



Unit : Bluewhale II (# H1278)
Type: : UDW Semi Submersible Drilling Unit / D90-5
Flag : Registry pending
Class : DnV
Built : 2017
Rig Operator : Bluewhale Offshore
IMO Number : IMO # TBA
Email : marketing@bluewhaleoffshore.com



Unit Specifications

Registered Name	Bluewhale II
Rig Type	Ultra Deepwater Column Stabilised Unit
Unit/Design/Shape	Semi-Submersible Drilling unit, Frigstad D90-5
Unit Flag	Flag upon contract commitment
Unit Classification	DNV ✕A1 Column Stabilized Drilling Unit; DYNPOS AUTRO (DP3); POSMOOR ATA; CRANE; HELDK-SH; ECO; F-AM; DRILL; BWM-T
IMO Certification	IMO registration upon contract commitment
Year of Construction	2017
Construction Yard	Yantai CIMC Raffles Offshore Ltd
Type of Positioning System	DP3 and Pre-set Automatic Thruster Assist

Main Dimensions/Technical Description

Weight (light ship)	43,725 tonnes
Displacement at Loadline	69,768 tonnes @ 24 m draft
Draft at Loadline	24 m
Hull Length	402 ft (123 m)
Hull Width	304 ft (93 m)
Moon Pool	44 m x 9 m
Transit Draft	Draft 12.1 m; Displacement 51,379 t
Survival Draft and Airgap	Draft 18 m; Displacement 61,477 t; Airgap 16.5 m

Storage Capacities

Fuel	4,924 m ³
Drilling Water	4,796 m ³
Potable Water	1,256 m ³
Active Liquid Mud	1,418 m ³
Mud Processing Tank	50 m ³
Reserve Brine	575 m ³
Reserve Liquid Mud	1,694 m ³
Base Oil	653 m ³
Bulk Bentonite/Barite	504 m ³ (432 m ³ operating volume)
Bulk Cement	504 m ³ (432 m ³ operating volume)
Sack Storage	9,168 sacks

Propulsion/Thrusters

Thrusters	Eight (8) Wartsila / FS3510 NU azimuth thrusters; 4.5 MW @ 720 rpm
Dynamic Positioning	Kongsberg DP3 and Automatic Thruster Assist Position Reference: DGPS / GLONASS and HIPAP Acoustic with HAIN

Operational Capabilities

Maximum Water Depth	12,000 ft (3,660 m)
Maximum Drilling Depth	50,000 ft (15,240 m)
Transit Speed	Up to 10 knots; Self-propelled

Variable Loading

Variable Load Capacity	Payload capacity of 15,700 tonnes at operating (24 m) and survival (18 m) drafts. Stability booklet for the various operational scenarios available upon request. Seatrials performed Q3 2017
------------------------	---

Environmental Limits

Environmental Limits	Drilling Air gap below main deck: 10.5 m Maximum wave height: 8.2 m Maximum wave period: 14 sec Maximum heave (double amplitude): 4 m Maximum pitch (double amplitude): 3 degrees Maximum roll (double amplitude): 3 degrees
----------------------	---

Mooring System

Anchor Winches & Anchors	Four (4) double drum (4 x 2) NOV-BLM / MW325 winches; Leroy Somer / Emerson motors; 525 kW per winch; Rated pulling capacity (1 st layer) @ 240 tonnes (2,355 kN) Eight (8) fairleads; NOV-BLM Two (2) towing anchors; High holding power; Stevpris MII type; each weighing 18 tonnes
--------------------------	--

Marine Loading Hoses

ML System	Two (2) loading stations; Hymek with hydraulically driven reel. Twelve (12) pre-mounted reels with 60 m long hoses
-----------	--

