

SN 9213

6/5/95

McConner
Colorado 6-8-95

In Reply Refer To: MS 5232

JUN 09 1995

Forest Oil Corporation
Attention: Mr. Forest D. Dorn
1500 Colorado National Building
950 Seventeenth Street
Denver, Colorado 80202

Gentlemen:

Your letter dated May 11, 1995, requests approval to abandon in place 16,432 feet (3.11 miles) of 8 5/8-inch pipeline designated as Segment No. 9213, and to relinquish in its entirety, Right-of-Way Grant OCS-G 12375, associated therewith. The subject pipeline originates at Forest Oil Corporation's (Forest) Platform A in Block 241 and terminates at a subsea tie-in with Stingray Pipeline Company's 36-inch pipeline (OCS-G 2122C) in Block 245, all in the West Cameron Area.

Pursuant to 30 CFR 250.4(b), approval is hereby granted to abandon the above-described pipeline, and in accordance with 30 CFR 250.159(c)(9), the requirement that the pipeline be removed is hereby waived. However, in the future should it be determined that this abandoned pipeline constitutes a hazard to navigation or commercial fishing operations or unduly interferes with other uses of the Outer Continental Shelf, Forest shall be required to remove it.

Pursuant to 30 CFR 250.150(b), the relinquishment of the right-of-way grant associated with the pipeline that is to be abandoned in place is hereby accepted effective May 12, 1995, subject to Forest completing the abandonment operations by December 31, 1995. Additionally, Forest shall within 30 days after completion of the abandonment, submit a report to this office which includes the date the abandonment was completed and verifies that the abandonment was completed as approved.

Sincerely,

(Orig. Sgd.) Kent E. Stauffer

Donald C. Howard
Regional Supervisor
Field Operations

bcc: 1502-01 (P/L OCS-G 12375) w/enclosures (K.Faust) (MS 5232)
1502-01 (P/L OCS-G 12375) (microfilm) (MS 5033)
MS 5421
MS 5270
MS 5232 Carto w/plat

McConner:jvl:06/05/95:Forest.375

b12375

gnmf
6/13/95
K
9213

BEST AVAILABLE COPY



Facsimile Cover Sheet

To: Mike Conner
Company: MMS - Regional (New Orleans)
Phone:
Fax: 504/736-2426

From: Cecil N. Colwell
Company: Forest Oil Corporation
Address: 950 17th Street, Suite 1500
Denver, Colorado 80202
Phone: 303/592-2400
Fax: 303/592-2602

Date: 6/7/95
Pages including this
cover page: 3

*Alex,
they will remove
valve guard assembly!
Mike*

If you do not receive all the pages indicated above, please call us as soon as possible at 303/592-2444 (Telecommunications operator)

Comments: Mike, following is the revised procedure for removing the valve guard and sand baggin. Should you have any questions please call.

Cecil N. Colwell

BEST AVAILABLE COPY**FOREST OIL CORPORATION
WEST CAMERON 241 "A"
PIPELINE ABANDONMENT**

1. Mobilize vessel and equipment to location
2. Off load pump, pig launcher, and personnel onto West Cameron 241 "A".
3. Move dive vessel to West Cameron 245 "sub sea tie-in" for 36" Stingray pipeline and set anchors.
4. Jump divers to locate pipeline tie-in and close valve closest to platform side.
5. Bleed pressure off 8-5/8" gas line from platform side. Collect any fluids in platform tank while bleeding line.
6. Install two (2) 8-5/8" pipeline pigs into pig launcher and pressure up pipeline with sea water behind pigs, to main pipeline pressure.
7. Jump divers and open sub sea valve at tie-in 1/4 turn.
8. Pump pigs and monitor amount of sea water behind pigs until pigs reach sub sea valve. Pump 10% over the calculated volume of 8-5/8" pipeline from West Cameron 241 "A" to West Cameron 245.
9. Jump divers and close sub sea valve at tie-in.
10. Bled pressure off pipeline from platform side.
11. Jump diver and unbolt at flange the pipeline that is tied into the main trunk line at sub sea tie-in.
12. Diver to cut 50' section off end of 8-5/8" pipeline. Pipeline has 3' of cover. Retrieve section of pipeline, & pipe line pigs to surface. *Remove the future sidetap and reinstall to original tie-in flange. Remove the pipe supports off the 36" pipeline and the valve guard assembly over the tie-in assembly. Cover remaining assembly with 3' of sand only bags.*
13. Install plug in 8-5/8" pipeline and cover same with sand bags to maintain the 3' of cover over the plugged end.
14. Retrieve anchors and travel to West Cameron 241 "A" platform and set up anchors.
15. Cut 10' section out of 8-5/8" pipeline riser and plug with plate.

**FOREST OIL CORPORATION
WEST CAMERON 241 "A"
PIPELINE ABANDONMENT**

BEST AVAILABLE COPY

16. Jump divers and cut riser tube turn and 15' of 8-5/8" pipeline.
17. Install plug in 8-5/8" pipeline and cover same with sand bags to maintain the 3' of cover over the plugged end.
18. Pipe up anchors and demobilize back to port.

BEST AVAILABLE COPY

Kathy

UNITED STATES GOVERNMENT
MEMORANDUM

5/17/95

To: Leasing Activities Section, Adjudication Unit (MS 5421)
From: Petroleum Engineer, Pipeline Unit, Plans and Pipeline Section,
Field Operations, GOM OCS Region (MS 5232)
Subject: Adjudication of Pipeline Right-of-Way Abandonment and Relinquishment
OCS-G' 12375 Segment No. 9213

The subject request is attached for your adjudication. If you have any questions regarding this matter, please contact Mr. Mike Conner at extension 2544.

Mike Conner

Attachments

Application dated May 11 1995 w/attach

Holmes

Please initial and return if request meets all necessary criteria. 6-1-95

BEST AVAILABLE COPY



FOREST OIL CORPORATION

1500 Colorado National Building • 950 Seventeenth Street
Denver, Colorado 80202 (303) 592-2400

May 11, 1995

U. S. Dept. of the Interior
Minerals Management Service
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

G-12375
SN 9213

Attn: Mike Conner
Pipeline Section

Re: Relinquishment and Abandonment for ROW OCS-G-0561
8-5/8" Natural Gas Pipeline located in West
Cameron Area Block 241 to 245, Offshore, Louisiana.

Kathy

Dear Mr. Conner:

Pursuant to the authority granted in 43 U.S.C. 1334 (3) and 30 CFR 250.157 (b) and in compliance with the regulations contained in Title 30 CFR, Part 250, Subpart J, and 256, Subpart N, Rights of Way for Pipelines on the Outer Continental Shelf, Forest Oil Corporation is filing this application in quadruplicate for the relinquishment and abandonment of ROW OCS-G-0561, 200 feet in width, issued for the construction, maintenance and operation of the above referenced pipeline.

Forest Oil Corporation plans to remove the entire ROW OCS-G-0561 that is installed from Forest Oil Corporation's "A" Platform to Stingray Pipeline. The entire length of the ROW to be abandoned and relinquished is 16,432 feet or 3.1 miles.

Forest Oil Corporation plans to abandon the gas pipeline, ROW OCS-G-0561, to facilitate the removal of Forest Oil Corporation's West Cameron Area, Block 241, "A" Platform. ROW OCS-G-0561 was utilized to transport gas from Forest Oil Corporation's West Cameron, Block 241, "A" Platform to a tie-in with Stingray Pipeline in West Cameron, Block 245. All three wells on this platform are depleted and are in the process of being plugged and abandoned. A subsea tie-in drawing and abandonment procedures are attached.

Additionally, Forest Oil Corporation expressly agrees that if any site, structure, or object of historical or archaeological significance should be discovered during the conduct of any operations within the permitted right of way, we shall report immediately such findings and make every reasonable effort to preserve and protect the cultural resource from damage until said Regional Supervisor has given directions as to its preservation.

Forest Oil Corporation's shore base for operations will be Intracoastal City, Louisiana.



In support of this application, we attach the following:

1. Three copies of Pipeline Drawings No. 208-8100 -- 208-8105 showing location of the proposed work and location of cut.
2. Procedures to remove and abandon the pipeline.

Please refer to Forest Oil Corporation's previously filed and accepted pipeline right of way qualifications for the Eugene Island 366 "A" Platform filed on February 10, 1992.

Forest Oil Corporation wishes to hereby certify that the proposed activity described in the permit application complies with and will be conducted in a manner that is consistent with the Coastal Resources Program of the State of Louisiana.

STIPULATION

Forest Oil Corporation hereby agrees to keep open at all reasonable times for inspection by the Minerals Management Service, the area covered by this right of way and all improvements, structures and fixtures thereon and all records relative to the design, construction, operation, maintenance, and repairs or investigations on or with regard to such area.

Applicant agrees to be bound by the foregoing stipulations, and further agrees to comply with the applicable stipulations as set forth in the Minerals Management Service Pipeline Procedures guidebook dated March, 1984. Additionally, the design of the proposed pipeline is in accordance with the Minimum Federal Safety Standards (Department of Transportation) Title 49 CFR Part 192 and 195.

If the above and attached information meets with your approval, we would appreciate your issuing the necessary permit for the right of way as soon as possible.

Regards,
Forest Oil Corporation



(Authorized Signature)

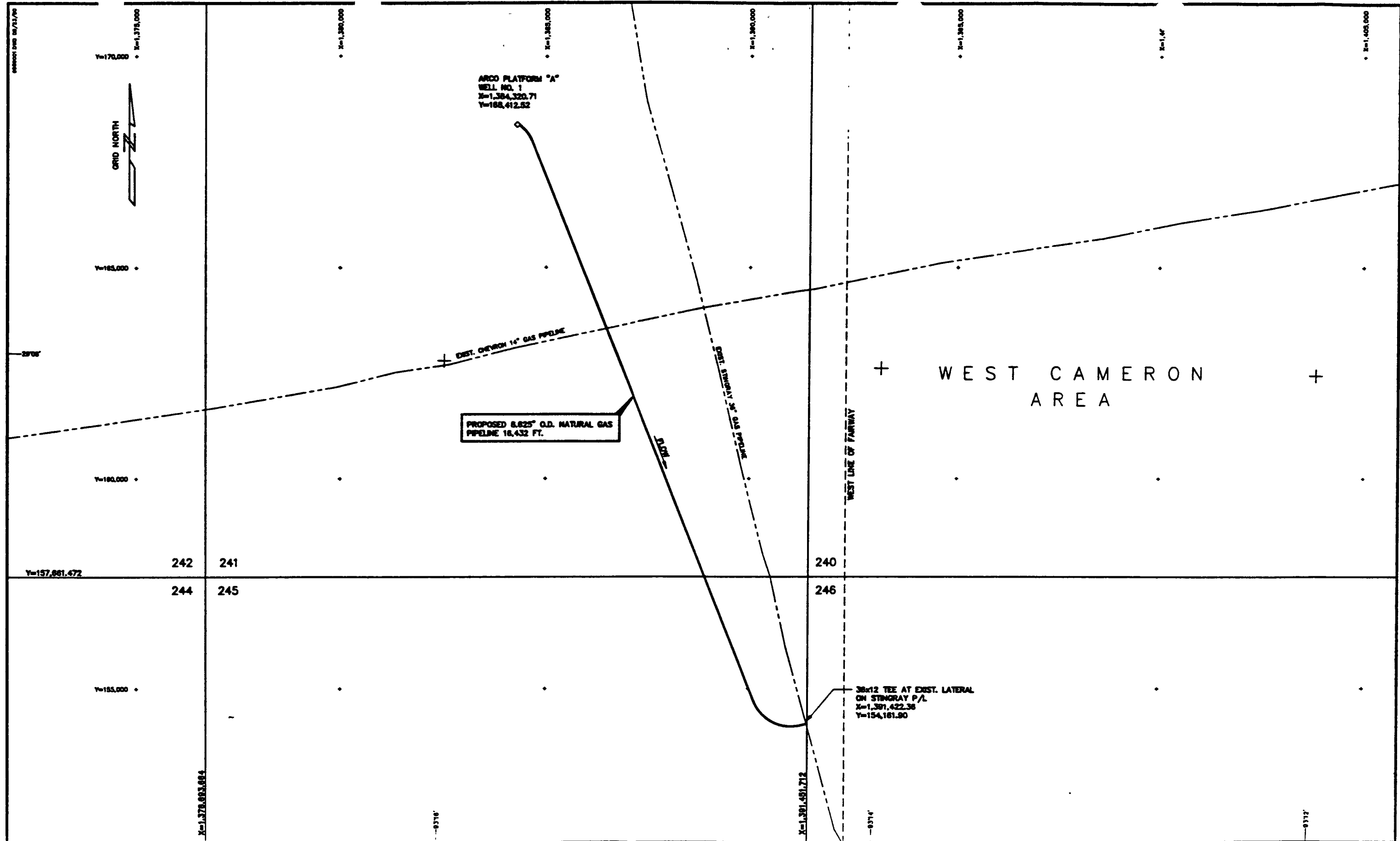
Forest D. Dorn
Vice President & General Business Manager

**FOREST OIL CORPORATION
WEST CAMERON 241 "A"
PIPELINE ABANDONMENT**

1. Mobilize vessel and equipment to location
2. Off load pump and personnel onto West Cameron 241 "A".
3. Move dive vessel to West Cameron 245 "sub sea tie-in" for 36" Stingray pipeline and set anchors.
4. Jump divers to locate pipeline tie-in and close valve closest to platform side.
5. Bleed pressure off 8-5/8" gas line from platform side. Collect any fluids in platform tank while bleeding line.
6. Install tow (2) 8-5/8" pipeline pigs into pig launcher and pressure up pipeline with sea water behind pigs, to main pipeline pressure.
7. Jump divers and open sub sea valve at tie-in 1/4 turn.
8. Pump pigs and monitor amount of sea water behind pigs until pigs reach sub sea valve. Pump 20% over the calculated volume of 8-5/8" pipeline from West Cameron 241 "A" to West Cameron 245.
9. Jump divers and close sub sea valve at tie-in.
10. Bled pressure off pipeline from platform side.
11. Jump diver and unbolt at flange the pipeline that is tied into the main trunk line at sub sea tie-in.
12. Diver to cut 15' section off end of 8-5/8" pipeline. Pipeline has 3' of cover. Cut enough section to 8-5/8" line to get down to 3' cover (will require some jetting). Retrieve section of pipeline and pipe line pigs to surface.
13. Install plug in 8-5/8" pipeline and cover same with sand bags to maintain the 3' of cover over the plugged end.
14. Retrieve anchors and travel to West Cameron 241 "A" platform and set up anchors.
15. Cut 10' section out of 8-5/8" pipeline riser and plug with plate.

**FOREST OIL CORPORATION
WEST CAMERON 241 "A"
PIPELINE ABANDONMENT**

16. Jump divers and cut riser tube turn and 15' of 8-5/8" pipeline.
17. Install plug in 8-5/8" pipeline and cover same with sand bags to maintain the 3' of cover over the plugged end.
18. Pipe up anchors and demobilize back to port.



NOTES
 1. ALL COORDINATES ARE BASED ON LOUISIANA (LAMBERT) STATE PLANE COORDINATES SYSTEM, SOUTH ZONE.

BEST AVAILABLE COPY

NO.	DATE	REVISION	BY	APPROV.

RELEASED FOR	DATE	BY	APPROV.
Information			
Preliminary			
Bidding	5/15/90	MCP	LMT
Client Approval	5/16/90	MCP	LMT
Construction	12/1/90		

CBS ENGINEERING, INC.
 Houston, Texas

DESIGNED BY J. SCHMIDT DATE 1"-1000'
 DRAWN BY M. POERNER DATE AUG. '90
 CHECKED BY K. DURN DATE SEP. '90
 APPROVED BY DATE 998-23

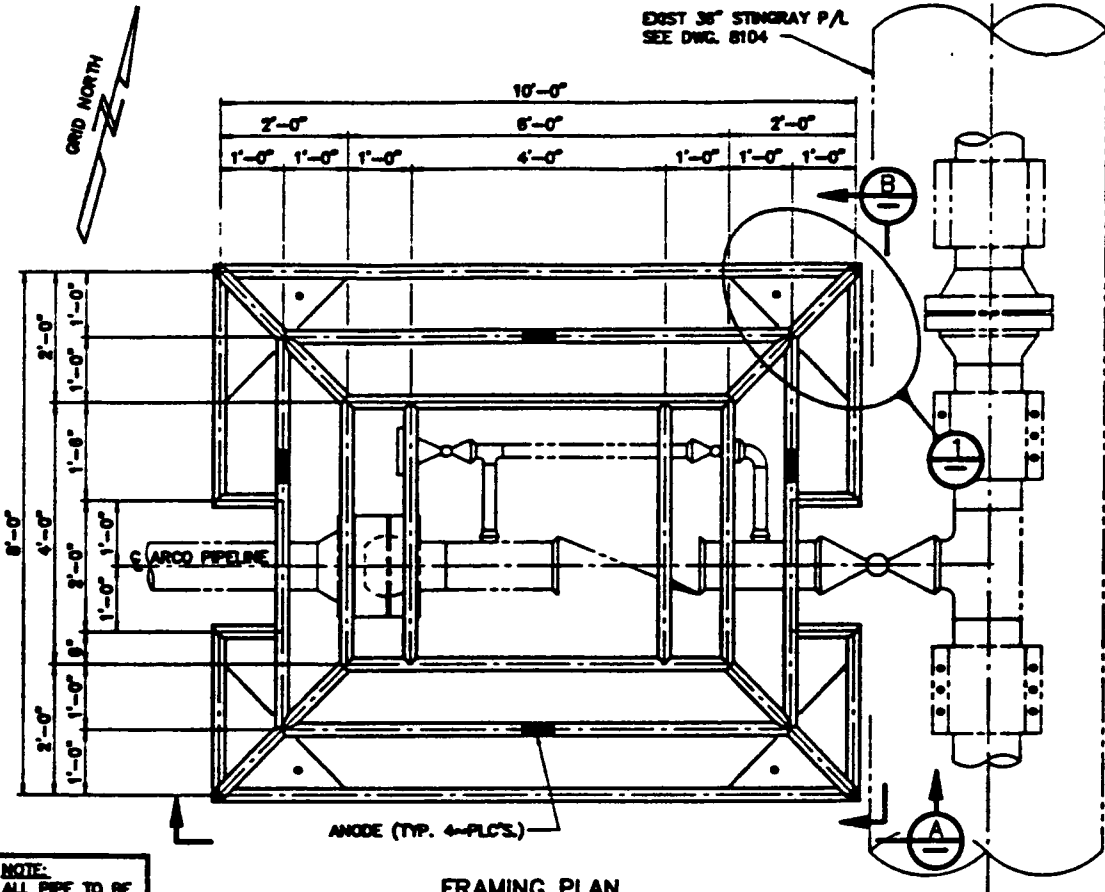
ARCO Oil and Gas Company
 Houston, Texas

8.625" NATURAL GAS PIPELINE
 FROM PLATF. "A" TO STINGRAY PIPELINE

AREA PLOT PLAN

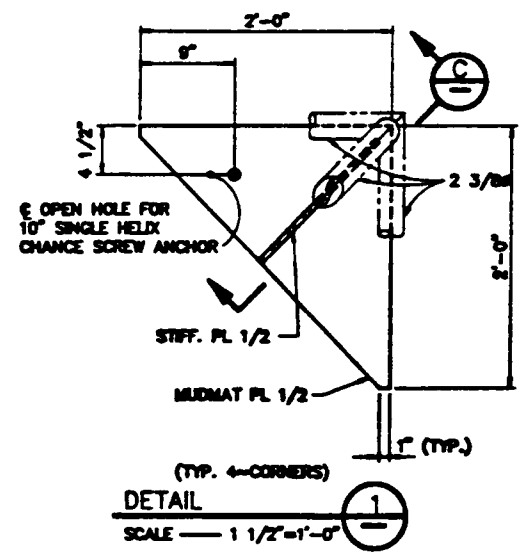
PROJECT NO. **208-8101**

REVISIONS: 10/17/90

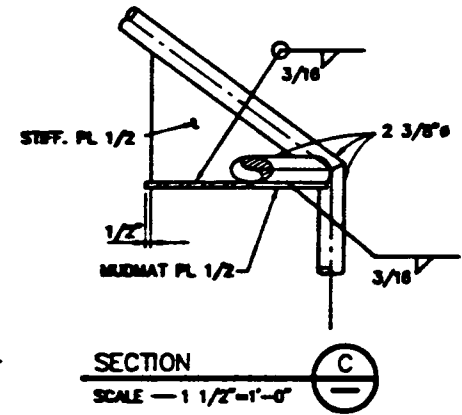


FRAMING PLAN
SCALE: — 3/4"=1'-0"

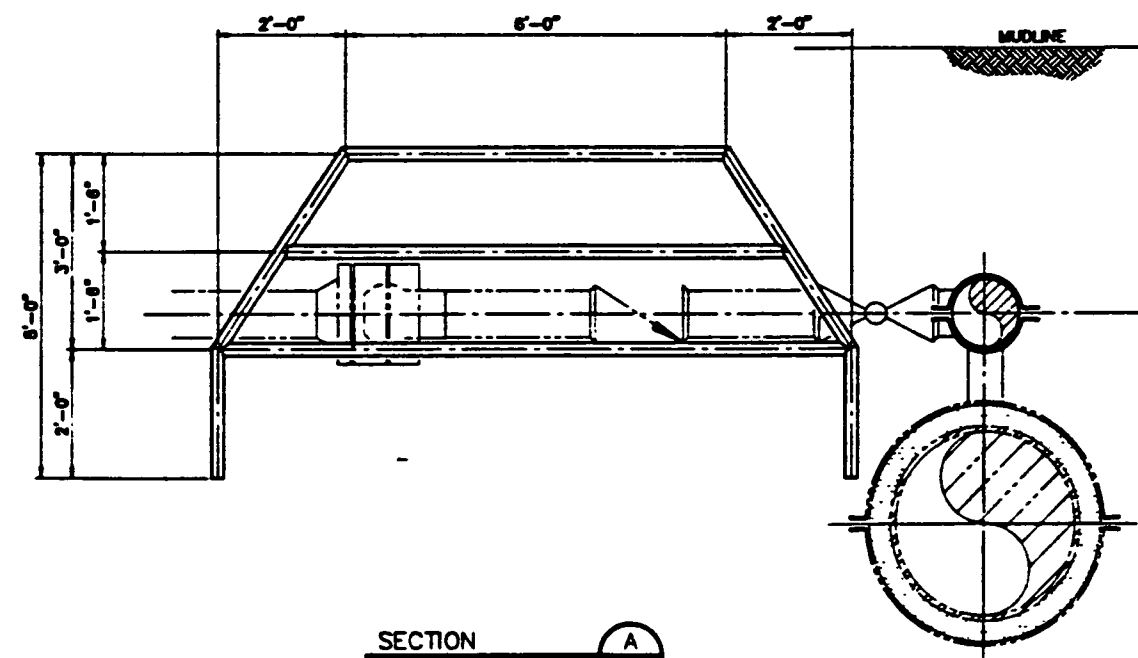
NOTE:
ALL PIPE TO BE
2 3/8" x 0.154



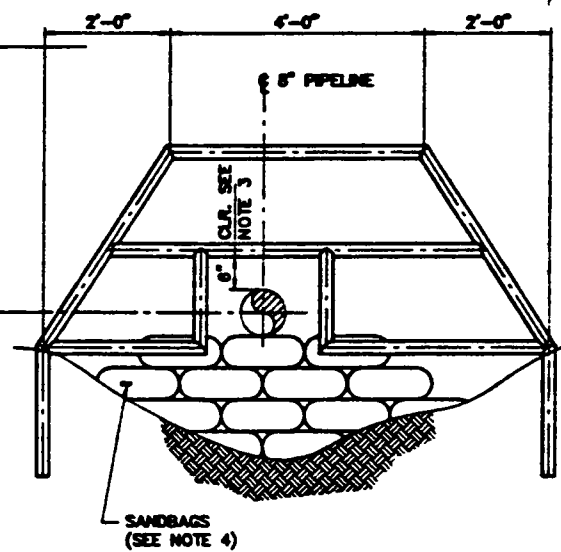
DETAIL 1
SCALE — 1 1/2"=1'-0"



SECTION C
SCALE — 1 1/2"=1'-0"



SECTION A
SCALE — 3/4"=1'-0"



SECTION B
SCALE — 3/4"=1'-0"

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION
01	120 LF	PIPE, 2 3/8" x 0.154 W.T. ASTM A106, GR.B
02	18 SF.	PLATE, PL 1/2 ASTM A36
03	4	ANCHOR, 10" SINGLE HELIX SCREW ANCHOR, BY CHANCE OR EQ.
04	4	ANODE, 11 LB. NET WT. SEMI-CYLINDRICAL GALVALUM II, BY CATHODIC PROTECTION SERVICES.

- NOTES**
- ALL PIPE MEMBERS SHALL HAVE 1/2" HOLES TO PERMIT COMPLETE FLOODING OF INTERIOR.
 - ALL MEMBERS TO BE FULL PENETRATION WELDED UNLESS NOTED OTHERWISE.
 - MAINTAIN 6" MIN. CLEAR BETWEEN PIPELINE AND VALVE GUARD. ADD SAND BAGS UNDER MUDMATS AS REQUIRED.

4. SANDBAGS TO BE FILLED WITH MIXTURE OF 1 PART CEMENT TO 3 PARTS SAND (BY WEIGHT)

BEST AVAILABLE COPY

NO.	DATE	REVISION	BY	APPROV.

CBS ENGINEERING, INC. Houston, Texas	
DESIGNED BY: J. SCHMIDT	DATE: NOTED
CHECKED BY: M. POERNER	DATE: OCT. '90
APPROVED BY: K. DUNN	DATE: OCT. '90
PROJECT NO. 888-23	

ARCO Oil and Gas Company <small>Division of ARCO Chemical Company</small>
8.625" O.D. NATURAL GAS PIPELINE FROM PLAT. "A" TO STINGRAY PIPELINE
VALVE GUARD DETAILS
208-8105

SN 9213



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

In Reply Refer To: MS 5421
OCS-G 12375

Instrument:

Filed : May 31, 1994
Executed : March 28, 1994
Approved : January 18, 1995
Effective : March 1, 1993

Atlantic Richfield Company
Assignor

Forest Oil Corporation
Assignee

ACTION: ASSIGNMENT APPROVED

Right-of-way

The approval of this assignment is restricted to record title interest only, and by virtue of this approval, the Assignee is subject to, and shall fully comply with, all applicable regulations now or to be issued under the Outer Continental Shelf Lands Act, as amended. Notwithstanding any agreement between the Assignor and Assignee, the parties remain subject to the liability provisions of the Minerals Management Service regulations codified under 30 CFR 250, Subpart J.

Assignor assigned unto Assignee all of Assignor's right, title and interest.

Record title interest is now held as follows:

OCS-G 12375 Blocks 241 and 245, West Cameron Area

Forest Oil Corporation 100%

Chris C. Oynes
Chris C. Oynes
Regional Director

cc: Assignor
Assignee
Case File

*on mof
2/7/95
12*



FOREST OIL CORPORATION

1500 Colorado National Building • 950 Seventeenth Street

Denver, Colorado 80202 (303) 592-2400

May 26, 1994

Mrs. LaNelle Boehm
Gulf of Mexico OCS Region
Minerals Management Service
1202 Elmwood Park Boulevard
New Orleans, LA 70123-2394

RE: Assignment of ROW
OCS-G 8946
OCS-G 12375

Dear Mrs. Boehm:

Enclosed are two sets of three (3) fully executed copies of an Assignment effective March 1, 1993, between Atlantic Richfield Company, as Assignor and Forest Oil Corporation, as Assignee covering Right-of-Way, OCS-G 8946 and Right-of-Way, OCS-G 12375.

We have enclosed Forest Oil Corporation's check in the amount of \$100.00 to cover the filing fees for the above mentioned assignments.

Forest Oil Corporation hereby requests the above assignments be approved effective as of March 1, 1993 and that an approved copy be returned to the address listed above, directed to the attention of Charlotte Nicholson for further handling.

Very truly yours,

FOREST OIL CORPORATION

Forest D. Dorn
Vice President and
General Business Manager

ASSIGNMENT

UNITED STATES OF AMERICA) OCS-G 12375
OUTER CONTINENTAL SHELF LANDS) KNOW ALL MEN BY THESE
OFFSHORE LOUISIANA) PRESENTS, THAT

WHEREAS, under date of November 20, 1990, the United States Department of the Interior, acting through the Minerals Management Service, approved an Application for a Right-of-Way, submitted by Atlantic Richfield Company. The right-of-way, two hundred feet in width for the construction, maintenance, and operation of a twelve inch (12") O.D. pipeline for the transportation of natural gas, condensate and liquid hydrocarbons. The pipeline is 3.04 miles in length, as constructed, and extends from ARCO's platform in Block 241, West Cameron Area, to a point of interconnect with Stingray Pipeline Company's 36" O.D. pipeline in Block 245, West Cameron Area;

WHEREAS, Atlantic Richfield Company, a Delaware corporation, (ASSIGNOR) is the present owner of an undivided one hundred percent (100%) interest in and to the right-of-way;

WHEREAS, ASSIGNOR desires to transfer all of its right, title and interest in the right-of-way to Forest Oil Corporation, a New York corporation (ASSIGNEE);

NOW, THEREFORE, for and in consideration of the sum of fifty dollars (\$50.00) and other good and valuable consideration to it in hand paid by ASSIGNEE, the receipt and sufficiency of which are hereby acknowledged and confessed, ASSIGNOR does hereby transfer and assign all of its right, title and interest in and to the right-of-way to ASSIGNEE;

TO HAVE AND TO HOLD said interest unto ASSIGNEE, it successors and assigns, forever, subject to the terms and provisions of said right-of-way and of this Assignment;

IT IS UNDERSTOOD AND AGREED THIS ASSIGNMENT is made pursuant to Section 2.9 of that certain Conveyance, Assignment and Bill of Sale dated effective March 1, 1993 between ASSIGNOR and ASSIGNEE, and is for the sole purpose of reflecting the transfer of the rights-of-way referred to herein from ASSIGNOR to ASSIGNEE in the records of the United States Minerals Management Service (MMS) and obtaining MMS approval of such transfer. This Assignment is subject to all terms and conditions of said Conveyance, Assignment and Bill of Sale, and the rights-of-way conveyed herein are the same as, not in addition to, those rights-of-way included in the "Leasehold Interests," conveyed in the said Conveyance, Assignment and Bill of Sale. In the event of a conflict between the terms and conditions set out herein and those in the Conveyance, Assignment and Bill of Sale, those terms and conditions set out in the Conveyance, Assignment and Bill of Sale shall be deemed to be controlling.

IT IS FURTHER UNDERSTOOD AND AGREED that such transfer shall cause the ASSIGNEE herein to assume all costs, expenses and other obligations chargeable under the right-of-way to such interest and shall likewise operate to give and grant to the ASSIGNEE all benefits owing thereunder to the ownership of such interests.

This assignment shall be effective for all purposes as of March 1, 1993, subject to the approval thereof by the Minerals Management Service.

Executed in triplicate originals this, the 22nd day of March, 1994.

WITNESSES

[Signature]
Janice G. Strickles

ASSIGNOR
ATLANTIC RICHFIELD COMPANY

[Signature]
By: [Signature] cm

RECEIVED

MAY 31 1994

Minerals Management Service
Leasing & Environment

APPROVED

Chris C. Dwyer
Regional Director

Effective Date MAR 01 1993

ACCEPTANCE OF ASSIGNMENT

Forest Oil Corporation, Assignee herein, expressly assumes and agrees to discharge all duties and obligations arising out of or imposed by and under each and all of the terms and provisions of said right-of-way.

