

Seanned  
OCS G29093  
SN 18307  
18308  
New

In Reply To: MS 5232

March 2, 2012

Ms. Kemberlia Ducote  
LLOG Exploration & Production Company, L.L.C.  
1001 Ochsner Blvd.,  
Suite 200  
Covington, Louisiana 70433

Dear Ms. Ducote:

Reference is made to the following application that has been reviewed by this office:

Application Type: New Right-of-Way Pipeline  
Application Date: May 26, 2011  
Work Description: Create 200-foot wide Right-of-Way and install, operate, and maintain the following:

A 200-foot wide right-of way to install, operate and maintain a 5.563-inch pipeline, 2.22 miles in length, to transport bulk oil from a Pipeline End Manifold (PLEM) through a 51ft long jumper and a PLET in Block 199 to Platform A in Block 243 via a 5.563-inch pipeline 2.22 miles in length, also and a 4-inch associated umbilical, 2.17 miles in length, from Platform A in Block 243 to umbilical Terminal Hub (UTH) in Block 199, all located in Mississippi Canyon Area.

Assigned Right-of-Way Number: OCS-G29093  
Assigned Segment Number: 18307  
Umbilical Segment Number: 18308

Pursuant to 43 U.S.C. 1334(e) and 30 CFR 250.1000(d), your application is hereby approved.

Segment No.	MAOP (psig)	MAOP Determination
18307	3705	Valves, Flanges, Hydrostatic Test Pressure
18308		Umbilical

Please be reminded that, in accordance with 30 CFR 250.1008(a), you must notify the Regional Supervisor at least 48 hours prior to commencing the installation or relocation of a pipeline or conducting a pressure test on the pipeline. Commencement notification(s) should be faxed to (504) 736-2408. In accordance with 30 CFR 250.1008 (b), you are reminded to submit a report to the Regional

Supervisor within 90 days after completion of any pipeline construction. Also in accordance with a Letter to Lessees dated April 18, 1991, a copy of the as-built plat(s) must be submitted to the NOAA-National Ocean Service-OCS, Chief, Nautical Data Branch, N/CS26, 1315 East West Highway, Silver Spring, MD, 20910-3282

Sincerely,

**(org. sgd.) B. Hunter**

Nick Wetzel  
Regional Supervisor  
Regional Field Operations

bcc: 1502-01 Segment No. 18307 & 18308 ROW OCS-G29093 (MS 5232)  
1502-01 ROW OCS-G29093 (Scanning) (MS 5033)  
MS 5250 New Orleans District

BHunter:ttg:3/2/2012:Llog-18307



5" SN 19309  
(G29093) 04

JMB 4" SN 19308

Caterway Risor → CVA?

May 26, 2011

Minerals Management Service  
**RECEIVED**

MAY 27 2011

Office of Field Operations  
Pipeline Section

Mr. Michael Saucier  
Regional Supervisor Field Operations  
Bureau of Ocean Energy Management, Regulation, and Enforcement  
1201 Elmwood Park Boulevard  
New Orleans, Louisiana 70123-2394  
MS 5232

RE: **Application for Installation of One (1) 5.563" Right-of-Way Bulk Oil Pipeline,** one (1) 4.0" O.D. Subsea Control Umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper, and one (1) 4.5" O.D. Well Flowline Jumper, from LLOG's Mississippi Canyon Block 199 Subsea Manifold, OCS-G 32301 to W&T Energy VI, LLC's Platform "A", Mississippi Canyon Block 243, OCS-G-19931 Gulf of Mexico, Offshore, Louisiana

Gentlemen:

Pursuant to the authority granted in 43 U.S.C. 1334 (e) and the regulations contained in Title 30 CFR Part 250, Subpart J and Title 49 CFR Part 195, LLOG Exploration Offshore, L.L.C., (LLOG), hereby submits this application, in quadruplicate, for the right-a-way two hundred feet (200') in width for the construction, maintenance and operation of one (1) 5.563" O.D. bulk oil pipeline, one (1) associated 4.0" O.D. subsea control umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper and one (1) 4.5" O.D. Well Flowline Jumper in the Mississippi Canyon Area, Block 199, Gulf of Mexico. LLOG agrees that said right-of-way, if approved, will be subject to the terms and conditions of said regulations and will be bound by the provisions of the OCS Lands Act, as amended.

The proposed ROW pipeline will be part of a dual pipeline system being installed to produce LLOG's subsea wells in Mississippi Canyon Area, Block 199, and is designated by LLOG as the **West Bulk Oil Pipeline**. The 5.563" O.D. bulk oil pipeline will originate from a pipeline end termination (PLET) located near LLOG's Subsea Well Nos. SS001 and SS002 in Mississippi Canyon Area, Block 199, OCS-G32301, then travel in a southerly direction for approximately 11,733.46 feet (2.22 statute miles) in Federal waters off the Louisiana Coast and terminate at the Mississippi Canyon Area, Block 243, Platform "A", OCS-G 19931 operated, by W&T Energy IV, L.L.C. (MC 243 "A" Platform).

The proposed 4.0" O.D. umbilical will originate from the MC 243 "A" Platform, and travel in a northerly direction for approximately 11,472.95' (2.17 statute miles) and terminate at an Umbilical Termination Head (UTH) in Mississippi Canyon Area, Block 199, OCS-G 32301, near the MC 199 Subsea Well Nos. 001 and 002.

LLOG Exploration Offshore, L.L.C.  
MC 199 Right-of-Way Oil Pipeline Application  
May 26, 2011  
Page 2

The proposed 5.563" O.D. x 51.03' long Manifold Flowline Jumper will originate at the Mississippi Canyon Area, Block 199 Subsea Manifold and terminate at the MC 199 West Pipeline PLET.

The proposed 4.5" O.D. x 53.71' long Well Flowline Jumper will originate at the existing MC 199 Subsea Well No. SS002 subsea tree and terminate at the MC 199 Subsea Manifold.

The pipeline installation contractor will install the proposed 5.563" O.D. pipeline by utilizing reeled pipe, "J" Lay methodology. The control umbilical will be reeled out from a dynamically positioned ROV/Construction support vessel. No anchors will be deployed from the installation vessels. The seafloor in the area of the proposed route is relatively smooth. Water depths along the proposed route range from a minimum depth of 2460 feet at the MC 199 Subsea Manifold, slopes downward at an average rate of approximately 153 feet per mile to maximum of 2800 feet at MC 243 "A" platform.

If the above and attached information meets with your approval, please issue the necessary permit at your earliest convenience. Inquiries concerning this application should be first directed to Edie Ridgel of LLOG Exploration Offshore, L.L.C. at [edier@llog.com](mailto:edier@llog.com), 985.801.4344. Inquires can also be directed to Mr. Bruce Cooley of LLOG Exploration Offshore, L.L.C. at [brucec@llog.com](mailto:brucec@llog.com), 985.801.4300 or Mr. Pete Cruz of Pinnacle Engineering Company at [petec@pinnacleengr.com](mailto:petec@pinnacleengr.com), 713.784.1005.

Sincerely,

LLOG Exploration Offshore, L.L.C.



Kemberlia Ducote  
Secretary

EBR  
Attachments

985-801-4318

Bruce Cooley 985 264 030  
Edie Ridgel



United States Department of the Interior  
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT  
Gulf of Mexico OCS Region  
1201 Elmwood Park Boulevard  
New Orleans, LA 70123-2394

In Reply Refer To: MS 5232

February 24, 2012

Dr. Tassos Sachinis  
DeepSea (UK) Ltd  
Bradford House, 39a East Street.  
Epsom, Surrey, KT17 1BL, UK

Dear Dr. Sachinis:

By the transmittal cover dated September 7, 2011, received by our office September 12, 2011, DeepSea (UK) Ltd, (Deep Sea), as the approved contracted certified verification agent (CVA) submitted an interim design phase report and by your transmittal cover dated January 31, 2012, received by our office February 1, 2012, Deep Sea submitted the final design phase report for the 5.563-inch OD SCR, which is associated with pending Right-of-way (ROW) Pipeline Segment No. (PSN) 18307 and Pipeline ROW OCS-G 29093, and LLOG's Mandy Project.

This riser will be installed on LLOG's Platform A, a mini tension leg production platform located in Mississippi Canyon Area, Block 243.

In accordance with 30 CFR 250.916(c)(4) and your recommendation, the BSEE hereby accepts the subject final design phase report.

Sincerely,

Angie D.  
Gobert

Digitally signed by Angie D. Gobert  
DN: cn=Angie D. Gobert, o=Regional  
Field Operations, BSEE, ou=Pipeline  
Section MS 5232,  
email=angie.gobert@bsee.gov, c=US  
Date: 2012.02.26 18:56:38 -0600

For: Nick Wetzel  
Regional Supervisor  
Regional Field Operations

cc: Mr. Bruce Cooley  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Blvd., Suite 200  
Covington, Louisiana 70433

**Hunter, Bradley**

---

**From:** Gobert, Angie  
**Sent:** Monday, February 27, 2012 7:23 AM  
**To:** 'tsachinis@deepsea-eng.com'  
**Cc:** 'Edie Ridgel'; 'Kumarasamy Varatha-Rajan'; Hunter, Bradley; 'bruceC@llog.com'  
**Subject:** LLOG's ROW Pipeline Segment No. 18307 - Interim and Final Design Phase Report  
**Attachments:** CVA\_Design Final Report\_LLOG\_ROW PSN 18307\_Mandy  
Project\_Acceptance\_FINAL\_2\_24\_2012\_ADG.pdf

Dear Dr, Sachinis,

Please find attached the acceptance of the final design phase report for LLOG's Mandy Project regarding Right-of-way Pipeline Segment No. 18307' SCR.

Please ensure that the email contact of the individual responsible for confirming and submitting the final design report is included in the submittal.

Thank you for your cooperation.

Regards,  
Angie D. Gobert  
Senior Staff Petroleum Engineer  
Pipeline Section - Regional Field Operations MS 5232  
Bureau of Safety and Environmental Enforcement

(P) 504 736-2876  
(F) 504 736-2208

# MC199

OCS-G-32301 MATCH  
LLOG

71+25.84'  
BLOCKLINE CROSSING  
X= 1,052,443.19'  
Y= 10,438,560.00'  
Lat= 28°45'06.013"N  
Lon= 88°50'07.483"W

S42°24'35"E  
2,211.28'

88+69.46'  
SCR/PL TRANSITION  
X= 1,053,591.96'  
Y= 10,437,249.91'  
Lat= 28°44'53.218"N  
Lon= 88°49'54.352"W

S42°24'35"E  
1,000.00'

98+69.46'  
TOUCHDOWN POINT  
X= 1,054,266.39'  
Y= 10,436,511.57'  
Lat= 28°44'46.012"N  
Lon= 88°49'46.649"W

PROPOSED WEST 5.563" BULK OIL PIPELINE  
TOTAL LENGTH = 11,733.46' = 2.22 statute miles

S42°24'35"E  
1,864.00'

117+33.46' W&T  
"A" PLATFORM  
X= 1,055,523.52'  
Y= 10,435,135.30'  
Lat= 28°44'32.578"N  
Lon= 88°49'32.291"W

CURVE 1 DATA	
PC1	32+12.48'
X=	1,052,000.89'
Y=	10,442,293.03'
Lat=	28°45'42.901"N
Lon=	88°50'13.098"W
PT1	76+58.19'
X=	1,052,775.04'
Y=	10,438,144.24'
Lat=	28°45'01.947"N
Lon=	88°50'03.683"W
PI1	
X=	1,051,099.78'
Y=	10,439,978.27'
R=	4,000.00'
T=	2,483.98'
Δ=	63°40'48"
L=	4,445.71'

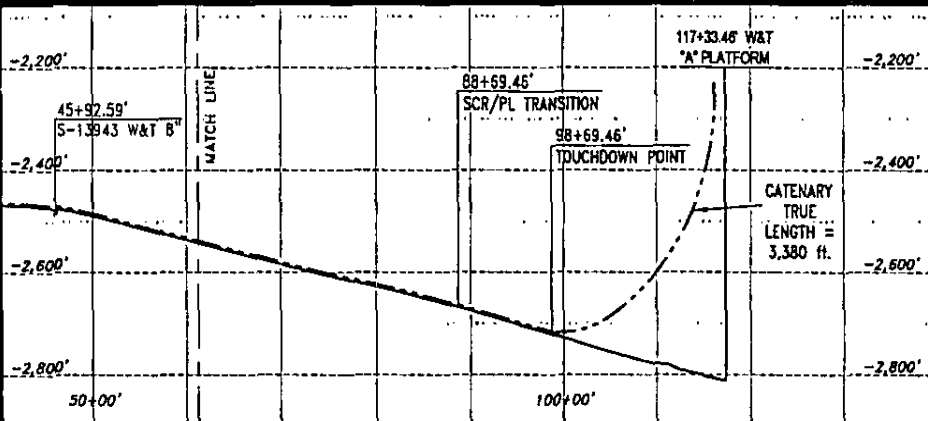
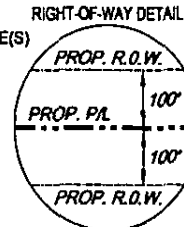
**MC243**  
OCS-G-19931  
W&T

**MC244**  
OCS-G-32305  
DEVON

FOR PERMITTING ONLY. STATIONING AND LENGTHS REFER TO HORIZONTAL DISTANCE(S) ONLY.



NADCON version 2.1 utilized for WGS84-NAD27 conversions.



## PROFILE

HORIZONTAL SCALE: 0' to 2,000'  
VERTICAL SCALE: 0' to 400'

VERTICAL EXAGGERATION = 5

DATE: 05/20/2011 TIME: 13:59 FILENAME: Z:\110092\ACAD\PERMIT\PRM110092\_WEST.DWG



**PROP. WEST 5.563" BULK OIL PIPELINE**  
Block 199 PLET to Block 243 "A" Platform  
Mississippi Canyon Area

PREPARED BY:



**C&C Technologies**  
SURVEY SERVICES  
130 E. KAUSTE SALOON ROAD, LAFALETTE, LA (337) 281-0680

JOB No: 110092, 110367

FILENAME: PRM110092\_WEST.DWG

REVISED: 05/09/2011  
05/20/2011

DATE: Mar. 23, 2011

SHEET 3 of 3

MC199

OCS-G-32301

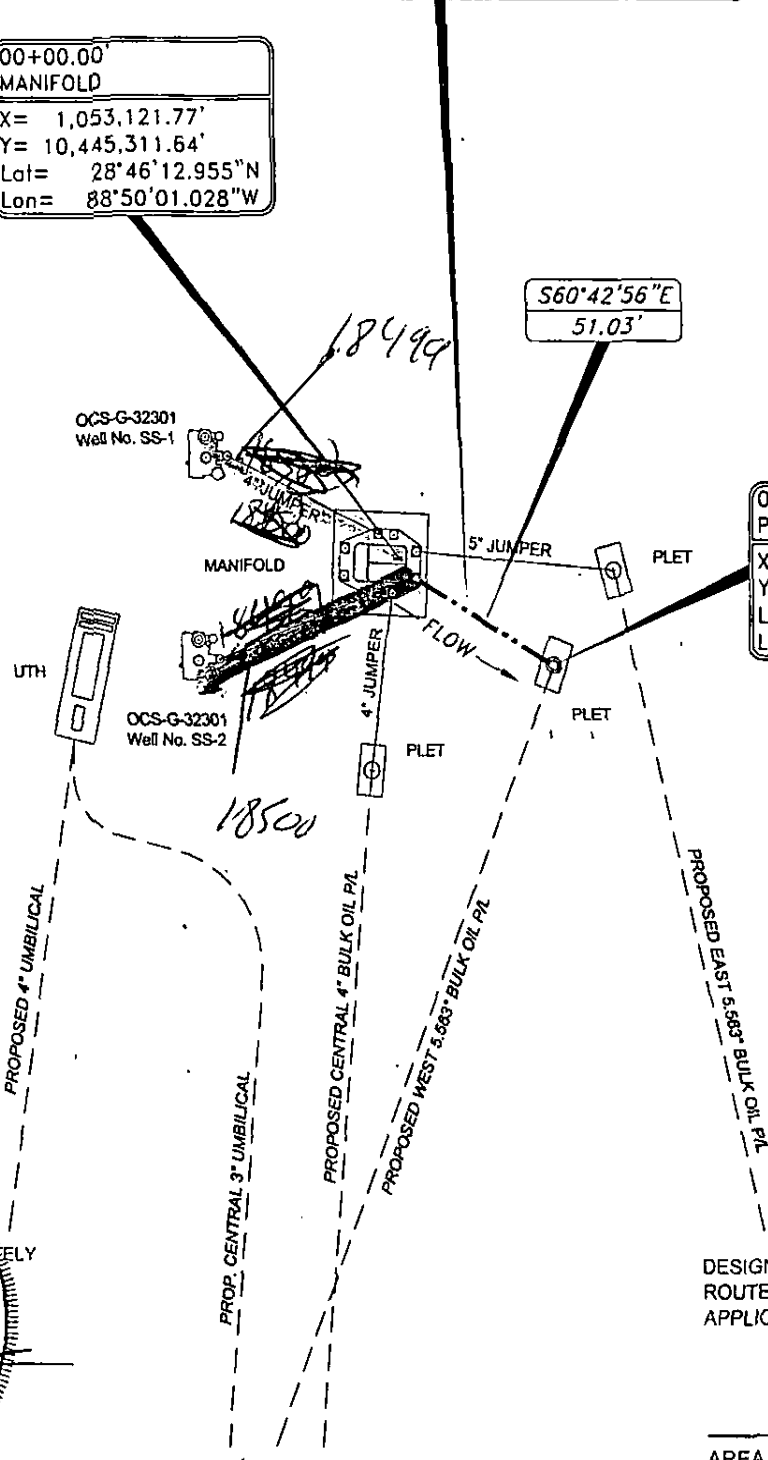
LLOG

PROPOSED 5" MANIFOLD JUMPER  
TOTAL LENGTH = 51.03' = 0.01 statute miles

00+00.00'  
MANIFOLD  
X= 1,053,121.77'  
Y= 10,445,311.64'  
Lat= 28°46'12.955"N  
Lon= 88°50'01.028"W

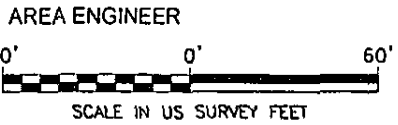
S60°42'56"E  
51.03'

00+51.03'  
PLET  
X= 1,053,166.28'  
Y= 10,445,286.68'  
Lat= 28°46'12.715"N  
Lon= 88°50'00.524"W



DESIGN CHARACTERISTICS OF THIS ROUTE ARE IN COMPLIANCE WITH APPLICABLE REGULATIONS.