Cranes, Hoist And Material Handling

Cranes	Two (2) Liebherr / MTC 6000-100 Lit deck cranes; 100 t @ 11.5 m; With 150 t upgrade option; Boom length 207 ft (63 m) Two (2) NOV / C2201PCE knuckle boom tubular handling cranes; Gripper yokes for 20" Casing / 3.5 t; Max. load 14 t @ 17 m; 6 t @ 29 m NOV gantry crane for BOP handling; 600 t NOV gantry crane for XT handling; 120 t NOV gantry crane for Riser handling; 50 t Four (4) NOV man/riding winches in derrick/moonpool; each with 150 kg capacity Ingersoll Rand monorails for material handling; Pneumatic / manual / electric. SWL ratings 1 to 10 t
--------	---

Helicopter Landing Deck

Dimensions	Octagon shaped helideck; 83 ft diameter
Deck Load Capacity	15.6 tonne; UK CAP 437
Refueling System	WILMAX refueling system; Three (3) portable heli-fuel tanks; 3 x 750 = 2250 US Gallons (8,400 litre)
Designed For Helicopter Type	EH101; Sikorsky S92A; MI-8; Sikorsky S16N

Auxiliary Equipment

Water Maker	Two (2) Hattenboer-Water / Demitec SW8040-05; Each with a capacity of 377 bbls/day (60 m ³ /day)
Cargo Transfer Pumps	Two (2) fuel oil transfer pumps in each pontoon; each with a capacity of 40 m ³ /h; 600 kPa Two (2) potable water transfer pumps; each with a capacity of 75 m ³ /h; 600 kPa One (1) potable water storage tank in upper hull; 60 m ³



Unit : Bluewhale II (# H1278)
Type: : UDW Semi Submersible Drilling Unit / D90-5
Flag : Registry pending
Class : DnV
Built : 2017
Rig Operator : Bluewhale Offshore
IMO Number : IMO # TBA
Email : marketing@bluewhaleoffshore.com



Derrick and Substructure

Derrick/Mast	NOV Cylinder Hoisting System (CHS) 1250/48 Base and Crown: 70 ft x 52 ft (21.4 m x 15.8 m) Maximum 2,800 kips (1,270 tonnes) each DC
Racking Platform	NOV / Quad racking platform 5 7/8" DP: 176 stands x 120 ft 6 3/4" DP: 75 stands x 135 ft 5 7/8" HWDP: 26 stands x 135 ft 9 1/2" DC: 5 stands x 124 ft 8" DC: 7 stands x 124 ft 6 3/4" DC: 8 stands x 124 ft Casing (14"/13 3/4" / 13 3/4"): 40 joints x 120 ft Casing (10 3/4" / 9 3/4" / 7"): 67 joints x 120 ft Drill Pipe Riser 6 3/4": 84 joints x 120 ft Production String (3 1/2" / 7"): 111 joints x 120 ft 2 sets of NOV / HydraRacker IV racking arm NOV Casing stabbing board (combined fingerboard served by racking system) Hernis CCTV; Zone 1 rated; zoom / tilt Two (2) fingerboards; Two (2) riser setback areas; Two (2) catwalks; Two (2) drill floors; Two (2) pipe handling cranes; One (1) XT gantry; One (1) BOP gantry; Five (5) Hydraracker arms
Maximum Setback Load	Riser setback: 4,500 tonne Pipe setback: 1,800 tonne
Derrick Hoisting Equipment	Two (2) hydraulic Cylinder Hoisting System (CHS) Towers; NOV- DHT 1250/48 Two (2) crown blocks; NOV Sheave Cluster / CHR-1250-SW; Rated capacity of 1,250 st; 6 sheaves for hoisting; 5 m diameter and 83 mm sheave groove Two (2) swivels integrated in NOV Topdrive / TDX 1250; Rated capacity of 1,250 st; 7,500 psi Two (2) NOV dead line anchors; Hydraulic and electric load cell NOV drill string motion compensator; Stroke length of 25 ft; Capacity - compensated of 1,500 kips (680 t); Capacity - locked of 2,800 kips (1,275 t)
Rotating System	NOV / RT 755 rotary table; Max. opening of 75 1/2"; Static load cap 2,750 kips; Vertical rotating load cap of 1,000 st @ 5 rpm; Max. cont. 45,000 ft-lbs
Top Drive	NOV electric TD - PS and SB; 2,500 kips; Test/working pressure of 7,500 psi; Reliance AC motor 2 x 1,340 hp; Max. continuous torque of 105,000 ft-lbs @ 130 rpm; Max. 275 rpm