WITNESSES

ASSIGNEE
FOREST OIL CORPORATION

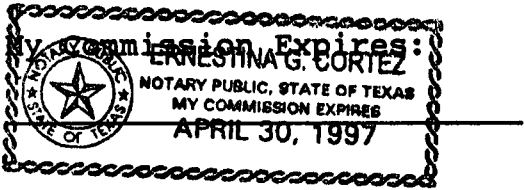
Oliver Ulan
Hana Reel

Forest D. Dorn
Forest D. Dorn, Vice President

STATE OF Texas)
COUNTY OF Harris)

On this 28th day of March, 1994, before me appeared Warren D. McFatter, to me personally known, who being by me duly sworn did say that he is the Attorney-in-Fact of ATLANTIC RICHFIELD COMPANY, a Delaware corporation, and that the seal affixed to said instrument is the corporate seal of said corporation and that the instrument was signed and sealed by authority of its Board of Directors and the Warren D. McFatter acknowledged the instrument to be the free act and deed of the corporation.

Ernestina G. Cortez
Notary Public in and for
Harris County, TEXAS



STATE OF COLORADO)
COUNTY OF DENVER)

On this 28th day of March, 1994, before me appeared Forest D. Dorn, to me personally known, who being by me duly sworn did say that he is the Vice President of FOREST OIL CORPORATION, a New York corporation, and that the seal affixed to said instrument is the corporate seal of said corporation and that the instrument was signed and sealed by authority of its Board of Directors and the Forest D. Dorn acknowledged the instrument to be the free act and deed of the corporation.

Charlotte Lee Nicholson
Charlotte Lee Nicholson
Notary Public in and for
Denver County, Colorado

My Commission Expires:
March 28, 1997

SN 9213

Marsh 9-16
Stauffer d/m/92

In Reply Refer To: MS 5232

SEP 17 1992

ARCO Oil and Gas Company
Attention: Ms. Brenda Y. Munoz
Post Office Box 1346
Houston, Texas 77251

Gentlemen:

In accordance with 30 CFR 250.158(b), your letter dated September 11, 1992, transmitted a pipeline construction report for the following right-of-way pipeline located in the West Cameron Area:

<u>Pipeline Right-of-way Number</u>	<u>Size (inches)</u>	<u>Length (feet)</u>	<u>Service</u>	<u>From</u>	<u>To</u>
OCS-G 12375 (Seg. No. 9213)	8	16,031	Gas	Platform A Block 241 Lease OCS-G 10561	A 36-inch SSTI Block 245 Unleased

The data which you provided indicates the following test information and establishes the assigned maximum allowable operating pressure (MAOP) for this pipeline:

<u>Pipeline Right-of-way Number</u>	<u>Test Pressure (psig)</u>	<u>Duration (hours)</u>	<u>MAOP (psig)</u>	<u>MAOP Determination</u>
OCS-G 12375	2,494	8	1,348	Tie-in Pipeline

The total length of the "as-built" pipeline right-of-way is 3.04 miles.

In future correspondence, please refer to the above pipeline by its assigned right-of-way number.

Sincerely,

(Orig. Sgd.) William H. Martin
D. J. Bourgeois
Regional Supervisor
Field Operations

bcc: 1502-01 P/L OCS-G 12375 w/orig report (MS 5232)
1502-01 P/L OCS-G 12375 w/cy of report (D.Schaefer) (MS 5033)
MS 5421
MS 5232 Carto (w/cy of location plat)
MS 5270

PMarsh:ds:9/15/92

Handwritten initials and date: *DM mgp 9/24/92 KX*

ARCO Oil and Gas Company 

Post Office Box 1346
Houston Texas 77251
Telephone 713 584 6139

Eastern District
Regulatory Compliance and
Environmental Department

September 11, 1992

Mr. Daniel J. Bourgeois
Regional Supervisor
Minerals Management Service
U.S. Department of the Interior
GULF OF MEXICO OCS REGION
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394



RE: PIPELINE HYDROSTATIC TEST RESULTS AND "AS-BUILT" SURVEY
8-5/8" O.D. GAS PIPELINE FROM WEST CAMERON BLOCK 241,
OCS-G 10561, TO WEST CAMERON BLOCK 245 36" SSTI,
GULF OF MEXICO, FEDERAL WATERS
PIPELINE SEGMENT NO. 9213

ROW OCS-G 12375

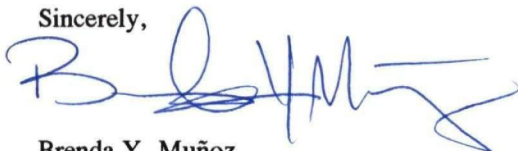
ATTN: Paul Marsh

Dear Mr. Marsh:

In accordance with 30 CFR § 250.158(b), ARCO Oil and Gas Company, a Division of Atlantic Richfield Company, hereby submits in triplicate the hydrostatic test charts and certified "as-built" pipeline route maps for the subject pipeline. The subject pipeline, Segment No. 9213, is an 8-5/8" pipeline which will transport gas from ARCO's West Cameron Block 241 'A' platform to a subsea tie-in with Stringray Pipeline Company's 36" pipeline (OCS-G 2122C) in West Cameron Block 245.

The subject pipeline was installed in December 1990, and the hydrostatic pressure test for the pipeline was held on January 6-7, 1991. If you need any further information, please call me at (713) 584-6837.

Sincerely,



Brenda Y. Muñoz
Regulatory Compliance & Environmental Coordinator

cc: R.L. Layfield HMB 3412
C.E. Rubrecht HMB 3495
C.V. Herod SOP
MSK/DRS/DMA/KLE/WC 241 Gen. Lse.
RC&E WC 241 PL File

HYDROSTATIC TEST REPORT

ARCO OIL & GAS
16,000 FT. - 8"
WEST CAMERON 241

CSI HYDROSTATIC TESTERS, INC.
LAFAYETTE, LOUISIANA

PRIME CONTRACTOR
OFFSHORE PIPELINES, INC.

DATE OF TEST
January 6-7, 1991

C.S.I. HYDROSTATIC TESTERS

Hydrostatic Test Report

P. O. BOX 51282, O.C.S.

261.059

LAFAYETTE, LA. 70505

Company Arco Oil & Gas Co.

BEST AVAILABLE COPY

Line N.G. _____ Location West Cameron 241 Job No. DE -90-085 Length 16,000 ft.

Line Size 8" O.D. 8 5/8 W.T. Gr. Sch. 80/B Sta/M.P. _____ to Sta/M.P. _____

Terrain _____ Soil Condition Clay - Sugar Sand

Fill began 1-6-91 at _____ A.M. Fill Completed 1-6-91 at _____ P.M.

Meter Reading: Beginning _____ Gals., Final _____ Gal.

Displacement: Theoretical _____ Gal., Meas. _____ Gal.

Gallons Required to increase pressure from _____ P.S.I.G. to _____ P.S.I.G. _____ Gal.

Exposed pipe 15 ft. General Contractor Offshore Pipelines Inc.

Fill water Temperature

2470 Min. - 2500 Max.

TIME		Deadweight Pressure	TEMPERATURE OF			REMARKS
Date	Hour		Air	Pipe	Remote Earth	
1-6-91	10:16 PM	-0-				Start bleeding air out of
	10:29	300				Riser, pressuring up.
	11:13	1248				50% Test pressure-15 min.
	11:30	1246				Bleed down to 55 PSI
	11:45	650				Hold for 7 min.
	11:52	648				Pressuring
1-7-91	00:34 AM	2495	69	64		At test pressure
	00:50	2487	69	64		
	1:05	2481	69	64		
	1:20	2475	69	63		
	1:45	2471-2495	68	62		Repressure
	2:00	2490	68	62		
	2:15	2485	68	62		
	2:30	2482	68	62		
	2:45	2478	68	62		
	3:00	2472				
	3:10	2470				Repressure to 2481
	3:15	2481				
	3:30	2477		67	62	
3:43	2472				Bleed down to 1044	
					Divers tightening flange	
	6:00	1050				Start pressuring

Vatrix 1783 ; Pressure 3096; Pipe Temp. 5018; Air Temp 7002

CSI Engineer Larry Bell

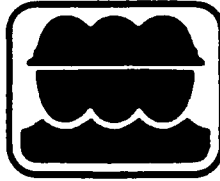
Field Approval for Pipeline Company

Witness 1 Donald Adkins

Insp _____

2 _____

Chief Insp. Jimmie Pruitt
Arco Oil & Gas Co.



A Hargett Company

BEST AVAILABLE COPY

January 18, 1991

OFFSHORE PIPELINES, INC.
5718 WESTHEIMER , SUITE 600
HOUSTON, TEXAS 77057-5731

ATTN: Mr. Mark Parr

Dear Mr. Parr:

We have carefully reviewed and evaluated all data assembled from the hydrostatic test on ARCO OIL & GAS's subject lines.

Upon completion of the fill of the lines, a hydrostatic test was performed using approved engineering practices and procedures. Information detailed on the required test forms show conclusively that the pipelines are as safe as today's technology can produce.

From the test results, it is concluded that Arco Oil & Gas used the latest advanced scientific developments in the field of hydrostatic testing in compliance with all current state and federal safety regulations.

Yours very truly,

THE HARGETT COMPANIES

TEDDY J. CUROLE

TJC\kh

CSI Hydrostatic Testers, Inc.

P O Box 51282 Lafayette, Louisiana 70505-1282 Phone 318/235-7567

C.S.I. HYDROSTATIC TESTERS

Hydrostatic Test Report

P. O. BOX 51282, O.C.S.

LAFAYETTE, LA. 70505

BEST AVAILABLE COPY

Company ARCO oil & Gas Company

Line N.G. Location WC 241 Job No. DE-90-085 Length 16,000 ft.

Line Size 8" O.D. 8 5/8" W.T. Gr. Sch. 80/B Sta/M.P. _____ to Sta/M.P. _____

Terrain _____ Soil Condition Clay / sugar sand

Fill began 1-6-91 at 1-6 ^{A.M.} P.M. Fill Completed 1-6-91 at _____ ^{A.M.} P.M.

Meter Reading: Beginning _____ Gals., Final _____ Gal.

Displacement: Theoretical _____ Gal., Meas. _____ Gal.

Gallons Required to increase pressure from _____ P.S.I.G. to _____ P.S.I.G. _____ Gal.

PRESSURE PUMP MEASUREMENT

Exposed pipe 15 ft.

General Contractor OPI

Fill water Temperature

2470 min

2500 max

TIME		Deadweight Pressure	TEMPERATURE OF			REMARKS
Date	Hour		Air	Pipe	Remote Earth	
<u>1/6/91</u>	<u>10:16 Pm</u>	<u>0</u>				<u>START BLEEDING AIR OUT OF RISER, PRESSURING UP</u>
	<u>10:29</u>	<u>300</u>				<u>50% TEST PRESSURE 15 MIN.</u>
	<u>11:13</u>	<u>1248</u>				<u>BLEED DOWN TO 650 PSI</u>
	<u>11:30</u>	<u>1246</u>				<u>HOLD FOR 70 MIN</u>
	<u>11:45</u>	<u>650</u>				<u>PRESSURING</u>
	<u>11:52</u>	<u>648</u>				<u>AT TEST PRESSURE</u>
<u>1/7/91</u>	<u>00:34 Am</u>	<u>2495</u>	<u>69°</u>	<u>64°</u>		
	<u>00:50</u>	<u>2487</u>	<u>69°</u>	<u>64°</u>		
	<u>01:05</u>	<u>2481</u>	<u>69°</u>	<u>64°</u>		
	<u>1:20</u>	<u>2475</u>	<u>69°</u>	<u>63°</u>		
	<u>1:45</u>	<u>2471-2495</u>	<u>68°</u>	<u>62°</u>		<u>REPRESSURE</u>
	<u>2:00</u>	<u>2490</u>	<u>68°</u>	<u>62°</u>		
	<u>2:15</u>	<u>2485</u>	<u>68°</u>	<u>62°</u>		
	<u>2:30</u>	<u>2482</u>	<u>68°</u>	<u>62°</u>		
	<u>2:45</u>	<u>2478</u>	<u>68°</u>	<u>62°</u>		
	<u>3:00</u>	<u>2472</u>				
	<u>3:10</u>	<u>2470</u>				<u>REPRESSURE TO 2481</u>
	<u>3:15</u>	<u>2481</u>				
	<u>3:30</u>	<u>2477</u>	<u>67°</u>	<u>62°</u>		
	<u>3:43</u>	<u>2472</u>				<u>BLEED DOWN TO 1044</u>
	<u>6:00 AM</u>	<u>1050</u>				<u>DIVERS TIGHTENING FLANGE</u>
						<u>START PRESSURING</u>

VATRIX. 1783

PRESSURE 3096

Pipe Temp. 5018

Air Temp 7002

CSI Engineer Jerry J. Bell

Field Approval for Pipeline Company

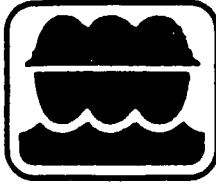
Witness 1 Donald Adkins

Insp _____

2 _____

Chief Insp. Jessie Pruitt

ARCO OIL AND GAS CO.



A Hargett Company

P R E S S U R E R E C O R D E R C E R T I F I C A T I O N

THIS IS TO CERTIFY THAT THE BELOW DESIGNATED PRESSURE RECORDER WAS CALIBRATED WITH STANDARDS WHICH ARE ACCURATE AND TRACEABLE TO THE NATIONAL BUREAU OF STANDARDS, AS FOLLOWS.....

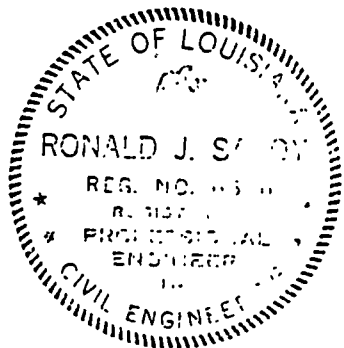
LABORATORY DEAD-WEIGHT TESTER* S/N: 13299	FIRST READING (P.S.I.)	FINAL READING (P.S.I.)	DATA FOR THE TEST INSTRUMENT BEING CERTIFIED
0	0	0	CSI # 3096
600	600	600	PRESSURE RECORDER
1,200	1,200	1,200	(ONE-PEN)
1,800	1,800	1,800	S/N L-00043
2,400	2,400	2,400	RANGE: 3,000 PSI
3,000	3,000	3,000	

*CHANDLER DEAD WEIGHT TESTER S/N: 13299
CERTIFIED BY: G.T. MICHELLI COMPANY, INC.

CALIBRATED BY: *Therese Harrington*
INSTRUMENT TECHNICIAN

DATE: November 1, 1990

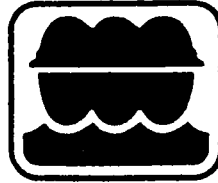
CERTIFIED BY: *Ronald J. Savoy*
RONALD J. SAVOY, P.E.



BEST AVAILABLE COPY

CSI Hydrostatic Testers, Inc.

P. O. Box 51282 Lafayette, Louisiana 70505-1282 Phone 318/235-7567



A Hargett Company

TEMPERATURE RECORDER CERTIFICATION

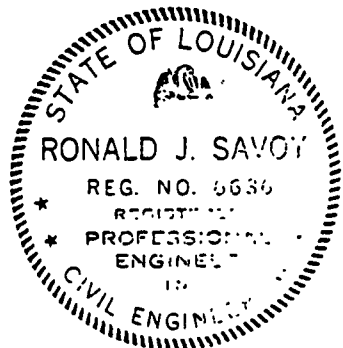
THE BELOW DESIGNATED TEMPERATURE RECORDER HAS BEEN CALIBRATED WITH A LOW POINT OF 32.F AND A MAXIMUM OF 150.F ACCORDING TO FACTORY SPECIFICATIONS AND ITS CALIBRATED ACCURACY IS +/- 1% OF FULL SCALE.

TEMPERATURE
RECORDER
CERTIFIED:

CSI # 5018
0 - 150° F
SERIAL NO: 265A-173739

CALIBRATED BY: *Harold Harrington*
INSTRUMENT TECHNICIAN

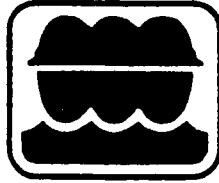
DATE: November 1, 1990 CERTIFIED BY: *Ronald J. Savoy*
RONALD J. SAVOY, P.E.



BEST AVAILABLE COPY

CSI Hydrostatic Testers, Inc.

P. O. Box 51282 Lafayette, Louisiana 70505-1282 Phone 318/235-7567



A Hargett Company

TEMPERATURE RECORDER CERTIFICATION

THE BELOW DESIGNATED TEMPERATURE RECORDER HAS BEEN CALIBRATED WITH A LOW POINT OF 32.F AND A MAXIMUM OF 150.F ACCORDING TO FACTORY SPECIFICATIONS AND ITS CALIBRATED ACCURACY IS +/- 1% OF FULL SCALE.

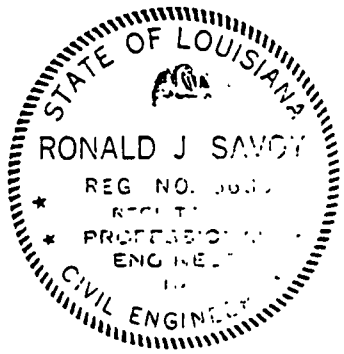
TEMPERATURE
RECORDER
CERTIFIED:

CSI # 7002
0 - 150° F
SERIAL NO: L-00022

CALIBRATED BY: *Sarah Harrington*
INSTRUMENT TECHNICIAN

DATE: November 1, 1990

CERTIFIED BY: *Ronald J. Savoy*
RONALD J. SAVOY, P.E.



BEST AVAILABLE COPY

CSI Hydrostatic Testers, Inc.

P. O. Box 51282 Lafayette, Louisiana 70505-1282 Phone 318/235-7567

BEST AVAILABLE COPY

MIDNIGHT

12

11

NOON

AMERICAN METER
AIR TEMP

CHART NO. MT-150°F
METER 7662

1/6/91
CHART PUT ON
10:08 P.M.

1/7/91
TAKEN OFF
3:00 P.M.

LOCATION W.C. 241-W.C. 245
REMARKS

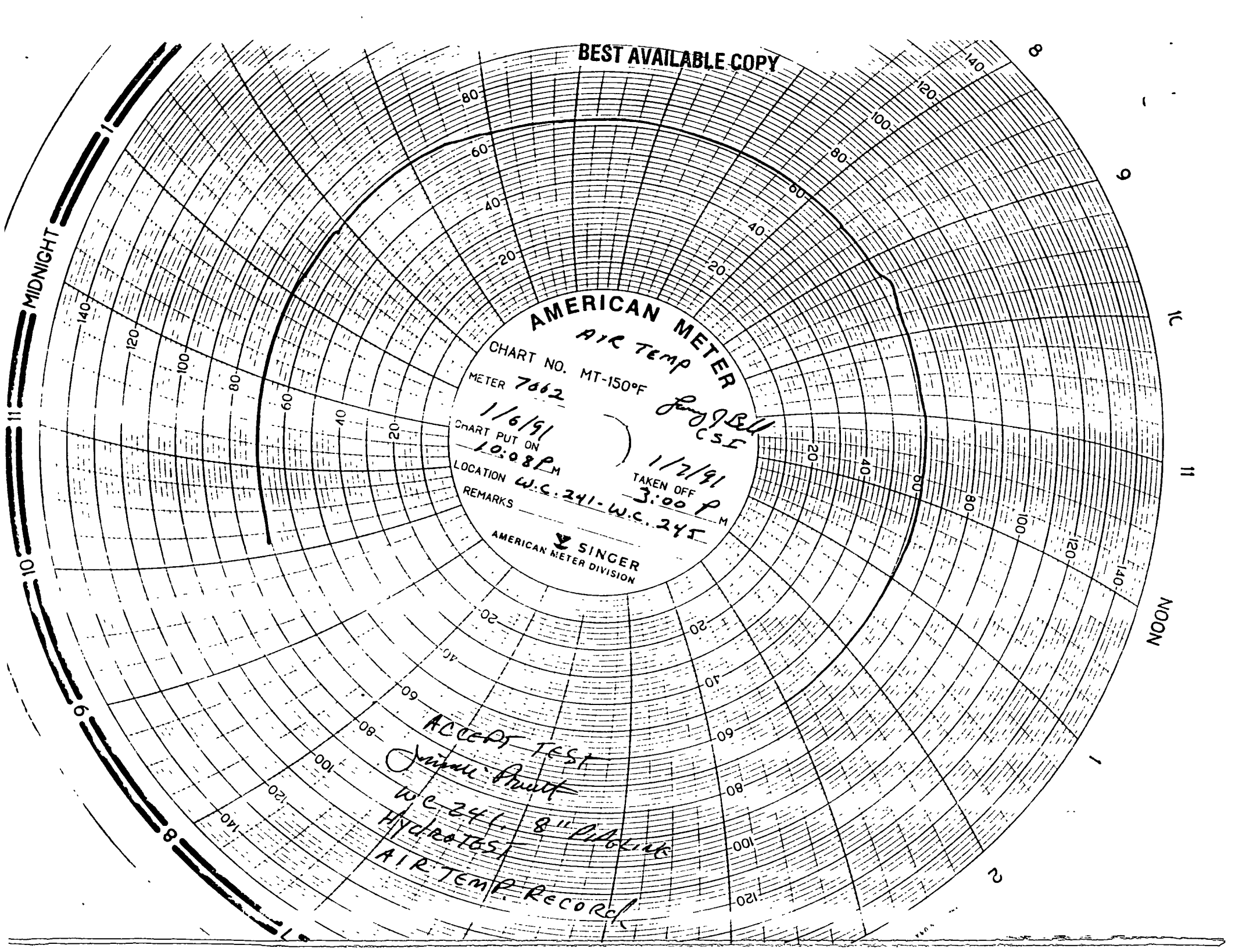
SINGER
AMERICAN METER DIVISION

ACCEPT TEST

W.C. 241, 8" Lubric

Hydrates

AIR TEMP RECORD



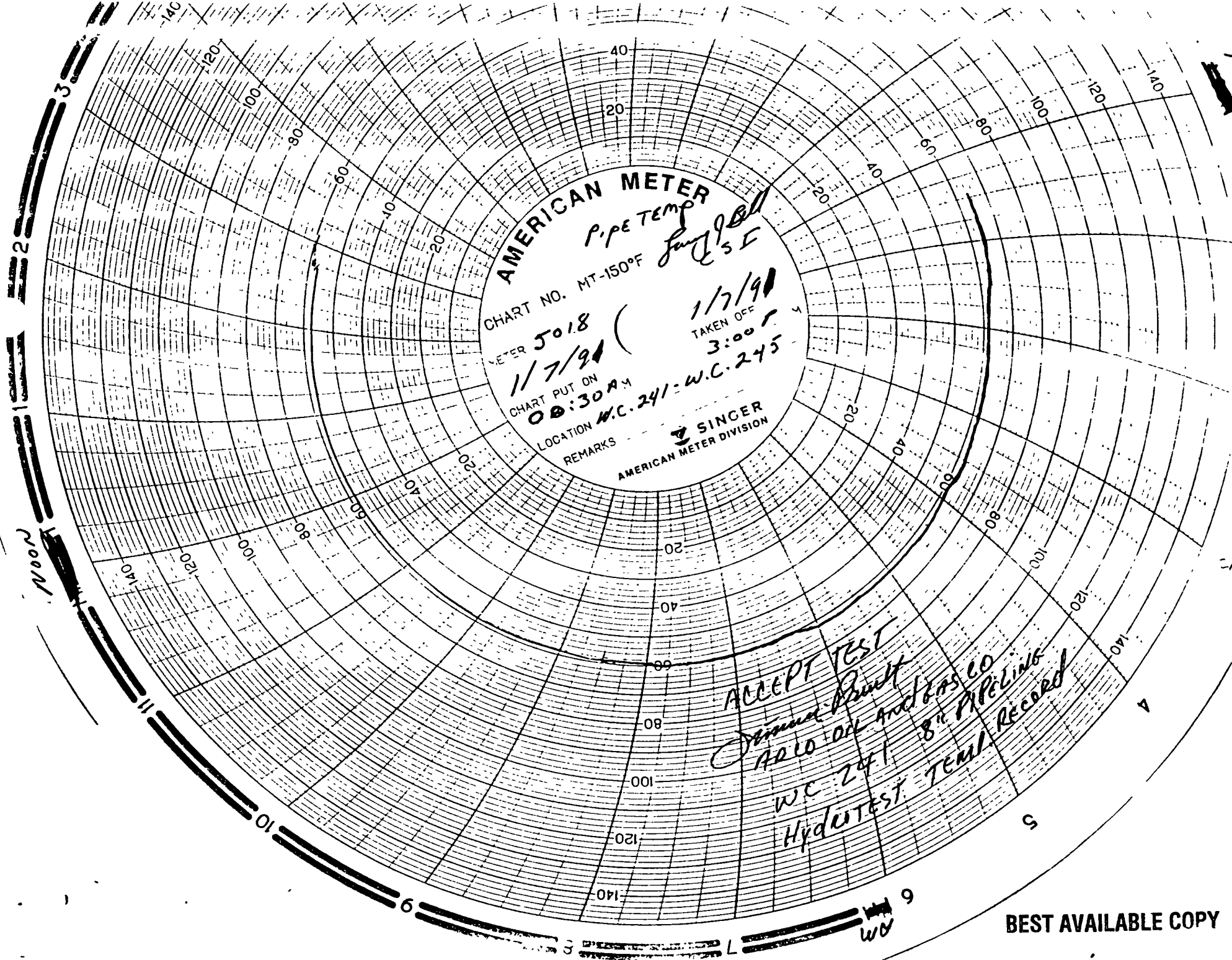
AMERICAN METER
PIPE TEMP
CHART NO. MT-150°F *Jan 90*
METER 5018
CHART PUT ON 11/7/90
TAKEN OFF 1/7/90
3:00 P
LOCATION W.C. 241 - W.C. 245
REMARKS SINGER
AMERICAN METER DIVISION

ACCEPT TEST
James Pruitt
ARLO OIL ANALYSIS CO
WC 241 8" PIPELINE
HydUTEST TEMP RECORD

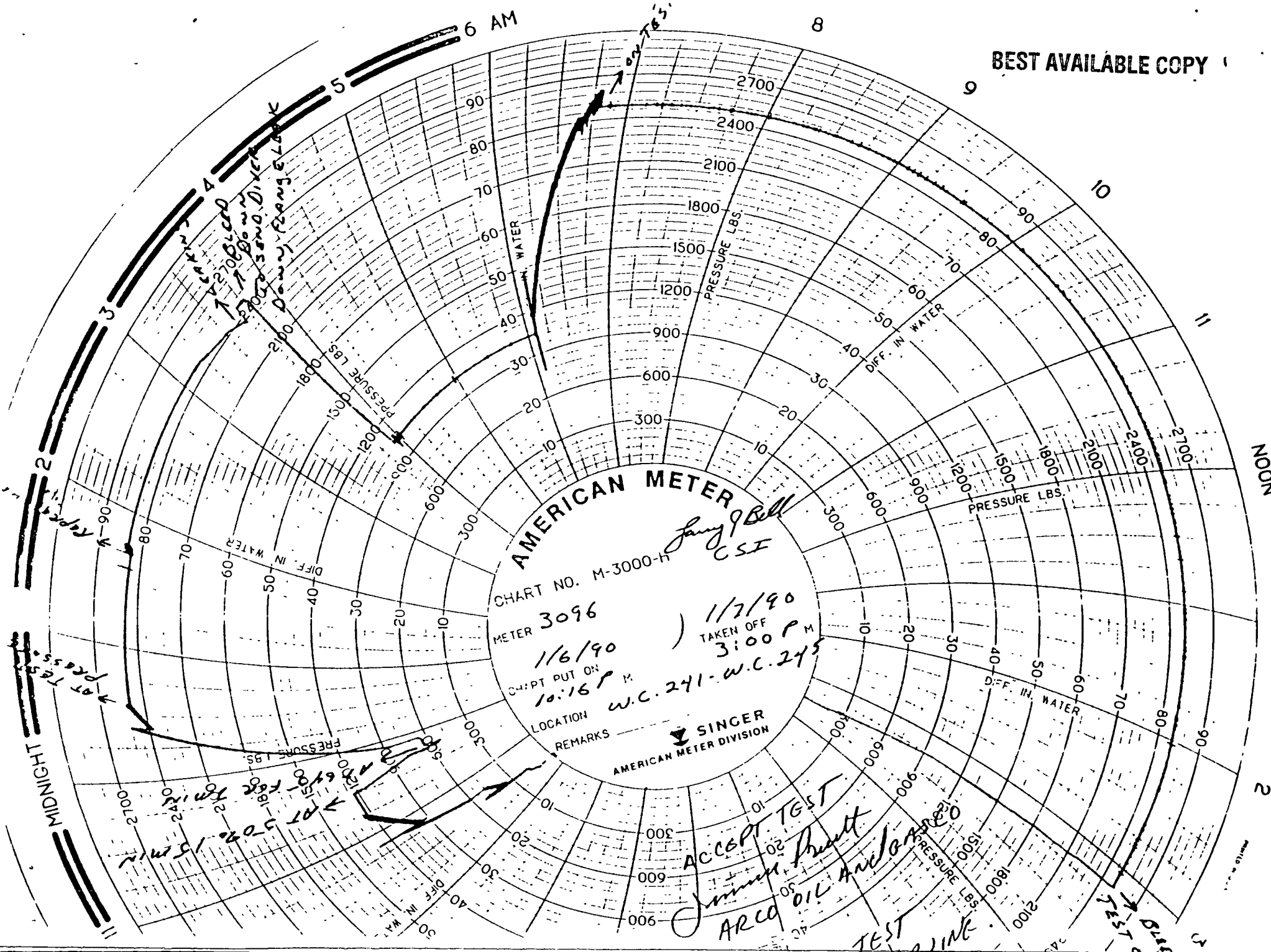
BEST AVAILABLE COPY

Noon

MIDNIGHT



BEST AVAILABLE COPY



AMERICAN METER
 CHART NO. M-3000-H
 METER 3096
 1/6/90
 CHART PUT ON 10:15 P.M.
 LOCATION W.C. 241 - W.C. 245
 SINGER
 AMERICAN METER DIVISION

Janey Bell
 CSF

1/7/90
 TAKEN OFF
 3:00 P.M.