PLAN



STATE OF LOUISIANA

THE PROPOSED ROUTE IS ACCURATELY REPRESENTED

**RALPH A. COLEMAN**  
REG. NO. 4891  
PROFESSIONAL LAND SURVEYOR  
LOUISIANA REGISTRATION NO. 4891

RALPH A. COLEMAN  
PROFESSIONAL LAND SURVEYOR  
LOUISIANA REGISTRATION NO. 4891

FOR PERMITTING, STATIONING AND LENGTHS REFER TO HORIZONTAL DISTANCE(S) ONLY.

NADCON version 2.1 utilized for WGS84-NAD27 conversions.  
DATE: 05/09/2011 TIME: 17:49 FILENAME: Z:\110092\ACAD\PERMIT\PRM110092\_J\_1-5.DWG



PROPOSED 5" MANIFOLD JUMPER  
MANIFOLD to PLET  
Block 199, Mississippi Canyon Area

PREPARED BY:

**C&C Technologies**  
SURVEY SERVICES  
230 E. KATIE SHAW ROAD, LAFAYETTE, LA 70508-2611 (337) 261-0660

JOB No: 110092, 110367  
FILENAME: PRM110092 J 1-5.DWG

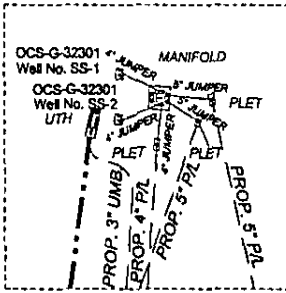
REVISED: 5-9-2011

DATE: Mar. 23, 2011

SHEET 2 of 2



**INSET**



114+72.95'  
UTH  
X= 1,053,012.29'  
Y= 10,445,265.09'  
Lat= 28°46'12.478\"N  
Lon= 88°50'02.250\"W

N08°15'51\"E  
892.05'

CURVE 2 DATA	
PC2	93+50.87'
X=	1,052,524.36'
Y=	10,443,211.11'
Lat=	28°45'52.070\"N
Lon=	88°50'07.376\"W
PT2	105+80.89'
X=	1,052,884.07'
Y=	10,444,382.29'
Lat=	28°46'03.719\"N
Lon=	88°50'03.538\"W
PI2	
X=	1,052,794.96'
Y=	10,443,768.83'
R=	4,000.00'
T=	619.90'
Δ=	17°37'08\"
L=	1,230.02'

GRID NORTH  
NAD27/UTM18N

**PROPOSED 4\" UMBILICAL**  
TOTAL LENGTH = 11,472.95' = 2.17 statute miles

108+70.12'  
PROPOSED LLOG 5.563\"  
X= 1,052,925.64'  
Y= 10,444,668.52'  
Lat= 28°46'06.559\"N  
Lon= 88°50'03.120\"W

CURVE 1 DATA	
PCI	43+74.15'
X=	1,052,797.74'
Y=	10,438,543.04'
Lat=	28°45'05.899\"N
Lon=	88°50'03.497\"W
PT1	88+83.50'
X=	1,052,320.33'
Y=	10,442,790.62'
Lat=	28°45'47.876\"N
Lon=	88°50'09.596\"W
PI1	
X=	1,051,216.65'
Y=	10,440,515.95'
R=	4,000.00'
T=	2,528.29'
Δ=	64°35'30\"
L=	4,509.35'

91+11.33'  
S-13854 W&T 8\"-10\"  
X= 1,052,419.79'  
Y= 10,442,995.59'  
Lat= 28°45'49.920\"N  
Lon= 88°50'08.514\"W

PROP. CENTRAL 3\" UMBILICAL  
PROP. CENTRAL 4\" BULK OIL PL  
PROP. EAST 5.563\" BULK OIL PL

66+58.28'  
S-13943 W&T 8\"  
X= 1,051,940.93'  
Y= 10,440,627.00'  
Lat= 28°45'26.399\"N  
Lon= 88°50'13.483\"W

N25°52'58\"E  
467.37'

PROP. WEST 5.563\" BULK OIL PL

**MC199**  
OCS-G-32301  
LLOG

MATCH LINE

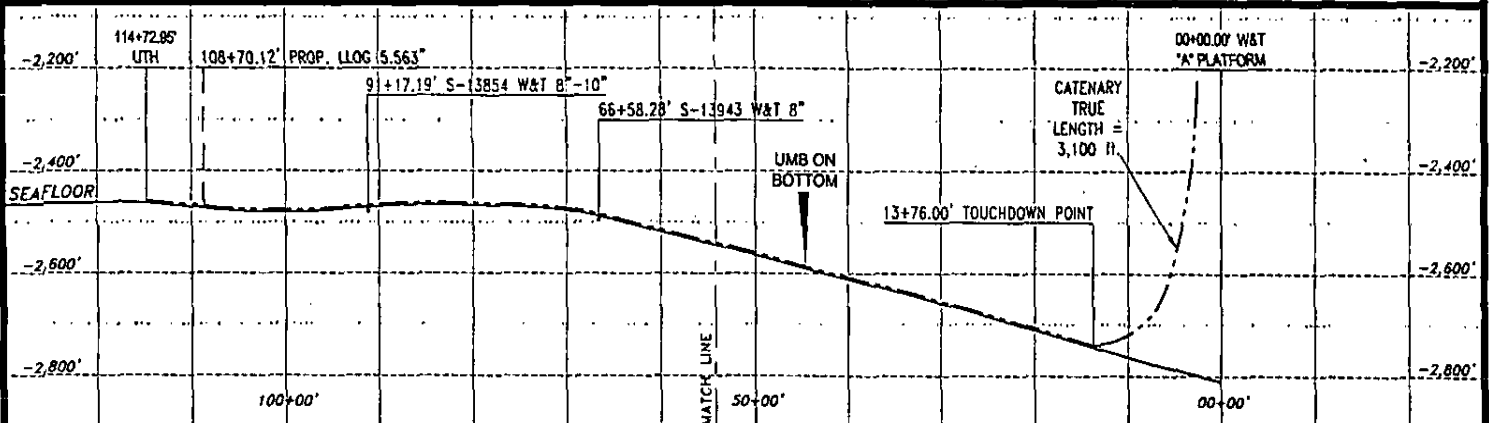
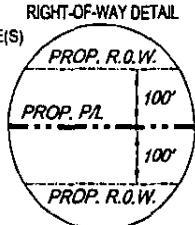
FOR PERMITTING ONLY. STATIONING AND LENGTHS REFER TO HORIZONTAL DISTANCE(S) ONLY.

**PLAN**

0' 2000'

SCALE IN US SURVEY FEET

NADCON version 2.1 utilized for WGS84-NAD27 conversions.



**PROFILE**

HORIZONTAL SCALE: 0' 2,000'  
VERTICAL SCALE: 0' 400'

DATE: 05/09/2011 TIME: 18:51 FILENAME: Z:\110092\ACAD\PERMIT\PRM110092\_UMBILICAL.DWG

VERTICAL EXAGGERATION = 5



**PROPOSED 4\" UMBILICAL**  
Block 243 "A" Platform to Block 199 UTH  
Mississippi Canyon Area

PREPARED BY:



**C&C Technologies**  
SURVEY SERVICES  
730 E. WALSTE SALOON ROAD, LAFAYETTE, LA (337) 261-0660

JOB No: 110092, 110367

REVISED: 5-9-2011

DATE: Mar. 23, 2011

FILENAME: PRM110092\_UMBILICAL.DWG

**SHEET 3 of 3**

**MC199**

OCS-G-32301  
LLOG

MATCH

LINE

43+95.84'  
BLOCKLINE CROSSING  
X= 1,052,784.23'  
Y= 10,438,560.00'  
Lat= 28°45'06.065"N  
Lon= 88°50'03.652"W

**MC200**

OCS-G-32302  
NOBLE

**PROPOSED 4" UMBILICAL**  
TOTAL LENGTH = 11,472.95' = 2.17 statute miles

N38°42'31"W  
2,998.15'

N38°42'31"W  
1,376.00'

00+00.00' W&T  
"A" PLATFORM  
X= 1,055,533.17'  
Y= 10,435,129.73'  
Lat= 28°44'32.524"N  
Lon= 88°49'32.182"W

13+76.00'  
TOUCHDOWN POINT  
X= 1,054,672.67'  
Y= 10,436,203.48'  
Lat= 28°44'43.023"N  
Lon= 88°49'42.032"W

**MC243**

OCS-G-19931  
W&T

**MC244**

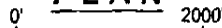
OCS-G-32305  
DEVON

STATE OF LOUISIANA  
  
**RALPH A. COLEMAN**  
 REG. No. 4691  
 REGISTERED PROFESSIONAL SURVEYOR  
 RALPH A. COLEMAN SURVEYORS  
 PROFESSIONAL SURVEYORS  
 LOUISIANA REGISTRATION No. 4691

FOR PERMITTING ONLY. STATIONING AND LENGTHS REFER TO HORIZONTAL DISTANCE(S) ONLY.

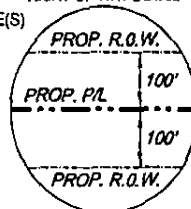
RIGHT-OF-WAY DETAIL

**PLAN**



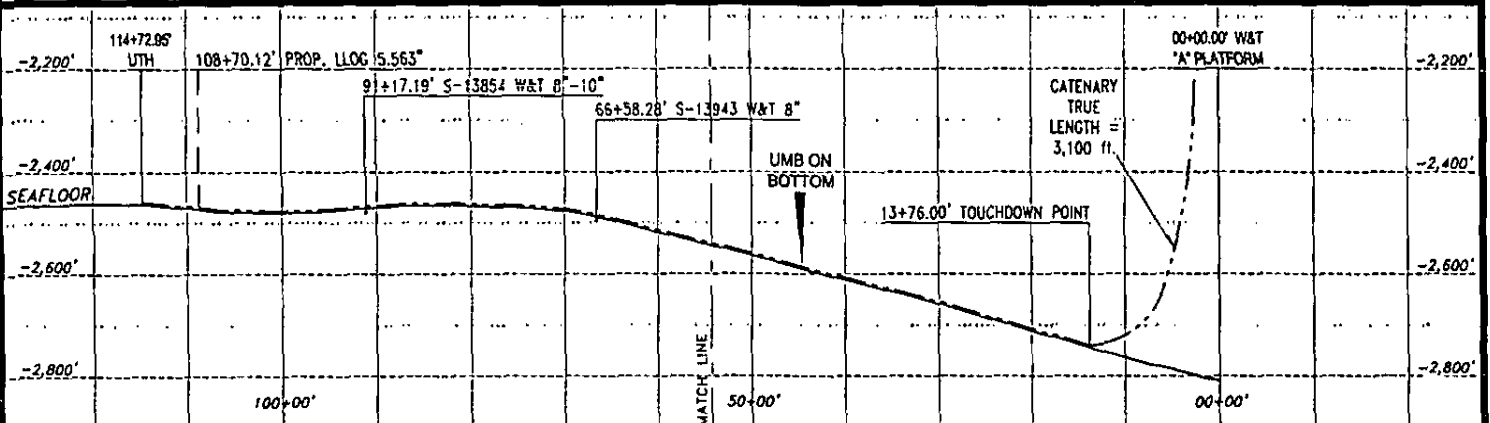
SCALE IN US SURVEY FEET

NADCON version 2.1 utilized for WGS84-NAD27 conversions.



DESIGN CHARACTERISTICS OF THIS ROUTE ARE IN COMPLIANCE WITH APPLICABLE REGULATIONS.

AREA ENGINEER



**PROFILE**

HORIZONTAL SCALE: 0' to 2,000'  
VERTICAL SCALE: 0' to 400'

VERTICAL EXAGGERATION = 5

DATE: 05/09/2011 TIME: 18:51 FILENAME: Z:\110092\ACAD\PERMIT\PRM110092\_UMBILICAL.DWG



**PROPOSED 4" UMBILICAL**  
Block 243 "A" Platform to Block 199 UTH  
Mississippi Canyon Area

PREPARED BY:



**C&C Technologies**  
SURVEY SERVICES  
730 E. KALISTE SALOON ROAD, LAFAYETTE, LA (337) 261-0560

JOB No: 110092, 110367

REVISED: 5-9-2011

DATE: Mar. 23, 2011

FILENAME: PRM110092\_UMBILICAL.DWG

SHEET 2 of 3

Attachment L

WCD Calculation

LLOG EXPLORATION OFFSHORE, INC.  
 MC 199 TO MC 243 "A" (WEST FLOWLINE)  
 5" BULK OIL BI-DIRECTIONAL PIPELINE  
 OIL SPILL CALCULATION SHEET  
 WORST CASE DISCHARGE SCENARIO

A. DAILY FLOWRATES

GAS(mmscfd) 10  
 OIL (bpd) 5000 = 0.05787 bbl/s

B. LEAK RESPONSE TIME

Leak detection time (s) 30  
 Shutin response (s) 45  
 Total response time 75 s = 0.020833 hours

C. DISCHARGE VOLUME DURING RESPONSE

VD1 = oil flow rate x total response time  
 VD1 = 4.340278 bbls

D. LEAKAGE AFTER SHUT IN

Assume 33% of oil in pipeline leaks out.

Liquid holdup in pipeline: 250 bbls  
 Volume discharge if 33% leaks =  
 VD2= 75

**TOTAL VOLUME SPILLED: VD1 + VD2 = 79.3 barrels**

LLOG Exploration Offshore, L.L.C. can control, contain and clean up to the maximum extent practicable any discharged hydrocarbons that threaten coastal resources of Louisiana.

## Attachment M

### Designated Operators and State Agencies Notification

The following Designated Oil and Gas Lease Operators, Right-of-Way Holders and Easement Holders have been furnished a copy of this application by Federal Express. Signature Requested. (Note: The status of blocks listed below is current as of May 26, 2011 per BOEMRE data search by LLOG)

**MISSISSIPPI CANYON BLOCK 199**

LLOG Exploration (Applicant)	OCS-G-32301	Lease Holder
W&T Energy VI, LLC Nine Greenway Plaza, Suite 300 Houston, TX 77079 Attn: Ms. Jeanette Wilkins	OCS-G 32301	Segment 13854 Segment 13943

**MISSISSIPPI CANYON BLOCK 243**

W&T Energy VI, LLC Nine Greenway Plaza, Suite 300 Houston, TX 77079 Attn: Ms. Jeanette Wilkins	OCS-G 19931	LeaseHolder/Operator
---	-------------	----------------------

**STATE AGENCIES**

Mr. Gregory DuCote, Coastal Resources Program Manager  
Coastal Management Division  
Department of Natural Resources  
P.O. Box 44487  
Baton Rouge, Louisiana 70804-4487

Mr. Mike Walker  
Mississippi Coastal Program  
Coastal Management Division  
Department of Marine Resources  
1141 Bayview Avenue,  
Biloxi, MS 39530



May 26, 2011

Ms. Jeanette Wilkins  
W&T Energy VI, LLC  
Nine Greenway Plaza, Suite 300  
Houston, TX 77079

RE: Proposed Pipeline Crossing and SSTI

Application for Installation of One (1) 5.563" Right-of-Way Bulk Oil Pipeline, one (1) 4.0" O.D. Subsea Control Umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper, and one (1) 4.5" Well Flowline Jumper, from LLOG's Mississippi Canyon Block 199 Subsea Manifold, OCS-G 32301 to W&T Energy VI, LLC's Platform "A", Mississippi Canyon Block 243, OCS-G-19931 Gulf of Mexico, Offshore, Louisiana

Gentlemen:

This letter serves as notification that LLOG Exploration Offshore, L.L.C. (LLOG) is in the process of submitting an application to Bureau of Ocean Energy Management, Regulation, and Enforcement for the installation of one (1) 5.563" O.D. bulk oil pipeline, one (1) associated 4.0" subsea control umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper and one (1) 4.5" O.D. Well Flowline Jumper in the Mississippi Canyon Area, Block 199, Gulf of Mexico.

The pipeline installation will involve the crossing of your pipeline Segment No. 13854 and 13943 in Mississippi Canyon Area, Block 243 (OCS-G-19931) and a tie-in at your Platform "A" in Mississippi Canyon Area, Block 243, (OCS-G-19931).

In accordance with BOEMRE requirements, we are enclosing a complete copy of the subject application for your review.

In order to expedite the permit process, if the above information meets with your approval, please indicate your consent to this proposed pipeline crossing and Tie-In by signing this letter in the space provided below and returning a signed copy to the attention of Bruce Cooley, LLOG Exploration Offshore, L.L.C., 1001 Ochsner Boulevard, Suite 200, Covington, Louisiana 70433.

Your cooperation in this matter would be greatly appreciated.

Very truly yours,

Bruce Cooley  
Vice President Facilities Engineering

CONSENT GRANTED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2011

By: \_\_\_\_\_

Title: \_\_\_\_\_

## Attachment N

### Nondiscrimination Employment Stipulation



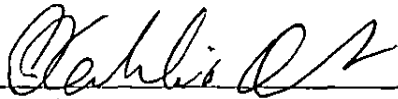
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
Bureau of Ocean Energy Management, Regulation, and Enforcement

NONDISCRIMINATION IN EMPLOYMENT (Form YN 3341-1)

As a condition precedent to the approval of the granting of the subject pipeline right-of-way, the grantee, LLOG Exploration Offshore, L.L.C. hereby agrees and consents to the following stipulation which is to be incorporated into the application for said right-of-way.