Power Supply Systems

Rig Power Plant	Eight (8) Wartsila Diesel Engines / 12V32; Max. continuous power 5,760 kW @ 720 rpm Eight (8) ABB AC generators / ABB-AMG 0900 LT10 LAE; Continuous power 5,530 kW @ 720 rpm; 11 kV output
Compressed Air Systems	Two (2) high pressure starting air compressors; Sperre / HV2-200; each with a capacity of 177 m ³ /hr; Working pressure of 30 bar; Electric prime mover; Continuous power 37 kW Two (2) high pressure cold start compressors; Sperre / HL2-120; each with a capacity of 74 m ³ /hr; Working pressure of 30 bar; Diesel prime mover; Continuous power 40 kW Four (4) medium pressure rig air compressors; TMC / 235-13 EWNA FW; each with a capacity of 1,560 m ³ /hr; Working pressure of 12 bar; Electric prime mover; Continuous power 208 kW Two (2) air dryers; TMC / A-1200; each with a capacity of 1,560 m ³ /hr

Power Supply Systems

Emergency Generator	Two (2) of the main generators are assigned as emergency generators
---------------------	---

Drillstring Equipment

Tubulars	Detailed specification and inventory available upon request
Handling Tools	NOV drill pipe elevators / BX-3; BX-4; BX-5; BX-7 NOV / HGG-500 Manual Centre latched 18" NOV drill collar elevator / BX-4-75 NOV drill pipe hand slips / SDXL (various dims) NOV automatic DP slips / PS-30 (two sets) DCS-L drill collar slips (various dims) NOV drill pipe spinner / SSW NOV mud saver bucket / HMB-H (two sets) NOV hydraulic make-up/breakout machine / Cathead P15 (two sets) HT-65 and HT-100 rotary rig tongs NOV iron roughneck / Hydra Tong MPT 200 Detailed specification and inventory available upon request

Well Control/Subsea Equipment

Primary BOP Stack	Complete BOP stack with guide/frame/pick up attachment/transport base; 18 3/4"; 15,000 psi; H2S service Hydraulic wellhead connector; Drill-Quip / DX-DW; 18 3/4"; 15,000 psi; Hot tap for underwater intervention; One (1) identical spare connector Ram type preventers (7 each); NOV / NXT; 18 3/4"; 15,000 psi; 1 single / 2 treble ram locks Mandrel; Vetco / H4; 18 3/4"; 15,000 psi; VX / VT groove up Fail-safe hydraulic valves (kill and choke); NOV / Dual HB; 15,000 psi; Solid block
Primary Lower Marine Riser Pkg.	Hydraulic connector; Drill-Quip / DX10; 18 3/4"; 10,000 psi; Hot tap for underwater intervention; One (1) identical spare connector Annular type preventer (LMRP); NOV / SBOP; 18 3/4"; 10,000 psi Flex joint; Oilstates / 6K; 18 3/4"; Max. deflection ± 10° Riser adapter; NOV / HT-HB; 18 3/4" Two (2) off 15,000 psi connection lines (choke and kill rigid loops) Subsea accumulators; 2 off 80 USG; Piston type non-compensated; Bottle working pressure 7,500 psi Detailed LMRP specification available upon request
Secondary BOP Stack	Hydraulic wellhead connector; Drill-Quip / DX-DW; 18 3/4"; 15,000 psi Ram type preventers; NOV / NXT Mandrel; Vetco / H4; 18 3/4"; 15,000 psi; VX / VT groove up Fail-safe hydraulic valves (kill and choke); Shaffer / HB Duals; 6 off 3 1/16"; 15,000 psi Subsea accumulators; Piston type non-compensated; 2 off 15 USG and 3 off 120 USG with working pressure 7,500 psi; Depth compensated bottles: 6 off 28 USG with working pressure 5,000 psi 2 off hydraulic control pod / receptacles