ACCEPT TEST
James Pruitt
 ARCO OIL AND GAS
 TEST LINE

1 - 100 lbs
 2 - Down
 3 - 500 S.W. Diver
 4 - Down
 5 - 200 Down
 6 - 200 Down
 7 - 200 Down
 8 - 200 Down
 9 - 200 Down
 10 - 200 Down
 11 - 200 Down
 12 - 200 Down

MIDNIGHT
 1 - 100 lbs
 2 - 100 lbs
 3 - 100 lbs
 4 - 100 lbs
 5 - 100 lbs
 6 - 100 lbs
 7 - 100 lbs
 8 - 100 lbs
 9 - 100 lbs
 10 - 100 lbs
 11 - 100 lbs
 12 - 100 lbs

AT 5:00 PM
 1 - 100 lbs
 2 - 100 lbs
 3 - 100 lbs
 4 - 100 lbs
 5 - 100 lbs
 6 - 100 lbs
 7 - 100 lbs
 8 - 100 lbs
 9 - 100 lbs
 10 - 100 lbs
 11 - 100 lbs
 12 - 100 lbs

TEST LINE
 1 - 100 lbs
 2 - 100 lbs
 3 - 100 lbs
 4 - 100 lbs
 5 - 100 lbs
 6 - 100 lbs
 7 - 100 lbs
 8 - 100 lbs
 9 - 100 lbs
 10 - 100 lbs
 11 - 100 lbs
 12 - 100 lbs

OPI BARGE PIPELINER # 5
CLIENT ARCO
JOB NO. 8489
LOCATION WEST CAMERON
FIELD _____

% COMPLETED _____
EST. COMPLETION DATE _____
BLOCK NO. 245

DATE 1/7/91
DAYS ON JOB 33
EXTRA WORK 10:25 + 165 SANDBAGS
WEATHER DOWNTIME 231:45
CLERK RAYMOND HANKS

BEST AVAILABLE COPY

PERSONNEL		FUEL INVENTORY OPI BARGE		U.S.GALS.	
1	Superintendent	_____	Hrs.	Opening Inventory: 0001	14,426 gals.
2	Clerk/Medic	24	Hrs.	Receipts	0 gals.
2	Barge Foreman	24	Hrs.	Transfers Off	0 gals.
2	Leaderman	26	Hrs.	Consumption	534 gals.
2	Crane Operator	24	Hrs.	Closing Inventory: 2400	13,892 gals.
0	Anchor Foreman	_____	Hrs.	FUEL INVENTORY TUG " MISS BEATRICE U.S.GALS.	
2	Anchor Operator	24	Hrs.	Opening Inventory: 0001	11,279 gals.
0	Dope Foreman	_____	Hrs.	Receipts	0 gals.
0	OPI P/L Welder	_____	Hrs.	Transfers Off	0 gals.
0	Spacer	_____	Hrs.	Consumption	360 gals.
0	Stalk Operator	_____	Hrs.	Closing Inventory: 2400	10,919 gals.
0	Stabber	_____	Hrs.	FUEL INVENTORY TUG " U.S.GALS.	
0	Rigging Foreman	_____	Hrs.	Opening Inventory: 0001	_____ gals.
9	Riggers	117	Hrs.	Receipts	_____ gals.
0	Painters	_____	Hrs.	Transfers Off	_____ gals.
0	Fireman	_____	Hrs.	Consumption	_____ gals.
2	Jet Technician	24	Hrs.	Closing Inventory: 2400	_____ gals.
0	Chief Mechanic	_____	Hrs.	FUEL INVENTORY TUG " U.S.GALS.	
2	Mechanic	24	Hrs.	Opening Inventory: 0001	_____ gals.
2	Oiler	24	Hrs.	Receipts	_____ gals.
0	Chief Electrician	_____	Hrs.	Transfers Off	_____ gals.
0	Electrician	_____	Hrs.	Consumption	_____ gals.
OTHER/SUBCONTRACTORS				Closing Inventory: 2400	_____ gals.
1	Diving Supervisor	_____	Hrs.	FUEL INVENTORY CREWBOAT " WILL B. U.S.GALS	
0	Rack Operator	_____	Hrs.	Opening Inventory: 0001	14,311 gals.
7	Divers	_____	Hrs.	Receipts 12/22 TO 1/6	5,232 gals.
4	Tenders	_____	Hrs.	Transfers Off	0 gals.
6	Catering	_____	Hrs.	Consumption	2,083 gals.
2	Survey	_____	Hrs.	Closing Inventory: 2400	16,560 gals.
0	X-Ray	_____	Hrs.	WATER INVENTORY OBI BARGE U.S.GALS	
0	P/L Welders SubContract	_____	Hrs.	Opening Inventory: 0001	52,977 gals.
2	CSI TESTER	_____	Hrs.	Receipts	0 gals.
TOTAL OPI	26	_____		Transfers Off	0 gals.
TOTAL OTHER	25	_____		Consumption	3,256 gals.
TOTAL ONBOARD	51	_____		Closing Inventory: 2400	49,721 gals.
PROJECT MANAGER <u>MARK PARR</u>				WELDING GASES	
2	ARCO INSPECTOR			WEATHER	0600 1200 1800 2400
1	N.G.P.L. INSPECTOR			Wind	N 25-30 N 25-30 N 25-30 N20-25
				Swall	
				Wave Height	5'-7' 5'-7' 5'-7' 5'-7'
				Visibility	
PIPELAYING/ JETTING REPORT				REPAIRS CUTOUTS FPM COVER	
0001-1200	No. of Jts.	Length	Ft.		
1200-2400	No. of Jts.	Length	Ft.		
TOTAL THIS DAY	No. of Jts.	Length	Ft.		
PREVIOUS TOTAL	No. of Jts.	Length	Ft.		
TOTAL TO DATE	No. of Jts.	Length	Ft.		
VANE SHEAR	0600	1200	1800	2400	
SUPPORT EQUIPMENT				RENTAL EQUIPMENT	
BARGE	<u>PIPELINER # 5</u>	24	Hrs.	1	AIR COMPRESSOR
TUG	<u>MISS BEATRICE</u>	24	Hrs.	_____	AIR TUGGERS
_____	_____	_____	Hrs.	_____	JEEPS
_____	_____	_____	Hrs.	_____	PUMPS
CREWBOAT	<u>WILL BORDELON</u>	24	Hrs.	_____	JET HOSE
MATERIAL BARGE	_____	_____	Day	_____	HYDRAULIC IMPACTS
_____	_____	_____	Day	1	DIESEL WATER PUMP
_____	_____	_____	Day	SUBCONTRACTORS: OED, WIMBOL, ENERGY, CSI	
_____	_____	_____	Day		
_____	_____	_____	Day		

OPI INTERNATIONAL,
DAILY JOB REPORT

OPI BARGE PIPELINER # 5

DATE 1/7/91

CLIENT ARCO

JOB NO. 8489

LOCATION WEST CAMERON

FIELD _____ BLOCK NO. 245

EQUIPMENT MOVEMENT LOG (Indicate name of Tug, Crowboat or Material Barge)

Picked Up/Arrive in Field	Date	Hour	Personnel/Departed Field	Date	Hour
			WILL BORDELON	1/7/91	1725

PERSONNEL MOVEMENTS

ONBOARD	VIA	OFF	VIA
		2 CBI TESTERS	WILL BORDELON

BEST AVAILABLE COPY

JOB PROGRESS/REMARKS

TIMING		COST CODE	DESCRIPTION OF WORK
FROM	TO		
0001	1700	4060	PRESSURING UP TEST.
0020			DIVER DOWN, MAJERUS, TO FINISH HY-TORQUING FLANGE, AND WORK ON ASSEMBLY CLAMPS.
0035			TEST UP TO PRESSURE.
0150			DIVER UP, OUT OF TIME. WILL BORDELON ALONGSIDE WITH PERSONNEL FROM PLATFORM.
0215			DIVER DOWN, HAGAN, TO HY-TORQUE FLANGE.
0255			DIVER FINISH HY-TORQUING, WORKING ON ASSEMBLY CLAMPS.
0320			DIVER UP, OUT OF TIME.
0335			DIVER DOWN, NELSON, TO WORK ON ASSEMBLY CLAMPS.
0345			BLEEDING DOWN TEST, TO HY-TORQUE TEST BLIND FLANGE. TEST NOT HOLDING.
0400			PICKING UP HY-TORQUE TO LENGTHEN WING, IN ORDER TO TIGHTEN BOLTS.
			DIVER WORKING ON ASSEMBLY CLAMPS.
0445			DIVER UP, OUT OF TIME.
0450			DIVER DOWN, HAVERLOCK, TO WORK ON ASSEMBLY CLAMPS.
0515			SENDING DOWN HY-TORQUE.
0555			DIVER FINISH HY-TORQUING FLANGE.
0600			DIVER UP. COMING UP ON PRESSURE.
0610			DIVER DOWN, KELLY, TO WORK ON ASSEMBLY CLAMPS.
0650			DIVER FINISH ASSEMBLY CLAMPS, PUTTING ON FLANGE PROTECTORS.
0720			DIVER UP, OUT OF TIME.
0735			TENDER DOWN, DYE, TO FINISH FLANGE PROTECTORS. PIPELINE ON TEST, 2496 PSI.
0840		TENDER UP, ALL FLANGE PROTECTORS ON. TEST PRESSURE 2494 PSI.	
1200		TEST PRESSURE 2494 PSI, AND HOLDING.	
1325		DIVER DOWN, TO VERIFY POLLY PIG IN ASSEMBLY, AND CLOSE ASSEMBLY CHECK VALVE.	
1400		DIVER UP. PIG IS IN ASSEMBLY, AND CHECK VALVE CLOSE, AND COVER INSTALLED.	
1505		INSPECTOR SAYS TEST GOOD, BLEEDING OFF SAME.	
1530		DIVER DOWN, LEWIN, DERIG TEST HOSE, AND REMOVE TEST FLANGE.	
1625		BLIND FLANGE ON SURFACE, DIVER HAND JETTING PIPELINE TO GRADE.	
1700	2400	4050	DIVER UP, OUT OF TIME. WILL BORDELON ALONGSIDE TO PICK UP TEST EQUIPT. TEST PERSONNEL.
1725			WILL BORDELON DEPARTED.
1730			DIVER DOWN, TO HAND JET PIPELINE FLANGE DOWN TO ASSEMBLY FLANGE.
1855			DIVER UP. MISS BEATRICE ALONGSIDE WITH RIGGERS FROM PLATFORM. SPOOL PIECE, VALVE, AND BLIND FLANGE IN PLACE ON RISER.
1910			DIVER DOWN, NELSON, TO HAND JET AND LINE UP FLANGES.

BY [Signature]
TITLE _____

OPI REPRESENTATIVE
BY [Signature]
TITLE Surat

OPI INTERNATIONAL, INC.
DAILY JOB REPORT

PAGE 3 OF 3

DATE 1/7/91

OPI BARGE PIPELINER # 5
CLIENT ARCO
JOB NO. 8489
LOCATION WEST CAMERON
FIELD _____

BLOCK NO. 245

TIMING		COST CODE	JOB PROGRESS/REMARKS (continued)
FROM	TO		DESCRIPTION OF WORK
2035			DIVER UP, HAS DRIFT PIN AT 10 O'CLOCK.
2045			DIVER DOWN, CALVERT, TO INSTALL BOLTS IN FLANGES.
2215			DIVER UP, OUT OF TIME. DIVER HAS 2 LONG BOLTS, AND TWO DRIFT PIN IN FLANGE. WAS DRAWING UP TO INSTALL O-RING.
2230			DIVER DOWN, MAJERUS, TO INSTALL O-RING.
2315			O-RING CAPTURED, DIVER PUTTING REGULAR BOLTS.
2400			DIVER UP, OUT OF TIME.

BEST AVAILABLE COPY

RECAP BY JOB ACCOUNT/FUNCTION/COST CODE

MOB/DEMOB		3010		Hrs.	
WEATHER		3040		Hrs.	
LAY		4010		Hrs.	
BURY		4020		Hrs.	
LAY/BURY		4030		Hrs.	
CROSS LINES		4040		Hrs.	
END CONNECTION	PIPELINE TO ASSEMBLY	4050	7	Hrs.	
HYDRO-TEST	TEST ARCO 8" PIPELINE	4060	17	Hrs.	
LAUNCH JACKET		5000		Hrs.	
SET/SALVAGE JACKET		5010		Hrs.	
LEVEL JACKET		5020		Hrs.	
PILING		5030		Hrs.	
GROUT PILING		5040		Hrs.	
SET/SALVAGE DECK		5050		Hrs.	
PAINTING		5060		Hrs.	
OTHER		5999		Hrs.	
IDLE		8500		Hrs.	
TOTAL HOURS			24	HRS	

CLIENT'S REPRESENTATIVE

BY Andy W...
TITLE _____

OPI REPRESENTATIVE

BY ...
TITLE ...

4

PIPELINER # 5
ARCO JOB # 8489

BEST AVAILABLE COPY

This is to certify the completion of below listed installation in accordance with CONTRACT-SPECIFICATION.

16,088.1' of 8" pipe layed from West Cameron 241 to West Cameron 245.
15,788.1' of pipe buried to 3' cover.

300' of pipe buried to 5' of cover at platform in West Cameron 241.
Made riser to pipeline tie-end with under water flange up.

Installation of sub sea assembly at tie-end point on Stingray 30" pipeline in West Cameron 245.

Sand bagged 8" Arco pipeline, and 14" Chevron pipeline, with 3' cover, and 18" of seperation between pipelines.

Gage pig and hydro test pipeline.

Made final tie-end with pipeline to assembly.

Installed spool piece, and valve on riser at platform in West Cameron 241.

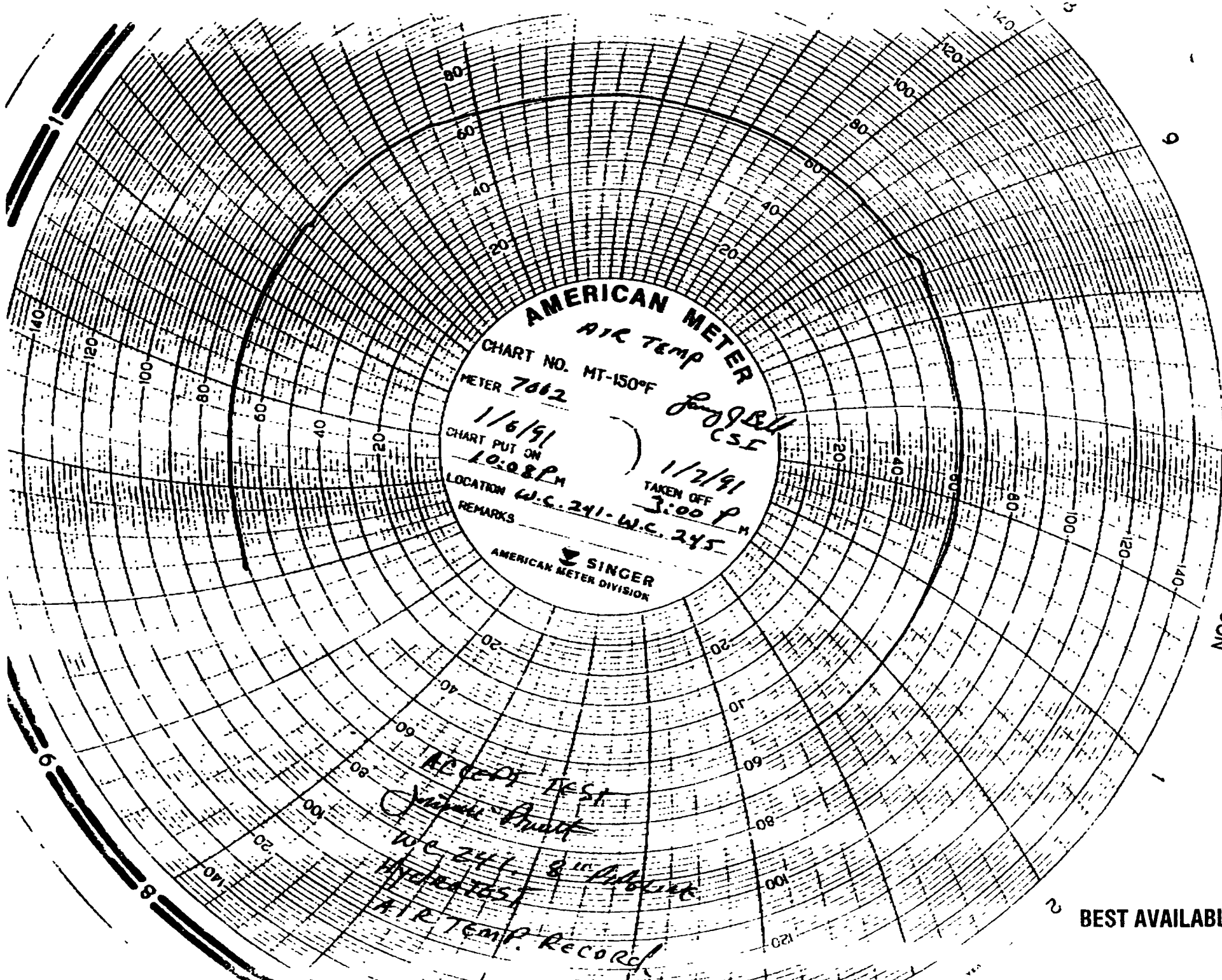
SAND BAG ASSEMBLY.

BARGE SUPERINTENDENT

[Signature]

ARCO INSPECTION

[Signature] 1-8-9,



AMERICAN METER
AIR TEMP

CHART NO. MT-150°F
METER 7062

1/6/91
CHART PUT ON
10:08 PM

James Bell
CS5
1/7/91
TAKEN OFF
3:00 PM

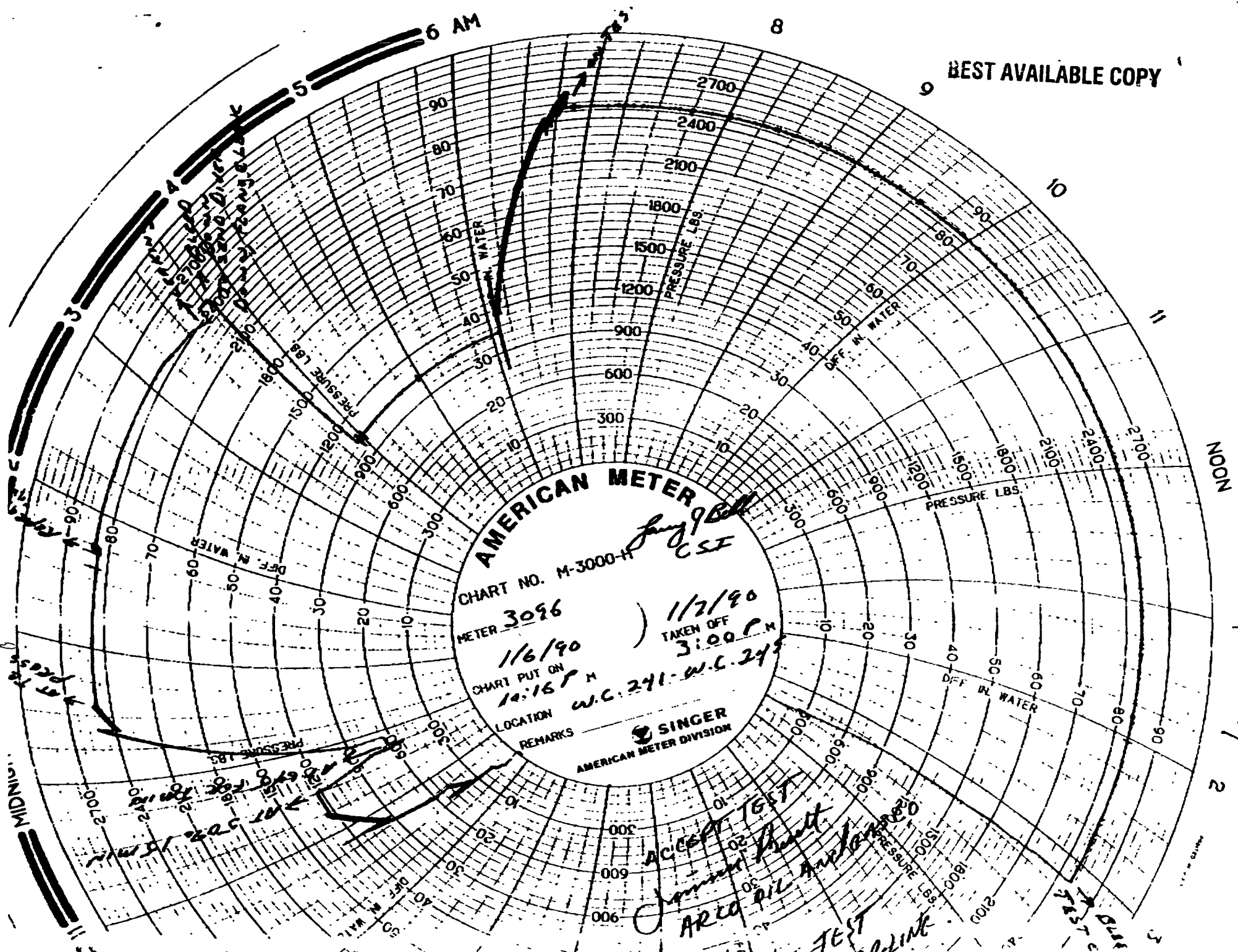
LOCATION W.C. 241 - W.C. 245
REMARKS

SINGER
AMERICAN METER DIVISION

Accept Test
James Bell
W.C. 241 & 245
Hydrates
AIR Temp Record

9
10
11
NOON
5

BEST AVAILABLE COPY



AMERICAN METER

CHART NO. M-3000-11

METER 3096

CHART PUT ON 1/6/90

LOCATION W.C. 241 - W.C. 245

REMARKS

SINGER AMERICAN METER DIVISION

July 9 Bell
CSF

11/2/90
TAKEN OFF
3:00 P.M.

ACCEPT TEST
James Hunt
ARCO OIL AND GAS

TEST DATE

6 AM

5

4

3

2

1

MIDNIGHT

11

10

9

8

7

6

5

4

3

2

1

NOON

11

10

9

8

7

6

5

4

3

2

1

0

100

200

300

400

500

600

700

800

900

1000

1100

1200

1300

1400

1500

1600

1700

1800

1900

2000

2100

2200

2300

2400

2500

2600

2700

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

200

210

220

230

240

250

260

270

280

290

300

310

320

330

340

350

360

370

380

390

400

410

420

430

440

450

460

470

480

490

500

510

520

530

540

550

560

570

580

590

600

610

620

630

640

650

660

670

680

690

700

710

720

730

740

750

760

770

780

790

800

810

820

830

840

850

860

870

880

890

900

910

920

930

940

950

960

970

980

990

1000

1010

1020

1030

1040

1050

1060

1070

1080

1090

1100

1110

1120

1130

1140

1150

1160

1170

1180

1190

1200

1210

1220

1230

1240

1250

1260

1270

1280

1290

1300

1310

1320

1330

1340

1350

1360

1370

1380

1390

1400

1410

1420

1430

1440

1450

1460

1470

1480

1490

1500

1510

1520

1530

1540

1550

1560

1570

1580

1590

1600

1610

1620

1630

1640

1650

1660

1670

1680

1690

1700

1710

1720

1730

1740

1750

1760

1770

1780

1790

1800

1810

1820

1830

1840

1850

1860

1870

1880

1890

1900

1910

1920

1930

1940

1950

1960

1970

1980

1990

2000

2010

2020

2030

2040

2050

2060

2070

2080

2090

2100

2110

2120

2130

2140

2150

2160

2170

2180

2190

2200

2210

2220

2230

2240

2250

2260

2270

2280

2290

2300

2310

2320

2330

2340

2350

2360

2370

2380

2390

2400

2410

2420

2430

2440

2450

2460

2470

2480

2490

2500

2510

2520

2530

2540

2550

2560

2570

2580

2590

2600

2610

2620

2630

2640

2650

2660

2670

2680

2690

2700

PIPELINE EDDIE P-100

NOON

1 2 7

TEST DATE

BEST AVAILABLE COPY

8

C.S.I. HYDROSTATIC TESTERS

Hydrostatic Test Report

P. O. BOX 51282, O.C.S.

LAFAYETTE, LA. 70505

Line N. G. Location WC 241 Job No. DE-90-085 Length 16,000 ft.

Line Size 8" O.D. W.T. Gr. Sch. 80/R Sta/M.P. _____ to Sta/M.P. _____

2470 MIN 2500 MAX

TIME		Dead Weight Pressure	TEMPERATURE OF			REMARKS
DATE	HOUR		Air	Pipe	Remote Earth	
1/7/91	6:42 Am	2492	61	60		AT Test PRESSURE
	7:00	2495	61	60		
	7:15	2494	62	60		
	7:30	2494	62	60		
	7:45	2494	61	60		
	8:00	2494	62	59		
	8:30	2494	61	59		
	9:00	2494	62	59		
	9:30	2495	64	59		
	10:00	2495	63	58		
	10:30	2494	62	59		
	11:00	2494	62	58		
	11:30	2495	62	58		
	12:00 Am	2496	62	58		
	12:30	2497	61	58		
	1:00	2497	61	58		
	1:30	2497	60	58		
	2:00	2497	60	58		
	2:30	2497	60	57		
	3:00	2498	60	57		BLEED DOWN, TEST COMPLETE

CSI Engineer James J. Bell

Field Approval for Pipeline Company _____

Witness Ronald Adkins

Insp. _____

Chief Insp. James J. Bell

C.S.I. HYDROSTATIC TESTERS

Hydrostatic Test Report

P. O. BOX 51282, O.C.S.

LAFAYETTE, LA. 70505

BEST AVAILABLE COPY

Company ARCO oil & Gas Company

Line N.G. Location WC 241 Job No. DE-90-085 Length 16000 ft.

Line Size 8" O.D. 8 1/2" W.T. Gr. Sch. 80/B Sta/M.P. _____ to Sta/M.P. _____

Terrain _____ Soil Condition Clay / sugar sand

Fill began 1-6-91 at 1-6 A.M. P.M. Fill Completed 1-6-91 at _____ A.M. P.M.

Meter Reading: Beginning _____ Gals., Final _____ Gal.

Displacement: Theoretical _____ Gal., Meas. _____ Gal.

Gallons Required to increase pressure from _____ P.S.I.G. to _____ P.S.I.G. _____ Gal.
PRESSURE PUMP MEASUREMENT

Exposed pipe 15 ft. General Contractor OPI

Fill water Temperature

2470 min 2500 max

TIME		Deadweight Pressure	TEMPERATURE OF			REMARKS
Date	Hour		Air	Pipe	Remote Earth	
<u>1/6/91</u>	<u>10:14 PM</u>	<u>0</u>				<u>START BLEEDING AIR OUT OF</u>
	<u>10:29</u>	<u>300</u>				<u>PIPER PRESSURING UP</u>
	<u>11:13</u>	<u>1248</u>				<u>STOP TEST PRESSURE 15 MIN.</u>
	<u>11:30</u>	<u>1246</u>				<u>BLEED DOWN TO 600 PSI</u>
	<u>11:45</u>	<u>650</u>				<u>HOLD FOR 70 MIN</u>
	<u>11:52</u>	<u>644</u>				<u>PRESSURING</u>
<u>1/7/91</u>	<u>00:34 AM</u>	<u>2495</u>	<u>69°</u>	<u>64°</u>		<u>AT TEST PRESSURE</u>
	<u>00:50</u>	<u>2487</u>	<u>69°</u>	<u>64°</u>		
	<u>01:05</u>	<u>2481</u>	<u>69°</u>	<u>64°</u>		
	<u>1:20</u>	<u>2475</u>	<u>69°</u>	<u>63°</u>		
	<u>1:45</u>	<u>2471-2495</u>	<u>68°</u>	<u>62°</u>		<u>REPRESSURE</u>
	<u>2:00</u>	<u>2490</u>	<u>68°</u>	<u>62°</u>		
	<u>2:15</u>	<u>2485</u>	<u>68°</u>	<u>62°</u>		
	<u>2:30</u>	<u>2482</u>	<u>68°</u>	<u>62°</u>		
	<u>2:45</u>	<u>2478</u>	<u>68°</u>	<u>62°</u>		
	<u>3:00</u>	<u>2472</u>				
	<u>3:10</u>	<u>2470</u>				<u>REPRESSURE TO 2481</u>
	<u>3:15</u>	<u>2481</u>				
	<u>3:30</u>	<u>2477</u>	<u>67°</u>	<u>62°</u>		
	<u>3:43</u>	<u>2472</u>				<u>BLEED DOWN TO 1044</u>
						<u>BLEED TIGHTENING FLANGE</u>
						<u>START PRESSURING</u>

Valix. 1783 Pressure 3096 Pipe Temp. 5018 Air Temp 7002

CSI Engineer Jerry J. Bell

Field Approval for Pipeline Company

Witness 1 Donald Adkins

Insp. _____

Witness 2 _____

Chief Insp. William Hunt

OPI INTERNATIONAL, INC.
DAILY JOB REPORT
PIPELINE

PAGE 1 OF 3

OPI BARGE PIPELINER # 5
CLIENT ARCO
JOB NO. 8489
LOCATION WEST CAMERON
FIELD _____

% COMPLETED _____
EST. COMPLETION DATE _____
BLOCK NO. 241

DATE 1/6/91
DAYS ON JOB 32
EXTRA WORK 10:25 + 165 SANDBAGS
WEATHER DOWNTIME 231:45
CLERK RAYMOND HANKS

PERSONNEL			FUEL INVENTORY OPI BARGE		U.S. GALS.
<u>1</u>	Superintendent	_____ Hrs.	Opening Inventory: 0001	<u>14,291</u>	gals
<u>2</u>	Clerk/Medic	<u>24</u> Hrs.	Receipts FUEL ADJUSTMENT	<u>2,000</u>	gals
<u>2</u>	Barge Foreman	<u>24</u> Hrs.	Transfers Off	<u>0</u>	gals
<u>2</u>	Leaderman	<u>26</u> Hrs.	Consumption	<u>1,865</u>	gals
<u>2</u>	Crane Operator	<u>24</u> Hrs.	Closing Inventory: 2400	<u>14,426</u>	gals
<u>0</u>	Anchor Foreman	_____ Hrs.	FUEL INVENTORY TUG "MISS BEATRICE U.S. GALS.		
<u>2</u>	Anchor Operator	<u>24</u> Hrs.	Opening Inventory: 0001	<u>11,929</u>	gals
<u>0</u>	Dops Foreman	_____ Hrs.	Receipts	<u>0</u>	gals
<u>0</u>	OPI P/L Welder	_____ Hrs.	Transfers Off	<u>0</u>	gals
<u>0</u>	Spacer	_____ Hrs.	Consumption	<u>650</u>	gals
<u>0</u>	Stalk Operator	_____ Hrs.	Closing Inventory: 2400	<u>11,279</u>	gals
<u>0</u>	Stabber	_____ Hrs.	FUEL INVENTORY TUG "		
<u>0</u>	Rigging Foreman	_____ Hrs.	Opening Inventory: 0001	_____	gals
<u>9</u>	Riggers	<u>108</u> Hrs.	Receipts	_____	gals
<u>0</u>	Painters	_____ Hrs.	Transfers Off	_____	gals
<u>0</u>	Fireman	_____ Hrs.	Consumption	_____	gals
<u>2</u>	Jet Technician	<u>24</u> Hrs.	Closing Inventory: 2400	_____	gals
<u>0</u>	Chief Mechanic	_____ Hrs.	FUEL INVENTORY TUG "		
<u>2</u>	Mechanic	<u>24</u> Hrs.	Opening Inventory: 0001	_____	gals
<u>2</u>	Oiler	<u>24</u> Hrs.	Receipts	_____	gals
<u>0</u>	Chief Electrician	_____ Hrs.	Transfers Off	_____	gals
<u>0</u>	Electrician	_____ Hrs.	Consumption	_____	gals
OTHER/SUBCONSTRUCTORS			Closing Inventory: 2400	_____	gals
<u>1</u>	Diving Supervisor	_____ Hrs.	FUEL INVENTORY CREWBOAT " WILL B. U.S. GALS		
<u>0</u>	Rack Operator	_____ Hrs.	Opening Inventory: 0001	<u>14,311</u>	gals
<u>7</u>	Divers	_____ Hrs.	Receipts	_____	gals
<u>4</u>	Tenders	_____ Hrs.	Transfers Off	_____	gals
<u>6</u>	Catering	_____ Hrs.	Consumption	_____	gals
<u>2</u>	Survey	_____ Hrs.	Closing Inventory: 2400	_____	gals
<u>0</u>	X-Ray	_____ Hrs.	WATER INVENTORY OBI BARGE		
<u>0</u>	P/L Welders SubContract	_____ Hrs.	Opening Inventory: 0001	<u>43,142</u>	gals
<u>2</u>	CSI TESTERS	_____ Hrs.	Receipts	<u>13,091</u>	gals
TOTAL OPI	<u>26</u>		Transfers Off	<u>0</u>	gals
TOTAL OTHER	<u>24</u>		Consumption	<u>3,256</u>	gals
TOTAL ONBOARD	<u>50</u>		Closing Inventory: 2400	<u>52,977</u>	gals
PROJECT MANAGER <u>MARK PARR</u>					
<u>1</u>	ARCO INSP.				
<u>1</u>	NGPL INSP				

WELDING GASES				WEATHER				
Oxygen	Full	Empty		0600	1200	1800	2400	
<u>7</u>	<u>13</u>	_____		Wind	NE10-15	NE 5-10	NE 10-15	N25-30
<u>6</u>	<u>4</u>	_____		Swell				
				Wave Height	2'-4'	3'-5'	3'-5'	4'-6'
				Visibility				