During the performance of this grant, the grantee agrees as follows:

During the performance under this grant, the grantee shall comply with paragraphs (1) through (7) of section 202 of Executive Order 11246, as amended (reprinted in 41 CFR 60-1.4(a)), which are for the purpose of preventing discrimination against persons on the basis of race, color, religion, sex or national origin. Paragraphs (1) through (7) of section 202 of Executive Order 11246, as amended, are incorporated in this grant by reference.



\_\_\_\_\_  
Kemberlia Ducote  
Secretary

LLOG Exploration Offshore, L.L.C.

5-26-11

Date

July 8, 2011

Mr. Brad Hunter  
Pipeline Section  
Bureau of Ocean Energy Management, Regulation, and Enforcement  
1201 Elmwood Park Boulevard  
New Orleans, Louisiana 70123-2394  
MS 5232

RE: Mississippi Canyon 199 Pipeline Applications  
Lease Term Pipeline Application, Segment No. 18311 and Umbilical Segment No. 18312  
ROW East Pipeline Application, Segment No. 18309  
ROW West Pipeline Application, Segment No. 18307 and Umbilical Segment No. 18308

Dear Mr. Hunter

Please find the enclosed supplemental information and a CD in support of the subject pipeline permit applications.

1. W&T Offshore Letter of No Objection – Lease Term Central Pipeline
2. W&T Offshore Letter of No Objection – ROW East Pipeline
3. W&T Offshore Letter of No Objection – ROW West Pipeline
4. LA CZM Approval – ROW East Pipeline
5. LA CZM Approval – ROW West Pipeline
6. MS CZM Approval – ROW East Pipeline
7. MS CZM Approval – ROW West Pipeline

If the above and attached information meets with your approval, please issue the necessary permit at your earliest convenience. Inquiries concerning these applications should be first directed to Edie Ridgel of LLOG Exploration Offshore, L.L.C. at [edier@llog.com](mailto:edier@llog.com), 985.801.4344. Inquires can also be directed to Mr. Bruce Cooley of LLOG Exploration Offshore, L.L.C. at [brucec@llog.com](mailto:brucec@llog.com), 985.801.4300 or Mr. Pete Cruz of Pinnacle Engineering Company at [petec@pinnacleengr.com](mailto:petec@pinnacleengr.com), 713.784.1005.

Sincerely,

LLOG Exploration Offshore, L.L.C.



Edie Ridgel  
Facilities Engineering Technician

Integrity Management Service  
**RECEIVED**

JUL 11 2011

Office of Field Operations  
Pipeline Section

## Attachment F

### Design Information Sheets/Drawings

Pipeline  
Jumpers  
Manifold  
Umbilical  
Risers

LLOG EXPLORATION COMPANY  
West 5" Bulk Oil, Bi-Directional Pipeline  
Mississippi Canyon 199 PLET  
to Mississippi Canyon 243 "A"  
Rev. 0, 5/17/11

PIPELINE DESIGN INFORMATION

I. Pipeline and Riser Description

A. Nominal Pipeline:

Size:	5.563 Inch
Wall Thickness:	0.438 Inch
Grade:	API 5L Gr. X65, SMLS
Length:	11,733 Feet, 2.22 Miles
Bare Weight:	23.97 lbs/ft
Protection Coating Type and Thickness:	Fusion Bonded Epoxy (FBE); 12-14 mils
Insulation Coating:	Glass Synthactic Polyurethane (GSPU), 2 inches
Specific Gravity of Pipe in Seawater (empty):	1.27

B. Steel Catenary Riser:

Size:	5.563 Inch
Wall Thickness:	0.625 Inch
Grade:	API 5L Gr. X65, SMLS
Bare Weight:	32.96 lbs/ft
Protection Coating Type and Thickness:	
- Below Splash Zone:	FBE 12-14 mils & GSPU 1 inch
- In Splash Zone:	Splashtron Coating; ½ Inch
- Above Splash Zone:	Fusion Bonded Epoxy; 12-14 mils and/or a three coat paint system; 12 mils DFT.
Weight Coating:	None

II. Cathodic Protection System

The riser and pipeline shall be protected by tapered bracelet type anodes.

Pipeline and Riser Sacrificial Anodes System:

Design Life:	20 yrs.
Type of Anode:	Galvotec CW III ✓
Spacing Interval:	500 ft.
Output:	1150 Amps - hrs./lb.
Efficiency:	0.85
Current Density:	2 ma/sq. ft.
% Assumed Bare Pipe:	5%
Minimum Required Weight of Anode:	N/A

$$\# = (.002) (3.14159) (5.563) (500) (.05) (20) (365) (24) / (1150) (12) (.85) = 13.1 \text{ lbs.}$$

Use one (1) 37# net weight anode every 500 feet.

III. Water-Depth for Pipeline:

The water depth along the pipeline is approximately between (-)2470 and (-)2810 feet.

IV. Description of Internal Protective Measures:

Internal Coating:	None
Corrosion Inhibitor Program:	As necessary
Pigging Program:	The MC 199 Bulk Oil pipeline will be set up to be piggable. Frequency will be determined after first production.

V. Riser Protection

At Mississippi Canyon 243 "A", the riser will be protected by a riser guard.

VI. Specific Gravity of the Empty Pipe Based on Seawater:

The formula used to calculate the specific gravity is as follows:

$$S.G. = \frac{(W_p + W_{CONC})}{W_{H2O}}$$

Where:

$$W_p = \text{Weight of the pipe (lbs/ft)} = 23.97$$

$$W_{GSPU} = \text{Weight of GSPU (lbs/ft)} = 16.50$$

$$W_{H_2O} = \text{Displaced weight of the seawater (lbs/ft)} = 31.92$$

The above weights are based on the pipe outside diameter and corrosion coating thickness and on the densities of the various materials which are listed below.

$$\text{Density of Pipe} = 490 \text{ lbs/ft}^3$$

$$\text{Density of Seawater} = 64 \text{ lbs/ft}^3$$

$$\text{The specific gravity of the pipeline} = 1.27$$

VII. Specific Gravity & Temperature of the Product:

The specific gravities and temperature of the oil and gas to be transported is anticipated to be:

$$\text{S.G. (Gas)} = 0.69 \text{ (Air} = 1.0) @ T = 80 \text{ Degrees}$$

$$\text{S.G. (Oil)} = 0.81 \text{ (Water} = 1.0) @ T = 80 \text{ Degrees}$$

$$\text{Temperature} = 95 \text{ Degrees Fahrenheit}$$

VIII. Design Capacity:

The design flowing capacity of the flowline is 10 MMSCFD and 5000 BLPD. The total volume capacity of the pipeline is 250 bbls.

IX. Maximum Operating Pressure:

I. Calculations based on CFR, Title 30, Part 250, Subparts H and J.

$$P = \frac{2st}{D}$$

$$PI = \frac{2s(t-ca)(F)(E)(T)}{D}$$

Where:

- P = Pressure as 100% SMYS (psig)
- P1 = Internal Design Pressure (psig)
- s = Specified Minimum Yield Strength (SMYS) (psi)
- t = Pipe Wall Thickness in Inches
- ca = Corrosion Allowance (use 0.000 inches)
- D = Pipe Outside Diameter in Inches
- (F) = Design Factor  
 0.60 for Risers  
 0.72 for Pipelines
- (E) = Joint Factor  
 1.0 for Seamless Pipe
- (T) = Temperature Derating Factor  
 1.0 for Operating Temperatures below 250 Degrees Fahrenheit

1) Pipeline: 5.563" OD x 0.438" W.T. API 5L Gr. X65

- a)  $P = (2) (65,000) (0.438) / (5.563) = 10,235 \text{ psig}$
- b)  $P1 = (2) (65,000) (0.438 - 0.000) (0.72) (1) (1) / 5.563 = 7,370 \text{ psig}$
- c) Hydrostatic Test Pressure = HTP  
 $\text{Maximum HTP} = 0.95 P = (0.95) (10,235) = 9,724 \text{ psig}$   
 $\text{Minimum HTP will be } \dots 4,632 \text{ psig for 8 hour hold time}$   
 $\text{Rated MAOP} = 4,632 \text{ psig} / 1.25 = 3,705 \text{ psig}$
- d) Maximum Allowable Operating Pressure (MAOP) = 3,705 psig

(2) Riser: 5.563" OD x 0.625" W.T. API 5L Gr. X65

- a)  $P = (2) (65,000) (0.625) / (5.563) = 14,605 \text{ psig}$
- b)  $P1 = (2) (65,000) (0.625 - 0.000) (0.60) (1) (1) / 5.563 = 8,763 \text{ psig}$
- c) Hydrostatic Test Pressure = HTP  
 $\text{Maximum HTP} = 0.95 P = (0.95) (14,605) = 13,875 \text{ psig}$   
 $\text{Minimum HTP will be } \dots 4,632 \text{ psig for 8 hour hold time}$   
 $\text{Rated MAOP} = 4,632 \text{ psig} / 1.25 = 3,705 \text{ psig}$
- d) Maximum Allowable Operating Pressure (MAOP) = 3,705 psig

B. MAOP of Flange, Fittings and Valves:

1) Under Water:

ANSI 1500 class = 3,705 psig

2) Platform Facilities (See Safety Schematic):

ANSI 1500 class = 3,705 psig

C. Summary

This pipeline and riser will have an MAOP of 3,705 psig

X. Design Standard:

The design of the proposed pipeline is in accordance with the Department of Interior Subparts H & J Part 250, Title 30, of The Code of Federal Regulations.

XI. Construction Information:

A)	Anticipated Start Date:	November 1, 2011
B)	Method of Construction:	Lay Barge
C)	Method of Burial:	N/A
D)	Time Required to Lay Pipe:	15 Days
E)	Time Required to Complete the Project:	30 Days



**Hunter, Bradley**

**From:** Signorelli, Charlene B  
**Sent:** Wednesday, September 07, 2011 8:18 AM  
**To:** Hunter, Bradley  
**Subject:** P/L ROW G 29093 Segment Nos. 18307 & 18308

Brad,

I have performed the Adjudication Review on P/L ROW G 29093 Segment Nos. 18307 & 18308 for a 200' wide row with associated umbilical to install, operate and maintain a 5.563" pipeline, 2.22 miles in length to transport bulk oil from a PLET in Block 199 to Platform A through Block 243 to a 4" umbilical 2.17 miles in length terminating at a UTH through Block 199 Subsea Manifold to a PLET to a Subsea Well No. 002 Subsea tree terminating at a Subsea Manifold Block 199 all located in Mississippi Canyon Area and have approved it.

Charlene B. Signorelli  
Land Law Examiner  
Bureau of Ocean Energy Management,  
Regulation & Enforcement  
Adjudication Unit  
(504) 736-2935

July 8, 2011

Mr. Brad Hunter  
Pipeline Section  
Bureau of Ocean Energy Management, Regulation, and Enforcement  
1201 Elmwood Park Boulevard  
New Orleans, Louisiana 70123-2394  
MS 5232

RE: Mississippi Canyon 199 Pipeline Applications  
Lease Term Pipeline Application, Segment No. 18311 and Umbilical Segment No. 18312  
ROW East Pipeline Application, Segment No. 18309  
ROW West Pipeline Application, Segment No. 18307 and Umbilical Segment No. 18308

Dear Mr. Hunter

Please find the enclosed supplemental information and a CD in support of the subject pipeline permit applications.

1. W&T Offshore Letter of No Objection – Lease Term Central Pipeline
2. W&T Offshore Letter of No Objection – ROW East Pipeline
3. W&T Offshore Letter of No Objection – ROW West Pipeline
4. LA CZM Approval – ROW East Pipeline
5. LA CZM Approval – ROW West Pipeline
6. MS CZM Approval – ROW East Pipeline
7. MS CZM Approval – ROW West Pipeline

If the above and attached information meets with your approval, please issue the necessary permit at your earliest convenience. Inquiries concerning these applications should be first directed to Edie Ridgel of LLOG Exploration Offshore, L.L.C. at [edier@llog.com](mailto:edier@llog.com), 985.801.4344. Inquires can also be directed to Mr. Bruce Cooley of LLOG Exploration Offshore, L.L.C. at [brucec@llog.com](mailto:brucec@llog.com), 985.801.4300 or Mr. Pete Cruz of Pinnacle Engineering Company at [petec@pinnacleengr.com](mailto:petec@pinnacleengr.com), 713.784.1005.

Sincerely,

LLOG Exploration Offshore, L.L.C.



Edie Ridgel  
Facilities Engineering Technician

Minerals Management Service  
**RECEIVED**

JUL 11 2011

Office of Field Operations  
Pipeline Section

# W&T OFFSHORE

I N C O R P O R A T E D

June 29, 2011

LLOG Exploration Offshore, L.L.C.

Attn: Ms. Judy Reimel

1001 Ochsner Blvd, Suite 200

Covington, LA. 70433

Re: Pipeline Crossing Agreement in MC 243 by  
LLOG Exploration Offshore, L.L.C.  
W&T pipeline segment No. 13854 and 13943  
GOM Offshore Louisiana

Dear Ms. Reimel:

Reference is made to LLOG Exploration Offshore, L.L.C.'s (LLOG) application to the BOEMRE dated May 31, 2011. LLOG has advised W&T Energy VI, LLC (W&T) that the referenced pipeline segments being 13854 and 13943 owned by W&T will be crossed by LLOG's installation of one (1) 5.563" O.D. Right-of-Way bulk oil pipeline, one (1) 4.0" O.D. Subsea Control Umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper, and one (1) 4.5" O.D. Well Flowline Jumper from MC 199 subsea manifold in OCS-G32301 to W&T's Platform "A" in MC 243, OCS-G 19931 ("the Operation"). W&T has no objection to the pipeline crossing or to the tie-in at W&T's Platform "A" in Mississippi Canyon Area, Block 243 (OCS-G 19931) by LLOG subject to the following conditions:

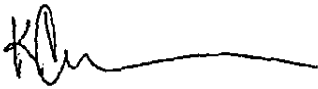
1. LLOG shall secure all necessary permits from all governmental agencies having jurisdiction thereof for the Operation.
2. The Operation conducted by LLOG shall be at no cost or expense to W&T or its co-owners.
3. LLOG agrees to release, protect, indemnify, defend and hold harmless W&T and its affiliates, co-owners, contractors and subcontractors and their respective directors, officers, employees, agents and representatives (collectively, the "W&T Indemnified Parties") from and against any and all claims, liabilities, losses, costs and expenses (including, without limitation, court costs and reasonable attorneys' fees) (collectively "Losses") in connection with personal injuries, including death, pollution, or property damage arising out of or resulting from the Operation or activities of LLOG, its officers, employees, contractors, subcontractors, agents and representative and invitees regardless of whether such injuries, death or damages are caused in whole or part by the sole, partial or concurrent negligence, or other fault of the W&T Indemnified Parties. It is the express intention of the parties hereto that the indemnity provided for herein constitutes an agreement by LLOG to release, protect, indemnify, defend and hold harmless the W&T Indemnified Parties from the consequences of their own negligence or other fault, regardless of whether same is the sole or a concurring cause of the injury, death or damage.

4. LLOG will be utilizing a "real time positioning system" on the marine construction equipment which includes the anchor handling tug, and the "as built" coordinates of the W&T Pipeline are present on the equipment
5. LLOG' anchor handling tug will have a satellite positioning system accurate to within five meters. When setting and weighing anchors, anchor position will be plotted to determine the extent of anchor slippage. All anchors placed across the W&T Pipeline will be located a minimum perpendicular distance of 1,000 feet from the W&T Pipeline, and all anchors not crossing the W&T Pipeline will be located a minimum perpendicular distance of 500 feet from the W&T Pipeline. All anchors shall be lifted vertically from their stationary positions to a height of not less than one-half the distance between the ocean floor and sea level before the anchors are moved laterally.
6. No mats and/or s/c/ bags shall be placed on top of cathodic protection anodes.
7. LLOG will inspect the W&T Pipeline for possible damage after installation of the subject pipelines. Depending on water depths and conditions, MARITECH shall have either a diving inspector's log or ROV video to report on the details of the crossing. LLOG shall provide a copy of the log/ROV video to W&T.
8. LLOG, and its agents, contractors, employees, representatives, servants and subcontractors shall observe and comply with all federal, state and local laws, ordinances, rules, regulations, orders and decrees regarding the environment and cultural resources.
9. LLOG shall carry adequate insurance or shall self-insure in order to support its operations.
10. LLOG agrees to provide "as built" drawing showing the actual location of the LLOG pipeline across the W&T Pipeline as soon as practical after completion of construction of the pipelines.
11. LLOG agrees to maintain its pipeline in good condition at all times and that such maintenance shall conform to all applicable rules, laws and regulations.
12. Prior to commencement of the Operation, LLOG agrees to provide written and/or verbal notification to W&T, or in its absence, any other designated representative will have access, upon request, to the lay-barge upon W&T's execution of LLOG's access permit agreement. Notification shall be made to Jay Hachen at (713) 626-8525.
13. LLOG, and its agents, contractors, employees, representatives, servants and subcontractors shall observe and comply with all federal, state and local laws, ordinances, rules, regulations, orders and decrees regarding the environment and cultural resources.

This letter of no objection shall be binding to the parties hereto, their successors and assigns.

If the foregoing is acceptable, please indicate your agreement thereto by signing in the space provided below and returning one copy of this letter to my attention. Should you require additional information, please contact Jim DeGraffenreid at (713) 624-7305.

Sincerely,  
W&T Energy VI, LLC  
By W&T Offshore, Inc. its sole member



Keisha Cooper  
Landman

AGREED TO AND ACCEPTED THIS 29 DAY OF June, 2011

LLOG Exploration Offshore, L.L.C.

