GENERAL SPECIFICATION

AKER H-6e

Equipment / System	Specification
Pipe racks area	1,182 m^2 pipedeck aft. Vertical storage of 2,537 m of riser forward at seperate deck
Load bearing capacity	2,500 kg/m^2
Brine storage (pontoons or columns)	1340 m^3 Brine + compl.fl.
Base Oil Storage (pontoons or columns)	1,460 m^3
Liquid Mud Storage (pontoons or columns)	465 m3 waterbased + 465 m3 oil based mud. Total 930 m3
A.3 PROPULSION/THRUSTERS	
Thrusters\Type (azimuth/in line)	Azimuthing, fixed pitch, variable speed
Quantity	8 x 6,000 hp
Location (aft, opposite corners, 4 corners)	2 in each corner of the pontoon
Driven by electric motor	Yes , AC
Make/type	Rolls Royce Aquamaster
Power output (ea.)	8 x 4,500 kW
Propeller type	Fixed pitch
Nozzled	Yes
Thruster power (total)	8 x 80 mt
Allowable Thruster power-Posmoor mooring analysis	DP class III. Unlimited world wide operation
Location of control stations	All integrated at bridge/control room
Make/Type	Kongsberg Simrad
Position reference	Transponder/beacon/GPS
A.4 OPERATIONAL CAPABILITIES	
Maximum designed water depth capability	3,000 m
Outfitted max. water depth capability	2000 m
Normal min. water depth capability	100 m
Drilling depth capability (rated)	35,000 ft
Transit speed	8 knots (Design value)By thrusters: proved during seatrials 2009
A.5 VARIABLE LOADING AVAILABLE TO OPERATOR	
Transit VL (available to operator equipment)	7,000 mt
Drilling VL	7,000 mt
Survival VL	7,000 mt
Transit possible with full setback load	Yes
Date of last inclination test	10.07.2009
A.6 ENVIRONMENTAL LIMITS	
Drilling	
Air gap (below structural members supporting main deck)	14,5/14 m (Rig moon-pool)
Max. wave height	12 m Beaufort 10
Max. wave period	15.6 sec
Max. wind velocity	45 knots (1 hr 10 min)
Max. current velocity	1 m/s
Max. heave (double amplitude)	4-5 m
Max. pitch (single amplitude)	2.4 degrees
Max. roll (single amplitude)	2.5 degrees
Survival	
Air gap (below structural members supporting main deck)	18.5 /18m (Rig moon-pool)
Max. wave height	100 year
Max. wave period	100 year
Max. wind velocity	100 year
Max. current velocity	100 year
Transit	

Equipment / System	Specification
Air gap (below structural members supporting main deck)	27.8 m
Max. wave height	5,5 m Beaufort 7
Max. wave period	14 sec
Max. wind velocity	33 knots (1 hr 10 m)
Max. current velocity	1 m/s
A.7 MOORING SYSTEM	
A.7.1 Anchor Winches	
Quantity / Make	Aker Pusnes
Type	Electrical (AC)
Rated pull	290 mt
Primary emergency release	Yes
Backup emergency release	Yes
Tension Recording Device	Yes
A.7.2 Fairleads	
Quantity	8
Make	Rolls Royce
Free rotating range	180 degrees
A.7.3 Anchors	
A.7.3.1 Anchors - Primary	
Quantity	8
Make	Vryhof Stevpris MK5
Type	HHP
Weight	15 mt
A. 9 CRANES, HOISTS, AND MATERIALS HANDLING	
All lifting equipment (Section A.9) included in PM system	Yes
A. 9.1 Cranes, Revolving, Main	
Quantity	2
Specification	European Norm. DnV CRANE class notation
Make	Kenz Figee
Type	Lattice
Power	Electric/hydraulic
Location	Port/starboard
Minimum dynamic "over the side" Heavy Lift req.	
load/radius/lift speed/wave height	65 mt at 20 m radius, Seastate 1. 43 mt at 20 m radius, Hs 2.2 m
Whip - mt/radius/lift speed	15 mt full radius range in 3m sig wave
Boom length	51 m
Dynamic(1-3m sig wave) load charts in cab	Yes. Load computer
Load cap chart specifying boom angle and SWL	
for each block posted in cab	Yes
Hook load indicator automatically	
corrected for boom angle	Yes
Load measuring device for main block	Yes
Alarm	Both.
Automatic brake	Yes
Safety latch on hooks	Yes
Boom and block travel-limiting devices	Yes
Boom illumination	Yes