Unit : Bluewhale II (# H1278)
Type: : UDW Semi Submersible Drilling Unit / D90-5
Flag : Registry pending
Class : DnV
Built : 2017
Rig Operator : Bluewhale Offshore
IMO Number : IMO # TBA
Email : marketing@bluewhaleoffshore.com



Well Control/Subsea Equipment

Primary Marine Riser System	Currently equipped for $\approx 10,000$ ft water depth Marine riser and pup joints: NOV / FT-HB and HT-HB; OD 21" / ID 19 1/4" Telescopic joint: NOV / FT-HB; ID 18 3/4"; 55 ft stroke; Closed length 71.4 ft; Double seals; Onboard spare; NOV rotating support ring for riser tensioners with 5 connection points Kill/Choke Lines: OD 6 1/2" / ID 4 1/2"; 15,000 psi Booster Line: OD 5" / ID 4"; 7,500 psi Hydraulic supply lines: OD 2 3/4" / ID 2 1/2"; 5,000 psi Upper ball (flex) joint: Oilstates / Intermediate 4; 18 3/4"; Max. deflection $\pm 10^\circ$
Diverter BOP	NOV / 21-500-75-EXT; Max. bore size: 21 1/4"; 500 psi; Three (3) diverter outlets with OD 16" / 14" / 10"; Insert packet size ID 21" annular Diverter flow line to overboard; OD 16"; 500 psi; Piper ball valves Hydraulic remote control valve from Drillers and Toolpushers control panels
Subsea Support System	Six (6) N-Line riser tensioners; each with 800,000 lbs capacity; Max. stroke of 50 ft Tensioner/Compensator Air Pressure Vessels: 36 vessels with total capacity of 3,304 ft ³ ; Working pressure of 3,000 psi
BOP Control System	Surface Accumulator Unit: NOV / Twin Triplex Pump HPU; Soluble oil reservoir capacity of 383 USG; Oil/water mix capacity of 1,064 USG; Glycol reservoir capacity of 383 USG; 64 bottles with working pressure of 5,000 psi Accumulator Hydraulic Pumps: Two (2) NOV / Triplex 165 TSH; 150 hp electric drive; Each pump with flow rate of 44 USG/min @ minimum operating pressure of 5000 psi Graphic control panel at driller's position showing subsea functions with controls for the BOP stack Remote Control Panels: NOV / HMI; Ability to operate main closing unit valves directly
Subsea Control System	One (1) Radoil hose reel in hoist tower; Storage length of 14,000 ft; Pneumatic motor driven Two (2) multiplex cable reels in hoist tower; each with storage length of 14,000 ft Hose/cable OD of 1.12"
Choke and Kill Manifold	Choke Manifold: NOV; Min ID 3 1/16"; 15,000 psi; H ₂ S service Flexible Choke & Kill Lines (riser to drilling unit): Two (2) Coflexip line; ID 3"; 15,000 psi

Mud System/Bulk System

High Pressure Mud System	Four (4) NOV / 14-P-2200 Triplex mud pumps; 6" liners; Each pump with 2 AC induction motors 1,220 hp @ 690 V; Max. working pressure 7,500 psi Discharge/Suction line ID 5 1/4" / 8" Matco / SP140 7500CS pulsation dampener Retsco Titan Class relief valves Working flowrate @ 100% volumetric output: 540 USG/min Three (3) transfer pumps; NOV / 2500 Supreme; Centrifugal; ABB motors Three (3) mixing pumps; NOV / 2500 Supreme; Centrifugal; ABB motors Two (2) standpipe manifolds; welded connections Two (2) rotary hoses; Continental; ID 4" x 162 ft long with snubbing lines Two (2) cementing hoses; Techflow; ID 3" x 162 ft long; 15,000 psi
--------------------------	--