By: Ben Cook  
Title: V.P. Facilities

Cc: BOEMRE

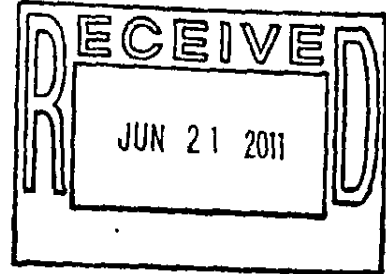
BOBBY JINDAL  
GOVERNOR



SCOTT A. ANGELLE  
SECRETARY

State of Louisiana  
DEPARTMENT OF NATURAL RESOURCES  
OFFICE OF COASTAL MANAGEMENT

June 17, 2011



Edie Ridgel  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Boulevard, Suite 200  
Covington, LA 70433

RE: **C20110244**, Coastal Zone Consistency  
**LLOG Exploration Offshore, L.L.C.**  
Bureau of Ocean Energy Management, Regulation, and Enforcement  
Federal License or Permit  
Install 5.563 inch Bulk Oil Right-of-Way Pipeline (West Bulk Oil Pipeline) from  
Mississippi Canyon 199 to Mississippi Canyon 243, **Offshore, Louisiana**

Dear Ms. Ridgel:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resources Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP.

If you have any questions concerning this determination please contact Carol Crapanzano of the Consistency Section at (225) 342-9425 or [Carol.Crapanzano@la.gov](mailto:Carol.Crapanzano@la.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory J. DuCote".

Gregory J. DuCote  
Administrator  
Interagency Affairs/Field Services Division

GJD/JDH/cmc

cc: BOEMRE ATTENTION PIPELINE APPROVALS  
Bonnie Johnson, BOEMRE 5412



ROW West Pipeline  
P/L SN 18307  
UMB SN 18308

**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

July 6, 2011

Bruce Cooley, V.P.  
Facilities Engineering  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Blvd., Suite 200  
Covington, LA 70433

Subject: LLOG Exploration Offshore, L.L.C.  
Proposed Bulk Oil Pipeline ROW, for umbilical, manifold flowline jumper,  
and well flowline jumper  
Mississippi Canyon Area, from Block 199 to 243  
Offshore Louisiana and Mississippi  
DMR #110429

Dear Mr. Cooley:

The State of Mississippi has determined the the consistency certification letter of June 28, 2011 for the above referenced project contained a typographical error. The lease blocks should have been described as "Block 199 to 243" instead of "Block 199 to 143". Please note this correction.

Sincerely,

A handwritten signature in black ink, appearing to read "William W. Walker", is written over a horizontal line.

William W. Walker, Ph.D.  
Executive Director

WWW/mfw

cc: Michael Saucier, BOEMRE  
Bonnie La Borde Johnson, BOEMRE



**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

June 28, 2011

Bruce Cooley, V.P.  
Facilities Engineering  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Blvd., Suite 200  
Covington, LA 70433

Subject: LLOG Exploration Offshore, L.L.C.  
Proposed Bulk Oil Pipeline ROW  
Mississippi Canyon Area, from Block 199 to 143  
Offshore Louisiana and Mississippi  
DMR #110429

Dear Mr. Cooley:

The State of Mississippi has completed the review of subject by your March 26, 2011 letter, under the Coastal Zone Management Act of 1972. The Department of Marine Resources, as the lead coastal program agency for the State of Mississippi pursuant to 16 U.S.C. Section 1456(c) and Section 57-15-5 of the Mississippi Code of 1972, concurs with LLOG's consistency certification for this project.

If you have any questions about this matter, please do not hesitate to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "William W. Walker".

William W. Walker, Ph.D.  
Executive Director

WWW/mfw


cc: Michael Saucier, BOEMRE ✓  
Bonnie La Borde Johnson, BOEMRE

Minerals Management Service  
**RECEIVED**

JUL 08 2011

Office of Field Operations  
Pipeline Section



  
 exploration  
**Mississippi Canyon 199**  
ROW Pipeline Information

**I. PIPELINE APPLICATION INFORMATION**

Data Requirement	Required Data
Operator Identification: 250.1007(a), L.TL 1991  <i>Base</i>	LLOG Exploration Offshore, L.L.C. 1001 Ochsner Blvd., Suite 200 Covington, LA 70433  The service base utilized to support the pipeline installation activities for this project will be located in <u>Fourchon, Louisiana</u> . This is an established facility that requires no modifications.  Transportation from the existing onshore base, to the block will involve the use of one work/crew boat making two (2) trips per week during operations and one self propelled pipe lay vessel and one ROV/Construction support vessel. The work/crew boat will normally take the most direct route to the referenced block(s) dependent upon weather conditions.
Pipeline Burial: 250.1003(a)(1)	The pipeline and umbilical will not be buried
Plats 250.1007(a)(1)	<b>See Attachments A-D</b> Proposed West 5.563" Bulk Oil Pipeline Route Block 199 PLET to Block 243 "A" Platform (C&C Technologies Drawing Number PRM110092_WEST, sheets 1 - 3)  Proposed 4.0" Umbilical Route Block 243 "A" Platform to Block 199 UTH (C&C Technologies Drawing Number PRM110092_UMBILICAL, sheets 1 - 3)  Proposed 5.563" Manifold Jumper Route Manifold to PLET Block 199 (C&C Technologies Drawing Number PRM110092_J_1-5, sheets 1 - 2)  Proposed 4.5" Well Jumper Route Well No. 2 to Manifold Block 199 (C&C Technologies Drawing Number PRM110092_J_1-5, sheets 1 - 2)
Schematic Drawing: 250.1007(a)(2)	<b>See Attachment E</b> Safety Schematic Drawing (Drawing No. 901)



exploration

**Mississippi Canyon 199  
ROW Pipeline Information**

Cathodic Protection 250.1007(a)(3)(i)	<b>See Attachment F</b> Design Information Sheets/Drawings <ul style="list-style-type: none"> <li>- Pipeline</li> <li>- Jumpers</li> <li>- Manifold</li> <li>- Umbilical</li> <li>- Risers</li> </ul>
External Pipeline Coating 250.1007(a)(3)(ii)	
Internal Protective Measures 250.1007(a)(3)(iii)	
Gravity of Empty Pipe 250.1007(a)(3)(iv)	
MSP 250.1007(a)(3)(v)	
MAOP and Calculations 250.1007(a)(3)(vi)	
Hydrostatic Test Pressure 250.1007(a)(3)(vii)	
Coastal Zone Management Program Requirements N/TL 2007-G20	<b>See Attachment G</b> Coastal Zone Management Certification
MAOP of Receiving PL or Facility 250.1007(a)(3)(viii)	<b>See Attachment E</b> Safety Schematic Drawing (Drawing No. 901)
Proposed Construction Start Date Estimated Duration Overall Completion 250.1007(a)(3)(ix)	November 1, 2011 15 Days 30 Days
Type of Protection Crossing pipelines, Subsea Valves, Taps, and Manifold Assemblies 250.1007(a)(3)(x)	<b>See Attachment H</b> Pipeline Crossing Detail
Additional Precautions 250.1007(a)(4.i-ii)	N/A
Hazard and Archaeological Survey & Reports 250.1007(a)(5) N/TL 2005-G07, N/TL 2008-G05, N/TL 2009-G40	<b>See Attachment I</b> Archaeological, Engineering and Hazard Report prepared by C&C Technologies dated March 2011  A review of the hazard survey data indicated that there is no evidence of any geologic condition along the proposed route or in the survey area that would present a hazard or constraint to pipeline construction or operation.
Copies of Applications Submitted Plat Information on a CD with ASCII file 250.1007(b), NTL 2009-G15	An Original, three copies and a CD <b>See Attachment J</b> CD Enclosed



exploration

Mississippi Canyon 199  
ROW Pipeline Information

ROW Site for Proposed Pipeline 250.1007(a)(1)					
Description	Originate	Terminate	Direction	Distance (ft)	Distance (statute miles)
5.563 O.D. Bulk Oil	Pipeline End Termination in MC 199, OCS-G 32301	Hang off Location MC 243 "A", OCS-G 19931	Southerly	11,733.46	2.22
4.0" O.D. Umbilical	Hang off Location MC 243 "A", OCS-G 19931	Umbilical Termination Head in MC 199, OCS-G 32301	Northerly	11,472.95	2.17
5.563" Manifold Jumper	Manifold in MC 199, OCS-G 32301	Pipeline End Termination in MC 199, OCS-G 32301	South Easterly	51.03	0.01
4.5" Well Jumper	Well No.2 in MC 199, OCS-G 32301	Manifold in MC 199, OCS-G 32301	North Easterly	53.71	0.01

2. REQUIREMENT TO OBTAIN PIPELINE ROW GRANTS

Data Requirement	Required Data
Corporate Registration 250.1009(a)	LLOG Exploration Offshore, L.L.C. is a Louisiana Limited Liability Corporation
ROW Width 250.1009(b)	200'

3. REQUIREMENTS FOR PIPELINE ROW HOLDERS

Data Requirement	Required Data
Comply with Applicable laws and regulations 250.1010(a), 250.1010(b)	LLOG agrees that said right-of ways, if approved, will be subject to the terms and conditions of said regulations and will bound by the provisions of the OCS Lands Act, as amended.  LLOG Exploration Offshore, L.L.C will be operator of the proposed ROW pipeline and Umbilical.
Comply with Archaeological Resources 250.1010(c)	LLOG will stop work and report any archaeological resources discovered within the ROW.



**Mississippi Canyon 199  
ROW Pipeline Information**

**4. APPLICATIONS FOR PIPELINE ROW GRANTS**

<b>Data Requirement</b>	<b>Required Data</b>
<b>Application Fee</b> <b>Rental Fee</b> 250.1015(b)(3)(i-ii), 250.1000(b)	\$2,569.00 Payment per 250.125 2.22 miles = \$45.00 Payment per 250.1012 <b>See Attachment K</b>
<b>Application Qualifications</b> 250.1015(b)(3)(i-ii). 250.1011(a)(1)	<p>Please refer to your New Orleans Miscellaneous File No. 2058 for a copy of a resolution approved by the Board of Directors authorizing the undersigned to sign for and on behalf of LLOG Exploration Offshore, L.L.C.</p> <p>LLOG Exploration Offshore, L.L.C., has an approved \$300,000 Right-of-Way Grant Bond on file with BOEMRE, covering installation of right-of-way pipelines in Federal Waters, Gulf of Mexico.</p> <p><b>Regional Oil Spill Response Plan</b>            All the proposed activities and facilities in the Exploration Plan/Development Operations Coordination Document will be covered by the last approved Oil Spill Response Plan (OSRP) submitted on 06/28/2008 and last approved modification to that Plan dated 01/06/2010. LLOG (MMS Operator No. 02058) submitted the Biennial Oil Spill Response Plan on 06/30/2010 (currently pending approval) with the last modification to that Plan filed on 03/16/2011 (currently pending approval). The last OSRP Certification was accepted by BOEMRE on 03/25/2011.</p> <p><b>See Attachment L</b>            WCD Calculations</p>
<b>Lease and Pipeline Crossing Notification</b> 250.1015(e)	<b>See Attachment M</b> Designated Operators and State Agencies Notifications
<b>Nondiscrimination in Employment</b> 250.1015(d)	<b>See Attachment N</b> Nondiscrimination in Employment Stipulation

**LLDG**  
exploration  
**Mississippi Canyon 199**  
**ROW Pipeline Information**

5. **GRANTING PIPELINE ROW**

<b>Data Requirement</b>	<b>Required Data</b>
Adjoin/Cross State Submerged Lands 250.1016(b)	Does not adjoin or subsequently cross state submerged lands.

Attachment A

Proposed West Oil Pipeline

**Online Payment**

**Step 3: Confirm Payment**

1 | 2 | 3

**Thank you.**  
**Your transaction has been successfully completed.**

**Pay.gov Tracking Information**

**Application Name:** MMS Pipeline ROW Grant Application - CI/RG/BZ/CM

**Pay.gov Tracking ID:** 253EUVPI

**Agency Tracking ID:** 74204544819

**Transaction Date and Time:** 05/25/2011 16:16 EDT

**Payment Summary**

**Account Holder** LLOG Exploration Company,  
**Name:** L.L.C.

**Payment Amount:** \$2,614.00

**Account Type:** Business Checking

**Routing Number:** 065000171

**Account Number:** \*\*\*\*\*3955

**Check Number:** 3612

**Payment Date:** 05/26/2011

**Region:** Gulf of Mexico

**Contact:** Carol Eaton 985-801-4300

LLOG Exploration Offshore,

**Company/Co No:** L.L.C. 02058

**Originating Area/Block:** Mississippi Canyon MC, 199

**Terminating Area/Block:** Mississippi Canyon MC, 243

**Pipeline Length/Rental Years:** 2.22/ 1

Attachment G

CZM Certification



**COASTAL ZONE MANAGEMENT PROGRAM  
CONSISTENCY CERTIFICATION**

**FROM**

Mississippi Canyon Block 199 PLET (OCS-G-32301)

**TO**

Mississippi Canyon Block 243 "A" Platform (OCS-G-19931)

2.2 miles Total Length

The proposed activities described in detail in this right-of-way pipeline application comply with the enforceable policies of Louisiana approved Coastal Management Program and will be conducted in a manner consistent with such program.

**Right-of-way Applicant  
(Name and Address)**

LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Boulevard, Suite 200  
Covington, Louisiana 70433

**Certifying Official Signature**



Kemberlia Ducote  
Secretary

5-26-11

Date

COASTAL ZONE MANAGEMENT PROGRAM

CONSISTENCY CERTIFICATION

FROM

Mississippi Canyon Block 199 PLET (OCS-G-32301)

TO

Mississippi Canyon Block 243 "A" Platform (OCS-G-19931)

2.2 miles Total Length

The proposed activities described in detail in this right-of-way pipeline application comply with the enforceable policies of Mississippi approved Coastal Management Program(s) and will be conducted in a manner consistent with such Program(s).

**Right-of-way Applicant  
(Name and Address)**

LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Boulevard, Suite 200  
Covington, Louisiana 70433

**Certifying Official Signature**



---

Kemberlia Ducote  
Secretary

5-26-11

Date



May 26, 2011

Mr. Gregory DuCote  
Coastal Resources Program Manager  
Coastal Management Division  
Department of Natural Resources  
P.O. Box 44487  
Baton Rouge, Louisiana 70804-4487

**RE: Application for Installation of One (1) 5.563" Right-of-Way Bulk Oil Pipeline,**  
one (1) 4.0" O.D. Subsea Control Umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper, and  
one (1) 4.5" Well Flowline Jumper, from LLOG's Mississippi Canyon Block 199 Subsea  
Manifold, OCS-G 32301 to W&T Energy VI, LLC's Platform "A", Mississippi Canyon Block  
243, OCS-G-19931 Gulf of Mexico, Offshore, Louisiana

Gentlemen:

In accordance with BOEMRE requirements (NTL No. 2007-G20) for a Right-of-Way pipeline that is adjacent to the State of Louisiana, we are enclosing (1) a complete copy of the pipeline application, (2) a consistency certification, and (3) all necessary data and information concerning the installation of the subject pipeline, and (4) a check in the amount of \$300.00 to cover the application fee.

In order to expedite the permit process, if the enclosed information is determined to be complete and the consistency review can begin, please indicate your consent by signing this letter in the space provided below and returning a signed copy to the attention of Bruce Cooley, LLOG Exploration Offshore, L.L.C., 1001 Ochsner Boulevard, Suite 200, Covington, Louisiana 70433.

Your cooperation in this matter is greatly appreciated.

Very truly yours,  
LLOG EXPLORATION OFFSHORE, L.L.C.

Bruce Cooley  
Vice President Facilities Engineering  
Attachments

NOTIFICATION OF INFORMATION COMPLETENESS AND THAT REVIEW CAN COMMENCE.

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2011

By: \_\_\_\_\_

Title: \_\_\_\_\_



March 26, 2011

Mr. Mike Walker  
Mississippi Coastal Program  
Coastal Management Division  
Department of Marine Resources  
1141 Bayview Avenue,  
Biloxi, MS 39530

RE: **Application for Installation of One (1) 5.563" Right-of-Way Bulk Oil Pipeline,**  
one (1) 4.0" O.D. Subsea Control Umbilical, one (1) 5.563" O.D. Manifold Flowline Jumper, and  
one (1) 4.5" Well Flowline Jumper, from LLOG's Mississippi Canyon Block 199 Subsea  
Manifold, OCS-G 32301 to W&T Energy VI, LLC's Platform "A", Mississippi Canyon Block  
243, OCS-G-19931 Gulf of Mexico, Offshore, Louisiana

Gentlemen:

In accordance with MMS requirements (NTL No. 2007-G20) for a Right-of-Way pipeline that is adjacent to the State of Mississippi, we are enclosing (1) a complete copy of the pipeline application, (2) a consistency certification, and (3) all necessary data and information concerning the installation of the subject pipeline.

In order to expedite the permit process, if the enclosed information is determined to be complete and the consistency review can begin, please indicate your consent by signing this letter in the space provided below and returning a signed copy to the attention of Bruce Cooley, LLOG Exploration Offshore, L.L.C., 1001 Ochsner Boulevard, Suite 200, Covington, Louisiana 70433.

Your cooperation in this matter is greatly appreciated.

Very truly yours,  
LLOG EXPLORATION OFFSHORE, L.L.C.

