To:

Chief, Office of Structural and Technical Support,

Field Operations, GOM OCS Region (MS 5210)

From:

Acting Regional Supervisor, Leasing and Environment,

GOM OCS Region (MS 5400)

Site-Specific Environmental Assessment (SEA) Prepared for Structure-Removal Activities by Murphy Exploration & Production Company, West Cameron Area, Block 188,

Lease OCS-G 6573, SEA No. ES/SR 94-045

Murphy Exploration & Production Company is proposing to remove Caisson No. 2 in West Cameron Area, Block 188. Our SEA for the subject action is complete and results in a Finding of No Significant Impact. This Finding is conditioned on the imposition of the following mitigative measure(s) to ensure environmental protection, consistent environmental policy, and safety as required by the National Environmental Policy Act. This Finding is valid only insofar as this condition is imposed:

Our analysis indicates that there is/are existing pipeline(s) located within 150 meters (490 feet) of the proposed activities. The pipeline(s) may pose a hazard to the proposed operations. Precautions in accordance with NTL No. 83-3, Section IV.B, must be taken prior to conducting operations.

The MMS has not been notified of any hang sites through the Fishermen's Contingency Fund located in Block 188.

(Orig. Sgd.) Jerry Brashier Richard E. Defenbaugh

CC:

102-01a ENV 5-4b (MS 5440) Lease OCS-G 6573 POD File (MS 5032)

Public Records (MS 5034)

SGaudry:ask:94-045.sea

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE Gulf of Mexico OCS Region New Orleans, Louisiana

#### FINAL

SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT ENDANGERED SPECIES/STRUCTURE REMOVAL

No. ES/SR 94-045

Structure-Removal Activities West Cameron Area, Block 188 (Lease OCS-G 6573)

by Murphy Exploration & Production Company
Date Submitted: March 8, 1994
Commencement Date: April 1994
Prepared by Susan B. Gaudry

# FINDING OF NO SIGNIFICANT IMPACT

I have considered the notification by Murphy Exploration & Production Company to remove Caisson No. 2 in West Cameron Area, Block 188 (Lease OCS-G 6573), SEA No. ES/SR 94-045. Based on the environmental analysis, there is no evidence to indicate that the proposed action will significantly (40 CFR 1508.27) affect the quality of the human environment. Preparation of an environmental impact statement is not required.

Analyst B

Date /

Terry Brashier

Chief, Environmental Operations Section

Date''

cting Regional Supervisor

Leasing and Environment

Galf of Mexico OCS Region

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#### INTRODUCTION AND BACKGROUND

The purpose of this Site-Specific Environmental Assessment (SEA) is to assess the specific impacts associated with proposed structure-removal activities. The SEA is based on a Programmatic Environmental Assessment (PEA) (USDOI, MMS, 1987) which evaluates a broader spectrum of potential impacts resulting from the removal of structures, e.g., platforms/caissons across the Central and Western Planning Areas of the Gulf of Mexico (GOM) Outer Continental Shelf. The PEA/SEA process is designed to simplify and reduce the size of environmental assessment documents by eliminating repetitive discussions of the same issues. This SEA conforms to the Minerals Management Service (MMS) and other appropriate guidelines for preparing environmental assessments by utilizing data presented in the PEA to complete the assessment. It presents site-specific data regarding the proposed structure removal and evaluates the removal's potential impacts. Preparation of this SEA has allowed the determination of whether a Finding of No Significant Impact (FONSI) is appropriate or whether further assessment of the proposal is necessary.

#### I. DESCRIPTION OF THE PROPOSAL AND NEED FOR THE PROPOSAL

#### A. DESCRIPTION OF THE PROPOSED ACTION

Murphy Exploration & Production Company proposes to remove Caisson No. 2 in West Cameron Area, Block 188 (Lease OCS-G 6573). The structure is located in a water depth of 53 feet (ft) and lies approximately 22 miles south of Cameron Parish, Louisiana. The operator plans to use mechanical cutting devices to remove the well conductors/casing strings approximately 16 ft below the mud line.

Since no explosives will be utilized during the proposed removal activities, the MMS has determined that sea turtles and marine mammals will not be affected. A Section 7 Consultation under the Endangered Species Act will not be initiated.

Refer to Appendix A for structure specifications and additional information on the removal activities.

#### B. NEED FOR THE PROPOSED ACTION

A discussion of the legal and regulatory mandates to remove abandoned oil and gas structures from Federal waters can be found in the PEA referenced in the Introduction. The wells are depleted, the lease expired, and the structure has no further use at this location.