PIPELAYING/ JETTING REPORT ** 3622' WAS DOUBLE PASS					REPAIRS	CUTOUTS	FPM	COVER
0001-1200	No. of Jts.	Length	<u>1920'</u>	Ft.			<u>3.2'</u>	<u>3'-5'</u>
1200-2400	No. of Jts.	Length	<u>1270'</u>	Ft.			<u>8.4'</u>	<u>3'-5'</u>
TOTAL THIS DAY	No. of Jts.	Length	<u>3190'</u>	Ft.			<u>4.2'</u>	<u>3'-5'</u>
PREVIOUS TOTAL	No. of Jts.	Length	<u>16520'</u>	Ft.			<u>2'</u>	<u>2'-5'</u>
TOTAL TO DATE	No. of Jts.	Length	<u>** 19710'</u>	Ft.			<u>2.3'</u>	<u>3'-5'</u>
VANE SHEAR	0600	1200	1800	2400				

SUPPORT EQUIPMENT		RENTAL EQUIPMENT	
BARGE	<u>PIPELINER # 5</u> <u>24</u> Hrs.	<u>1</u>	AIR COMPRESSOR
TUG	<u>MISS BEATRICE</u> <u>24</u> Hrs.		AIR TUGGERS
			JEEPS
			PUMPS
CREWBOAT	<u>WILL BORDELON</u> <u>24</u> Hrs.		JET HOSE
MATERIAL BARGE	_____ Day		HYDRAULIC IMPACTS
	_____ Day		

BEST AVAILABLE COPY

2

OPI INTERNATIONAL, INC.
DAILY JOB REPORT

PAGE 2 OF 3

OPI BARGE PIPELINER # 5 DATE 1/6/91
 CLIENT ARCO JOB NO. 8489
 LOCATION WEST CAMERON FIELD _____ BLOCK NO. 241

EQUIPMENT MOVEMENT LOG (Indicate name of Tug, Crewboat or Material Barge)					
Arrive in Field	Date	Hour	Dropped/Departed Field	Date	Hour
PERSONNEL WILL BORDELON	1/6/90	1400			

PERSONNEL MOVEMENTS			
ONBOARD	VIA	OFF	VIA
2 OPD, 2 CRT, 1 NGPL	WILL BORDELON		

JOB PROGRESS/REMARKS

TIMING		COST CODE	DESCRIPTION OF WORK
FROM	TO		
0001	0055	4020	BARGE AT CROSSING. PICKING UP JET HEADS ON JET MACHINE, TO MAKE SECOND PASS ON HIGH PIPE.
0015			JET MACHINE IN WATER. DIVER DOWN, KELLY, TO SET JET MACHINE.
0055	0940		JET MACHINE SET. JETTING AHEAD.
0110			DIVER UP.
0210			DIVER CHECK, CALVERT, T.P. 72', N.B. 68', JETTING 2' PER MIN, 4' COVER. DIVER CHECKING COVER IN FRONT OF JET MACHINE.
0315			DIVER UP. DIVER FOUND SOME PIPE WITH COVER BUT NOT ALL. WILL BE FASTER TO JET THROUGH THAN PICK UP MACHINE AND RESET.
0405			DIVER CHECK, MAJERUS, T.P. 72', N.B. 67', JETTING 4' PER MIN, 5' COVER.
0420			DIVER UP. ANODE OK. VAIN SHEAR SAMPLE CAME OUT OF TUBE.
0535			DIVER CHECK, MAJERUS, T.P. 70', N.B. 67', JETTING 3' PER MIN, 3' COVER.
0555			DIVER UP.
0700			DIVER CHECK, HAGAN, T.P. 71', N.B. 67', JETTING 2½' PER MIN, 4' COVER.
0740			T.P. 72, N.B. 67', JETTING 3' PER MIN, 5' COVER.
0800			DIVER UP.
0900			DIVER CHECK, NELSON, T.P. 72', N.B. 67½', JETTING 6' PER MIN, 4½' COVER.
0920			DIVER UP. VAIN SHEAR 614 PSF.
0940	0950		ALL STOP JETTING, SERVICING JET PUMPS.
0950	0955		JETTING AHEAD.
0955	1000		ALL STOP JETTING, V-16 OIL PRESSURE GOING UP AND DOWN.
1000	1500		JETTING AHEAD.
1015			DIVER CHECK, NELSON, T.P. 71½', N.B. 67', JETTING 4' PER MIN, 4½' COVER.
1035			DIVER UP. VAIN SHEAR 921 PSF.
1135			DIVER CHECK, HAVERLOCK, T.P. 71', N.B. 67', JETTING 5' PER MIN, 4' COVER.
1200			DIVER UP. VAIN SHEAR 921 PSF. ANODE OK.
1300			DIVER CHECK, HAVERLOCK, T.P. 69', N.B. 65', JETTING 20' PER MIN, 4' COVER.
1316			DIVER UP. SUGAR SAND. ANODE OK.
1400			WILL BORDELON ALONGSIDE WITH PERSONNEL, AND TEST EQUIPMENT.
1410			DIVER CHECK, KELLY, T.P. 69', N.B. 66', JETTING 12' PER MIN, 3' COVER.
1430			DIVER CHECKED IN FRONT OF MACHINE 5 JOINTS, ALL HAVE COVER. BACKING UP TO PICK UP JET MACHINE.
1450			DIVER UP. JET MACHINE ON DECK.
1500	2400	4060	PICKING UP ANCHORS TO SET UP AT ASSEMBLY.
1600			UNDER TOW TO SET UP AT ASSEMBLY.
1630			DROPPED PORT STERN ON LOCATION AT ASSEMBLY.

OPI INTERNATIONAL, INC.
DAILY JOB REPORT

PAGE 3 OF 3

OPI BARGE PIPELINER # 5
CLIENT ARCO
JOB NO. 8489
LOCATION WEST CAMERON
FIELD _____

DATE 1/6/91

BLOCK NO. 241

TIMING		COST CODE	JOB PROGRESS/REMARKS (continued)
FROM	TO		
1700			BARGE SET UP. BRINGING WILL BORDELON ALONGSIDE TO TAKE ON WATER.
1710			TENDER DOWN, SEIVERS, TO ESTABLISH DOWN LINE, AND CHECK WHERE HOSE TO BE HOOKED UP.
1725			TENDER UP. MISS BEATRICE ALONGSIDE TO PICK UP PERSONNEL TO TAKE TO OTHER END.
1750			DIVER DOWN, TO HOOK UP JET HOSE FOR PUSHING PIG.
1753			PUSHING PIG.
1825			PIGS ARE IN TRAP. TAKING OFF PIG CATCHER, AND PUTTING ON BLIND FLANGE.
1905			DIVER UP, OUT OF TIME.
1910			DIVER DOWN, DOETTCER, TO REMOVE PIG LAUNCHER, AND INSTALL BLIND FLANGE.
2040			DIVER UP. BLIND FLANGE ON BUT NOT TIGHT. WILL BORDELON DEPARTED SIDE OF BARGE, TO GIVE MISS BEATRICE WATER.
2050			DIVER DOWN, LEWIN, TO TIGHTEN BLIND FLANGE.
2205			SENDING DOWN TEST HOSE.
2220			DIVER UP. PUMPING UP ON PRESSURE.
2230			DIVER DOWN, CALVERT, TO FINISH 12" FLANGE WHILE TESTING PIPELINE.
2315			STABILIZING TEST AT 1235.
2350			PUMPING UP PRESSURE TO TEST PRESSURE, 2470 PSI.
2400			DIVER UP

BEST AVAILABLE COPY

RECAP BY JOB ACCOUNT/FUNCTION/COST CODE

MOB/DEMOB				
MOB/DEMOB		3010		Hrs.
WEATHER		3040		Hrs.
LAY	JET 8" ARCO PIPELINE	4010	15 HRS 5 MINS	Hrs.
BURY		4020		Hrs.
LAY/BURY		4030		Hrs.
CROSS LINES		4040		Hrs.
END CONNECTION		4050		Hrs.
HYDRO-TEST	RIG UP, PUSH PIG & TEST	4060	8 HRS 55 MINS	Hrs.
LAUNCH JACKET		5000		Hrs.
SET/SALVAGE JACKET		5010		Hrs.
LEVEL JACKET		5020		Hrs.
PILING		5030		Hrs.
GROUT PILING		5040		Hrs.
SET/SALVAGE DECK		5050		Hrs.
PAINTING		5060		Hrs.
OTHER		5999		Hrs.
IDLE		8500		Hrs.

01/07/91 07152

85

4

Pipeliner #5
1/7/91

- 0001 Pressuring up test.
 0020 Diver down, majerus, to finish hy-torquing flange, and work on assembly caps.
 0035 Test up to pressure.
 0150 Diver up. Will Borden alongside with hands from platform.
 0215 Diver down, Hagan, to Hy-torque flange.
 0235 Diver finish hy-torquing, working on clamps
 0320 Diver up.
 0335 Diver down, Nelson, to work on assembly.
 0345 Bleeding down test, to hy-torque test flange, test leaking.
 0400 Working up Hy-torque to length on right torque, too short to reach bolts.
 Diver back working on clamps.
 0445 Diver up.
 0450 Diver down, Haverlock, to work on assembly clamps.
 0515 Landing down Hy-torque.

BEST AVAILABLE COPY

01/07/91 07:53

6

07

O P I, INTERNATIONAL, INC.

F O R C E A C C O U N T

VESSEL PIPELINER # 5 CLIENT ARCO
 JOB NO. 8489 CLIENT JOB NO.
 LOCATION WEST CAMERON BLK 241 DATE 1/3/91

TIME	DESCRIPTION OF WORK	TOTALS
2130 TO 2400	BARGE WENT ON WEATHER AT 0930 ON 1/3/91, WHEN JET MACHINE CAME OFF PIPELINE, AND WEATHER WAS TOO ROUGH TO RESET JET MACHINE. BARGE WAS STILL ON WEATHER AT 2400, OPI ASSUMED THE FIRST 12 HOURS, LEAVING 2 HRB 30 MINUTES ON FORCE ACCOUNT.	2 HOURS 30 MINS
		2 HOURS 30 MINS

OPI INTERNATIONAL, INC.

DAILY CREW LIST

PAGE _____ of _____

BARGE PIPELINER # 5

BARGE SUPT. MICHAEL VOISIN SR.

DATE JAN 6 1991

BARGE CLERK RAYMOND HANKS

CLASSIFICATION	MIDNIGHT TO NOON	NOON TO MIDNIGHT	TIME OFF
FOREMAN	MICHAEL VOISIN JR	CRAIG BENNETT	CRAIG BERGERON 1/4
LEADERMAN	KIP BERGERON	LINK WATTS	MARK SANDAY 1/4
CRANE OPERATOR	KENNETH THIBODAUX	LANSAR MOORE JR.	THOMAS JORDAN 1/4
ANCHOR OPERATOR	TIMOTHY NORTHCOTT	CAROL STENO SR	
NET T.M.H.	JIMMY GRIFFIN	MARK SINGLETON	
RIGGER	BRETT QUICK	JAMES YATES	PAUL MADEIRA 1/4
RIGGER	BRADLEY BOUTTE	DOOLEY HEBERT	CHRIS THIBODAUX 1/4
RIGGER	ROBERT LANEAU	HAROLD BOURQUE	PHILLIP TANNER 1/4
RIGGER	SCOTT MORRIS	TROY SPINN	
RIGGER		CALVIN CALLAHAN	
RIGGER			
BARGE WELDER			KEITH CHAMVIN 1/4 ERIC PEDERSON 12/31 GARE SMITH 10/31
MEDIC	NEAL STEVENS		
MECHANIC	ROBERT PETERS	MASKELL WOOD ALL	EDWARD HILL 1/4
OILER	BRUCE CARNLEY	DAVID HENRY SR	DAVID AMISBERG 12/28
OPD DIVER	DOUG CALVERT	MIKE MAJERUS	
OPD DIVER	RUSTY HAGAN	RON HAVERLOCK	
OPD DIVER	TERRY NELSON	ED KELLY	" HURT " MECHANIC
OPD DIVER	ROB BOETTGER	RON LEWIN	BRUCE WILLIAMS 8/25
OPD TENDER	JAMES DYE	ERIC LEWIS	LEAMON THOMPSON 8/31
OPD TENDER	JOHN McFADZEN	ANDY SIEVERS	JUAN FONTANOT 10/4
ENERGY	JAMES McBRIDE	ROBERT WELLS	
ENERGY	MARK HEYER	WALTER MITSCHKE	
ENERGY	GEORGE GRAY	MARK KOTLIAREVSKY	
I&I WELDER			
I&I WELDER			
I&I WELDER			
I&I WELDER			
WIMPOL	KEN MONIE	KEN DYKES	
B.T.I. X-RAY			
B.T.I. X-RAY			
ARCO INSPECTOR		CASEY WIESE	
N.G.P.L. INSP.	KEITH BOYDSTON		

OPI INTERNATIONAL, INC.

13

DAILY CREW LIST

PAGE _____ of _____

BARGE PIPELINER # 5

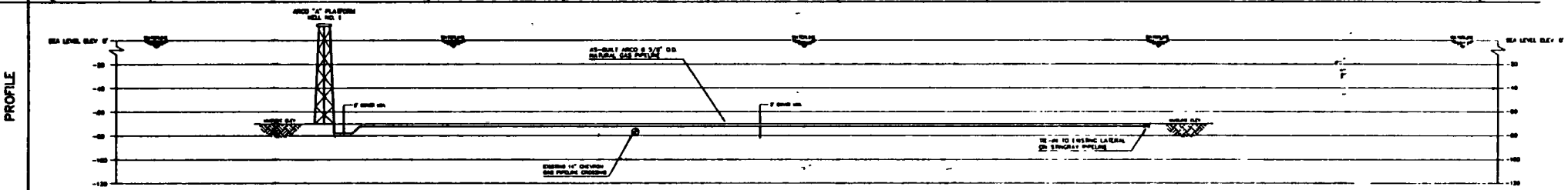
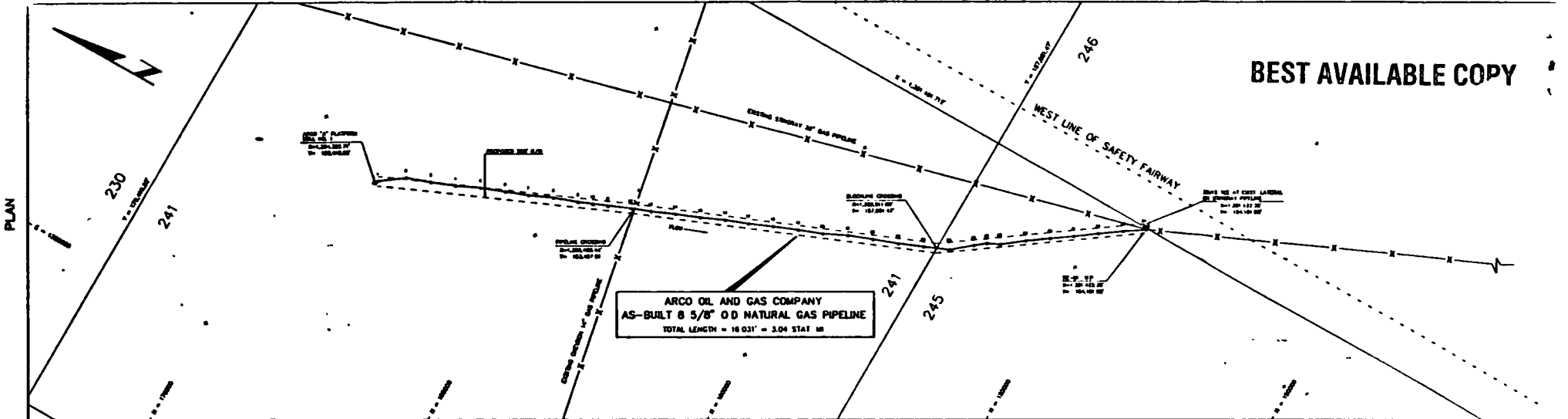
BARGE SUPT. MICHAEL VOISIN SR.

DATE JAN 7 1991

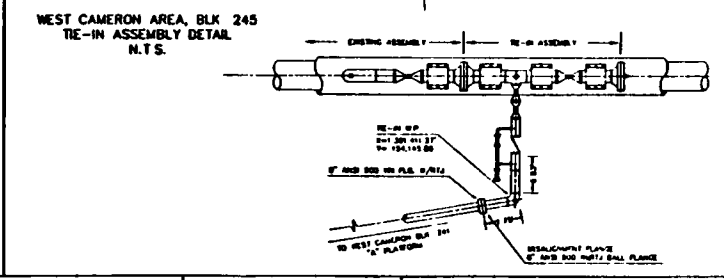
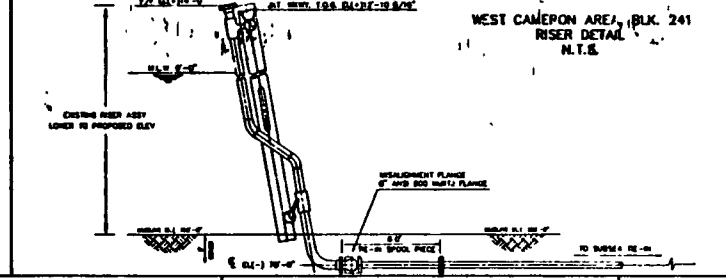
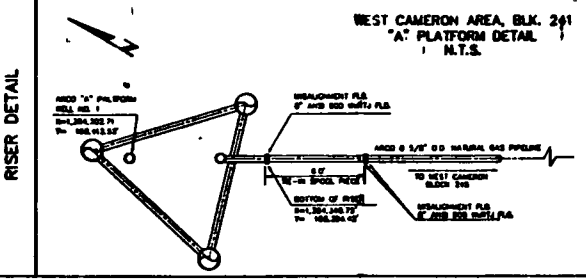
BARGE CLERK RAYMOND HANKS

CLASSIFICATION	MIDNIGHT TO NOON	NOON TO MIDNIGHT	TIME OFF
FOREMAN	MICHAEL VOISIN JR	CRAIG BENNETT	CARLO GERBERO 1/4
LEADERMAN	KIP BERGERON	LINK WATTS	MARK SANDAY 1/4
CRANE OPERATOR	KENNETH THIBODAUX	LANGAR MOORE JR.	THOMAS JORDAN 1/4
ANCHOR OPERATOR	TIMOTHY NORTHCOTT	GABRIEL STENO SR	
NET TEND.	JIMMY GRIFFIN	MARK SINGLETON	
RIGGER	BRETT GULICK	JAMES YATES	PAUL MADEIRO 1/4
RIGGER	BRADLEY BOUTTE	DOOLEY HEBERT	CARD THIBODAUX 1/4
RIGGER	ROBERT LANEAUX	HARROLD BOURQUE	PHILLIP TANNER 1/4
RIGGER	SCOTT MORRIS	TROY SPINN	
RIGGER		CALVIN GALLAHAN	
RIGGER			
BARGE WELDER			KEITH CARVIN 1/4 KIM PETERSON 1/4 GAIL SMITH 1/4
MEDIC	NEAL STEVENS		EDWARD HILL 1/4
MECHANIC	ROBERT PETERS	HASKELL WOOD ALL	DAVID AMISBERG 1/4
OILER	BRUCE CARNLEY	DAVID HENRY SR	
OPD DIVER	DOUG CALVERT	MIKE MAJERUS	
OPD DIVER	RUSTY HAGAN	RON HAYERLOCK	
OPD DIVER	TERRY NELSON	ED KELLY	" HURT " MECHANIC 8/25
OPD DIVER	ROB BOETTGER	RON LEWIN	BRUCE WILKINS 8/31
OPD TENDER	JAMES DYE	ERIC LEWIS	LEAMON THOMPSON 10/4
OPD TENDER	JOHN McFADZEN	ANDY SIEVERS	JUAN FONTENOT
ENERGY	JAMES McBRIDE	ROBERT WELLS	
ENERGY	MARK HEYER	WALTER MITSCHKE	
ENERGY	GEORGE GRAY	MARK KOTLIAREVSKY	
B&I WELDER			
B&I WELDER			
B&I WELDER			
B&I WELDER			
WIMPOL	KEN MONIE	KEN DYKES	
I.T.I. X-RAY			
I.T.I. X-RAY			
IRCO INSPECTOR	JIMMY PRUITT	CASEY WIESE	
I.G.P.L. INSP.	KEITH BOYDSTON		

BEST AVAILABLE COPY



PIPE DIAMETER/ WALL THICKNESS/ GRADE	PIPE CLASS / WALL THICKNESS GRADE
8.625" O.D. x 0.500 WALL API 5L GR. B <td>CLASS 1 50.0 PSI</td>	CLASS 1 50.0 PSI
LOCATION/CLASSIFICATION <td>LOT 4 NORTH / CLASS 1 B</td>	LOT 4 NORTH / CLASS 1 B
COORDINATE CODE <td>COORDINATE CODE</td>	COORDINATE CODE
WEIGHT COEFF <td>WEIGHT COEFF</td>	WEIGHT COEFF
ANODES <td>ANODES</td>	ANODES
FIELD JOINTS <td>FIELD JOINTS</td>	FIELD JOINTS
DEPTH OF COVER <td>DEPTH OF COVER</td>	DEPTH OF COVER
HYDROSTATIC TEST PRESSURE <td>HYDROSTATIC TEST PRESSURE</td>	HYDROSTATIC TEST PRESSURE
MAP	MAP



POINT	X COORDINATE (E.L.)	Y COORDINATE (E.L.)	POINT	X COORDINATE (E.L.)	Y COORDINATE (E.L.)	POINT	X COORDINATE (E.L.)	Y COORDINATE (E.L.)
1	1201340.76	163304.42	20	1201900.00	160253.00			
2	1201700.00	162707.00	21	1202277.00	159353.00			
3	1201900.00	162113.00	22	1202654.00	158453.00			
4	1202072.00	161523.00	23	1203031.00	157553.00			
5	1202200.00	160941.00	24	1203408.00	156653.00			
6	1202300.00	160370.00	25	1203785.00	155753.00			
7	1202350.00	160237.00	26	1204162.00	154853.00			
8	1202350.00	160237.00	27	1204539.00	153953.00			
9	1202300.00	160273.00	28	1204916.00	153053.00			
10	1202107.00	160404.00	29	1205293.00	152153.00			
11	1201800.00	160500.00	30	1205670.00	151253.00			
12	1201471.00	160560.00	31	1206047.00	150353.00			
13	1201001.00	160590.00	32	1206424.00	149453.00			
14	1200407.00	160570.00	33	1206801.00	148553.00			
15	1200000.00	160524.00	34	1207178.00	147653.00			
16	1200000.00	160524.00	35	1207555.00	146753.00			
17	1200000.00	160524.00	36	1207932.00	145853.00			
18	1200000.00	160524.00	37	1208309.00	144953.00			
19	1200000.00	160524.00	38	1208686.00	144053.00			

NOTES

- COORDINATES OF THE PLATFORM WERE TAKEN FROM THE CONSTRUCTION PLANS AND WERE SURVEYED BY OPI.
- COORDINATES OF INTERMEDIATE POINTS ALONG THE PIPELINE AND POSITION POINTS OF THE LAT RANGE DURING CONSTRUCTION OF THE PIPELINE. THE RANGE POSITION WAS OBTAINED BY MEANS OF THE SILENT PHOTOGRAPHIC SYSTEM TAKING SIGNALS FROM THE BATTERY CHAIN OF RANGE REACHERS THE DISTANCE FROM THE S REACHER TO SIGNAL TO THE WELDED STATION WAS MEASURED. THE HEADINGS OF THE LAT RANGE WAS CONSTANTLY MONITORED BY C/MO COMPASS AND THE DATA WAS ENTERED INTO THE COMPUTER PROGRAM HELD IN THE BOND COPY.
- THE PLATFORM REPRESENTED ON THE DRAWING IS SCHEMATIC ONLY AND IS NOT TO SCALE AS TO DIMENSION OR ORIENTATION.
- THE LENGTH OF THE PIPELINE WAS CALCULATED FROM THE COORDINATES OF THE PLATFORM AND THE SURVEY RE-1 AND RE-2 POINTS AND COORDINATION VALUES, FITTINGS, RISER, PLATFORM STRUCTURE BATTER UNDER ATTACHMENTS OR OTHER UNKNOWN FACTORS THAT MAY AFFECT THE PIPE TRAY OR PAY BATTERY.

VERIFICATION

I, DAVID E. WEST, A REGISTERED PROFESSIONAL ENGINEER AND REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF LOUISIANA, HEREBY CERTIFY THAT THE DRAWING ACCURATELY REPRESENTS THE POSITION OF THE LAT RANGE DURING CONSTRUCTION OF THE PIPELINE, DURING FOREMAN POINTS, AND SIGNATURES PERTAINING TO THE PIPELINE.

DAVID E. WEST
 15 MAR 2006
 REGISTERED PROFESSIONAL ENGINEER AND REGISTERED PROFESSIONAL LAND SURVEYOR NO. 1138

—	PLATFORM
—	AS-BUILT PIPELINE
- - -	EXISTING PIPELINE
- - -	RIGHT OF WAY LINE
+	BLOCK LINE
· · · · ·	FARROW

PROJECTION LAMBERT	
ZONE LOUISIANA SOUTH	
SPHEROID CLARKE 1866	
CENTRAL PARALLEL 30° N	
X-ORIGIN 2 000 000 AT 91° 20' W	
Y-ORIGIN 0 AT 28° 40' N	
GRAPHIC SCALE	
1000 500 0 1000 2000	
SCALE 1" = 1000	
REFERENCE DRAWINGS	
ARCO 8 5/8" O.D. GAS HB 200-048, 200-016, AND 200-064	REV DATE

ARCO OIL AND GAS COMPANY

AS-BUILT 8 5/8" O.D. NATURAL GAS PIPELINE FROM WEST CAMERON BLK. 241 TO WEST CAMERON BLK. 245

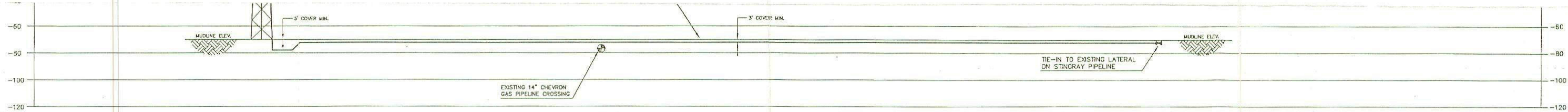
DRAWN FOR: [] DRAWN BY: []

OPI 3118 W. BROADWAY HOUSTON, TEXAS 77061 TEL: (713) 964-1000 FAX: (713) 964-1001

REV DATE: [] DRAWN/CHK'D: []

DRAWING No: 25950 5th of 1

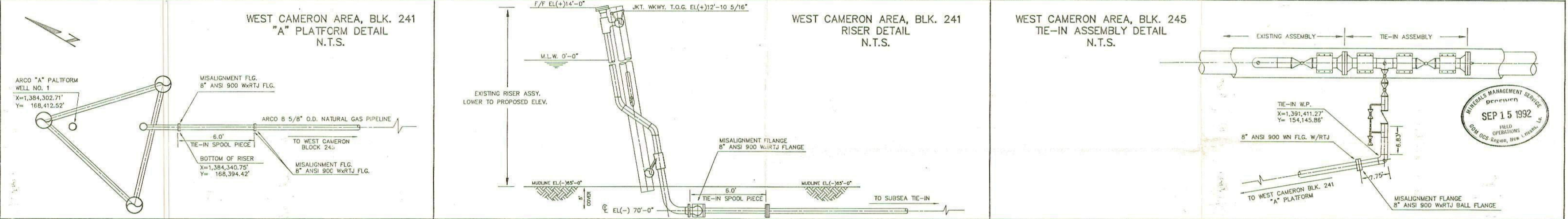
PROF



PIPELINE PROPERTIES

PIPE DIAMETER/WALL THICKNESS/GRADE	8.625" O.D. X 0.500 SMLS., API 5L, GR. B	PIPE DIAMETER/WALL THICKNESS/GRADE	8.625" O.D. X 0.500 SMLS., API 5L, GR. B
LOCATION/CLASSIFICATION	CLASS 1, D.O. 0.72	LOCATION/CLASSIFICATION	CLASS 1, D.O. 0.72
CORROSION COATING	SCOTCHKOTE 206N, 12 TO 14 MILS	CORROSION COATING	SCOTCHKOTE 206N, 12 TO 14 MILS
WEIGHT COATING	NONE	WEIGHT COATING	NONE
ANODES	32 - 82# GALVALUM III AT 500' SPACING MAXIMUM	ANODES	32 - 82# GALVALUM III AT 500' SPACING MAXIMUM
FIELD JOINTS	HEAT SHRINK SLEEVE	FIELD JOINTS	HEAT SHRINK SLEEVE
DEPTH OF COVER	3' COVER MINIMUM, 5' COVER MINIMUM OUT 300' FROM PLATFORM	DEPTH OF COVER	3' COVER MINIMUM, 5' COVER MINIMUM OUT 300' FROM PLATFORM
HYDROSTATIC TEST PRESSURE	2470 PSIG	HYDROSTATIC TEST PRESSURE	2470 PSIG
MAOP	1348 PSIG	MAOP	1348 PSIG

RISER DETAIL



POINT	X COORDINATE (ft.)	Y COORDINATE (ft.)	POINT	X COORDINATE (ft.)	Y COORDINATE (ft.)
1 TIE-IN FLANGE	1384340.75	168394.42	20	1387999.00	159853.00
2	1384708.00	167907.00	21	1388227.00	159385.00
3	1384882.00	167413.00	22	1388413.00	158895.00
4	1385072.00	166933.00	23	1388598.00	158398.00
5	1385291.00	166461.00	24	1388806.00	157909.00
6	1385481.00	165979.00	25	1389013.00	157421.00
7	1385655.00	165529.00	26	1389351.00	157029.00
8	1385868.00	165057.00	27	1389520.00	156812.00
9	1386045.00	164572.00	28	1389636.00	156573.00
10	1386157.00	164284.00	29	1389965.00	156154.00
11	1386280.00	163998.00	30	1390261.00	155739.00
12	1386471.00	163568.00	31	1390539.00	155344.00
13	1386621.00	163180.00	32	1390844.00	154935.00
14	1386827.00	162706.00	33	1391150.00	154508.00
15	1387021.00	162224.00	34 TIE-IN W.P.	1391411.27	154145.86
16	1387233.00	161755.00			
17	1387408.00	161288.00			
18	1387613.00	160826.00			
19	1387809.00	160335.00			

NOTES

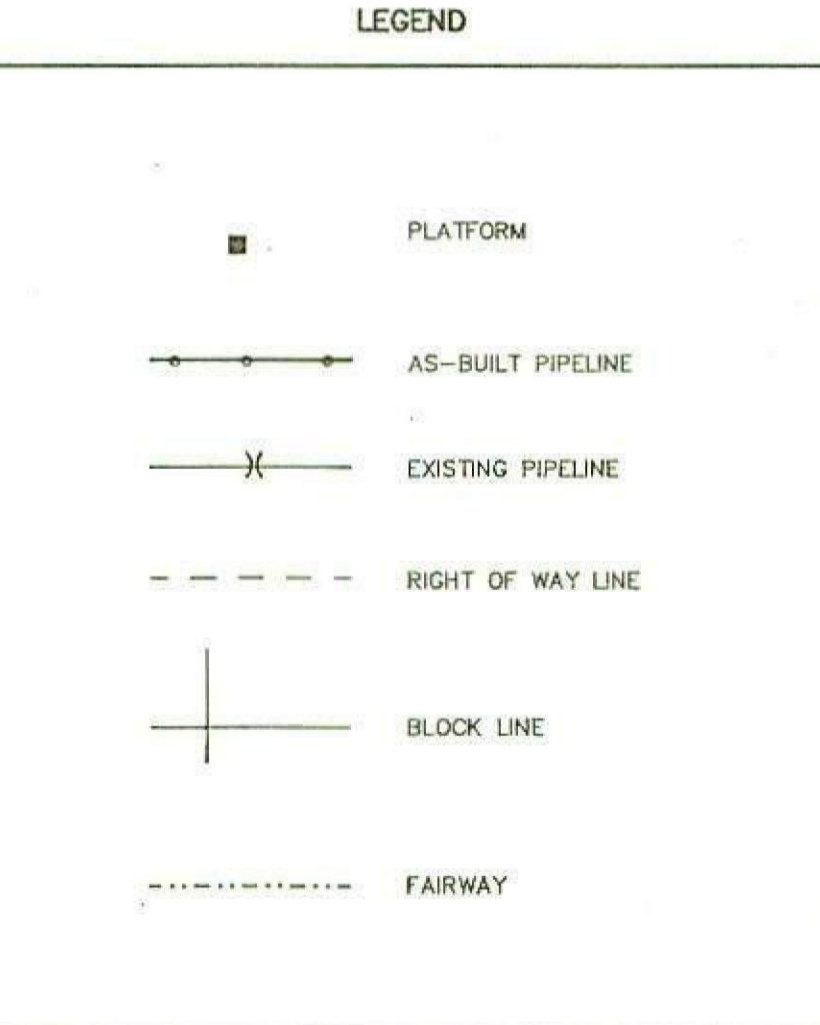
- COORDINATES OF THE PLATFORM RISER WERE TAKEN FROM THE CONSTRUCTION PLANS AND WERE SURVEYED BY OTHERS.
- COORDINATES OF INTERMEDIATE POINTS ALONG THE PIPELINE ARE POSITION FIXES OF THE LAY BARGE DURING CONSTRUCTION OF THE PIPELINE. THE BARGE POSITION WAS OBTAINED BY MEANS OF THE SYLEDIS RADIO-POSITIONING SYSTEM TAKING SIGNALS FROM THE GULFSTL CHAIN OF RADIO BEACONS. THE DISTANCE FROM THE SYLEDIS ANTENNA TO THE WELDING STATION WAS MEASURED, THE HEADING OF THE LAY BARGE WAS CONSTANTLY MONITORED BY GYRO COMPASS, AND THE DATA WAS ENTERED INTO THE COMPUTER PROGRAM, RESULTING IN THE POSITION OF THE WELDING STATION BEING RECORDED ON THE HARD COPY.
- THE PLATFORM REPRESENTED ON THIS DRAWING IS SCHEMATIC ONLY, AND IS NOT TO SCALE AS TO DIMENSION OR ORIENTATION.
- THE LENGTH OF THE PIPELINE WAS CALCULATED FROM THE COORDINATES OF THE PLATFORM AND THE SUBSEA TIE-IN, AND DOES NOT TAKE INTO CONSIDERATION VALVES, FITTINGS, RISER, PLATFORM STRUCTURE BATTER, MINOR MISALIGNMENTS, OR OTHER UNKNOWN FACTORS THAT WILL AFFECT THE PIPE TALLY OR PAY QUANTITY.