Bruce Cooley  
Vice President Facilities Engineering  
Attachments

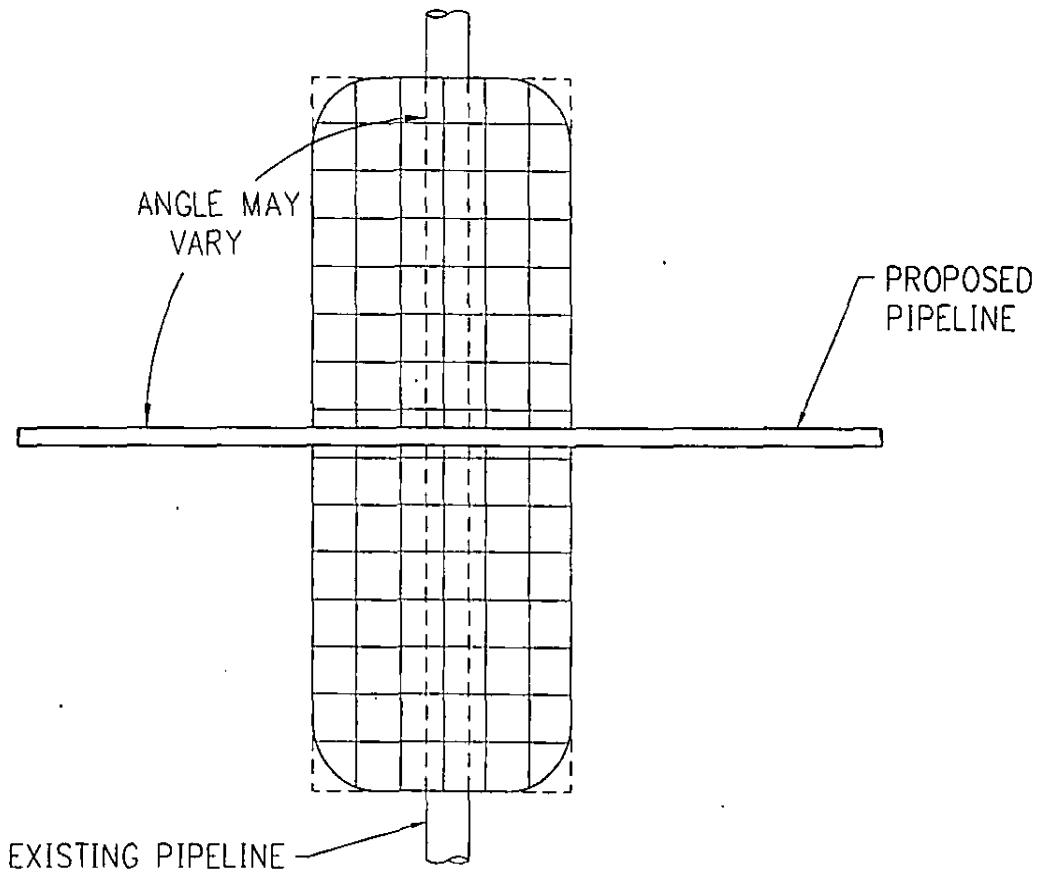
NOTIFICATION OF INFORMATION COMPLETENESS AND THAT REVIEW CAN COMMENCE.

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2011

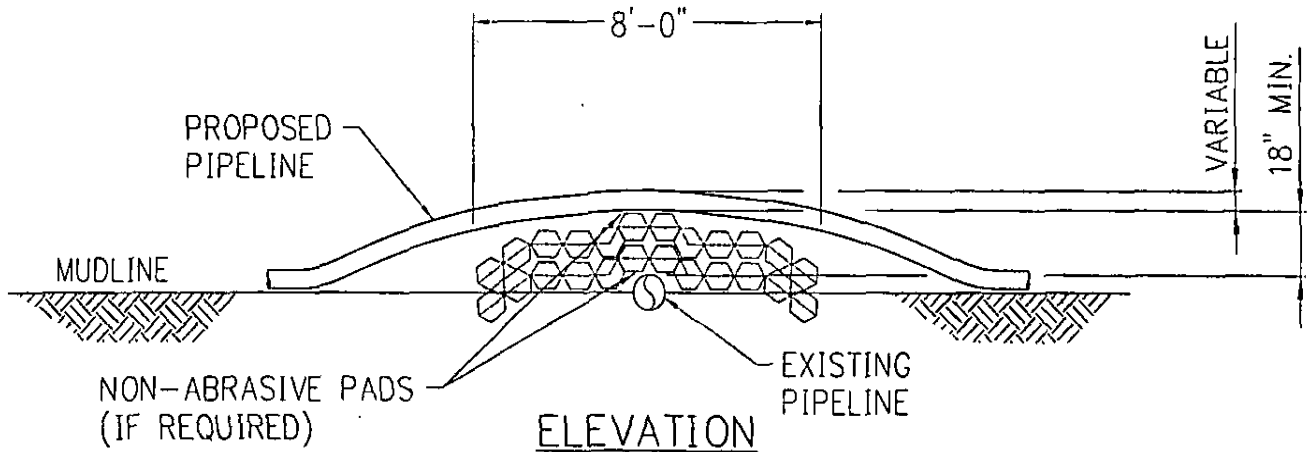
By: \_\_\_\_\_

Title: \_\_\_\_\_

Attachment H  
Pipeline Crossing Detail



PLAN



ELEVATION

NOTES:

1. MAT DIMENSIONS: 20'-0" X 8'-0" X 9"
2. CONCRETE MAT IS COMPRISED OF BLOCKED ELEMENTS MOLDED ONTO UV. STABILIZED ROPE.
3. TYPICAL PIPELINE CROSSING REQUIRES A MINIMUM OF (2) MATS.

TYPICAL PIPELINE CROSSING--OVER 500' WATER DEPTH.  
GULF OF MEXICO

Attachment I

Archaeological Engineering Hazard Survey

See Binder

Attachment J

Digital Data

See CDs



Attachment K

Payment Confirmation

SN 18309 BH



**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

June 28, 2011

Bruce Cooley, V.P.  
Facilities Engineering  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Blvd., Suite 200  
Covington, LA 70433

Subject: LLOG Exploration Offshore, L.L.C.  
Proposed Bulk Oil Pipeline ROW  
Mississippi Canyon Area, from Block 199 to 143  
Offshore Louisiana and Mississippi  
DMR #110430

Dear Mr. Cooley:

The State of Mississippi has completed the review of subject by your May 26, 2011 letter, under the Coastal Zone Management Act of 1972. The Department of Marine Resources, as the lead coastal program agency for the State of Mississippi pursuant to 16 U.S.C. Section 1456(c) and Section 57-15-5 of the Mississippi Code of 1972, concurs with LLOG's consistency certification for this project.

If you have any questions about this matter, please do not hesitate to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "William W. Walker".

William W. Walker, Ph.D.  
Executive Director

WWW/mfw

cc: Michael Saucier, BOEMRE ✓  
Bonnie La Borde Johnson, BOEMRE

Minerals Management Service  
**RECEIVED**

JUL 08 2011

Office of Field Operations  
Pipeline Section

SN=18309



ROW East Pipeline  
P/L SN 18309

**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

July 6, 2011

Bruce Cooley, V.P.  
Facilities Engineering  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Blvd., Suite 200  
Covington, LA 70433

Subject: LLOG Exploration Offshore, L.L.C.  
Proposed Bulk Oil Pipeline ROW for a manifold jumper and a well jumper  
Mississippi Canyon Area, from Block 199 to 243  
Offshore Louisiana and Mississippi  
DMR #110430

Dear Mr. Cooley:

The State of Mississippi has determined the the consistency certification letter of June 28, 2011 for the above referenced project contained a typographical error. The lease blocks should have been described as "Block 199 to 243" instead of "Block 199 to 143". Please note this correction.

Sincerely,

A handwritten signature in black ink, appearing to read "William W. Walker".

William W. Walker, Ph.D.  
Executive Director

WWW/mfw

cc: Michael Saucier, BOEMRE  
Bonnie La Borde Johnson, BOEMRE

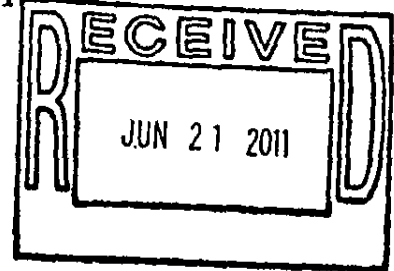
BOBBY JINDAL  
GOVERNOR



SCOTT A. ANGELLE  
SECRETARY

State of Louisiana  
DEPARTMENT OF NATURAL RESOURCES  
OFFICE OF COASTAL MANAGEMENT

June 17, 2011



Bruce Cooley  
LLOG Exploration Offshore, L.L.C.  
1001 Ochsner Boulevard, Suite 200  
Covington, LA 70433

RE: C20110245, Coastal Zone Consistency  
LLOG Exploration Offshore, L.L.C.  
Bureau of Ocean Energy Management, Regulation, and Enforcement  
Federal License or Permit  
Install 5.563 inch Bulk Oil Right-of-Way Pipeline (East Bulk Oil Pipeline) from  
Mississippi Canyon 199 to Mississippi Canyon 243, Offshore, Louisiana

Dear Mr. Cooley:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resources Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP.

If you have any questions concerning this determination please contact Carol Crapanzano of the Consistency Section at (225) 342-9425 or [Carol.Crapanzano@la.gov](mailto:Carol.Crapanzano@la.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory J. DuCote".

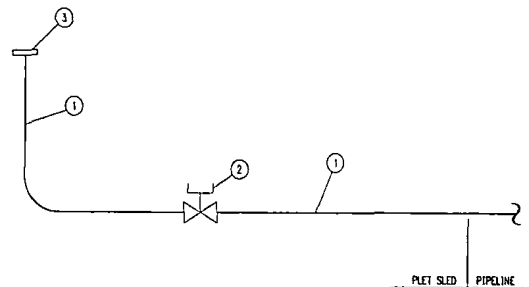
Gregory J. DuCote  
Administrator  
Interagency Affairs/Field Services Division

GJD/JDH/cmc

cc: BOEMRE ATTENTION PIPELINE APPROVALS  
Bonnie Johnson, BOEMRE 5412



MATERIAL SUMMARY		
ITEM	QTY.	DESCRIPTION
1	-	PIPE, 5.5634 0.438 WT., API 5L GR X65, SMLS, COATED WITH 12-14 MILS D.F.T. FUSION BONDED EPOXY, WITH 2' GSPU
2	ONE	VALVE, 4 1/2" GATE, API 5000, MANUAL OPERATOR WITH ROV INTERFACE, 1/2" x 1/2" B1W 0.438 WT. GR X65 PIPE, RATED FOR SUBSEA SERVICE
3	ONE	REMOTE ARTICULATED CONNECTOR, 4 1/2" API 10000, WALE CONNECTOR ASSEMBLY, OIL STATES



Job No. 2022800 05/20/11 11:26 P:\PinnacleEnergy\STRUCT\202280\2022800501.dwg

**NOTES**  
 1. HYDROTEST:  
 THE PLET ASSEMBLY SHALL BE HYDROTESTED TO A MINIMUM OF 4632 PSI AND HELD FOR A PERIOD OF 8 HOURS. THE PRESSURE SHALL HOLD OR RISE OVER THE LAST TWO HOURS.

THIS DRAWING IS THE PROPERTY OF AND EMBODIES CONFIDENTIAL INFORMATION OF PINNACLE ENGINEERING, INC. & LLOG EXPLORATION OFFSHORE, INC. THIS DRAWING AND THE INFORMATION THEREON SHALL NOT BE REPRODUCED OR DISCLOSED TO ANY OTHER PARTY OR USED FOR ANY OTHER PURPOSE OTHER THAN FOR THE BENEFIT OF AND AS AUTHORIZED BY PINNACLE ENGINEERING, INC. OR LLOG EXPLORATION OFFSHORE, INC.

NO.	DATE	REVISION	BY	APPR.
A		ISSUED FOR PERMIT		

**PINNACLE ENGINEERING**  
 TX REGISTERED ENGR FIRM F-567

APPROVAL	
Drawn By	J. GUEVARA
Date	5-10-11
Checked By	
Date	
Designed By	
Date	
Approved By	
Date	

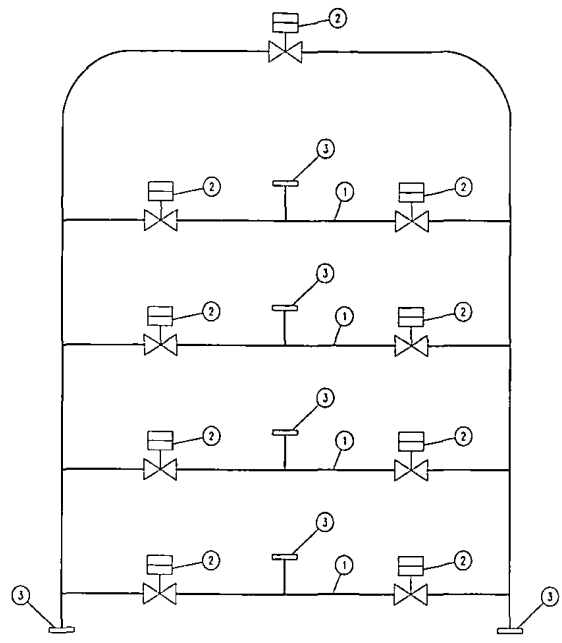
**LLOG**  
 exploration

MANDY SUBSEA DEVELOPMENT  
 MC 199 TO MC 243 "A"

5" PLET PIPING SCHEMATIC

JOB NO. 2022800 | SCALE: NOTED | DWG. NO. 903 | REV. A

MATERIAL SUMMARY		
ITEM	QTY.	DESCRIPTION
1	-	PIPE, 5.563M O.438 WT., API 5L GR X65, SMLS, COATED WITH 12-14 MILS D.F.T, FUSION BONDED EPOXY, WITH 2" CSRU
2	9	VALVE, 4 1/2", GATE, API 5000, MANUAL OPERATOR WITH ROV INTERFACE, ME x ME, BTM O.438 WT. GR X65 PIPE, RATED FOR SUBSEA SERVICE.
3	6	REMOTE ARTICULATED CONNECTOR, 4 1/2", API 10000, MALE CONNECTOR ASSEMBLY, OIL STATES



05/20/11 13:58 P:\PINNACLE\ROOT\STRUCT\202800\20280004.DWG  
 Jesus Quares

**NOTES**  
 1. HYDROTEST:  
 THE MANIFOLD ASSEMBLY SHALL BE HYDROTESTED TO A MINIMUM OF 4632 PSI AND HELD FOR A PERIOD OF 8 HOURS. THE PRESSURE SHALL HOLD OR RISE OVER THE LAST TWO HOURS.

THIS DRAWING IS THE PROPERTY OF AND EMBODIES CONFIDENTIAL INFORMATION OF PINNACLE ENGINEERING, INC. & LLOG EXPLORATION OFFSHORE, INC. THIS DRAWING AND THE INFORMATION THEREON SHALL NOT BE REPRODUCED OR DISCLOSED TO ANY OTHER PARTY OR USED FOR ANY OTHER PURPOSE OTHER THAN FOR THE BENEFIT OF AND AS AUTHORIZED BY PINNACLE ENGINEERING, INC. OR LLOG EXPLORATION OFFSHORE, INC.

NO.	GATE	REVISION	BY	APPR
A		ISSUED FOR PERMIT		

**PINNACLE**  
 ENGINEERING  
 TX REGISTERED ENGR FIRM F-567

APPROVAL	
Drawn By	J. QUAYAN
Date	5-19-11
Checked By	
Date	
Stamped By	
Date	
Approved By	
Date	

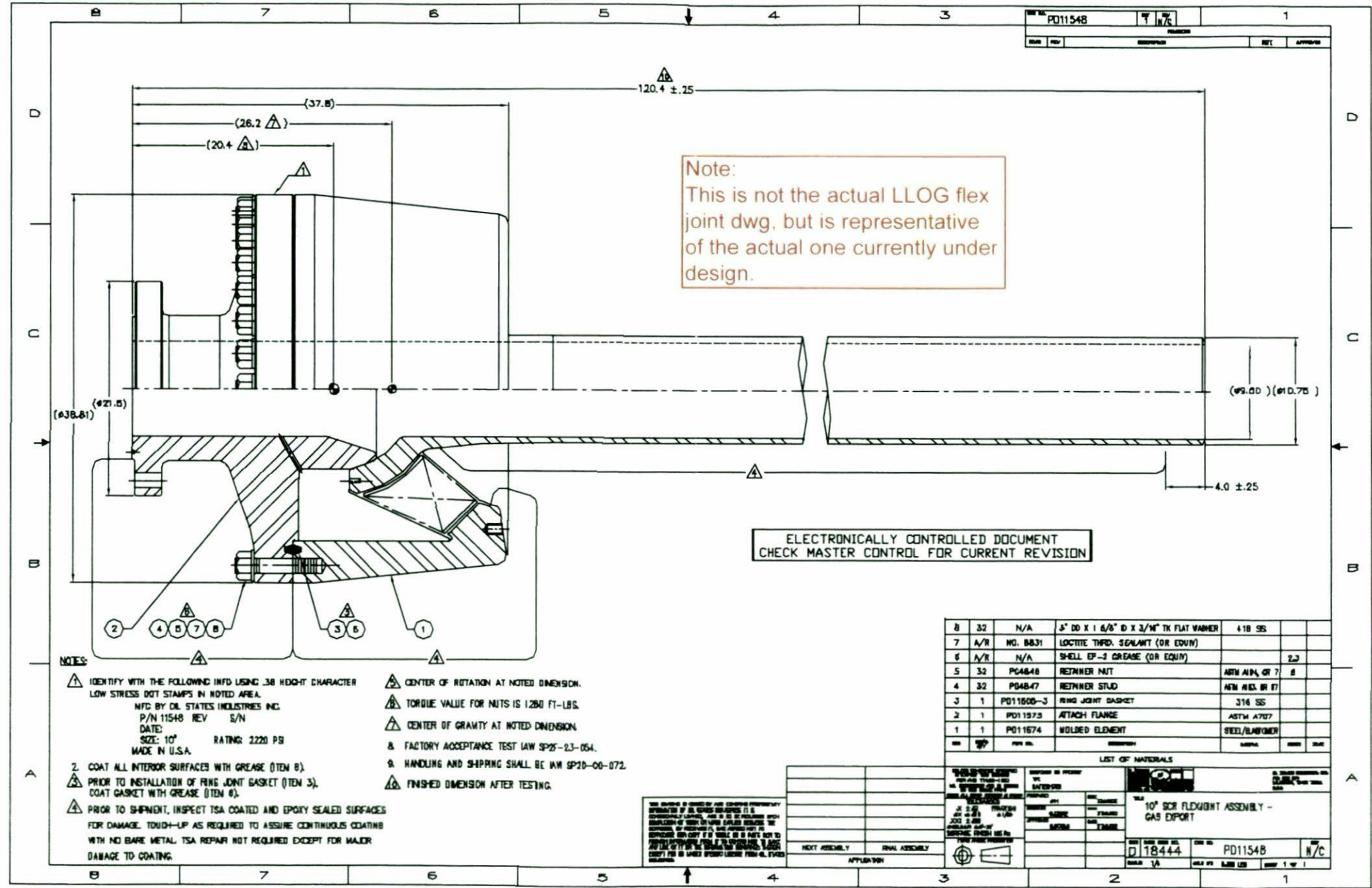
**LLOG**  
 exploration

MANDY SUBSEA DEVELOPMENT

MC 199 TO MC 243 "A"

MANIFOLD SCHEMATIC

JOB NO. 202800 | SCALE: NOTED | DWG. NO. 904 | REV. A



Note:  
This is not the actual LLOG flex joint dwg, but is representative of the actual one currently under design.