Mud System/Bulk System

Low Pressure Mud System	Ten (10) active mud tanks; Total capacity of 7,745 bbls Three (3) active brine tanks; Total capacity of 2,300 bbls One (1) base oil tank; Total capacity of 4,030 bbls Three (3) slug tanks; Total capacity 805 bbls One (1) overflow tank; Total capacity of 220 bbls Five (5) processing tanks; Total capacity of 320 bbls Two (2) trip tanks; Total capacity of 144 bbls One (1) stripping tank; Total capacity of 5 bbls Four (4) Brandt / VSM 300 shale shakers; 25 bbls/min Two (2) Brandt hydrocyclone desilters; 20 cones x 4"; With NOV / Mission 2500 Supreme centrifugal pump; 36 bbls/min One (1) NOV mud gas Separator (Poor Boy); 15 MMSCF/day
Cuttings Storage	Cuttings handling system with 600 m ³ storage capacity in column tanks
Bulk System	Four (4) NOV barite silos; Each with an operating volume of 72 m ³ ; 87 psi Two (2) NOV bentonite silos; Each with an operating volume of 72 m ³ ; 87 psi Six (6) NOV cement silos; Each with an operating volume of 72 m ³ ; 87 psi All silos equipped with Thames Side / CV3500 weight load cells

Casing/Cementing Equipment

Casing Equipment	Side door casing elevator; NOV; 20" / 250 t Single joint casing elevators; NOV; 7" - 20" range Casing slips; NOV / CMS-XL; 13 3/4" - 20" range Casing tongs; NOV / HT-50 & 65 & CMS-XL; 3 1/2" - 20" range Power casing tongs; NOV / KT 2000 & 8625; 50,700 ft-lbs Additional casing equipment mobilized as per contract agreement
Cementing Equipment	Cementing Manifold: Working pressure 15,000 psi; Cement pump discharge lines min. ID 4" Additional cementing equipment mobilized as per contract agreement

Instrumentation/Communication

Drilling Instrumentation	PS / SB side DCR NOV / Smart Drilling Instrumentation System (Sdi) Weight Indicator: NOV; Digital type sensors Standpipe Pressure Gauges: Two (2) NOV analogue gauges; 0 - 10,000 psi; Two (2) NOV digital gauges; 0 - 7,500 psi Choke Manifold Pressure Gauges: NOV / digital and analogue; 0 - 20,000 psi; 0 - 12,000 psi Rotary Speed Tachometer: NOV / Cyberbase HMI; 0 to 15 rpm Rotary Torque Indicator: NOV / Cyberbase HMI; 0 - 5000 ft-lbs
Rig Communication System	Telephone System: 180 stations in total; IMCOS / Models 5310 & 5362 & 7452; and Gitiessie (sound powered) Public Address System: Gitiessie; Explosion proof Drillers Talkback: Three (3) Gitiessie stations (BOP CR; DCC; Bridge) Handheld VHF Radios: McMurdo / R5; 9 sets



Unit : Bluewhale II (# H1278)
Type: : UDW Semi Submersible Drilling Unit / D90-5
Flag : Registry pending
Class : DnV
Built : 2017
Rig Operator : Bluewhale Offshore
IMO Number : IMO # TBA
Email : marketing@bluewhaleoffshore.com



Instrumentation/Communication

Environmental Instrumentation Temperature: Air (Vaisala) and seawater (Kongsberg Marine) temperatures; with recorders
 Barometric Pressure: Vaisala / PWD-22; with recorder
 Humidity Sensing: Vaisala / PTU-303; with recorder
 Wind Speed/Direction: Gill Wind Observer II / Wind Observer OMC-160; with recorder
 Wave Profile: Kongsberg / MRU5 and MRU5+; with recorder