CERTIFICATION

I, DAVID E. WEST, A REGISTERED PROFESSIONAL ENGINEER AND REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF LOUISIANA, HEREBY CERTIFY THAT THIS DRAWING ACCURATELY REPRESENTS THE POSITION OF THE LAY BARGE DURING CONSTRUCTION OF THE PIPELINE, KNOWN FOREIGN PIPELINES, AND LEGAL BOUNDARIES PERTAINING TO THE PIPELINE.

DAVID E. WEST
 REG. NO. 3394
 REGISTERED PROFESSIONAL ENGINEER
 REG. PROF. ENGR. NO. 1126
 REGISTERED PROFESSIONAL LAND SURVEYOR
 REG. PROF. LAND SURVEYOR NO. 3894

15 Mar 1999



PROJECTION PARAMETERS

PROJECTION: LAMBERT
 ZONE: LOUISIANA SOUTH
 SPHEROID: CLARKE 1866
 CENTRAL PARALLEL: 30° N
 X-ORIGIN: 2,000,000' AT 91° 20' W
 Y-ORIGIN: 0' AT 28° 40' N

GRAPHIC SCALE

1000' 500' 0 1000' 2000'

SCALE: 1" = 1000'

REFERENCE DRAWINGS

ARCO O & G CO. DWG. NO. 208-8102, 208-2110, AND 208-8103.

ROW 008-9/12375 S/N 9213

ARCO OIL AND GAS COMPANY

AS-BUILT 8 5/8" O.D. NATURAL GAS PIPELINE FROM WEST CAMERON BLK. 241 TO WEST CAMERON BLK. 245

DRAWN FOR: **CPI** (CPI INC., 5718 WESTHEIMER SUITE 600 HOUSTON, TEXAS 77057 TEL: (713) 952-1000 FAX: (713) 268-6894)

DRAWN BY: **WIMPOL** (WIMPOL INC., 10607 HADDINGTON HOUSTON, TEXAS TEL: (713) 984-1555 FAX: (713) 984-9161)

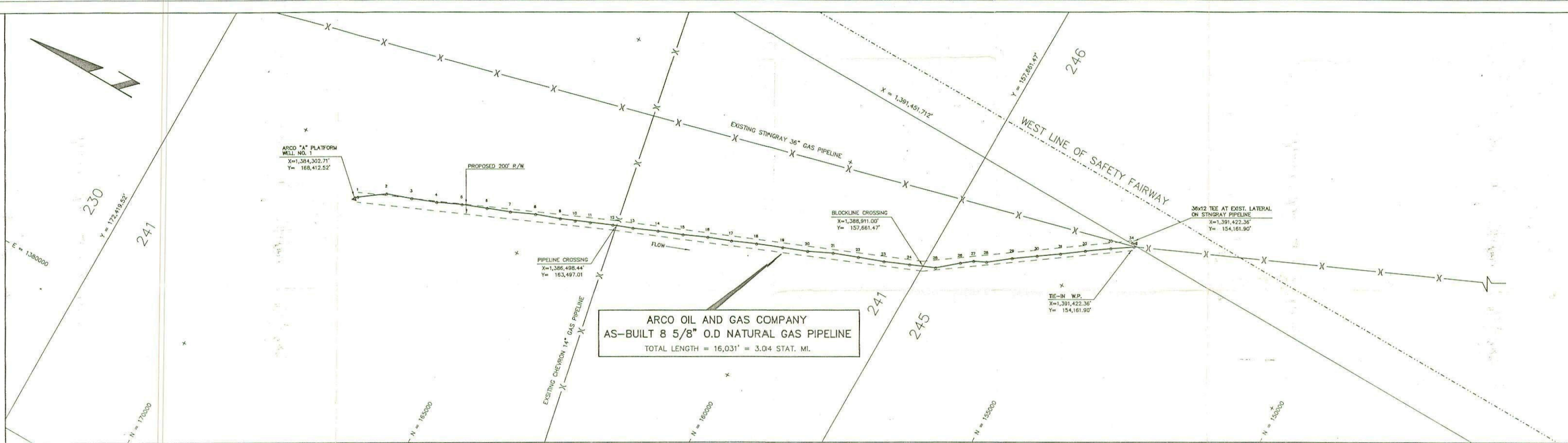
REV.	DATE	DRWN	CHK'D

DRAWING No. 25950 Sh. 1 of 1

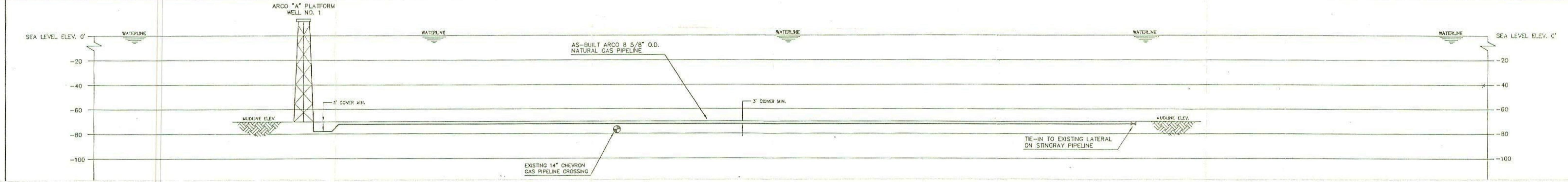
X, y coordinates lower portion of as-built

PLAN

PROFILE



ARCO OIL AND GAS COMPANY
 AS-BUILT 8 5/8" O.D. NATURAL GAS PIPELINE
 TOTAL LENGTH = 16,031' = 3.04 STAT. MI.



SN 9213
 Plot of pipeline
 upper portion of
 to build

SN9213

Williams
11-21-90
Aravado 11-21-90
Staeffer 11/21/90

BEST AVAILABLE COPY

NOV 21 1990

In Reply Refer To: MS 5232 (OCS-G 12375)

Atlantic Richfield Company
Attention: Mr. Brian E. Shannon
Post Office Box 1346
Houston, Texas 77251

Gentlemen:

Pursuant to the authority granted by 43 U.S.C. 1334(e) and 30 CFR 250.150(d), your application dated September 5, supplemented November 19, 1990, for a pipeline right-of-way two-hundred feet (200') in width for the installation, operation, and maintenance of an 8 5/8-inch pipeline, 3.12 miles in length, is hereby approved, as proposed.

The proposed pipeline will transport gas from Atlantic Richfield Company's Platform A in Block 241 to a subsea tie-in with Stingray Pipeline Company's 36-inch pipeline (OCS-G 2122C) in Block 245, all in the West Cameron Area.

This approval is subject to the following conditions:

1. Atlantic Richfield Company shall construct, operate, and maintain the pipeline in accordance with the appropriate Department of Transportation regulations.
2. An agreement among the U.S. Fish and Wildlife Service (FWS), the National Park Service (NPS), and the Federal Aviation Administration urges the pilots of all aircraft to fly at altitudes of 2,000 feet or more over lands administered by the FWS and NPS. You are expected to inform the operators of aircraft employed by you or those who provide services to you to abide by this agreement while flying in the vicinity of all national wildlife refuges and national park lands.
3. Our analyses indicate the following as potential hazards to the proposed activities. Therefore, precautions in accordance with Notice to Lessees and Operators No. 83-3, Section IV.B, shall be taken prior to conducting operations.

a. Pipeline:

<u>Name</u>	<u>Size (inches)</u>	<u>Block</u>	<u>Area</u>
Chevron U.S.A. Inc.	14	241	West Cameron

PDB
C.W.

on msp
12/4/90
KX

b. Magnetic Anomalies:

<u>Block</u>	<u>Line No.</u>	<u>Shot Point</u>	<u>Amplitude (gammas)/Remarks</u>
241	4	8.75	18/Well No. 1
241	3	10.50	6
245	4	41.40	30

4. ARCO Oil and Gas Company's regional Oil Spill Contingency Plan approved on August 11, 1988, shall cover this pipeline operation.

Based on our analysis of your application, the maximum allowable operating pressure for this pipeline will be 1,348 psig.

Sincerely,

"Original signed" - D. J. Bourgeois

D. J. Bourgeois
Regional Supervisor
Field Operations

cc: Department of Transportation
2320 LaBranch, Room 2116
Houston, Texas 77004

bcc: 1502-01 (P/L OCS-G 12375) w/enclosures (K.Faust) (MS 5232)
1502-01 (P/L OCS-G 12375) (C.Williams) (MS 5033)
MS 5270
MS 5440
MS 5421, w/receipt
MS 5232 Carto, w/plat

CWilliams:ds:11/20/90:WP

ARCO Oil and Gas Company 

Post Office Box 1346
Houston, Texas 77251
Telephone 713 584 6639

Southern District
Regulatory Compliance and
Environmental Department



OCS-G 12375
MS 5232

September 5, 1990

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (P 247 337 261)

Mr. Daniel J. Bourgeois
Regional Supervisor - Field Operations
U. S. Department of the Interior
Minerals Management Service
GULF OF MEXICO OCS REGION
1201 Elmwood Park Blvd.
New Orleans, LA 70123-2394

**RE: APPLICATION FOR A PIPELINE RIGHT-OF-WAY FOR
ATLANTIC RICHFIELD COMPANY'S PROPOSED 8.625-INCH
O. D. GAS PIPELINE IN AND/OR THROUGH BLOCKS 241
AND 245, WEST CAMERON AREA, GULF OF MEXICO, FEDERAL WATERS**

Dear Mr. Bourgeois:

Pursuant to the authority granted in Section 5(e) of the Outer Continental Shelf Lands Act (67 Stat. 462) (43 U.S. C. 1334(e)), as amended (92 Stat. 629), and in compliance with the regulations contained in Title 30, Part 250, Subpart J-Pipelines and Pipeline Rights-of-Way, ATLANTIC RICHFIELD COMPANY is filing this application in quadruplicate for a right-of-way two hundred feet (200') in width for the construction, maintenance, and operation of an 8.625-inch O.D. interstate gas pipeline in the West Cameron Area, Gulf of Mexico. ATLANTIC RICHFIELD agrees that said right-of-way, if approved, will be subject to the terms and conditions of said regulations.

In support of our application and for your review and use, the following maps, drawings, and documents have been enclosed herewith and made a part hereof:

1. Plats (Vicinity Map, Field Plan, Profile)
2. Safety Flow Schematic
3. General Information
4. Additional Design Precautions
5. Shallow Hazard Survey Report
6. Material Standards for Pipelines, MSTD 27-50-1, 5.4 Pipeline Crossings.

Application for Pipeline Right-of-Way
Page 2

This 8.625-inch O.D. pipeline will be used to transport gas from ATLANTIC RICHFIELD COMPANY'S proposed West Cameron Block 241 "A" Platform to a existing 12-inch subsea tap on STINGRAY'S 36-inch pipeline in West Cameron Block 245. The pipeline will depart ATLANTIC RICHFIELD COMPANY'S "A" Platform in Block 241 in a southeasterly direction and go 16,489 feet (3.12 miles) to a subsea tie-in with STINGRAY'S 36-inch pipeline in West Cameron Block 245, all being in the Gulf of Mexico, federal waters, offshore Louisiana. The proposed construction commencement date is October 1, 1990, with the time required to lay the pipe being estimated at 5 days for conventional marine pipelay methods. Production commencement is expected prior to December 1, 1990.

This application (and any amendments made hereto) is made with our full knowledge and concurrence with the OCS Lands Act (43 U.S.C. 1334(e), et. seq.), as amended (P.L. 95-372), including the following: Sec. 5(e) addressing pipeline rights-of-way, requirements of the Federal Energy Regulatory Commission (FERC) relating to notice of hearing, transportation and purchase of oil and gas without discrimination; Sec. 5(f)(1) addressing operation of pipelines in accordance with competitive principles, including open and non-discriminatory access to both owner and non-owner shippers; Sec. 5(f)(2) which may allow exemption of the requirements in Sec. 5(f)(1); Sec. 5(e) addressing the assuring of maximum environmental protection, including the safest practices for pipeline installation and Sec. 5(f)(1)(B) which may require expansion of throughput capacity of any pipeline except for the Gulf of Mexico or the Santa Barbara Channel.

Additionally, we expressly agree that if any site, structure, or object of historical or archaeological significance should be discovered during the conduct of any operations within the permitted right-of-way, we shall report immediately such findings to the Regional Supervisor, Gulf of Mexico OCS Region, and make every reasonable effort to preserve and protect the cultural resource from damage until said Regional Supervisor has given directions as to its preservation.

In accordance with 30 CFR § 250.160(c), we have delivered a copy of the application and attachments thereto by certified mail, return receipt requested, to each lessee or right-of-way or easement holder whose lease, right-of-way or easement is so affected. A list of such lessees or right-of-way or easement holders is attached (see Attachment "A") and copies of the return receipts showing date and signature as evidence of service upon such lessees or right-of-way or easement holders will be forwarded to your office when received. In the event we cannot obtain completed return receipt cards, a letter from the lessee, right-of-way or easement holder expressing no objection to the proposed project will be obtained and forwarded to your office. The proposed route of the right-of-way does not adjoin or subsequently cross state submerged lands.

Applicant agrees to be bound by the foregoing regulations, and further agrees to comply with the applicable stipulations as set forth in the OCS Pipeline Procedures Guidebook dated March, 1984.

According to 30 CFR § 250.160(d) please find attached an original and three copies of a completed Nondiscrimination in Employment form (YN 3341-1) dated July, 1982.

Application for Pipeline Right-of-Way
Page 3

Draft Check No. 0321925 in the amount of \$1700.00 of which \$1400.00 covers the application fee (30 CFR § 250.160(a)) and \$300.00 covers 5 years rental payment on 3.12 miles of right-of-way (30 CFR § 250.159(c)(2)).

"ATLANTIC RICHFIELD COMPANY hereby agrees to keep open at all reasonable times for inspection by the Minerals Management Service, the area covered by this right-of-way and all improvements, structures, and fixtures thereon and all records relative to the design, construction, operation, maintenance, and repairs, or investigations on or with regard to such area."

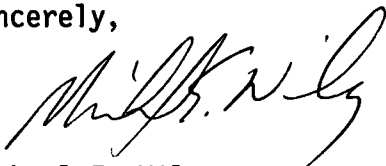
The company contact on technical points or other information is:

Brian E. Shannon
Regulatory Compliance & Environmental Supervisor
Atlantic Richfield Company
P. O. Box 1346 3612 HMB
Houston, TX 77251
Telephone (713) 584-6639

Please refer to your New Orleans Miscellaneous File No. 967 for a copy of a resolution approved by the Board of Directors authorizing the undersigned to sign for and on behalf of ATLANTIC RICHFIELD COMPANY.

If the above information meets with your approval, we would appreciate your issuing the necessary decision for the right-of-way at your earliest convenience given the fact pipelay operations are presently scheduled to commence on or about October 1, 1990.

Sincerely,



Michael E. Wiley
Attorney-In-Fact

MEW:bes

Attachments and Enclosures

xc: Lessees and Right-of-Way Holders as indicated on Attachment "A", all with copy of Attachments and Enclosures.


UNITED STATES
DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

NON-DISCRIMINATION IN EMPLOYMENT

As a condition precedent to the approval of the granting of the subject pipeline right-of-way, the grantee, ATLANTIC RICHFIELD COMPANY, 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 fully 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.



Signature of Grantee

9-5-90
Date

ATTACHMENT "A"

The following Lessees and Right-of-Way holders on even date with this application were furnished a copy of this application by Certified Mail, Return Receipt Requested.

West Cameron Area

Block 241

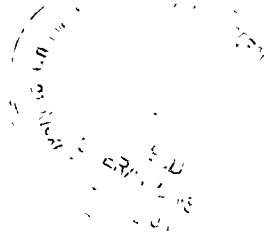
Leased by Atlantic Richfield Company	*	OCS-G 10561
Chevron 14-inch Pipeline Right-of-Way	*	Pipeline Seg. No. 4984
Stingray 36-inch Pipeline Right-of-Way		OCS-G 2122C

Block 245

Block is unleased

Stingray 36-inch Pipeline Right-of-Way	•	OCS-G 2122C
--	---	-------------

ARCO Oil and Gas Company
Southern District
Regulatory Compliance and
Environmental Department
Post Office Box 1346
Houston, Texas 77251
Telephone 713 584 6639



September 6, 1990

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (P 247 337 262)

Mr. Todd Duffield
NGPL of America
Operator of Stingray Pipeline
WC Blk. 241 & Blk. 245, OCS-G 2122C
P. O. Box 283
Houston, TX 77001

**RE: Application for a Pipeline Right-of-Way for
ATLANTIC RICHFIELD COMPANY'S Proposed 8.625-inch
O. D. Gas Pipeline In and/or Through Blocks 241
and 245, West Cameron Area, Gulf of Mexico, Federal Waters**

Dear Mr. Duffield:

ATLANTIC RICHFIELD COMPANY is filing an application to the Minerals Management Service (MMS) for a pipeline right-of-way, 200 feet in width, in the West Cameron Area, Gulf of Mexico. Attached please find a copy of the application with attachments and enclosures.

In accordance with the regulations of the Minerals Management Service, would you please review the attached materials and submit any comments or a letter of no objection to Mr. Daniel Bourgeois, Regional Supervisor for Field Operations, as soon as possible. I would also request that you send me a copy of your response to the MMS. Please note our proposed construction start date of October 1, 1990.

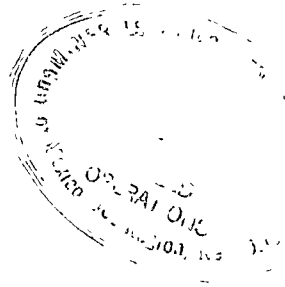
If you need additional information, please call me at (713) 584-6639.

Sincerely,

Brian E. Shannon
Regulatory Compliance and Environmental Supervisor

cc: w/f

ARCO Oil and Gas Company
Southern District
Regulatory Compliance and
Environmental Department
Post Office Box 1346
Houston, Texas 77251
Telephone 713 584 6639



September 6, 1990

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (P 247 337 263)

Mr. Hugh Doran
Chevron U.S.A. Inc.
WC Blk. 241, Pipeline Seg. No. 4984
935 Gravier Street
New Orleans, LA 70112

**RE: Application for a Pipeline Right-of-Way for
ATLANTIC RICHFIELD COMPANY'S Proposed 8.625-inch
O. D. Gas Pipeline In and/or Through Blocks 241
and 245, West Cameron Area, Gulf of Mexico, Federal Waters**

Dear Mr. Doran:

ATLANTIC RICHFIELD COMPANY is filing an application to the Minerals Management Service (MMS) for a pipeline right-of-way, 200 feet in width, in the West Cameron Area, Gulf of Mexico. Attached please find a copy of the application with attachments and enclosures.

In accordance with the regulations of the Minerals Management Service, would you please review the attached materials and submit any comments or a letter of no objection to Mr. Daniel Bourgeois, Regional Supervisor for Field Operations, as soon as possible. I would also request that you send me a copy of your response to the MMS. Please note our proposed construction start date of October 1, 1990.

If you need additional information, please call me at (713) 584-6639.

Sincerely,

Brian E. Shannon
Regulatory Compliance and Environmental Supervisor


cc: w/f

Section

PIPELINES

Subject

Piping Design Criteria for
Submarine Pipelines

- 5.4 Pipeline crossings shall be designed in accordance with applicable portions of the codes and standards specified in Section 3.0. The following design guidelines should be implemented, where practical.
- 5.4.1 Pipeline crossings shall be located to minimize the length and number of crossings and the lengths of new pipelines.
- 5.4.2 A pipeline crossing shall be located a sufficient distance from the platform to allow installation, maintenance and/or removal of the newly installed or existing pipeline risers with no disturbance to the pipeline crossing.
- 5.4.3 Newly installed pipelines shall cross existing pipelines at a relative bearing as near 90 degrees as is practical, and no less than 30 degrees.
- 5.4.4 Pipeline crossings shall be designed to ensure that induced stresses from combined environmental and functional loads comply with the referenced codes and standards and with the requirements of the owner of the existing pipeline.
- 5.4.5 Pipeline crossings shall be designed to ensure on-bottom stability under the applicable environmental requirements in Section 5.3.
- 5.4.6 Unsupported spans resulting from pipeline crossings shall be sand bagged or supported, to the extent deemed practical. No permanent unsupported spans should exceed the maximum allowable span length designated by vortex-shedding vibration analysis.
- 5.4.7 Unless specified otherwise, subsea connections to existing subsea pipelines shall be by hot taps. The hot tap lines shall be constrained to the trunk line by external clamped on X-brace or equivalent supports. Two pre-installed pigs shall be used to purge the line. 
- 5.4.8 Design of crossings shall comply with pipeline operators' requirements. Suggested details are given in the attached Exhibits 2, 3 & 4. Bags of sand-cement mixture or some equivalent are to be used to maintain the required separations between the existing line and the new line; use of backfill alone for maintaining the separation is not sufficient. Enough bags are to be used to avoid unsupported lengths of pipeline. Bags shall be placed at a slope not to exceed 1 foot vertical to 2 feet horizontal.
- If a cement-sand mixture is used in the bags, the cement and sand are to be mixed in proportions of 1 to 3 parts by weight. The bags shall be made of closely woven material with a wicking action. After filling the bag it shall be closed by sewing.
- 5.4.9 Unless specified, the minimum clearance between pipelines shall be 18 inches.

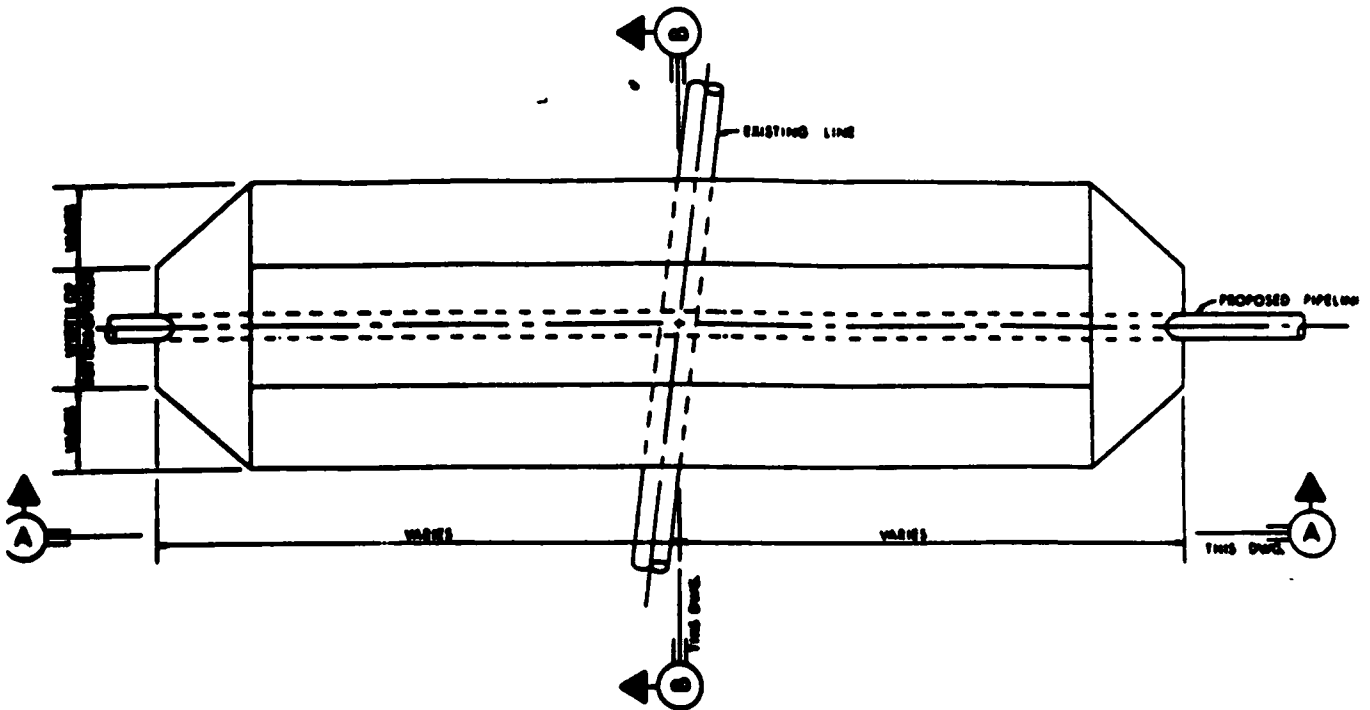
BEST AVAILABLE COPY

Date:

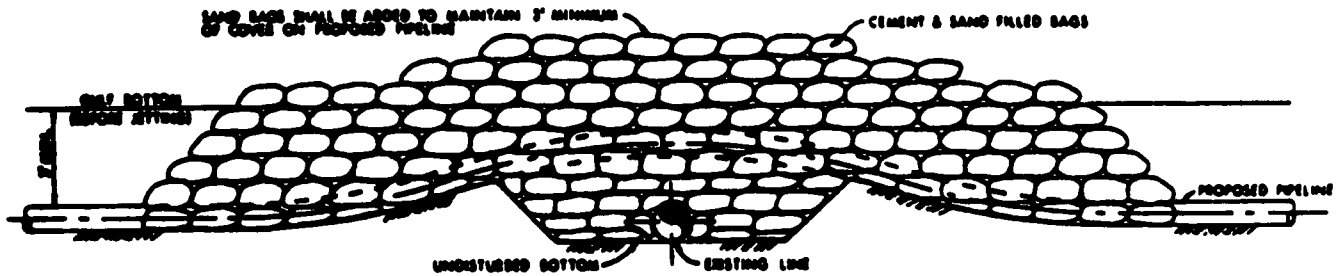
Rev. 3, 2-26-88

Page:

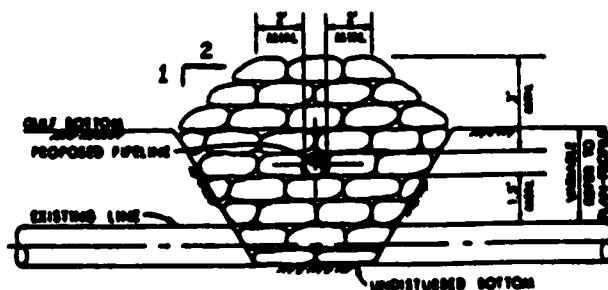
7 of 17



PLAN
TYPICAL CROSSING OF
EXISTING OFFSHORE LINE
N.T.S.



SECTION "A-A"
N.T.S.
FROM THIS DWG.

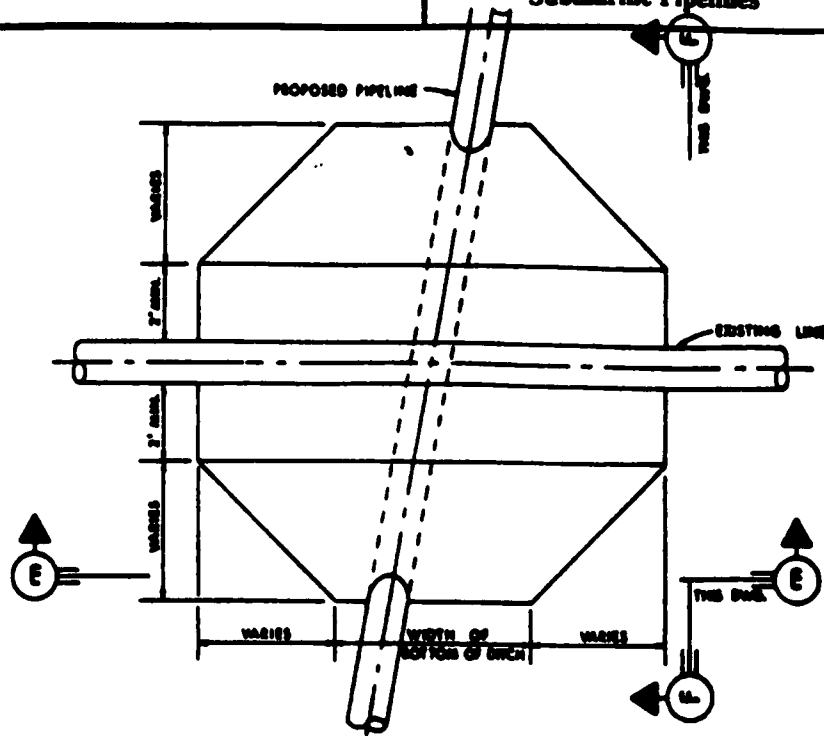


SECTION "B-B"
N.T.S.
FROM THIS DWG.

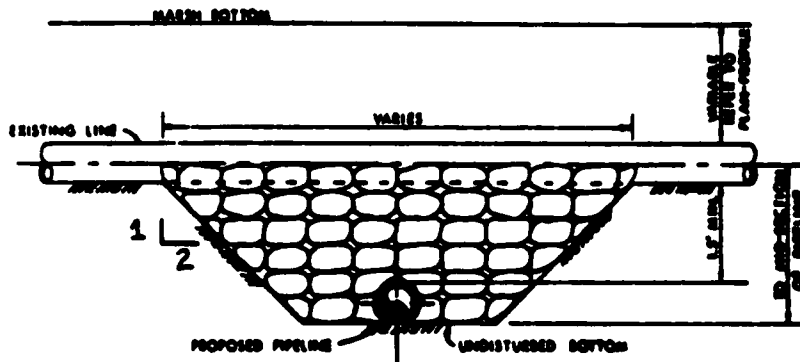
BEST AVAILABLE COPY

Section PIPELINES

Subject Piping Design Criteria for Submarine Pipelines

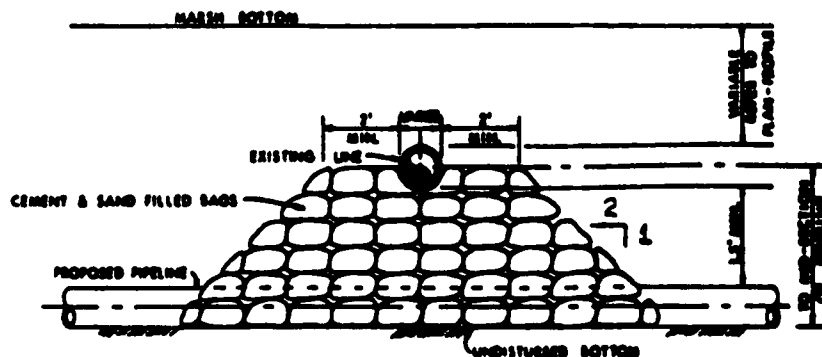


PLAN
TYPICAL SEPARATION BARRIER FOR
EXISTING LINE ABOVE PROPOSED PIPELINE
NTS.

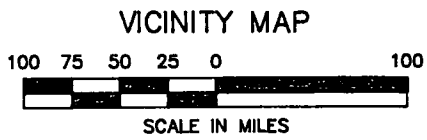
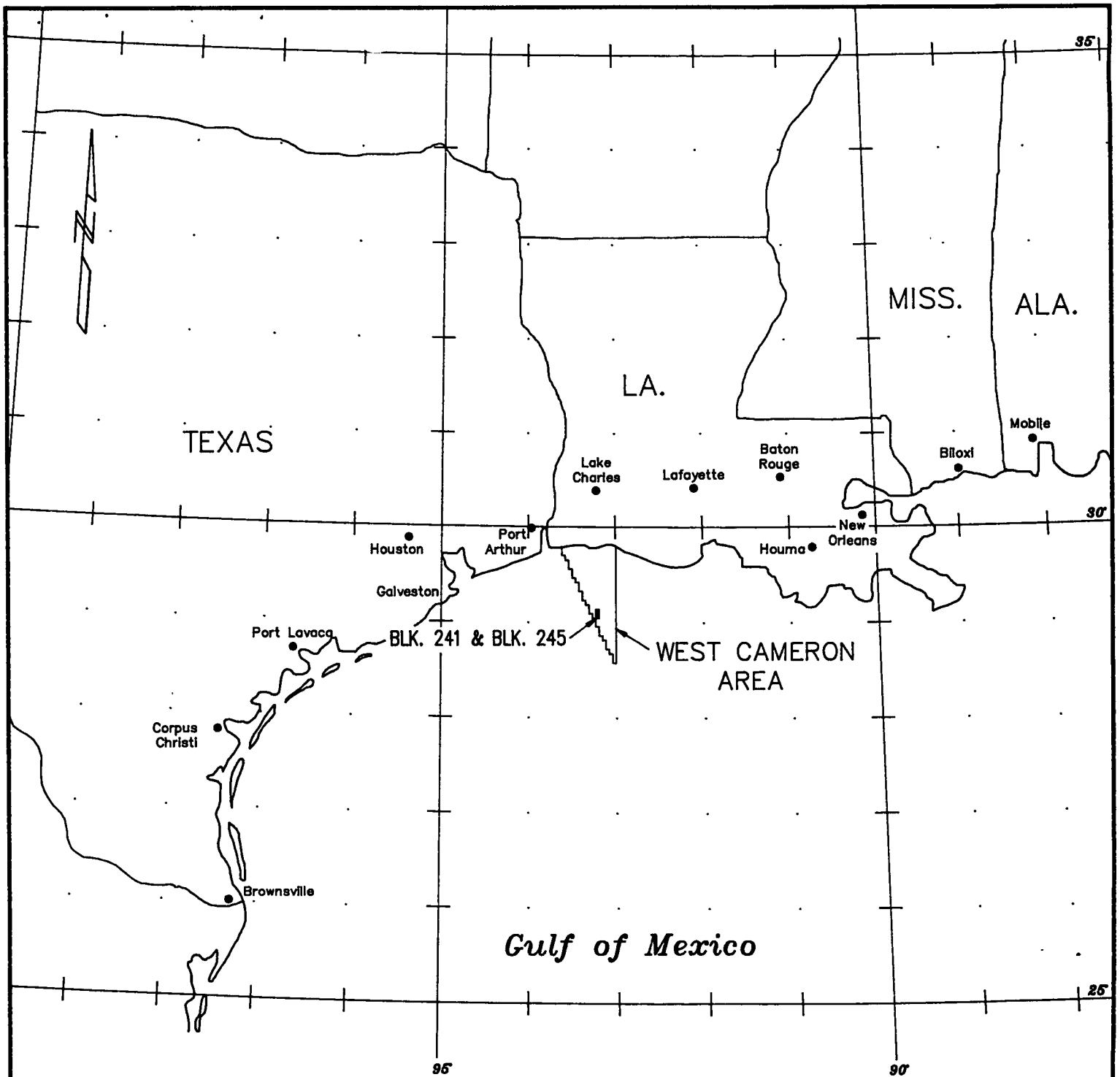


SECTION "E-E"
NTS.
FROM THIS DWG.

BEST AVAILABLE COPY




SECTION "F-F"
NTS.
FROM THIS DWG.



BEST AVAILABLE COPY

WEST CAMERON BLK. 241 TO BLK. 245

CBS ENGINEERING, INC.
Houston, Texas

ARCO Oil and Gas Company 
Division of Atlantic Richfield Company

DESIGNED BY <u>J. SCHMIDT</u>	SCALE <u>NOTED</u>	REV.
DRAWN BY <u>M. POERNER</u>	DATE <u>01 AUG 90</u>	
CHECKED BY <u>[Signature]</u>	PROJ. <u>998-23</u>	
APPROVED BY <u>[Signature]</u>	DWG. NO. <u>010</u>	

8.625" O.D. NATURAL GAS PIPELINE

VICINITY MAP



ARCO PLATF. "A"
WELL NO. 1
X=1,384,302.712
Y=168,412.520

CURVE
R=1,000.00'
Δ=22°30'32"
P.I. X=1,384,548.75
Y=168,177.09

OCS-G-105E

X=1,391,451.712

BEST AVAILABLE COPY

WEST CAMERON
AREA

Seg # 4984
CHEVRON 14" GAS PIPELINE

PIPELINE CROSSING
X=1,386,461.71
Y=163,556.79

PROPOSED 8.625" O.D.
PIPELINE 16,489 FEET
NAT. GAS 60MMSCFD, S.G. 0.58
CONDENSATE 960 BPD, API 47
PROD. WATER NIL BPD

SHINGRAY 36" GAS PIPELINE
2122C

WEST LINE OF FAIRWAY

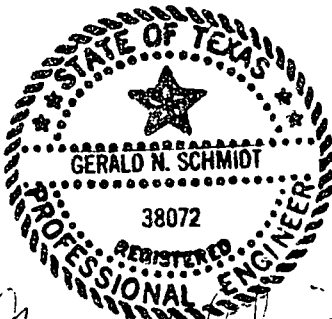
FLOW

Y=157,661.472

241 240
245 246

OCS-(UNLEASED)

BLOCKLINE CROSSING
X=1,388,902.58
Y=157,661.47



Gerald N. Schmidt
7/21/90

CURVE
R=1,000.00'
Δ=83°02'30"
P.I. X=1,390,489.98
Y=153,827.48

TIE-IN W.P.
X=1,391,439.37
Y=154,091.36

NOTES:

1. RIGHT OF WAY AND DESIGN FACTORS COMPLY WITH PART 192, TITLE 49 CODE OF FEDERAL REGULATIONS.
2. ALL BEARINGS SHOWN ARE LOUISIANA LAMBERT SOUTH ZONE.
3. PROPOSED PERMANENT RIGHT OF WAY TO BE 30' WIDE.

WEST CAMERON BLK. 241 TO BLK. 245

CBS ENGINEERING, INC.
Houston, Texas

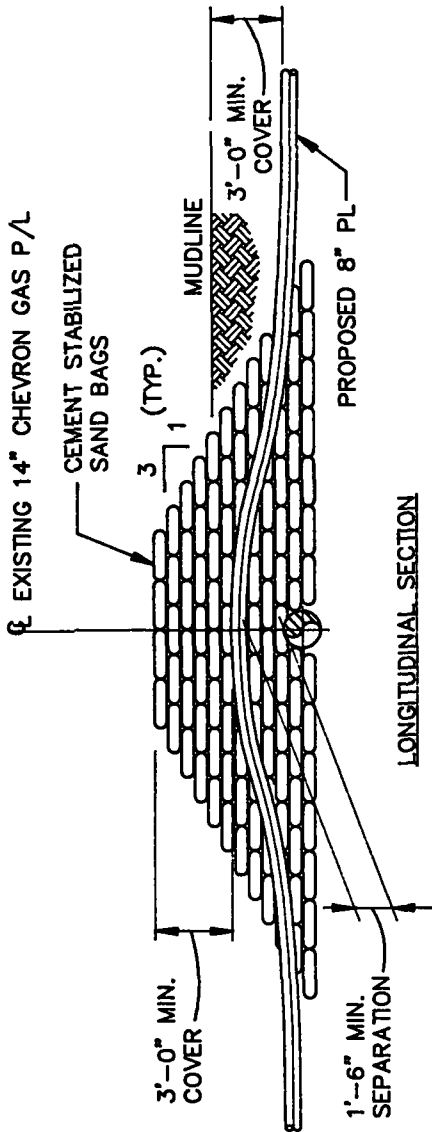
ARCO Oil and Gas Company
Division of Atlantic Richfield Company

DESIGNED BY J. SCHMIDT
DRAWN BY M. POERNER
CHECKED BY [Signature]
APPROVED BY [Signature]

SCALE 1"=2000'
DATE 01 AUG 90
PROJ. 998-23
DWG. NO. 011

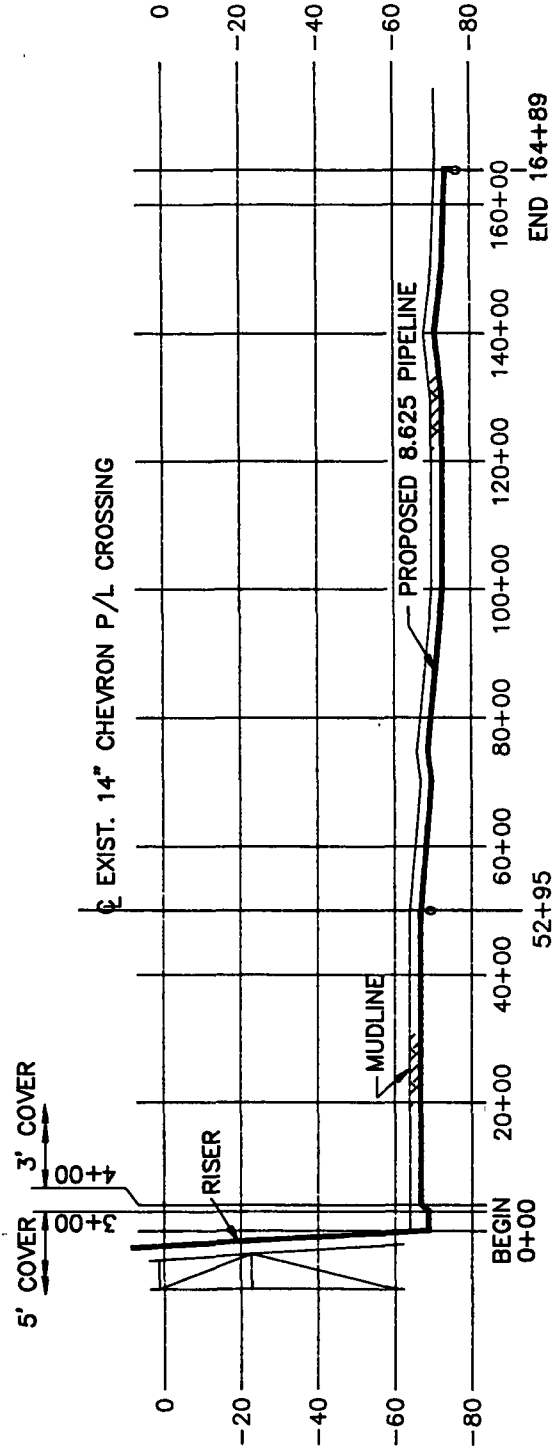
8.625" O.D. NATURAL GAS PIPELINE

FIELD PLAN



STINGRAY
36" GAS PIPELINE

ARCO
PROD. PLAT. "A"



PROFILE

SCALE: 1" = 3,000' HORIZ.
1" = 50' VERT.

CBS ENGINEERING, INC.
Houston, Texas

WEST CAMERON BLK. 241 TO BLK. 245

ARCO Oil and Gas Company
Division of Atlantic Richfield Company

8.625" O.D. NATURAL GAS PIPELINE

PROFILE

DESIGNED BY	J. SCHMIDT	SCALE	NOTED	REV.
DRAWN BY	M. POERNER	DATE	01 AUG 90	
CHECKED BY		PROJ.	998-23	
APPROVED BY	LMT	DWG. NO.	012	

SECTION 2

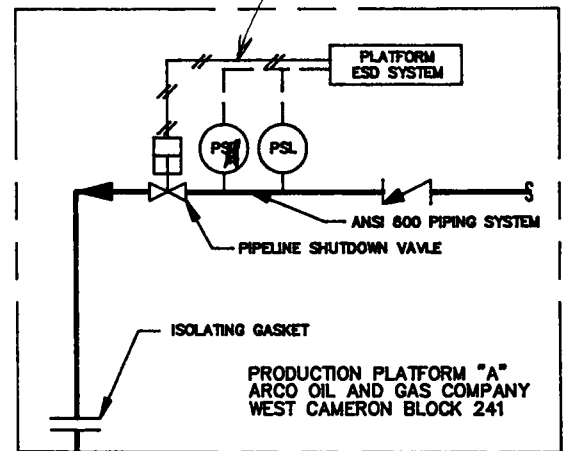
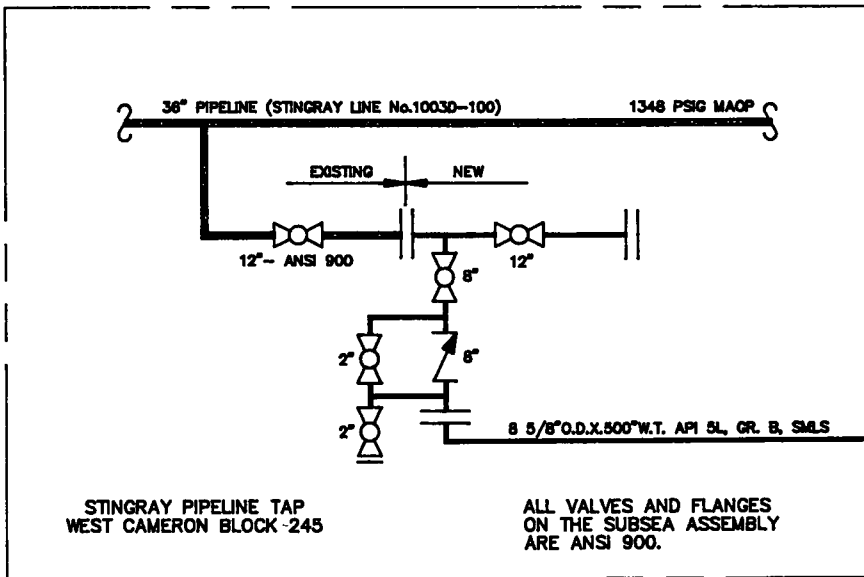
§250.157(a)(2)

SAFETY FLOW SCHEMATIC

GENERAL NOTES:

1. THE DESIGN CHARACTERISTICS OF THE PROPOSED PIPELINE EQUAL OR EXCEED THE REQUIREMENTS OF OCS REGULATIONS TITLE 49, SUBTITLE B, CHAPTER I, PART 192 AND TITLE 30, CHAPTER II, SUBCHAPTER B, SUBPART J.
2. THE PLATFORM ESD SYSTEM AT WEST CAMERON BLOCK 241 WILL BE USED TO SHUT-IN THE ESD VALVE IN THE RISER TO THE DEPARTING GAS PIPELINE.
3. THE PIPELINE WILL TRANSPORT DEHYDRATED NATURAL GAS.
4. PIPELINE SYSTEMS NOTED FOR THE PLATFORM AT WEST CAMERON BLOCK 241 WILL BE ANSI 600.
5. SUBSEA VALVING AND PIPING AT WEST CAMERON BLOCK 245 TIE-IN WILL BE ANSI 900.
6. THE EXTERNAL PIPELINE COATING WILL BE MILL-APPLIED FUSION BONDED EPOXY (12 TO 16 MILS THICK).
7. SACRIFICIAL ANODES WILL BE 82 LBS.NET WEIGHT, SPACED 300' ON CENTER.
8. WEST CAMERON BLOCK 241 PIPELINE PRESSURE SENSORS WILL BE SET AS FOLLOWS:
 LOW PRESSURE SENSOR: 1020 PSIG
 HIGH PRESSURE SENSOR: 1320 PSIG

PSH per Belinda Dreaux 10-9-90



WEST CAMERON BLK. 241 TO BLK. 245

CBS ENGINEERING, INC.
Houston, Texas

ARCO Oil and Gas Company
Division of Atlantic Richfield Company

DESIGNED BY: <i>LMT</i>	SCALE: NONE	REV. 0
DRAWN BY: J.O.DEVERA	DATE: 07/30/90	
CHECKED BY: <i>[Signature]</i>	PROJ. 998-23	0
APPROVED BY: <i>LMT</i>	DWG.NO. 013	

8.625" O.D. NATURAL GAS PIPELINE

SAFETY FLOW SCHEMATIC

SECTION 3

§250.157(a)(3)

GENERAL INFORMATION

§250.157(a)(3) General Information:

(i) Description of the cathodic protection system:

Pipeline anodes, with the following characteristics, will be used for cathodic protection:

Type: Cathodic Protection Services
Tapered Semi-Cylindrical Aluminum Bracelet
Galvalum III

Size: 8.625 inch I.D.

Weight: 82 pounds net (Galvalum III)
87 pounds gross (Galvalum III plus steel core)

Number: 55

Spacing: 300 feet

Anticipated Life: 20 years

(ii) Description of the external pipe coating system:

Line pipe:

Fusion bonded epoxy coating (3M Company Scotchkote 205), 12 to 16 mils thick.

Riser:

Above splash zone: 3 coat paint system, 9 to 11 mils thick.

Splash zone: Neoprene rubber base coating (Splashtron), 1/2 inch thick.

Below splash zone: Fusion bonded epoxy coating (3M Company Scotchkote 206N), 12 to 16 mils thick.

(iii) Description of internal protective measures:

No internal coating is provided. The analysis of the transported products will be monitored and preventive measures such as inhibiting will be employed as necessary.

(iv) Specific gravity of the empty pipe = 1.7

Weight in air = 43.342 pounds per foot

Weight in seawater = 17.375 pounds per foot

(v) The maximum source pressure (MSP) = 1,320 psig

(vi) Maximum allowable operating pressure (MAOP) and calculations:

Summary: MAOP for the proposed pipeline is 1,480 psig. The limiting components are the ANSI Class 600 valves and flanges.

Components	Materials Spec-Grade	Nominal Size (inches)	Internal Design Pres. (psig)
Line pipe	API 5L-B, Smls	6 x 0.500 w.t.	2,922
Riser	ASTM A106-B, Smls	6 x 0.500 w.t.	2,029
5D Hot Bend	ASTM A106-B, Smls	6 x 0.460 w.t.	1,867
Flanges, ANSI 600	ASTM A105	6	1,480
Flanges, ANSI 900	ASTM A105	6	2,220
Valves, ANSI 600	ASTM A105	6	1,480
Valves, ANSI 900	ASTM A105	6	2,220

Calculations:

Internal Design Pressure:

From: Title 49 CFR, Subtitle B, Chapter I, Subchapter D, Part 192, Subpart C, §192.105

$$P = \frac{2(S)(t)}{D} \times (F)(E)(T)$$

- Where: P = Design pressure in pounds per square inch gauge.
 S = Yield strength, in pounds per square inch determined in accordance with §192.107, i.e., per §192.107(a), For pipe that is manufactured in accordance with a specification listed in Section I of Appendix B of this part, the yield strength to be used in the design formula in §192.105 is the SMYS stated in the listed specification, if that value is known. The value is known. It is 35,000 psi, i.e., API 5L, Gr. B seamless and ASTM A106, Gr. B seamless.
 D = Nominal outside diameter of the pipe in inches.
 t = Nominal wall thickness of the pipe in inches. The nominal wall thickness will be stipulated in the specification under which the pipe will be purchased from the manufacturer.
 F = Design factor determined in accordance with §192.111. The design factors of 0.72 will be used for the submerged components and 0.50 for the riser pipe.
 E = Longitudinal joint factor determined in accordance with §192.113. The longitudinal joint factor equals 1.00 for both API 5L, Gr. B seamless and ASTM A106, Gr. B seamless.
 T = Temperature derating factor determined in accordance with §192.115. For temperatures of 250°F or less T = 1.000

Pipe Thinning on the Outside Bend Radius of Hot Bends:

From: International Pipe Association's Voluntary Standard for Induction Bending of Pipe (IPA-VIBS-86)

$$(D) \text{ of Bend} = \frac{R}{D_n}$$

Where: R = Center Line Radius of Bend, in inches.
 D_n = Nominal pipe Diameter, in inches.

Anticipated wall thinning is obtained from Table 1-1 of IPA-VIBS (in percent).

a. Line pipe:

Material: 8.625" O.D. x 0.500" w.t., API 5L, Gr. B, seamless pipe

$$P = \frac{2(35,000)(0.500)}{8.625} (0.72)(1.00)(1.00)$$

$$P = 2,922 \text{ psig}$$

b. Riser:

Material: 8.625" O.D. x 0.500" w.t., ASTM A106, Gr. B, seamless pipe

$$P = \frac{2(35,000)(0.500)}{8.625} (0.50)(1.00)(1.00)$$

$$P = 2,029 \text{ psig}$$

c. 5D Hot Bend:

Material: 8.625" O.D. x 0.500" w.t., ASTM A106, Gr. B, seamless pipe

$$(D) \text{ of Bend} = \frac{30}{6}$$

$$(D) \text{ of Bend} = 5$$

Anticipated wall thinning = 8.00% (from Table 1-1 of IPA-VIBS)

$$t_{\text{post bending}} = 0.500 - 0.08 (0.500)$$

$$t_{\text{post bending}} = 0.460 \text{ inch}$$

$$P = \frac{2(35,000)(0.460)}{8.625} (0.50)(1.00)(1.00)$$

$$P = 1,867 \text{ psig}$$

d. Flanges:

ANSI Class 600, ASTM A105, above water.

From: ANSI B16.5, Table 2-600, for Material Group 1.1,
Temperature -20 to 100 °F

Pressure Rating = 1,480 psig

ANSI Class 900, ASTM A105, subsea

From: ANSI B16.5, Table 2-900, for Material Group 1.1,
Temperature -20 to 100 °F

Pressure Rating = 2,220 psig

e. Valves:

ANSI Class 600, ASTM A105, above water

From: ANSI B16.34, Table 2-1.1A, for Group 1.1 Materials,
Temperature -20 to 100 °F

Pressure Rating = 1,480 psig

ANSI Class 900, ASTM A105, subsea

From: ANSI B16.34, Table 2-1.1A, for Group 1.1 Materials,
Temperature -20 to 100 °F

Pressure Rating = 2,220 psig

(vii) Hydrostatic test pressure (HTP), test medium, and period of time:

Hydrostatic test pressure: 1,850 psig

Test medium: Inhibited sea water

Test period: 8 hours

Calculation:

$$\begin{aligned} \text{HTP} &= 1.5 \times \text{MAOP} \\ &= 1.5 \times 1,480 \\ &= 2,220 \text{ psig} \end{aligned}$$

(viii) MAOP of the receiving Stingray 36" pipeline is 1,348 psig.

- (ix) Proposed date for commencing installation and estimated time for construction:

Commence installation date: September 10, 1990

Estimated construction time: 15 days

- (x) Type of protection to be afforded crossing pipelines, subsea valves, taps, and manifold assemblies:

An existing 14 inch Chevron gas pipeline will be crossed at Louisiana (Lambert) South Zone Coordinates $X = 1,386,461.71$ and $Y = 163,556.79$. A minimum separation of eighteen (18) inches will be maintained between lines with sandbags. The proposed pipeline will be covered with sand bags to maintain its three (3) feet of cover. The sand bags will contain a mixture of cement and sand in a ratio of 1:3 respectively.

The existing 12" subsea tap on the Stingray pipeline has seven (7) feet of cover. The ARCO subsea assembly will be clamped to the Stingray pipeline in two locations and supported with sandbags as it leaves and crosses the 36" Stingray pipeline. The subsea assembly will have a minimum of three (3) feet of cover.

SECTION 4

§250.157(a)(4)

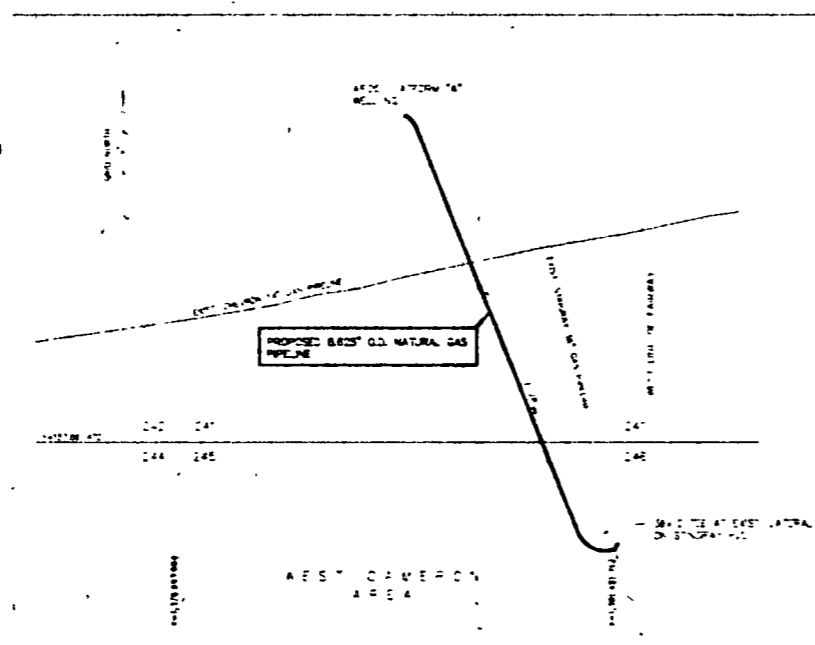
ADDITIONAL DESIGN PRECAUTIONS

§250.157(a)(4) No additional design precautions will be required to enable the pipeline to withstand the effects of water currents, storm or ice scouring, soft bottoms, mudslides, earthquakes, permafrost, or other environmental factors.

ARCO Oil and Gas Company

Division of Atlantic Richfield Company

8.625" O.D. NATURAL GAS PIPELINE WEST CAMERON AREA, BLK. 241 TO 245



PIPELINE DRAWINGS

208-B100	TITLE SHEET
208-B101	AREA PLOT PLAN
208-B102	8" PIPELINE ALIGNMENT PLAN & PROFILE
208-B103	PIPELINE DETAILS 1 OF 2
208-B104	PIPELINE DETAILS 2 OF 2

BEST AVAILABLE COPY

AUG 31 1990

FOR BID PURPOSES ONLY

ARCO SPECIFICATIONS			RELEASED FOR DATE BY APPD				CBS ENGINEERING, INC		ARCO Oil and Gas Company	
NUMBER	REV.	TITLE	Information			Houston, Texas	8.625" O.D. NATURAL GAS PIPELINE FROM PLATE PIPELINE TO STRONGAY PIPELINE		TITLE SHEET	
MSTD 19-4-4	0	FUSION BONDED EPOXY COATING FOR EXTERNAL COATING OF PIPE	Preliminary				NONE			
MSTD 27-1-1	2	LINE PIPE FOR PIPELINES	Bidding				C. HERBERT			
MSTD 27-50-1	3	PIPING DESIGN CRITERIA FOR SUBMARINE PIPELINES	Client Approval							
MSTD 27-50-3	2	INSTALLATION AND TESTING OF SUBMARINE PIPELINES AND RISERS	Construction							
MSTD 7-40-6-2	1	DESIGN AND FABRICATION CRITERIA FOR SACRIFICIAL ANODE CATHODIC PROTECTION OF OFFSHORE FLOWLINE - GULF OF MEXICO								
			NO DATE	REVISON	BY APPD					

GRID NORTH

ARCC PLATFORM "A"
WELL NO. 1
X=1,384,302.71
Y=158,412.52

PROPOSED 3.625" OD NATURAL GAS
PIPELINE 16,432 FT

FLOW

WELL LINE OF AIRWAY

36x12 TEE AT EXIST. LATERAL
ON STINGRAY PIPE
X=1,331,422.36
Y=154,161.50

242 241
244 245

240
246

AUG 31 1990

FOR BID PURPOSES ONLY

NOTES

1. ALL COORDINATES ARE BASED ON LOUISIANA
LAMBERT STATE PLANE COORDINATE SYSTEM
SOUTH ZONE.

BEST AVAILABLE COPY

NO	DATE	REVISION	BY	APP	RELEASED FOR	DATE	BY	APP
					Information			
					Preliminary			
					Bidding			
					Client Approval			
					Construction			

CBS ENGINEERING, INC.
Houston, Texas

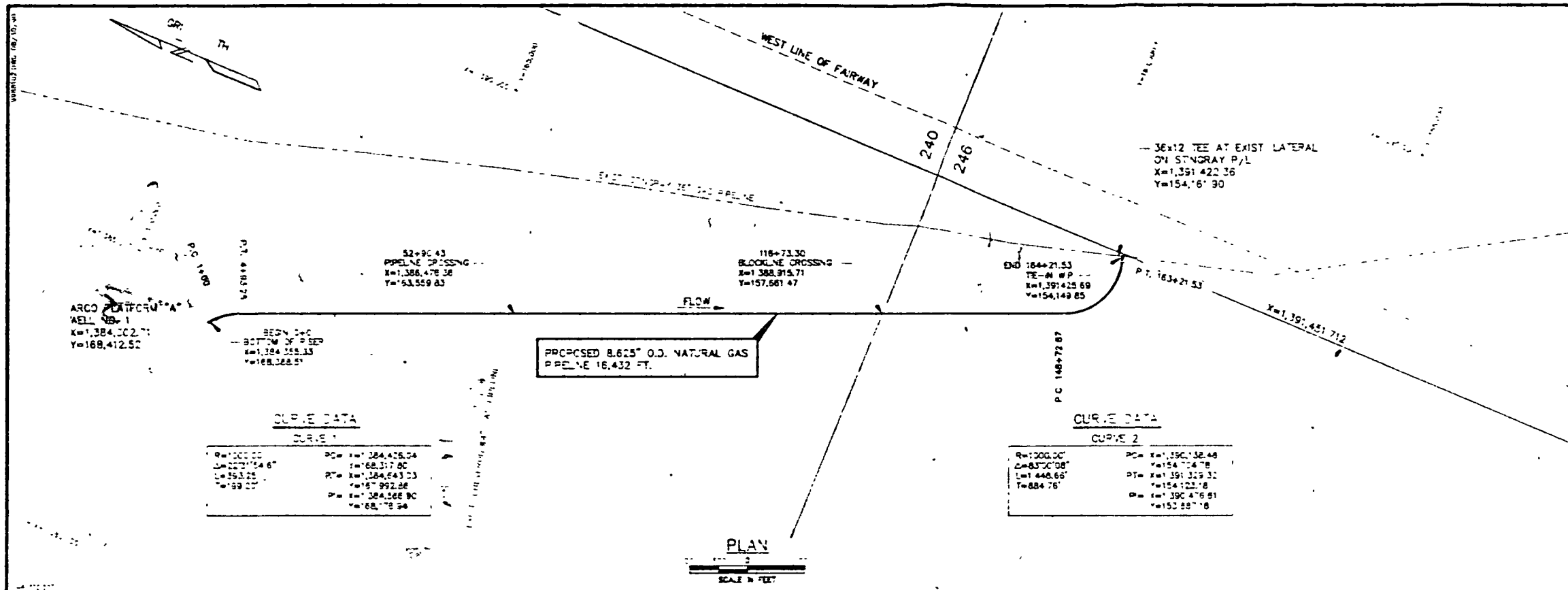
J. SCHMIDT
M. ROEMER

AUG 1990
AUG 1990

ARCC Oil and Gas Company

3.625" NATURAL GAS PIPELINE
FROM PLATFORM "A" TO STINGRAY PIPELINE

AREA PLOT PLAN
DIRECTIONS



CURVE DATA

CURVE 1

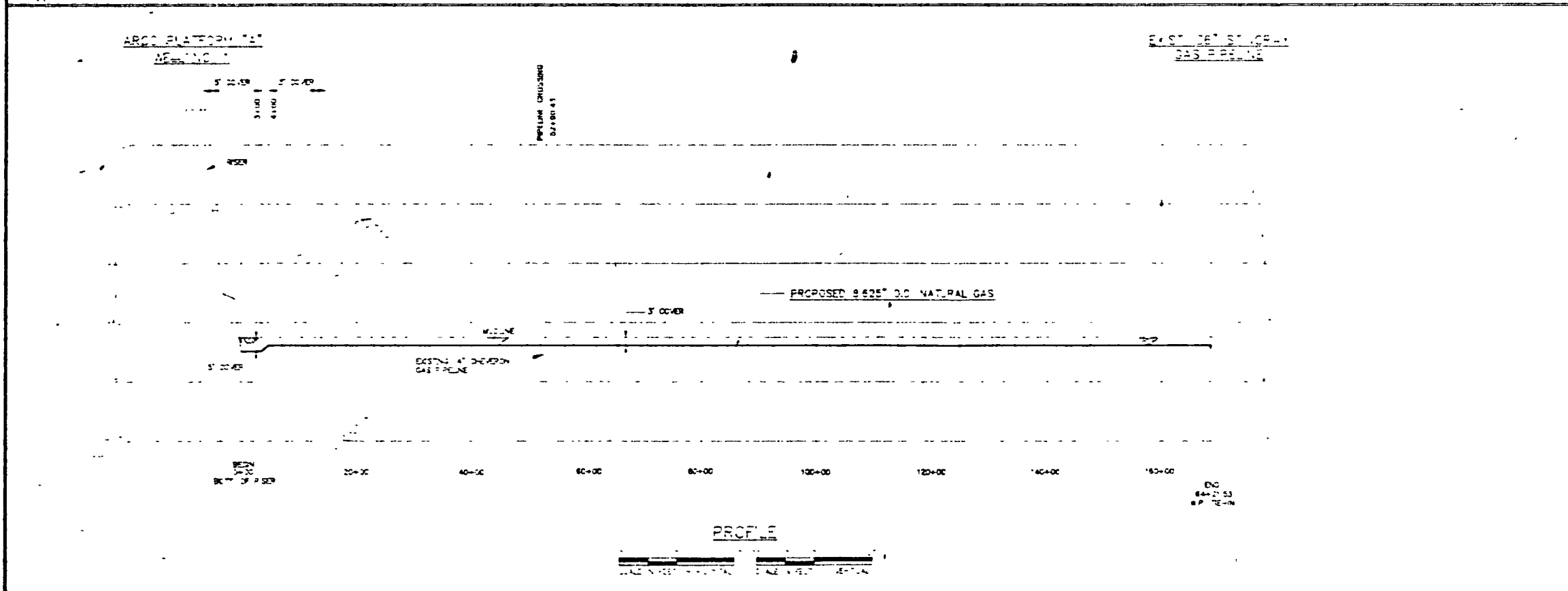
R=1200.00'	PC=X=1384.425,24
L=153.26'	PT=X=168.317,80
PI=X=1384.643,23	Y=153.26'
Y=153.26'	Y=153.26'
P=X=1384.568,80	Y=153.26'

CURVE DATA

CURVE 2

R=1200.00'	PC=X=1391.324,48
L=84.76'	PT=X=154.724,78
PI=X=1391.324,32	Y=84.76'
Y=84.76'	Y=84.76'
P=X=1391.476,81	Y=84.76'

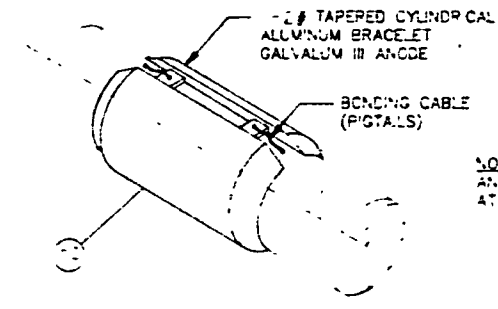
PLAN
SCALE IN FEET



PROFILE
SCALE IN FEET

AUG 31 1990
FOR BID PURPOSES ONLY

NOTES BEST AVAILABLE COPY	RELEASED FOR INFORMATION DATE: [] BY: [] APP: []	CBS ENGINEERING INC. HOUSTON, TEXAS	ARCO Oil and Gas Company 8.625" O.D. NATURAL GAS PIPELINE FROM PLATE #10 TO STINGRAY PIPELINE ALIGNMENT PLAN AND PROFILE
	PREPARED BY: []		
	CHECKED BY: []		
	DATE APPROVAL: []		
	CONSTRUCTION DATE: []		

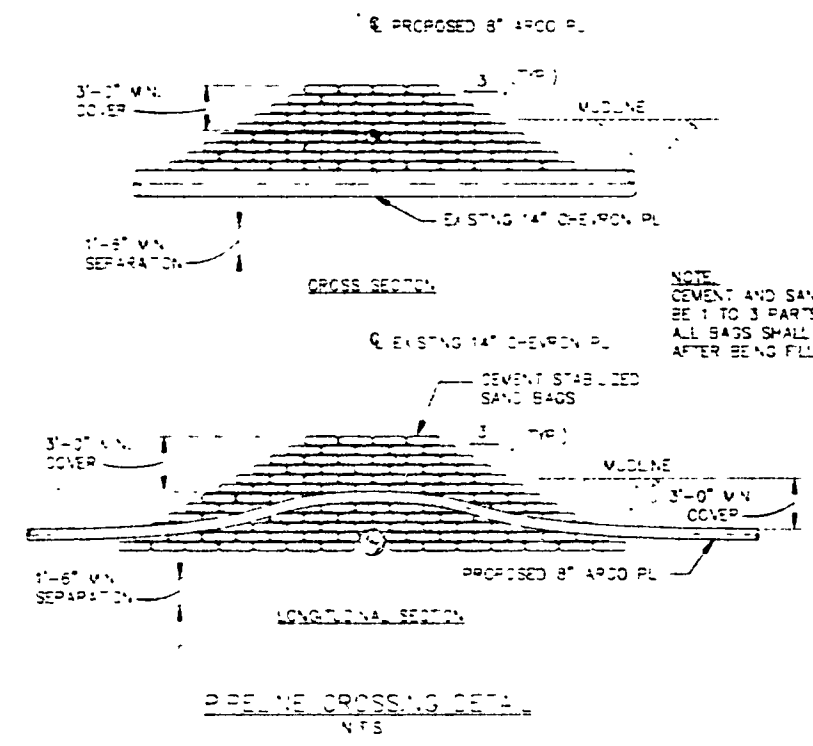


NOTE:
ANODES ARE SPACED
AT 100' MAX INTERVALS.

ANODE DETAIL
N.T.S.

ANODE INSTALLATION NOTES:

1. APPLY CIRCUMFERENTIAL WRAPS OF 12 INCH WIDE PIPELINE FELT TO A THICKNESS SUFFICIENT FOR A SNUG FIT OF ANODE WITH PIPE.
2. LAY TOP HALF OF BRACELET ON THE PIPE AND HOLD THE BOTTOM HALF OF THE BRACELET IN PLACE AT THE BOTTOM OF THE PIPE.
3. TIGHTEN BRACELET HALVES TOGETHER WITH A "COME-ALONG" UNTIL STEEL CORES OF THE BRACELET OVERLAP AND FIT SNUGLY ON THE PIPE.
4. WELD STEEL CORES OF EACH HALF TO EACH OTHER. LAY A SMALL PIECE OF ASBESTOS CLOTH UNDER THE STRAPS TO PREVENT DAMAGING THE PIPE DURING WELDING.
5. REMOVE "COME-ALONG" AND PREPARE TO MAKE CADAWELDS TO THE PIPE. PIGTAILS ARE TO BE OF SUFFICIENT LENGTH TO PERMIT "WINKING", BUT SHORT ENOUGH TO BE NESTLED INTO JOINT BETWEEN BRACELET HALVES.
6. REMOVE FLOWLINE COATING FOR CADAWELDS AT TWO PLACES APPROX 2" SQUARE.
7. MAKE CADAWELDS, THEN REPAIR COATING.
8. CONTRACTOR SHALL SUBMIT ANODE BONDING CABLE INSTALLATION PROCEDURE, SPECIFICATIONS AND INSPECTION ACCEPTANCE CRITERIA TO AFD FOR APPROVAL PRIOR TO STARTING THE WORK.



NOTE:
CEMENT AND SAND MIXTURE SHALL
BE 1 TO 3 PARTS BY WEIGHT.
ALL BAGS SHALL BE CLOSED SECURELY
AFTER BEING FILLED.

PIPELINE CROSSING DETAIL
N.T.S.

BILL OF MATERIAL		DESCRIPTION
8" PIPELINE COMPONENTS		
01	16,422 LF	PIPE, 8-5/8" O.D. X 0.500 W.T. SMLS, API 5L, GR. B, SMLS, BEVEL ENDS 30° FOR WELDING, FURNISH CERTIFICATE OF COMPLIANCE. EXTERNALLY COAT PIPE WITH "SCOTCH-NOTE" 200V 12 TO 14 MILS (SEE NOTE "1")
02	55	ANODES 82# NOMINAL TAPERED SEMI-CYLINDRICAL ALUMINUM BRACELET "GALVALUM III"
03	2	FLANGE, 8" ANSI 900 R/W, ASTM A105, BORE TO T825
04	ONE	GASKET, 8" ANSI 900 SGT FOR OVAL RING, P490.
05	12	STD BOLTS, 3/8" x 9" G. ASTM A193, GR B7 W/ 2) HEAVY HEX NUTS ASTM A194, GR 2, CAD PLATED.

AUG 31 1990
FOR BID PURPOSES ONLY

NOTES:
1. "SCOTCH-NOTE" COAT TO BE APPLIED IN ACCORDANCE WITH ANSI A444 CO-85 TENSION-BOND EPOXY COATING FOR THE INTERIOR AND EXTERIOR OF STEEL WATER PIPELINES.

BEST AVAILABLE COPY

RELEASED FOR	DATE	BY	APPROV
Information			
Pre-Design			
Design			
Client Approval			
Construction			

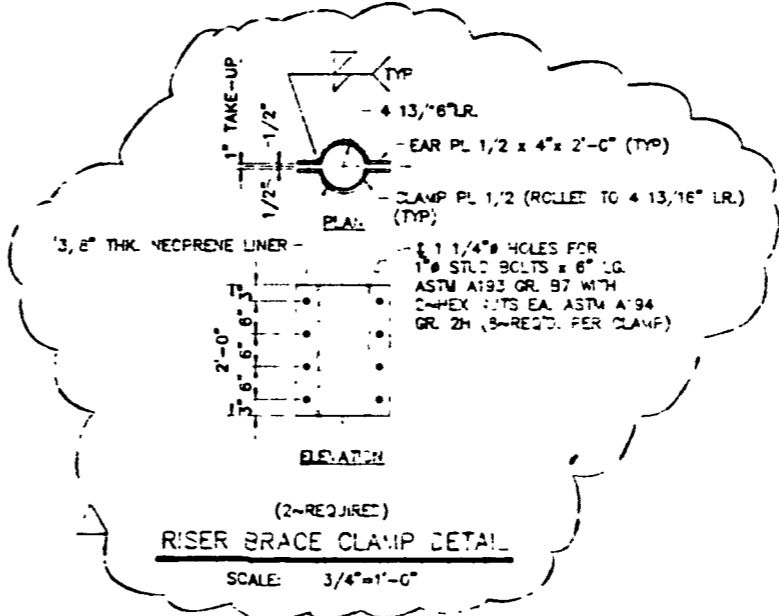
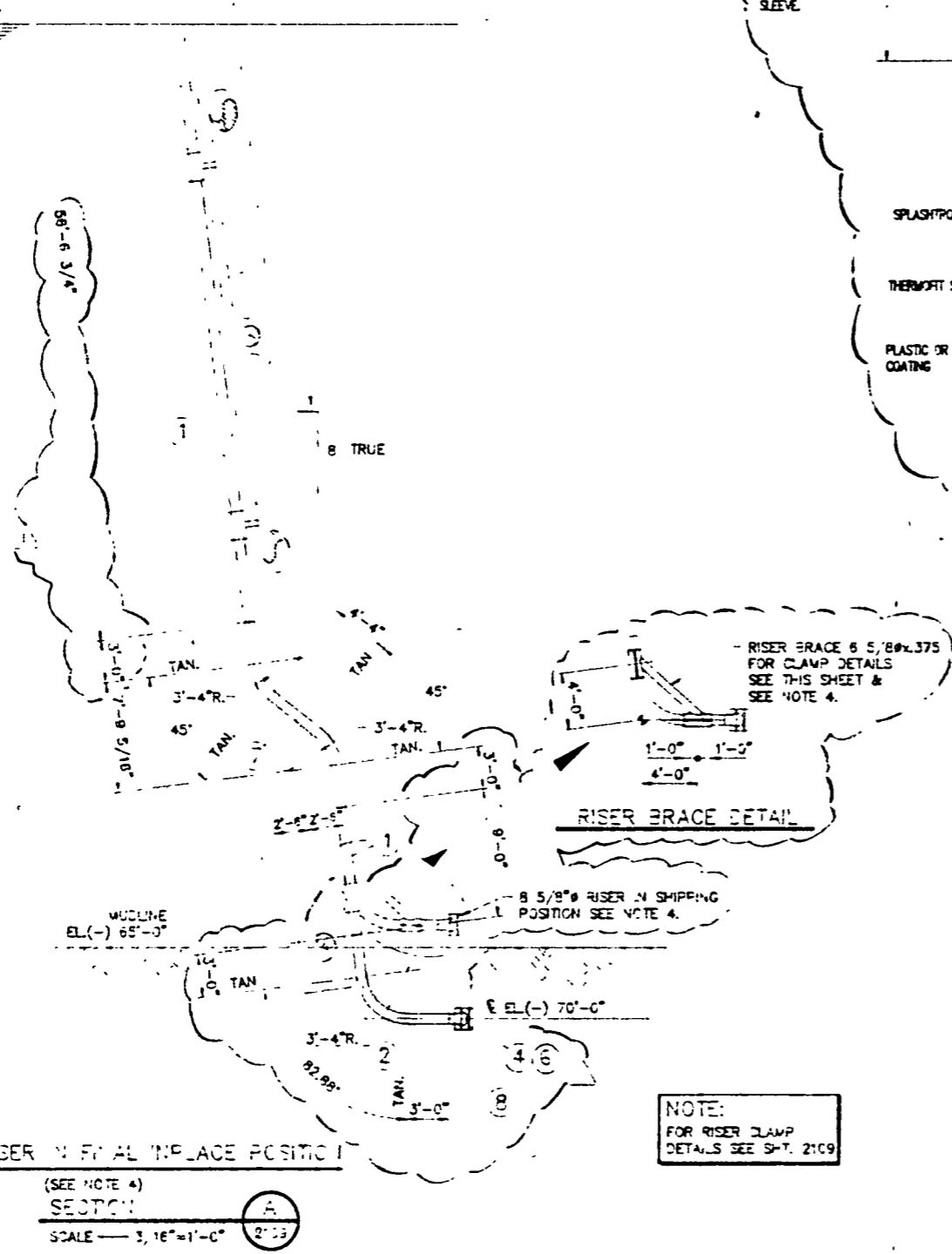
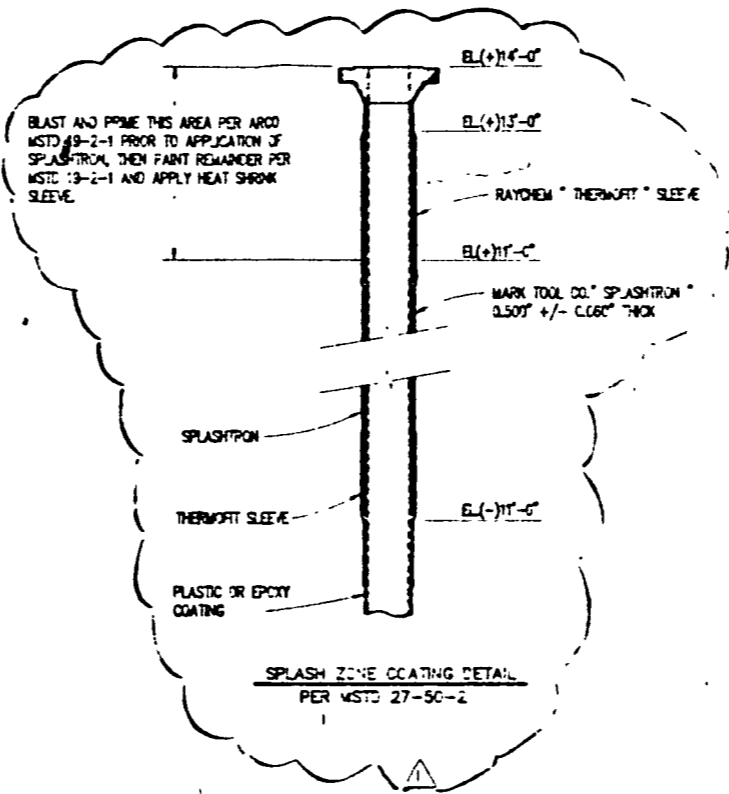
CBS ENGINEERING, INC. HOUSTON, TEXAS	
J. SCHMIDT	NOTED
G. WEBER	AUG 90
388-23	

4900 Oil and Gas Company
8625' OD NATURAL GAS PIPELINE FROM PLATE 141 TO STINGRAY PIPELINE
PIPELINE DETAILS
208-8103

T.O. JKT. P (+) 15'-0"
 F/F EL. 4'-0" JKT. WKAY. T.O.G. EL. (+) 13'-10.5"

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION
8" PLATFORM RISER COMPONENTS		
1	70 1/2	PIPE, 8.625" O.D. X 0.500 SMLS, ASTM A106 GR.B BEVEL ENDS IN ACCORDANCE W/ API 5L FOR WELD COAT #1 SCOTCHKOTE 206N
2	9 1/2	FABRICATED BEND, PIPE 8.625" O.D. X 0.500 SMLS, ASTM A106 GR.B, BEVEL ENDS 30° FOR WELD, COAT #1 SCOTCHKOTE 206N
3	ONE	FLANGE, 8" ANSI CLASS 900 RTJMN, ASTM A105 BCRC TO 7.625" LD.
4	2	BLIND FLANGE, 8" ANSI CLASS 900 RTJ, ASTM A105
5	12	STUD BOLTS, 1-3/8" X 9" LG, ASTM A193, GR. B7 W/ 2-HVY. HEX. NUTS ASTM A194, GR. 2H, TFLCN COATED.
6	2	GASKET, 8" ANSI B16.20 CLASS 900 SCFT IRON OVAL RING, R435
7	13 1/2	FABRICATED BEND, PIPE 8.625" O.D. X 0.500 SMLS, ASTM A106 GR.B, BEVEL ENDS IN ACCORDANCE W/ API 5L FOR WELD COAT #1 SCOTCHKOTE 206N
8	ONE	MISALIGNMENT FLANGE, 8" ANSI CLASS 900 RTJ BALL FLANGE CONNECTOR, BCRC TO 7.625" LG. C/W STUD BOLTS BY "BIG HORN MARINE SYSTEMS"



8-5, 8-6 RISER IN FINAL IN PLACE POSITION (SEE NOTE 4)
 SECTION A
 SCALE: 3/16"=1'-0"

SEP 04 1990
 FOR BIDDING PURPOSES ONLY

- NOTES**
- FOR GENERAL NOTES, SEE SHT. 2101
 - RISER JOINTS TO HAVE THERMOFIT "WRAP AROUND" SHRINK SLEEVES.
 - FABRICATOR SHALL HYDRO-TEST RISER IN ACCORDANCE WITH "ARCO" SPECS.
 - FABRICATOR SHALL INSTALL RISER WITH BRACE 6 FT. (+/-) HIGHER THAN FINAL IN PLACE POSITION. PIPELINE CONTRACTOR IS TO REMOVE BRACE AND LOOSEN RISER CLAMPS WHEN JACKET IS IN PLACE AND SLIP

RISER DOWN TO ITS FINAL POSITION.
BEST AVAILABLE COPY

NO.	DATE	REASON	BY	APPROV.
1		ADDED BALL FLANGE CONN AND SPLASHTRON DETAIL		



CBS ENGINEERING, INC.
 Houston, Texas

DESIGNED BY: S. HYATT
 CHECKED BY: M. POERNER
 DATE: MAY '90

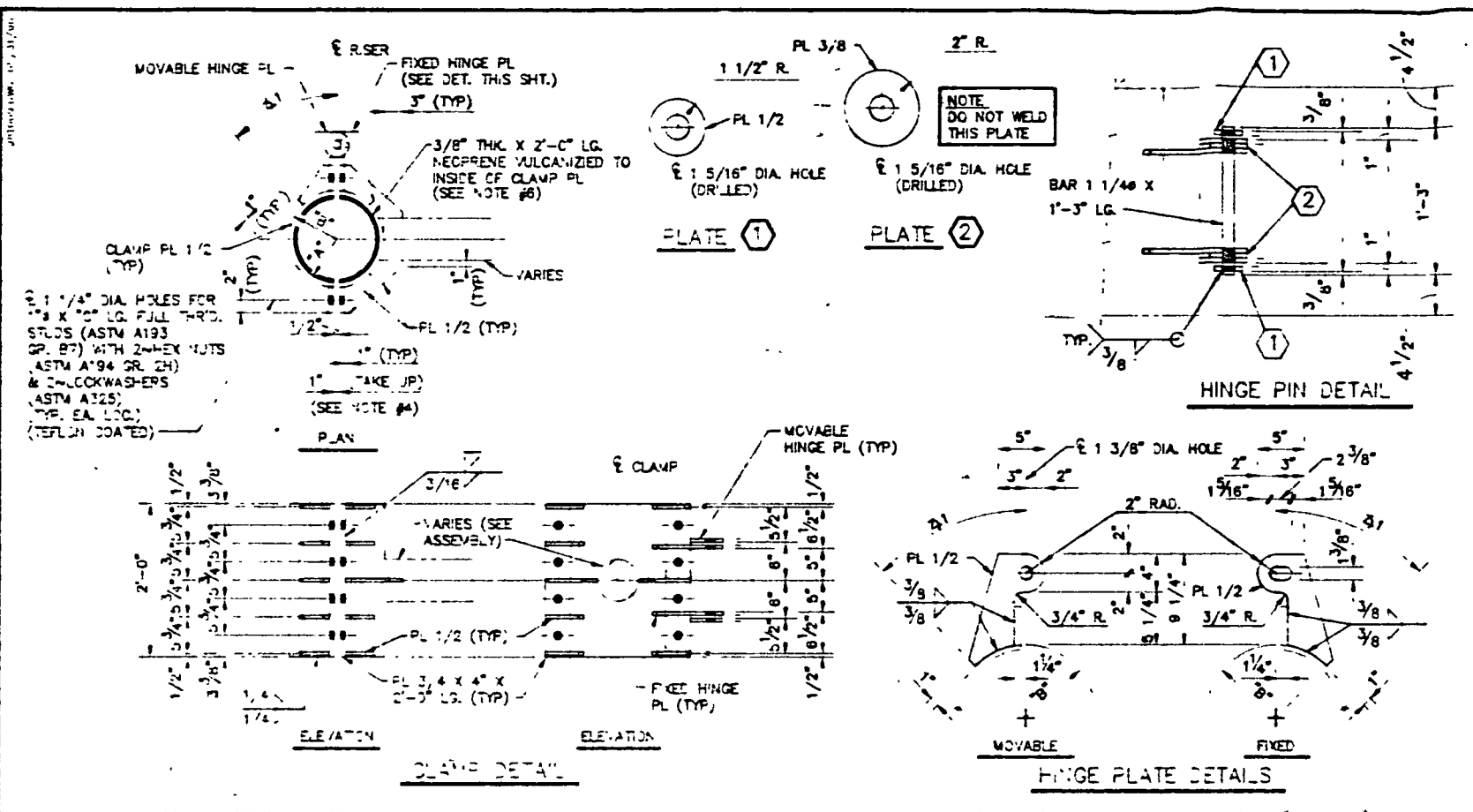
APPROVED BY: A.P.D.
 DATE: JULY '90

PROJECT NO: 998-C1

ARCO Oil and Gas Company
 Houston, Texas

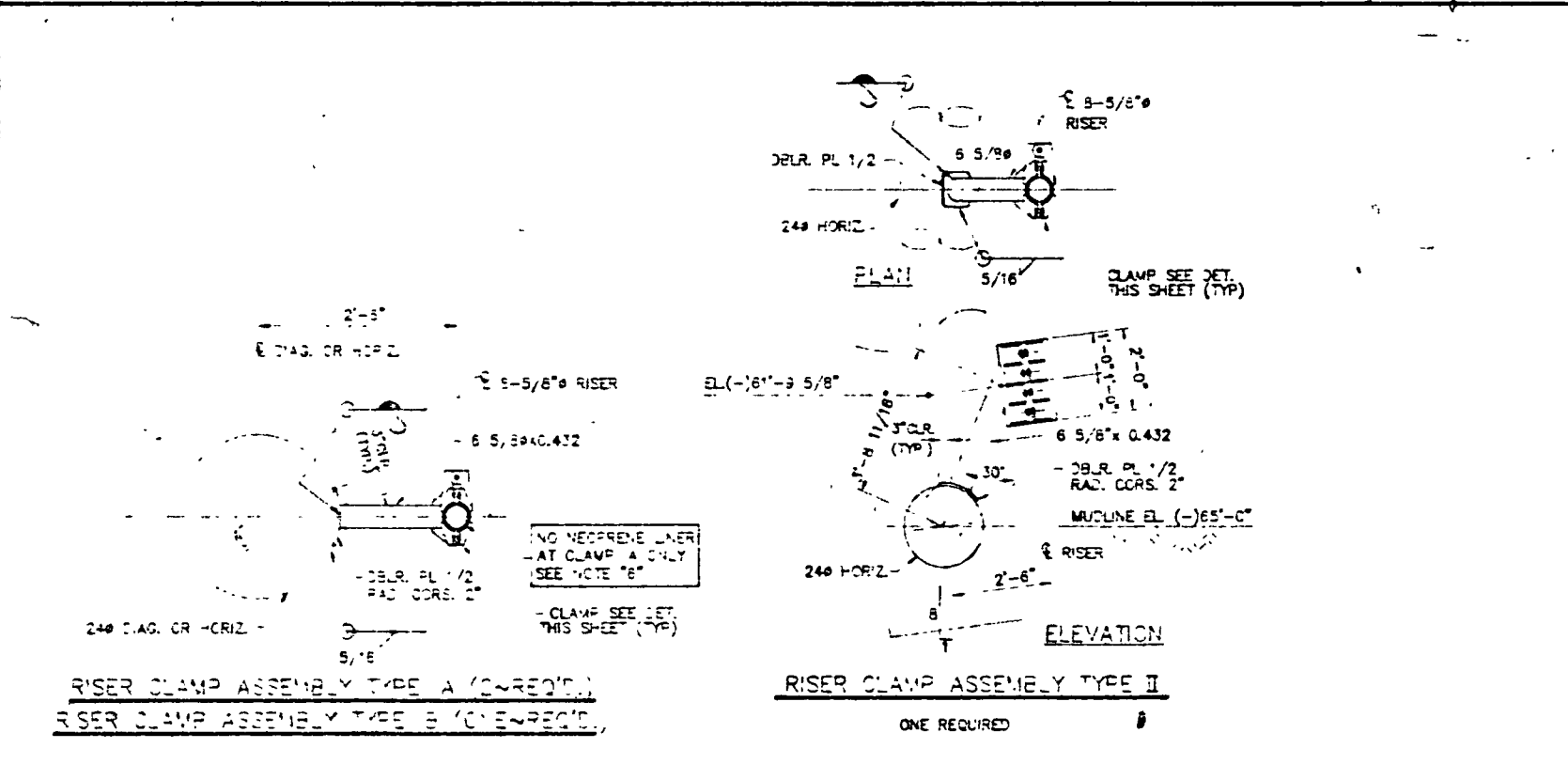
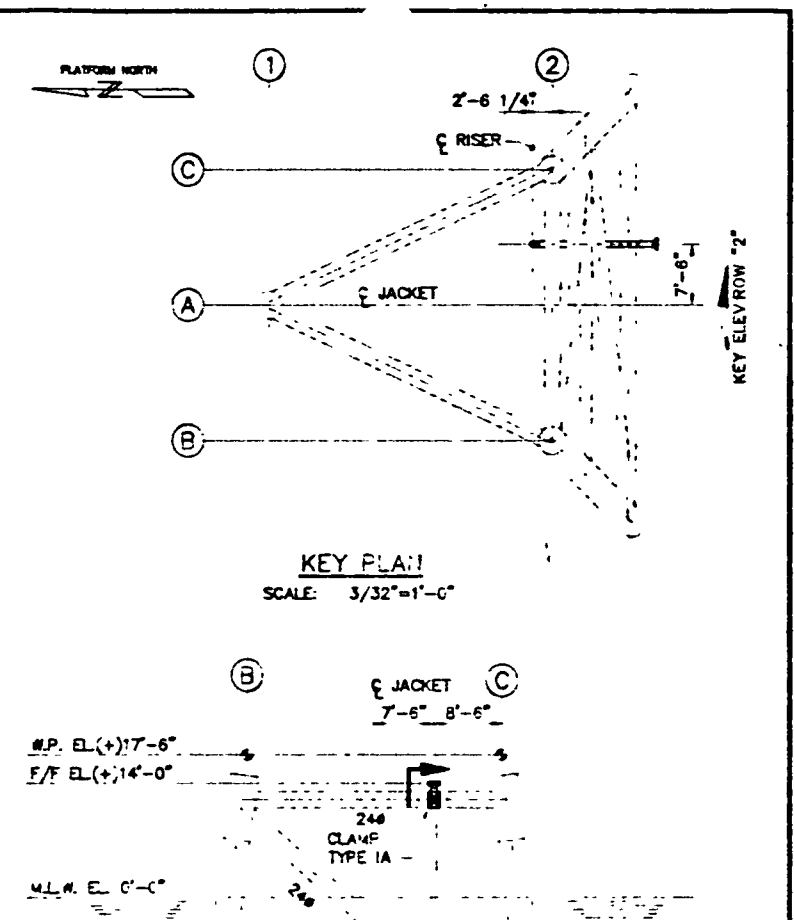
3-PILE, 4-Well PRODUCTION PLATFORM
 WEST CAMERON BLK. 241
 65' FT. W.C.