ELECTRONICALLY CONTROLLED DOCUMENT  
CHECK MASTER CONTROL FOR CURRENT REVISION

- NOTES:**
- 1. IDENTIFY WITH THE FOLLOWING INFO USING .38 HEIGHT CHARACTER LOW STRESS DOT STAMPS IN NOTED AREA.  
MFG BY OIL STATES INDUSTRIES INC.  
P/N 11548 REV 5/N  
DATE:  
SIZE: 10" RATING: 2220 PS  
MADE IN U.S.A.
  - 2. COAT ALL INTERIOR SURFACES WITH GREASE (ITEM 8).  
PRIOR TO INSTALLATION OF RING JOINT GASKET (ITEM 3), COAT GASKET WITH GREASE (ITEM 8).
  - 3. PRIOR TO SHIPMENT, INSPECT TSA COATED AND EPOXY SEALED SURFACES FOR DAMAGE. TOUCH-UP AS REQUIRED TO ASSURE CONTINUOUS COATING WITH NO BARE METAL. TSA REPAIR NOT REQUIRED EXCEPT FOR MAJOR DAMAGE TO COATING.
  - 4. CENTER OF ROTATION AT NOTED DIMENSION.
  - 5. TORQUE VALUE FOR NUTS IS 1280 FT.-LBS.
  - 6. CENTER OF GRAVITY AT NOTED DIMENSION.
  - 7. FACTORY ACCEPTANCE TEST LAW SP25-23-054.
  - 8. HANDLING AND SHIPPING SHALL BE IAW SP20-00-072.
  - 9. FINISHED DIMENSION AFTER TESTING.

QTY	DESCRIPTION	UNIT	REMARKS
8	32	N/A	3" DD X 1 6/8" D X 3/4" TH FLAT WANNER 418 SS
7	A/R	NO. 8831	LOCTITE THRD. SEALANT (OR EQUIV)
6	A/R	N/A	SHELL EP-3 GREASE (OR EQUIV)
5	32	PC4848	RETAINER NUT ASTM A193, GR 7 B
4	32	PD4847	RETAINER STUD ASTM A193, GR 7 B
3	1	PD11500-3	RING JOINT GASKET 316 SS
2	1	PD11573	ATTACH FLANGE ASTM A707
1	1	PD11574	WELDED ELEMENT STEEL/CLADMETAL

LIST OF MATERIALS

QTY	DESCRIPTION	UNIT	REMARKS
8	32	N/A	3" DD X 1 6/8" D X 3/4" TH FLAT WANNER 418 SS
7	A/R	NO. 8831	LOCTITE THRD. SEALANT (OR EQUIV)
6	A/R	N/A	SHELL EP-3 GREASE (OR EQUIV)
5	32	PC4848	RETAINER NUT ASTM A193, GR 7 B
4	32	PD4847	RETAINER STUD ASTM A193, GR 7 B
3	1	PD11500-3	RING JOINT GASKET 316 SS
2	1	PD11573	ATTACH FLANGE ASTM A707
1	1	PD11574	WELDED ELEMENT STEEL/CLADMETAL

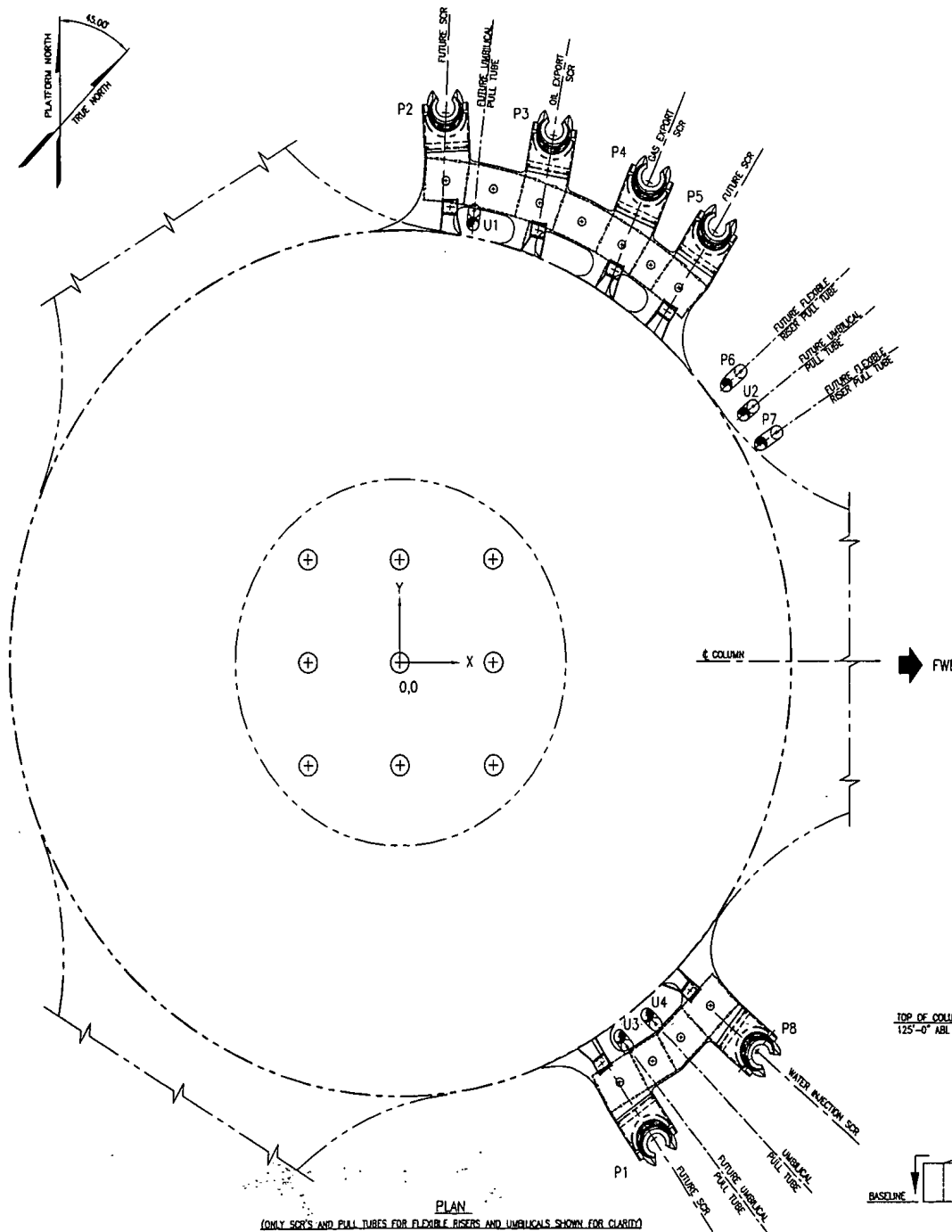
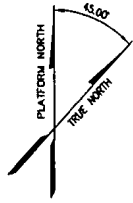
10" SCR FLEXJOINT ASSEMBLY - GAS EXPORT

DATE: 11/18/44

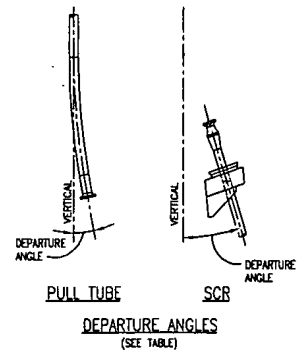
SCALE: 1/8" = 1"

APP'D: [Signature]





PLAN  
(ONLY SCR'S AND PULL TUBES FOR FLEXIBLE RISERS AND UMBILICALS SHOWN FOR CLARITY)



PULL TUBE  
SCR  
DEPARTURE ANGLES  
(SEE TABLE)

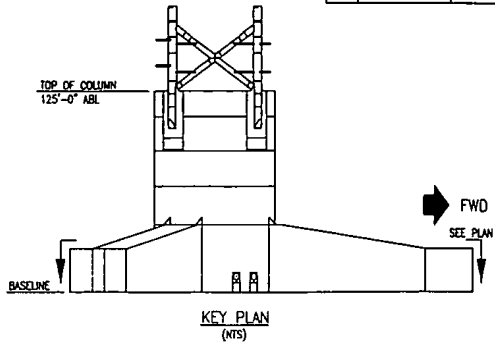
**REVISED  
APPROVED FOR  
CONSTRUCTION  
SEPT 26, 2002**

REVISIONS				
NO	BY	DESCRIPTION	DATE	CHK APVD
A	JIS	ISSUED FOR INFORMATION ONLY	26 OCT 01	
B	JIS	ISSUED FOR INFORMATION ONLY	10 JAN 02	
C	JIS	ISSUED FOR INFORMATION ONLY	24 JAN 02	
D	JIS	ISSUED FOR INFORMATION ONLY	20 MAR 02	
D	JIS	APPROVED FOR CONSTRUCTION	27 JUN 02	WVG ACK
1	BTP	1. REVISED DEPARTURE ANGLE ON P5 2. REVISED WALL THICKNESS CALL OUT TO REFLECT REFERENCE DRAWING NO. 1	07 AUG 02	WVG WVG
2	BTP	REVISED WALL THICKNESS CALL OUTS.	26 SEP 02	WVG ACK

REFERENCE DRAWINGS		
NO.	DWG NO.	DRAWING TITLE
1	21079-DG-0011	HULL/TOPSIDES INTERFACE PIPING MATRIX

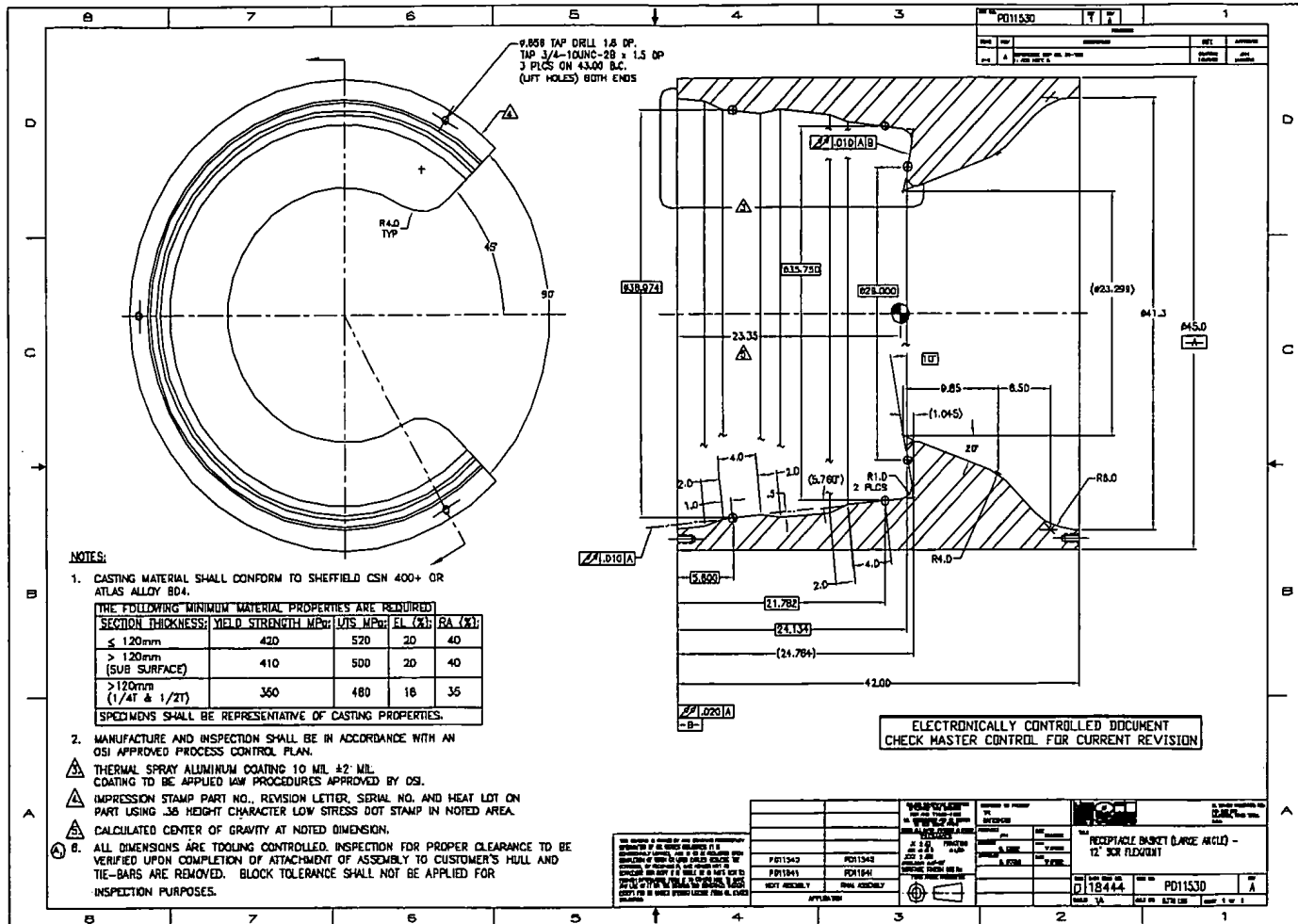
- DRAWING NOTES**
- PULLTUBE "X,Y,Z" COORDINATES ARE TO THE BOTTOM FLANGE FACE.
  - SCR "X,Y,Z" COORDINATES ARE TO THE CENTER OF ROTATION OF THE FLEX JOINT.
  - "DIRECTIONAL BEARING" IS RELATIVE TO TRUE NORTH.
  - ALL FLEXIBLE RISER PULL TUBES HAVE 80' BEND RADIUS. ALL UMBILICAL PULL TUBES HAVE 50' BEND RADIUS.
  - ALL PULL TUBE FLANGES ARE 16" 800# RFWN ANS B. 105. FLANGE BORE TO MATCH PULL TUBE WALL THICKNESS.
  - 12" DIA CLAMPS TO BE PROVIDED ON HULL FOR P1, P2 AND P5.

FLEXIBLE RISER, SCR & UMBILICAL SYSTEM ARRANGEMENT									
SLUT	DESCRIPTION	PULL TUBE OR PIPE OD	WALL THICKNESS (WT)	COORDINATES			DEPARTURE ANGLE	DIRECTIONAL BEARING	
				X	Y	Z			
P1	FUTURE SCR	6"	-	27'-2 3/8"	-46'-1 3/4"	12'-1 3/8"	15 deg.	S 80.00° E	
P2	FUTURE SCR	8"	-	5'-0 1/4"	53'-3 3/16"	12'-1 3/8"	15 deg.	N 42.50° W	
P3	OIL EXPORT SCR	8"	0.5	16'-7"	51'-1 7/8"	12'-1 3/8"	18 deg.	N 34.50° W	
P4	GAS EXPORT SCR	10"	0.584	26'-10 1/4"	46'-6 5/8"	12'-1 3/8"	15 deg.	N 21.50° W	
P5	FUTURE SCR	6"	-	33'-8"	41'-6 15/16"	12'-1 3/8"	18 deg.	N 11.50° W	1
P6	FUTURE FLEXIBLE RISER PULL TUBE	16"	0.656	36'-7 1/8"	28'-1 7/8"	3'-6"	11 deg.	N 4.50° E	
P7	FUTURE FLEXIBLE RISER PULL TUBE	16"	0.656	40'-5 13/16"	22'-2 3/8"	3'-6"	11 deg.	N 12.50° E	
P8	WATER INJECTION SCR	6"	0.432	36'-3 1/2"	-37'-8 7/8"	12'-1 3/8"	15 deg.	N 84.00° E	
U1	FUTURE UMBILICAL PULL TUBE	16"	0.656	8'-0 1/2"	43'-10 9/16"	3'-6"	10 deg.	N 38.50° W	
U2	FUTURE UMBILICAL PULL TUBE	16"	0.656	37'-11 3/16"	24'-8 11/16"	3'-6"	10 deg.	N 8.50° E	
U3	FUTURE UMBILICAL PULL TUBE	16"	0.656	24'-5 1/8"	-37'-3 7/8"	3'-6"	10 deg.	S 85.00° E	
U4	UMBILICAL PULL TUBE	16"	0.656	27'-5 3/8"	-35'-1 7/8"	3'-6"	10 deg.	N 89.00° E	



KEY PLAN  
(N/S)

<b>PATENTED</b> <small>THE DESIGN - U.S. PATENT NO. 5,117,814, 5,877,842, 6,433,373, 5,944,184 AND 5,886,540. THE NEW OR PRIOR DISCLOSED IN THIS DOCUMENT ARE PROPRIETARY AND STRICTLY PROTECTED UNDER THE UNITED STATES PATENT LAWS, FOREIGN AND OTHER U.S. PATENT PENDING.</small>		<b>PROPRIETARY</b> <small>THIS DOCUMENT AND THE INFORMATION INCLUDED HEREIN ARE THE PROPERTY OF ATLANTIA OFFSHORE LIMITED A WHOLLY OWNED U.S. COMPANY AND ARE NOT TO BE REPRODUCED OR USED TO FURNISH ANY INFORMATION FOR ANY OTHER PROJECTS OR APPROVED CREDIT INSTRUMENTS WITHOUT THE WRITTEN AGREEMENT OF ATLANTIA OFFSHORE LIMITED.</small>	
		<b>TotalFinaElf E&amp;P USA, Inc.</b> MATTERHORN MISSISSIPPI CANYON 243	
SCALE: 3/16" = 1'-0" DATE: OCT 15 01 DESIGNED BY: JIS DFTD CHK BY: DCH 27 JUN 02 ENGRG CHK BY: WVG 27 JUN 02 QA CHK BY: TK 27 JUN 02		SEASTAR® TENSION LEG PLATFORM SCR & PULL TUBE ARRANGEMENT AT DEPARTURE ELEVATION	
APPROVED BY: ACK 27 JUN 02 PROJECT NO: 21079		DRAWING NO. 21079-DG-0012 CLIENT DRAWING NO. SHEET: 1 OF 1 REV: 2	



0.858 TAP DRILL 1.5 DP.  
TAP 3/4-10UNC-28 x 1.5 DP  
3 PLS ON 43.00 B.C.  
(LIFT HOLES) BOTH ENDS

- NOTES:**
- CASTING MATERIAL SHALL CONFORM TO SHEFFIELD CSN 400+ OR ATLAS ALLOY BD4.

THE FOLLOWING MINIMUM MATERIAL PROPERTIES ARE REQUIRED

SECTION THICKNESS:	YIELD STRENGTH MPa:	TENS MPa:	EL. (%)	RA (%)
≤ 120mm	420	520	20	40
> 120mm (SUB SURFACE)	410	500	20	40
> 120mm (1/4T & 1/2T)	360	480	18	35

SPECIMENS SHALL BE REPRESENTATIVE OF CASTING PROPERTIES.

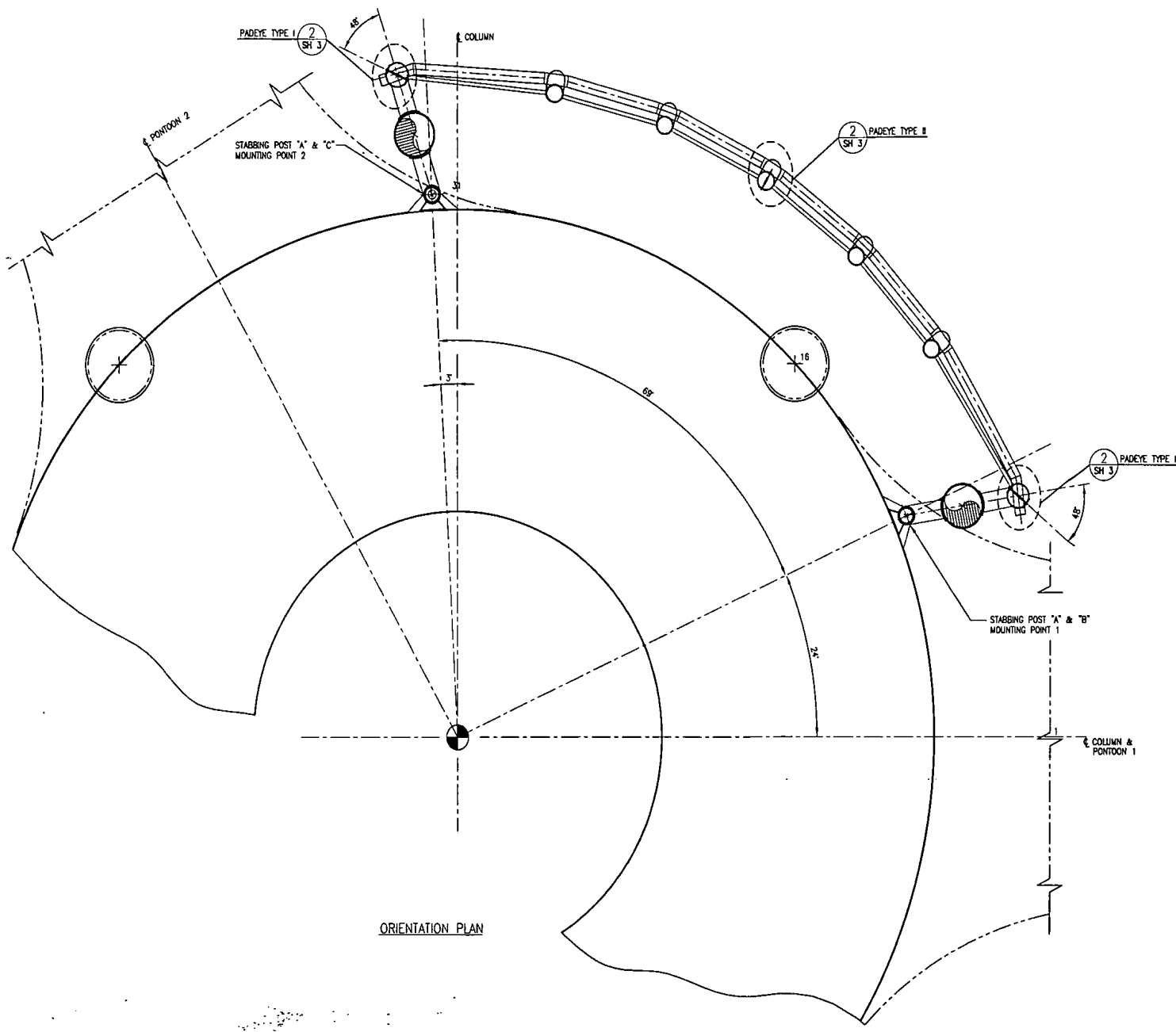
- MANUFACTURE AND INSPECTION SHALL BE IN ACCORDANCE WITH AN OSI APPROVED PROCESS CONTROL PLAN.

- ▲ THERMAL SPRAY ALUMINUM COATING 10 MIL ±2 MIL. COATING TO BE APPLIED IN PROCEDURES APPROVED BY OSI.
- ▲ IMPRESSION STAMP PART NO., REVISION LETTER, SERIAL NO. AND HEAT LOT ON PART USING .36 HEIGHT CHARACTER LOW STRESS DOT STAMP IN NOTED AREA.
- ▲ CALCULATED CENTER OF GRAVITY AT NOTED DIMENSION.
- Ⓜ B. ALL DIMENSIONS ARE TOOLING CONTROLLED. INSPECTION FOR PROPER CLEARANCE TO BE VERIFIED UPON COMPLETION OF ATTACHMENT OF ASSEMBLY TO CUSTOMER'S HULL AND TIE-BARS ARE REMOVED. BLOCK TOLERANCE SHALL NOT BE APPLIED FOR INSPECTION PURPOSES.

ELECTRONICALLY CONTROLLED DOCUMENT  
CHECK MASTER CONTROL FOR CURRENT REVISION

THIS DRAWING IS A COPY OF THE ORIGINAL DRAWING. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE ORIGINAL DRAWING AUTHORITY.		DRAWN BY: [ ] CHECKED BY: [ ] DATE: [ ]
P011543 NEXT ASSEMBLY: [ ]	P011543 FINAL ASSEMBLY: [ ]	PART NAME: RECEPTACLE BASKET (LARGE ARC) - 12" X 6" FLOUGHIT PART NO.: P011530 REV: A DATE: 18444

REVISIONS					
NO	BY	DESCRIPTION	DATE	CHK	APVD
0	SM	APPROVED FOR CONSTRUCTION	10 MAY 02	GM	ACK

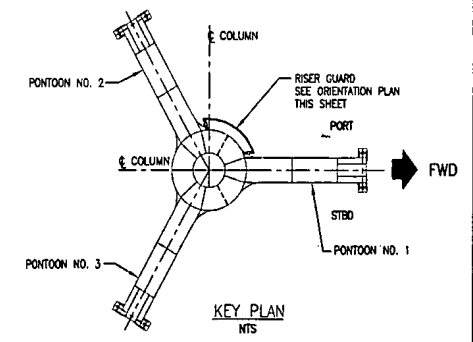


ORIENTATION PLAN

REFERENCE DRAWINGS		
NO.	DWG. NO.	DRAWING TITLE
0	21079-DG-1001	HULL GENERAL NOTES
1	21079-DG-1005	PRINCIPAL DIMENSIONS
2	21079-DG-1010	MOLDED LINES
3	21079-DG-1050	COLUMN STRUCTURE
4	21079-DG-1070	STANDARD STRUCTURAL DETAILS
5	21079-DG-1080	GRINDING LOCATIONS AND DETAILS

- DRAWING NOTES**
- 1). ALL PLATE MATERIAL TO BE ABS GRADE AH36, TUBULAR STEEL TO BE API 5LX52, UNLESS NOTED OTHERWISE.
  - 2). ALL WELDING TO BE IN ACCORDANCE WITH ABS RULES FOR WELDING AND AWS D1.1, LATEST EDITION.
  - 3). FREE EDGES OF PLATE MUST MEET AWS OXYGEN CUTTING SURFACES ROUGHNESS GAUGE CA-1-G, SAMPLE 4.
  - 4). ALL DIMENSIONS GIVEN ARE SUBORDINATE TO PRINCIPAL DIMENSIONS AS GIVEN IN REF. NO. 1. REPEATED DIMENSIONS GIVEN HERE ARE FOR INFORMATION ONLY. WHERE ANY CONTRADICTION ARISES, REF. NO. 1 SHALL BE CONSIDERED AUTHORITY.
  - 5). FABRICATOR SHALL OBSERVE MOLDED DIMENSIONS. REFERENCE NO. 2 SHALL BE REGARDED AS AUTHORITY IN DETERMINING ALL MOLDED SURFACES TRUING. ADDITIONAL DIMENSIONS GIVEN HERE SHALL BE REGARDED AS MOLDED UNLESS NOTED OTHERWISE.

**APPROVED FOR  
CONSTRUCTION**  
MAY 10, 2002

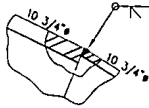


KEY PLAN  
NTS

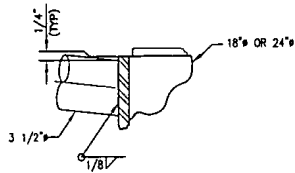
<p><b>PATENTED</b></p> <p>THE SEASTAR - U.S. PATENT NO. 5,117,811, 5,297,822, 5,432,273, 5,481,184 AND 5,866,350, THE IDEA OF IDEAS DISCLOSED IN THIS DOCUMENT ARE PROPRIETARY AND STRICTLY PROTECTED UNDER THE UNITED STATES PATENT LAWS, FOREIGN AND OTHER U.S. PATENTS PENDING.</p>	<p><b>PROPRIETARY</b></p> <p>THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE THE PROPERTY OF ATLANTIA OFFSHORE LIMITED "HOLDINGS" U.S.A. AND ARE NOT TO BE REPRODUCED OR USED TO FURNISH ANY INFORMATION FOR MAKING OF COPIES OR APPARATUS EXCEPT WHERE PROVIDED BY WRITTEN AGREEMENT WITH ATLANTIA OFFSHORE LIMITED.</p>
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	<b>Atlantia Offshore Limited</b>	<b>TotalFinaElf E&amp;P USA, Inc.</b> MATTERHORN MISSISSIPPI CANYON 243
SCALE: 1/4" = 1'-0"	DATE: 22 MAR 02	<b>SEASTAR® TENSION LEG PLATFORM</b>
DESIGNED BY: SM	10 MAY 02	
DETD. CHK. BY: DCH	10 MAY 02	
ENGRD. CHK. BY: GM	10 MAY 02	
QA CHK. BY: DEL	10 MAY 02	
APPROVED BY: ACK	10 MAY 02	<b>RISER GUARD PLAN</b>
PROJECT NO. 21079	CLIENT DRAWING NO.	DRAWING NO. 21079-DG-1283
		SHT. 1 OF 4
		REV. 0

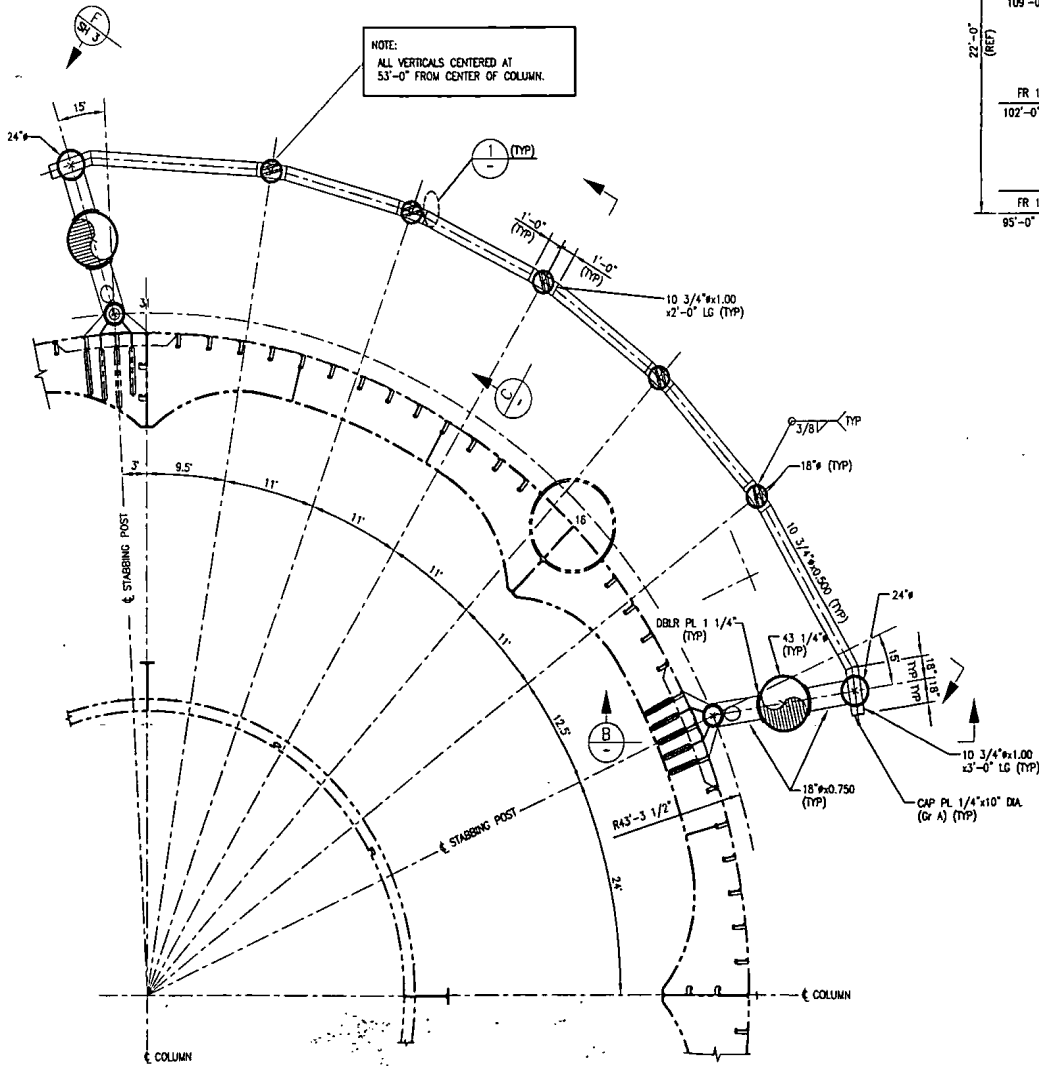
DETAIL  
SCALE: 3" = 1'-0"



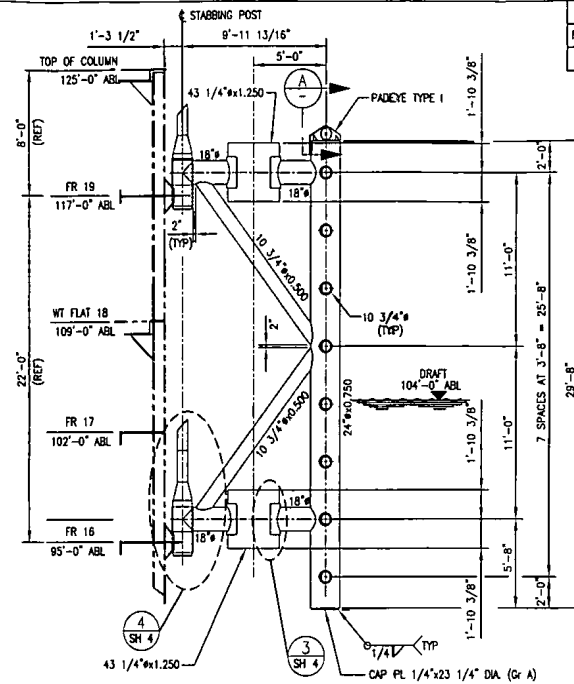
SECTION  
SCALE: 3" = 1'-0"



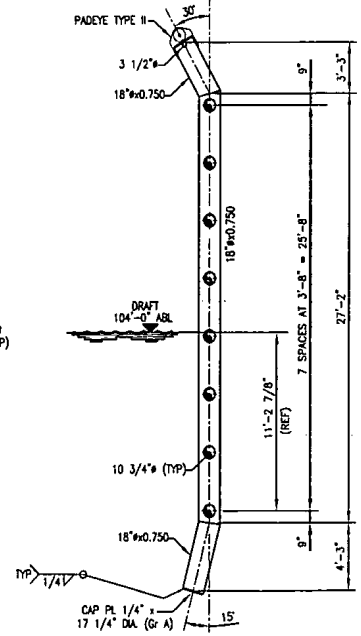
NOTE:  
ALL VERTICALS CENTERED AT  
53'-0" FROM CENTER OF COLUMN.