Equipment / System	Specification
Personnel transfer basket - FROG	1
Personnel transfer basket - Billy Pugh	0
A. 9.4 BOP Handling System	
Make/Type	Aker MH/Hydraulic driven trolley
Rated capacity	550 mt
A. 9.5 Air Hoists/Derrick Winches	
A. 9.5.1 Rig Floor Utility (Non man-riding) Winches	
Quantity	Dual RAM rig. 3 on each drill floor
Make	Aker MH
Type	Hydraulic
Rated capacity	5 mt
Automatic brakes	Yes
Overload protection	Yes
A. 9.5.3 Rig Floor Man-Riding Winches	
Quantity	2 at each drill floor.
Make	Aker MH
Type	Hydraulic
Certified and dedicated for man-riding	Yes
Rated capacity	0.15 mt
8:1 SF (includes all associated fittings)	Yes
Operating lever automatically returns to neutral upon release from any position	Yes
Automatic brake (applies when operating lever is returned to neutral and upon loss of power)	Yes
A. 9.5.5 Moon Pool Utility Winches	
Quantity	4
Make	Aker MH
Type	Hydraulic
Rated capacity	5 mt
Wire diameter	19 mm
Automatic brakes	Yes
Overload protection	Yes
A. 9.5.6 Moon Pool Man-Riding Winches	
Quantity	2
Make	Aker MH
Type	Hydraulic
Certified and dedicated for man-riding	Yes
8:1 SF (includes all associated fittings)	Yes
Operating lever automatically returns to neutral upon release from any position	Yes
Automatic brake (applies when operating lever is returned to neutral and upon loss of power)	Yes
A clutch capable of disengagement	Yes
Under/overing prevention devices	Yes
A.10 HELICOPTER FACILITIES	
Meets Transport Canada requirements relating to:	Sikorsky S-92, Super Puma AS 332L and EH-101

Equipment / System	Specification
Design/construction	LMT
Size	Diameter 22.8 m
Location	Top of living quaters
Deck markings	Yes
Illumination	Yes
Fueling systems	Yes
Fire protection	Yes
Fuel storage capacity	Protected area for two storage tanks
Fuel tanks - Jettisonable or protected from damage	Yes
A.11 AUXILIARY EQUIPMENT	
A.11.1 Potable Water Distillation	
Quantity	1 evaporator
Type	Caird and Rayner Clark ltd. / INTEG
Capacity	40 m^3/day
A.11.2 Boilers	
Quantity	2
Make/Type	Parat
Included in PM system	Yes
Capacity (total system)	Steam system used only for ice and snow removal through utility stations around the rig. Can also be used as back up for heating medium on low temperatur cooling water system if generator loads are low through periods with extreme cold weather.
Fixed fire protection	Yes
A.11.3 De-Icing System (deck & superstructure)	
Type	Steam
Total Rated output	2 x 6,000 kg/hr
A.11.4 Air Conditioning/Ventilation	
Make/Type	York Novenco
Separate ventilation systems for hazardous and non-hazardous areas	Yes
A.11.5 High Pressure Cleaner	
Quantity	High Pressure washdown unit
Make/Type	ScanTec
Type	Electrical
Max. delivered pressure	2x21 l/min, 200 barg, water temp. 60°C
A.12 WINTERIZATION - HEAT TRACING AND INSULATION	
Class approved system	Yes
All exposed piping systems protected	Yes
All materials certified "low-flame spread" or "non-combustible"	Yes
Operation possible in	-25 deg. C on hull and structure inclusive safety related equipment. -20 deg. C on all equipment.
A.15 BALLAST AND BILGE SYSTEMS	
Ballast pumps	8 pumps in 4 seperate pump room. 2 in each pontoon.
All power-operated sea inlets, discharge valves and ballast tank isolation valves fail-safe close (and will remain closed until action is taken to open them).	Yes
Main and secondary ballast control stations:	
above water line in damaged condition	Yes

Equipment / System	Specification
equipped as per regulations.	Yes
With any one ballast pump out of operation, system can:	
restore the rig to level trim from 15 degree inclination,	Yes
raise the rig from operating to storm draft in 3 hours	Yes
Bilge system operable at inclinations up to 15 degrees	Yes
"Current" failure modes and effects analysis completed	Yes
B. GENERAL RIG SPECIFICATIONS	
B.1 DERRICK AND SUBSTRUCTURE	
B.1.1. Derrick/Mast	
Make/Type	Dual RAM rig.
Load rating	2 mill. lbs static in main rig. 1 mill. lbs. in aux rig
Gross nominal capacity	908 mt main rig. 454 mt aux rig
Ladders with safety cages and rests	Yes
Platform for crown sheave access	Yes
Counter balance, system for rig tongs and	Yes
pipe spinning tong	
Lighting system explosion proof	Yes
Weather Protected	Yes
B.1.2 Racking Platform	
Make/Type	Aker MH
Racking platform capacity for 5 7/8 " DP / 4 " DP	10 000 m
Racking platform capacity of 8 in DC	800 m totally for DC
Racking platform capacity of 9.5 in DC	
Racking platform capacity of casing	9 5/8" - 2250 m, 13 3/8" - 1400m, 20" - 750 m
B.1.3 Racking Arm	
Make/Type	Aker MH
B.1.5 Substructure	
Make/Type	Aker MH
Height	12 m
Width	22 m
Length	45 m
Setback capacity	755 tonnes
Simultaneous setback-rotary capacity	755 tonnes
Clear height below Rotary table beams	9.5 m
B.1.6 Weather Proofing	
Rig floor windbreaks height	14 m
B.2 RAM RIG AND ASSOCIATED EQUIPMENT	
B.3.7 Drilling String Motion Compensator/Inline/Crown	
Make/Type	Aker MH
Active heave type	Yes
Stroke	7.6 m
Capacity - compensated	680 st
Capacity - locked	680 st
Maximum Load	1,000 st
Pressure system integrity tested every 5 years	Yes/Newbuild
B.4 ROTATING SYSTEM	
B.4.1 Rotary Table	
Make/Type	Wirth

Equipment / System	Specification
Maximum opening	60 1/2 "
Rated capacity	46 knm
Static load capacity	1,000
Maximum continuous torque	46 knm
Drip pan/mud collection system	Yes
B.4.4 Top Drive	
Make	Aker MH
Type (electric/hydraulic)	Hydaulic
Rated capacity	Main rig DDM 908, Aux rig DDM 454
Test/working pressure	11,250/7,500 kPa
Remote operated kelly cock	Yes
Output torque	78,1 kNm continous
Two speed gearbox	Yes
Maximum rotary speed	250 rpm
Speed @ Maximum Torque	120
Maximum Continuous Speed	180-250
Top Drive Saver Sub	2
C. POWER SUPPLY SYSTEMS	
C.1 RIG POWER PLANT	
C.1.1 Diesel Engines	
Quantity	8 in 4 machine room
Make/Type	Rolls Royce (Bergen Diesel)
Maximum continuous power	8 x 7,066 hp
At rotation speed of	720 rpm
Equipped with spark arrestors	Yes
Mufflers installed	Yes
Automatic and manual fuel shut-offs	Yes
C.1.3 AC-Generator	
Quantity	8 (Where 2 are equipped for emergency operation)
Make/Type	Alconza/NIR 10092A-10QLV
Continuous power	6,235 MVA
At rotation speed of	720 rpm
Output volts	11 kV
C.1.4 VSD System	
Number of VSDs	18
Make/Type	Wärtsila
Original or Year installed	2009 (Newbuild)
Maximum continuous power (total)	7028 A
Output volts	690 V
C.1.5 Transformer System	
Quantity	18
Make/Type	EDM/WC or AC
Continuous power (each)	Vary from 2 MVA to 5,6 MVA
Output volts	690 V
Frequency	60
C.1.7 Hazardous Areas	
Meets regulatory requirements with respect to:	

Equipment / System	Specification
area classification,	Yes
access,	Yes
ventilation,	Yes
machinery and electrical installations	Yes
explosion proof lighting & equipment certifications	Yes
C.1.8 Emergency Shutdown	
Emergency shutdown switches for complete power system, ESD 1-2	CCR and Driller cabin
Emergency shutdown switches for complete power system, ESD 3	CCR, Driller cabin, Helideck area, Lifeboat stations
Audible and visual alarms	Yes
C.1.9 Auxiliary Power Supply	
Power supply for a mud logging unit	Yes
Power supply available:	
Output volts	690/400/230
Frequency	60 Hz
Phase	3 and 1 -phase
C.1.10 Compressed Air Systems	
C.1.10.2 Air Compressors - Medium Pressure (rig air):	
Quantity	2 (+ 2 for Cuttings transport)
Make	Atlas Copco
Model	Electric driven screw type
Rated capacity	2 x 2,100 Sm^3/hr
Working press	10 bar
C.2 EMERGENCY GENERATOR	
C.2.1 Engine	
Quantity	Two dedicated Rolls Royce main engines in two different machine rooms are classified as emergency engine/generators
C.3.2 Thruster Motors	
Quantity	8
Type	AC
Power of each	4,500 kW
Total power	36,000 kW
E.2 BOP STACK (from bottom to top)	
Stack complete with:	
- guide frame	Yes
- pick up attachment	Yes
- transport base	Yes
Size (bore)	18.75"
Working pressure	15,000 psi
H2S service (NACE MR 01-75)	Yes
Pressure system integrity tested every 5 years	Yes
E.2.2 Hydraulic Wellhead Connector	
Size	18.75" - dressed for 27" WH (alt 30")
Make/Type	Cameron C-PRO HD H4
Working pressure	15,000 psi
Hot tap for underwater intervention	Yes
E.2.3 Ram Type Preventers	
Preventers:	
Quantity	5
Bore size	18.75"

Equipment / System	Specification
Working Pressure	15,000 psi
Make	Cameron
Model	TL
Type	2 x Double + one super shear
Ram locks	Yes
Pipe rams:	2 x vbr 3 1/2 - 7 5/8, 1 x fix pipe ram, hang off 7 5/8=240t, 6 5/8=187, 5 1/2=175t, 3 1/2=70t
Quantity	1
Variable rams:	
Quantity	2
Size range (max./min.)	2 x vbr 3 1/2" - 7 5/8"
E.2.5 Annular Type Preventer On Stack	
Quantity	1
Working pressure	10,000 psi
Make/Type	Cameron
E.4 MARINE RISER SYSTEM	
E.4.1 Marine Riser Joints	
Make/Model	Aker Drilling Riser, Clip Riser
OD	21"
ID	Tapered
Wall thickness	0.875" (Tapered)
Average length of each joint	75'
Quantity	750 - 2000 m
Type riser connectors	Clip type
E.4.3 Kill/Choke Lines	
Quantity	Yes
Outside diameter	5"
Inside diameter	3.5" + 4,5"
Working pressure	15,000 psi
E.4.4 Booster Lines	
Quantity	1
Outside diameter	5"
Inside diameter	4"
Working pressure	5,000 psi
Check Valve at Riser Connection	Yes
Independent pumping system	Yes
E.4.5 Hydraulic Supply Lines	
Quantity	2
Outside Diameter	4.125"
Inside Diameter	3.5"
Working pressure	5,000 psi
E.5 DIVERTER BOP	
(For installation in fixed bell nipple)	
Make/Type	Vetco Gray
Max. Bore Size	60 1/2"
Working pressure	35 bar
Number of diverter outlets	4
Outlet OD	14

Equipment / System	Specification
Insert packer size ID	20" to 0
E.5.1 Diverter Flowlines	
OD of flowlines	16"
Terminating beyond structure on opposite sides of rig	Yes
Size	16"
Hydraulic control system	Yes
On Close / Auto Open Function Overboard:	Yes
Single function activation (to close diverter and shaker discharge line and open diverter vent line)	Yes
E.6 SUBSEA SUPPORT SYSTEM	
E.6.1 Riser Tensioners	
Quantity	6
Make/Type	Aker MH- Direct Acting tensioners
Capacity each tensioner	242 mt
Maximum stroke	15.25 m
Pressure system integrity tested every 5 years	Yes
E.9 ACOUSTIC EMERGENCY BOP CONTROL SYSTEM	
Make/Model	Kongsberg Simrad
Type	Fixed
Number of functions	5
Type of functions	
LMRP connector release	Yes
Shear ram close	Yes
Other	Locking system on rams, Middle pipe ram, Upper pipe ram.
F. MUD SYSTEM/BULK SYSTEM	
F.1 HIGH PRESSURE MUD SYSTEM	
System working pressure	7,500 psi
F.1.1 Mud Pumps	
Quantity	4
Make	Wirth
Model	TPK 7 1/2" x 14" 2200 HP
Type	Triplex
Liner bays guarded	Yes
F.2 LOW PRESSURE MUD SYSTEM	
F.2.1 Mud Tanks	
Quantity	4 active, 3 reserve, 2 mix, 1 pill and 1 slug
Total capacity	324 m^3 active and 495 m^3 reserve
Feature	Two different mudsystem on surface stored independant
Usable Capacity, tank No. 1 (Heated)	Active 1 & 2 93 m^3
Type (active/reserve)	
Usable Capacity, tank No. 2 (Heated)	Active 3 & 4 34 m^4
Type (active/reserve)	
Usable Capacity, tank No. 3	Reserve 1, 2 & 3 165 m3
Type (active/reserve)	
Usable Capacity, tank No. 4	1 Reserve column tank for OBM storage 465 m^3
Type (active/reserve)	Agitators and recirculation system installed
Usable Capacity, tank No. 5	1 Reserve column tank for OBM storage 465 m^3

Equipment / System	Specification
Type (active/reserve)	Agitators and recirculation system installed
Usable Capacity, tank No. 6	Compl Fl/Brine storage tank in pontoon 1,340 m^3
Type (active/reserve)	Rescirculation system installed
Usable Capacity, tank No. 7	Base oil or premix storage in pontoon 2,150 m^3 1460 m3-LTO + Synth.
Type (active/reserve)	Recirculation system installed
Mixer in each tank	Yes
Mud guns in each tank	Mud guns and permanet mud pit cleaning system installed Shearing devices in two pits.
All mud pits piped into suction hoppers	Yes
F.2.3 Pill/Slug Tank	
Quantity	2
Usable Capacity	21 m^3 each
Mud agitator	Yes
Mud guns	Yes
Heat System/Steam/Electrical Tracing/Capability	Electrical
F.2.4 Trip Tank	
Usable Capacity	2 x 9 m^3
Level indicator	Yes
Facility for casing fill-up	Yes
Alarm and strip chart recorder	Yes
F.2.7 Shale Shakers	
Primary:	
Quantity	4
Make/Model	Axiom
Type	AX-1 Dual tripple deck
Driven by no. of electric motors	2 electrical motors
Design flowrate	420 m^3/h totalt
F.2.11 Mud/Gas Separator (Poor Boy)	
Make/Type	Step Offshore
Primary gas discharge line ID	12" to top of derrick
F.2.12 Degasser	
Make/Type	2 x Vacuum type MI SWACO
Type/size centrifugal pump	Centrifugal pump
Driven by electric motor of power	Electric motor
Discharge line running to	10 m^3 suction + 7 m^3 discharge tanks
Capacity	2,377 gpm total (appr. 1200 each)
F.2.16 Cuttings Transport System	MI Swaco CCB System
F.3 BULK SYSTEM	
F.3.1 Barite/Bentonite Silos	
Quantity	4
Capacity of each silo	100 m^3
Locations	Columns
Relief valve(s) installed	Yes
F.3.2 Cement Silos	
Quantity	4