RISER DETAILS
 208-2110



CLAMP SCHED

RISER OR BRACE	REQD	A	B	C	81
8 5/8"	ONE	2 3/8"	3 1/2"	6"	65"
8 5/8"	3	2 3/8"	3 1/2"	6"	65"



NOTE:
FOR RISER DETAILS SEE SHT 2110

- NOTES**
- FOR GENERAL NOTES SEE SHEET 2101
 - FOR CLAMP LOCATIONS SEE THIS SHT.
 - FABR. TO CHECK CLAMP HINGES FOR BINDING AFTER ASSEMBLY OF UNIT
 - FABR CATCHER SHALL FABR CATCH CLAMP TO INSURE 1" TAKE-UP AS SHOWN.

- FABR. CONTRACTOR TO LEAVE BOTT. RISER CLAMP OPEN & TIE BACK RISER WITH ROPE AS REQD FOR TRANSPORTATION.
 - ASTERISK (*) DENOTES CLAMP WITHOUT NEOPRENE LINING. SEE CLAMP SCHEDULE FOR REQUIREMENTS.
- BEST AVAILABLE COPY**

NO.	DATE	REVISION	BY	APPRO



CBS ENGINEERING, INC.
Houston, Texas

PROJECT NO. 999-01

ARCO Oil and Gas Company

3-PILE, 4-WELL PRODUCTION PLATFORM

WEST CAMERON BLK 241 65 FT. W.D.

RISER CLAMP DETAILS

208-2109

FOR BIDDING PURPOSES ONLY

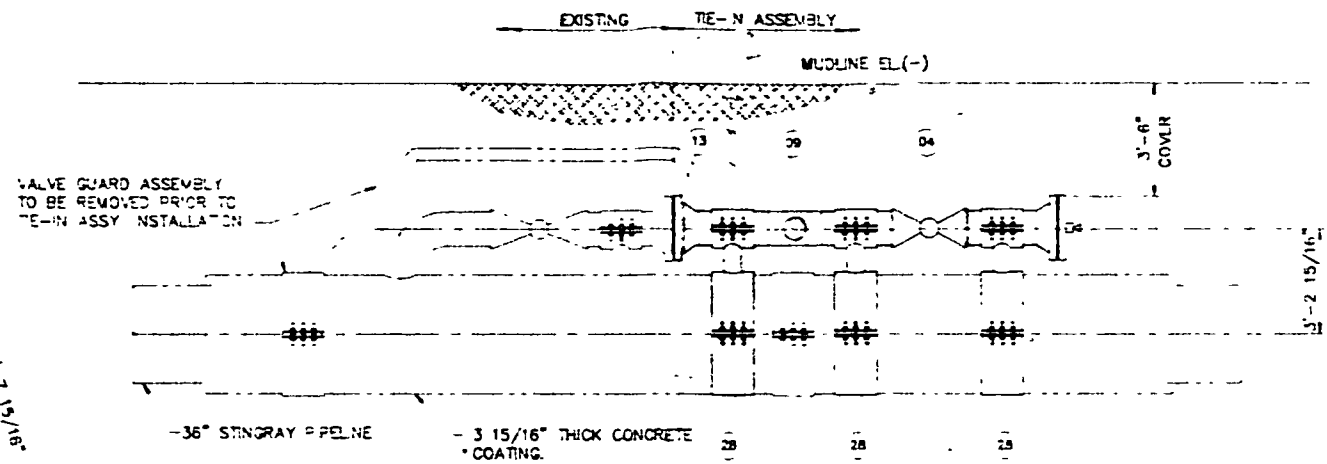
SEP 24 1990

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION
01	7 LF	PIPE, 12.75" O.D. x 0.500" WT., ASTM A106, GR.B, SMLS, COAT W/ SCOTCH-KOTE 205, 12 TO 16 MILS THK.
02	5 LF	PIPE, 8.625" O.D. x 0.500" WT., ASTM A106, GR.B, SMLS, COAT W/ SCOTCH-KOTE 205, 12 TO 16 MILS THK.
03	4 LF	PIPE, 2.375" O.D. x 0.343" WT., ASTM A106, GR.B, SMLS, COAT W/ SCOTCH-KOTE 205, 12 TO 16 MILS THK.
04	ONE	BALL VALVE, 12" ANSI 900, W x W, FULL OPENING BORE FOR CONNECTION TO 12.75" O.D. x 0.500" WT. CAMERON # BC1902-3-012.
05	ONE	BALL VALVE, 8" ANSI 900, W x W, FULL OPENING BORE FOR CONNECTION TO 8.625" O.D. x 0.500" WT. CAMERON # BC1902-2-212.
06	ONE	BALL VALVE, 2" ANSI 1500, W x W, FULL OPENING BORE FOR CONNECTION TO 2.375" O.D. x 0.343" WT. CAMERON # BC1902-2-012.
07	ONE	BALL VALVE, 2" ANSI 1500, W x W, FULL OPENING BORE FOR CONNECTION TO 2.375" O.D. x 0.343" WT. CAMERON # BC1902-2-012.
08	ONE	CHECK VALVE, 8" ANSI 900, W x W, FULL OPENING BORE FOR CONNECTION TO 8.625" O.D. x 0.500" WT. PRE. EQUIPPED W/ LOCK OPEN LEVER, COM AREA LEY #5576.
09	ONE	RED. TEL. 12" x 12" x 9" x 0.500" WT., ASTM A234, WPB.
10	ONE	TEE, 2" x 2" SCH. 160, ASTM A234, WPB.
11	ONE	WELD ELB. 2" SCH. 160, ASTM A234, WPB.
12	2	WELDOLET 2" x 8" SCH. 160, ASTM A10502.
13	ONE	SAFETY RING FLG., 12" ANSI 900, RT., ASTM A105, BORE FOR CONNECTION TO 12.75" x 0.500" WT. PIPE, BY HYDROTECH SYSTEMS.
14	ONE	FLANGE, 12" ANSI 900, RT., ASTM A105, BORE TO 11.500" I.D.
15	ONE	BLIND FLANGE, 12" ANSI 900, RT., ASTM A105, COAT FOR 11" NPT BLEEDER VALVE.
16	20	STUD BOLTS, 1.375" x 1.25" LG., ASTM A193, GR.B7 W/ (2) HEAVY HEX NUTS EA. ASTM A194, GR.2H, CAD PLATED.
17	20	STUD BOLTS, 1.375" x 1.25" LG., ASTM A193, GR.B7 W/ (2) HEAVY HEX NUTS EA. ASTM A194, GR.2H, CAD PLATED.
18	2	GASKET, 12" ANSI 900 SOFT RON OVAL RND. RSTG.
19	2	FLANGE PROTECTOR, 12" ANSI 900, 316L SS, BY ADVANCE PRODUCTS AND SYSTEMS, NO.
20	ONE	ALIGNMENT FLANGE, 8" ANSI 900 W x RT. BALL FLANGE BORE TO 7.625" O.D. x 8" STUD BOLTS, BY BIG MOM MARINE SYSTEMS, NO.
21	ONE	GASKET, 8" ANSI 900 SOFT RON OVAL RND. RSTG.
22	ONE	FLANGE PROTECTOR, 8" ANSI 900, 316L SS, BY ADVANCE PRODUCTS AND SYSTEMS, NO.
23	ONE	BLIND FLANGE, 2" ANSI 1500, RT., ASTM A105.
24	8	STUD BOLTS, 0.875" x 6.000" LG., ASTM A193, GR.B7 W/ (2) HEAVY HEX NUTS EA. ASTM A194, GR.2H, CAD PLATED.
25	ONE	GASKET, 2" ANSI 1500 WLD. STEEL, OVAL RND. RSTG.
26	ONE	FLANGE PROTECTOR, 2" ANSI 1500, 316L SS, BY ADVANCE PRODUCTS AND SYSTEMS, NO.
27	ONE	VALVE 1" BLEEDER
28	3	TE-IN CLAMP ASSEMBLY (SEE DETAIL THIS SHEET)

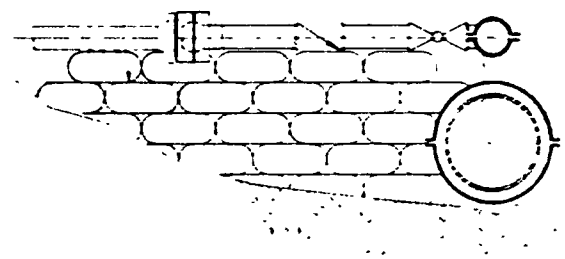
NOV 31 2000

FOR BID PURPOSES ONLY

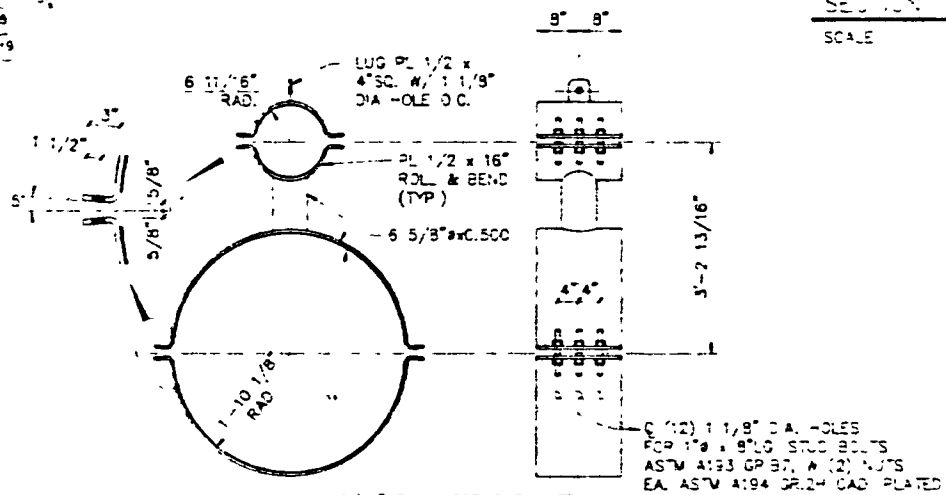


SECTION
SCALE 3/8"=1'-0"

SANDBAGS TO BE FILLED WITH MIXTURE OF 1 PART CEMENT TO 3 PARTS SAND (BY WEIGHT) EXTEND SANDBAGS 3'-0" BEYOND BALL FLANGE.

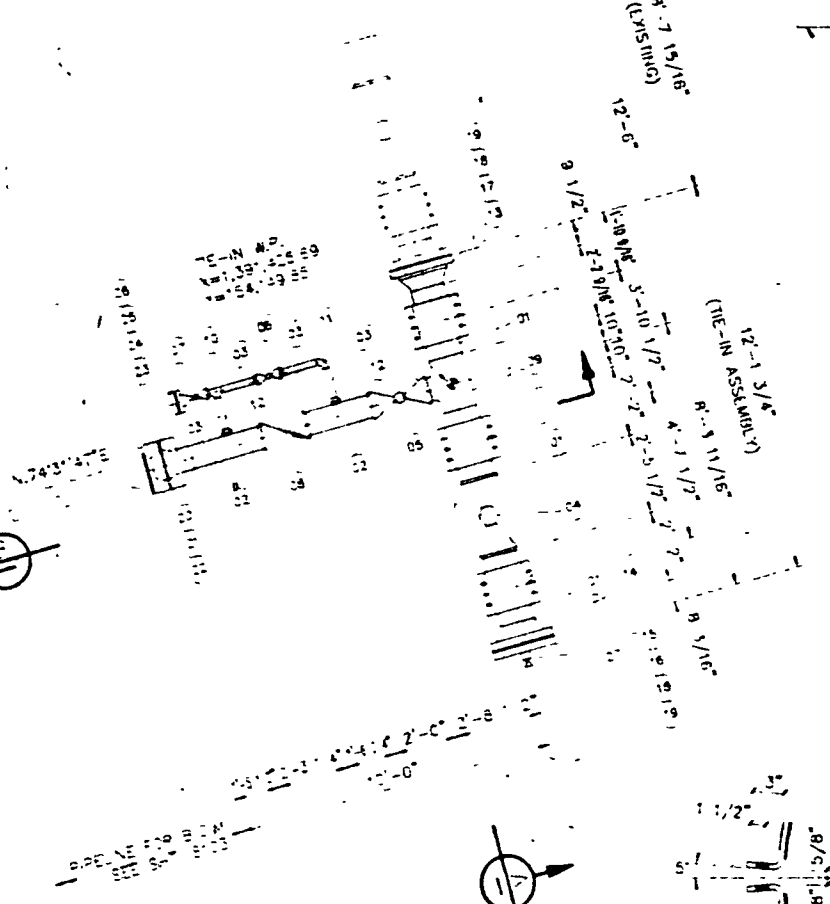


SECTION
SCALE 3/4"=1'-0"



TE-IN CLAMP ASSEMBLY 28
SCALE 3/4"=1'-0"

GRID NORTH



PIPELINE TIE-IN
SCALE 3/8"=1'-0"

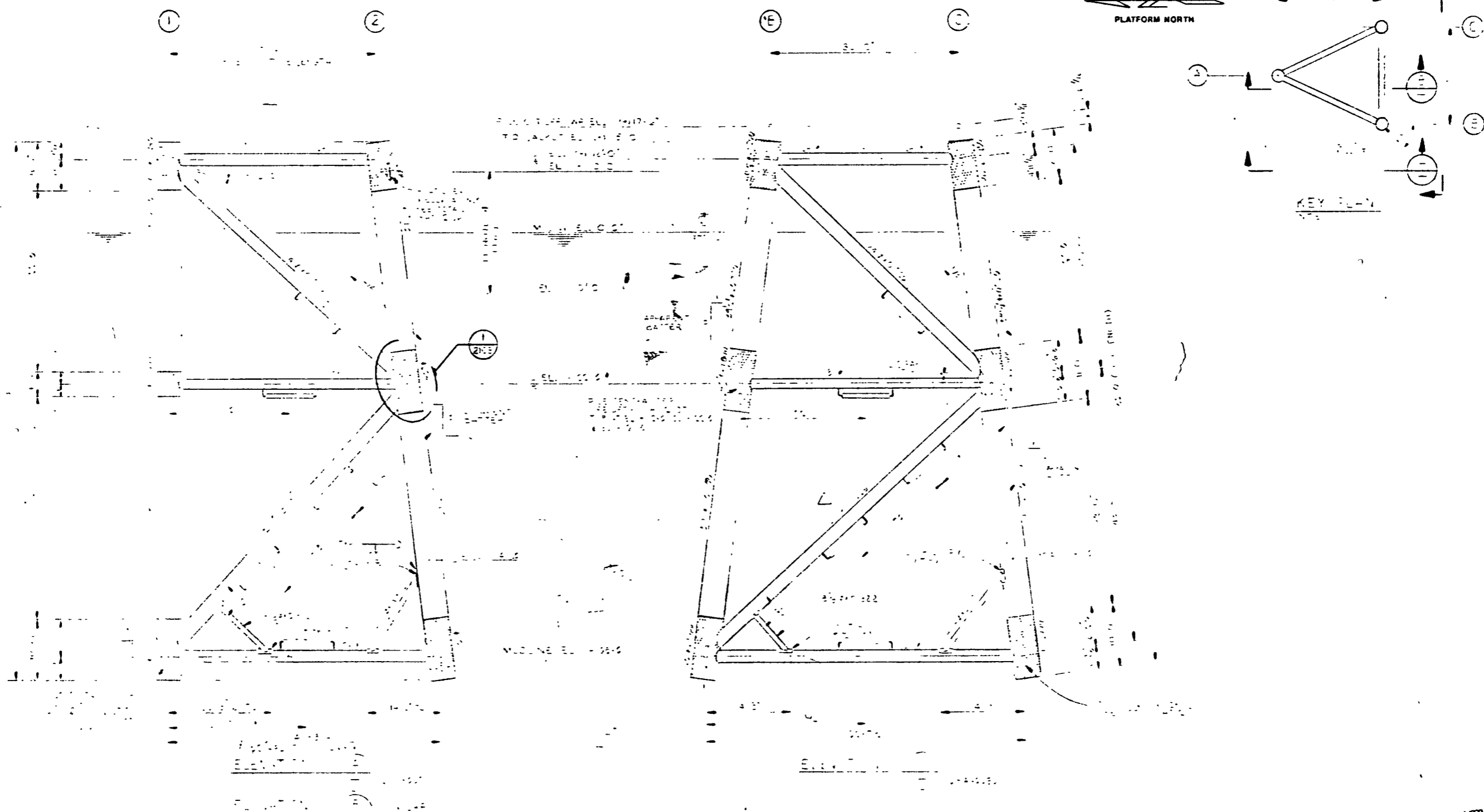
NOTES

BEST AVAILABLE COPY

NO.	DATE	REVISION	BY	APP.

CBS ENGINEERING, INC Houston, Texas	
DESIGNED BY: J. SCHMIDT	CHECKED BY: M. ROEMER
DATE: 11/30/00	DATE: 11/30/00
PROJECT NO: 999-23	

APCO Oil and Gas Company
8625" O.D. NATURAL GAS PIPELINE
FROM PLATE #17 TO STINGRAY PIPELINE
PIPELINE DETAILS (SHEET 2 OF 2)



BEST AVAILABLE COPY

FOR BIDDING PURPOSES ONLY

GENERAL NOTES: 1 ALL ROLLED SHAPES AND PLATES TO BE ASTM A36 UNLESS NOTED OTHERWISE. ALL SEAMLESS AND ELECTRIC RESISTANCE WELDED PIPE TO AP SPEC 5L OR B OR EQUAL. SEE ARCO SPEC. 2 JACKET LEG LONGITUDINAL SEAMS AT JOINT NODES SHALL BE TURNED AWAY FROM THE BRACES SUCH THAT THIS WELD AND THE SPACE WELDS DO NOT INTERSECT. 3 ALL WELDING AND FABRICATION TO BE IN ACCORDANCE WITH AWS D1.1 AND API RP 2A LATEST EDITION. ALL WELDING TO BE FULL PENETRATION UNLESS NOTED OTHERWISE IN SPECIFICATIONS. 4 CORROSION PROTECTION TO BE APPLIED PER ARCO SPECIFICATIONS. 5 ALL HANDRAIL PANELS AND SOCKETS TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. HANDRAIL PANELS TO BE PRECE MARKED AND TEST FITTED PRIOR TO SHIPMENT. GRATING TO BE WELDED W/ 3/16 FILLET WELD. EVERY 3RD BAR. EACH SUPPORT CROSSING TOUCH UP WELDS W/ GALV WELD OR EQUAL. POP ANODE DETAILS SEE SMT 208-2106. INDICATES API 2H GR 50 MATERIAL PER ARCO SPECIFICATIONS.	RELEASE FOR DATE BY APP'D Information Preliminary Bidding Client Approval Construction		CBS ENGINEERING, INC. Houston, Texas DESIGNED BY: _____ SCALE: _____ DRAWN BY: _____ DATE: _____ CHECKED BY: JESSE F. GARCIA DATE: _____ APPROVED BY: _____ PROJECT NO: 998-01	ARCO Oil and Gas Company 3-PILE, 6-WELL PRODUCTION PLATFORM WEST CAMERON BLK 241 65 FT. H.D. JACKET ELEVATIONS 208-2101 REV. 02 NO. 0
	565958	NO DATE REV. 03 BY APP'D		
	_____	_____		
	_____	_____		
	_____	_____		

UNITED STATES GOVERNMENT
MEMORANDUM

November 20, 1990

To: Regional Supervisor, Field Operations, GOM OCS Region
(MS 5200)

From: Regional Supervisor, Leasing and Environment, GOM OCS
Region (MS 5400)

Subject: National Environmental Policy Act Review for Pipeline
Right-of-Way Application OCS-G 12375

Our National Environmental Policy Act (NEPA) review of the subject action is complete. Environmental protective measure(s), if any, identified to avoid or mitigate potential impacts associated with the action were included as part of the NEPA analysis and are shown on the Categorical Exclusion Review (CER).

J. Kenneth Adams
for J. Kenneth Adams

Attachment

cc: Pipeline File OCS-G 12375 (MS 5440)



United States Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

NEPA CATEGORICAL EXCLUSION REVIEW

The Categorical Exclusion Review (CER) evaluated the proposed action(s) and determined that it meets the categorical exclusion criteria as defined by 516 DM 2.3A(1) which states "(a) The action or group of actions would have no significant effect on the quality of the human environment, and (b) The action or group of actions would not involve unresolved conflicts concerning alternative uses of available resources." The exclusion of this activity from future environmental analysis is conditioned on the imposition of the following mitigative measure(s). These measures are to ensure environmental protection, consistent environmental policy, and safety as required by the NEPA.

Environmental Protective Measures

The following measure was identified in the plan/application by the lessee/operator submitting the proposal: The applicant would comply with the MMS archaeological protection program.

The measures identified by MMS during the plan/application review or in the lease stipulation were:

1. Our analyses indicate the following as potential hazards to the proposed activities. Therefore, precautions in accordance with NTL No. 83-3, Section IV.B, will be taken prior to conducting operations.

Pipelines

<u>Name</u>	<u>Diameter (inches)</u>	<u>Block</u>	<u>Area</u>
Chevron	14	241	West Cameron
Stingray	36	245	West Cameron

Magnetic Anomalies

<u>Blocks</u>	<u>Line No.</u>	<u>Shot Point</u>	<u>(Gammas)</u>
241	4	8.75	18 - Well No. 1
241	3	10.50	6
245	4	41.40	30

2. The lessee will ensure that all aircraft used in support of their OCS operations maintain a minimum altitude of 2,000 feet over all national wildlife refuges and national park lands.

Exclusion Determination

The proposed action was evaluated and reviewed against the CER exception criteria defined by 516 DM 2.3.A(3). With inclusion of the above mitigation, it does not represent an exception to the

category exclusions. Therefore, preparation of an EA is not required.

11/20/90
Date

Bonnie LaBorde Johnson 20 Nov 90
Preparer Date

J. J. Richardson
for Chief, Environmental
Operations Section

I concur.

11-20-90
Date

A. Homer Benton ^{Acting}
Regional Supervisor,
Leasing and Environment

BEST AVAILABLE COPY

PIPELINE RIGHT-OF-WAY APPLICATION "ENGINEERING CHECKLIST"
MINERALS MANAGEMENT SERVICE
GOM REGIONAL OFFICE

Date:

OCS-G 12375

- A. Description of pipeline and location of proposed route (i.e., size of pipe, product to be transported, from where to where, platform number, name, block number, area, and distance in feet and miles):** 8 5/8-inch gas pipeline 16,489' or 3.12 miles from ARCO's Platform A in Block 241 to a subsea tie-in with Stringray's 30-inch pipeline (OCS-G 21220) in Block 245, all in the West Cameron Area
- B. Safety Flow Schematic - Verify that the information shown on the safety flow schematic diagram contains the following:**

✓ 1. Pressure source is drawn into the schematic with the following:

- a. source (i.e., name) Production Sep.
b. design working pressure 1480
c. high-low pressure sensor settings 1320/1020

✓ 2. "ANSI" ratings of all valves, flanges, and fittings between the source and the connecting pipeline are shown. Ansi 600

N/A 3. Pressure relief valves, where applicable, are shown with the setting set no higher than the maximum working pressure (MWP) of the vessel.

N/A 4. If the maximum input source pressure is greater than the maximum allowable operating pressure (MAOP) of the pipeline, redundant safety equipment is required.

✓ 5. MAOP of proposed pipeline does not exceed MAOP of connecting pipeline. Seg # 7358 MAOP 1,348

✓ 6. The pipeline leaving the platform receiving production from the platform is equipped with high-low pressure sensors to directly or indirectly shut-in the well or wells on the platform.

N/A 7. The pipeline delivering production to the production facilities on the platform is equipped with an automatic fail-close valve tied into the automatic and remote shut-in system.

N/A 8. The pipeline crossing the platform which does not deliver production to the platform, but which may or may not receive production from the platform, is equipped with high-low pressure sensors connected to an automatic fail-close valve located in the upstream portion of the pipeline at the platform. In addition, the sensors are tied into either the platform's automatic and remote shut-in system or an independent remote shut-in system.

BEST AVAILABLE COPY

- 9. The pipeline boarding the ~~platform~~/pipeline is equipped with a check valve.
- N/A 10. The pipeline leaving the platform is equipped with a check valve.
- N/A 11. The high-low pressure sensors on the departing pipeline is located upstream of the check valve.
- N/A 12. Where applicable, high-low sensors are located downstream of the back pressure regulator.
- N/A 13. If there is liquid injection into the line, are pumps associated with the injection? (Yes or No) _____
- 14. Direction of flow indicated.
- 15. Pipe specifications (i.e., size, grade, weight, and wall thickness).
- 16. Total length of proposed pipeline (feet and miles).
- 17. MAOP of connecting pipeline.
- 18. Statement that design meets or exceeds DOT Regulations 192 or 195, as applicable, and/or applicable OCS orders, registered engineer's seal, registration number, date, and signature.
- 19. Area and block number of proposed pipeline/platform.
- 20. Cathodic protection specifications.

C. Design Information - Verify that the pipeline design information given in the application and/or on the data sheet is complete and correct:

1. Product to be transported: Gas

2. Pipeline, riser, and subsea valve assembly specifications:

(1) Size 8.625 Wall Thickness .500 Grade B Weight 43.39 lbs/ft.

(2) Size 8.625 Wall Thickness .460 Grade B Weight _____ lbs/ft.

(3) Size _____ Wall Thickness _____ Grade _____ Weight _____ lbs/ft.

hot bends →
8% thinning
to wall thickness

b. Riser:

(1) Size 8.625 Wall Thickness .500 Grade B Weight _____ lbs/ft.

(2) Size _____ Wall Thickness _____ Grade _____ Weight _____ lbs/ft.

(3) Size _____ Wall Thickness _____ Grade _____ Weight _____ lbs/ft.

c. Subsea valve assembly:

(1) Size _____ Wall Thickness _____ Grade _____ Weight _____ lbs/ft.

(2) Size _____ Wall Thickness _____ Grade _____ Weight _____ lbs/ft.

3. Water depth: Maximum 75 Minimum 65

4. Type of corrosion protection:

a. Impressed current system

b. Sacrificial anode system

(1) Type of anode Galvalum III

(2) Spacing interval 300 ft.

(3) Weight of unit anode given by applicant 82 lbs. ea.

c. If platform anodes are used, are they considered adequate?

Yes _____ No _____

d. If pipeline anodes are used:

Formula: $L_p/I = 3.82 \times 10^4 \times W^0 / D \times R =$

Where:

- W⁰ = Weight of Anode unit (lbs)
- D = Dia. of pipe (inches)
- I = Separation between anodes (ft.)
- R = the following lbs/amp/year (Rate of Consumption)
- Aluminum or Galvalum = 7.6
- Zinc = 26
- Magnesium = 17.5

99 years

Does the calculated life expectancy equal or exceed 20 years?

Yes _____ No _____

5. Description of protective coating:

a. Pipeline 12 to 16 mils epoxy

b. Riser 1/2" splashtron

c. Subsea valve assembly

6. Description of weighted coating:

a. Preconcrete coating _____

b. Density of concrete _____ PCF

c. Thickness of concrete _____

d. Thickness of asphalt _____

7. Calculate the specific gravity (one of the following formulae may be used)

1.67

 a. For epoxy coating: $SG = 2.865W/D^2$

 b. Density comparison with fluid material: $SG = \frac{W+P}{\frac{A}{R}}$

 c. Lines with a specific thickness of concrete:

$$SG = \frac{RC + K_2}{R(T-K_1)} \cdot \frac{(W+P) - RC}{K_3 R}$$

 d. Lines having two coatings of enamel and a felt wrap, or only asphaltastic coating:

$$SG = \frac{W+P}{K_3}$$

Where:

- SG = specific gravity
- RC = density of concrete (lb/cu. ft.)
- K₁, K₂, K₃ = coefficients
- T = thickness of concrete coating (inches)
- W = weight of bare pipe (lb/ft)
- P = weight of coating
- R = density of fluid material (lb/cu. ft.); i.e., sea water = 64 lbs/cu. ft.
- D = diameter of pipe (inches)
- A = cross-sectional area

 8. Given specific gravity

a. 1.7 b. c.

 9. Gravity or density of product(s)

 10. Design capacity of pipeline

 11. Given Hydrostatic Test Pressure: Line Pipe ~~1850~~²²²⁰ Hold Time 8 hrs.

Preinstallation Test Riser Hold Time hrs.

Recommended maximum hydrostatic body test for ANSI valves, flanges, and fittings are as follows:

- ANSI 300 - 1,100 psig
- ANSI 400 - 1,450 psig
- ANSI 600 - 2,175 psig
- ANSI 900 - 3,250 psig
- ANSI 1,500 - 5,400 psig

Note: Minimum hold times:

Gas = Line Pipe = 8 hrs.
Riser = 4 hrs. (pretest)
or DOT 192.507(c)

Liquid = 4 hrs. @ 125% of MOP
Plus 4 hrs. @ 110% if leak inspection is not viable during test

12. Maximum Allowable Operating Pressure (MAOP) of line pipe:

$$MAOP = \frac{2 \pi \times F \times E \times T}{D}$$

Note: F = .72; E = 1; T = 1

a. MAOP = $\frac{2(35,000)(.500)}{8.625} = 4058 \times .72 = 2922$

b. MAOP =

c. MAOP = Bond: 8% wall thinning $\frac{2(35,000)(.460)(.50)}{8.625} =$

13. MAOP of riser pipe.

1867

Note: F = .50 for risers on natural gas transmission lines.

Note: F = .60 for risers on liquid pipelines.

a. MAOP = $4058 \times .50 = 2029$

b. MAOP =

14. MAOP of flanges, fittings, and valves:

2.4 x ANSI rating = 1480

15. MAOP of proposed pipeline as determined in accordance with Title 49 CFR Part 195 or 192, as applicable, is 1,348 psig.

tie in p/c 1,348

16. Items 12, 13, and 14 above are equal to or more than the maximum allowable working pressure (MAWP) of source.

17. Verify: 1:25 maximum source pressure (MSP) \leq hydrostatic test pressure (HTP) \leq .95 (smaller IP @ SMYS of items 12 or 13 above)

$\leq 2220 \leq 3855$

Note: The recommended limit of test as a percentage of internal pressure @ specified minimum yield strength is equal to 95%:

IP @ SMYS = $\frac{2 \times 3 \times 1}{D} = 4058$

18. Verify MAOP does not exceed the lowest of the following:

a. Submerged components: HTP/1.25 =

b. Riser: HTP/1.5 =

$\frac{2220}{1.5} = 1480$

19. Valve guards used: Yes _____ No _____

BEST AVAILABLE COPY

D. Installation Requirements:

1. All pipelines will be installed or laid to a minimum of three feet below the level of the mudline out to and including the 200 foot water depth, except at pipeline crossings. Any deviation must be justified at the time of application.
2. All valves and taps must be provided with a minimum of three feet of actual cover either with soil or sandbags or jetted to a minimum of three feet below the mudline. If *AMS* approved valve protection covers are used, the valves and taps are NOT required to have a minimum of three feet of actual cover or jetted three feet below the mudline. However, the top of the valve protection cover shall not protrude above the level of the mudline. Any deviation must be justified at the time of application.

E. Pipeline Crossings:

1. All pipeline crossings in water depths up to and including 200 feet shall be cement-bagged with a minimum of 18 inches between the lines with the uppermost line having a minimum of 3 feet of cover in the form of cement bags installed so as to provide a three foot horizontal to a one foot vertical (3:1) slope with a crown width that is one and one-half (1½) times the pipe diameter. Any deviation must be justified at the time of application.
- N/A* 2. All pipeline crossings in water depths greater than 200 feet shall be cement bagged with a minimum of 18 inches between the lines and installed so as to provide a three foot horizontal to a one foot vertical (3:1) slope. Any deviation must be justified at the time of application.

F. Construction Information:

1. Proposed construction commencement date
2. Method of construction
3. Method of burial
4. Time required to lay pipe
5. Time required to complete project

G. Applicant complies with current OCS pipeline guidelines:

Yes _____ No _____