PLAN AT EL 117'-0" ABL  
FRAME NO. 19



SECTION  
SCALE: 1/4" = 1'-0"

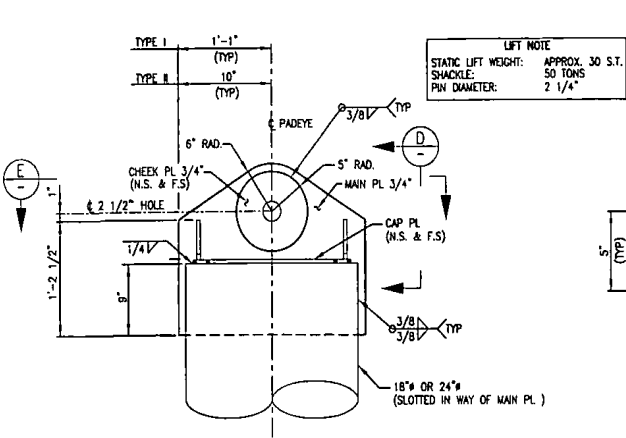


SECTION  
SCALE: 1/4" = 1'-0"

REVISIONS					
NO	BY	DESCRIPTION	DATE	CHK	APVD
0	SM	APPROVED FOR CONSTRUCTION	10 MAY 02	GM	ACK

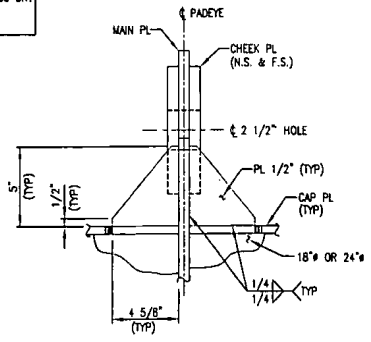
APPROVED FOR  
CONSTRUCTION  
MAY 10, 2002

PATENTED		PROPRIETARY	
<small>THE SEASTAR - U.S. PATENT NO. 5,117,814; 5,297,425; 5,442,273; 5,548,154 AND 5,944,550. THE SEAM OR STOW DISCLOSED IN THIS DOCUMENT ARE PROPRIETARY AND STRICTLY PROTECTED UNDER THE UNITED STATES PATENT LAWS. FOREIGN AND OTHER U.S. PATENTS PENDING.</small>		<small>THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE THE PROPERTY OF ATLANTIA OFFSHORE LIMITED - HOUSTON, TEXAS - U.S.A. AND ARE NOT TO BE REPRODUCED OR USED TO FURNISH ANY INFORMATION FOR WORKS OF SIMILAR OR APPROXIMATE DESIGN UNLESS PROVIDED BY WRITTEN AGREEMENT WITH ATLANTIA OFFSHORE LIMITED.</small>	
		<b>TotalFinaElf E&amp;P USA, Inc.</b> <b>MATTERHORN</b> <b>MISSISSIPPI CANYON 243</b>	
SCALE: 1/4" = 1'-0"	DATE: 22 MAR 02	SEASTAR® TENSION LEG PLATFORM	
DESIGNED BY: SM	10 MAY 02	RISER GUARD	
DWG CHK BY: DCH	10 MAY 02	PLAN, SECTIONS AND DETAILS	
ENGRG CHK BY: GML	10 MAY 02		
QA CHK BY: DBL	10 MAY 02		
APPROVED BY: ACK	10 MAY 02	DRAWING NO. 21079-DC-1283	
PROJECT NO. 21079	CLIENT DRAWING NO.	SHT. 2	REV. 0

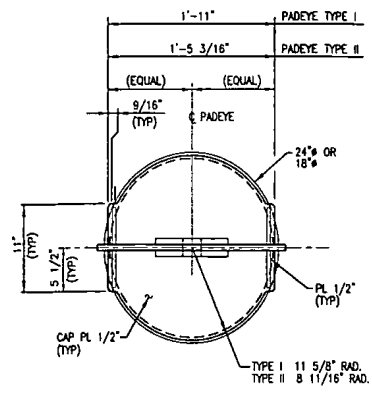


**DETAIL**  
 SCALE: 1 1/2" = 1'-0"  
 PAD EYE DETAIL - TYPE I & II AS NOTED  
 (SEE SH 1 FOR ORIENTATION)

**LIFT NOTE**  
 STATIC LIFT WEIGHT: APPROX. 30 S.T.  
 SHACKLE: 50 TONS  
 PIN DIAMETER: 2 1/4"

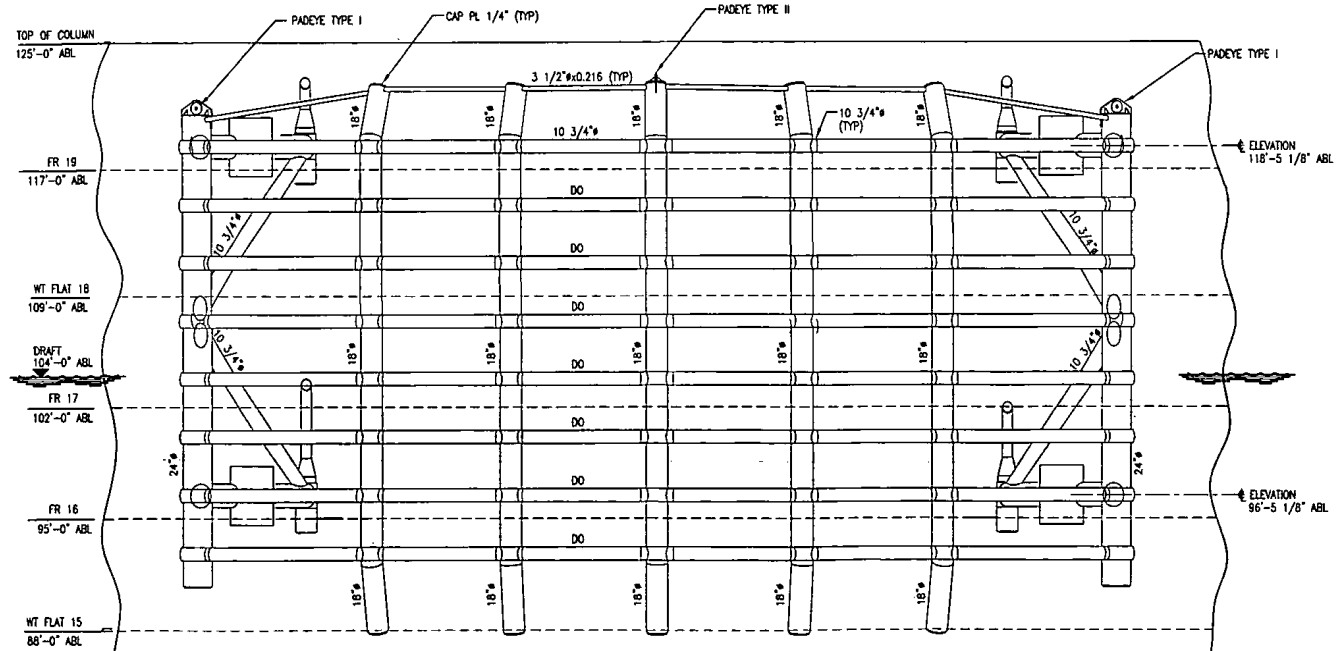


**SECTION**  
 SCALE: 3" = 1'-0"



**SECTION**  
 SCALE: 1 1/2" = 1'-0"

REVISIONS				
NO	BY	DESCRIPTION	DATE	CHK
0	SM	APPROVED FOR CONSTRUCTION	10 MAY 02	GM



**SECTION**  
 SCALE: 1/4" = 1'-0"

**APPROVED FOR CONSTRUCTION**  
 MAY 10, 2002

PATENTED		PROPRIETARY	
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	<b>Atlantia Offshore Limited</b>	<b>TotalFinaElf E&amp;P USA, Inc.</b>	
		<b>MATTERHORN MISSISSIPPI CANYON 243</b>	
SCALE: 1/4" = 1'-0"	DATE: 22 MAR 02	SEASTAR® TENSION LEG PLATFORM	
DESIGNED BY: SM	10 MAY 02	RISER GUARD SECTIONS & DETAILS	
DFTD CHK BY: DCH	10 MAY 02		
ENGRD CHK BY: GM	10 MAY 02		
QA CHK BY: DEL	10 MAY 02		
APPROVED BY: ACK	10 MAY 02	DRAWING NO. 21079-DG-1283	
PROJECT NO. 21079	CLIENT DRAWING NO.	SH 3	REV. 0

LLOG EXPLORATION OFFSHORE, L.L.C.  
 5" Jumper Design  
 Mississippi Canyon 199 Manifold  
 to Mississippi Canyon 199 5in Bulk Oil PLETs  
 Rev. 0, 5/17/11

Maximum Operating Pressure:

1. Calculations based on CFR, Title 30, Part 250, Subparts H and J.

$$P = \frac{2st}{D}$$

$$P = \frac{2s(t-ca)(F)(E)(T)}{D}$$

Where:

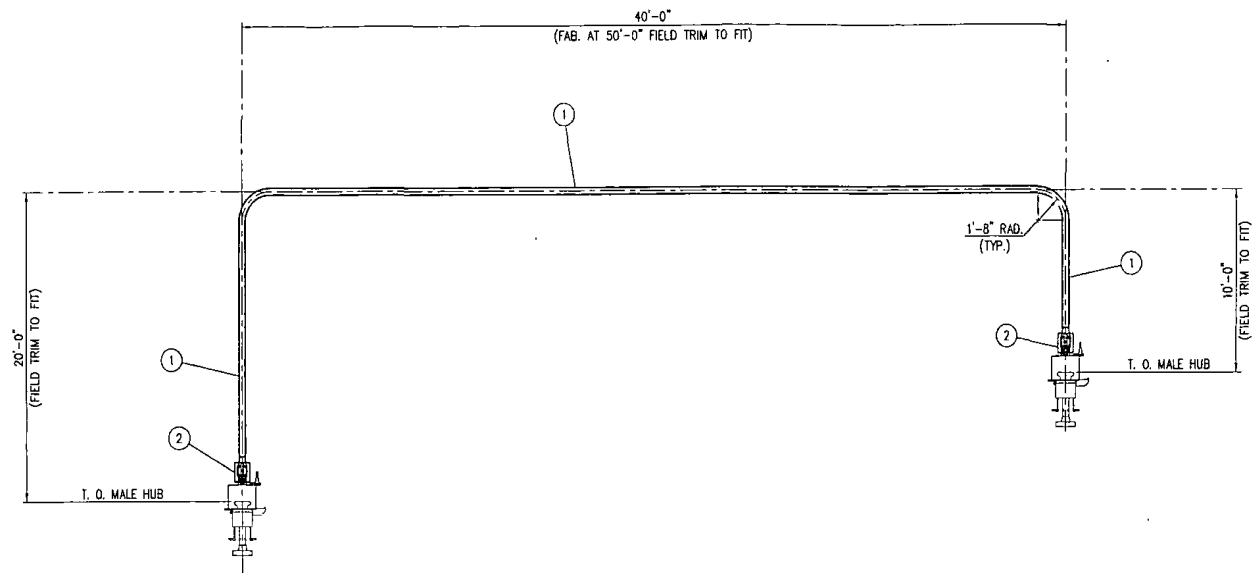
- P = Pressure as 100% SMYS (psig)  
 PI = Internal Design Pressure (psig)  
 s = Specified Minimum Yield Strength (SMYS) (psi)  
 t = Pipe Wall Thickness in Inches  
 ca = Corrosion Allowance (use 0.000 inches)  
 D = Pipe Outside Diameter in Inches  
 (F) = Design Factor  
       0.60 for Risers  
       0.72 for Pipelines & Jumpers  
 (E) = Joint Factor  
       1.0 for Seamless Pipe  
 (T) = Temperature Derating Factor  
       1.0 for Operating Temperatures below 250 Degrees Fahrenheit

- 1) Jumper:                    5.563" OD x 0.438"    W.T. API 5L Gr. X65

- a) P = (2) (65,000) (0.438) / (5.563) = 10,235 psig  
 b) PI = (2) (65,000) (0.438 - 0.000) (0.72) (1) (1) / 5.563 = 7,370 psig  
 c) Hydrostatic Test Pressure = HTP  
    Maximum HTP = 0.95 P = (0.95) (10,235) = 9,724 psig  
    Minimum HTP will be 4,632 psig for 8 hour hold time  
    Rated MAOP = 4,632 psig / 1.25 = 3,705 psig  
 d) Maximum Allowable Operating Pressure (MAOP) = 3,705 psig

MATERIAL SUMMARY

ITEM	QTY.	DESCRIPTION
1	-	PIPE, 5.563M O.D. WT., API 5L GR X65, SMLS, COATED WITH 12-14 MILS D.F.T. FUSION BONDED EPOXY, WITH 2" GSPU
2	2	REMOTE ARTICULATED CONNECTOR, 4 1/2", API 10000, FEMALE CONNECTOR ASSEMBLY, OIL STATES



ELEVATION  
**5" JUMPER SPOOL DETAILS**  
 N.T.S.

JobNo: Cuervo 05/20/11 14:40 P:\PINNACLE\ROOT\STRUCT\202800\20280906.DWG

**NOTES**  
 1. HYDROTEST:  
 THE JUMPER ASSEMBLY SHALL BE HYDROTESTED TO A MINIMUM OF 4632 PSI AND HELD FOR A PERIOD OF 8 HOURS. THE PRESSURE SHALL HOLD OR RISE OVER THE LAST TWO HOURS.

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NO.	DATE	REVISION	BY	APPR
A		ISSUED FOR PERMIT		



**PINNACLE ENGINEERING**  
 TX REGISTERED ENGR FIRM F-567

APPROVAL	
Drawn By	J. GUEVARA
Date	5-19-11
Checked By	
Date	
Designed By	
Date	
Approved By	
Date	

**LLOG**  
 exploration

MANDY SUBSEA DEVELOPMENT  
 MC 199 TO MC 243 "A"

**5" JUMPER DETAILS**

JOB NO. 202800	SCALE: NOTED	DWG. NO. 906	REV. A
----------------	--------------	--------------	--------

LLOG EXPLORATION OFFSHORE, L.L.C.  
 4" Jumper Design  
 Mississippi Canyon 199  
 Tree to Manifold & 4 in Bulk Oil PLET to Manifold  
 Rev. 0, 5/17/11

Maximum Operating Pressure:

1. Calculations based on CFR, Title 30, Part 250, Subparts H and J.

$$P = \frac{2st}{D}$$

$$P = \frac{2s(t-ca)(F)(E)(T)}{D}$$

Where:

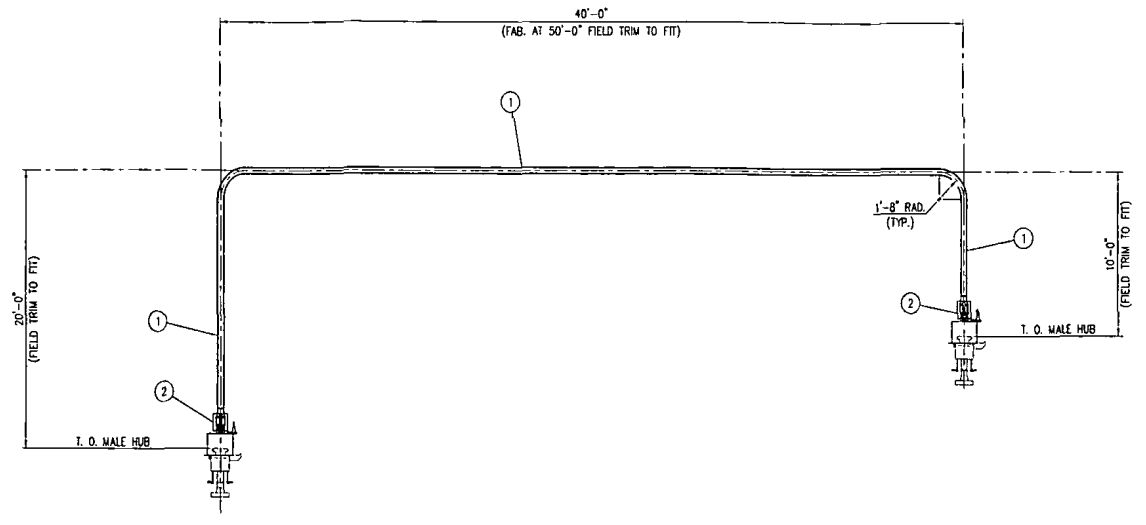
- P = Pressure as 100% SMYS (psig)  
 PI = Internal Design Pressure (psig)  
 s = Specified Minimum Yield Strength (SMYS) (psi)  
 t = Pipe Wall Thickness in Inches  
 ca = Corrosion Allowance (use 0.000 inches)  
 D = Pipe Outside Diameter in Inches  
 (F) = Design Factor  
       0.60 for Risers  
       0.72 for Pipelines & Jumpers  
 (E) = Joint Factor  
       1.0 for Seamless Pipe  
 (T) = Temperature Derating Factor  
       1.0 for Operating Temperatures below 250 Degrees Fahrenheit

1) Jumper:                    4.500" OD x    0.586"        W.T. API 5L Gr.    X65

- a) P = (2) (65,000) (0.586) / (4.500) = 16,929 psig  
 b) PI = (2) (65,000) (0.586 - 0.000) (0.72) (1) (1) / 4.500 = 12,189 psig  
 c) Hydrostatic Test Pressure = HTP  
    Maximum HTP = 0.95 P = (0.95) (16,929) = 16,082 psig  
    Minimum HTP will be 4,632 psig for 8 hour hold time  
    Rated MAOP = 4,632 psig / 1.25 = 3,705 psig  
 d) Maximum Allowable Operating Pressure (MAOP) = 3,705 psig



MATERIAL SUMMARY		
ITEM	QTY.	DESCRIPTION
1	1	PIPE, 4.500W O.586 WT., API 5L GR. YES, SMLS. COATED WITH 12-14 MILS D.F.T. FUSION BONDED EPOXY, WITH 2" OSPI
2	2	REMOTE ARTICULATED CONNECTOR, 4 1/2" W., API 10000, FEMALE CONNECTOR ASSEMBLY, OIL STATES



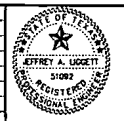
ELEVATION  
**4" JUMPER SPOOL DETAILS**  
 N.T.S.

Jobno: 05707/11 14:40 P:\PINNACLE\ROOT\STRUCT\202800\2028000905.DWG

**NOTES**  
 1. HYDROTEST:  
 THE JUMPER ASSEMBLY SHALL BE HYDROTESTED TO A MAXIMUM OF 4632 PSI AND HELD FOR A PERIOD OF 8 HOURS. THE PRESSURE SHALL HOLD OR RISE OVER THE LAST TWO HOURS.

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NO.	DATE	REVISION	BY	APPD.
A		ISSUED FOR PERMIT		



**PINNACLE**  
 ENGINEERING

TX REGISTERED ENGR FIRM F-567

APPROVAL	
Drawn By	J. DUNN
Date	5-15-11
Checked By	
Date	
Designed By	
Date	
Reviewed By	
Date	

**LLOG**  
 exploration

MANDY SUBSEA DEVELOPMENT  
 MC 199 TO MC 243 "A"

**4" JUMPER DETAILS**

JOB NO. 202800 | SCALE: NOTED | DWG. NO. 905 | REV. A