## II. ALTERNATIVES TO THE PROPOSED ACTION

#### A. NON-REMOVAL OF THE STRUCTURE

The alternative to the proposed structure removal as originally submitted is non-removal. Non-removal of the structure would represent a conflict with Federal legal and regulatory requirements, which mandate the timely removal of obsolete or abandoned structures within a period of one year after termination of the lease, or upon termination of a right-of-use and easement. Therefore, non-removal does not appear to be a valid alternative.

#### B. REMOVAL OF THE STRUCTURE AS PROPOSED WITH ADDED MITIGATION

In the course of this evaluation process, the following additional protective measure was identified to further mitigate the environmental impacts associated with the proposal:

There is/are existing pipeline(s) located within 150 meters (490 ft) of the proposed activities. Therefore, precautions in accordance with NTL No. 83-3, Section IV.B, will be taken prior to conducting operations.

# III. ENVIRONMENTAL EFFECTS, SOCIOECONOMIC CONCERNS, AND OTHER CONSIDERATIONS

# A. PHYSICAL ENVIRONMENT

#### 1. Environmental Geology and Geologic Hazards

A discussion of environmental geology and geologic hazards can be found in the PEA referenced in the Introduction. The proposed structure-removal activities are not in an area of sediment instability (mud flows, slumps, or slides). Therefore, geologic conditions are not expected to have an impact on the proposed structure-removal activities.

#### 2. Meteorological Conditions

No impacts are expected as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

# 3. Physical and Chemical Oceanography

#### a. Physical Oceanography

No impacts are expected as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### b. Chemical Oceanography

Impacts are expected to be very low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### 4. Water Quality

Impacts are expected to be low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

## 5. Air Quality

Impacts are expected to be very low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### B. BIOLOGICAL ENVIRONMENT

#### 1. Coastal Habitats

No impacts are expected as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

# 2. Protected, Endangered, and/or Threatened Species

#### a. Birds

The operator has indicated that they propose to use Cameron, Louisiana, as the shore base to support the proposed structure-removal activities. The PEA referenced in the Introduction delineates sensitive areas along the Texas coastline where whooping cranes and brown pelicans could be adversely impacted by structure-removal support activities. The shore base for the proposed activities lies outside of this sensitive area. Therefore, the proposed work is not expected to impact threatened or endangered birds or their habitats.

#### b. Marine Mammals

A discussion of marine mammals occurring across the GOM and an assessment of the potential impacts of structure-removal activities on marine mammals can be found in the PEA referenced in the Introduction. Fritts et al. (1983) conducted aerial surveys across a 9,514 square mile area of waters lying in the GOM. Results of these surveys indicate that the bottlenose dolphin is by far the most likely marine mammal to be encountered at the proposed structure removal. Since the proposed structure removal will utilize no explosives, no impacts are expected on marine mammals.

#### c. Sea Turtles

A discussion of sea turtles occurring across the central and western GOM and an assessment of the potential impacts of structure-removal activities on sea turtles can be found in the PEA referenced in the Introduction. Studies by Fritts et al. (1983) and Fuller and Tappan (1986) as well as stranding data from the Sea Turtle Stranding and Salvage Network (Teas, 1993) indicate that sea turtles occur in the vicinity of the proposed activities. Definitive information on the probability of encountering sea turtles at the removal site during removal operations is scarce. Since the proposed structure removal will utilize no explosives, no impacts are expected on sea turtles.

#### 3. Birds

Impacts are expected to be very low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### 4. Sensitive Marine Habitats

A discussion of sensitive marine habitats occurring in the central and western GOM and an assessment of the potential impacts of structure-removal activities on these areas can be found in the PEA referenced in the Introduction. The proposed activities are not near any sensitive marine habitats. Therefore, the subject structure removal will not impact any sensitive marine habitats or their resident biota.

#### 5. Offshore Habitats and Biota

Impacts are expected to be low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### C. SOCIOECONOMIC CONCERNS

#### 1. Employment

Impacts are expected to be very low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### 2. Economics

Impacts are expected to be very low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

# 3. Onshore Support Facilities, Land Use, and Coastal Communities and Services

The operator has indicated that they propose to use Cameron, Louisiana, as the shore base to support the proposed structure removal activities. No impacts are expected as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### D. OTHER CONSIDERATIONS

#### 1. Commercial and Recreational Fisheries

#### a. Commercial Fisheries

Impacts are expected to be low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction. The MMS has not been notified through the Fishermen's Contingency Fund of any hang sites within Block 188.