MODU Specific Instrumentation Roll/Pitch/Heave: Kongsberg / MRU5 and MRU5+; with recorder
 Gyro Compass: Kongsberg / Navigat X Mk 1; 3 units
 Echo Sounder: Skipper / GDS-102; 24 hr memory and printer
 Current Indicator: Kongsberg / Doppler DL850; with recorder
 Weather Facsimile Recorder: Furuno / FAX-30 Backbox type; with recorder
 S-band Radar: Kongsberg / 703041; Bandwidth of 3050 MHz (± 10 MHz)
 X-band Radar: Two (2) Kongsberg / 703038 units; Bandwidth of 9410 MHz (± 30 MHz)

Radio Equipment SSB Transceiver and Watch Receiver: Furuno / FS-5075 & FS-2575; 500 W and 250 W; 1.6 to 30 MHz; Synthesized; Telex capable
 EPIRB: McMurdo / E5 Smart Find; One (1) auto and seven (7) manual units
 VHF Radio Telephone: Three (3) FM / 8900S units; 25 W; All international channels
 VHF Radio Transceiver: Three (3) ICOM / IC-M45A units; 25 W
 Radio Beacon Transmitter: Nautel / VR-125D; 125 W
 Aeronautical VHF Transceiver: Two (2) ICOM / A-110; 36 W PEP; 118 to 137 MHz; Synthesized
 Satellite Communication System: Furuno / Felcom-500; Inmarsat Fleet Broadband; with facsimile link, telephone link and other data capabilities
 V-Sat System: Comtech Seatel / 5012

Production Test Equipment

Burner Boom Two (2) horizontal TSC burner booms; 85 ft long; 51 ft above sea level at drilling draft
 Maximum wind speeds: 36 m/s for operation and 55 m/s in stowed position
 Burner platform size: 2940 mm x 2330 mm
 Regulatory approval by DnV

Workover Tools

Workover Tools As per contract agreement

Accommodation

Offices Bridge / CCR on 6th deck
 Company Reps: Three (3) offices on 5th deck
 BWO Team: Five (5) offices on 5th deck
 BWO Team: Three (3) offices on 6th deck
 Catering: One (1) office on 2nd deck
 3rd Party Reps: Two (2) offices on 3rd deck

Living Quarters 200 PAX capacity; 12 one-man cabins; 94 two-man cabins (shared wetunit / separate bunk enclosures)

Safety Equipment

Gas/Fire/Smoke Detection H₂S monitoring system: Autronica / GT 3000; 158 detection points
 Six (6) portable H₂S detectors; MSA / Altair
 Combustible gas monitoring system: Autronica / HC 2000; 176 detection points
 Two (2) portable CO₂ gas detectors; MSA / Altair
 Six (6) explosimeters; MSA / Altair
 Autronica / BH 500 F&G detection system in LQ

Fire Fighting Two (2) firewater pumps; Shinko / RUP 250 M;
 Vertical centrifugal pumps; Each with an output of 1,409 USG/min (320 m3/hr)

Survival Equipment Four (4) Fassmer / CLX11.7 lifeboats; each with 100 PAX capacity
 16 each Viking / 25DK life rafts; each with 25 PAX capacity; Davit launched; Throw overboard
 Two (2) Fassmer / FRR 6.2 ID rescue boats

Pollution Prevention Equipment

Sewage Treatment EVAC / MBR 160C; Biological type system; in compliance with Marpol / Annex IV / MEPC159(55)

Garbage Compaction/Disposal Delitek / DT-500MC electro-hydraulic waste compactor
 Disperator / 510 BS food waste disposer (grinder)

Oily Water Separator GEA Westfalia / CD 305-00-02 and WSE 50-01-937 solids and oily water separation system

Reviewer's Notes:

