Amendment No. 38

to

Drilling Contract No. 980249

This Amendment is made and effective on this 28th day of September 2009 by and between BP America Production Company (hereinafter referred to as "COMPANY") with a place of business at 501 Westlake Park Blvd., Houston, Texas 77079, and Transocean Holdings LLC. (hereinafter referred to as "CONTRACTOR") with a place of business at 1311 Broadfield Blvd., Houston, Texas 77084. COMPANY and CONTRACTOR may sometimes be referred to herein individually as a "Party" and collectively as the "Parties".

W I T N E S S E T H:

WHEREAS, by Contract No. 980249 made and effective the 9th December 1998, COMPANY and CONTRACTOR entered into that certain contract for the provision of the Drilling Unit "Deepwater Horizon" and related service, as previously amended by Amendments No. 1 through No. 37 (hereinafter referred to as "Contract"); and

WHEREAS, COMPANY and CONTRACTOR desire to further amend the Contract as more particularly set forth herein.

NOW THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter provided, COMPANY and CONTRACTOR agree to amend the Contract as follows:

1. The Parties agree to extend the term of the Contract for an additional three (3) years commencing from 12:01 a.m. local time on September 18, 2010, which date may sometimes be referred to herein as the "Renewal Date".

2. The Parties agree that with effect from the Renewal Date, the dayrates identified in Exhibit "A", Dayrates, shall be revised as follows:

Operating Rate	***US$497,000.00/day***
Moving Rate	***US$497,000.00/day***
Standby Rate With Crews	***US$497,000.00/day***
Standby Rate Without Crews	***US$497,000.00/day less documented cost savings***
Stack Rate With Crews	***US$497,000.00/day less documented cost savings***
Stack Rate Without Crews	***US$497,000.00/day less documented cost savings***
Equipment Repair Rate	***US$497,000.00/day subject to Article 2.2.5(A)***
Hurricane Evacuation Rate	***Standby Rate Without Crews plus documented expenses of evacuation***

3. The Parties agree that the dayrates specified above will be adjusted in accordance with the adjustment provisions of Article 2.3.2 of the Contract on the first anniversary of the Renewal Date in respect of the second year of the extended term described in Paragraph 1 above and on the second anniversary of the Renewal Date in respect of the third year of the extended term described in Paragraph 1 above. The cost components specified in sub-paragraphs a-d of Article 2.3.2 from which any revisions are to be based shall be base lined to figures supplied by CONTRACTOR to COMPANY and reflect CONTRACTOR's cost on the Renewal Date and are to be agreed by the PARTIES within ninety (90) days after the Renewal Date.

4. With effect from the Renewal Date, existing Articles 21, 22, 23, 24, 25 and 34 of the Contract are to be deleted and replaced with the following:

ARTICLE 21

LIABILITIES AND INDEMNITIES

21.0 *As used in this Article 21, the following defined terms shall have the meaning ascribed to them below:*

"AFFILIATE" of a company shall mean a current or future person or entity directly or indirectly controlling, controlled by, or under common control with such company. "Control" in this context, in the case of a corporation with outstanding voting stock, shall mean the direct or indirect ownership of a power to vote with respect to outstanding shares of a corporation's capital stock constituting 50% or more of the votes of any class of such corporation's outstanding voting stock.

"CLAIMS" means all claims, liens, liabilities, fines, penalties, judgments, losses, damages, and expenses (including without limitation legal costs and expenses and other costs of defence), and shall, except as otherwise expressly provided, include claims based on contractual indemnity.

"COMPANY GROUP" shall mean COMPANY, the CO-VENTURERS, its and their respective AFFILIATES and its and their respective directors, officers, invitees and employees (including agency personnel), but shall not include any member of CONTRACTOR GROUP.

"COMPANY'S MATERIALS" shall mean the equipment, materials, services and supplies to be provided directly or indirectly by COMPANY.

"CONTRACT AREA" shall mean the area in which the WORK is to be performed as set out in Article 14.7.

"CONTRACTOR'S EQUIPMENT" shall mean the DRILLING UNIT together with the DRILLING EQUIPMENT necessary for the performance of the WORK as listed in Exhibit B – CONTRACTOR EQUIPMENT.

"CONTRACTOR GROUP" shall mean CONTRACTOR, SUB-CONTRACTORS, its and their AFFILIATES, its and their respective directors, officers, invitees and employees (including agency personnel), but shall not include any member of COMPANY GROUP or SERVICE COMPANY GROUP provided that if any member of SERVICE COMPANY GROUP is also a SUB-CONTRACTOR it shall be considered, with respect to services performed for CONTRACTOR, to fall within the CONTRACTOR GROUP notwithstanding the definition of SERVICE COMPANY GROUP.

"CONTRACTOR'S PERSONNEL" or "PERSONNEL" shall mean CONTRACTOR'S labour and supervisory personnel engaged in the performance of the WORK, as listed in Exhibit F-1, whether directly employed or indirectly employed through a SUBCONTRACTOR.

"CO-VENTURERS" as applied to COMPANY shall mean any parties to a joint venture agreement whereby COMPANY undertakes to act as operator for such CO-VENTURERS within the CONTRACT AREA in which CONTRACTOR may be required to perform the WORK.

"DEMOBILISATION" shall mean those activities associated with closing down CONTRACT activities in the CONTRACT AREA and moving the DRILLING UNIT off the final location to another location, as may be agreed between the PARTIES, which, upon

completion, shall cause the CONTRACT scope to have been completed.

"DRILLING EQUIPMENT" shall mean the drilling and other drilling related equipment supplied with the DRILLING UNIT as listed in Exhibit B1 – Drilling Unit Specifications, Exhibit B2 – Material Equipment List, and any material or supplies to be furnished by CONTRACTOR in Exhibit B-3 – Material, Supplies and Services .

"DRILLING UNIT" shall mean the named vessel Transocean Deepwater Horizon, formerly known as the RBS8D .

"PARTY" shall mean individually COMPANY or CONTRACTOR and collectively referred to as "PARTIES".

"SERVICE COMPANY" or "SERVICE COMPANIES" shall mean those other companies and persons (including their servants and agents) hired by COMPANY and providing miscellaneous services in conjunction with the WORK.

"SERVICE COMPANY GROUP" shall mean any SERVICE COMPANY, its sub-contractors of any tier, its and their AFFILIATES, and its and their respective directors, officers, invitees and employees (including agency personnel), but shall not include any member of COMPANY GROUP or CONTRACTOR GROUP.

"SUB-CONTRACTOR" shall mean any company contracted or hired by CONTRACTOR of any tier for the provision of any services in conjunction with the WORK.

"SUB-SEA EQUIPMENT" shall mean CONTRACTOR GROUP's sub-sea and mooring equipment including but not limited to riser, slip joints, control hoses, blowout preventers, anchors, anchor winches, anchor wires and chains, tripping lines and buoys, flex joints, control pods, tensioners and attendant components.

"THIRD PARTY" shall mean any party, excluding any member of the COMPANY GROUP or any member of the CONTRACTOR GROUP.

"WELL" shall mean a single hole drilled or to be drilled to a pre-defined spatial target located within the CONTRACT AREA, and shall include any remedial deviations or sidetracking required to reach the target. Any action taken to achieve a second spatial target, or after reaching the pre-defined spatial target any re-spudding or side tracking shall be considered a new WELL.

"WORK" shall mean the provision of equipment, personnel and services by CONTRACTOR as specified in the CONTRACT.

21.1 CONTRACTOR'S EQUIPMENT

(a) CONTRACTOR shall release, defend, indemnify and hold COMPANY GROUP and SERVICE COMPANY GROUP harmless from and against any and all CLAIMS for loss, damage or destruction of CONTRACTOR'S EQUIPMENT, excepting only damage to or loss of:

i) CONTRACTOR'S in-hole DRILLING EQUIPMENT when in the hole as stated in Sub-article 21.1(b).

ii) The SUB-SEA EQUIPMENT as stated in Sub-article 21.1 (c).

Notwithstanding the foregoing, COMPANY shall not be liable to reimburse CONTRACTOR for the loss of or damage to CONTRACTOR's in-hole DRILLING EQUIPMENT and SUB-SEA EQUIPMENT if such loss or damage is due to the sole negligence and/or sole default of CONTRACTOR GROUP and/or a defect in CONTRACTORS EQUIPMENT caused by CONTRACTOR GROUP's negligence.

(b) *In-hole DRILLING EQUIPMENT*

(i) *COMPANY shall reimburse CONTRACTOR for the cost of repair or replacement for loss of or damage (including damage as a result of corrosive properties induced by drilling or completion fluids or geological formation fluids) to its in-hole DRILLING EQUIPMENT while in the hole, less an allowance for depreciation (including, but not limited to drill pipe, drill collars, stabilizers, and subs). The discounted replacement cost factor shall be a percentage of the actual replacement costs, as set out below. Notwithstanding the foregoing COMPANY'S liability in respect of such lost in-hole DRILLING EQUIPMENT shall be limited to US$ 2,500,000 per event.*

For the purpose of assessing the discounted depreciated cost for the lost in-hole materials, CONTRACTOR shall use the formula and factors as follows:

Discounted Replacement Cost is equal to:

[(DR% x Replacement Cost) x (100% - Depreciation Allowance)] + shipping & handling

Where:

	DRILL PIPE (DP)		OTHER IN-HOLE	SUB-SEA EQUIPMENT
Inspection Criteria	DS1-Cat5	Other than DS1-CAT5	DS1-Cat5/ Other than DS1-CAT5	N/A
Start	COMMENCEMENT DATE			
Start Factor (DR)	100%	90%	100% (Cat 5)/ 90% (Other)*	100%
Depreciation Factor (F)	2%	2%	1%	1%
Max. Depreciation	50%			50%
Cap	$2.5M			$10M

DR : *Discounted replacement cost factor or start factor as set out in the above table. Select the DR from the column to which standard the equipment (Other than Sub-Sea Equipment) has been inspected.*

* *if the subject equipment was inspected to Cat 5 inspection then 100% applies and 90% applies if inspected to a lesser standard.*

F : *Depreciation Factor is the monthly depreciation percentage from the tables above.*

Depreciation Allowance shall mean:

F x Number of MONTHS from the COMMENCEMENT DATE. The Depreciation Allowance shall not exceed the maximum depreciation set out in the foregoing table.

Shipping and handling costs are from CONTRACTOR'S yard or vendor stocking location to the DRILLING UNIT.

(ii) *It is further agreed that in the event of any loss covered under this Sub-article 21.1 (b), COMPANY may, at its option, obtain a cost estimate for replacement*

of the lost item. Prior to replacement of the item, CONTRACTOR shall submit to COMPANY at least two formal cost quotes (reflecting a detailed description of equipment, price, vendors, vendor representative names, date of quotes, delivery timing, etc.) for the replacement of the lost item. Should COMPANY be able to obtain such replacement of equipment of equal quality at a lesser cost than that which would be paid by the CONTRACTOR, then the CONTRACTOR will have the option of replacing the material at the lesser cost or asking COMPANY to purchase it. Regardless of whether COMPANY or CONTRACTOR actually purchases the replacement material, credit for the percentage depreciation stipulated above will be calculated in accordance with this provision of the CONTRACT; however, the basis for depreciation shall be the lower of the actual price paid by COMPANY for said material or the price actually paid by CONTRACTOR for said material, as applicable.

(c) SUB-SEA EQUIPMENT

COMPANY shall release, defend, indemnify and hold harmless CONTRACTOR GROUP from all CLAIMS for damage to or loss of CONTRACTOR'S SUB-SEA EQUIPMENT while deployed in its normal operating position and shall reimburse CONTRACTOR an amount equal to the then current replacement costs delivered to the DRILLING UNIT, or the repair cost, whichever is the lesser amount, subject to the formula set forth in Sub-article 21.1(b)(i). Notwithstanding the foregoing COMPANY'S liability in respect of such replacement SUB-SEA EQUIPMENT shall be limited to US$10,000,000 per event.

21.2 COMPANY's MATERIALS

(a) CONTRACTOR shall take all reasonable precautions (including but not limited to the making out of loading notes) to protect and save from loss or damage items of COMPANY'S MATERIALS while in the custody and care of CONTRACTOR. Subject to Sub-article 21.2(b) below when no longer required for the WORK CONTRACTOR shall return surplus COMPANY's MATERIALS to COMPANY, in the same condition as when handed to CONTRACTOR fair wear and tear excepted.

(b) CONTRACTOR shall not be liable to COMPANY for any loss of or damage to items of COMPANY'S MATERIALS except where caused by the negligence of CONTRACTOR GROUP. However, CONTRACTOR'S liability hereunder shall be limited to US$ 25,000 (twenty-five thousand US dollars) per occurrence.

21.3 Personnel and Property

(a) Except as provided for under the provisions of Sub-article 21.5 (b) (i), COMPANY shall release, defend, indemnify and hold CONTRACTOR GROUP harmless from and against any and all liability for sickness, injury or death of any THIRD PARTY or the loss of or damage to any THIRD PARTY property and against all CLAIMS resulting therefrom to the extent of any negligent act or default on the part of COMPANY GROUP in the performance of any of COMPANY's obligations hereunder.

(b) Except as provided for under the provisions of Sub-articles 21.5(a), 21.5 (b)(ii), (iii) and (iv) CONTRACTOR shall release, defend, indemnify and hold COMPANY GROUP and subject to the provisions of Article 21.11, SERVICE COMPANY GROUP, harmless from and against any and all liability for sickness, injury or death of any THIRD PARTY or the loss of or damage to any THIRD PARTY property and against all CLAIMS resulting therefrom, to the extent of any negligent act or default on the part of CONTRACTOR GROUP in the performance of any of CONTRACTOR's obligations hereunder.

(c) *Except as provided for under the provisions of Sub-article 21.2 (b), COMPANY shall release, defend, indemnify and hold CONTRACTOR GROUP harmless from and against any and all liability for loss of or damage to COMPANY GROUP property (including COMPANY's MATERIALS) and/or the property belonging to, or in the possession of COMPANY GROUP personnel and against any and all liability for sickness, injury, or death to any of COMPANY GROUP personnel arising out of the CONTRACT or in tort and against all CLAIMS resulting therefrom.*

(d) *Except as provided for under the provisions of Sub-articles 21.1 (b) and (c) CONTRACTOR shall release, defend, indemnify and hold COMPANY GROUP and SERVICE COMPANY GROUP harmless from and against any and all liability for loss of or damage to CONTRACTOR GROUP property and/or the property belonging to, or in the possession of CONTRACTOR GROUP personnel and against any and all liability for sickness, injury or death to any of CONTRACTOR GROUP personnel arising out of the CONTRACT or in tort and against all CLAIMS resulting therefrom.*

21.4 *Loss of or Damage to the Hole*

COMPANY shall release, defend, indemnify, and hold CONTRACTOR GROUP harmless from and against any and all liability for loss of, damage to, or destruction of the hole (including well equipment) and against all CLAIMS arising therefrom, provided that in the event of CONTRACTOR GROUP'S sole negligence, COMPANY may instruct CONTRACTOR, as its sole remedy, either to drill a new hole to the depth at which the said loss or damage occurred or to re-drill such section of the damaged hole in both instances at the RE-DRILLING RATE and in accordance with the terms of the CONTRACT.

21.5 *Underground Damage and Control of Blowout and Pollution*

(a) *Reservoir Damage*

COMPANY shall release, defend, indemnify and hold CONTRACTOR GROUP harmless against any damage to or destruction of or loss or impairment of any property right in or to oil, gas or other mineral substance or water if at the time of the act or omission causing such damage, destruction, loss or impairment the said substance had not been reduced to physical possession above the surface of the sea-bed, and for any loss or damage to any formation strata or reservoir beneath the seabed resulting from operations under the CONTRACT.

(b) *Pollution*

(i) *CONTRACTOR property*

CONTRACTOR shall assume all responsibility for, including control, clean-up and removal of and shall release, defend, indemnify and hold harmless COMPANY GROUP and, subject to the provisions of Sub-article 21.11, the SERVICE COMPANY GROUP, from all CLAIMS, howsoever caused and arising for pollution or contamination originating from the DRILLING UNIT from, by way of example, spills of fuels, lubricants, motor oils, pipe dope, paints, solvents, ballast, bilge and garbage. For the avoidance of doubt such pollution or contaminants shall exclude any WELL substances, produced fluids, or substances in the riser or drillstring. It shall include any drilling fluids and other such contaminants stored on the DRILLING UNIT prior to use, wholly in CONTRACTOR'S or its SUB-CONTRACTOR'S possession, care or control.

(ii) *Blow-out, cratering, seepage or uncontrolled release of hydrocarbons*

Except as provided for under the provisions of Sub-article 21.5 (b) (i) but subject always to Sub-article 21.5 (b) (iv), COMPANY shall assume all responsibility for, including control, clean-up and removal of and shall release, defend, indemnify and hold harmless CONTRACTOR GROUP from all CLAIMS, howsoever caused and arising in relation to pollution or contamination which may result from fire, blow-out, cratering, seepage, or any other uncontrolled flow of oil, gas, wastes or other substance from any WELL arising out of the CONTRACT.

(iii) Drilling fluids and chemicals

Except as provided for under the provisions of Sub-article21.5 (b) (i) and (iv), COMPANY shall further assume all responsibility for, including clean-up and removal, of any pollution or contamination arising from the use or disposal of oil emulsion, oil based or chemically treated drilling fluids, produced fluids, contaminated cuttings and cavings, lost circulation materials and fluids as well as the furnishing, transportation and disposal or containerisation of any materials and shall release, defend, indemnify and hold CONTRACTOR GROUP harmless from, all CLAIMS, howsoever arising in respect of such pollution or contamination including control, clean-up and removal operations.

(iv) In the event of pollution or contamination as contemplated in Sub-article 21.5 b) ii) and/or Sub-article 21.5 b) iii) whereby COMPANY incurs a liability in respect of the sickness, injury or death of a THIRD PARTY or the loss of, or damage to, any THIRD PARTY property as a result of CONTRACTOR's negligence, then CONTRACTOR shall reimburse COMPANY to the extent of CONTRACTOR's negligence in respect of all such losses or damages incurred by COMPANY up to a maximum aggregate limit of liability of US$10,000,000).

(v) CONTRACTOR shall immediately notify COMPANY of all instances of pollution arising out of operations hereunder and confirm such notification in writing or by telefax or e-mail to COMPANY within 24 hours of the event.

(c) Blowout and cratering

In the event that any WELL shall blowout or crater from any cause, including, but not limited to, the negligence or breach of duty (statutory, contractual or otherwise) of the CONTRACTOR GROUP, COMPANY shall be responsible for and release, indemnify and hold harmless CONTRACTOR GROUP for all CLAIMS resulting therefrom, and shall bear the entire cost and expense of, killing the WELL or otherwise bringing the WELL under control.

This assumption of liability by COMPANY applies only to the cost of bringing the well under control and does not apply to loss or damage to property or injuries to or death of persons caused by such blow-out or crater and shall in no event alter, lessen or affect the liabilities or responsibilities of CONTRACTOR or COMPANY specified elsewhere in the CONTRACT.

21.6 Sunken Property

When required by AUTHORITY or when CONTRACTOR'S sunken property interferes with present or currently planned operations of COMPANY as may be advised by COMPANY in writing, CONTRACTOR shall at its own expense raise and remove the DRILLING UNIT and any property of CONTRACTOR or its SUB- CONTRACTORS which may sink in the course of operations hereunder. In the event that CONTRACTOR does not carry out these obligations, COMPANY may buoy and light the sunken DRILLING UNIT or property

and may remove it (without prejudice to COMPANY'S rights) and in such event CONTRACTOR shall refund to COMPANY all costs so incurred. The fact that the sunken DRILLING UNIT or property is insured or has been declared a total loss shall not absolve CONTRACTOR from its obligations to raise and/or remove same. This Article shall remain binding on CONTRACTOR notwithstanding the termination of the CONTRACT for any reason.

The obligations of CONTRACTOR as provided for in Sub-article 21.6 shall cease when the DRILLING UNIT comes under tight tow at the final LOCATION prior to DEMOBILISATION except where COMPANY has previously provided written notice to CONTRACTOR that there is sunken property of CONTRACTOR or CONTRACTOR GROUP that must be removed in accordance with the terms of this CONTRACT.

21.7 Consequential Loss

Notwithstanding any provisions to the contrary elsewhere in the CONTRACT (but without prejudice to Articles 21.1 through 21.6), and except to the extent of any agreed liquidated damages or any termination fees provided for in the CONTRACT, COMPANY shall save, indemnify, release, defend and hold harmless CONTRACTOR GROUP from COMPANY GROUP's own Consequential Loss and CONTRACTOR shall save, indemnify, release, defend and hold harmless COMPANY GROUP, and SERVICE COMPANY GROUP from CONTRACTOR GROUP's own Consequential Loss. CONTRACTOR's obligation with respect to SERVICE COMPANY GROUP shall be subject to the provisions of Sub-article 21.10.

For the purposes of this Sub-article 21.7 the expression "Consequential Loss" shall mean any indirect or consequential loss howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity.

Without prejudice to the foregoing, "Consequential Loss" shall be deemed to include, also, the following losses, whether direct or indirect or consequential:

(a) loss or damage arising out of any delay, postponement, interruption or loss of production, any inability to produce, deliver or process hydrocarbons;

(b) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable, under any contract for the sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;

(c) losses associated with business interruption including the cost of overheads incurred during business interruption;

(d) or any loss of or anticipated loss of use, profit or revenue, or loss of bargain, contract, expectation or opportunity (which for the avoidance of doubt shall not include payments due to CONTRACTOR by way of remuneration under this CONTRACT or damages of CONTRACTOR for the loss of this CONTRACT or any profit, revenue, expectation or opportunity thereunder); and

(e) COMPANY GROUP's spread costs, such as hire or other charges payable to owners of vessels or equipment and the costs of keeping the COMPANY GROUP's vessels and equipment and SERVICE COMPANY GROUP equipment and personnel on location or other similar costs; and

(f) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing.

21.8 Indemnities in their Entirety

It is the PARTIES intention that the release, defense, indemnity and hold harmless obligations provided for in this CONTRACT are to apply:

a) without regard to any conflicting rules of liability under any applicable law or regulation,

b) without regard to any successful limitation or exoneration of liability proceeding filed by or on behalf of either PARTY or any other person or entity pursuant to the laws of any state or country or the provisions of any international convention, and

c) whether or not the CLAIM is: (i) predicated on negligence, breach of duty (statutory or otherwise) or strict liability (except as expressly set out in Sub-articles 21.1, 21.2 b), 21.3 a), 21.3 b), 21.4 and 21.5 b) iv)), or (ii) sought directly or indirectly by way of recovery, indemnification, or contribution by any person or entity against either PARTY (or any person or entity to whom indemnity is owed).

The release, defense, indemnity and hold harmless obligations as provided in the CONTRACT shall apply whether or not any injury, death, illness, loss or damage is occasioned by or the result in whole or in part of the negligence or fault, whether sole, concurrent, gross, joint, active, or passive, of either PARTY (or any person or entity to whom indemnity is owed), breach of contract, any theory of tort, strict liability, breach of duty (statutory, expressed, implied or otherwise provided in law or equity), breach of warranty (expressed or implied), or WILFUL MISCONDUCT, products liability or any other theory of liability, or the unseaworthiness of any vessel or unairworthiness of any aircraft, or is the result of any pre-existing condition or other premises liability (patent or latent, known or unknown),, and shall include, without limitation, any injury, death, illness, loss or damage directly or indirectly arising out or related to ingress, egress, loading or unloading or the presence of any covered person at or on or in transit to or from the CONTRACT AREA or any facility, platform, rig, vessel, aircraft or other premises owned, leased, used, or chartered by CONTRACTOR GROUP, SERVICE COMPANY GROUP or COMPANY GROUP directly or indirectly connected with any WORK under this CONTRACT within the CONTRACT AREA.

"WILFUL MISCONDUCT" shall mean an intentional disregard of good and prudent standards of performance.

21.9 Claims

If either PARTY becomes aware of any incident likely to give rise to a CLAIM under the above indemnities, they shall notify the other and both parties shall co-operate fully in investigating the incident.

21.10 The releases of liability, indemnities, defence, save and hold harmless provisions furnished by CONTRACTOR in Article 21, and the releases of liability, indemnities, defence, save and hold harmless provisions given by SERVICE COMPANY in COMPANY contracts shall apply:

(a) save as provided below for the benefit of the SERVICE COMPANY GROUP in the case of the releases of liability and indemnities, defence, save and hold harmless provisions furnished by CONTRACTOR; and,

(b) for the benefit of CONTRACTOR GROUP in the case of the releases of liability and indemnities, defence, save and hold harmless provisions given by the SERVICE COMPANY in COMPANY contracts.

The releases of liability, indemnities, defence, save and hold harmless provisions given by CONTRACTOR in this ARTICLE 21 in favour of SERVICE COMPANY GROUP shall be

provided by CONTRACTOR on the express understanding that they shall only apply in favour of such SERVICE COMPANIES who have provided substantially similar and reciprocal releases of liability, indemnities, defence, save and hold harmless provisions in favour of CONTRACTOR GROUP in their respective contracts with COMPANY. The releases of liability, indemnities, defence, save and hold harmless provisions provided by CONTRACTOR in this Article 21 in favour of SERVICE COMPANY GROUP shall become effective from such time and for such duration as such SERVICE COMPANIES become bound by substantially similar reciprocal releases of liability, indemnities, defence, save and hold harmless provisions in favour of CONTRACTOR GROUP in their respective contracts with COMPANY.

In fulfilment of this objective, COMPANY shall use commercially reasonable endeavours to ensure that in its respective contracts with SERVICE COMPANIES, the releases of liability, indemnities, defence, save and hold harmless provisions contained in such contracts in favour of CONTRACTOR GROUP shall be substantially similar and reciprocal to the releases of liability, indemnities, defence, save and hold harmless provisions given by CONTRACTOR in this Article 21 in favour of SERVICE COMPANY GROUP.

In the event that COMPANY is unable to fully fulfil the foregoing objective, then without delay, and in any event prior to permitting such SERVICE COMPANY to travel to the DRILLING UNIT, COMPANY shall notify CONTRACTOR in writing with details of the additional risk being assumed by CONTRACTOR, as soon as is reasonably practicable thereafter and the PARTIES further undertake to meet to discuss ways of minimising the impact of such a notification within the overall requirements of the CONTRACT. Failure by COMPANY to issue such written notification as required herein will constitute a material breach of the terms of the CONTRACT.

In the event that COMPANY advises CONTRACTOR that one or more SERVICE COMPANIES have declined to provide substantially similar releases of liability, indemnities, defence, save and hold harmless provisions in favour of CONTRACTOR GROUP in their respective contracts with COMPANY, the PARTIES shall meet to discuss and agree ways of minimising the impact of such additional risks as may be identified by either PARTY which may include: alternative working practices or arrangements to minimise the impact of such risks; a separate mutual hold harmless agreement applicable at the LOCATION or additional compensation to enable CONTRACTOR to insure against such additional risks.

The failure of any SERVICE COMPANY to provide substantially similar releases of liability, indemnities, defence, save and hold harmless provisions in favour of CONTRACTOR GROUP in their respective contracts with COMPANY or agree a risk mitigation plan to the satisfaction of CONTRACTOR as provided for herein shall entitle CONTRACTOR to refuse access to the DRILLING UNIT for all such SERVICE COMPANIES and CONTRACTOR shall not be penalised in any fashion by COMPANY.

21.11 *Notwithstanding Sub-article 21.10, the failure of one or more SERVICE COMPANIES to provide substantially similar releases of liability, indemnities, defence, save and hold harmless provisions in favour of CONTRACTOR GROUP in its respective contracts with COMPANY as envisaged herein shall cause such SERVICE COMPANIES to be considered a THIRD PARTY for the purposes of this CONTRACT.*

ARTICLE 22 NOT USED

ARTICLE 23 NOT USED

ARTICLE 24 NOT USED

ARTICLE 25 NOT USED

ARTICLE 34 NOT USED

5. With effect from the Renewal Date, the following new Articles 36 and 37 (together with Attachment 1 referenced in Article 36), are to be inserted as follows:

ARTICLE 36

BUSINESS ETHICS

COMPANY wishes to make it clear that it intends its business dealings to be characterised by honesty and freedom from deception and fraud and that it finds unethical behaviour unacceptable. Practices that COMPANY considers dishonest, unethical or unacceptable are listed in Attachment 1 – CODE OF CONDUCT and are set out in further detail in the document entitled "Our commitment to integrity" (hereafter referred to as the "BP Code of Conduct") a copy of which may be obtained using the web link highlighted in Attachment 1 – CODE OF CONDUCT. CONTRACTOR shall review the BP Code of Conduct. In connection with the performance of this CONTRACT, CONTRACTOR undertakes and agrees to act consistently with the principles of the BP Code of Conduct and refrain from practices that COMPANY considers dishonest, unethical or unacceptable, as set out in Attachment 1 – CODE OF CONDUCT.

ARTICLE 37

ANTI-CORRUPTION UNDERTAKINGS

37.0 "COUNTRY OF OPERATIONS" shall mean the country in which the WORK is to be performed as set out in CONTRACT SCHEDULE. COUNTRY OF OPERATIONS shall encompass the CONTRACT AREA.

37.1 CONTRACTOR and COMPANY each agree and undertake to the other that in connection with this CONTRACT and the transactions contemplated by this CONTRACT, they will each respectively comply with all applicable laws, rules, regulations, decrees and/or official governmental orders of the United Kingdom, the United States of America and the COUNTRY OF OPERATIONS relating to anti-bribery and anti-money laundering.

37.2 CONTRACTOR agrees, undertakes and confirms that, in connection with the transactions contemplated by this CONTRACT, it and each of its AFFILATES and its and their respective directors, officers, employees and persons acting within their scope of authority on behalf of them, have not, made, offered or promised to make, and will not make, offer, or promise to make, any payment or other transfer of anything of value, including without limitation the provision of any service, gift or entertainment, directly or indirectly

(a) to any government official (including directors, officers and employees of government-owned and government-controlled companies and public international organizations);

(b) to any director, officer or employee of COMPANY or its CO-VENTURERS or any of its or their AFFILIATES;

(c) to any political party, official of a political party, or candidate for public office;

(d) to an agent or intermediary for payment to any of the foregoing; or

(e) to any other person or entity

for the purpose of obtaining or influencing the award of or carrying out this CONTRACT if and to the extent that to do so is or would be either, in violation of or inconsistent, in any material way, with the anti-bribery or anti-money laundering laws of any relevant jurisdiction, including, without limitation, the U.S. Foreign Corrupt Practices Act, the U.K. Anti-Terrorism, Crime and Security Act 2001 and successor legislation, the applicable country legislation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and/or the anti-corruption laws of the COUNTRY OF OPERATIONS.

For the purposes of this Article 37, the term "government official" shall mean any director, officer or employee of any government or any department, agency or instrumentality thereof, and/or of any enterprise in which a government owns an interest, and/or of any public international organization. This term also includes any person acting in any official, administrative or judicial capacity for or on behalf of any such government or department, agency, instrumentality, COMPANY, or public international organization.

37.3 CONTRACTOR agrees and undertakes that in connection with this CONTRACT and in connection with any other business transactions involving COMPANY GROUP and CONTRACTOR in the COUNTRY OF OPERATIONS, CONTRACTOR and each of its Affiliates shall:

a) have and will apply effective disclosure controls and procedures; and

b) have and will maintain books, records, and accounts which, in reasonable detail, accurately and fairly reflect the transactions undertaken and the disposition of assets; and

c) have and will maintain an internal accounting controls system that is sufficient to ensure the proper authorization, recording and reporting of all transactions and to provide reasonable assurance that violations of the anticorruption laws of the applicable jurisdictions will be prevented, detected and deterred.

37.4 In the event that COMPANY has any reasonable basis for a good faith belief that CONTRACTOR and/or any of its Affiliates may not be in compliance, in any material way with the undertakings and/or requirements set forth in Sub-articles 37.1, 37.2 and/or 37.3, then COMPANY shall advise CONTRACTOR in writing within fourteen (14) days of it first becoming aware of such a possibility, and CONTRACTOR shall thereafter cooperate fully with any and all enquiries undertaken by or on behalf of COMPANY in connection therewith, including the provision by CONTRACTOR of personnel and supporting documents and affidavits if reasonably deemed necessary by COMPANY.

37.5 COMPANY shall have the right to terminate this CONTRACT with immediate effect:

(a) with respect to breach or non-fulfillment of CONTRACTOR's agreements, duties and undertakings in Sub-article 37.2; or

(b) with respect to a material breach by CONTRACTOR in connection with the CONTRACT in the performance of its obligations set out in Sub-Articles 37.1 and 37.3 which results in a material adverse effect on COMPANY;

provided however, that COMPANY shall have provided CONTRACTOR with written notice of its intention to terminate the CONTRACT under the provisions of this Article 37 together with the reasons therefore and that CONTRACTOR has been unable within thirty (30) business days of delivery of such notice to provide COMPANY with evidence which reasonably demonstrates that CONTRACTOR has not failed to comply with or

fulfill any of the foregoing agreements, undertakings or requirements. Termination shall, except as provided in this Sub-article 37.5, represent COMPANY's sole and exclusive right of recourse against CONTRACTOR, whether under this CONTRACT or otherwise at law

Notwithstanding termination of this CONTRACT pursuant to this Sub-article 37.5, CONTRACTOR agrees to indemnify and hold harmless COMPANY and its affiliates and their respective officers, directors and employees, from the cost of any fines assessed by any AUTHORITY on such persons or entities as a result of any breach by CONTRACTOR of the provisions of Sub-articles 37.1 to 37.5 and 37.8.

37.6 In the event of termination in accordance with the provisions of this Article 37, COMPANY shall make payment to CONTRACTOR for the WORK performed up to the time at which COMPANY terminated the CONTRACT and such other payments as may be due in respect of such termination as described in Exhibit A – DAYRATES.

37.7 Any dispute arising hereunder as the result of COMPANY exercising its rights under Sub-article 37.5 hereof shall be settled in accordance with the provisions of Article 35.4 – ARBITRATION.

37.8 CONTRACTOR shall endeavour that the foregoing provisions (or substantially equivalent provisions) are included in all its sub-contracts entered into for the purpose of conducting the WORK hereunder.

6. With effect from the Renewal Date, delete the existing text of Exhibit D and insert new Exhibit D, HSSE Requirements, incorporating the attached terms marked as "Exhibit D".

7. With effect from the Renewal Date, delete the existing text of Exhibit B-2 and insert new Exhibit B-2, material equipment list, incorporating the attached terms marked as "Exhibit B-2". The Parties expressly agree that the following items are owned by CONTRACTOR, are dedicated to the DRILLING UNIT and will be available at COMPANY's request, and once deployed to the DRILLING UNIT shall form a part of CONTRACTOR's EQUIPMENT, but any costs associated with maintenance, inspection and replacement of said items, which will be incurred at COMPANY's sole discretion, shall be borne by COMPANY, notwithstanding any provision of the contract to the contrary:

    14,000 feet of 6-5/8" drill pipe 32.6 ppf S-135 FH R3
    4,000 feet of 6-5/8" drill pipe 40 ppf S-135 FH R3
    8,000 feet of 5" drill pipe 19.5 ppf S-135 4 ½" IF R3

8. With effect from the Effective Date, delete the existing text of Exhibit F-1 and insert new Exhibit F-1, PERSONNEL, incorporating the attached terms marked as "Exhibit F-1". The Parties expressly acknowledge that the adoption of the replacement Exhibit F-1 by this Amendment No. 38 is without prejudice to the rights of the Parties under the Contract, including without limitation COMPANY's rights under Letter of Agreement dated April 19, 2004, Subject: Contract Extension Agreement ("AGREEMENT") Contractor-5121-2002-011. The Parties further agree that the adoption of the replacement Exhibit F-1 by this Amendment No. 38 shall serve to extinguish the rights and obligations of the Parties pursuant to the Letter of Agreement dated February 20, 2005, Reference No. "CONTRACTOR 5121 – 2002 – 011" in respect of the furnishing of two (2) additional Deck Pushers.

Except as expressly changed by this Amendment No. 38, the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, the authorized representatives of the Parties hereto have executed this Amendment No. 38 in duplicate originals as of the date and year first above written.

BP AMERICA PRODUCTION COMPANY
COMPANY

By: _____

Wilbert Lee Jr.
Printed Name

Title: CPO GoM

TRANSOCEAN HOLDINGS LLC
CONTRACTOR

By: _____

KEEGAN ADAMSON
Printed Name

Title: MANAGING DIRECTOR - NORTH AMERICA.

ATTACHMENT 1 – CODE OF CONDUCT

The BP code of conduct stands for a fundamental BP commitment – to comply with all applicable legal requirements and the high ethical standards set out in this code – wherever we operate. To help us meet this commitment, the code defines what BP expects of its businesses and people regardless of location or background. It provides both guidance in key areas and references to more detailed standards, instructions and processes for further direction.

All employees must adhere to the principles and requirements contained in this code and should consult the code for guidance when acting on behalf of BP.

Employees must not use a contractor, agent, consultant or other third party to perform any act which conflicts with this Code. Employees who engage third parties such as contractors, agents or consultants to work on behalf of BP are required to gain a commitment from such parties that they will support the principles of this Code, including a contractual requirement to act consistently with the Code when working on our behalf.

BP wishes to make it clear that it intends its business dealings to be characterised by honesty and freedom from deception and fraud and that it finds unethical behaviour unacceptable.

Practices that BP considers dishonest, unethical or unacceptable include the following:

- Fraud, bribery or corruption
- Deception;
- Clandestine brokering or sharing of tender information;
- Collusion for the purpose of corrupting a competitive tender; and
- Payments, gifts or entertainment from suppliers to BP staff, agents or representatives to influence decision-making.
- Harassment in the Workplace

BP is committed to ensuring that its contractors apply the applicable principles contained within the "Code of Conduct" document. BP will endeavour to employ only those contractors that subscribe to these principles, demonstrate their commitment to working towards their fullest application, and agree to the measurement of their performance by BP.

The individual rights are intended to lead to greater mutual respect between both individuals and the companies they work for. They seek to encourage safer and more secure employment, increase efficiency, improve job satisfaction and provide a better trained workforce for all those engaged in the provision of Services under the Contract.

An electronic copy of BP's Code of Conduct "Commitment to Integrity" can be downloaded from the following internet web site:

http://www.bp.com/sectiongenericarticle.do?categoryId=9003494&contentId=7006600

Where to go for help

If you do have a question or concern about legal or ethical standards, what, as a Contractor, should you do?

A good place to start

Contacting the **BP Representative/Contract Accountable Manager** named in Section 1 of the Contract is usually a good place to start with a legal or business conduct issue. You may also get help or advice from your own **legal** or **compliance & ethics advisors** within your own company.

The BP OpenTalk line

If you feel unsure about where to go for help, or are uncomfortable contacting the Contract Accountable Manager, BP has an additional resource that can help – OpenTalk.

The purpose of OpenTalk is to answer questions and respond to concerns about compliance, ethics and the requirements described in this code. The OpenTalk telephone line and e-mail facility is operated by an independent company that helps businesses respond to questions and concerns about compliance and ethics.

The line operates 24 hours a day/seven days a week and also has translation services available at all times.

Call OpenTalk on your local number or on 0800 917 3604 (UK), 1-800 225-6141 (US), or the collect call number 1 704 540 2242. or at the following:

A full list of local telephone numbers can be accessed on the OpenTalk website http://opentalk.bpweb.bp.com or you can e-mail the following address opentalk@myalertline.com

EXHIBIT "D"

HSSE REQUIREMENTS

[ATTACHED]

HSE Management

INDEX

ATTACHMENTS

1. Scope Specific HSSE Requirements
   - HSSE Standard 01 Vibration
   - HSSE Standard 02 Noise
   - HSSE Standard 03 Automation/Mechanisation
   - HSSE Standard 04 Man Riding
   - HSSE Standard 05 Lifting Operation
   - HSSE Standard 06 Waste Management
   - HSSE Standard 07 Maintenance
   - HSSE Standard 08 Dropped Objects
   - HSSE Standard 09 Risk Management
   - HSSE Standard 10 Ventilation
   - HSSE Standard 11 Lighting
   - HSSE Standard 12 Work Time
   - HSSE Standard 13 Hazardous Materials

2. CONTRACT AREA Specific HSE Requirements
   - GoM Specific HEALTH, SAFETY, SECURITY, AND ENVIRONMENTAL REQUIREMENTS
   - Substance Abuse Policy

1.0 "GETTING HSE RIGHT"

COMPANY is committed to conducting its business in a manner which:-

(a) ensures that all COMPANY facilities are designed, constructed, maintained and operated to high and consistent standards;

(b) complies with all relevant laws and regulations; and

(c) is compatible with the balanced economic and environmental needs of the community.

2.0 HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT SYSTEM

2.1 Prior to commencement of the DRILLING SERVICES and at routine periods thereafter, CONTRACTOR shall provide COMPANY with a written statement on the health, safety and environmental (HSE) policy of CONTRACTOR relevant to the DRILLING SERVICES to be performed by CONTRACTOR and subsequently, any revision or amendment issued during the term of the CONTRACT.

2.2 CONTRACTOR must have in place and be actively using a formal HSE management

system which demonstrates commitment to continuous improvement and excellence in HSE issues.

2.3 CONTRACTOR's HSE management system shall be adequately documented, shall be shown to be effective in implementing the aims and objectives of CONTRACTOR's HSE policy and shall include provisions for auditing the effectiveness of CONTRACTOR's HSE management system as applied to the DRILLING SERVICES.

2.4 CONTRACTOR shall review its HSE management system at least annually and update it as necessary.

2.5 Without prejudice to the foregoing generalities, CONTRACTOR's HSE management system shall:-

(a) require an assessment of all identifiable HSE risks associated with the DRILLING SERVICES to be identified and submitted to COMPANY and shall indicate the proposed method of controlling those risks to an acceptable level;

(b) include measurable and realistic targets for HSE performance, covering, but not necessarily limited to:-

- the frequency of injuries;
- the frequency of chemical and oil spills;
- the number of statutorily reportable events; and
- predetermined targets for environmental emissions and waste production as appropriate to the DRILLING SERVICES;

(c) include a follow-up system to ensure that all remedial actions identified by reviews and investigations are closed out, including accidents, incidents and HSE audits;

(d) incorporate measures which demonstrate that all PERSONNEL provided by CONTRACTOR are competent and physically/medically fit at all times to perform their tasks;

(e) incorporate measures which demonstrate that, in the performance of the DRILLING SERVICES, PERSONNEL provided by CONTRACTOR are not under the influence of drugs or alcohol (see section 12.0); and

(f) demonstrate that the system for the pre-qualification and selection of SUBCONTRACTORS ensures the compatibility and effectiveness of the SUBCONTRACTOR'S own HSE management systems.

2.6 Certain activities pose a higher risk to the safety of personnel, property and the environment. Higher risk activities will accordingly demand a higher level of HSE management from CONTRACTOR. Where the use of a SUBCONTRACTOR involves the importation of higher risk activity, CONTRACTOR shall ensure and demonstrate the appropriate level of HSE management.

2.7 Risk may vary from one LOCATION to another and, where the DRILLING SERVICES is being provided at more than one LOCATION, CONTRACTOR may be required to provide different levels of HSE management at each LOCATION.

3.0 COMPATIBILITY OF HSE MANAGEMENT SYSTEMS

3.1 CONTRACTOR's HSE management system shall, where relevant interfaces exist, be compatible with COMPANY'S HSE management system. CONTRACTOR shall liaise with COMPANY REPRESENTATIVE to ensure that the roles and responsibilities in the systems of all parties are clearly defined and allocated and are clearly understood by all parties involved in the DRILLING SERVICES and associated operations.

3.2 Within the framework of its HSE management system, CONTRACTOR shall perform the DRILLING SERVICES to HSE performance standards, which are compatible with those in COMPANY's HSE Management System.

3.3 Where appropriate, the interfaces between CONTRACTOR and COMPANY shall be documented in the form of an HSE Management System (HSEMS) Interface Document which when agreed between the PARTIES hereto shall be deemed to be incorporated in the CONTRACT. The preparation of these Interface Documents shall be to the account of the CONTRACTOR and shall be prepared before the COMMENCEMENT DATE. The HSEMS Interface Document shall incorporate any specific requirements relevant to the DRILLING SERVICES and take account of current industry standards, appropriate legislation and guidelines applicable to the CONTRACT AREA.

3.4 Where applicable, the CONTRACTOR shall ensure that similar standards apply to the HSE management systems used by all SUBCONTRACTORS.

3.5 CONTRACTOR'S HSE management system together with the HSE Management System Bridging Document ("HSEMS") shall collectively define and govern the HSE requirements for the DRILLING SERVICES.

4.0 COMPLIANCE

4.1 CONTRACTOR and its SUB-CONTRACTORS shall observe and comply with all relevant and current statutory requirements, approved codes of practice and industry guidance on HSE matters.

4.2 CONTRACTOR shall ensure that PERSONNEL and personnel provided by the CONTRACTOR comply with all relevant HSE legislation and guidance and that they are:-

(a) fully conversant with the working conditions at the LOCATION, the hazards and risks associated with the DRILLING SERVICES and the roles and standards relating to the environment including the handling of waste and hazardous materials;

(b) fully aware that they are expected to bring to the immediate notice of their Supervisor all health, safety and environmental risks which they believe not to be under adequate control, so that action may be taken to prevent potential injuries or other losses and provide a safe and healthy workplace;

(c) familiar with all other safety and working instructions applicable in the CONTRACT AREA; and

(d) available at all times for periodic drills, instructions on survival, life saving and fire fighting as requested and conducted by COMPANY and shall, prior to or on the day of arrival offshore, attend a safety induction course conducted by the COMPANY.

4.3 If, in the opinion of COMPANY REPRESENTATIVE, CONTRACTOR is working in a manner which contravenes any requirement of these HSE provisions, COMPANY shall serve notice on CONTRACTOR to this effect and CONTRACTOR shall immediately take action to rectify the situation.

5.0 REPORTING

Full details of the HSE reporting responsibilities of the CONTRACTOR are provided in ATTACHMENT 2 to SECTION 4.

6.0 WORKING CONDITION

6.1 CONTRACTOR will immediately notify COMPANY REPRESENTATIVE of all CONTRACTOR incidents resulting in personal injury or damage to property in connection with the DRILLING SERVICES.

6.2 CONTRACTOR shall ensure that it's PERSONNEL and shall keep all places of work as clean and tidy as is reasonably practicable under the circumstances, to minimise the risk of causing injury to persons, damage to property or delays in providing the DRILLING SERVICES.

7.0 WASTE DISPOSAL AND ENVIRONMENTAL SAFEGUARDS

In the performance of the DRILLING SERVICES, CONTRACTOR shall at all times:-

(a) observe and comply with all laws and regulations concerning the production, carrying, keeping, treating and/or disposal of waste;

(b) act to minimise the quantity of wastes; and

(c) comply with the worksite environmental management system as it affects their operations.

If required by the applicable law, CONTRACTOR shall register as a Registered Waste Broker or a Licensed Waste Manager.

8.0 SUBSTANCE ABUSE POLICY

8.1 COMPANY is committed to providing a safe and healthy and working environment for all employees, visitors and third parties impacted by our operations. This includes an environment free from the hazards caused by the abuse of substances including drugs and alcohol. The policy equally applies in all aspects to both onshore and offshore staff both of COMPANY and its contractors and at all locations where work is performed on behalf of COMPANY.

8.2 In addition, COMPANY specific requirements related to applicable law and the CONTRACT AREA may require additional considerations to be appropriately managed by CONTRACTOR. Specific requirements applicable to the CONTRACT AREA are additionally included in SECTION 8 – Attachment 2.

9.0 HSE REFERENCE DOCUMENTS

9.1 In the performance of the DRILLING SERVICES, CONTRACTOR shall, as appropriate, refer the following reference documents attached hereto:

Attachment 1. Scope Specific HSE Requirements
Attachment 2. CONTRACT AREA Specific HSE Requirements
- GoM Specific Health, Safety, Security, and Environmental Requirements
- Substance Abuse Policy

9.2 CONTRACTOR shall observe and comply with these HSE provisions and failure to meet their requirements or to satisfy COMPANY with regard to the control of HSE risks will be regarded as due cause for termination of the CONTRACT without notice and without financial penalty to COMPANY.

The following HSSE Standards for Drilling Equipment shall apply to this CONTRACT.

HSSE Standard 01 Vibration
HSSE Standard 02 Noise
HSSE Standard 03 Automation/Mechanisation
HSSE Standard 04 Man Riding
HSSE Standard 05 Lifting Operation
HSSE Standard 06 Waste Management
HSSE Standard 07 Maintenance
HSSE Standard 08 Dropped Objects
HSSE Standard 09 Risk Management
HSSE Standard 10 Ventilation
HSSE Standard 11 Lighting
HSSE Standard 12 Work Time
HSSE Standard 13. Hazardous Material

HSSE Standard 01 – Vibration

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

The purpose of this standard is to ensure that personnel are protected against the effects of Hand Arm Vibration Syndrome (HAVS). Without effective controls, people who use high vibration tools on a regular or prolonged basis may suffer various forms of damage to their hands and arms. The widest known form of damage is "Vibration White Finger" (VWF). All personnel who use power tools for any period that could cause HAVS should be monitored for their exposure and necessary controls put in place to prevent such injury occurring.

The Drilling Contractor and Well Services Providers shall ensure that all tools and equipment used on the Well-site is designed to minimize vibration levels to as low as reasonably practical. The fabrication/refurbishment methodology should also take account of the tools to be used and wherever possible, those having the potential to cause HAVS should not be employed.

A tool register and tracking system should be in place. Regular health screening of employees likely to be at risk shall be conducted. The BP Well-site Representative shall also be responsible for periodically reviewing compliance arrangements for their effectiveness and continuous application.

Prior to any work commencing, a Task Risk Assessment (TRA) must be carried out and all personnel likely to be using power tools with the potential to cause HAVS made aware of the associated dangers.

This standard covers, but is not exclusive to the following tools:

- Air Hammers
- Air Chisels
- Needle Guns
- Angle grinders
- Bench Grinders
- Drills
- or similar hand held tools

Specification:
Low vibration equipment should be the preferred option where possible. When purchasing new tools or equipment. Prior to purchase, information should be sought regarding vibration levels and vibration controls which are built into the equipment.

When working with powered equipment, it is essential that good working practices are adopted. The hierarchy of control measures along with a number of simple but effective practices can be adopted to reduce the risk of injury to that which is as low as is reasonably practicable.

In order to keep vibration levels down to the absolute minimum necessary for efficient operation, equipment should be regularly inspected, serviced and maintained. Manufacturers and Drilling Contractor maintenance schedules should be followed. All defects or damage should be reported immediately. The following measures can also help keep down vibration exposures:

Cutting tool should be kept sharp
Grinding wheels should be dressed properly

CONTRACTOR'S Initial..... COMPANY'S Initial.....

Worn parts should be replaced
Vibration dampers, bearings and gears should be checked and replaced when found to be defective

Competency:
It is important that those persons operating powered tools are competent in their use. Operators need to be made aware of the hazards and what can be done to reduce the risk. Key information should include:
Potential sources of hand arm vibration
The health effects of hand-arm vibration
The risk factors - high levels of vibration and regularity of exposure
Ways to minimise risk including:-
Changes to working practices to reduce exposure
How to use tools to minimise grip force, strain etc.
Maintenance of good blood circulation at work

Symptoms:
Tingling or pins and needles at the end of the work period (may be accompanied by numbness). With continued exposure, the user may suffer periodic attacks in which the fingers change colour when exposed to cold. In mild cases the whiteness and numbness only affects the tips of the fingers. As the condition becomes more severe the whole finger down to the knuckles becomes white.

Maintaining good blood circulation is important in avoiding HAVS and the symptoms associated with it, so in cold weather stay warm, wrap up in warm waterproof clothing, wear lined gloves or use glove liners and avoid standing or kneeling in the same position for prolonged periods.

HSSE Standard 02 – Noise

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

This Standard is intended to outline an approach for the management of noise in order to reduce the risk of noise-induced hearing damage. Hearing damage is cumulative and irreversible and can occur over a long period of time.

During facilities design, individual items of equipment, and complete systems should be assessed to ensure that noise levels are kept as low as reasonably practical.

Well-site supervisors have a duty to ensure that all people working under their control are made aware of any noise risks associated with their activities or workplace, the effects of exposure to high noise levels and the necessary precautions to be taken. This should be formalised as part of local safe systems of work within e.g. Task Risk Assessment, Job Safe Analyses and Permit to Work processes.

Noise exposure shall be reduced to the lowest level reasonably practicable. Factors to consider are; a) noise action levels expressed in decibel units as dB(A) and; b) how long people are exposed to the noise, daily and over longer periods of time.

First Action Level - a daily personal noise exposure of 82 dB(A) for 12 hours.
Second Action Level - a daily personal noise exposure of 88dB(A) for 12 hours.
Peak action level - this is based on the highest pressure reached by an instantaneous sound pressure level for any single event e.g operation of mud pump pop-off valve.

Where Well-site personnel are likely to be exposed to noise, then a competent person should complete a noise assessment to:

a) Identify which employees are involved
b) Determine the action level

Areas at first action level and above should be identified as ear protection zones and ear protection provided. Where noise levels are at second action levels and above then steps should be taken to reduce exposure by means other than ear protection e.g.

Noise reduction at source during workplace/equipment design and specification
Engineering control ie damping, isolation, silencers, maintenance etc
Enclosure, screens, barriers and noise refuges
Reduction of time spent in noisy areas

Ear protection zones should all be clearly demarcated and signs fitted at appropriate places to alert people of the hazards. Adequate supplies of technically suitable hearing protection devices should be made available.

Where employees are likely to be exposed at or above any action levels they must be provided with information, instruction and training that covers:

Risk of damage to hearing
Steps to minimize that risk
How to obtain and use ear protection
How to report defects

All noise measurement equipment should be regularly tested in line with a formal planned maintenance system requirement.

Where it is not reasonably practicable to mark ear protection zones then adequate alternative arrangements should be made to ensure employees are aware where or when protection should be worn eg:

Attaching warning signs to tools
Written instructions for particular tasks (ie permit to work)

Audit and Review

Noise assessment and noise management actions require to be documented and resultant recommendations placed within a suitable action tracking system. Such noise management records require periodic review to track action items eg:

New noise sources addressed
Noise assessments up-dated and verified
Training schedules met

Targets for continuous improvement should be established and a process should exist for regular self assessment.

GLOSSARY AND ABBREVIATIONS
dB(A) - Unit of sound level and noise exposure. A-weighting (A) of the audible frequencies is designed to compensate for the sensitivity of the ear. The ear is more sensitive to noise at frequencies in the middle of the audible range than it is to either very high or low frequencies.

HSSE Standard 03 – Automation/Mechanization

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Within the Drilling industry, the move from manual to mechanization and/or automated systems is growing. This is particularly noticeable on some of the new build offshore MODUS where many of the tasks that previously required some degree of manual handling, are now completed by automated or mechanized processes. Unless correctly managed from conception to completion these processes do not necessarily make drilling operations safer. Mechanization may reduce minor hazards but potentially introduce more serious hazards such as equipment collision and dropped objects onto main working areas.

The following must be followed for drilling implemented mechanization or automation projects.

During conception, build and commissioning

To achieve optimum levels of safe operation, a holistic approach should be applied whereby designers, manufacturers and importantly end users all have input to the risk assessment process at the earliest possible stage.

A competent third party should carry out QRA to ensure that there are actual benefits.

The engineering complexities introduced by mechanized and automated systems should be fully evaluated on the basis of risk assessment. Subsequent training of personnel must take account of the human factors involved.

Computerized control programmes should be devised jointly by the software specialist, equipment manufacturer and subjected to a risk assessment process involving the end user.

Software and control systems must be embedded is such a manner that no matter what happens to power supplies onboard the rig including induced surges and loss of UPS battery derived power, no software is corrupted or lost, nor any control system malfunctions.

MOC procedures should be used for software changes during commissioning, final back up software should be stored in a fireproof location and be quickly accessible.

It is important that upgrading equipment does not become a reason to "dumb-down" the quality of the operators, if anything the project should ensure that proficiency standards rise. A suitable "competency matrix" should be produced and implemented prior to operations.

The decision to mechanize/automate increases the requirement for strong, maintenance systems. Maintenance processes must be upgraded before the equipment starts to operate on drilling operations. This includes manuals, drawings, maintenance training and incorporation into the Planned Maintenance System.

Before a mechanization and/or automation project starts the various philosophies that introduced equipment will operate around must be understood, agreed on by all vendors and followed during the project e.g. is zone management to be controlled by anti collision or collision awareness processes.

Mechanization and automation often needs to be backed up by other critical systems e.g. CCTV. The provision and design of these systems must be part of the overall project and no final commissioning should start until all systems have gone through equipment testing in their final position.

Unless other critical design characteristics prevent it, new build mechanized rigs should use a minimum 40 by 40 floor area to give adequate space for personnel movement and equipment.

The drillers cabin must be located so that there is an uninterrupted view of all mechanized equipment and operational areas including the "V" door.

For major upgrades/new build simulators working in a safe environment should be used for initial training, prior to individuals using actual rig equipment.

The design team must develop, within the Basis of Design, an outline of how operations will continue / stop in the event of equipment failure.

During Drilling and other operations

Before any laptop is connected to an operational system – a PTW must be correctly issued with implications of potential failure fully explained to all parties.

No software is to be modified without written permission from a competent authority. All modifications must be under a PTW process.

In the event of the failure of a critical system or part of such a system e.g. CCTV, unless unsafe to do so for well control reasons, rig floor operations must be halted and only restarted once suitable risk analysis and mitigation is in place.

Protection systems such as Zone Management must be fully tested, as a minimum, on a daily basis and the tests recorded in the IADC logbook.

In the event of failure within any aspect of the Zone Management unless unsafe to do so for well control reasons, rig floor operations must be halted and only restarted once suitable risk analysis and mitigation is in place.

A fully functional register of any "bypasses and defeats" relating to software, sensors etc for mechanized and/or automated equipment, must be in place before any operations commence. The contents of the register must form part of any toolbox talks and any other processes relating to risk awareness.

HSSE STANDARD 04 - MAN-RIDING

Please note – This standard outlines the minimum conditions that shall apply before any man-riding operation can take place on a COMPANY operated drilling rig. Local legislative requirements and industry standards should also be considered.

Lifting and lowering personnel by air hoist (man-riding) on drilling rigs is considered a high potential risk activity and must only be considered when no safer alternative method can be found. Man-riding must be kept to an absolute minimum and shall only be performed under the strictest of controls and always with the permission of the on duty OIM/Tool-pusher/Rig Superintendent. Man-riding must only take place under the supervision of the person in charge of the area who shall nominate only trained personnel to perform tasks.

The following controls must be adhered to on any COMPANY drilling operation:

Man-riding should be considered a "safety critical" routine and must be conducted under a Permit to Work.

A pre-job risk assessment/Job Safety Analysis and tool-box talk must be held.

Specific working instructions must be available, understood and followed by all those involved in the operation.

A min of three people shall be used at all times and clear lines of communication established. Consideration should be given in the use of the hands free radio. Hand signals are to be agreed by all parties prior to commencement of the man-riding operation.

Adverse weather conditions and lighting conditions should be assessed prior to the commencement of any man-riding operation.

Man-riding air-hoists shall be used solely for hoisting and lowering personnel and must incorporate the following safety features in their design:

a) The hoist-operating lever should automatically return to neutral on release from any operating position.

b) An automatic brake should be fitted so that it will apply whenever the operating lever is returned to neutral or on loss of power.

c) In the event of failure of the automatic brake a secondary brake should be provided to prevent the load from falling. This may be manual in operation and simple in design.

d) A clutch capable of disengaging should not be fitted.

f) A plate fixed to the frame of the man-riding air hoist stating "For Manriding Purposes Only" and the Safe Working Load should be clearly identified on the air-hoist.

g) The air supply to the hoist will be regulated to the manufacturers recommended air pressure.

h) A device should be fitted to prevent the winch from over-riding or under-riding e.g. a ball type, isolation valve on the air supply line, close to the hoist- operating handle.

i) A functional load limiting device should be installed.

j) Anti-spin wire should be used or a swivel fitted to prevent the rope turning.

k) Hydraulically operated man-riding winches should have self-locking and self braking systems fitted.

Safety hooks shall not be attached to the air hoist line when used for man-riding. The employee must be shackled directly onto the end of the air hoist line without any intervening chains, slings, swivels or other fittings. (Shackle must be secured)

Any tools carried into the derrick must be tied off to either the employee or the air hoist line and no other equipment shall be lifted. (All tools should be logged)

The riding belt used shall be of an approved standard and inspected for wear or damage before use.

When man-riding operations are taking place, all other operations in the vicinity shall be suspended. At no time shall the traveling blocks be moved or pipe rotated. No other activity shall interfere with man-riding operations. A sign shall be placed in Dog House clearly stating that man-riding operations are on-going.

Personnel involved in man-riding operations shall be fully trained and deemed competent to perform the work.

When a man-riding lifting basket is used it must be verified that the slings and basket have a current Certificate of Inspection. The total weight of the basket, equipment and personnel must be determined to ensure the safe working load of the air-hoist and the basket slings are not exceeded. Personnel riding in the basket must have a safety line secured to the air-hoist line and when work is carried out above the monkey board level, radio communications shall be used and a banksman shall maintain line of sight at all times.

Mechanised man-riding lifting baskets e.g. "cherry-picker" should have a collision/ emergency stop system fitted.

When any equipment or tools are hoisted into the derrick, the area below shall be kept clear of personnel and steps taken to ensure no one enters into the area.

Consideration shall be given to the weight of air-hoist line versus the weight of the man rider when hoisted above a certain level (e.g. the minimum weight of a man while using 19mm air-hoist line above the monkey board level is approximately 200lbs/91kg).

Prior to commencing with any man-riding operation a contingency rescue/recovery plan should be established in the event of possible equipment failure or power loss.

All of the above safe working practices would apply when man-riding operations are conducted under the drill floor.

HSSE Standard 05 – Lifting Operations

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards. (This standard incorporates BP Golden Rules of Safety relating to Lifting Operations)

The purpose of this standard is to prevent injuries or incidents during mechanical lifting operations.

All lifting equipment shall be certified or successfully load tested and documented prior to use. Lifting equipment comprises:

lifting Gear - any device which is used or designed to be used directly or indirectly to connect to a load or appliance (e.g. a crane or chain block) and does not form part of the load, e.g. sling, chain, hook, shackle, eyebolt or lifting beam.

Lifting Appliances – any mechanical device capable of raising or lowering a load, e.g. a crane, winch, pipe handler, BOP handler, fork lift truck or chain block.

All lifting operations shall be planned and appropriately supervised. The level of supervision will be determined by an assessment, by competent person, of the lift to be completed. The first step in planning shall be to conduct a Risk Assessment/Job safe Analysis. Risks identified can then be eliminated or adequately controlled so that the job can be safely completed.

Lifting Gear

All lifting gear shall be certified for use, as a minimum, within the previous twelve months. Prior to use, all lifting gear and lifting appliances shall be marked with their safe working load (SWL) and be visually examined by a competent person. A system of color coding shall be used whereby only lifting gear with the current color code can be used.

A register of lifting gear shall be maintained at each Well-site which shall include:

- Description of gear, e.g. 4 leg sling with links and lifting ring, socket each end
- Certification number (or Identification number if different)
- SWL
- Date in Service
- Location in use at Well-site
- Dates inspected

Before the lifting operation commences, the following checks shall be made:

- The SWL is clearly marked
- The ID number is visible so that equipment can be checked against certification
- The color code is current
- The equipment is not damaged in any way

Hand spliced wires and slings are not permitted.

When transporting barrels, a net, basket or specialist device is recommended.

Slings constructed in synthetic fibres are easily damaged and can be sensitive to chemical attack. Strength is lost if there are any cuts, tears, abrasion, fraying and burst stitching, therefore this sling type requires close examination by a competent person for any signs of damage prior to every lifting operation. Storage of web slings shall be strictly controlled to preserve their condition and prevent contamination.

Positive locking pipe hooks, as opposed to open ended pipe hooks, will be used when lifting casing by the box end or pin end with a crane.

Slings not included in the lifting gear register shall be kept separate from those tracked in the register. This refers to BP/Third Party transit slings that do not belong to the Drling Contractor.

Lifting appliances

All lifting appliances shall be certified for use.

Operators of lifting appliances shall be trained, competent and certified for that equipment.
All lifting appliances will be included within the Planned Maintenance system in use at the Well-site.

Crane operations

Crane operators shall be able to clearly communicate with the handling crew, only one of which should be designated as banksman. Hand signals should be clearly understood by everyone involved in the lifting operation.

Check the area around the load to be lifted is clear and the load is not attached to the deck, transportation cradle, or adjacent equipment.

The banksman shall not be both banksman and slinger. The banksman is in charge of the lift and is there solely to direct activities and operations.

If using hand signals stand in a position where the crane operator can clearly see him and he can maintain visual contact with the load.

All hooks used on the traveling blocks, fast line and slings shall have safety latches fitted that are in good working order.

Routine maintenance of the crane will be in accordance with the planned maintenance system. A crane log book shall be maintained and should include maintenance records, wire rope installation dates, safety device inspection dates, including calibration, certificate and reel number of the wire currently in use.

Fork Lift

Fork lifts will be rated and maintained to meet the area classifications of the area in which they are to operate. Fork lifts shall be fitted with: an audible warning for reversing, a visual warning in noisy areas, a reversing mirror and a caged driver enclosure.

When parking a forklift the forks should be six inches off the deck and the mast tilted forward until the forks rest on the deck. The engine should then be switched off and the keys removed. In cold climates, fork lift trucks may be left with power on, subject to local controls.

Air Winches

Operators should have clear visibility of the operation and operating instructions clearly displayed. Air winches shall be operated according to manufacturer's instructions, fitted with drum guards and control levers marked up and down.

HSSE Standard 06 – Waste management

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Waste management involves monitoring of emissions, wastes and discharges as well as surveillance of the receiving environment both within and outside the Well-site, against set targets, using proper disposal practices. Developing a waste minimization plan should be a fundamental part of the overall well planning process and should integrate BP and Third Party requirements with those of the Drilling Contractor.

At each Well-site, there shall be adequate storage facilities to provide containment of hydrocarbons and chemicals. Transfer of these substances will be subject to control measures that have been developed using risk assessment techniques. A system shall be in place to ensure that relevant personnel have been trained in those control measures.

At each Well-site, all discharges arising from drainage shall be monitored to prevent sea or land contamination by substances harmful to the environment. Similarly, prior to their discharge, either to sea or to landfill sites, all substances shall be evaluated for their potential effect on the environment.

Emergency response plans shall include contingencies for effectively managing and responding to chemical and hydrocarbon spills, all of which shall be reported through both BP and Contractor reporting systems.

Rig equipment, primarily including, but not limited to, engines used for power generation, and refrigeration / fire-fighting systems, shall be maintained to prevent excessive emissions (gases) to the atmosphere. Excessive is defined as any generation of emissions greater than expected within manufacturers operating parameters. Systems shall be in place to ensure that expected performance is being maintained.

Leakage of halons and other chlorinated fluorocardons (CFCs), considered to be ozone depleting chemicals shall be minimized through effective air emissions tracking and prevention programmes. Halons and other CFCs may be used to replenish existing systems, but new systems shall not employ the use of ozone depleting chemicals where environmentally friendly alternatives are available.

Contractor waste management systems and processes shall be a consideration during the BP rig selection process.

HSSE Standard 07 – Maintenance

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Well-site facilities shall be maintained within their design envelope to ensure safe, healthy, and efficient and environmentally secure performance. The Contractor shall have in place a planned maintenance system (PMS) for the equipment. All safety critical, load bearing, lifting, hoisting and pressure containing equipment shall be included. The system shall be rigorously applied and details of any overdue items shall be reported on a periodic basis to senior Contractor management. The BP Well-site supervisor shall periodically take an overview of the application of the PMS and shall be kept informed of critical maintenance overdue items.

Third party equipment on long-term hire and located at the Well-site shall also be subject to a formal system of planned maintenance and inspection. Third Party equipment on short-term hire shall have been subject to formal maintenance and inspection checks prior to transport to the Well-site. All third party equipment should have appropriate certification prior to transportation and during the storage on the offshore installation.

Clearly defined and documented maintenance and inspection procedures shall be in place to maintain technical integrity. Personnel shall be trained in the use of these procedures and fully understand their application. Maintenance personnel must be trained and competent in their maintenance discipline.

All lifting equipment shall have been certified for use within the previous twelve months and shall be visually examined before each lifting operation by a competent person.

The most recent equipment certification should be available at the Well-site for inspection at all times.

Registers and systems shall be maintained for safety critical equipment, well control equipment, temporary equipment, lifting equipment, hoses, pressure gauges and pressure relief valves.

HSSE Standard 08 – Dropped Objects

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

The potential for dropped objects/falling objects from within drilling derricks and from other areas around the rig is high. The problem is common to fixed installations, mobile drilling units and land rigs. Dropped objects prevention has been the subject of various cross-industry initiatives over the years. Within BP, the DROPS campaign provides an example of dropped objects prevention best practice and covers derricks/masts, lower substructures and BOP areas.

The following standard draws from cross industry Drilling Contractor input to the DROPS programme

DROPS standards/expectations should be included at the facility design review/assessment stage.

Raise awareness by alerting individuals to the potential and consequences of dropped objects. This should be done at an individual level, safety meetings, tool-box talks and other related forums.

The second step is to divide the derrick and sub-floor level into different zones and compile an inventory of equipment. Fastening methods should be identified, tag numbers recorded (where applicable). The time and effort spent initially compiling this list will be beneficial as it will indicate every item within the derrick and sub-structure. In addition, it should highlight any item that has the potential to drop. Remove all redundant equipment that which will not impact on essential items.

For all remaining essential items, controls and standards should be in place based on associated risk. A periodic inspection process should be put in place to ensure that these controls and standards continue to be adequate and to assess the necessary actions required to prevent items from falling.

Third party hoisting and lifting surveys should be checked for their effectiveness. Follow-up of inspection findings should also be checked. Third party equipment handled and used in the derrick should be viewed in the same way once all rig owned equipment has been considered.

A primary cause of dropped objects over recent years has been winch operations. The operation of the winch must be such that the people are knowledgeable of the system, are trained banksmen and operate the winch within the design criteria.

The principles as described above for preventing dropped objects do not change in the automated environments of remote controlled drilling systems. Stringent inspection routines and familiarity with the proper use of automated systems must be maintained at all times.

In order to keep the system live, it needs to be updated whenever changes are made to the inventory or to the structure itself.

HSSE Standard 09 – Risk Management

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Risk Management at the Well-site involves control of risks arising from the complete cycle of activities ranging from the selection of resources, the design and operation of working systems, the delivery of services and the control and disposal of waste.

Risks shall be reduced to a level deemed to be "As low as reasonably practical" (ALARP). The principle of ALARP allows effort to be focused to where it will have most impact. At each Well-site, an established risk assessment process shall be in place that is documented, effective, and auditable and is communicated throughout the organization. This process shall be based on:

- **Hazard identification** – *identifying hazards which are the potential causes of harm*
- **Risk assessment** – *assessing the risk which may arise from the hazards*
- **Risk Control** – *deciding on suitable measures to eliminate or control risk*
- **Implementing and maintaining control measures** – *implementing standards and ensuring that they are effective*

The following is a summary of the preferred hierarchy of risk management principles:

- **Eliminate risks by substituting the hazardous with the less hazardous** – *e.g. by using a less hazardous substance or by substituting a type of machine that is better guarded to achieve the same end result*
- **Combating risks at source by engineering controls** – *e.g. by protecting the dangerous parts of a machine by guarding or by designing machinery that reduces the amount of manual handling (iron roughneck)*
- **Minimise risks by the design of suitable systems of working**
- **Minimise risks by the use of personal protective equipment**

The hierarchy reflects that risk elimination and risk control by the use of physical engineering controls can be more reliably maintained than those, which rely solely on people.

There are several risk assessment tools available and the level of the risk assessment will depend on the complexity and nature of the hazards involved in each particular operation.
The BP Golden Rules of safety define the minimum Permit to work, Confined Space Entry and Energy Isolation requirements. At each BP Well-site, these formal systems shall be supplemented by risk assessment tools, which shall include:

- **Safety Observation Programme** - *e.g. STOP/START*
- **Task based risk assessment/Job safe Analysis** – a simple, systematic assessment undertaken by persons with the knowledge and experience of both the specific task and the location where the task will be undertaken
- **Inspection and Audit Programme** – Both BP and the Drilling Contractor shall follow a formal system of inspection and audit covering all aspects the rig and the management systems in place
- **Toolbox Talks** - Pre-Job meetings where all personnel involved (including Third Party) gather to discuss and understand the nature of the work to be performed and the controls to be exercised to reduce risk to ALARP
- **HAZID (Hazard Identification)** – Structured and systematic assessment of an activity split into a number of steps with each step being reviewed in sequence asking "what could go wrong?" e.g. drilling a high temperature/high pressure well
- **HAZOP (Hazard and Operability)** - generally used when identifying equipment hazards at the design stage

- **Health and Safety Method Statements** - Effective way of providing information to employees about how work is expected to be done and the precautions that should be taken
- **PHSER (Project Health Safety Environmental Review)** -
  To assure the client Business Unit that HSE sensitive areas have been identified and that appropriate project engineering and operational systems have or will be developed to control identified HSE risks.
- **Major Accident Hazard Identification and Assessment** – Structured and systematic assessment of all major accident hazards that may affect the drilling rig e.g. Escape of hydrocarbons leading to possible fire, explosion, or toxic gas release; collisions offshore; structural/mooring foundation failure; Major mechanical/electrical failure; Loss of stability/buoyancy.

All personnel at the worksite should be aware of which level of risk assessment is applicable to given tasks. In particular, personnel must be aware of the day to day risks associated with **Routine tasks** and must not rely on predetermined or standard assessment sheets.

Where the Well-site work may impact other activities e.g. ongoing production operations, a simultaneous operations review shall be held and the risks and control measures documented and communicated to all relevant personnel.

Further information and guidance can be found within the key HSE processes that support Getting HSE Right expectations (**Key Process Number Three – HSE Risk management)**

HSSE Standard 10 – Ventilation

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Well-site environmental problems may arise due to the presence of airborne pollutants such as dust, gases or vapours, or due to an uncomfortable or stressful thermal environment. Consideration to these potential problems should be given initially at the design stage where, as far as reasonably practical, equipment and facilities shall be designed to minimize the presence of airborne pollutants. Where such pollutants are unavoidable and in addition to other controls that may be required on the basis of risk assessment, Well-site ventilation shall be provided to control emissions, exposures, and chemical hazards.

Ventilation may be deficient in:

- confined spaces; e.g. mud storage tanks and enclosed vessels
- facilities failing to provide adequate maintenance of ventilation equipment; e.g. around shale shaker areas
- windowless areas; and
- areas with high occupant densities.

Ventilation systems can be employed in three ways:

- Local Extract Ventilation (LEV) should be used as close to the source of pollutant as possible to minimize the escape of the pollutant into the atmosphere. The extraction devices can be either hoods, enclosures or fume cupboards coupled to a system of ducts, fans and air cleaners.
- Dilution Ventilation should be used to reduce the concentration of the pollutants to a safe level.
- Heating, ventilating and air-conditioning systems (HVAC) should be used to convey heat or cooling in order to control temperature and maintain reasonably comfortable conditions.

As part of the Well-site Safety Management System, there shall be a process for ensuring that a competent person tests airborne concentrations of pollutants, and that suitable and adequate ventilation is provided where necessary. Where ventilation has been fitted, it shall be included within the Well-site planned maintenance system and be tested to ensure that design criteria are being met and that efficiency is being maintained. All Third Party equipment brought onto the Well-site, shall also be subject to these controls.

Many working environments are uncomfortable due to excessive heat or cold in one form or another. Expected temperatures, the rate of work and the type of clothing to be worn shall be taken into account when considering thermal environment ventilation controls.

Health surveillance programme

As part of the ongoing health surveillance programme, all ventilation systems should be tested annually by competent Occupational hygienist.

HSSE Standard 11 – Lighting

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

Well-site lighting systems shall provide a sufficient level of illumination in all areas likely to be manned and where apparatus is installed. Working areas, drilling derricks/masts, corridors, stairways, ladders, walkways and landings shall be especially well lit.

Lighting systems shall be provided so that escape routes, embarkation areas (where applicable) and any control panel or operational station which would need to be manned in the event of loss of normal electrical power can be supplied from the emergency power source.

The twenty-four hour nature of Well-site activities requires natural lighting to be supplemented by artificial sources. When work is conducted under artificial light, the effects of glare, an excess of natural and artificial lighting and of lighting deficiency shall be considered and assessed. Both extremes shall be avoided.

Dust, dirt and use will progressively reduce the light output. Attention to general cleaning and maintenance and a realistic lamp replacement policy will help maintain the required standard of illuminance. Sufficient spare parts for Well-site lighting shall be maintained at the Well-site.

During the facilities design stage, adequate and secure means for accessing and maintaining lighting systems should be accommodated.

All light fittings to have a secondary means of fixing to minimize dropped objects.

HSSE Standard 12 – Work Time

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs. This standard should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

The purpose of this standard is to avoid the need for Well-site personnel to work excessive hours that could lead to fatigue and subsequent impairment of mental alertness.

For fulltime Well-site personnel e.g. Rig Crews, BP Drilling Supervisors and Catering crews, work rotas should normally be based on an equal time rotation, (e.g. 2/2 or 4/4 week rotation) the length of time depending on area of operation. The normal maximum work period is twelve hours (Operations may be based on shorter work periods e.g. eight hours, with less time spent away from the work location). Where possible, the shift patterns should avoid "short changes."

Add-hoc Well-site personnel e.g. Service Hands and occasional visitors will normally comply with the normal maximum work period of twelve hours.

Where it is identified at the planning stage that the work cannot be completed within the twelve hour period, additional hours may be worked when authorized by the Well-site Supervisor e.g. Senior Toolpusher. Where the operation exceeds twelve hours on an ongoing basis, either additional resource must be made available, or the operation should be suspended and resumed on the next shift period.

Working hours shall be monitored and where necessary additional hours shall be authorized on the following basis by the Well-site Supervisor:

- 0 – 12 hours - no additional authorization required
- 12 – 16 hours - only with the agreement of the line Supervisor, who shall advise the Well-site Supervisor.
- Over 16 hours – only with the permission of the Well-site Supervisor (hours to be recorded in log)

Personnel shall have a minimum eight hour rest period after each twelve hour shift.

Work time may need to be considered as part of the risk assessment process. When this is the case, factors to be considered should include:

- The nature of the demands (both physical and mental)
- The working environment
- The work activity
- Sleep deprivation e.g. off duty call out
- Travel aspects e.g. travel time to rig, possible weather delays
- Back-up for "no-shows"

The above applies to all Well-site personnel.

HSSE Standard 13 – Hazardous materials

Please note – This standard outlines the minimum conditions that shall apply on all BP operated drilling rigs and should be considered and applied in conjunction with Contractor management systems, local legislative requirements and industry standards.

All materials and substances that may have an adverse effect on health or the environment are considered hazardous. Personnel who are required to work with hazardous materials and substances shall be made aware of the hazards and given adequate training and instruction to include; the nature of the material and the risks created by exposure; the precautions to be taken; how to use relevant personal protective equipment; emergency procedures.

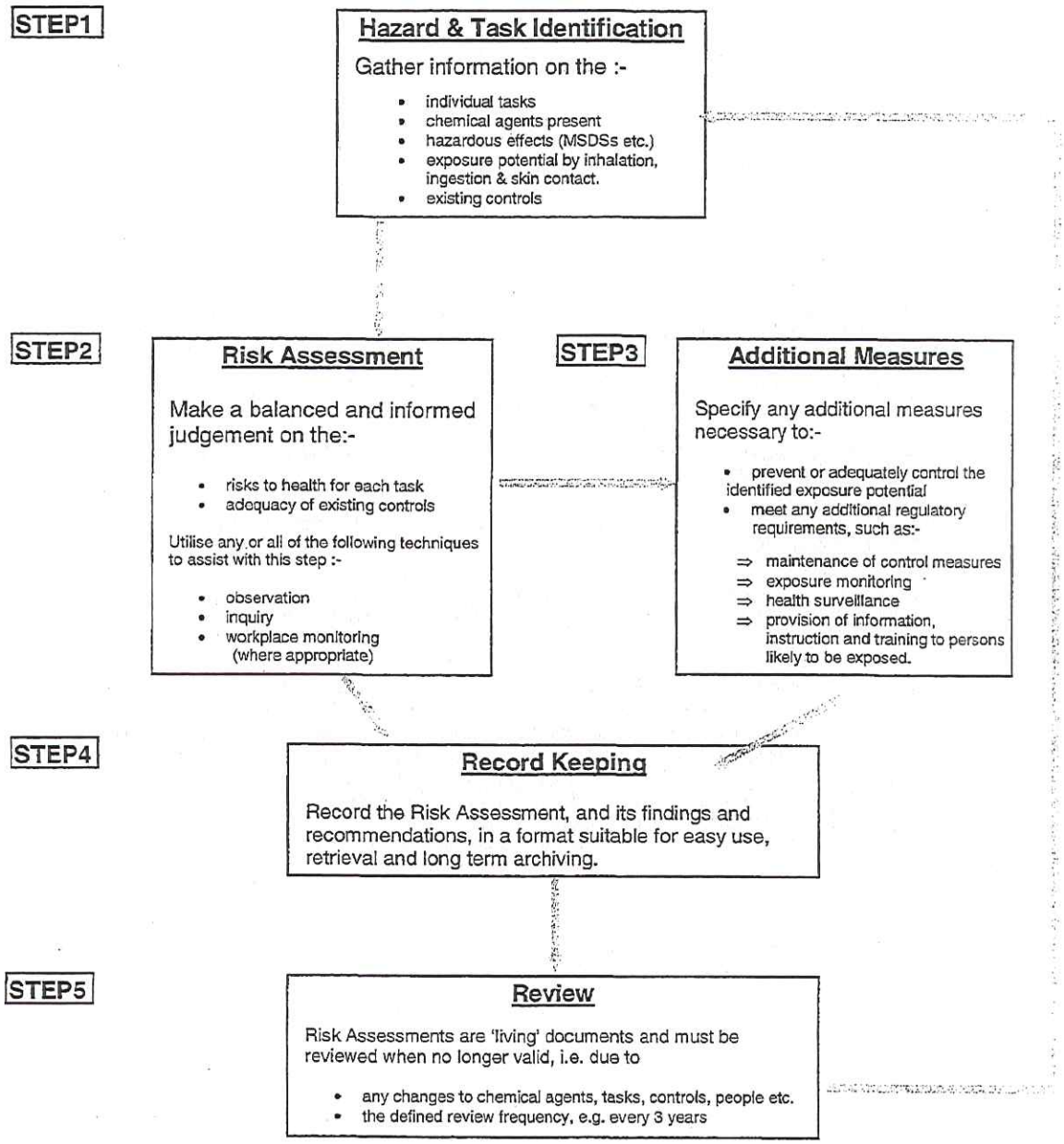
At each well-site there shall be:

- A system to maintain hazardous chemicals inventory & Material Safety Data Sheets (MSDS). Third Party suppliers e.g. mud companies will be made aware of and shall follow this system
- A person responsible for controlling and co-ordinating hazardous substances
- An understanding and application of the hierarchy of risk controls (elimination, substitution, engineering, procedural, PPE as last resort)
- An assessment process which identifies any requirement for exposure monitoring &/or health surveillance
- A means of informing the workforce of health risks and precautions for tasks involving hazardous substances e.g. Right to Know Law in US and duties under Health and Safety at Work Act in UK
- Contractor & Third Party alignment on Hazardous Substances management

Only approved personnel shall handle explosives, radioactive materials, dangerous liquids and gases. The Permit to Work System shall be used to control the handling of these items.

A process summary is outlined on the following page which should be used as a guide to managing hazardous materials at the Well-site.

Hazardous Material Process Summary



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GoM Specific HEALTH, SAFETY, SECURITY, AND ENVIRONMENTAL REQUIREMENTS

The following constitute Health, Safety, Security, and Environmental (HSSE) Requirements for Contractor and any subcontractors performing work on Company Sites (real estate owned or leased by Company, where Company is the operator) and on Company Project Sites (where work is performed exclusively for Company). HSSE Requirements encompass compliance with all applicable federal, state/provincial, maritime, and local statutes, regulations, enforceable agreements, agency orders, permits, and contract documents. HSSE Requirements also include specific Company requirements as disclosed below and any site-specific requirements not specified below. Each contractor will ensure that any subcontractor it employs meets these HSSE Requirements. Contractor will take any additional precautions necessary to prevent harm to personnel or damage to the environment or, property.

Contractor will strive to deliver an incident and injury-free work place. Contractor will provide, at Company's request, a monthly breakdown of hours worked by Contractor PERSONNEL on the DRILLING UNIT

Company Specific HSSE Requirements for all Contractors

In order to meet Company's specific HSSE Requirements, Contractor will have a HSSE Program with a focus on continual performance improvement (or utilize Company's program). Company has the right to audit Contractor's HSSE Program and documents. At a minimum, the following elements will be included in Contractor's HSSE Program:

1) **Leadership**

Contractor Leadership will actively communicate HSSE expectations and Company requirements, routinely monitor HSSE performance, develop action plans for continuous improvement, and actively take ownership of HSSE.

CONTRACTOR will ensure that CONTRACTOR'S employees understand COMPANY'S HSSE policy.

2) **Behavior Based Safety**

CONTRACTOR will have a behavior-based safety program which, at a minimum, will include a safety observation program (or utilize COMPANY'S program) with performance targets. CONTRACTOR will communicate to CONTRACTOR employees the expectation that everyone has an obligation to stop work that is unsafe.

In addition, CONTRACTOR will have a hazard identification and risk assessment process for completing a daily pre-job task hazard analysis and/or work permitting system to identify and control the hazards to an acceptable level. At a minimum, a process for completing daily Job Safety Analysis (JSA), or Job Safety Environmental Analysis (JSEA), is required to facilitate the daily task hazard analysis.

3) **HSSE Meetings**

CONTRACTOR will conduct or take part in regularly scheduled on-site or off-site HSSE meetings discussing, among other topics, facility and job hazards, incidents, near-misses, site-specific safety and health rules, and site-specific procedures.

4) **Incident Reporting and Investigations**

CONTRACTOR will immediately notify COMPANY of all CONTRACTOR or SUBCONTRACTOR incidents resulting in personal injury, spills or releases, security issues, loss or damage to property, or near-misses. COMPANY may require CONTRACTOR to conduct an investigation for any HSSE incident. COMPANY retains the right to participate or conduct its own incident investigation. For all incident investigations, CONTRACTOR will provide a written investigation report to the COMPANY. The

investigation report shall identify possible root causes associated with the incident as well as proposals for corrective action. When requested, CONTRACTOR will furnish COMPANY with a copy of non-privileged reports made by or on behalf of ONTRACTOR concerning an incident, including any non-privileged statements or other investigative material.

5) **Personal Protective Equipment**

CONTRACTOR will ensure CONTRACTOR'S employees have proper personal protective equipment (PPE) before work begins, and that PPE is worn as required. CONTRACTOR shall obtain and comply with individual site PPE requirements.

6) **CONTRACTOR Employee Conduct**

CONTRACTOR shall comply fully with the Substance Abuse Policy (Attachment 2 to this SECTION 8.0 of the CONTRACT).

COMPANY has the right to require CONTRACTOR to remove and bar from the COMPANY Sites or COMPANY Project Sites any personnel whose conduct (condition or action) jeopardizes the safety of any person. In addition, CONTRACTOR will not permit any barred person to work at any other COMPANY Site or COMPANY Project Site without prior COMPANY written approval.

7) **Contractor Employee HSSE Competency**

Contractor will ensure that regulatory required training for Contractor's employees has been identified and completed. . Company may require reasonable additional site-specific training and documentation.

8) **Short Service Contractor Employee Policy**

CONTRACTOR will comply with its own or COMPANY'S site-specific short service employee policy.

9) **Preventative Maintenance Program**

Contractor will have a preventative maintenance program that includes, at a minimum, the identification and prioritization of maintenance for safety and/or environmental critical items.

10) **Chemicals Brought to Company Site**

CONTRACTOR will ensure Material Safety Data Sheets (MSDSs) are available at the COMPANY Sites and/or COMPANY Project Sites for all chemicals CONTRACTOR brings to the site, and that the MSDS is reviewed as part of the JSA/JSEA discussion

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Company Specific HSSE Requirements Specifically Selected for Certain Contractors (Company and Contractor will initial all those that apply). See web site for details: http://nasupplierhsse.bpglobal.com.

Initialled by: *(if applicable)* Contractor	Company	
X	X	1. CONTRACTOR'S will have a written Waste Management plan at the COMPANY project site for work performed that, at a minimum, requires identification of waste and disposal methods Waste Management
X	X	2. COMPANY requires CONTRACTOR to have an acceptable CONTRACTOR'S Environmental Management System (C-EMS).
		3. Contractors will meet or exceed BP's Driving Standard.
X	X	4. CONTRACTOR will have and apply a Fitness-for-Duty program which includes assessment of the physical capability of employees to perform certain specific tasks and a physical agility testing component.
		5. CONTRACTOR will supply COMPANY with a valid Certificate of Recognition applicable to Province of Operation certified by Petroleum Industry Training Service (PITS) or Contractor's Service Line certifying body.
X	X	6. CONTRACTOR must have a working knowledge of the Drilling and Well Operations Policy.

SUBSTANCE ABUSE POLICY

COMPANY has a strong commitment to provide a safe work place for its employees and other persons working or visiting on its premises or projects. This "Substance Abuse Policy" (hereinafter this Attachment 2 "Substance Abuse Policy" is referred to as "Policy"), is established in order to assist in maintaining a safe working environment and to protect COMPANY property.

Contractors, subcontractors, and vendors who perform labor or services on COMPANY premises, on COMPANY Projects, or on whose premises COMPANY'S employees spend substantial time must have and administer a formal substance abuse interdiction policy, which informs employees about the risks of using illegal drugs or misusing prescription and over the counter drugs.

CONTRACTOR and SUBCONTRACTORS (hereinafter in this Attachment 2 "Substance Abuse Policy" referred to as "Contractor" or "Contractors") must also implement a policy that includes substance testing of Contractor's employees entering COMPANY premises. Contractors working on COMPANY'S premises shall be subject to testing under this Policy by COMPANY.

Contractors working on COMPANY Projects must implement a policy that includes substance testing of personnel consistent with the terms of this Policy. For the purpose of this Policy, a "COMPANY Project" refers to any work performed under this CONTRACT. .

COMPANY reserves the right to prohibit solicitation of bids from, deny entry to COMPANY premises, or cancel any project, or portion thereof, with any Contractor or vendor that fails to present a written policy that meets the COMPANY'S minimum standards as set forth in Section II herein below, or that fails to administer an acceptable policy.

SECTION I – POLICY STATEMENT

The use, possession, concealment, transportation, promotion, or sale of the following substances is strictly prohibited on COMPANY premises, including all property owned, operated, leased by, or under the control of COMPANY, as well as on the location of *any* authorized COMPANY Project, regardless of the physical location where such work is performed.[1]

- Prohibited substances are defined as: (a) any alcoholic beverage, the use of which is not authorized by the Company, (b) any substance that an individual may not sell, possess, use, or distribute under federal or applicable state laws, and (c) any otherwise legal but illicitly-used substances.
- "Otherwise legal but illicitly-used substances" include (a) prescription drugs obtained without proper medical authorization, and (b) prescribed drugs, over-the-counter drugs, and other substances not being used for their intended purposes or at intended dosage.
- Drug paraphernalia and similar items used for substance abuse are likewise prohibited on COMPANY premises.

Contractors and vendors shall submit a copy of their policy and program to the COMPANY employee designated to administer contracts or to such other individual as may hereafter be designated by

[1] *In many contracts, Company reserves the right to remove a contractor's employees for any reason. In no way does this policy detract from that right.*

Company. Such policy must provide for substance testing of Contractor employees and must meet the minimum standards as set forth in Section II below.

Any Contractor or vendor employee found to be in violation of this Policy shall, thereafter, be prohibited from entering COMPANY premises and prohibited from working on any COMPANY Project. Reinstatement of the access privilege may be made after one year upon request of the employing contractor. Such requests should be made to the COMPANY employee designated to administer contracts and will be evaluated on the merits of each case. A request will be granted only upon receipt of evidence that the employee successfully passed a substance test conducted within not more than thirty (30) days prior to the date of the request, and has successfully completed an assessment by a Substance Abuse Professional (SAP), and has complied with all recommended treatment or rehabilitation prescribed by the SAP.

SECTION II – TESTING

A. DEFINITIONS

For the purpose of this policy:

1. "Substance testing" means the analysis of urine, saliva, or breath; however, at times circumstances may warrant additional testing methods.

2. "Chain of custody" means the combination of procedures and documentation which provides a faithful and accurate written record of the custody of a biological specimen, from the time of initial collection of a specimen to final laboratory analysis.

3. "Negative test result" means a laboratory conclusion that the presence of a substance was not detected in a specimen at or above the screening and confirmation levels utilized.

4. "Screened non-negative result" or "presumptive positive result" means laboratory conclusion based on immunoassay that a specimen was found to contain one or more substances present at or above the screening cut-off level.

5. "Confirmed positive result" means laboratory confirmation using gas chromatography/mass spectrometry (GC/MS) of a positive substance test by a Medical Review Officer (MRO).

B. LABORATORY AND SAMPLING STANDARDS

1. Testing for the following substances, at the indicated screening and confirmation cut-offs, are recommended:

Drug	EMIT Screen	GC/MS Confirmation Levels
Amphetamines	1000 ng	500 ng
Marijuana	50 ng	15 ng
Cocaine	300 ng	150 ng
Opiates	2000 ng	2000 ng
PCP	25 ng	25 ng
Alcohol	.02 BAC	.02 BAC

had proceeded to a reasonably possible and more serious level of development, would have had the potential for personnel injuries, property damage, or serious liability claims).

2. Contractors will assume all costs associated with testing they conduct.

3. The refusal of a contractor's employee to sign a consent form or submit to any testing required by this Policy will result in revocation of the person's access privileges. A refusal to test shall include a failure to cooperate with any part of the testing process, including: (1) failing to remain until the process is completed; (2) failing to provide a sufficient or adequate specimen (without medical explanation); (3) failing to appear for testing (including failing to appear within a reasonable time after being notified of testing); (4) failing to submit to a re-collection or retesting when required; or (5) submitting a specimen that the MRO verifies as adulterated or substituted.

E. EXCEPTIONS

The following exceptions may be granted at the discretion of COMPANY management:

1. Contractors and Contractors' employees who are contracted or hired on short notice may be permitted to begin work on-site or on a COMPANY Project pending receipt of the results of pre-access substance testing. This permission will not extend beyond seven (7) calendar days from the first date after work starts by Contractor.

   Any person working under this provision must be removed from the work site immediately upon receipt of a positive test result, or at the end of seven (7) calendar days if test results have not been reported.

   This provision covers only employees needed for initial staffing and does not extend to those hired with sufficient time for pre-access testing (2-3 days after job begins).

2. Contractors or vendors who have a need for site access and whose work on COMPANY premises or on a COMPANY Project poses a minimal safety risk may be exempted in whole or in part from compliance with this Policy. Requests for an exemption should be made to the COMPANY employee designated to administer contracts, or to such other individual as may hereafter be designated by the COMPANY.

F. VALIDITY PERIOD

A pre-access substance test must have been administered within ninety (90) days immediately preceding access. This requirement may be waived by local authorized COMPANY management for persons who are regaining access after an absence of not more than ninety (90) days.

COMPANY will recognize a substance test conducted on a Contractor's employee while that employee worked for a different employer if (1) the test is conducted within the 90-day period required by this policy, and (2) the laboratory and sampling procedures meet the standards set forth in this Policy. COMPANY prefers that the testing requirements be verified by an independent agency such as the Contractor's Safety Council.

SECTION III – SEARCHES AND INSPECTIONS

COMPANY reserves the right at all times on its premises to conduct unannounced substance screens, searches, and inspections of contractors, contractors' employees, vendors, and other persons, including their effects, lockers, baggage, desks, tool boxes, clothing, and vehicles located on COMPANY premises or worksites, as a means of enforcing this Policy.

Any controlled substances or items prohibited by this Policy, or any materials that are illegal to possess, will be retained by COMPANY and may be destroyed or turned over to the appropriate law enforcement agency.

The refusal of any person to submit to a search or inspection will result in the revocation of the person's access privileges.

SECTION IV – COMPLIANCE AUDITS

COMPANY reserves the right to periodically audit a Contractor's records to verify compliance with this policy. Such verification will include, but not be limited to:

1. examination of the Contractor's substance abuse policy and its implementing directives and procedures;

2. a determination that substance testing is being conducted in those situations where it is required and that the testing meets the standards of this policy;

3. examination of chain of custody procedures which ensure integrity of collected specimens; or

4. evaluation of laboratory services.

Audit results will be treated as confidential in order to protect the privacy of tested persons. Notwithstanding any other provision of this Policy, under no circumstance will CONTRACTOR GROUP be obligated to disclose to or discuss with COMPANY GROUP or any member of COMPANY GROUUP the test results or records of any individual or member of CONTRACTOR GROUP.

SECTION V – SUBCONTRACTS

In all cases where a Contractor is permitted to employ a subcontractor, the Contractor is responsible for ensuring that the subcontractor and subcontractor's employees are in compliance with this policy. Contracts between contractors and subcontractors must stipulate that COMPANY reserves the right to audit subcontractor's substance programs.

SECTION VI – CONSENT FORMS

The Contractor must obtain a signed consent demonstrating each employee's agreement to release to Contractor the results of any substance testing performed by COMPANY on COMPANY premises, unless prohibited by applicable federal, state, or local law.

COMPANY will look at substance test results only during occasional compliance audits as described in Section IV, or when testing is required by COMPANY as described in Section II.

SECTION VII – NOTICE

The Contractor must ensure that each of its employees and employees of its subcontractors is informed of the provisions of this policy and of the Contractor's substance abuse policy. Notice will include the consequences of failure to comply, and will be made prior to entering COMPANY premises or working on COMPANY Projects.

SECTION VIII – CONCLUSION

Consideration for work on COMPANY premises or Company Projects will be conditioned upon contractor's and vendor's implementation of a policy that, in COMPANY'S sole judgment, conforms to the minimum standards expressed in this policy. Program development and implementation are the responsibility of the contractor.

The central goal of this policy is to provide a safe and efficient working environment for all persons on COMPANY premises, and to ensure that COMPANY Projects are performed in a safe and efficient manner. Cooperation is vitally important to the achievement of this important goal.

Exhibit F-1
Personnel to be Provided
Deepwater Horizon

No. of Personnel		JOB CLASSIFICATION	Daily Rate per person	Daily Overtime Rates	Hourly Overtime Rates
On Board Rig	Assigned To Rig				
1	2	OIM			
1	2	Sr. Toolpusher			
2	4	Toolpusher			
2	4	Driller			
4	8	Assistant Driller			
2	4	Derrickhand			
2	4	Pumphand			
12	24	Floorhand			
1	2	Maintenance Supervisor			
1	2	Mechanical Supervisor			
2	4	Chief Mechanic			
2	4	Mechanic			
3	6	Motor Operator			
1	2	Electrical/Electronic Supervisor			
1	2	Chief Electrician			
1	2	Electrician			
1	2	Chief Electronic Tech			
1	2	Electronic Technician			
1	2	Sr. Subsea Supervisor - MUX			
1	2	Subsea Supervisor			
1	2	Master			
1	2	Chief Mate			
1	2	Bosun			
3	6	AB Seaman			
2	4	DP Operator III			
2	4	DP Operator II			
3	6	Crane Operator			
2	4	Deckpusher			
13	26	Roustabout			
1	2	Welder			
1	2	Sr Materials Coordinator			
1	2	Materials Coordinator			
1	2	Medic			
1	2	Radio Operator			
1	2	RSTC			
76	**152**	**Total**			

Notes:

1. Rates and Fees to be provided thirty (30) days prior to Commencement Date of Contract Extension.
2. Above manning assumes CONTRACTOR will not put CONTRACTOR Personnel onboard workboats to handle cargo.
3. CONTRACTOR to have a forty-eight (48) hour allowance (for each occurrence prior to the enactment of penalty) to replace CONTRACTOR Personnel that have to leave the drilling unit for emergency purposes or who fail to show up for crew change.
4. CONTRACTOR shall not be penalized when requested by COMPANY to reduce CONTRACTOR'S Exhibit F-1 Personnel in order to provide additional bed space to accommodate COMPANY Personnel. Record of such CONTRACTOR Personnel reductions shall be mutually agreed by CONTRACTOR and COMPANY with such agreement recorded in the daily IADC log.

EXHIBIT B-2
MATERIAL EQUIPMENT LIST SEPTEMBER 28, 2009

A. Unit Specifications

General	
Unit Name	: ***Deepwater Horizon (RBS8D)***
Rig Type	: Semi-Submersible
Unit/Design/Shape	: IHI-RBF Exploration
Unit Flag	: marshall islands
Unit Classification	: ABS
IMO Certification (yes/no)	: Yes
Which code Version	: 1989 as Amended 1991
Year of Construction	: 2000
Construction Yard	: Hyundai
Type of Positioning System (anchor /Dp /combined)	: DPS-3

A.1 Main Dimensions/Technical Description

Weight (lightship)	mt: 25,539
Overall Width	ft: 255.9
Overall Length	ft: 396.0
Main Deck Width	ft: 200.1
Main Deck Length	ft: 267.4
Main Deck Depth	ft: 27.9
Number of Main Columns / Diameter (L x B)	No x ft: 4 / 49.2 x 49.2 (Top); 45.9 x 57.4 (Bottom)
Number of Small Columns / Diameter	No x ft: 0
Drilling Draft / Related Displacement	ft x mt: 75.5 x 52,589
Transit Draft / Related Displacement	ft x mt: 28.9 x 36,036
Survival Draft / Related Displacement	ft x mt: 54.1 x 44,305
Moonpool Dimensions	ft x ft: 21 x 93
Maximum Opening Through Spider Deck	ft: N/A
Pontoon Length	ft: 374.0
Pontoon Breadth (ends/middle)	ft: 57.4/50.9
Pontoon Height	ft: 29.9
Accommodation for Maximum No. of Personnel	Qty: 146

A.2 Storage Capacities

Fuel	bbls: 27,855 (98%)
Drill Water	bbls: 13,076
Potable Water	bbls: 7,456
Active Liquid Mud (see F.2)	bbls: 4,141 (90%)
Mud Processing Tank (see F.2)	bbls: 464
Reserve Liquid Mud (see F.2)	bbls: 10,304 (100%)
Bulk Bentonite/Barite (see F.3)	cu ft: 13,625 (100%)
Bulk Cement (see F.3)	cu ft: 8,175 (100%)

Sack Storage	No. or ft2:	10,000 sacks
Pipe Rack Area	ft2:	9,367
Load Bearing Capacity	lb/ft2:	500
Riser Sack Area	ft:	10,000
Load Bearing Capacity	lb/ft2:	700
Miscellaneous Storage Area	ft2:	See Drawing
Brine Storage (Column)	bbls:	5,136 (100%)
Brine Storage (Pontoon)	bbls:	25,000
Base Oil Mud Storage	bbls:	5,033 (98%)
Ballast System	bbls:	140,550 (incl. Pontoon brine tanks)

A.3 Propulsion / Thrusters

Thruster/Type (azimuth/in line)	: Azimuth - Full 360
Quantity	: 8
Location (aft, opposite corners, 4 corners)	: 4 Corners
Driven by Electric Motor (yes/No)	: Yes - Variable Speed Drive
Make/Type	: Kamewa
Power Output (HP EA.)	: 7375 hp (5500 kw)
Propeller Type(Fixed / Variable Pitch)	: Fixed
Nozzled (yes/no)	: Yes (w/5o down tilt)
Thruster Power (HP Total)	: 59,000 (44 MN)
DP System	: 'Class III Kongsberg-Simrad Dynamic Positioning System in accordance with ABS DPS-3 requirements and recommendations. System consists of a triple redundant dynamic positioning system and shall accept inputs from Hipap Acoustic Positioning System, four (4) different GPS (DGPS) based on correction signal inputs from different sources, (3) three gyrocompass, (3) three vertical reference units, and (3) three wind sensors, as well as operator input. Power Management System is interfaced with the Integrated Alarm & Control System.
Position Reference	: Kongsberg-Simrad Hipap & DGPS

	: Kongsberg-Simrad IACS will operate as the System Control & Data acquisition system for the MODU. The IACS will perform several different functions including: Power Management System, Machinery Monitoring & Control, Manual Thruster control and Autopilot, Dynamic Positioning Control, Ballast & Bunker Monitoring & Control, Bulk Storage Sys. Monitoring & Control, Safety Sys. (Fire, Gas, WT Doors, HVAC Control, etc.)
A-4 Operational Capabilities	
Maximum Designed Water Depth Capability	ft: 10,000
Outfitted Max. Water Depth Capability	ft: 8,000
Normal Min. Water Depth Capability	ft: 250
Drilling Depth Capability (Rated)	ft: 30,000
Transit Speed Towed (Historical Avg.)	Knots: 4.5
Transit Speed Self-Propelled (Historical Avg.)	Knots: 7.5
A-5 Variable Loading (VL)	
Transit VL	mt: See Exhibit B-1
Drilling VL	mt: See Exhibit B-1
Survival VL	mt: See Exhibit B-1
A-6 Environmental Limits	
Drilling (including stationkeeping)	: See Exhibit B-1
Air Gap	ft: 32.8
Sign. Wave Height	ft: 26
Max. Wave Height	ft: 48.2
Spec. Peak Period	see: Pierson-Moskowitz Spectrum
Max. Wind Velocity	knots: 60 (1 min.)
Max Current Velocity	knots: See Exhibit B-1
Max. Heave (Drill Floor Center)	ft: 6-7 (D.A.)
Max. Pitch	degrees: 2-3 (S.A.)
Max. Roll	degrees: 2-3 (S.A.)
Survival (excluding stationkeeping)	
Air Gap	ft: 54.2
Sig. Wave Height	ft: 41
Max. Wave Height	ft: 72.2
Spec. Peak Period	sec: 15
Max. Wind Velocity	knots: 103 (1 min.)
Max. Current Velocity	knots: 3.5
Max. Heave (Drill Floor Center)	ft: 20-30 (D.A.)
Max. Pitch	degrees: 6.5 (S.A.)
Max. Roll	degrees: 6.5 (S.A.)
Transit (field move)	

Air Gap	ft:	79.4
Sign. Wave Height	ft:	16 - 21
Max. Wave Height	ft:	30 - 40
Max. Wave Period	sec:	8-12
Max. Wind Velocity	knots:	50
Max. Current Velocity	knots:	3.5
Max. Heave	ft:	10-15 (D.A.)
Max. Pitch	degrees:	9.0 (S.A.)
Max. Roll	degrees:	9.0 (S.A.)
Derrick Loading	kips:	Empty * See derrick loading capability in Operations Manual.

A.7.1 Anchor Winches

Quantity	no.:	0
Make	:	
Type (electric/hydraulic/diesel)	:	
Rated Pull	mt:	
Speed Low Gear	ft/m:	
Test Load	:	
Control Locations (Local/Remote/Both)	:	
Emergency Release (Type/Location)	:	

A.7.2 Fairleads

Quantity	no.:	Columns structually enhanced for future fairleads
Make	:	
Free Rotating Range	degrees:	

A.7.3 Anchors	:	Company Supplied.
A.7.3.1 Anchors - Primary	:	Company Supplied.
A.7.3.2 Anchors - Spare	:	Company Supplied.
A.7.4 Anchor Lines	:	Company Supplied, to be installed at a later date

A.7.5 Anchor Line Running/Retrieval System

A.7.5.1 Pennant Lines	:	N/A
A.7.5.2 Anchor Buoys	:	N/A
A.7.5.3 Chaser	:	N/A

A.7.6 Towing Gear

Towing Bridle Size	inches:	0
Hook-Up System	:	Air Winch, Ingersoll Rand FA5A
Rating	mt:	682
Power Required for Infield Tow	Bollard Pull:	N/A
Power Required for Ocean Tow	Bollard Pull:	N/A
Spare Bridle	yes/no:	No

A.7.7 Supply Vessel Mooring Lines

Quantity	no.: 2 each
System	mt: Southwest Ocean Services, 180'x40'
Rating	lbs.: Surge Force, 22,700 lbs.
A.8 Marine Loading Hoses	
Location of Loading Manifolds (port/stbd./both)	: Both
A.8.1 Potable Water Hoses	
Quantity	no.: 2 x 150' (50' lengths)
Size	inch: 3
Make/Type	: Goodall SS290
Color Coding	yes/no: Yes
Make/Type/Connection	: Weco, 250 psi WP
A.8.2 Drilling Water Hose	
Quantity	no.: 2 x 150: (50' lengths)
Size	inch: 5
Make/Type	: Goodall SS122
Color Coding	yes/no: Yes
Make/Type/Connection	: Weco 300 psi WP
A.8.3 Gas Oil Hose	
Quantity	no.: 2 x 150'
Size	inch: 4
Make/Type	: Goodall SS145
Color Coding	yes/no: Yes
Make/Type/Connection	: TODO, 300 PSI WP
Pressure Rating	psi: 300
A.8.4 Mud Chemical Hose	
Quantity	no.: 2 x 150' (50' lengths)
Size	inch: 6
Make/Type	: Goodall SS146
Color Coding	yes/no: Yes
Make/Type/Connection	: TODO 300 PSI WP
A.8.5 Cement Hose	
Quantity	no.: 2 x 150' (50' lengths)
Size	inch: 6
Make/Type	: Goodall SS225
Color Coding	yes/no: Yes
Make/Type/Connection	: Weco 120 PSI WP
A.8.6 Base Oil Hose	
Quantity	no.: 2 x 150' (50' lengths)
Size	inch: 4
Make/Type	:
Color Coding	yes/no: Yes
Make/Type/Connection	: TODO

Pressure Rating	:	300 PSI WP

A.8.7 Brine Hose

Quantity	no.:	2 x 150' (50' lengths)
Size	inch:	4
Make/Type	:	Goodall SS110
Color Coding	yes/no:	Yes
Make/Type/Connection	:	Weco
Pressure Rating	:	500 PSI WP

A.9 Cranes, Hoists, & Material Handling

A.9.1 Cranes, Revolving, Main

Quantity	no.:	2
Specification (API, etc.)	:	ABS/US-Den
Make	:	Liebherr
Type	:	Pedestal
Location (stbd, port, aft, fwd)	:	Port & Stbd.
Maximum Rated Capacity (main hook)	mt:	100
Maximum Rated Capacity (whip hook)	mt:	15
Boom Length	ft:	150
Line Length (Nominal Boom Length)	ft:	1,893
- Main Boom	ft:	1,920
- Whip Line	ft:	475

Main Hoist, Platform Lift, 4 Lines	Radius Meters	Metric Tons
	6.6	92
	10	92
	11	80
	15	75
	20	65
	25	50
	30	40
	35	36
	40	30
	45	26
	48	23.7
		No Load

Main Hoist, Seastate Lift, 4 Lines	Radius Meters	Metric Tons
	6.6	51.5

	10	46
	11	44.8
	15	40.7
	20	36.8
	25	33.5
	30	30.6
	35	26.4
	40	22.4
	45	19.4
	48	18
		No Load

Main Hoist, Platfrom Lift, 4 Lines	Radius Meters	Metric Tons
	6.6	92
	10	92
	11	80
	15	75
	20	65
	25	50
	30	40
	35	36
	40	30
	45	26
	48	23.7
		No Load

Main Hoist, Seastate Lift, 4 Lines	Radius Meters	Metric Tons
	6.6	51.5
	10	46
	11	44.8
	15	40.7
	20	36.8
	25	33.5
	30	30.6
	35	26.4
	40	22.4
	45	19.4
	48	18
		No Load

		Radius Meters	Metric Tons
Whip Line		51	15
	Platform Lift	51	10
	Seastate Lift		No Load

	yes/no: Yes
Hook Load Indicator Automatically Corrected for Boom Angle	: Both
Alarm (audible, visual, both)	yes/no: Yes
Automatic Brake	yes/no: Yes
Safety Latch on Hooks	yes/no: Yes
Crown Saver (limit switch)	yes/no: Yes
Boom Illumination	no.: 2
Baskets for Personnel Transfer	

A.9.2 Cranes, Revolving, Secondary

Quantity	no.: 1
Specification (API, etc.)	: API
Make	: Outreach
Type	: Knuckle boom
Location (stbd., port, aft, fwd.)	: Forward
Maximum Rated Capacity (main hook)	lt.: SWL 4000 KG/ 8800 lbs 14.6 meters / 47.9 ft
Maximum Rated Capacity (main hook)	lt.: SWL 3000 KG/ 6600 lbs 21meters / 68 ft
Boom Length	ft.: 68
Line Length (nominal)	ft.: N/A

A.9.3 Forklifts

Quantity	no.: 1
Make/Type	: Stewart & Stevenson
Rated Capacity	lbs.: 5000
Location	: Sack Room

A.9.4 Monorail Overhead Cranes

Quantity	no.: 1
Make	: Hydralift
Type	: Gantry Type
Rated Capacity	mt: 37 (18.5x2)
Location	: Aft Riser Deck

A.9.5 BOP Handling System

Make/Type	: Hydralift Bridge Crane
Rated Capacity	mt: 310

BOP Carrier

Make/Type	: Hydralift "C" Cart complete w/false rotary deck
Rated Capacity	mt: 310

A.9.6 Air Hoists/Derrick Winches

A.9.6.1 Rig Floor Winches (Non Man-Riding)

Quantity	no.: 4
Make	: Ingersoll Rand

Type	:	Air
Rated Capacity	st:	5.5
Wire Diameter	inch:	0.75
Automatic Brakes	yes/no:	Yes
Overload Protection	yes/no:	No
Automatic Spooling	yes/no:	Yes

A.9.6.2 Monkey Board Work Winch

Quantity	no.:	1
Make	:	Ingersoll Rand
Type	:	Air
Rated Capacity	st.:	0.25
Wire Diameter	inch:	3/8"
Automatic Brakes	yes/no:	Yes
Overload Protection	yes/no:	No

A.9.6.3 Rig Floor "Man-Riding" Winch

Quantity	no.:	2
Make	:	Ingersoll Rand
Type	:	Air
Rated Capacity	st.:	0.25
Wire Diameter/Non-twist Wire	inch:	3/8"
Automatic Brakes	yes/no:	Yes
Overload Protection	yes/no:	No
Automatic Spooling	yes/no:	Yes
Certified for Man-Riding	yes/no:	Yes

A.9.6.4 Utility Winch (i.e. Deck Winch)

A.9.6.5 Cellar Deck Winch

Quantity	no.:	4
Make	:	Ingersoll Rand
Type	:	Air
Rated Capacity	st.:	5.5
Wire Diameter	inch:	0.75
Automatic Brakes	yes/no:	No
Overload Protection	yes/no:	No
Automatic Spooling	yes/no:	Yes
Man-Riding	:	2

A.10 Helicopter Landing Deck

Location	:	Port/Fwd - Main Deck
Dimensions	ft.xft.:	72.8 x 72.8
Perimeter Safety Net	yes/no:	Yes
Load Capacity	lt.:	11.9
Designed for Helicopter Type	:	Sikorsky S-92
Tie Down Points	yes/no:	Yes
Covered by Foam Fire System (See L.36)	yes/no:	Yes

A.10.1 Helicopter Refueling System

Fuel Storage Capacity	US Gal.: 2,250 (750x3)
Jettisonable	yes/no: No
Fuel Transport Containers	Qty.: 3
Volume (ea)	: 750
Covered by Foam Fire System (See L.3.5)	yes/no: Yes
A.11 Auxiliary Equipment	
A.11.1 Water Distillation	
Quantity	no.: 6
Make/Type	: Alfa-Laval
Capacity (each/total)	cu.ft./day: 20 Metric Tons Ea. (Depending on Engine Utilization)
A.11.2 Broilers	: N/A
A.11.3 Air Conditioning	
Quantity	no.: 4 Air Handlers, 6 Compressor/Condensers
Make/Type	: Carrier
Capacity (Total System)	tons: 200
A.11.4 Electric Welding Sets	
Quantity	no.: 3
Current Capacity	amp: 400
Make / Type	: Lincoln S-7046 SAE 400
A.11.5 High Pressure Cleaner	
Quantity	no.: 2
Make/Type	: Unitor
Electric/Pneumatic	: Electric
Max Delivered Pressure	PSI: 1600
Ring Main	yes/no: Yes
Outlets	Number: 6
B. General Rig Description	
B.1 Derrick & Substructure	
B.1.1 Derrick / Mast	
Make/Type	: Dreco
Rated for Wind Speed	Knots: 60/71 (GOMEX/WOS)
-With Full Set Back	Knots: 103/99 (GOMEX/WOS)
-With No Set Back	ft.: 242 (drill floor to top of gin pole)
Height	ft.xft.: 48x48
Dimensions of Base	ft.xft.: 18x18
Dimensions of Crown	st.: 1000
Gross Nominal Capacity	no.: 14,1 Spare Sheave Fitted in cluster
Maximum Number of Lines	yes/no: Yes
Ladders w/Safety Cages & Rests	yes/no: Yes
Platform for Crown Sheave Access	

Counter Balance, System for Rig Tongs & Pipe Spinning Tong	yes/no: Yes
Lighting System Explosion Proof	yes/no: Yes
B.1.2 Racking Platform	Unit is capable of field transiting with 238 stands of drill pipe w/o exceeding rated design loads of the derrick.
Make/Type	: Varco
Racking Platform Total Capacity w/5-12/" or 6-5/8 D.P.	ft.: 31,000 (nominal)
Fixed Fingers (on left side of derrick) - up to 6-5/8 D.P.	ft.: 20,000 (nominal)
Adjustable Fingers (on right side) - 7" Casing	ft.: 11,000 (nominal)
or Adjustable Fingers (on right side) - 9-5/8" Casing	ft.: 11,000 (nominal)
or Adjustable Fingers (on right side) -13-3/8" or 13	ft.: 9,500 (nominal)
Racking Platform Capacity of 8" - 9" DC	no.: 8
Auxiliary Derrick (Moonpool)	
Make/Type	: Dreco
Capacity	: 300 Tons
B.1.3 Automatic Pipe Racker	
Make/Type	: 2 - Varco RPS-6i Pipe Rackers Pipe racker on fwd. Side to be capable of handling 20", 16", 13-5/8", 11-3/4", 9-7/8", 9-5/8" 7-5/8" & 7" casing.
B.1.4 Casing Stabbing Board	
Make/Type	: Dreco/Hyd.
Adjustable from/to Height Above R/Table	ft./ft.: Adjustable Casing Stabbing Basket - 28' Reach
Auxiliary Pipe Handler (Moonpool)	
Make/Type	: National - Casing/Tubular Horizontal to Vertical Rotator
B.1.5 Substructure	
Make/Type	: HHI
Height	ft.: 14.75
Width	ft.: 80
Length	ft.: 71
Setback Capacity	st.: 1,000
Hookload	st.: 1,000
Simultaneous Setback-Hookload Capacity	st.: 2,000

Tensioner Capacity	st.:	1,750
Clear Height Below Rotary Table Beams(from 3rd deck)	ft.:	29.5
B.1.6 Weather Proofing		
Rig Floor Windbreaks Height	ft.:	11.5
Derrickman Windbreaks Height	ft.:	none
B.1.7 Derrick TV Camera System		
Camera Located at	:	Monkey Board/Crown
Make/Type	:	Color
Zoom/Pan/Tilt-Function	yes/no:	Yes
Monitor Located at	:	Driller's House
B.2 Drawworks & Associated Equipment		
B.2.1 Drawworks		
Make/Type	:	Hitec/AHD 1000
Drum Type	:	Lebus Grooving 2" Drill Line
Spinning Cathead Type	:	N/A
Breakout Cathead Type	:	N/A
Crown Block Safety Device	:	Yes
Make	:	Hitec/SDI
Model	:	Hitec/SDI
Rated Input Power Continuous	hp:	6900
Rated Input Power Maximum	hp:	8400
Drum Diameter	inches:	73.5
Maximum Line Pull 14 Lines	st:	1,000 (intermittent)
Maximum Line Pull 12 Lines	st:	880
Maximum Line Pull 10 Lines	st:	750
Maximum Line Pull 8 Lines	st:	600
Independent Freshwater Cooling System for Drawworks	yes/no:	Yes
B.2.2 Drawworks Power		
Number of Electric Motors	no.:	6
Make	:	General Electric
Model	:	GEB22A1
Output Power Continuous	hp:	1150
Output Power Intermittent (max.)	hp:	1400
B.2.3 Auxiliary Brake		
Make	:	Hitec
Model	:	Regenerative AC braking: A11 6 Motors. Motors are split in to two groups w/redundant master controllers and automatic control transfer in case of failure of primary controller.
Independent Back-up System Type	:	Failsafe Disc Brakes

B.2.4	**Sandline**	: N/A
B.2.5	**Automatic Driller**	
Make/Type		: Hitec
Auxiliary Drawworks (Moonpool)		
Make/Type		: Hitec
Lift Capacity		mt: 300
Input HP		: 1000
B.3	**Derrick Hoisting Equipment**	
B.3.1	**Crown Block**	
Make/Type		: Dreco
Rated Capacity		st: 1000
No. of Sheaves		: 7 Sheave Cluster, Plus Dual In-Line Sheaves on Fastline & Deadline.
Sheave Diameter		inch: 72
Sheave Grooved for Line Size		inch: 2
Auxiliary Crown Block (Moonpool)		
Make/Type		: Dreco
Rated Capacity		mt: 300
B.3.2	**Traveling Block**	
Make/Type		: Shaffer
Rated Capacity		st: 1000 on 14 Lines
No. of Sheaves		no.: 8
Sheave Diameter		inches: 72
Sheave Grooved for Line Size		inch: 2
Auxiliary Traveling Block		
Make/Type		: Dreco
Rated Capacity		mt: 300
B.3.3	**Hook**	
Make/Type		: Varco / Rotating Hook Adapter
Rated Capacity		st: 1000
Complete w/Spring Assembly / Hook Locking Device		yes/no: Yes. Active Counter Balance w/Stand, Jump & Hydraulic Locking Device.
B.3.4	**Swivel**	
Make/Type		: Integrated in TDS
Rated Capacity		st: N/A
Test/Working Pressure		PSI/PSI: N/A
Gooseneck & Washpipe Minimum ID >= 76mm		yes/no: N/A
Left-hand Pin Connection Size		inches: N/A
Access Fitting for Wireline Entry on Top of Gooseneck		yes/no: N/A

B.3.5	**Drilling Line**	
Diameter	inch:	2"
Type	:	6x26 EIPS, IWRC Powersteel Plus
Length (original)	ft.:	12500
Support Frame for Drum/Cover	yes/no:	yes
Drilling Line Drum Power Driven	yes/no:	yes
Spare Reel Drilling Line	yes/no:	no
Location (rig, shore, etc.)	:	N/A
B.3.6	**Anchor Dead Line**	
Make/Type	:	Dreco/FRH-160CR
Weight Sensor	yes/no:	Yes
B.3.7	**Drill String Motion Compensator**	
Make/Type	:	Hitec ASA Active Heave Comp.
Stroke	ft.:	13.7
Capacity - Compensated	st:	500
Capacity - Locked	st:	1000
B.3.8	**Block Guidance System**	
Make/Type	:	Dreco
B.3.9	**Retraction System for Traveling Block**	
Make/Type	:	Shaffer/Retract Dolly
B.4	**Rotating System**	
B.4.1	**Rotary Table**	
Make/Type	:	Varco / RST 60-1/2"
Maximum Opening	inches:	60-1/2"
Rated Capacity	st:	1000
Static Load Capacity	st:	1000
Rotating Load Capacity	st@rpm:	37.5 Ton @ 10 rpm
Two Speed Gearbox	yes/no:	No
Max RPM @ Max Torque	RPM/Ft.Lbs.:	25/48,000
Emergency Chain Drive	yes/no:	No
Driven by an Independent Electric Motor	yes/no:	No
Electric Motor Type/Make	:	Hydraulic x 4
Maximum Continuous Torque	ft-lbs:	40000
Drip Pan/Mud Collection System	yes/no:	Yes
B.4.2	**Rotary Table Adapter Bushing**	
Size	inches:	60-1/2 x 49-1/2
Quantity	:	1 each 60-1/2 x 49-1/2 Adapter Bushing; 2 ea 49-1/2 x 37.5 Spot Adapter Bushing
B.4.3	**Master Bushing**	
Make/Type	:	Varco MPCH

Size	inch: 37-1/2
Inset Bushing	No: 3,2,1

B.4.4 Kelly Bushing

B.4.5 Top Drive

Make	: Varco TDS8S w/Swingout Parking System
Type (electric/hydraulic)	: Electric
Rated Capacity	st: 750
Test/Working Pressure	psi/psi: 11250/7500
Remote Operated Kelly Cock	yes/no: Yes
If Driven by Electric Motor	
Make/Type	: GE GEB-20AC
Output Power	hp: 1150
Output Torque	ft-lbs: 94,000 @ 600 Volts
Max. Torque @ Max. RPM	ft-lbs - RPM: Per Manufacturer's rating 1150 HP 270 RPM = 13,000 ft-lbs; 95 RPM = 63,000 ft-lbs
Two Speed Gearbox	rpm: No (Single speed)
Maximum Rotary Speed	: 270
Cooling System Type	: All

B.4.6 Top Drive Makeout/Breakout System

Make	: Varco
Model	: PH100
Type	: Hydraulic
Max. Breakout Torque That Can be applied by System	ft-lbs: 100,000

B.4.7 Raised back-up System

Make	: Varco
Model	: RBS4
Torque Rating	ft-lbs: 100,000
Vertical Travel	ft: 10
Pipe Range	: 4-3/4 In. to 8-1/4 In,

C. Power Supply Systems

C.1 Rig Power Plant

C.1.1 Diesel Engines

Quantity	no.: 6
Make/Type	: Wartsila / 18V32
Maximum Continuous Power	hp: 7290 KW 9775 HP
At Rotation Speed of	rpm: 720
Equipped w/Spark Arrestors	yes/no: Yes
Mufflers Installed	yes/no: Yes
Total Fuel Consumption, Drilling (Average)	bbl/day: Av 270. Estimate only, based on GOM weather and will vary depending on operations
Normal Drilling:	bbl/day: 270 (Est. only, will vary depending on operations

	Tripping:	bbl/day: 270 (Est. only, will vary depending on operations
	Top Hole Drilling:	bbl/day: 305 (Est. only, will vary depending on operations Estimated w/2,500 KW hotel load.
C.1.2	**DC - Generator**	
Type		: N/A
C.1.3	**AC - Generator**	
Quantity		no.: 6
Make/Type		: ABB/AMG 0900xU10
Continuous Power		kw: 7,000
At Rotation Speed of		rpm: 720
Output Volts		volts: 11,000
C.1.4	**Variable Frequency Drives**	
Number of Inverters		no.: 8 Thruster Drives
Make/Type		: ABB/Sami-Megastar
Maximum continuous Power (Total)		kw: 5.5 mw
Input Volts		volts: Thrusters 1-6: 3.3 / 3.3 KV
Input Volts		volts: Thrusters 7-8: 1.65 / 1.65 KV
Output Volts		volts: 0-3,300 variable AC (All 8 thruster drives)
Number of Inverters		no.: 6 Drilling Drive Lineups
Make/Type		: GE
Maximum continuous Power (Total)		kw: 12,000
Output Volts		volts: 600
C.1.5	**Transformer System**	
Quantity		no.: 8 Thruster Transformers
Make/Type		: ABB
Continuous Power (ea)		KVA: 7,300 KVA
Input/Output Volts (dual wound secondaries)		volts: Thrusters 1-6: 11 KV / 3.3 / 3.3 KV
		volts: Thrusters 7-8: 11 KV / 1.65 / 1.65 KV
Frequency		Hz: 60
Quantity		no.: 6 Drilling Transformers
Make/Type		: Olsun
Continuous Power (ea)		KVA: 3000 - 3 ea. Delta-Delta, 3 ea. Delta-Wye
Output Volts		volts: 11KV/600V
Frequency		Hz: 60
Quantity		no.: 4 Quadrant Transformers
Make/Type		: Olsun
Continuous Power (ea)		KVA: 2500
Output Volts		volts: 11KV/480 V, Delta-Wye
Frequency		Hz: 60
C.1.6	**Emergency Shutdown**	

Emergency shutdown switches for complete power system (AC & DC), located at the following points.	: Central Control Room; Rig Floor; Engine Control Room
C.1.7 Auxiliary Power Supply	
Power Supply for a Mud Logging Unit	yes/no: Yes
Power Supply Available:	
Output Volts	volts: 480
Frequency	Hz: 60
Current	amps: 100
Phase	single / three: Three
C.1.8 Compressed Air Systems	
Air Compressors - High Pressure	
Quantity	no.: 2
Make	: Hamworthy
Model	: 4swl234
Rated Capacity	scfm: 65 each
Working Pressure	PSI: 5000
Prime Mover (electric/diesel)	: Electrical
Continuous Power	HP: 60
Quantity	no.: 1
Make	: Price
Model	: W-3
Rated Capacity	scfm: 200 each
Working Pressure	PSI: 5000
Prime Mover (electric/diesel)	: Electrical
Continuous Power	HP: 75
Air Dryers	
Quantity	no.: 2
Make/Type	: Hamworthy Regenerative Tower (Dual)
Rated Capacity	scfm: 90
Air Compressors - Medium Pressure (rig air):	
Quantity	no.: 4
Make	: Gardner Denver
Model	: EBQ99F Rotary Screw
Rated Capacity	scfm: 750 each
Working Pressure	PSI: 125
Prime Mover (electric/diesel)	: Electric
Continuous Power	HP: 200
Air Dryers	
Quantity	no.: 4
Make/Type	: Desiccant Dominick Hunter / DX110 Heatless
Rated Capacity	scfm: 1089 ea
Air Compressors - Lower Pressure (bulk air):	
Quantity	no.: 3

Make	:	Kimray -4 each reducing wave/back pressure v:
Model	:	Series G Regulator 318 FGT-BP & FGT-PR
Rated Capacity	scfm:	176 each (10,600cf/hr each)
Working Pressure	PSI:	60
Air Dryers		
Quantity	no.:	None
Make/Type	:	
Rated Capacity	scfm:	

C.2 Emergency Generator - Emergency Generator Not Required due to Power System Design

C.2.1 Engine (Standby)		
Quantity	no.:	1
Make/Type	:	Caterpillar 3408 DITA
Maximum Output	kw:	400 cont. power output
At Rotation Speed	rpm:	1200
Starting Methods (Automatic, Manual, Air/Hydraulic)	:	Automatic Electric / Hydraulic
Maximum Angle of Operation	degrees:	22.5 Per ABS

C.2.2 AC Generator (Standby)		
Quantity	no.:	1
Make/Type	:	Caterpillar SR4
Maximum Output	kw	370
At Rotation Speed	rpm:	1200
Output Volts	volts:	480
Capable of Back-Feeding to Main Bus	yes/no:	Yes - To 480V Motors

C.3 Primary Electric Motors

C.3.1 Propulsion Motors	Type:	See Thruster Motors

C.3.2 Thruster Motors		
Quantity	no.:	8
Type (AC/DC)	:	ABB - AC, Squirrel Cage Motors
Power of Each	MW	5.5
RPM	RPM:	0-780
Output	Volts:	2x3300

D. Drillstring Equipment

D.1 Tubulars

D.1.1 Kellies

D.1.2 Top Drive Saver Subs

Quantity	no.: 2
Connection Type	: HT55
API Classification	: 8 C
Protector	yes/no: No
Quantity	no.: 2
Connection Type	: 4-1/2 IF
API Classification	: 8 C
Protector	yes/no: No

D.1.3 Drill Pipe

Drill Pipe OD - String #1

Grade	inch: 5.5
Total Length	: S135
Range	ft: 16000
Weight	: 3
Tensile Yield Strength Premium	lbs/ft 21.9 Nominal
Internally Plastic Coated	lbs.: 621000
Tool Joint OD/ID	yes/no: Yes, TK-34
Make Up Torque	inch /inch: 7" x 4" provisional
Tool Joint Pin Length	ft-lbs: 46300
Tapered Shoulder Tool Joints	inch: 12
Connection Type	degree: 18
Type of Hardfacing	: HT 55
API Classification	: X-Metal 7,000
Thread Protectors	: Premium
	yes/no: Yes

Drill Pipe OD - String #2

Grade	inch: 6.625
Total Length	: V-150
Range	ft.: 15,450 (+0%, -3%)
Weight	: 3
Tensile Yield Strength Premium	lbs/ft: 34.02
Internally Plastic coated	lbs.: 1,420,100
Tool Joint OD/ID	yes/no: Yes, TK-34
Make Up Torque	inch /inch: 8.5" x 4.25"
Tool Joint Pin Length	ft-lbs: Max 56k, Min 54.5k
Tapered Shoulder Tool Joints	inch: 12
Connection Type	degree: 18
Type of Hardfacing	: 6-5/8 FH
API Classification	: X-Metal 7,000
Thread Protectors	: Premium
	yes/no: Yes

Drill Pipe OD - String #3

Grade	inch: 6.625
Total Length	: V-150
Range	ft.: 10,300 (+0%, -3%)
Weight	: 3
Tensile Yield Strength Premium	lbs/ft: 40.9
Internally Plastic coated	lbs.: 1,410,000
Tool Joint OD/ID	yes/no: Yes, TK-34
Make Up Torque	inch /inch: 8.5" x 4.25"
	ft-lbs: Max 67k, Mix 63k

Tool Joint Pin Length	inch:	12
Tapered Shoulder Tool Joints	degree:	18
Connection Type	:	6-5/8 FH
Type of Hardfacing	:	X-Metal 7,000
API Classification	:	Premium
Thread Protectors	yes/no:	Yes
Drill Pipe OD - String #4 Landing String	inch:	5.5
Grade	:	S-135
Total Length	ft.:	7000
Range	:	3
Weight	lbs/ft:	38
Tensile Yield Strength Premium	lbs.:	1170600
Internally Plastic Coated	yes/no:	Yes
Tool Joint OD/ID	inch /inch:	7-1/8 x 3-3/4 Provisional
Tool Joint Pin Length	inch:	12
Tapered Shoulder Tool Joints	degree:	18
Connection Type	:	HT 55
Type of Hardfacing	:	X-Metal 7,000
API Classification	:	Premium
Thread Protectors	yes/no:	Yes

D.1.4 Drill Pipe Pup Joints (Integral)

OD	:	5.5"
Grade/Yield	:	4145 H Equiv. To 120K
Tool Joint OD/ID	inch /inch:	7-1/4 x 3-3/4
Weight	lb/ft:	40
Connection Type	:	HT-55
Stress Relief Pin Groove	:	No
Boreback on Box	:	No
Internally Plastic Coated	yes/no:	No
Thread Protectors	yes/no:	Yes
Length	ft.:	5
Quantity	no.:	2
Length	ft.:	10
Quantity	no.:	1
Length	ft.:	15
Quantity	no.:	2
Length	ft.:	20
Quantity	no:	1
OD	:	6.625
Grade/Yield	:	V-105
Tool Joint OD/ID	inch /inch:	8.5" x 4.25"
Weight	lb/ft:	47.76
Connection Type	:	6-5/8 FH
Stress Relief Pin Groove	:	No
Boreback on Box	:	No
Internally Plastic Coated	yes/no:	No
Thread Protectors	yes/no:	Yes
Length	ft.:	5

Quantity	no.: 2
Length	ft.: 10
Quantity	no.: 1
Length	ft.: 15
Quantity	no.: 2
Length	ft.: 20
Quantity	no: 1
	:
O.D.	inch /inch:
Grade/Yield	:
Tool Joint OD/ID	lb/ft:
Grade	:
Weight	:
Connection Type	:
Stress Relief Pin Groove	yes/no:
Boreback on Box	yes/no:
Internally Plastic Coated	ft.:
Thread Protectors	no.:
Length	ft.:
Quantity	no.:
Length	ft.:
Quantity	no.:
Length	ft.:
Quantity	no:
Length	yes/no:
Quantity	
Thread Protectors	: N/A

D.1.5 Drill Pipe Casing Protectors

D.1.6 Heavy Weight Drill Pipe (Integral)	
Quantity	no.: 30
Nominal Size OD	inch: 5-1/2"
Weight	lbs/ft 58" Nominal
Range	: 2
Tool Joint OD	inch: 7-1/4"
Tool Joint ID	inch: 3-3/4"
Pin Stress Relief Groove	yes/no: No
Box, Bore Back	yes/no: No
Type of Hardfacing	: X-Metal 7000
Internally Plastic Coated	yes/no: No
Connection Type	: HT55
Thread Protectors	yes/no: Yes, Bale Type
Quantity	no.: 36
Nominal Size OD	inch: 6-5/8" S-135 FH R-3
Weight	lbs/ft 70.8
Range	: 3
Tool Joint OD	inch:
Tool Joint ID	inch:

Pin Stress Relief Groove	yes/no:
Box, Bore Back	yes/no:
Type of Hardfacing	:
Internally Plastic Coated	yes/no:
Connection Type	:
Thread Protectors	yes/no:

D.1.7 Drill Collars	
Quantity	no.: 15
OD Body	inches: 9.5
ID Body	inches: 3"
Nominal Length of each Joint	ft.: 31.5 Nominal
Drill Collar Body (Slick/Spiral)	: Spiral
Recess for "Zip" Elevator	yes/no: Yes
Recess for Slips	yes/no: Yes
Stress Relief Pin Groove	yes/no: Yes
Boreback on Box	yes/no: Yes
B.S.R.	: 2.72
Connection Type	: 7-5/8" reg.
Thread Protectors	yes/no: Yes, Bale Type
Quantity	no.: 15
OD Body	inches: 8-1/4"
ID Body	inches: 2-13/16"
Nominal Length of each Joint	ft.: 31.5 ft. Nominal
Drill Collar Body (Slick/Spiral)	: Spiral
Recess for "Zip" Elevator	yes/no: Yes
Recess for Slips	yes/no: Yes
Stress Relief Pin Groove	yes/no: Yes
Boreback on Box	yes/no: Yes
B.S.R.	: 2.93
Connection Type	yes/no: 6-5/8" reg.
Thread Protectors	yes/no: Yes, Bale Type
Quantity	no.: 30
OD Body	inches: 6-1/2"
ID Body	inches: 2-1/2"
Nominal Length of each Joint	ft.: 31.5 ft. Nominal
Drill Collar Body (Slick/Spiral)	: Spiral
Recess for "Zip" Elevator	yes/no: Yes
Recess for Slips	yes/no: Yes
Stress Relief Pin Groove	yes/no: Yes
Boreback on Box	yes/no: Yes
B.S.R.	: 2.73
Connection Type	yes/no: 4" IF
Thread Protectors	yes/no: Yes, Bale Type

D.1.8	**Shot Drill Collars**	: Company Supplied.
D.1.9	**Non-Magnetic Drill Collars**	: Company Supplied.
D.1.10	**Core Barrels**	: Company Supplied.
D.1.11	**Stabilizers**	: Company Supplied.
D.1.12	**Roller Reamers**	: Company Supplied.

D.1.13	**Shock Absorbers (Damping Subs)**	: Company Supplied.
D.1.14	**Drilling Jars**	: Company Supplied.
D.1.15	**Inside BOP Valve**	
Quantity		: 2
Make		: SMF / BVR
OD		inch: 7-1/4 x 2-1/4
Connection Type		: HT 55
Working Pressure Rating		PSI: 15000
Quantity		no.: 2
Make		: SMF / BVR
OD		inch: 6-1/2 x 2-13/16
Connection Type		: 4-1/2 IF (NC-50)
Working Pressure Rating		PSI: 15000
D.1.16	**Full Opening Safety Valve**	
Quantity		no.: 2
Make		: SMF/KC2S
OD/ID		inch x inch: 7-1/4" x 2-1/8"
Connection Type		: HT55
Working Pressure		PSI: 15000
Quantity		no.: 2
Make		: SMF/KC2S
OD/ID		inch x inch: 6-5/8" / 2-13/16"
Connection Type		: 4-1/2 IF (NC 50)
Working Pressure		PSI: 15000
D.1.17	**Circulation Head**	: N/A
D.1.18	**Top Drive Valves**	
Upper:		
Quantity		no.: 2
Make/Type		: Varco
Working Pressure		PSI: 15000
Max. OD Body		inch: 8-5/8"
Min. ID Body		inch: 3-1/16"
Connection Type		: 7-5/8 Reg.
Lower:		
Quantity		no.: 2
Make/Type		: Varco
Working Pressure		PSI: 15000
Max. OD Body		inch: 8-5/8"
Min. ID Body		inch: 3-1/16"
Connection Type		: 7-5/8 Reg.
D.1.19	**Circulation Subs**	: Company Supplied.
D.1.20	**Cup Type Testers**	: Company Supplied.
D.1.21	**Plug Type Testers**	: Company Supplied.

D1.22	**Drop-In Valves**	: Company Supplied.
D.1.23	**Near-Bit Subs (Box-Box)**	
Quantity		no.: 2
OD Size		inch: 9-1/2"
ID Size		inch: 3"
Top Connection		inch: 7-5/8 Reg.
Boreback		yes/no: Yes
BSR		: 2.25-3
Bottom Connection		inch: 7-5/8 Reg.
Boreback		yes/no: No
Bored for Float Valve		yes/no: Yes
Float Size		inch: 5F-6R
Quantity		no.: 2
OD Size		inch: 9-1/2"
ID Size		inch: 2-13/16"
Top Connection		inch: 7-5/8 Reg.
Boreback		yes/no: Yes
BSR		: 2.25-3
Bottom Connection		inch: 6-5/8 Reg.
Boreback		yes/no: No
Bored for Float Valve		yes/no: Yes
Float Size		inch: 5F-6R
Quantity		no.: 2
OD Size		inch: 8-1/4"
ID Size		inch: 2-13/16"
Top Connection		inch: 6-5/8 Reg.
Boreback		yes/no: Yes
BSR		: 2.25-3
Bottom Connection		inch: 6-5/8 Reg.
Boreback		yes/no: No
Bored for Float Valve		yes/no: Yes
Float Size		inch: 5F-6R
Quantity		no.: 2
OD Size		inch: 6-1/2"
ID Size		inch: 2-1/2"
Top Connection		inch: 4-1/2 XH
Boreback		yes/no: Yes
BSR		: 2.25-3
Bottom Connection		inch: 4-1/2 Reg.
Boreback		yes/no: No
Bored for Float Valve		yes/no: Yes
Float Size		inch: 4 R
D.1.24	**Crossover Subs**	
Quantity		no.: 2
OD Size		inch: 8-1/4" x 9-1/2"
Top Connection Size		inch: 6-5/8 Reg.
Type (pin/box)		: Box

ID	: 2-13/16"
BSR	: 2.25-3
Boreback	yes/no: Yes
Bottom Connection Size	inch: 7-5/8 Reg.
Type (pin/box)	: Pin
ID	: 3"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.: 2
OD Size	inch: 7-1/4" x 8-1/4"
Top Connection Size	inch: HT 55
Type (pin/box)	: Box
ID	inch: 3"
BSR	: 2.25-3
Boreback	yes/no: No
Bottom Connection Size	inch: 6-5/8 Reg.
Type (pin/box)	: Pin
ID	: 3"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.: 2
OD Size	inch: 7-1/4" x 6-1/2"
Top Connection Size	inch: HT 55
Type (pin/box)	: Box
ID	inch: 2-1/2"
BSR	: 2.25-3
Boreback	yes/no: No
Bottom Connection Size	inch: 4-1/2 XH (NC 46)
Type (pin/box)	: Pin
ID	: 2-1/2"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.: 2
OD Size	inch: 6-1/2" x 8-1/2"
Top Connection Size	inch: 4 IF (NC 46)
Type (pin/box)	: Box
ID	inch: 2-1/2"
BSR	: 2.25-3
Boreback	yes/no: Yes
Bottom Connection Size	inch: 6-5/8 Reg.
Type (pin/box)	: Pin
ID	inch: 2-1/2"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.: 2
OD Size	inch: 7-1/4 x 6-5/8
Top Connection Size	inch: HT 55
Type (pin/box)	: Box

ID	inch: 2-13/16"
BSR	: 2.25-3
Boreback	yes/no: No
Bottom Connection Size	inch: 4-1/2 IF (NC 50)
Type (pin/box)	: Pin
ID	inch: 2-13/16"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.: 2
OD Size	inch: 6-5/8 x 8-1/4
Top Connection Size	inch: 4-1/2 IF
Type (pin/box)	: Box
ID	inch: 2-13/16"
BSR	: 2.25-3
Boreback	yes/no: Yes
Bottom Connection Size	inch: 6-5/8 Reg.
Type (pin/box)	: Pin
ID	inch: 2-13/16"
BSR	: 2.25-3
Relief Groove	yes/no: Yes
Quantity	no.:
OD Size	inch:
Top Connection Size	inch:
Type (pin/box)	:
ID	inch:
BSR	:
Boreback	yes/no:
Bottom Connection Size	inch:
Type (pin/box)	:
ID	inch:
BSR	:
Relief Groove	yes/no:

D.1.25 Stabbing Subs - Approximately 9" Long

Quantity	no.: 1
OD	inch: 9.5
ID	inch: 3
Top Connection Size	inch: HT 55
Type (pin/box)	: Box
Bottom Connection Size	inch: 7-5/8 Reg.
Type (pin/box)	: Pin
Quantity	no.: 1
OD	inch: 9.5
Top Connection Size	inch: 4-1/2 IF
Type (pin/box)	: Box
ID	inch: 3
Bottom Connection Size	inch: 7-5/8 Reg.
Type (pin/box)	: Pin

Quantity	no.: 1
OD	inch: 8.25
ID	inch: 2-13/16
Top Connection Size	inch: HT 55
Type (pin/box)	: Box
Bottom Connection Size	inch: 6-5/8" Reg
Type (pin/box)	: Pin
Quantity	no.:
OD	inch:
ID	inch:
Top Connection Size	inch:
Type (pin/box)	:
Bottom Connection Size	inch:
Type (pin/box)	:

D.1.26 Pump In/Testing Subs

Quantity	no.: 1
Connection	Pin/Box: HT 55 Box
Union Type	: 2: 1502 Female
Quantity	: 1
Connection	Pin/Box: HT 55 Pin
Union Type	: 2" 1502 Female
Quantity	: 1
Connection	Pin/Box: 4-1/2 IF Box
Union Type	: 2" 1502 Female
Quantity	: 1
Connection	Pin/Box: 4-1/2 IF Pin
Union Type	: 2" 1502 Female
Quantity	: 1
Connection	Pin/Box: 4 XH
Union Type	: 2" 1502 Female
Quantity	: 1
Connection	Pin/Box: 6-5/8 Reg. Pin
Union Type	: 2" 1502 Female
Quantity	: 1
Connection	Pin/Box: 7-5/8 Reg. Pin
Union Type	: 2" 1502 Female

D.1.27 Side Entry Subs

Quantity	: 1
Top Connection	Box/Pin: HT 55 Box
Lower Connection	: HT 55 Pin
Outlet Size & Type	: 2" 1502 Female
Quantity	: 1
Top Connection	Box/Pin: 4-1/2 IF Box
Lower Connection	: 4-1/2 IF Pin
Outlet Size & Type	: 2" 1502 Female

D.1.28 Drilling Bumper Subs	: Company Supplied.
D.1.29 Hole Openers	: Company Supplied.
D.1.30 Underreamers	: Company Supplied.

D.2 Handling Tools

D.2.1 Drill Pipe Elevators

Quantity	no.: 2
Make	: Varco
Model	st: BX Frame 4
Drill Collars Inserts	150 Tons: 6-1/2", 8-1/4", 9-1/2"
Casing Inserts	350 Tons: Company Supplied.
Drill Pipe Inserts	500 Tons: 5, 5-1/2"
Elevators	750 Tons: 5, 5-1/2"
BOP Handling Elevators	st: 1,000 Refer E6.10

D.2.2 Drill Collar Elevators

Size	inch: N/A
Quantity	no.:
Make	:
Model	:
Rated Capacity	st:
Size	inch: N/A
Quantity	no.:
Make	:
Model	:
Rated Capacity	st:
Size	inch: N/A
Quantity	no.:
Make	:
Model	:
Rated Capacity	st:
Size	inch: N/A
Quantity	no.:
Make	:
Model	:
Rated Capacity	st:

D.2.3 Tubing Elevators Type: Company Supplied.

D.2.4 Drill Pipe Hand Slips

Size	inch: 5-1/2"
Quantity	no.: 1
Make/Type	: Varco/SDXL
Size	inch: 5
Quantity	no.: 1
Make/Type	: Varco/SDXL
Size	inch: 3-1/2"
Quantity	no.: N/A
Make/Type	: N/A

D.2.5	**Power Slips**	
Make/Type		: Varco PS 30
Quantity		: 1
Slip Assembly: 20" to 18-5/8"		: 1
Slip Assembly: 16" to 6-5/8"		: 1
Slip Assembly: 2-3/8 to 10-3/4"		: 1
Insert Carriers for Drillpipe		: 5", 5-1/2"
Insert Carriers for Drill Collars		: 6-1/2, 8-1/4, 9-1/2
Insert Carriers for Casing		: Company Supplied.
Die Sets for 13-3/8", 9-5/8" & 7" Carriers		: Company Supplied.
Mousehole Slips		: Varco Mousehole Spider, Range 3-1/2" to 14"
D.2.6	**Drill Collar Slips**	
Size		inch: 8-1/2" to 10"
Quantity		no.: 1
Make/Type		: Varco/ DCS-L
Size		inch: 8" to 9-1/2"
Quantity		no.: 1
Make/Type		: Varco/ DCS-L
Size		inch: 5-1/2" to 7"
Quantity		no.: 1
Make/Type		: Varco/ DCS-R
D.2.7	**Drill Collar Safety Clamps**	
Quantity		no.: 1
Model		: MP-L
Range		: 19-3/8" to 4-1/2"
D.2.8	**Tubing Slips**	: Company Supplied.
D.2.9	**Tubing Spider**	: Company Supplied.
D.2.10	**Drill Collar Lift Subs**	: 10 ea.: NC 46 Conn. For 6-1/2" D.C. : 5 ea.: 6-5/8 Reg. Conn. For 8-1/4" D.C. : 5 ea.: 7-5/8 Reg. Conn. For 9-1/2" D.C.
D.2.11	**DC Lifting Plugs**	: N/A
D.2.12	**Bit Breaker**	
Quantity		no.: 1
For Bit Size		inch: 26
Quantity		no.: 1
For Bit Size		inch: 17-1/2
Quantity		no.: 1
For Bit Size		inch: 14-3/4"
Quantity		no.: 1
For Bit Size		inch: 12-1/4
Quantity		no.: 1

For Bit Size	inch: 8-1/2
D.2.13 Gauge Rings	
Sizes	: 26,17-1/2,14-3/4,12-1/4,8-1/2
D.2.14 Elevator Links	
Quantity of Sets	no.: 3
Make/Type	: Varco
Size	inch: 3.5
Length	inch: 120", 180" & 108"
Rated Capacity	st: 500
Quantity of Sets	no.: 2
Make/Type	: Varco
Size	inch: 4-3/4"
Length	inch: 264" & 216"
Rated Capacity	st: 750
Quantity of Sets	no.: 1
Make/Type	: Varco
Size	inch: 4-3/4"
Length	inch: 200"
Rated Capacity	st: 1000
D.2.15 Drill Pipe Spinner	Type: Grayspin Mark 30
D.2.16 Mud Saver Bucket	
Make	: Dreco
Size	inch: 9-3/4 to 3-1/2"
Operation	: Remote from DWS
D.2.17 Ezy Torque	
Make/Type	: Varco
Maximum Line Pull	lb: 31000
Quantity	: 2
D.2.18 Rotary Rig Tongs	
Quantity	no: 2
Make/Type	: Varco HT 100
Size Range (Max. OD/Min. OD)	inch /inch: 17 to 4
Torque Rating	ft-lbs: Max 100,000, reduces depending on size
Quantity	no: 2
Make/Type	: Varco HT 50
Size Range (Max. OD/Min. OD)	: 20" / 17-1/4"
Torque Rating	ft-lbs: 50000
D.2.19 Tubing Tongs (Manual)	
D.2.20 Tubing Tongs (Power)	
D.2.21 Iron Roughneck	
Make/Type	: Varco/AR3200
Size Range (Max OD/Min OD) Drill Collars	inch /inch: 9-1/2" / 4"
Size Range (Max OD/Min OD) Drill Pipe	inch /inch: 6-5/8" / 3-1/2"

D.3	**Fishing Equipment**	
D.3.1	**Overshots**	
Quantity		no.: 1
Make/Type		: F.S
Top Sub Connection Type		: 6-5/8 Reg.
Overshot OD		inch: 11-3/4"
Max. Catch Size		inch: 9-1/2"
To Catch Size: Spiral Grapple		inch: 9-1/2, 9-3/8, 8-1/2, 8-3/8, 8-1/4, 8-1/8, 7-1/4, 7-1/8, 7, 6-7/8, 6-5/8, 6-1/2, 6-3/8
To Catch Size: Basket Grapple		inch: 5-1/2, 5
Control Rings		: For Above Grapple
Extension Sub Length		ft.: 2.5
Lipped Guide (oversize, regular)		inch: 11-3/4, 15, 21
Quantity		no.: 1
Make/Type		: SH Series 150
Top Sub Connection Type		: 4 1/2 IF
Overshot OD		inch: 8-3/8
Max Catch Size		inch: 7-1/4
To Catch Size: Spiral Grapple		inch: 7-1/4, 7-1/8, 7, 6-7/8
To Catch Size: Basket Grapple		inch: 6-5/8, 6-1/2, 6-3/8,5-1/2,5
Control Rings		: For Above Grapple
Extension Sub Length		ft: 2.5
Lipped Guide (oversize, regular)		: 8-3/8, 11
D. 3.2	**Hydraulic Fishing Jar**	: Company Supplied
D.3.3	**Jar Intensifier**	: Company Supplied
D.3.4	**Surface Jar**	: Company Supplied
D.3.5	**Fishing Bumper Subs**	
Quantity		no.: 1
Make/Type		: Gotco
OD Body		inch: 8
Min. ID		inch: 3.5
Stroke		inch: 20
Connection Type		: 6-5/8 Reg.
Quantity		no.: 1
Make/Type		: Gotco
OD Body		inch: 6-1/2"
Min. ID		inch: 2.25
Stroke		inch: 20
Connection Type		: 4-/12 IF
D.3.6	**Safety Joints**	: Company Supplied
D.3.7	**Junk Baskets (Reverse Circ.)**	: Company Supplied
D.3.8	**Junk Subs**	: Company Supplied
Quantity		no.: 1
Make/Type		: Gotco
For Hole Size		inch: 11-1/2 to 13
Boot OD		inch: 9-5/8

Connection Type		: 6-5/8 Reg.
Quantity		no.: 1
Make/Type		: Gotco
For Hole Size		inch: 7-1/2 to 8-1/2
Boot OD		inch: 6-5/8
Connection Type		: 4-1/2 reg.
Quantity		no.: 1
Make/Type		: Gotco
For Hole Size		inch: 14-3/4 to 17-1/2
Boot OD		inch: 12-7/8
Connection Type		: 7-5/8 reg.
D.3.9	**Flat Bottom Junk Mill**	: Company Supplied
D.3.10	**Magnet Fishing Tool**	
Quantity		no.: 1
Make/Type		: Gotco/Flush Guide
OD Body		inch: 16
Hole Size		inch: 17.5
Connection Type		: 6-5/8 Reg. Pin
D.3.11	**Taper Taps**	: Company Supplied
D.3.12	**Die Collars**	: Company Supplied
D.3.13	**Sheared Drill Pipe Recovery System**	
(In conjunction w/11-3/4" overshot)		
Quantity		no.: 1
Make/Type		: Gotco/Special Short Guide w/Soft Metal Bottom
OD Body		inch: 11-3/4
Quantity		no.: 1
Make/Type		: Gotco/Special Short Guide w/Soft Metal Bottom
OD Body		inch: 11-3/4
Quantity		no.: 1
Make/Type		: Gotco/Mill Extension to Dress 5" Drill Pipe
OD Body		inch: 11-3/4
Quantity		no.: 1
Make/Type		: Gotco/Mill Extension to Dress 5-1/2" Drill Pipe
OD Body		inch: 11-3/4
E.	**Well Control / Subsea Equipment**	
E.1	**Lower Riser Diverter Assy.**	: N/A
E.2	**Primary BOP Stack (from Bottom to Top)**	
Stack Complete with:		
-Guide Frame		yes/no: Yes

-Pick Up Attachment	yes/no: Yes
- Transport Base	yes/no: Yes
Size (bore)	inch: 18.75
Working Pressure	PSI: 15000
H2S Service	yes/no: Yes
E.2.1 Alternate Hydraulic Connector	N/A
E.2.2 Hydraulic Wellhead Connector	
Size	inch: 18-3/4
Make/Type	: Vetco SHD H-4
Working Pressure	PSI: 15000
Hot Tap for Underwater Intervention ROV	yes/no: Yes
Spare Connector Same Type	yes/no: No
Hydrate Seal	yes/no: Yes (1- O-Ring & 1- Lip Seal Options as STD.)
Glycol Injection (ROV)	yes/no: Yes (4x1" NPT @ 90 Deg. Increments)
Pilot Operated Check Valve, Close Function	yes/no: Yes
E.2.2A Hydraulic Wellhead Connector	
Size	inch: 18-3/4
Make/Type	: Cameron DWHC
Working Pressure	PSI: 15000
Hot Tap for Underwater Intervention ROV	yes/no: Yes
Spare Connector Same Type	yes/no: No
Hydrate Seal	yes/no: Yes (1- O-Ring & 1- Lip Seal Options as STD.)
Glycol Injection (ROV)	yes/no: Yes (4x1" NPT @ 90 Deg. Increments)
Pilot Operated Check Valve, Close Function	yes/no: Yes
E.2.3 Ram Type Preventers	
Preventers	no.: 5
Quantity	inch: 18-3/4
Bore Size	PSI: 15000
Working Pressure	: Cameron
Make	: Type TL
Model	: Double x 2, Single x 1
Type (single/double)	: A1, A2, CL, BSR, SSCSR, VBR, VBR, LFPR, CH
Stack Configuration	
Rams Locks	yes/no: Yes
Preventer Connection Type - Top	: CX18
Preventer Connection Type - Bottom	: CX18
Side Outlets	yes/no: Yes
Size	inch: 3-1/16
Connection Type	: No. 6 Cameron Clamp AX Groove

Blind/Shear Rams:	
Super/Shear Rams - Less Than or Equal to 13-5/8"	Qty.: 1 Set
Blind/Shear Rams	Qty.: 1 Set
Variable Rams:	
Quantity	No.: 2 Sets
Size Range (max/min)	inch / inch: 3-1/2 x 6-5/8 DP
Quantity	no:
Size Range (max/min)	inch / inch:
Quantity	no:
Size Range (max/min)	inch / inch:
Pipe Rams:	
Quantity	Qty.: 1 Set
Size	inch: 5-1/2
Quantity	Qty.:
Size	inch:
E.2.4 Stack Configuration (Blind/Shear/Pipe/Variable)	
Upper Shear Rams Cavity 5	: BSR
Lower Shear Rams Cavity 4	: SSCSR (Less than or Equal to 13-5/8")
Middle Upper Ram Cavity 3	: VBR
Middle Lower Ram Cavity 2	: VBR
Lower Rams - Cavity 1	: LFPR
Position of Side Outlets - Kill	
Upper	: Below BSR (Cavity #5)
Lower	: Below LFRP (Cavity #1)
Position of Side Outlets - Choke	
- LMRP	: Below Lower Annular (#2)
- Stack	: Below Top VBR (Cavity #3)
- Stack	: Below Bottom VBR (Cavity #2)
E.2.5 Annular Type Preventer On Stack	
Size	inch: n/a
Working Pressure	PSI: n/a
Make/Type	: n/a
E.2.6 Mandrel	
Make/Type	: Cameron 18-3/4 10 HC
Size	inch: 18.75
E.2.7 Fail-Safe Hydraulic Valves (Kill & Choke)	
Quantity on Each Side Outlet	no.: 2
Size (ID)	inch: 3-1/16"
Make/Type	: Cameron MCS
Working Pressure	PSI: 15000
Solid Block	yes/no: Yes

E.2.8 Subsea Accumulators (See also E.7.1 - Surface Accumulator Unit)	
LMRP	
Quantity	no.: 2 ea. 10 gal. (Pods)
Useful Capacity per Accumulator (w/o Pre-Charge)	US Gal.: 0
Bottle Working Pressure	PSI: 6000
Quantity	no.: 6 ea. 15 gal.
Useful Capacity per Accumulator (w/o Pre-Charge)	US Gal.: 0
Bottle Working Pressure	PSI: 6000
Quantity	no.: 4 ea. 60 gal.
Useful Capacity per Accumulator (w/o Pre-Charge)	US Gal.: 0
Bottle Working Pressure	PSI: 6000
BOP	
Quantity	no.: 6 ea. 15 gal.
Useful Capacity per Accumulator (w/o Pre-Charge)	US Gal.: 0
Bottle Working Pressure	PSI: 6000
Quantity	no.: 8 ea. 80 gal.
Useful Capacity per Accumulator (w/o Pre-Charge)	US Gal.: 0
Bottle Working Pressure	PSI: 6000
E.2.9 Hydraulic Control Pod/Receptacles	
Quantity	no.: 2
Redundancy	%: 100
Color Coded	yes/no: Yes
Remote Regulation of Operating Pressure for Functions Requiring Lower Operating Pressure	yes/no: Yes
Spare Control Pod	yes/no: No
Deadman System	yes/no: Yes
Pressure & Temperature Sensor's LMRP	yes/no: Yes
E.3 Primary Lower Marine Riser Package (From Bottom to Top)	
E.3.1 Hydraulic Connector	
Make/Type	: Cameron 18-3/4-10 HC or Equivalent
Size	inch: 18.75
Working Pressure	PSI: 10000
Hot Tap for Underwater Intervention	yes/no: Yes
Spare Connector Same Type	yes/no: No
E.3.2 Annular Type Preventer (LMRP)	

Size	inch:	18-3/4
Quantity	no.:	2
Working Pressure	PSI:	10000
Make/Type (2*70.5=141" Total Height)	:	Cameron Type DL
E3.3 Flex Joint		
Make/Type	:	Oil States 18-3/4"
Size	inch:	21
Max Deflection	degrees:	20 (10 from Vertical)
E.3.4 Riser Adapter		
Make/Type	:	Vetco HMF-Class H
Size	inch:	21 (Minimum ID-19.25")
E.3.5 Connection Lines to Riser		
Type (Rigid Loops, Coflexip, etc.)	Make:	Coflexip
	Size:	3" ID x 200'
	WP:	15,000 PSI
	Collapse PSI:	12,710 PSI
E.3.6 Riser Centralizer	:	Hydralift
E.4 Annular Gas Handler		
Make/Type	:	Supplied by Company at Later Date. Hard Piping & Control Functions to be Supplied by Contractor.
Rating	:	N/A
Number Outlets	:	N/A
Number Valves	:	N/A
E.5 Secondary Lower Marine Riser Pack.	:	N/A
E.6 Primary Marine Riser System		
E.6.1 Marine Riser Joints	:	Designed for 10,000 Ft. Water Depth
Make/Mode	:	Vetco / HMF-Class H
OD	inch:	21.25, 21.5
ID	inch:	19.5
Wall Thickness	inch:	.875 & 1.00
Average Length of Each Joint	ft.:	90
Weight of One Complete Joint (In Air)	39,920	lbs.
11 ea. x 1" wall Slick	37,340	lbs. (Future for 10,000 foot water depth.)
8 ea. x 0.875" wall Slick	62,035	lbs., 8,000' rated buoyancy, 52" OD
3 ea. x 0.875" wall buoyed	62,287	lbs., 7,000' rated buoyancy, 52" OD
11 ea. x 0.875" wall buoyed	62,216	lbs., 6,000' rated buoyancy, 52" OD
11 ea. x 1.000" wall buoyed	60,707	lbs., 5,000' rated buoyancy, 52" OD
11 ea. x 1.000" wall buoyed	60,069	lbs., 4,000' rated buoyancy, 52" OD
11 ea. x 1.000" wall buoyed	55,895	lbs., 3,000' rated buoyancy, 52" OD
11 ea. x 0.875" wall buoyed	54595	lbs., 2,000' rated buoyancy, 52" OD
11 ea. x 0.875" wall buoyed	47356	lbs., 1,000' rated buoyancy, 42" OD

9 ea. x 1.000" wall buoyed	
Quantity	no.: 90 ea. 90' jts.
Pipe Material	grade: API 5L Grade X80 Mod.
Minimum Yield Strength	PSI: 80 KSI
Type Riser Connectors	: HMF-Class H
Dogs	no.: N/A
Pup Joints	
Quantity	no.: 1
Length	ft.: 45.0
Quantity	no.: 1
Length	ft.: 37.5 XO
Quantity	no.: 1
Length	ft.: 30.0
Quantity	no.: 1
Length	ft.: 22.5
Quantity	no.: 1
Length	ft.: 15
E.6.2 Telescopic Joint	
Make/Type	: Vetco
Size (ID)	inch: 19.75
Stroke	ft: 65
Double Seals	yes/no: Yes
Working Pressure	PSI: 500
Spare Telescoping Joint	yes/no: Yes
Location	: Shore or Rig
Rotating Support Ring for Riser Tensioners	type: Vetco SDC
Connection Points	no.: 6
E.6.3 Kill/Choke Lines	
Quantity	no.: 2
Outside Diameter	inch: 6.625
Inside Diameter	inch: 4.5
Working Pressure	PSI: 15000
LMRP Isolation Valves	yes/no: Yes. Fail Open
E.6.4 Booster Lines	
Quantity	no.: 1
Outside Diameter	inch: 4.5
Inside Diameter	inch: 3.83
Working Pressure	PSI: 6000
LMRP Isolation Valve (Mud Boost Valve)	yes/no: Yes, Failsafe Close
E.6.5 Hydraulic Supply Lines	
Quantity	no.: 1
Outside Diameter	inch: 3.5
Inside Diameter	inch: 2.62
Working Pressure	PSI: 5000

E.6.6	**Upper Ball (Flex) Joint**	
Make/Type		: Oilstates Diverter 3
Size		inch: 21-1/4
Maximum Deflection		deg.: 20 (10 from vertical)
Spare Upper Ball (Flex) Joint		yes/no: No
E.6.7	**Buoyancy Modules (If Fitted)**	
Make		: Cumming
Quantity of Buoyed Riser Joints		no.: 78
OD of Buoyed Riser Joints		inch: 42" on 1000' Buoyancy, 52" all other Buoyancy Joints
Length of Each Module		ft.: 14
Volume of Each Module		ft3: 42"/32.50, 52"/69.30 (12 mod. Per Joint)
Module Lift in Seawater		2,287 lbs., 8,000' rated buoyancy, 52" OD 2,298 lbs., 7,000' rated buoyancy, 52" OD 2,495 lbs., 6,000' rated buoyancy, 52" OD 2,620 lbs., 5,000' rated buoyancy, 52" OD 2,695 lbs., 4,000' rated buoyancy, 52" OD 2,828 lbs., 3,000' rated buoyancy, 52" OD 2,938 lbs., 2,000' rated buoyancy, 52" OD 1,437 lbs., 1,000' rated buoyancy, 42" OD
Rated Capacity		ft: 1,000 to 8,000
E.6.8	**Marine Riser Spider**	
Make/Type		: Vetco / Hydraulic
E.6.9	**Marine Riser Gimbal**	
Make/Type		: Vetco
E.6.10	**Riser Handling Tools**	
Tool Riser Lifting		no.: 3
1,000 Ton Solid Body Elevators		no.: 1
BX Frame 5, 1,000 Ton		no.: 1, Fitted w/8-5/8" Insert Bushing
Type		: HMF - Class h
Torque Wrenches		: 2 - Dual Speed
E.6.11	**Riser Test Tools**	
Quantity		no.: 2
Type		: HMF-Class H Hydraulic Test Tool (Pin)
E.6.12	**Instrumented Riser Jt.**	: N/A
E.7	**Secondary Marine Riser Sys.**	: N/A
E.8	**Diverter BOP (For Installation in Fixed Housing)**	
Make/Type		: Hydril 60
Max Bore Size		inch: 21-1/4

Working Pressure	PSI: 500
Number of Diverter Outlets	no.: 2
Outlet OD	inch: 14
Insert Packer Size ID	inch: N/A CSO
Element Type	: Nitrile Rubber
Running from Diverter to	: Overboard, port/stbd. / Poorboy MGS
E.8.1 Diverter Flowline	
Quantity	no.: 1
ID of Flowline	inch: 18 Nominal
Valve Types	: Diverter Sleeve
Size	inch: 18
Working Pressure	PSI: 500
Control Valve Type (Air / Hydraulic / etc.)	: Hydraulic
Remote Controlled from	Location: Drillers Workstation
E.8.2 Diverter Control Panels	
Driller's Panel	
Make	: Cameron
Model	: Multiplex
Location	: Drillers Workstation
Locking / Unlocking Control	yes/no: Yes
Remote Panel	
Make	: Cameron
Model	: Multiplex
Location	: Control Room
Locking/Unlocking Control	yes/no: Yes
E.9 Subsea Support System	
E.9.1 Riser Tensioners	: Ability to Skid Tensioners from Well Centerline
Quantity	no.: 6
Make/Type	: Hydralift - Inline
Capacity Each Tensioner	st.: 600 Kips
Maximum Stroke	ft.: 50 - Max. Stroke
Wireline Size	inch: N/A
Line Travel	ft.: N/A
Independent Air Compressors	yes/no: Yes
Independent Air Drying Unit	yes/no: Yes
Riser Recoil System	yes/no: Yes
E.9.2 Guideline System	: N/A
E.9.3 Remote Guideline Repl. Tool	: N/A
E.9.4 Remote Guideline Cutting Tool	: N/A
E.9.5 Pod Line Tensioners	: No, turn Down Sheaves Complete w/Storm Loop within Moonpool Included within Design Layout.
E.9.6 Tensioner / Compensator Air Pressure Vessels	

Quantity	no.:	30
Total Capacity	ft3:	2747
Rated Working Pressure	PSI:	3000
Pressure Relief Valve Installed	yes/no:	Yes

Standby APVs

Quantity	no.:	16
Total Capacity	ft3:	588
Rated Working Pressure	PSI:	4000
Pressure Relief Valve Installed	yes/no:	Yes

E.10 BOP Control System

Cameron Mux system including: 2 ea. remote control panels, one located in Driller's House & one in the Control Room, both panels incorporate full function & monitoring system for BOP's & diverter system. In addition, a BOP Workstation located in the Subsea Shop w/keyboard & monitor for functioning of BOP. One each pod test stand & Mux system analyzer consisting of test stand & portable computer test set. Two each Mux cable reels complete w/11,000' of Multiplex cable, one reel blue & one reel yellow for functioning yellow & blue pods plus one spare. Two each stack mounted pods, complete w/subsea electronics assemblies; one is designated for yellow side and one is designated for the blue side.

E.10.1 Surface Accumulator Unit (See also E.2.8 & E.4.8 - Subsea Accumulators)

Make	:	Cameron
Model/Type	:	Mux
Location	:	Accumulator Room
Soluble Oil Reservoir Capacity	US Gal.:	500
Oil/Water Mix Capacity	US Gal / Min.	1200
Glycol Reservoir Capacity	US Gal.:	300
No. of Bottles Installed	no.:	45 Main, 6 Diverter = 51 Total
Useful Cap. Per Accum. (w/o pre-charge)	US Gal.:	40
Bottle Working Pressure	PSI:	5000
Control Manifold Model	:	Multiplex
Regulator Type	:	Pressure Switch / Relief Valves
Total Useful Accum. Volume (Surface & Stack) Equals all Preventor Opening & Closing Volumes	yes/no:	Yes
Plus Percent Additional Volume	%:	50

E.10.2 Accumulator Hydraulic Pumps

Electric Driven		
Quantity	no.:	2

Power Source	: From Bus A
Make	: FMC
Model	: P509 898
Each Driven by Motor of Power	hp: 100
Flow Rate of Each Pump	US Gal / Min. 32
At Minimum Operating Pressure	PSI: 5000
Secondary	
Quantity	no.: 1
Power Source	: From Bus B
Make	: FMC
Model	: P509 898
Each Driven by Motor of Power	hp: 100
Flow Rate of Each Pump	US Gal / Min. 32
At Minimum Operating Pressure	PSI: 5000

E.10.3 Driller's Control Panel

Graphic control panel at driller's position showing subsea functions w/controls for the following functions of the BOP Stack	
Location	: Driller Work Station
Boost Line Control Valve	yes/no: Yes
Marine Riser Connector	yes/no: Yes
All Annular Type BOPs	yes/no: Yes
All Ram Type BOPs	yes/no: Yes
Lock for Ram Type BOPs	yes/no: Yes
Wellhead & LMRP Connector	yes/no: Yes
Inner & Outer Kill & Choke Line Valves	yes/no: Yes
Low Acc. Pressure Warning	yes/no: Yes
Low Reservoir Level Warning	yes/no: Yes
Low Rig Air Pressure Warning	yes/no: Yes
Pressure Regulator for Annular	yes/no: Yes
Flowmeter	yes/no: Yes
Quantity of Pressure Gauges	no.: 29
Emergency Push Button for Automatic Riser Disconnection	: Yes
Other control Functions	yes/no: Yes
Control Panel Make	: Cameron
Control Panel Model	: Multiplex

E.10.4 Remote Control Panels

Ability to Operate Main Closing Unit Valves (directly).	yes/no: No
Quantity	no.: 2
Make/Model	: Cameron / Multiplex
Locations	: Driller's Workstation & Control Room
Operating System Routing (Direct/via Primary Control Panel)	: Direct Dual bus

E.11 Subsea Control System

E.11.1	**Hose Reels**	
Quantity	no.:	2 BOP Control (MUX)
Location	:	Moonpool
Make/Type	:	Cameron
Maximum Storage Length Ea.	ft.:	11000
Drive Motor Type	:	Air
Quantity	no.:	1 Hotline
Location	:	Moonpool
Make/Type	:	Synflex (Kevlar)
Maximum Storage Length Ea.	ft.:	11000
Drive Motor Type	:	Air
E.11.2	**Pod Hose**	Type: N/A (Mux System)
E.11.3	**Pod Hose Manifold**	
Make/Model	:	None
Surface Test Stump	yes/no:	Yes
E.11.4	**Surface Test Pod**	yes/no: Yes
E.12	**Deadman System**	: Yes - Part of Cameron Controls
E.13	**Subsea Auxiliary Equipment**	
E.13.1	**Hole Position Indicator**	
Make/Type	:	Simard
Quantity of Monitors	no.:	2 (Blue Pod / Yellow Pod)
Monitor Location	:	Driller's Work Station
Monitor Location	:	Control Rooms
Recorder	yes/no:	No
E.13.2	**Riser Angle Indicator**	
Make/Type	:	Simrad
Quantity of Monitors	no.:	2 (Blue Pod / Yellow Pod)
Monitor Location	:	Driller's Work Station
Monitor Location	:	Control Room
Recorder	yes/no:	No
Location	:	Flex Joint Neck, Lower Stack
E.13.3	**Slope Indicators**	
Make	:	Regan
Quantity	no.:	2
Provision for Installation on BOP	yes/no:	Yes
Pin Connector	yes/no:	No
Other	:	Lower Stack LMRP
E.13.5	**ROV System**	: Power & Foundations Supplied

E.14 Choke Manifold

E.14.1 Choke Manifold (For Instrumentation, See H.3)

Make		: Stewart & Stevenson
Minimum ID	inch:	3-1/16
Maximum WP	PSI:	15000
H2S Service	yes/no:	Yes
Quantity of Fixed Chokes	no.:	N/A
Make		: N/A
Model		: N/A
Size (ID)	inch:	N/A
Quantity of Adjustable chokes	no.:	2
Make		: Stewart & Stevenson / Foley
Model		: Model QF2
Size (ID)	inch:	3-1/16"
Quantity of Power Chokes	no.:	2
Make		: Stewart / Stevenson / Foley
Model	inch:	Model QF2 Hydraulic
Size (ID)	yes/no:	3-1/16"
Power Choke Remote Control panel		Yes
Make		: Houston Digital
Model		: CPU w/ 2 ea. 27" Redundant Monitors & Hyd. Back-up.
Location	yes/no:	Driller's Workstation / Choke Manifold
Glycol Injection		No Inlet Available

E.14.2 Flexible Choke & Kill Lines (Connecting Riser to Drilling Unit)

Quantity	no.:	2
Make/Type		: Coflexip
ID	inch:	3"
Working Pressure / Test Pressure	PSI/PSI:	15,000/22,500
Quantity	no.:	N/A
Make/Type		: N/A
ID	inch:	N/A
Working Pressure / Test Pressure	PSI/PSI:	N/A

E.15 BOP Testing Equipment

E.15.1 Hydraulic BOP Test Pump

Make		: Shaffer
Model/Type		: Electro Hydraulic Variable Speed 5 GPM
Pressure Rating	PSI:	22500
Chart Recorder	yes/no:	Yes

E.15.2 BOP Test Stump

Quantity	no.:	1
Test Pressure	PSI:	15000
Type		: Vetco / Cameron
Size		: 18.75
Connected to Deck (Welded/Bolted)		: Bolted

E.16 Wellhead Running/Retrieving/Testing Tools (RT/RRT/TT)

E.16.1	**RT's for Casing Installation**	: Company Supplied
E.16.2	**RRT's for Casing Installation**	: Company Supplied
E.16.3	**Miscellaneous Tools**	: Company Supplied
E.16.4	**DP Hang-Off Subs**	: Company Supplied
E.16.5	**Mini-Hose Bundle for Hyd. R. Tools**	Company Supplied
E.16.6	**Emergency BOP Recovery System**	yes/no: Yes
Make/Type		: Cameron

F.1	**High Pressure Mud System**	
System Working Pressure		PSI: 7500
System Test Pressure		PSI: 11250
Built to Which Design Standard		: ANSI, API

F.1.1	**Mud Pumps**	
Quantity		no.: 4
Make		: Continental Emsco
Model		: FC-2200
Type (Triplex/Duplex)		: Triplex
Liner Sizes Available		inch: 5" - 9"
Mud Pump Drive Motors		no.: 2
Motor Type		: AC
Continuous Power Rating Per Motor		hp: 1150
Fluid End		Type: Two Piece
Maximum Working Pressure		PSI: 7500
Test Pressure		PSI: 11250
Pump Stroke Counter		Type: Hitec
Supercharging Pump		Type: Halco
Driven by Motor of Power		hp: 100
Discharge/Suction Line ID		inch / inch: 5" - 12"
MP Pulsation Dampener		Type: White Rock
Soft Pump		: 1 System
Reset Relief Valve		Type: Retsco
Working Flowrate Per Pump @ 90% of Max. SPM		SPM: 90 SPM @ 90%
Maximum SPM		SPM: 100 SPM @ 100%

F.1.2	**Tansfer Pumps / Mixing Pumps (Centrifuge) Treatment Pumps (Desilter / Desander)**	
Quantity		no.: 4
Make		: Halco
Model		: 2500
Driver Motor Type		: Electric / Belt
Power Output		hp: 100
Impeller		: 14"
Impeller Speed		RPM: 1,200 RPM
Packing Type		: Mechanical Seal

Mixing Pumps

Quantity	no.: 3
Make	: Halco
Model	: 2500
Driver Motor Type	: Electric / Belt
Power Output	hp: 125
Impeller	: 14"
Impeller Speed	RPM: 1200 RPM
Packing Type	: Mechanical Seal

Charging Pumps	
Quantity	no.: 4
Make	: Halco
Model	: 2500
Driver Motor Type	: Electric/Belt
Power Output	hp: 100
Impeller	: 14"
Impeller Speed	RPM: 1200
Packing Type	: Mechanical Seal

Column Transfer	
Quantity	no.: 6 (4 Reserve Mud & 2 Brine)
Make	: Halco
Model	: 2500
Driver Motor Type	: Electric
Power Output	hp: 125
Impeller	: 11.5
Impeller Speed	RPM: 1800
Packing Type	: Mechanical Seal

F.1.3 Booster Pump	
Quantity	no.: Rig Mud Pump
Make/Type	: See Section F.1.1
Pumping Capacity (ea)	US Gal / Min. See Section F.1.1
Drive Motor Type	: See Section F.1.1
Power Output	hp: See Section F.1.1

F.1.4 StandPipe Manifold	
Quantity of Standpipes	no.: 2 @ 7500 PSI WP
Standpipes ID	inch: 5
H-Type Standpipe Manifold	yes/no: Yes
Kill Line Outlet	yes/no: Yes
Fill-Up/Bleed-Off Line Outlet	yes/no: Yes
Outlets (Total)	no.: 4
ID	inch: 5 & 3

Type Connections	:	Weco
Dimensions OD X ID	inch x inch:	6x5
Design Standard	:	ANSI, API
F.1.5 Rotary Hoses		
Quantity	no.:	2 @ 7500 PSI WP
Make/Type	:	Beattie
ID x Length	inch x ft.:	5 x 126
Snubbing Lines	yes/no:	Yes
F.1.6 Cementing Hose		
Type (I.e. Coflexip)	:	Beattie
Length	ft.:	85
ID	inch:	3
Working Pressure	PSI:	15000
F.1.7 Chiksan Steel Hoses		
Integral Non-Screwed	yes/no:	Yes
Make/Type	:	1502
ID Nominal	inch:	2
Section Length	ft.:	12
Quantity	no.:	4
Section Length	ft.:	10
Quantity	no.:	4
Sweep Swivels, Make/Type	:	LS15/Style 50
Nom. Size ID	inch:	2
Fittings, Non-Screwed Type	yes/no:	Yes
Suitable for H2S Service	yes/no:	No
F.2 Low Pressure Mud System		
F2.1 Mud Tanks		
Quantity	no.:	15
Column Tanks		
Quantity	:	4
Capacity 100%	bbls:	10304
Surface Tanks		
Quantity	:	10
Capacity 90%	bbls:	4141
Capacity Tank No.1	bbls:	201
Type (Active/Reserve)	:	Chemical
Capacity Tank No. 2	bbls:	201
Type (Active/Reserve)	:	Chemical
Capacity Tank No. 3	bbls:	183
Type (Active/Reserve)	:	Chemical
Capacity Tank No. 4	bbls:	183
Type (Active/Reserve)	:	Chemical
Capacity Tank No. 5	bbls:	534
Type (Active/Reserve)	:	Upper Hull Reserve
Capacity Tank No. 6	bbls:	689
Type (Active/Reserve)	:	Upper Hull Reserve
Capacity Tank No. 7	bbls:	508

Type (Active/Reserve)	: Upper Hull Reserve
Capacity Tank No. 8	bbls: 575
Type (Active/Reserve)	: Active
Capacity Tank No. 9	bbls: 566
Type (Active/Reserve)	: Active
Capacity Tank No. 10	bbls: 501
Type (Active/Reserve)	: Active
Mixer in each Tank	yes/no: Yes
Mud Guns in each Tank	yes/no: Yes
F.2.2 Processing Tanks	
Quantity	no.: 6
Total Capacity (@100%)	bbls.: 464
Capacity Sand Trap Tank	bbls.: 119
Capacity Degasser Tank	bbls.: 69
Capacity Desander Tank	bbls.: 69
Capacity Desilter Tank	bbls.: 69
Capacity Desilter Tank	bbls.: 69
Capacity Treated Mud Tank	bbls.: 69
F.2.3 Pill / Slug Tank	
Capacity (@90%)	bbls.: 196
Mud Agitator	yes/no: Yes
Mud Guns	yes/no: Yes
F.2.4 Trip Tank	
Capacity @ 100%	bbls: 100 (2 x 50)
Capacity/Foot	bbls/ft: 4.6
Level Indicator	yes/no: Yes
Electric Pump make	: Halco x 2
Model Type	: Centrifical
Motor Output	hp: 30
Facility for Casing Fill-Up	yes/no: No
Alarm & Strip Chart Recorder (See H.1.11)	yes/no: Yes
F.2.5 Stripping Tank	
Capacity (@100%)	bbls: 10 Approx.
Capacity/Foot	bbls/ft: 0.8
Equalizing Facility w/Trip Tank	yes/no: Yes
Transfer Pump	yes/no: No
Alarm & Strip Chart Recorder (See H.1.11)	yes/no: Yes
F.2.6 Chemical Mixing Tank	
Capacity	: Separate Mixing Tank Above for Mixing Caustic
Chemical Mixer Type	Gal.: 100 Model DA-13 : Portable Rotor/Stator - Dual Impeller Mixing Assembly, 1/3 hp air motor
F.2.7 Shale Shakers	
Primary:	

Quantity	no.:	7
Make/Model	:	Brandt/LCM-2D CS
Type	:	Linear Motion/Cascading
Driven by No. of Electric Motor	no.:	3
Design Flowrate	bbl/min:	Depending on Mud Characteristics
Cascading:		
Quantity	no.:	See Above.
Make/Model	:	See Above.
Type	:	See Above.
Driven by No. of Electric Motor	no.:	See Above.
Design Flowrate	bbl/min:	See Above.

F.2.8 Desander

Quantity	no.	REMOVED
Make/Model	:	
Type	:	
Number of Cones x Sizes	no.x inch:	
Type/Size Centrifugal Pump	:	
Driven by Electric Motor of what power?	hp:	
Is pump Dedicated to Desander	yes/no:	
Max. Flowrate	gal / min:	

F.2.9 Desilter

Quantity	no.:	REMOVED
Make/Model	:	
Type	:	
Number of Cones x Sizes	no.xinch:	
Type/Size Centrifugal Pump	:	
Driven by Electric Motor of	hp:	
Is Pump Dedicated to Desilter	yes/no:	
Max. Flowrate	gal/min:	

F.2.10 Mud Cleaner

Quantity	no.:	Desilter Cones Over One Linear Motion Shaker
Make/Model	:	Brandt, LCM-2D/LMC
Type	:	Desilter Cones Over One Linear Motion Shaker
Number of Cones x Sizes	no.xinch:	40 x 4 w/Discharge Over Shaker or Overboard
Type/Size Centrifugal Pump	:	2 ea 8 x 6 x 14
Driven by Electric Motor of	hp:	100 ea.
Is Pump Dedicated to Mud cleaner	yes/no:	NO
Max. Flowrate	bbl/min:	2400

Inlet & Outlet for Centrifuge to be Provided

F.2.11 Mud/Gas Separator (Poor Boy)	:	Shall be capable to direct flow from flowline to MGS
Make/Type	:	Swaco
Gas Discharge Line ID	inch:	12" Nominal
Gas Discharge Location, Primary	:	Top

Can Discharge Be Tied Into Burner System	yes/no: No
Mud Seal Height	feet: 22
Calculated Gas Throughput	mmscf: 20
Dimensions	: Overall - 48 ft. x 6 ft.
F.2.12 Degasser	
Quantity	: 2
Make/Type	: Burgess/1500
Capacity	: 1000 GPM X 2
Type/Size Centrifugal Pump	: N/A
Driven by Electric Motor of Power	hp: N/A
Discharge Line Running to	: 6"
Vacuum Pump Make	: Internal
Type	: N/A
F.2.13 Mud Agitators	
Quantity	no.: 5
Make/Model	: Brandt/MA-20
Driven by Motor of Power	hp: 20
Located in Tanks (See F.2.1 for Tank Numbers)	: 1,2,3,4 & Slug Tanks
Quantity	no.: 12
Make/Model	: Brandt / MA-25
Driven by Motor of Power	hp: 25
Located in Tanks (See F.2.1 for Tank Numbers)	: 5,6,7,8,9, & 10 (2 in ea. tank)
F.2.14 Mud Centrifuge	
Quantity	no.: 1
Make/Model	: MI SWACO
Feed Pump Make/Model	:
F.2.15 Mud Hopper	
Quantity	no.: 2
Make/Model	: Vortex Ventures
Feed Pump Make/Model	: Mixing Pumps
F.2.16 Shearing Hoppers	
Quantity	no.: 2
Make/Model	: Vortex Ventures
Feed Pump Make/Model	: Mixing Pumps
F.2.17 Deck Hoppers	

Quantity	no.: 1
Make/Model	: Halco
Feed Pump Make/Model	: Mixing Pumps

F.3 Bulk System

F.3.1 Barite/Bentonite Silos

Quantity	no.: 5
Capacity of Each Silo	C.F.: 2725
Locations	: Columns
Type Weight Loadcell	: Hydraulic
Manufacturer	: Martin Decker
Pressure Rating	: 65
Relief Valve(s) Installed	yes/no: Yes

F.3.2 Barite Day Tanks

Quantity	: 2
Capacity of Each Silo	C.F.: 1030
Locations	: Cmt. Room
Type Weight Loadcell	: Hydraulic
Manufacturer	: Martin Decker
Pressure Rating	PSI: 65
Relief Valves (s) Installed	yes/no: Yes

F.3.3 Surge Tank For Barite

Quantity	no.: 2
Capacity of Each Tank	C.F.: 75
Type Weight Loadcell	: Hydraulic
manufacturer	: Martin Decker
Pressure Rating	PSI: 65
Relief Valve (s) Installed	yes/no: Yes

F.3.4 Cement Silos

Quantity	no.: 3
Capacity of Each Silo	C.F.: 2725
Locations	: Columns
Type Weight Loadcell	: Hydraulic
Manufacturer	: Martin Decker
Pressure Rating	PSI: 65
Relief Valve (s) Installed	yes/no: Yes
Separate Mud/Cement Loading Facilities	yes/no: Yes
Discharge Line for Cement Independent From Barite/Bentonite Discharge Line	yes/no: Yes

F.3.5 Cement Day Tanks

Quantity	no.: 2
Capacity of Each Silo	C.F.: 1030
Locations	: Cement Room
Type Weight Loadcell	: Hydraulic
Manufacturer	: Martin Decker
Pressure Rating	PSI: 65

Relief Valve (s) Installed	yes/no: Yes
F.3.6 Surge Tank for Cement	: Third Party
F.3.7 Bulk Transfer System (See also C.1.8 - Compressed Air System)	
Independent Air System for the Silos & Surge Tanks consisting of a high -volume low-pressure Compressor & Air Dryer	yes/no: No
Air Reduced from Main Air Supply through Pressure Regulators	yes/no: Yes
Separate Volume Tank & Dryer	yes/no: No
G. Casing / Cementing Equipment	: Company Supplied
G.1 Casing Equipment	: Company Supplied
G.1.1 API Casing Drift	: Company Supplied
G.1.2 Clamp-on CSG Thread Protectors	Company Supplied
G.1.3 Casing Elevator	: Company Supplied
Manufacturer	:
Type	:
Capacity	st:
Inserts for	inch:
G.1.3 Side Door Casing Elevator	: Company Supplied
G.1.4 Single Joint Casing Elevator	: Company Supplied
G.1.5 Slip Type Elevator / Spiders	: Company Supplied
Quantity	no.: Company Supplied
G.1.6 Casing Slips (Hand)	
Quantity	no.: Company Supplied
Make/Type	: Company Supplied
For OD Casing	inch: Company Supplied
Quantity	no.: Company Supplied
Make/Type	: Company Supplied
For OD Casing	inch: Company Supplied
Quantity	no.: Company Supplied
Make/Type	: Company Supplied
For OD Casing	inch: Company Supplied
G.1.7 Casing Bowls	
Quantity	no.: Company Supplied
Make/Type	: Company Supplied
For OD Casing (max/min)	: Company Supplied

Quantity		: Company Supplied
Make/Type		: Company Supplied
For OD Casing (max/min)		: Company Supplied
G.1.8	**Casing Tongs**	: Company Supplied
G.1.9	**Power Casing Tongs**	: Company Supplied
G.1.10	**Power Unit for Casing & Tubing Tongs**	
Quantity		no.: 1 Central Hydraulic Unit
Driven by Electric Motor		yes/no: Yes
G.1.11	**Casing Circulating Head (Swedge)**	Company Supplied
G.1.12	**Casing Spears (Internal)**	: Company Supplied
G.1.13	**Casing Cutters (Internal)**	: Company Supplied
G.1.14	**Crossover Casing to Drill Pipe**	: Company Supplied
G.1.15	**Casing Scrappers**	: Company Supplied
G.2	**Cementing Equipment**	
G.2.1	**Cement Unit**	: Company Supplied
G.2.2	**Cementing Manifold**	
Discharge Manifold Working Pressure		PSI: 15000
Cement Pump Discharge Lines Min. ID		inch: 3 Nominal
Cement Pump Discharge Lines Working Pressure		PSI: 15000
G.2.3	**Cement Kelly**	: N/A
G.2.4	**Cementing Tubing**	: N/A
H.	**Instrumentation/Communication**	
H.1	**Drilling Instrumentation at Driller's Position**	
Make/Type		: Hitec Smart Drilling Instrumentation
Sensor Type		: Electronic Deadend
Calibrated for Number of Lines Strung (6,8,10,12, etc.)		no.: User Selectable
H.1.1	**Weight Indicator**	
Make/Type		: Hitec Smart Drilling Instrumentation
Sensor Type		: Electronic Deadend
Calibrated for Number of Lines Strung (6,8,10,12,etc.)		no.: User Selectable
H.1.2	**Standpipe Pressure Gauges**	
Quantity		no.: 2 ea. local, 2 ea. DWS, 1 ea. Choke Panel
Make/Type		: Hitec Smart Drilling Instrumentation / HDI
Pressure Range (Maximum)		PSI: 10,000
H.1.3	**Choke Manifold Pressure Gauge**	
Quantity		no.: 2 Local, 2 Hitec SDI, 2 Choke Panel

Make/Type	: HDI
Pressure Range (Maximum)	PSI: 0 - 16,000 / Selectable
H.1.4 Rotary Speed Tachometer	
Make/Type	: Hitec Smart Drilling Instrumentation
Capacity Range (Maximum)	rpm: 0-200
H.1.5 Rotary Torque Indicator	: Hitec Smart Drilling Instrumentation
H.1.6 Motion Compensator Instruments	
Make/Type	: Hitec Smart Drilling Instrumentation
Hook Position Indicator	yes/no: Yes on SDI Screens
Lock/Unlock Indicator	yes/no: Yes
H.1.7 Pump Stroke Counters	
Make/Type	: Hitec Smart Drilling Instrumentation
One Pump Stroke Indicator & One Cumulative Pump Stroke Counter for each Pump	yes/no: Yes
H.1.8 Tong Torque Indicator	
Make/Type	: Hitec
Capacity Range (Maximum)	ft.lbs.: Dependent on Tong Length Input
H.1.9 Pit Volume Totalizer	
Make/Model	: Hitec Smart Drilling Instrumentation
Floats in Active Mud Tanks	yes/no: Yes
Floats in Reserve Mud Tanks	yes/no: Yes
Loss/Gain Indicator	yes/no: Yes
Alarm (Audio & Visual)	yes/no: Yes
H.1.10 Mud Flow Indicator	
Make/Model	: Hitec Smart Drilling Instrumentation
High/Low Alarm (Audio & Visual)	yes/no: Yes
H.1.11 Trip Tank Indicator	
Make/Model	: Hitec Smart Drilling Instrumentation
Chart Recorder	yes/no: Data Logging
Alarm	yes/no: Yes
H.1.12 General Alarm Sys.	yes/no: Yes
H.1.13 Automatic Driller	
Make/Type	: Hitec Smart Drilling Instrumentation
H.1.14 Remote Choke Control Unit (See E.14.1)	
Make/Model	: Houston Digital
H.2 Drilling Parameter Recorder	

Quantity	no.:	User Defined Elect. Data Acquisition
Location - 1	:	Driller's House
Location - 2	:	Drilling Ofices
Make/Type	:	Hitec Smart Drilling Instrumentation
Quantity of Pens	no.:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition
Parameter Recorded	:	User Defined Elect Data Acquisition

H.3 Instrumentation at Choke Manifold

H.3.1 Standpipe Pressure Gauge

Make/Type	:	Strain Gauge
Pressure Range (Maximum)	PSI:	0-10,000

H.3.2 Choke Manifold Pressure Gauge

Make/Type	:	Strain Gauge
Pressure Range	PSI:	0-15,000
H.3.1 & H.3.2 Combined on One Panel	yes/no:	Yes
Visible from Choke Operating Position	yes/no:	Yes

H.4 Standpipe Pressure Gauge Strain Gauges

Make/Type	:	Oteco
Pressure Range	PSI:	0-10,000
Visible from Driller's Position	yes/no:	No

H.5 Deviation Equipment

H.5.1 Measuring Device

Quantity	no.:	1
Make/Type	:	Totco
Deviation Range	degree:	0-8 / 0-16

H.5.2 Wireline Winch

Make/Model	:	Mathey
Wire Length (Nominal)	ft.:	25000
Depth Counter	yes/no:	Yes
Wire Size	inch:	3/16
Pull Indicator	lbs:	Yes

H.6 Calibrated Press. Gauges : Strain Gauges

H.7 Rig Communication System

H.7.1 Telephone System

No. of Stations	no.: 120
Make/Type	: Mitel Exchange
Explosion Proof	yes/no: As Required

H.7.2 Public Address System

Can be combined with above	yes/no.: Yes
Make/Type	: Akusta
Explosion Proof	yes/no.: As Required

H.7.3 Drill Floor - Derrickman's Talkback (For Intercom System)

No. of Stations	no.: 21
Location	: DWS-DER
Location	: CCR-ECR
Location	: Floor, ROV, CP Area, Monkeyboard, MP Room, Moonpool, Shakers, Crown, Pit Room, Sack Room, Mud Lab, Schlumberger, Knuckleboom Crane
Make/Type	: Federal Signal
Explosion Proof	: As Required

H.7.4 Hand-Held VHF Radios

Quantity	: 24 Min.
Make/Type	: Motorola Radins HT-750

H.8 Environmental Instrumentation

H.8.1 Temperature Indicators

Air Temperature	: Yes
Make/Model	: Kongsberg (Integral to Metocean System)
Seawater Temperature	: Yes
Make/Model	: Kongsberg (Integral to Metocean System)
Recorder	yes/no: Yes

H.8.2 Barometer Pressure Indicator yes/no: Yes

Make/Model	: Kongsberg (Integral to Metocean System)
Recorder	: Yes

H.8.3 Humidity Sensing Indicator yes/no: Yes

Make/Model	: Kongsberg (Integral to Metocean System)
Recorder	: No

H.8.4 Wind Speed / Direction Monitor : Yes - Qty. 3

Make/Model	: R.M. Young / DEIF879
Recorder	: Yes

H.8.5	**Wave Profile Recorder**	: No
H.9	**Additional Module Specific Instrumentation**	
H.9.1	**Roll, Pitch & Heave Indicator**	
Make/Type		: 2 ea. Seatex MRU-5, 1 ea. Watson VRU
Recorder		: Included in IACS/DP
H.9.2	**Gyro Compass**	
Make/Model		: 3 ea. Anschutz / Standard 20
Located at		: ECR
H.9.3	**Echo Sounder**	: Yes
Make/Model		: Furuno / FE880
Located at		: Bridge
Recorder		: Yes
H.9.4	**Current Indicator**	: Doppler Current Profiler
Make/Model		: Fugro Geos - RDI Oceans Surveyor 75 KHz PA
Located at		: Port/Aft - "Dipping" System
Recorder		: Fugro Geos Rig ADCP3 Version 3..27
H.9.5	**Weather Facsimile Recorder**	: Yes
Make/Model		: Furuno / Fax 270
Located at		: Radio Room
Recorder		yes/no: Yes
H.9.6	**Radar**	yes/no: Yes
Quantity		no.: 1
Make/Model		: FURUNO 28375
Located at		: Bridge
Bandwidth		cm: S-Band
Quantity		no.: 2
Make/Model		: FURUNO 2827
Located at		: ECR
Bandwidth		cm: X-Band
H.10	**Radio Equipment**	
H.10.1	**SSB Transceiver**	
Quantity		no.: 2
Make/Model		: Sailor / RE2100
Power		watts: 250
Frequency Ranges		hz: 100 khz - 30 MHz
(Synthesized Crystal)		: Synthesized
Facsimile Capable		: No
Telex Capable		: N/A
H.10.2	**EPIRBs**	
Quantity		no.: 5
Make/Model		: ACR/SAT

H.10.3 VHF Radio Telephone

Quantity	no.: 5
Make/Model	: Sailor / RT 2048 W/ DSC
Power	watts: 25 Watts
Channels	:

H.10.4 VHF Radio Transceiver

Quantity	no.: 3
Make/Model	: FURUNO FM-8800
Power	watts: 25 W

H.10.5 Radio Beacon Transmitter

Quantity	no.: 1
Make/Model	: Southern Avionics / SA 100
Power	watts: 100 W

H.10.6 Aeronautical VHF Transceiver

Quantity	YES 1
Make/Model	: ICOM
Power	watts: 40 W PEP
Frequency Range	hz: 118 - 137
(Synthesized/Crystal):	:

H.10.7 Watch Receiver

Quantity	no.: 1
Make/Model	: Sailor / R501
Frequency	khz: 2182

H.10.8 Scrambler

Quantity	no.: No
Make/Model	:

H.10.9 Telex

Quantity	YES 2
Make/Model	: FURUNO

H.10.10 Satellite Comm. System

Make/Model	: DMS / Spacetrack 400
Type	: Vsat C/Ku Band
Facsimile Link	yes/no : Yes
Telex Link	yes/no : Yes
Telephone Link	: Full Voice/Fax
Other Capabilities	: Wide Area Network V3.5
Make/Model	: Caprock/Seatel Dual Band 9797
Type	: Single Stabilized Dual Band 2.4m Antenna
Facsimile Link	yes/no :
Telex Link	yes/no :
Telephone Link	:
Other Capabilities	:

I.	**Production Test Equipment**	
I.1	**Burners**	: N/A
I.2	**Burner Booms**	: Foundations Only
I.3	**Lines on Burner Booms**	: N/A
I.3.1	**Oil Line**	
OD		inch: 4
Working Pressure		PSI: 1480 PSI
Connection Type at Burner End		: Suitable to Connect to Well Test Equipment
H2S		yes/no: Yes
Pressure Gauge connection @ Barge End		inch: Provided by Well Test Company
I.3.2	**Gas Line**	
OD		inch: 3"
Working Pressure		PSI: 1480 PSI
Extended Beyond Burner By		ft.: Provided by Well Test Company
Connection Type at Burner End		Type: Suitable to Connect to Well Test Equipment
H2S		yes/no: Yes
Pressure Gauge Connection at Barbe End		inch: Provided by Well Test Company
I.3.3	**Water Line**	
OD		inch: Seawater - 1-1/2"
Working Pressure		PSI: 285 PSI
Connection Type at Burner End		Type: Suitable to Connect to Well Test Equipment
Pressure Gauge Connection at Barge End		inch: Provided by Well Test Company
I.3.4	**Air Line**	
OD		inch: 4"
Working Pressure		PSI: 285 PSI
Connection Type at Burner End		Type: Suitable to Connect to Well Test Equipment
Pressure Gauge Connection at Barge End		inch: Provided by Well Test Company
I.3.5	**Pilot Gas Line**	
ID		inch: Provided by Well Test Company
Working Pressure		PSI:
Connection Type at Burner End		Type:
Pressure Gauge Connection at Rig End		inch:
I.4	**Sprinkler System**	
Sufficient to give protection to rig & personnel against heat radiation damage from the burners		yes/no: Provided by Well Test Company
I.5	**Fixed Lines for Well Testing**	
I.5.1	**Drill Floor to Separator Area**	

Type (Screwed/Welded, Both)	: Tested & Certified Flexible Flowlines Provided by Well Test Company for Connecting from Rig Floor to Well Test Equipment.

I.5.2 Separator Area to Both Burner Booms

Type (Screwed/Welded, Both)	: Welded
Quantity	no. 2 ea. / one oil / one gas
Size OD	inch: 3" Gas / 4" Oil
Working Pressure	PSI: 1480 PSI
Connection Type at Separator	Type: Suitable for Connecting to Well Test Company
Connection Type at Boom	Type: As Above
Number of Valves/Lines	no.: Provided by Well Test Company
Size of Valves	inch: Provided by Well Test Company
H2S	yes/no: Yes
Valves Installed Near Separator Area for Switching Gas to Either Burner	yes/no: Yes

I.5.3 Mud Pumps to 2-Burner Boom : N/A

I.5.4 Rig Air System to Both Burner Booms

Type (Screwed/Welded,both)	: Welded
Quantity	no.: 1 ea. Port & Starboard
Size OD	inch: 4"
Working Pressure	PSI: 150
Non-Return Valves Fitted	yes/no: Yes

I.5.5 Oil Storage Tank to Overboard

Type (Screwed/Welded, both)	: Provided by Well Test Company
Quantity	no.:
Size ID	inch:
Working Pressure	PSI:
Height Above Water Level	ft.:
Connection Type at Separator Area	Type:

I.5.6 Separator To Vent Stack of Rig

Type (Screwed/Welded, Both)	: No Vent from Separator. Relief to Flair
Quantity	no.:
Size ID	inch:
Working Pressure	PSI:
Connection Type at Separator Area	Type:

I.6 Auxiliary Power Availability

I.6.1 For Field Laboratory (Well Test Equipment)

Quantity	KW: 2 ea. 330 kw
Volts	V: 480
Frequency	Hz: 60
I.6.2 For Crude Transfer Pump	
Quantity	KW: As above only
Volts	V:
Freqeuncy	Hz:
I.6.3 For Electric Heaters	
Quantity	KW: As above only
Volts	V:
Frequency	Hz:
J. Workover Tools	: Company Supplied
K. Accommodation	: Company Supplied
K.1 Offices	: Company Supplied
K.1.1 Company Representatives Office	
Quantity	: 3
Complete w/Desk, Filing Cabinet(s) & Other Necessary Furniture	: Yes
Unrestricted View to Drill Floor	: No (CCTV Monitor)
K.1.2 Contractor Representatives Office	
Quantity	: 4
Unrestricted View to Drill Floor	: No (CCTV Monitor)
K.1.3 Radio Room	: Yes - On Bridge
Quantity	: 1
K.1.4 Hospital Room	
Number of Beds/Bunks	: 3 Bunks / 6 Beds
Wash Basin	: Yes
Medical Cabinet	: Yes
Dangerous Drugs Locker	: Yes
K.1.5 Mud Laboratory & Facilities	
Separate Room	yes/no: Yes
Equipped With:	
- Mud Balance	yes/no: Yes
- Marsh Funnel	yes/no: Yes
- Filtration Kit	yes/no: Yes
- Sand Content Kit	yes/no: Yes
- Stop Watch	yes/no: Yes
K.2 Living Quarters	

K.2.1 Total Persons Accommodated	
Quantity	: 146
K.2.2 Accommodation for Company's Personnel	
Total Quantity	: 60
Quantity of Single Bed Rooms	: 2
C/W Attached Toilet	: Yes
Quantity of Two-Bed Rooms	: 19
C/W Attached Toilet	: Yes
Quantity of Four-Bed Rooms	: 5
C/W Attached Toilet	: N/A
K.2.3 Accommodation for Contractor's Personnel	
Total Quantity	: 86
Quantity of Single Bed Rooms	: 4
C/W Attached Toilet	: Yes
Quantity of Two-Bed Rooms	: 33
C/W Attached Toilet	: Yes
Quantity of Four-Bed Rooms	: 4
C/W Attached Toilet	: N/A
K.2.4 Galley	
Quantity	: 1
K.2.5 Mess Seating Capacity	
Main Mess	: 60
Auxiliary Mess	: N/A
K.2.6 Meeting Rooms	
Quantity	: 1
K.2.7 Recreation Rooms	
Quantity	: 2
Recreation Facilities:	: Yes
- TV	: Yes
- VCR	: Yes
- Pool Table	: No
- Ping Pong Table	: No
- Computer	: YES
- Other	: Darts/Cards/Reading
K.2.8 Other Rooms	
Laundry	: 1
Dry Food Store	: 1
Refrigerator	: 3
Change Rooms	: 3
Prayer Room	: No
Cinema	: YES
Workout/Weight Room	: Yes

L. Safety Equipment

L.1 General Safety Equipment

L.1.1 General Personnel Protective Gear

Safety Hats (Contractor Only/Everyone Not Supplied)	: Contractor Only
Safety Boots (Contractor Only/Everyone Not Supplied)	: Contractor Only
Safety Clothing (Contractor Only/Everyone Not Supplied)	: Contractor Only
Ear Protection (Contractor Only/Everyone Not Supplied)	: Contractor Only
Rubber Gloves (Contractor Only/Everyone Not Supplied)	: Contractor Only
Rubber Aprons (Contractor Only/Everyone Not Supplied)	: Contractor Only
Full Face Visors (Contractor Only/Everyone Not Supplied)	: Contractor Only
Eye Shields (For Grinding Machines, Etc.)	Yes
-(Contractor Only/Everyone Not Supplied)	: Contractor Only
Dust Masks (Contractor Only/Everyone Not Supplied)	: Contractor Only
Rubber Gloves - Elbow Length for Chemical Handling	: Contractor Only
-(Contractor Only/Everyone Not Supplied)	: Contractor Only
Explosion Proof Hand Torches c/w Batteries	
-(Contractor Only/Everyone Not Supplied)	: Contractor Only
Safety Belts c/w Lines (Contractor Only/Everyone Not Supplied)	: Contractor Only

L.1.2 Eyewash Stations

Quantity	no.: 3
Make/Model	: Haws #8317
Located at	: Mud Process Room
Located at	: Drill Floor
Located at	: Mud Mixing Room

L.1.3 Derrick Safety Equipment

Derrick Escape Chute (Rem Chute)	no.: N/A - Derrick fall protection it to be provided
- Make/Type	: N/A
Derrick Safety Belts	no.: N/A
- Make/Type	: TBA

L.1.4 Derrick Climbing Assistant

Make/Type	: N/A

L.1.5 Fresh Air Blowers (Bug Blowers)

Quantity	: 2
Make/Type	: Brandt B-250 & B-400
Located at	: Rig Floor / Portable

Located at	:
L.2 Gas/Fire/Smoke Detection	
I.2.1 H2S Monitoring System	
Make/Type	: Kongsburg (Autronica/Crowcon/Detcon)
Sampling Points at:	
- Bell Nipple	yes/no: Yes
- Drill Floor	yes/no: Yes
- Shaleshaker	yes/no: Yes
- Mud Tanks	yes/no: Yes
- Ventilation System into Living Quarters	yes/no: Yes
- Other	: Yes
- General Alarm	yes/no: Yes
Alarm Types (Audible, Visual, both), at:	
- Driller's Console	: Both
- Engineroom	: Both
- Mud Room	: Both
- Living Quarters each Level	: Both
- Central Area Each Structural Level	: Both
- Other	: Both
- Central Alarm Panel	yes/no: Yes
- Located at	: Bridge
L.2.2 Combustible Gas Monitoring System	
Make/Type	: Simrad Integrated Alarm & Control System
Sampling Points at:	yes/no:
- Bell Nipple	yes/no: Yes
- Drill Floor	yes/no: Yes
- Shale Shaker	yes/no: Yes
- Mud Tanks	yes/no: Yes
- Ventilation System into Living Quarters	yes/no: Yes
- Other	: Yes
- General Alarm	yes/no: N/A
Alarm Types (Audible, Visual, Both) at:	
- Driller's Console	: Both
- Other	: Both
L.2.3 H2S Detectors (Portable)	
Quantity	no.: 2
Make/Type	: Industrial Scientific ATX612, Combustable Gas / O2 / H2S
Phials for H2S: Measuring Range	
- From 1 to 20 RPM	no.: As required
- From 100 to 600 RPM	no.: As required
L.2.4 CO2 Gas Detectors (Portable)	
Quantity	no.: None
Make/Type	:
Phials for C02: Measuring Range	
- From 1 to 20 RPM	no.:

- From 20 to 200 RPM	no.:	
- From 250-3000 RPM	no.:	
L.2.5 Explosimeters		
Quantity	no.:	See H2S Detectors
Make/Type	:	
I.2.6 Fire/Smoke Detectors in Accommodations		
Make/Type	:	Optical with a few Thermal
Fire Detection	yes/no:	Yes
Smoke Detection	yes/no:	Yes
Central Alarm Panel	yes/no:	Yes
Location	:	CCR
L.3 Fire Fighting Equipment		
L.3.1 Fire Pumps		
Quantity	no.:	2
Make/Model	:	Patterson
Type	:	Centrifugal
Output	US Gal/Min.:	550
All Offtake Points Supplied by Each Pump	yes/no:	Yes
Location of Pumps	:	Aux. Machine Room Port
Location of Pumps	:	Aux. Machine Room STB.
Fire Fighting Water Delivery Conforms to MODUs	yes/no:	Yes
MODU Spec Version	:	1998
L.3.2 Hydrants & Hoses		
Hydrants Positioned Such That any Point May be Reached by a Single Hose Length from Two Separate Hydrants.	yes/no:	Yes
Quantity of Hydrants	no.:	59
Hose Connections/Hydrant	no.:	59 x 1
Hose Max. Diam.	inch:	2.5" OD
Length	ft.:	50
L.3.3 Portable Fire Extinguishers		
Quantity (Total)	no.:	70
Type 1 - CO2	no/lbs:	2 @ 4
	no/lbs:	37 @ 15
	no/lbs:	2 @ 150
Type 2 - Dry Chemical	no/lbs:	17 @ 5
	no/lbs:	9 @ 10
	no/lbs:	3 @ 50
Type 3 - Foam	no/lbs:	10 AFFF
	no/lbs:	0
	no/lbs:	0
Mounted Adjacent to Access Ways & Escape Routes	yes/no:	Yes

L.3.4 Fire Blankets	
Location	: Rig Floor, Galley, Helicopter Box
Quantity	no.: 3
L.3.5 Fixed Foam System	
Automatically Injected into Fixed Fire Water System at Central Point w/Remote Manual Control.	yes/no: Yes
Make/Type	: Patterson
Quantity Foam Stored On Site	Gal: 200
Inductor Tube	yes/no: Yes
Foam Nozzles	no.: 4
Located at	: Heliport - 3 Turret Mounted
Located at	: Heliport - 1 Hose Reels
Located at	:
L.3.6 Helideck Foam System	
Dedicated System Adequate for at least 10 Minutes fire fighting at the Rate Quoted in the IMO MODU Code	yes/no: Yes
IMO MODU Code Version	: 1998
Make/Type	: Dooly
Quantity of Monitors	no.: 3
Foam Type	: Ansulite 3x3 Low Viscosity AFFF
Rate	US Gal/Min: 350 gpm ea.
L.3.7 Fixed Fire Extinguishing System	
Protected Spaces	
Engine Room, Type (Halon/CO2)	: CO2
Paint Locker, Type (Halon/CO2)	: CO2
Emergency Generator, Type (Halon/CO2)	: CO2
SCR Room, Type (Halon/CO2)	: CO2
Other (Specify Location & Type)	: CO2 in Mud Pump Room
Alarms (Audible, Visual or Both)	: Audible
Automatic Shutting of Mechanical Ventilation in Protected Spaces	yes/no: Yes
Remote Manual Release Located at	: Entrance to Space & at Bottles
Remote Manual Release Located at	:
Remote Manual Release Located at	:
L.3.8 Manual Water Deluge System	yes/no: Yes
Protected Spaces	: Drill Floor, Lifeboats
Protected Spaces	: Liferafts, Moonpool
Water Supplied from Fire Main Line	yes/no: Yes Main Salt Water Ring
L.3.9 Water Sprinkler System in Accommodations	
Automatic	yes/no: Yes

Working Pressure	PSI: 130
Pressurized Tank Capacity	ft3: 53.47
L.4 Breathing Apparatus	: 12
L.5 Emergency First Aid Equipment	
L.5.1 First Aid Kits	
Quantity	no.: 3
L.5.2 Burn Kits	
Quantity	no.: 3
L.5.3 Resuscitators	
Quantity	no.: 1
Charged (spare) Oxygen Cylinders	no.: 10
L.5.4 Stretchers / Stokes Litters w/Lift Bridles	
Quantity	no.: 2
Type	: Billy Pugh #S-1
Located at	: In Hosiptal & On Third Deck
L.6 Helideck Rescue Equipment	
L.6.1 Storage Boxes	
Quantity	no.: 1
Construction Material	: Stainless
Max. Height Open	inch: 48
L.6.2 Equipment	
Aircraft Axe	yes/no: Yes
Large Fireman's Rescue Axe.	yes/no: Yes
Crowbar	yes/no: Yes
Heavy Duty Hacksaw	yes/no: Yes
Spare Blades	yes/no: Yes
Grapnel Hook	yes/no: No
Length of Wire Rope Attached	ft.: 100
Quick Release Knife	yes/no: Yes
Bolt Croppers	yes/no: Yes
L.7 Rig Safety Store	
Equipment to Repair, Recharge & Restock	: R&BF will carry all spares necessary to ensure an efficient & safe operation.
L.8 Emergency Warning Alarms	
Approved System to Give Warning of Different Emergencies	yes/no: Yes
L.9 Survival Equipment	

L.9.1 Lifeboats

Make/Type	:	Fassmer
Quantity	no.:	4
Capacity	person/craft:	73
Locations (Fore, Aft, Port, Stbd.)	:	2 Forward, 2 AFT
Fire Protection	yes/no:	Yes
Radios	yes/no:	Yes
Flares	yes/no:	Yes
Food	yes/no:	Yes
First Aid Kits	yes/no:	Yes

L.9.2 Liferafts

Make/Type	:	Viking
Quantity	no.:	6
Capacity	person/craft:	25
Davit Launched	yes/no:	Yes & Float Free
Locations (Fore, Aft, Port, Stbd.)	:	3 Fore, 3 AFT
Fire Protection	yes/no:	No
Radios	yes/no:	No
Flares	yes/no:	Yes
Food	yes/no:	Yes
First Aid Kits	yes/no:	Yes
Make/Type	:	Viking
Quantity	no.:	
Capacity	person/craft:	
Davit Launched	yes/no:	
Locations (Fore, Aft, Port, Stbd.)	:	
Fire Protection	yes/no:	
Radios	yes/no:	
Flares	yes/no:	
Food	yes/no:	
First Aid Kits	yes/no:	

L.9.3 Rescue Boat

Make/Type	:	Port Fwd. Lifeboat is Designated as a Rescue Boat
Engine Power	hp:	29

L.9.4 Life Jackets

Make/Type	:	Safeguard w/Light, #S22SRT
Quantity	no.:	163

L.9.5 Life Buoys	
Make/Type	: Jim Buoy
Quantity	no.: 10
L.9.6 Work Vests	
Make/Type	: Billy Pugh
Quantity	no.: 30
L.9.7 Escape Ladders/Nets	
Make/Type	: Permanent Ladders
Quantity	no.: 4 , 1 per Corner Column
L.9.8 Distress Signals	
Type	: Datrex
Quantity	no.: 12 ea.
M. Pollution Prevention Equipment	
M.1 Sewage Treatment	
Make/Model	: Hamworthy (USCG Approved)
System Type	: Biological
Conforms to (Marpol Annex IV, Etc.)	: Yes
M.2 Garbage Compaction	
Make/Model	: Envior-Pak / Model 5000
System Type	: Air
Conforms to (Marpol Annex IV, Etc.)	: Yes
M.3 Garbage Disposal/Grinder	
Make/Model	: Gulf Gulp / Tuff Gut
System Type	: Electric
Conforms to (Marpol Annex IV, Etc.)	: Yes
N. Third Party Equipment	
N.1 Space Available	
Mud Loggers (Available Sq.Ft.)	Sq.Ft.: 555 Sq.Ft.
MWD/LWD (Available Sq.Ft.)	Sq.Ft.: 555 Sq.Ft.
Cement Unit (Available Sq.Ft.)	Sq.Ft.: 1,087 Sq.Ft.
ROV (Available Sq.Ft.)	Sq.Ft.: 1,184 Sq.Ft.
Electric Log (Available Sq.Ft.)	Sq.Ft.: 895 Sq.Ft.