Equipment / System	Specification
Capacity of each silo	100 m^3
Locations	Columns
F.3.3 Surge Tank for Barite/Bentonite	
Quantity	2
Capacity of each tank	2 x 150 ft^3
F.3.4 Surge Tank for Cement	
Quantity	1
Capacity	150 ft^3
Relief valve(s) installed	Yes
K ACCOMMODATIONS	
K.1 OFFICES	
K.1.1 Company Representative's Offices	
Quantity	One large office with fixed office space for 6 persons. Can be orginized as small cell offices if required
Complete with desk, filing cabinet(s) and	Yes
other necessary furniture and services including UPS	Yes
K.1.2 Contractor Representative's Offices	
Quantity	One large office for 3rd party companies. 8 permanent work stations.
Unrestricted view to drill floor	Through online cameraes/CCTV on all computers onboard
K.1.3 Radio Room	
Quantity	Integrated in CCR
Radio Communications License	Yes
Communications Equipment List	Yes
Internal telephone connection	Yes
K.1.4 Hospital Room	
Number of beds/bunks	One in treatment room.
Wash basin	Yes
Medical cabinet	Yes
Dangerous drugs locker (double lock)	Yes
Internal telephone connection	Yes
Telephone link to onshore physician	Yes
Type "E" first aid kit.	Yes
Equipment and supplies as per OSH	Yes
Recussitation facility	Yes
K.1.5 Mud Laboratory and Facilities	
Separate room	Yes
Equipped with:	
Mud balance	Yes
Marsh funnel	Yes
Filtration kit	Yes
Sand content kit	Yes
Stopwatch	Yes
Ventilation Suitable for heated SBM	Yes
K.2 LIVING QUARTERS	
K.2.1 Staterooms (general)	
Total persons accommodated	160 (140 NCS operations)
Floor area of staterooms	140 Single bed cabins
Bunk size	2000 x 750 mm mattres

Equipment / System	Specification
K.2.4 Food Preparation and Storage Area	
Galley	1
Electrical Appliances (grounded or double insulated)	Yes
Dry food store	1
Refrigerator	2
Freezer	2
K.2.6 Meeting Rooms	
Quantity	2
K.2.7 Recreation Rooms	
Quantity	2
Recreation facilities:	
TV/VCR	Flat screen TVs in each cabin
Gymnasium Workout/Weight Room	Yes
K.2.8 Other Rooms	
Laundry	1
Change Rooms	2
Conference room/Training Room/Heli Lounge	Yes
K.2.9 Ventilation	
Positive Pressure	Yes
Airlock arrangements on all external doors	Yes
L. SAFETY EQUIPMENT	
L.1 GENERAL SAFETY EQUIPMENT	
L.3 FIRE FIGHTING EQUIPMENT	
L.3.1 Fire Pumps	
Quantity	Supplied through low temperatur seawater cooling system to deck level. Redundant from both pontoon and from 2 pump rooms in each pontoon. 4 pumps dedicated.
Make/Model	Bjørge AS
Included in PM system	Yes
Type	Centrifugal pumps
Output	4 x 1,600 m^3/hr
All off take points supplied by each pump	Yes
Fire fighting water delivery conforms to MODU spec	Yes
IMO MODU Code 1989	Yes
L.3.7 Water Deluge System	
Included in PM system	Yes
Well test area	Yes
Drill floor	Yes
Helifuel storage tanks	Yes
Water supplied from fire main line	Yes
Dual pumping systems	Yes
Automatic activation	Yes
Audible & visual alarms at fire / gas indicator panel	Yes
L.5 HELIDECK RESCUE EQUIPMENT	
Meets all regulatory requirements	Yes
Storage box construction material / location	Weather resistant / adjacent to helideck
Included in PM system	Yes
L6 EMERGENCY WARNING ALARMS	
General alarm	Yes

Equipment / System	Specification
Fire	Yes
Gas	Yes
ESD	Yes
Loss of ventilation pressure differential	Yes
Water tight closing appliances	Yes
Bilge and flood	Yes
Included in PM system	Yes
L.7 SURVIVAL EQUIPMENT	
L.7.1 Lifeboats	
Make/Type	Norsafe. Freefall
Included in PM system	Yes
Quantity	4
Total capacity of lifeboats	4 x 80 persons
Locations	2 forward and 2 aft
Designed and equipped to SOLAS requirements	Yes
L.7.2 Liferafts	
Make/Type	Viking SES-2A escape chute
Included in PM system	Yes
Quantity	Two chutes. One forward and one aft. 2 x 100% capacity
Total capacity of liferafts	2 x 100% (2 x 160 persons)
Davit launched or other approved system	Chute from deck level to launch platform lowered to sea level
Locations (fore, apt, port, stbd)	Fore and aft
Designed and equipped to SOLAS requirements	Yes
Evacuation stations fire-protected for 2 hours	Yes
L.7.3 Rescue Boat	
Quantity	1
Included in PM system	Yes
Make/Type	Norsafe
Self-righting	Yes
Davit launched (or equivalent)	Yes, davit fwd.