ranger 3 USBL, Teledyne T50 Dual Head MBES, Innomar SES-2000 Medium Parametric SBP, Geometrics G882 Transverse Gradiometer, Geomarine Sparker, EdgeTech 4200 300/600 kHz Side-scan sonar; Software included MS Office, MS Projects, QINSy Nav and Qimera 2.0.1 Data Processing Software, Oasis Montaj Gradiometer Processing, Sonardyne CASIUS, RadExPro SBP software, AutoCAD, APOS acoustic positioning and Global Mapper GIS

### **U.S. Army Corps of Engineers & Orion; Cape Lisburne Seawall Reconstruction; TerraSond; Onshore/Inshore Chukchi Sea, Alaska; June – July 2019**

Responsible charge as senior surveyor performing construction and boundary surveys in support of seawall reconstruction from elev +4.5 m to - 4.5 m. Performed hydrographic and topographic surveys to ensure material placement at correct thickness and grade. RTK positioning utilized on land and excavator machine control positioning subsea. MSHA New Miner Safety Training completed for surface mining/quarrying operations. Marked boundaries for quarry and rock placement areas. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures. Equipment included Trimble R10 Base/Rover UHF RTK GNSS, Trimble TSC3 Controller/Handheld computing system, Kubota 4-wheeler, passenger vehicle for remote office and trailered generator. Software included Civil 3D, Trimble Business Center and MS Office.

## **Nord Stream 2 & Saipem; Nord Stream 2 Gas Pipeline; Offshore Denmark; NEXT; mpsv levoli Ivory; October 2018**

Responsible charge as report coordinator overseeing an 11-member survey team during a geophysical survey in 70-100 m.w.d. offshore Denmark. Completed offshore calibrations that included USBL verification and multibeam patch test. Carried out sub-bottom profiler, multibeam, gradiometer and visual surveys along a proposed pipeline corridor. Responsible for supervision and coordination of geologists, data processors, online surveyors, CAD technicians and survey engineers. Performed analysis and QC prior to presentation of results to the client. Ensured operations were according to QHSE standard. Maintained communications with client rep, marine crew onboard and management onshore. Delivered field reports at various stages of operations. Equipment included Kongsberg Seapath 330 and C&C C-Nav 3050 GNSS, Octans 300 Attitude Sensor, ROVINS Inertial, RDI Doppler, Valeport Midas CTD, Tritech SeaKing 704 Bathy, HiPAP 501 USBL, R2Sonic 2024 MBES, Edgetech D2200 SBP, Innovatum Smartsearch 12 Gradiometer, TSS 440 Pipetracker, Software included MS Office, QINSy Nav and Data Processing Software, Oasis Montaj Gradiometer Processing, AutoCAD, QGIS GIS, APOS USBL positioning, Visual Archive and Visual Edit Eventing.

## **Scottish Power & James Fisher Marine Services; East Anglia One Offshore Windfarm; Offshore England; Interocean; dsV MTS Terramare; August 2018**

Responsible charge as party chief overseeing surface and subsurface positioning during a multi-vessel diver UXO investigation survey in 5-20 m.w.d. offshore UK. Performed offshore and alongside calibrations that included USBL, GNSS, gyrocompass and Hemisphere system. Remote positioning of tug was managed using telemetry and Wi-Fi. Positioning of four-point dsV and aht using tug management system. Divers sweeping with magnetic locator positioned using USBL NaviPac used as navigation software. Responsible for anchor design, survey QC and issue of survey results and analysis in the form of field reports. Ensured operations were according to QHSE standard. Maintained communications with marine rep onboard and management onshore. Delivered daily reports in writing and field report at various stages of operations. Equipment included Veripos Ultra GNSS, Meridian Gyrocompass, Kongsberg Seatex MRU-5, NaviPac Smart Remotes, AHV Tug Tracking Systems, Valeport Midas SVX-2 CTD, Applied Acoustics Nexus USBL, Applied Acoustics 1019 mini-Transponders. Software included MS Office, AutoCAD and QGIS GIS.

## **Fairfield Energy; Merlin Central Development; Semi-Submersible Rig Move; Offshore UK; Interocean; ahv Normand Prosper; July 2018**

Responsible charge as party chief overseeing surface positioning during a multi-vessel rig move anchor pre-lay in 150 m.w.d. offshore UK in the North Sea. Performed offshore calibrations that included the gyrocompass and Hemisphere system. Remote positioning of tugs was managed using telemetry and Wi-Fi. Anchor final fixes were taken using Veripos and catenary calculation spreadsheets. Surface positioning spread included Veripos LD5 DGPS, Hemisphere VS113 and Meridian SGBrown gyrocompass. NaviPac was used as surface navigation software. Responsible for preparation, QC and

issue of survey data results and analysis in the form of field reports. Ensured operations were according to HSE standard. Maintained good communications with marine rep onboard and management onshore. Delivered daily reports in writing and field report on completion of operations.

### **Marathon & TecnipFMC; Brae Bravo Subsea Gas Bypass Project; Offshore Scotland; dsv Deep Explorer, Andrews; April – May 2018**

Responsible charge as acoustic surveyor for three LBL spool piece metrologies in 100 m water depth aboard a 156 m dive support vessel. Performed mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, Valeport Midas CTD, Valeport Mini IPS Digiquartz bathy, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated spool piece metrology results. Prepared field reports complete with data sheets in ACAD for presentation to client. Demobilized metrology spread.

### **EnQuest & TecnipFMC; Mallard Development Project; Offshore Scotland; pls/v Deep Energy, Andrews; July 2017**

Responsible charge as acoustic surveyor for three LBL spool piece metrologies in 90 m water depth aboard a 195 m pipelay vessel. Performed mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, Valeport Midas CTD, Valeport Mini IPS Digiquartz bathy, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated spool piece metrology results. Prepared field reports complete with data sheets in ACAD for presentation to client. Demobilized metrology spread.

### **Noble Energy; Tamar Project; Israel Shipyard; Interocean; February 2017**

Responsible charge as party chief overseeing a 2-member survey team for dimensional control during jumper fabrication in the Israel Shipyard, Haifa. Performed oversight and liaison with both client and construction contractor while acting as representative of Interocean. Oversaw jumper dimensions were fabricated in accordance with the results from metrology and the engineering design. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **Noble Energy; Tamar Project; Israel; m/v Nordic Prince; Interocean; January 2017**

Responsible charge as party chief overseeing a 3-member survey team for one jumper metrology in 1675 m water depth aboard a 76 m multipurpose subsea services support vessel. Assisted in writing procedures and task plans. Performed planning, mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, Valeport CTD, Valeport mini IPS, Valeport Minis SVX, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated jumper metrology results. Prepared field report complete with data sheets in ACAD for presentation to client. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures. Demobilized metrology spread.

## **Total Upstream Nigeria; Akpo Development Project; Offshore Nigeria; m/v Bourbon Evolution; Brone; October 2016**

Responsible charge as party chief overseeing a 4-member survey team for Brone Positioning & Survey for one jumper metrology in 1300m water depth aboard a 100 m multipurpose subsea services support vessel. Performed planning, mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, SAIV CTD, SeaKing Digiquartz bathy/altimeter, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated jumper metrology results. Prepared field report complete with data sheets in ACAD for presentation to client. Demobilized metrology spread.

## **Noble Energy; Tamar Project; Israel; m/v Nordic Prince; Interocean; September 2016**

Responsible charge as senior acoustic surveyor for acoustic array deployment/calibration & buoy placement at a drilling location and several structure locations in water depths roughly 1700 m. Provided survey support for a 76 m construction support vessel operating with one work-class ROV and a 100-ton crane. Equipment included miniIPS Digiquartz depth sensor, mini SVX sound velocity probe, Compatt/RovNav 6G LBL; AutoCAD and Sonardyne Fusion LBL software. Field operations included LBL mobilization, LBL array deployment/calibration, and seabed buoy installation using LBL tracking for location of well and structure sites. Responsible for operation and QC of LBL system. Processed LBL data, generated drawings with AutoCAD and QCd field reports. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Shell Nigeria Exploration and Production; Bonga Development Project; Offshore Nigeria; m/v African Vision; UTEC; February 2016**

Responsible charge as acoustic surveyor for two LBL jumper metrologies in 1100m water depth aboard an 83 m multipurpose subsea services support vessel. Performed planning, array design, mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, Valeport Midas CTD, Valeport Mini IPS Digiquartz bathy, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Prepared task plan. Executed data acquisition and post processing in Fusion software. Calculated jumper metrology results. Prepared field report complete with data sheets in ACAD for presentation to client. Demobilized metrology spread.

## **Total Upstream Nigeria; Akpo Development Project; Offshore Nigeria; Brone; January 2016**

Responsible charge as project surveyor writing procedures for upcoming work by Brone for Total in the Akpo field. Specific procedures include LBL array installation and calibration, spool-piece metrology, CTD operation and subsea bathymetry operation.

## **Total Upstream Nigeria; Akpo Development Project; Offshore Nigeria; m/v Bourbon Trieste; Brone; December 2015**

Responsible charge as party chief overseeing a 4-member survey team for Brone Positioning & Survey for one jumper metrology in 1300m water depth aboard a 79 m multipurpose subsea services support vessel. Performed planning, array design, mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware:

AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt 6G, Compatt ROVNAV, SAIV CTD, SeaKing Diquartz bathy/altimeter, Octans gyro/MRU. Mobilized the Sonardyne 6G system, metrology tools and sensors. Prepared task plan. Executed data acquisition and post processing in Fusion software. Calculated jumper metrology results. Prepared field report complete with data sheets in ACAD for presentation to client. Demobilized metrology spread.

### **Freeport McMoRan; KOQV South; Offshore USA; m/v Grant Candies; Subsea 7; October 2015**

Responsible charge as senior acoustic surveyor for acoustic array deployment/calibration & pile/mudmat installations at SPAR location in water depths roughly 1450 m. Provided survey support for an 89m construction support vessel operating with two work-class ROVs, and a 100-ton crane. Equipment included Tritech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, HiPAP 501 USBL, Compatt 6G LBL; AutoCAD, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included LBL mobilization, ASV box in, LBL array deployment/calibration, and mattress installation using LBL tracking. Responsible for operation and QC of LBL system. Processed LBL data, generated drawings with AutoCAD and QC'd field reports. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **Murphy E&P; Dalmatian South Project; Offshore USA; m/v Grant Candies; Subsea 7; October 2015**

Responsible charge as senior acoustic surveyor for 3 LBL array deployments/calibrations & pre-lay survey in water depths up to 1900 m. Provided survey support for an 89m construction support vessel operating with two work-class ROVs, and a 100-ton crane. Equipment spread included Tritech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, HiPAP 501 USBL, Compatt 6G LBL; AutoCAD, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included LBL mobilization, ASV box in, LBL array deployment/calibration, and flowline pre-lay survey. Responsible for operation and QC of LBL system. Processed LBL data, generated drawings with AutoCAD and maintained survey logs. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **Chevron North America E&P; Tahiti Field; Offshore USA; m/v HOS Bayou; DOF; July 2015**

Responsible charge as senior acoustic surveyor for drill string debris removal in water depths roughly 1225 m in the Tahiti field. Provided survey support for a 92m construction support vessel operating with two work-class ROVs, and a 150-ton crane. Equipment spread included Fugro 3D Lidar, Tritech Seaking Sidescan Sonar, Tritech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, Seabird CTD, Valeport mini SVS, HiPAP 500 USBL, Compatt 6G LBL; Sarfix.nav, Sonar Wiz, AutoCAD, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included Sidescan Sonar, Lidar & LBL mobilization; Sidescan sonar & Lidar 3d mapping using LBL tracking in preparation for drill string removal. Responsible for operation and QC of LBL system. Processed LBL data, generated drawings with AutoCAD and maintained survey logs. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **BP America; Atlantis/Kepler; Offshore USA; m/v Grant Candies; DOF; June 2015**

Responsible charge as senior acoustic surveyor for 2 LBL array deployments/calibrations & buoy placements at drilling locations in water depths roughly 2125 m for Atlantis and 1450 for Kepler. Provided survey support for an 89m construction support vessel operating with two work-class ROVs, and a 100-ton crane. Equipment spread included Paroscientific Diquartz depth sensor, Tritech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, Valeport Midas SVP, HiPAP 501 USBL, Compatt 6G LBL; Winfrog, AutoCAD, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included LBL mobilization, USBL box in, LBL array deployment/calibration, and seabed buoy installation using LBL tracking for location of well site. Responsible for operation and QC of

LBL system. Processed LBL data, generated drawings with AutoCAD and maintained survey logs. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **BP America; Mad Dog Phase II; Offshore USA; m/v Grant Candies; DOF; Feb 2015**

Responsible charge as senior acoustic surveyor for acoustic array deployment/calibration & buoy placement at drilling location in water depths roughly 1250 m. Provided survey support for an 89m construction support vessel operating with two work-class ROVs, and a 100-ton crane. Equipment included Paroscientific Digiquartz depth sensor, Trittech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, Valeport Midas SVP, HiPAP 501 USBL, Compatt 6G LBL; Winfrog, AutoCAD, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included LBL mobilization, USBL box in, LBL array deployment/calibration, and seabed buoy installation using LBL tracking for location of well site. Responsible for operation and QC of LBL system. Processed LBL data, generated drawings with AutoCAD and QC'd field reports. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **Total E&P Angola; Clov Development Project; Offshore Angola; pls/v Seven Borealis, ms/v Seisranger & ms/v Seven Sisters (Simar Esperanca); Total; Nov 2012 – August 2014**

Responsible charge as senior client survey representative on behalf of Total for pre-lay survey, structure installation, spool piece metrology, touchdown monitoring, array installation and as-built survey in water depths between 1050 m – 1400 m aboard three construction vessels. Supervise survey contractor mobilizations, calibrations, geophysical surveys, structure installations, metrologies and charting to ensure compliance with project contracts and specifications. Produce reports and daily logs. Responsible for project communication by liaising directly with offshore management including vessel master, offshore manager and survey party chief; onshore management liaising includes contractor's project surveyor and Total's management. Represent owner at relevant planning and safety meetings.

### **Total Upstream Nigeria; USAN FPSO Mooring Phase 3; Offshore Nigeria; Total; c/v S3000; May to June & July, 2013.**

Responsible charge as senior client survey representative on behalf of Total during FPSO mooring positioning, FPSO mooring as built survey and FPSO final fix, aboard a crane vessel and an FPSO. Supervise survey contractor during FPSO survey mobilization, final fix methodologies on FPSO, crane vessel positioning during FPSO mooring connection and as built methodologies of FPSO mooring, to ensure compliance with project specifications and contract documents. Produce reports and daily logs. Responsible for project communication by liaising directly with offshore management including Total project manager and RSES, vessel master, offshore manager and survey party chief. Represent owner at relevant planning and safety meetings

### **Murphy/Technip; Interim Crude Evacuation System Tieback; Gumusut Kakap Project; Offshore Malaysia; Fugro, csv Southern Ocean; August, 2012.**

Responsible charge as party chief overseeing 5-member survey crew for structure installation, umbilical installation and as-laid survey in water depths between 1200-1400 m. In charge of survey operations for a 137m construction support vessel operating with two FCV3000 150hp work-class ROVs, a 110-ton crane and a 250-ton crane. Equipment included Trittech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, RDI Workhorse Doppler velocity log, Valeport Midas SVP, AutoCAD charting suite, Starfix HP DGPS, Meridian Gyrocompass, HiPAP 500 USBL, Compatt MK5 LBL; Starfix.seis, Starfix.Acoustics and Kongsberg APOS software. Field operations included alongside and offshore gyro, GPS, USBL, Doppler and LBL calibrations, LBL tracking for structure installation, USBL positioning for umbilical installation. QC'd and issued survey data, results and analysis in the form of field reports. Responsible for project communication with Murphy client rep and Technip

offshore manager onboard and Fugro management onshore. Subsurface positioning included Paroscientific DigiQuartz Bathy, Sonardyne Wideband MK 5 Compatts and ROVNAV Transceiver, HiPAP500 USBL, Octans 3000 Fiber optic gyro and Valeport SVP. Starfix.seis, Starfix.Acoustics, Sonardyne Fusion & AutoCAD were the utilized software. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **CNOOC/Technip; Jumper Metrology & Oil Field Refurbishment; Liu Hua Project; Offshore China; Fugro, csv Southern Ocean; April-July, 2012.**

Responsible charge as senior acoustic surveyor then party chief overseeing 5-member survey crew for jumper metrology, structure installation, umbilical installation and as-laid survey in water depths between 265-310 m. Oversaw survey operations of a 137m construction support vessel operating with two FCV3000 150hp work-class ROVs, a 110-ton crane and a 250-ton crane. Equipment included Tritech bathy, PSA 900 altimeter, Reson OAS, Octans 3000 FOG, RDI Workhorse Doppler velocity log, Valeport Midas SVP, AutoCAD charting suite, Starfix HP DGPS, Meridian Gyrocompass, HiPAP 500 USBL, Compatt MK5 and 6G LBL; Starfix.seis, Starfix.Acoustics, Kongsberg APOS, and Sonardyne Fusion LBL software. Field operations included alongside and offshore gyro, GPS, USBL and LBL calibrations, 14 LBL jumper metrologies, LBL tracking for structure installation, USBL positioning for umbilical installation. QC'd and issued survey data, results and analysis in the form of field reports. Responsible for project communication with CNOOC client rep and Technip offshore manager onboard and Fugro management onshore. Performed LBL acoustic survey system deployment and calibrations offshore; processed acoustic data; analyzed dimensional control and engineering documents and drawings; performed metrology calculations; processed bathymetry and CTD data; generated results for jumper fabrication. Subsurface positioning included Paroscientific DigiQuartz Bathy, Sonardyne Wideband MK 5/6G Compatts and ROVNAV Transceiver, HiPAP500 USBL, Octans 3000 Fiber optic gyro and Valeport SVP. Starfix.seis, Starfix.Acoustics, Sonardyne Fusion & AutoCAD were the utilized software. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Total UK, Laggan & Tormore Gas Fields Development Project; Offshore Shetland Islands; m/v Highland Fortress; Allseas; January & February 2012**

Responsible charge as online surveyor for pre-lay survey in 20-140 m.w.d. aboard a 72m support vessel. Mobilized survey for project in Rotterdam and Lerwick harbors. Operated Navipac and NaviScan software online. Ensured Pipetracker, Multibeam, video and positioning data were complete and of good quality during data acquisition. Performed calibrations both alongside and offshore. Kept detailed logs in writing and on computer. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion v1.11.01.2319, EIVA Navipac version 3.5, patch 21, NetMC Video Review software, NaviScan Online v.8.2.86.885; VNC Viewer, Valeport DataLog Express, Kongsberg APOS; DigiQuartz Interactive; Compatt MK5, Valeport CTD, Paroscientific DigiQuartz bathy, Octans IV gyro/MRU, Reson 7P/7K Multibeam dual head system, TSS 440 Pipetracker, RDI Workhorse 1200 KHz Doppler Velocity Log, Veripos Ultra DGPS, XOPS Quad Channel DVR, Septentrio GPS heading system. During weather downtime: prepared Compatts for upcoming LBL operations; Reprocessed previous problematic LBL array calibration; provided analysis for improvement of upcoming LBL work in challenging sound velocity environment.

## **CNOOC China Ltd.; YC 13-4 Gas Field Development Project; Offshore China; hlc/v Kan Sheng Kou; China Offshore Fugro Geosolutions; November 2011**

Responsible charge as LBL surveyor for one LBL metrology and structure tracking in approximately 90m water depth aboard a 156 m semi-submersible float over cargo ship. Mobilized the Sonardyne 6G

system, metrology tools and sensors. Executed data acquisition and post processing in Fusion software. Calculated spool piece metrology results. Prepared data sheets in ACAD and field reports for presentation to client. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion v1.11.07, Compatt 6G, Compatt Dunker, Valeport CTD, SeaKing Diquartz bathy/altimeter, Orion gyro/MRU. Clients desired to perform metrology and structure installation using deep water techniques in shallow water in preparation for an upcoming project in deep water. Client had no prior deep-water experience and brought me into provide expertise. LBL survey results were compared with diver results. The LBL techniques proved to be a success as a 6 m error in spool piece measurement by the divers was caught by survey. The client reluctantly praised survey. The reluctance was due to the fact that the spool piece metrology took 24 hours using LBL techniques whereas the divers finished the same task in 5 hours.

### **Bibby Offshore; RWE Breagh A Development Project; Offshore UK; m/v Bibby Topaz; Andrews; October 2011 – November 2011**

Responsible charge as LBL metrology surveyor representing Andrews for two spool piece metrologies in 60m water depth aboard a 107 m dive support vessel. Performed planning, array design, mobilization, data acquisition, calibrations, post processing, calculations, QA/QC, data analysis, and reporting. Operated the following software and hardware: AutoCAD, MS Word, MS Excel, Sonardyne Fusion, Compatt MK5, Compatt Dunker, Valeport CTD, SeaKing Diquartz bathy/altimeter, Octans gyro/MRU. Mobilized the Sonardyne MK5 system, metrology tools and sensors. Prepared task plan. Executed data acquisition and post processing in Fusion software. Calculated spool piece metrology results. Prepared data sheets in ACAD for presentation to client. Demobilized metrology spread.

### **Total E&P Angola; Pazflor Development Project; Offshore Angola; m/v Acergy Legend; Total; September 2010 – September 2011**

Responsible charge as senior client survey representative representing Total for pre-lay survey, spool piece metrology, touchdown monitoring, array installation and as-built survey in water depths between 600 m – 1200 m aboard a 64m construction support vessel. Supervised survey contractor mobilizations, calibrations, geophysical surveys, structure installations, metrologies and charting to ensure compliance with project specifications. Produced reports and daily logs. Responsible for project communication by liaising directly with offshore management including vessel master, offshore manager and senior surveyor; onshore liaising was with contractor's project surveyor and Total's management. Represented owner at required planning and safety meetings. Responsible charge as senior Total E&P offshore survey representative for the entire Pazflor development that included two Technip and one Acergy Pipelay vessels and several additional Acergy support vessels. In charge of reviewing the Contractors reports that were previously reviewed by Total survey representatives from each of those vessels to ensure survey deliverables were in accordance with contract specifications and company requirements.

### **BP/Technip; Field Development; Macondo Project; Gulf of Mexico; UTEC Survey; July-August, 2010**

Acoustic surveyor for a field development project in water depth of 1400 m aboard a 93m construction service vessel. Contributed to survey crew that included hydrographic surveyors and technicians aboard a support vessel fitted with two work class ROVs and a 140-ton crane. Project included LBL array installation calibration and recovery; crossing mattress installation; as-laid survey of installed flowlines. Specific duties included deployment and calibrations offshore; processed acoustic, bathymetry and CTD data. Subsurface positioning included ParoScientific Diquartz Bathy, Sonardyne Wideband MK 5 Compatts and Dunking Transducer, Octans 3000 Fiber optic gyro and Valeport CTD. Sonardyne Fusion & Winfrog were the utilized software. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **BP Norge/Subsea 7; Spoolpiece Metrology & Field Development; Skarv Project; Offshore Norway; Subsea 7, dsv Toisa Polaris; May-June, 2010.**

Responsible charge as reporting surveyor (night party chief) overseeing 7-member survey crew for spool piece metrology, structure installation, and as-laid survey in water depths between 300-380 m. Oversaw night survey operations of a dive support vessel operating with two Hercules work-class ROVs and a 400-ton crane. Equipment included Tritech bathy, PSA 900 altimeter, Titech OAS, Reson Seabat 8125 MBES, Octans 3000 FOG, P/C/S ROV boom camera system, RDI Workhorse Doppler velocity log, Valeport Midas CTD, QINSy online navigation suite, Visualworks digital video recording, AutoCAD charting suite, Veripos DGPS, Meridian Gyrocompass, HiPAP 500 USBL, Compatt MK5 LBL, and Sonardyne Fusion LBL software. Field operations included 5 LBL spool piece metrologies, as-found and as-installed surveys of pipelines and flexible jumpers; QC'd and issued survey data, results and analysis in the form of field reports. Responsible for project communication with BP client rep onboard and Subsea 7 management onshore. Performed LBL acoustic survey system deployment and calibrations offshore; processed acoustic data; analyzed dimensional control and engineering documents and drawings; performed metrology calculations; processed bathymetry and CTD data; generated results for DTM. Subsurface positioning included ParoScientific Digiquartz Bathy, Sonardyne Wideband MK 5 Compatts and ROVNAV Transceiver, Octans 3000 Fiber optic gyro and Valeport CTD. Sonardyne Fusion & AutoCAD were the utilized software. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Ageotec; PDS2000 Refresher Course; Bologna, Italy; May, 2010**

Two-day refresher course covering use of PDS 2000 software and specific topics including calibration, data acquisition, and data processing.

## **Shell GTL/JRay McDermott; Spoolpiece Metrology; Northfield Qatar Project; Offshore Qatar; Fugro Survey ME, ssc/v DB 101; November 2009.**

Acoustic surveyor for 1 LBL metrology in water depth of 38 m that was utilized for 3D spool piece fabrication. Contributed to survey crew that included hydrographic surveyors and technicians aboard a 479-foot semi-submersible crane vessel fitted with one ROV. Performed LBL acoustic survey system mobilization, deployment and calibrations offshore; processed acoustic data; analyzed dimensional control and engineering documents and drawings; performed metrology calculations; processed bathymetry and CTD data; generated results for DTM. Subsurface positioning included ParoScientific Digiquartz Bathy, Sonardyne Wideband MK 5 Compatts and Dunking Transducer, Octans 3000 Fiber optic gyro and Valeport CTD. Sonardyne Fusion & AutoCAD were the utilized software. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Petrobel (ENI); Spool Piece Metrology, Umbilical Installation and Trenching; North Bardawil Project; Offshore Port Said, Egypt; Deep Ocean; m/v Volantis; July-August, 2009**

Responsible charge as reports coordinator then party chief overseeing 6-member survey crew for spool piece metrology, structure installation, and umbilical laying and trenching in water depths between 105-330 m. Oversaw all survey operations of a multi-role subsea support vessel operating with two ROVs and a trencher. Equipment included Tritech bathy, PSA 900 altimeter, Titech OAS, Tritech Delta T MBES, Octans 3000 FOG, P/C/S ROV boom camera system, RDI Workhorse Doppler velocity log, TSS 440 pipetracker, Valeport Midas CTD, QINSy online navigation suite, Visualworks digital video recording, AutoCAD charting suite, Starfix HP DGPS, Meridian Gyrocompass, HiPAP 500 USBL, Compatt MK5 LBL, and Sonardyne Fusion LBL software. Field operations included 2

LBL spool piece metrologies, pre-lay surveys and as-trenched surveys of umbilicals; QC'd and issued survey data, results and analysis in the form of field reports. Responsible for project communication with Petrobel client rep onboard and Deep Ocean management onshore. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

### **Total E&P Congo; Spoolpiece Metrology; Moho Bilondo Field Development Project; Offshore Congo; Zupt LLC, m/v Polar Prince; May 2009.**

Acoustic surveyor for 1 LBL (and inertial) metrology in water depth of 450 m that was utilized for 3D spool piece fabrication. Performed LBL positioning system calibrations offshore; processed acoustic data; analyzed dimensional control and engineering drawings; performed metrology calculations; processed bathymetry and CTD data; generated results for DTM. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Seabird CTD, Sonardyne Wideband MK 5 Compatts, Octans Fibre optic gyro, Sonardyne Fusion & AutoCAD software. Ensured standards were met for QA/QC and HSE and those procedures followed were in accordance with contract specifications and company procedures

### **Exxon Mobil; Kizomba C Field Development; LBL Semi-Submersible Rig Move; Offshore Angola; Fugro Survey B.V.; semisub rig Jim Cunningham; February to March, 2009**

Responsible charge as party chief overseeing surface and subsurface positioning during an LBL multi-vessel rig move in 800 m. w.d. offshore Angola in the Atlantic Ocean. Performed offshore calibrations that included the gyrocompass and the LBL array. Remote positioning of tugs was managed using the Fugro Drone system. LBL final fixes were taken on the well using a Sonardyne MK5 array and ROVNAV. Surface positioning spread included Starfix HP dual frequency DGPS, Trimble L1/L2 dual frequency DGPS, Starfix.VBS single frequency DGPS and Meridian SGBrown gyrocompass. Starfix.nav was used as surface navigation software and the subsurface software used was Starfix.acoustics (Fusion). A Leica total station was used for the sunshot. Responsible for preparation, QC and issue of survey data results and analysis in the form of field reports to client. Prepared JSA for operations involving risk and ensured team members were operating according to HSE standard. Responsible for communications with client rep onboard and Fugro management onshore. Delivered daily reports in writing. Prepared final report in the office on completion of field operations.

### **BP Exploration.; Baku IMR Project; Offshore Azerbaijan; Saipem UK, Sonsub Division; DSV Akademik Tofiq Ismayilov; December, 2008.**

Responsible charge as party chief overseeing 18-member survey crew for inspection, maintenance and repair survey in water depths between 250-300 m. Complete mobilization of DSV operating with two ROVs at the commencement of a long-term contract. Equipment included Tritech bathy, PSA 900 altimeter, Titech OAS, Tritech DHS Profiler, Octans 3000 FOG, P/C/S ROV boom camera system, RDI Workhorse Doppler velocity log, Imenco green laser, TSS pipetracker, Neptune LD system, Valeport Midas CTD, Navipac online navigation suite, Visualworks digital video recording, AutoCAD charting suite, Veripos DGPS, Meridian Gyrocompass, HiPAP 500 USBL, Leica TCR 1205 total station, Leica 500 series RTK GPS. Field operations included alongside and offshore calibrations; GVI and CP survey of flowlines and umbilicals; Asset inspections including 3.4u reports/video stills of clamps risers, flanges, etc; Reviewed survey sub-contractor mobilization and calibrations to ensure compliance with project specifications. QC'd and issued survey data, results and analysis in the form of field reports. Responsible for project communication with BP client rep onboard and Sonsub management onshore. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

**Enagas S.A.; Balearic Submarine Pipeline Project; Offshore Spain; Saipem UK, Sonsub Division; m/v VOS Sympathy; October, 2008.**

Responsible charge as offshore survey representative for pre-lay survey in water depths between 5 m – 1000 m. Reviewed survey sub-contractor mobilization and calibrations to ensure compliance with project specifications. QC'd sub-contractor field data, field reports, and charts, to ensure that relevant specifications were met. Generated field reports and was responsible for project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

**Total Exploration & Production Norge; Frigg Field Cessation Project; Offshore Norway; Saipem UK, Sonsub Division; m/v Normand Cutter; August, 2008.**

Responsible charge as party chief for removal and disposal of obsolete sealines and associated ancillaries in approximately 100 meters water depth. Performed survey system mobilization and calibrations. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport 604 STD/CTD, Kongsberg HiPAP 500P USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Mobilization report written offshore. Generated field reports and responsible for project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

**Nexen UK; Umbilical and Service Line Installations for Ettrick FPSO Project; Offshore UK; Saipem UK, Sonsub Division; m/v Normand Cutter; July, 2008.**

Responsible charge as party chief for 3 umbilical and 3 service line installations in approximately 100 meters water depth. Performed umbilical load out measurements and overage loop calculations on-the-fly. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport 604 STD/CTD, Kongsberg HiPAP 500P USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Final reports written offshore during ongoing operations. Generated field reports (that included plan/profile sheets) and responsible for project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

**Total Upstream Nigeria; Spoolpiece Metrologies for AKPO Field Development Project; Offshore Nigeria; Saipem UK, Sonsub Division; m/v Bourbon Trieste; May to June, 2008.**

Report Coordinator for 7 LBL metrologies in water depths between 1250 and 1480 meters that were utilized for 3D spool piece fabrication. Performed LBL positioning system calibrations offshore; processed acoustic data; analyzed dimensional control and engineering drawings; performed metrology calculations; processed bathymetry data; generated results for DTM. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport Midas & Mini STD/CTD, Sonardyne Wideband MK 5 Compatts, Sonardyne Ranger USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Sonardyne Fusion software. Final reports written offshore during ongoing operations. Generated field reports and project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **BP GUPCO; Spoolpiece Metrologies for Taurt LNG Train 1 Supply Project; Offshore Egypt; Saipem UK, Sonsub Division; m/v Normand Cutter; March to April, 2008.**

Report Coordinator for 5 LBL metrologies in approximately 100 meters water depth that were utilized for 3D spool piece fabrication. Performed LBL positioning system calibrations offshore; processed acoustic data; analyzed dimensional control and engineering drawings; performed metrology calculations; processed bathymetry data; generated results for DTM. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport 604 STD/CTD, Sonardyne Wideband MK 5 Compatts, Kongsberg HiPAP 500P USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Sonardyne Fusion software. Final reports written offshore during ongoing operations. Generated field reports and project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications and company procedures.

## **Reliance Industries; KG-D6 Platform Jacket Installation; Offshore India; Fugro Survey M.E.; SSCV D/B 101; January to February, 2008.**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 100-meter water depth. Surface positioning spread included Starfix Plus/L1, DGPS with MRDGPS QC software, Meridian Gyrocompasses, CDL Mini Tilt pitch and roll sensor, and Starfix.seis/wombat/usbl-- multi-vessel surface/sub-surface survey software. Work class ROV deployed from the vessel configured for installation support operations included Sonardyne Scout MK5 USBL, altimeter, strain-gauge depth transducer, Simrad Sonar, Compass and Video overlay. Valeport tide gauge installed to determine mean sea level. RD acoustic Doppler current profiler installed and operated for real-time current data. Conventional land survey instruments used to control jacket level, mark legs for cut-off and to install boat landings. Generated field reports and project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications.

## **ONGC; Vasai East Development Platform Project; Offshore India; Fugro Survey M.E.; SSCV D/B 101; November to December, 2007.**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 54-meter water depth; 3000-ton jacket. Surface positioning spread included Starfix Plus/L1, DGPS with MRDGPS QC software, Trimble robotic total stations, Meridian Gyrocompasses and Starfix.seis/wombat/usbl-- multi-vessel surface/sub-surface survey software. Work class ROV deployed from the barge configured for installation support operations included Sonardyne Scout MK5 USBL, altimeter, strain-gauge depth transducer, Simrad Sonar, Compass and Video overlay. Valeport tide gauge installed to determine mean sea level. Conventional land survey instruments used to control jacket level, mark legs for cut-off, install boat landings and for final as-built survey relative to existing platforms. Generated field reports and project communication. Ensured standards were met for QA/QC and HSE and that procedures followed were in accordance with contract specifications.

## **Shell UK; Caravel, L09-FA-1 and L09-FB-1 Monotower Platform Installations; Offshore Netherlands and U.K.; Fugro Survey B.V.; SSCV Hermod; August to September, 2007.**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management and conventional land survey; 250-ton structures; from 30 to 80-meter water depth. Surface positioning spread included Starfix L1, DGPS with MRDGPS QC software, Leica robotic total stations, Octans FOG/MRU and Starfix.seis/drone/usbl-- multi-vessel surface/sub-surface survey

software. Subsea instrumentation included MK5 LBL with dual axis inclinometer for measuring monopile verticality. Conventional land survey instruments used to control level and for positioning template installation. Generated field reports and final reports. Ensured standards were met for QA/QC and HSE.

### **Total E&P Angola; Pre-Installation Pipeline Repair Survey; Offshore Angola; Fugro Survey B.V.; m/v Bourbon Jade; July, 2007.**

Responsible charge as party chief for LBL ROV positioning as part of the combined pipeline as-found survey and bathymetric seabed survey in 1350 meters water depth. Ensured subsea positioning operations were in accordance with specifications and procedures. Performed LBL, USBL, GPS, gyro, dual-head scanning sonar, bathymetry and sound velocity system calibrations offshore. Generated centimeter level accuracy for as-found position reports of existing damaged pipeline. Ensured standards were met for QA/QC and HSE. Subsurface positioning included SeaKing 704 Bathy and dual-head scanning sonar, Tritech PA500/6-S Altimeter, Valeport Mini & Midas STD/CTD, SAIV CTD, Sonardyne Wideband MK 5 Compatts, Kongsberg HPR400 USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Generated final reports that included plan/profile sheets

### **Total E&P Angola; LBL Rig Move for Dalia Development Project; Offshore Angola; Fugro Survey B.V.; d/s Pride Angola; June 2007.**

Responsible charge as party chief for LBL DP Rig Move in 1250 m water depth. Ensured subsea positioning operations were in accordance with specifications and procedures. Performed LBL positioning system calibrations offshore. Generated field reports. Ensured standards were met for QA/QC and HSE. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport Mini & Midas STD/CTD, SAIV CTD, Sonardyne Wideband MK 5 Compatts, Kongsberg HiPAP 450 USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder).

### **Total E&P Angola; Metrology for Rosa & Dalia Development Projects; Offshore Angola; Fugro Survey B.V.; m/v Bourbon Helene; February 2007 to June 2007.**

Responsible charge as party chief for 12 LBL metrologies in water depth between 1300 and 1425 meters that were utilized for 3D spool piece fabrication. Ensured positioning operations were in accordance with specifications and procedures. Performed LBL positioning system calibrations offshore. Generated field reports that included plan/profile sheets. Ensured standards were met for QA/QC and HSE. Processed data that generated results for DTM. Subsurface positioning included SeaKing 704 Bathy, Tritech PA500/6-S Altimeter, Valeport Mini & Midas STD/CTD, SAIV CTD, Sonardyne Wideband MK 5 Compatts, Kongsberg HiPAP 450 USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder). Final reports written in the office upon completion.

### **Total E&P Angola; Service Line Installation for Rosa Development Project; Offshore Angola; Fugro Survey B.V.; Saipem FDS; December, 2006 to January, 2007.**

Responsible charge as party chief for 3 x 120 km service line installations in water depth between 1300 and 1425 meters. Ensured positioning operations were in accordance with specifications and procedures. Generated field reports that included AutoCAD drawings. Ensured standards were met for QA/QC and HSE. Performed sensor calibrations in addition to data processing and reporting. Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Kongsberg Seapath DGPS and inertial heading, SGBrown gyrocompass, and Fanbeam infrared tracking; sub-surface positioning included Kongsberg HiPAP USBL acoustics, Sonardyne ROV Nav, MK5 Compatts, transponders,

responders; SeaKing bathy, Octans MRU, Valeport CTD; Fugro Starfix.seis survey software, and MRDGPS QA/QC software; Leica total station and digital inclinometer for sensor calibrations.

### **Noordgastransport B.V. (NGT); Deep Water Annual Inspection Pipeline Survey; Offshore Netherlands; Fugro Survey B.V.; r/v Imor; October, 2006 to November, 2006.**

Responsible charge as party chief for geophysical survey with surface and sub-surface data acquisition systems in water depths between 10-85 meters. Ensured positioning and geophysical operations were in accordance with specifications and procedures. Performed system calibrations in the harbor (for Gyro/GPS) and offshore (USBL/SSS/SBP). Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Meridian gyrocompass, TSS MRU, Starfix.Seis navigation software and MRDGPS GPS QC software. Subsurface positioning included Atlas Deso Echo-sounder, Nautronix USBL, ORE sub-bottom profiler, EG&G side-scan sonar, SAIV STD/CTD

### **British Gas; Maria Module Installation; Offshore U.K.; Fugro Survey B.V.; SSCV Stanislav Yudin; September, 2006.**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 50-meter water depth; 125-ton module. Surface positioning spread included Trimble, Starfix SPOT, Sercel DGPS with MRDGPS QC software, Tokimec gyrocompass, Octans FOG/MRU and Starfix.nav/drone/usbl-- multi-vessel surface/sub-surface survey software. Survey class ROV deployed from the barge configured for pre-installation site survey included HiPAP 500-SSBL, altimeter, bathy, Simrad Sonar, Compass, Sensordata SD204 CTD and Video overlay. Conventional land survey instruments used to control level and for calibration in port.

### **Bluewater Industries; Wenlock & Chiswick Jacket Installations; Offshore U.K.; Fugro Survey B.V.; SSCV Stanislav Yudin; August, 2006 to September, 2006.**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 25-meter water depth; 250-ton jackets. Surface positioning spread included Trimble, Starfix SPOT, Sercel DGPS with MRDGPS QC software, Tokimec gyrocompass, Octans FOG/MRU and Starfix.nav/drone/usbl-- multi-vessel surface/sub-surface survey software. Survey class ROV deployed from the barge configured for pre-installation site survey included HiPAP 500-SSBL, altimeter, bathy, Simrad Sonar, Compass, Sensordata SD204 CTD and Video overlay. Conventional land survey instruments used to control jacket level and for calibration in port.

### **Total E&P Angola; Metrology for Rosa Development Project; Offshore Angola; Fugro Survey B.V.; m/v Bourbon Jade; June, 2006 to July, 2006.**

Responsible charge as party chief for 15 LBL metrologies in water depth between 1300 and 1425 meters that were utilized for 3D spool piece fabrication. Ensured positioning operations were in accordance with specifications and procedures. Performed positioning system calibrations in the harbor (for ROV/Gyro/GPS) and offshore (USBL/LBL). Generated field reports that included plan/profile sheets. Ensured standards were met for QA/QC and HSE. Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Meridian gyrocompass, TSS MRU, Videotel transceivers, digital barometer, Freewave modem telemetry, Starfix.Seis/Acoustics navigation software and MRDGPS GPS QC software. Subsurface positioning included SeaKing 700 Bathy, Valeport Midas STD/CTD, Sonardyne MK4, 5 Compatts, Kongsberg HiPAP USBL, Octans Fiber optic gyro (MRU), Sonardyne mini-beacon (transponder/responder) Tritech Altimeter, Tritech Bathy.

## **Noordgastransport B.V. (NGT); Deep Water Annual Inspection Pipeline Survey; Offshore Netherlands; Fugro Survey B.V.; r/v Victor Hansen; March, 2006 to May, 2006.**

Senior online surveyor responsible for surface and sub-surface positioning systems in water depths between 10-85 meters. Ensured positioning operations were in accordance with specifications and procedures. Performed positioning system calibrations in the harbor (for Gyro/GPS) and offshore (USBL). Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Meridian gyrocompass, TSS MRU, Starfix.Seis navigation software and MRDGPS GPS QC software. Subsurface positioning included Atlas Deso Echo-sounder, Nautronix USBL, ORE sub-bottom profiler, EG&G side-scan sonar, SAIV STD/CTD

## **Chevron/Shell; West Area Gas Pipeline; Offshore Ghana; Fugro Survey B.V.; December, 2005 to February, 2006.**

Responsible charge as party chief for surface positioning, anchor handling tug management, and laser-tracking survey during gas pipeline installation; 14–80-meter water depth. Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Meridian gyrocompass, Free Wave Modem/Telemetry, CSI Vector GPS/gyro; Fanbeam Laser tracking; Drone hardware and software; Starfix.Nav navigation software and MRDGPS GPS QC software.

## **Canadian Natural Resources; FPSO Field Development; West Espoir Project; Offshore Ivory Coast; Fugro Survey B.V.; September to October, 2005**

Responsible charge as survey party chief overseeing surface and subsurface positioning operations during multi-vessel FPSO field development in 100-meter water depth, offshore Ivory Coast. Construction included 3 x 5.5 km pipelines, pipeline initiation/laydown, and mattress installation; Surface positioning spread included Starfix HP/Plus DGPS, Meridian gyrocompass, Drone hardware and software; Free Wave Modem/Telemetry, CSI Vector GPS/gyro. ROV support vessel configured with Sonardyne MK 4 LBL & ROV Nav acoustics for pipeline initiation/laydown; touchdown monitoring and as-laid survey configuration included profiler, USBL, strain gauge pressure transducer, altimeter, fiber optic gyrocompass, MRUs, eventing software and Starfix.nav survey software.

## **Mobil Producing Nigeria/Nigerian National Petroleum Corp; Riser Installation East Area EPC2 Project; Offshore Nigeria; Fugro Survey B.V.; August, 2005**

Responsible charge as party chief for surface positioning, anchor handling tug management, and laser-tracking survey during riser installations; 20-meter water depth. Surface positioning spread included Starfix-HP and Plus DGPS (SPM2000), Meridian gyrocompass, Free Wave Modem/Telemetry, CSI Vector GPS/gyro; Golf Laser tracking; Drone hardware and software; Starfix.Nav navigation software and MRDGPS GPS QC software.

## **BP Angola; Greater Plutonio Rig Positioning and Batch Set; Block 18 Angola; Fugro Survey B.V.;M/V Iberville; June to July, 2005**

Senior online surveyor responsible for LBL box-in and array calibration for positioning during production and injection well drilling in 1400 meters water depth. Performed testing, rigging and deployment of Sonardyne MK 5 Compatts, followed by box-in and array calibration and subsequent recovery of MF Compatt arrays. Surface positioning software utilized was Starfix.Nav with MRDGPS and Multifix QA/QC software. Subsurface positioning utilized Starfix.acoustics/Sonardyne Data Fusion engine/software. Equipment included Sonardyne RovNav transceiver, MK5 Compatts, PAM

acoustic tester/charger, SAIV STD/CTD, SGBrown Gyrocompass, Trimble, Skyfix XP and Starfix HP GPS, and TSS MRU.

### **Exxon Mobil; Kizomba B Field Development & FPSO Installation; Offshore Angola; Fugro Survey B.V.; Saibos FDS; December, 2004 to June, 2005**

Senior/online surveyor responsible for surface and sub-surface positioning during J-Lay pipelay, jumper/flexible jumper, single hybrid riser (SHR), suction anchor, subsea distribution unit, floating production storage and offloading (FPSO) and OOB (oil offloading buoy) mooring installations in deep water between 900 to 1100 meters water depth. Performed sensor calibrations in addition to data and reporting QA/QC. Surface positioning spread included Skyfix Multifix DGPS, Kongsberg Seapath DGPS and inertial heading, SGBrown gyrocompass, and Fanbeam infrared tracking; sub-surface positioning included Simrad HiPap USBL acoustics, Sonardyne ROV Nav, MK4 Compatts, transponders, responders; SeaKing bathy, Octans MRU, Valeport CTD; Fugro Starfix.seis survey software, and Thales Multifix QA/QC software; Leica total station and digital inclinometer for sensor calibrations.

### **Iranian Offshore Oil Co (IOOC) Sirri-Qeshm 12" Pipeline Installation; Offshore Iran; MSS; p/l/v S355; October to November, 2004**

Responsible charge as party chief overseeing surface positioning operations during conventional multi-vessel pipelay in water depths between 10 – 85 meters in the Persian Gulf. Conventional surface positioning spread included Veripos and CNAV GPS, SG Brown gyrocompass, NavyStar2003, multi-vessel survey software. Three tugs outfitted with Sercel GPS, Oceantools gyrocompass or Simrad Fluxgate compass, Satel and Pacific Crest telemetry, and Navystar tug management software.

### **AGIP Exploration; Jacket Dimensional Control and Sensor Calibration Surveys; Viktor Lenac Shipyard; Rijeka, Croatia; Mediterranean Survey Services (MSS); September, 2004**

Responsible charge as party chief for IKA-B jacket dimensional control survey and sensor calibration prior to jacket load-out. Conventional land survey techniques involving a total station were utilized. Octans MRU base plate misalignment for determination of C-O values was determined using the total station.

### **AGIP Exploration; Naide Monopod Installation; Adriatic Sea, Offshore Italy; Mediterranean Survey Services; Crawler; September, 2004**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 35-meter water depth; 250 ton jacket. Surface positioning spread included C-Nav, Veripos, Omnistar and Sercel DGPS, Meridian gyrocompass, Octans MRU and NavyStar2004-- multi-vessel survey software. Survey class ROV deployed from the barge configured for installation support operations included HPR 400-SSBL, altimeter, Simrad Sonar, Compass and Video overlay. Conventional land survey instrument used to control jacket level.

### **AGIP Exploration; IKA-A Jacket Installation; IKA Gas Field, North Adriatic Sea, Offshore Croatia; Mediterranean Survey Services; Taklift 7; August, 2004**

Responsible charge as party chief for surface and subsurface positioning, anchor handling tug management, conventional land survey and ROV operations; 65-meter water depth; 550-ton jacket. Surface positioning spread included C-Nav, Veripos, Omnistar and Sercel DGPS, Meridian gyrocompass, Octans MRU and NavyStar2004-- multi-vessel survey software. Survey class ROV deployed from the barge configured for installation support operations included HPR 400-SSBL, altimeter, Simrad Sonar, Compass and Video overlay. Wave Rider Buoy deployed for monitoring sea state. Conventional land survey instrument used to control jacket level and mark legs for cut-off.

### **AGIP Exploration; Jacket Dimensional Control and Sensor Calibration Surveys; Rosetti Marino Fabrication Yard; Ravenna, Italy; Mediterranean Survey Services; August, 2004**

Responsible charge as party chief for IKA-A jacket dimensional control survey and sensor calibration prior to jacket load-out. Conventional land survey techniques involving a total station and level combined with static GPS were utilized. Octans MRU was calibrated for C-O values using the established baseline and the total station. Octans base plate misalignment was determined using the total station.

### **Madison Oil (Lotus); Jack-Up Rig Move; Ayazli-1 Well Site; Offshore Erelgi, Turkey; Fugro Oceansismica; Prometeu; July, 2004**

Senior online surveyor responsible for surface positioning during a conventional multi-vessel rig move offshore Turkey in the Black Sea. Surface positioning spread included Starfix Spot DGPS, gyrocompass, Fugro Starfix.seis survey software, and Fugro MRDGPS QA/QC software.

### **Petrobel (AGIP); Jack-Up Rig Move; Tamsah NW-1 Platform; Offshore Port Said, Egypt; Impresub; Adriatic IV; June, 2004**

Responsible charge as party chief overseeing surface positioning, subsurface positioning and ROV site inspection during a conventional multi-vessel rig move offshore Egypt in the Mediterranean Sea. Surface positioning spread included Skyfix MK5 Spot DGPS, gyrocompass, Thales GNS II survey software, and Thales Multifix 4 GPS QA/QC software. Subsurface positioning included Simrad HPR 400 acoustics.

### **IEOC-International Egyptian Oil Company (AGIP); Semi-Submersible Rig Move; Taurt 2 Well; Offshore Port Said, Egypt; Impresub; Actinia; May, 2004**

Responsible charge as party chief overseeing surface positioning during a conventional multi-vessel rig move offshore Egypt in the Mediterranean Sea. Surface positioning spread included Skyfix MK5 Spot DGPS, gyrocompass, Thales TRACS-TDMA (tug management), Thales GNS II multi-vessel survey software, and Thales Multifix 4 GPS QA/QC software.

### **BP Exploration (Shah Deniz); Platform Installation; Central Azeri Platform; Caspian Sea, Azerbaijan; Mediterranean Survey Services (MSS); DBA; March-April, 2004**

Senior online surveyor responsible for surface and subsurface positioning; conventional land survey techniques; and review and documentation of survey procedures for a conventional multi-vessel jacket

installation in 70 m water depth in the Caspian Sea. Conventional surface positioning spread included Skyfix Spot DGPS, Sercel GPS, gyrocompass, Thales TRACS-TDMA bridge card (tug management) NavyStar2003-- multi-vessel survey software, and Thales Multifix 4 GPS QA/QC software. Two ROVs deployed from the derrick barge configured for construction support operations included, HPR-USBL, bathymetric pressure transducer, altimeter, fiber optic gyrocompass, MRUs and Ocean Tools video overlay.

### **IEOC-International Egyptian Oil Company (AGIP); Semi-Submersible Rig Move; Taurt 1 Well; Actinia; Offshore Port Said, Egypt; Impresub; March, 2004**

Responsible charge as party chief overseeing surface positioning during a conventional multi-vessel rig move offshore Egypt in the Mediterranean Sea. Surface positioning spread included Skyfix MK5 Spot DGPS, gyrocompass, Thales TRACS-TDMA (tug management), Thales GNS II multi-vessel survey software, and Thales Multifix 4 GPS QA/QC software.

### **AGIP Exploration (Iran); South Pars Phase 4 & 5, 30" Gas with 4" Piggyback Pipeline Installation; Offshore Iran; MSS; BOS355; October, 2003 to February, 2004**

Responsible charge as survey party chief overseeing surface and subsurface positioning operations during conventional multi-vessel pipelay in water depths between 10 – 85 meters in the Persian Gulf. Conventional surface positioning spread included Skyfix Spot DGPS, gyrocompass, NavyStar2003, multi-vessel survey software, and Sercel QA/QC software. ROV support vessel configured with LBL acoustics for pipeline laydown; touchdown monitoring and as-laid survey configuration included profiler, USBL, pipetracker, bathymetric pressure transducer, altimeter, fiber optic gyrocompass, MRUs, Sercel DGPS, eventing software and NavyStar survey software.

### **BP Exploration (Shah Deniz); Well Site Surveys and Gravity Coring; Deep Water Gunashli Prospect; Caspian Sea, Azerbaijan; Thales Geosolutions (Caspian); August-September, 2003**

Senior surveyor responsible for onboard multibeam acquisition, processing and QC for conventional HR, UHR, and Analogue well site surveys, gravity coring, and pipeline route surveys in water depths ranging between 50 m and 500 m. Conventional HR, UHR and Analogue well site surveys utilizing 2-D seismic, sparker, sub-bottom profiler, side-scan sonar, multibeam sonar and single-beam sonar, gyrocompass, Skyfix MK5 Spot DGPS, PDS 2000 multibeam software, and GNS II navigation software.

### **Dragon Oil; Well Site Survey and Gravity Coring; Zikh 2 Well; Caspian Sea, Offshore Turkmenistan; Fugro Oceansismica; July, 2003**

Senior online surveyor responsible for navigation and positioning during a conventional well site survey with gravity coring in a developed field with many navigation hazards. Conventional HR, UHR and Analogue route surveys utilizing 2-D seismic, sparker, sub-bottom profiler, side-scan sonar, single-beam sonar, gyrocompass, MRUs, Starfix Spot and MN8 DGPS and Starfix.seis/proc navigation/processing software.

**ADOC-Abu Dhabi Oil Company; Ocean Bottom Cable (OBC) Route Survey; Offshore Abu Dhabi, U.A.E.; Fugro Oceansismica; April-June, 2003**

Senior surveyor responsible for multibeam acquisition; offline multibeam processing; and online navigation and positioning during a conventional OBC route survey in shallow water between 5 – 50 meters water depth. Conventional HR, UHR and Analogue route surveys utilizing 2-D seismic, sparker, sub-bottom profiler, side-scan sonar, multibeam sonar and single-beam sonar, gyrocompass, Oistar Fieldbus, MRUs, Starfix Spot, MN8 and HP DGPS and Starfix.seis/proc navigation/processing software. Onboard processing, CAD and reporting performed to deliver preliminary results at completion of data acquisition.

**AGIBA (AGIP); Jack-Up Rig Move; Offshore Abu Rudeis, Red Sea, Egypt; Fugro Oceansismica; January, 2003**

Responsible charge as party chief overseeing surface positioning and ROV drilling inspection during a conventional multi-vessel rig move offshore Egypt in the Red Sea. Conventional surface positioning spread included Starfix Spot DGPS, gyrocompass, Thales GNS-II, multi-vessel survey software, and Fugro MRDGPS QA/QC software.

**IEOC-International Egyptian Oil Company (AGIP); Semi-Submersible Rig Move; Offshore Port Said, Egypt; Fugro Oceansismica; December, 2002**

Responsible charge as party chief for surface positioning during a conventional multi-vessel rig move offshore Egypt in the Mediterranean Sea. Conventional surface positioning spread included Starfix Spot DGPS, gyrocompass, Svitzer Rig Move System multi-vessel survey software, and Fugro MRDGPS QA/QC software.

**AGIP Gas BV– Libyan Branch; Western Libya Gas Project; Bahr Essalam Subsea Production System; Pre-Installation Survey; Offshore Libya; Fugro Oceansismica; 10-11/2002**

Surveyor/Draftsman responsible for report QC, survey processing and AutoCAD drawing for two manifold site surveys in water depth from 140 m to 150 m. Conventional high resolution and analogue site surveys utilizing Chirp sub-bottom profiler, side-scan sonar, HPR acoustics, multibeam and single-beam echo-sounder, gyrocompass, MRUs, Starfix Spot GPS, and Starfix Seis/Proc survey software.

**BP Exploration; As-Trenched/Out of Straightness, As-Backfilled and As-Laid surveys; ETAP Satellites Project; North Sea, U.K.; Geolab; August-September, 2002**

Senior Surveyor responsible for offline video eventing/processing, survey report QC and AutoCAD for ROV pipelay survey in water depths approximately 100 meters in the U.K. sector of the North Sea. ROV platform utilizing profiler, Doppler velocity log, USBL, pipetracker, bathymetric pressure transducer, altimeter, fiber optic gyrocompass, MRUs, Sercel DGPS, Pisys eventing software and Norcom survey software.

**Red Electra/O.N.E.; Electric/Fiber Optic Cable Pre-Engineering Route Survey, As-Laid Survey and Gravity Coring; Strait of Gibraltar, Spain and Morocco; Impresub, May-June, 2002**

Senior Surveyor responsible for offline multibeam processing and bathymetry QC for ROV bathymetric survey and gravity coring in water depths between 5 – 700 meters in the Strait of Gibraltar. ROV platform utilizing multibeam, Doppler velocity log, USBL, Innovatum pipe (cable) tracker,

bathymetric pressure transducer, altimeter, fiber optic gyrocompass, MRUs, Skyfix Spotbeam DGPS, and PDS2000 survey software.

### **Coparex; Well Site Survey; Offshore Tunisia; Fugro Oceansismica; February, 2002**

Senior online Surveyor responsible for navigation and positioning for conventional digital and analogue well site survey offshore Tunisia. Conventional site survey utilizing 2-D seismic, sub-bottom profiler, side-scan sonar, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software.

### **British Gas; Well Site Survey; Offshore Tunisia; Fugro Oceansismica; January, 2002**

Senior online Surveyor responsible for navigation and positioning for conventional digital and analogue well site survey offshore Tunisia. Conventional site survey utilizing 2-D seismic, sub-bottom profiler, side-scan sonar, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software.

### **BP Exploration (Shah Deniz); Inshore Route Survey; Sangachal Pipeline; Shah Deniz Prospect; Caspian Sea, Azerbaijan; Fugro Oceansismica; 10-11/2001**

Senior online Surveyor responsible for multibeam processing and QC; survey report QC; AutoCAD drawings for conventional inshore pipeline route survey in water depths ranging between 2-5 meters. Conventional Analogue route survey utilizing sub-bottom profiler, side-scan sonar, multibeam sonar and single-beam sonar, gyrocompass, Starfix Spot GPS, PDS 2000 multibeam software, and PCNAV/PROC navigation software.

### **Techint International; Pre-Engineering Survey and Gravity Coring; Ecuador OCP Project, Marine Terminals Facilities; Esmerandas, Ecuador; Fugro Oceansismica; October, 2001**

Surveyor/Draftsman responsible for report QC, survey processing and AutoCAD drawing for single point mooring (SPM) site survey, shore approach route survey, and gravity coring from water depth 2 m to 42 m. Conventional site survey utilizing sub-bottom profiler, side-scan sonar, sparker, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, PCNAV/PROC survey software and Surfer DTM software.

### **BP Exploration (Shah Deniz); Pipeline Route/Well Site Survey and Gravity Coring; Sangachal Pipeline; Shah Deniz Prospect; Caspian Sea, Azerbaijan; Fugro Oceansismica; 8-9/2001**

Senior online Surveyor responsible for onboard multibeam processing and QC for conventional HR, UHR, and Analogue well site survey, gravity coring and pipeline route survey in water depths ranging between 80 m and 380 m. Conventional HR, UHR and Analogue well site surveys utilizing 2-D seismic, sparker, sub-bottom profiler, side-scan sonar, multibeam sonar and single-beam sonar, gyrocompass, Starfix Spot GPS, PDS 2000 multibeam software, and PCNAV/PROC navigation software.

### **Calabria District Flood Control; Flood Damage, Debris Survey; Ionian Sea; Catanzaro, Italy; Fugro Oceansismica; July, 2001**

Senior online Surveyor responsible for online navigation and positioning for nearshore flood damage, debris survey in water depth between 0-30 meters. Conventional site survey utilizing sub-bottom profiler, side-scan sonar, magnetometer, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software.

**Tyco Submarine Systems; TGN Central Mediterranean Extension; Submarine Fiber-Optic Cable System; Calvi, Corsica, France; Fugro Oceansismica; June, 2001**

Surveyor/Draftsman responsible for reporting QC and AutoCAD drawing for inshore site survey from water depth 25 m to 0 m and land survey from shoreline to beach front development. Conventional site survey utilizing sub-bottom profiler, side-scan sonar, magnetometer, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software. Conventional land survey utilizing GPS, total station, and automatic level.

**Tyco Submarine Systems; TGN Eastern Mediterranean Extension; Submarine Fiber-Optic Cable System; Pentaskinos, Cyprus; Fugro Oceansismica; May, 2001**

Surveyor/Draftsman responsible for reporting QC and AutoCAD drawing for inshore site survey from water depth 25 m to 0 m and land survey from shoreline to beach front development. Conventional site survey utilizing sub-bottom profiler, side-scan sonar, magnetometer, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software. Conventional land survey utilizing GPS, total station, and automatic level.

**Tyco Submarine Systems; TGN Eastern Mediterranean Extension; Submarine Fiber-Optic Cable System; Tel Aviv, Israel; Fugro Oceansismica; April, 2001**

Responsible as survey client representative for inshore landfall survey from water depth 25 m to 0 m and land survey from shoreline to beach front development. Conventional site survey utilizing sub-bottom profiler, side-scan sonar, magnetometer, single-beam echo-sounder, gyrocompass, Starfix Spot GPS, and PCNAV/PROC survey software. Conventional land survey utilizing GPS, total station, and automatic level.