#### b. Recreational Fisheries

Impacts are expected to be low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

# 2. Archaeological Resources

Impacts are expected to be low as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

# 3. Military Use/Warning Areas and Explosive Dumping Areas

The proposed structure-removal activities will not take place in a military use/warning area or in an explosive dumping area. In addition, the shore base location chosen by the operator and/or his contractor(s) will not require support vessels or aircraft to traverse any of these areas. A description of these areas, their locations and potential impacts of structure-removal activities on these areas can be found in the PEA referenced in the Introduction. The proposed activities will not impact or be impacted by any military use/warning areas or explosives dumping areas.

#### 4. Navigation and Shipping

The proposed structure-removal activities in Block 188 are not located near a vessel fairway or anchorage. Structures located nearshore may serve as "landmarks" to vessels or helicopters operating in the area on a regular basis. The overall impacts of the proposed work on navigation and shipping

is expected to be very low. More information on the impacts of structure removals on navigation and shipping can be found in the PEA referenced in the Introduction.

# 5. Pipelines and Cables

The PEA referenced in the Introduction contains a description of the impacts of structure removals on pipelines and cables. The proposed work will take place within 150 meters (490 feet) of existing pipeline(s). Since the operator must adhere to existing laws and regulations for abandonment of structures (including procedures required by Notice to Lessees and Operators 83-3), the proposed work will not pose a hazard to pipeline(s) or cable(s) in the area.

#### 6. Other Mineral Resources

No impacts are expected as a result of the proposed activities. For analysis information, see the PEA referenced in the Introduction.

#### 7. Human Health and Safety

The PEA referenced in the Introduction describes the hazardous conditions for workers during structure-removal activities. The operator has proposed a non-explosive method to remove the subject structure. Existing legal and regulatory safety requirements will keep the impacts of the proposed work on human health and safety at a very low level.

#### E. UNAVOIDABLE ADVERSE IMPACTS

A discussion of unavoidable adverse impacts can be found in the PEA referenced in the Introduction. One area of primary concern is the potential loss of habitat to the marine environment. This topic is discussed in the PEA referenced in the Introduction and a low level of impact is expected. Other unavoidable adverse impacts are considered to be minor.

#### IV. PUBLIC OPINION

A discussion of public concerns regarding structure removals can be found in the PEA referenced in the Introduction. The proposed structure removal has generated no comments from the public.

#### V. CONSULTATION AND COORDINATION

In accordance with the provisions of Section 7 of the Endangered Species Act, this proposed structure removal does not require coordination with the National Marine Fisheries Service (NMFS).

#### VI. BIBLIOGRAPHY AND SPECIAL REFERENCES

- Fritts, T.H., A.B. Irvine, R.D. Jennings, L.A. Collum, W. Hoffman, and M.A. McGehee. 1983. Turtles, birds, and mammals in the northern Gulf of Mexico and nearby Atlantic waters. U.S. Fish and Wildlife Service, Division of Biological Services, Washington, D.C.
- Fuller, D.A. and A.M. Tappan. 1986. The occurrence of sea turtles in Louisiana coastal waters. Coastal Fisheries Institute. Center for Wetland Resources. Louisiana State University. Baton Rouge, LA.
- Teas, Wendy G. 1993. 1993 Semi-annual report of the sea turtle stranding and salvage network. Atlantic and Gulf Coasts of the United States. January June 1993. National Marine Fisheries Service. Southeast Fisheries Center, Miami Laboratory, 75 Virginia Beach Drive, Miami, FL.
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  EIS/EA MMS No. 91-0018. Washington, D. C. Available from
  the Gulf of Mexico Region or from NTIS, Springfield, VA.
  Volume 1, PB92-125376/AS; Volume 2, PB92-125384/AS.
- U.S. Department of the Interior. Minerals Management Service. 1987. Programmatic Environmental Assessment. Structureremoval activities Central and Western Gulf of Mexico Planning Areas. OCS/EA 87-0002. Gulf of Mexico OCS Region, New Orleans, LA.

# VII. PREPARERS

Author:

Susan B. Gaudry - Environmental Protection Assistant

Typist:

Alice Sue Kriz - Office Automation Clerk

# VIII.APPENDIX

A. MURPHY EXPLORATION & PRODUCTION COMPANY CORRESPONDENCE

# APPENDIX A

MURPHY EXPLORATION & PRODUCTION COMPANY CORRESPONDENCE

NOTICKPIOSIVE

Jerry Brashier 18-3/14/94

UNITED STATES GOVERNMENT MEMORANDUM

3/11/94

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Environmental Operations Section (LE-5)

From:

Office of Structural and Technical Support, Field Operations,

Gulf of Mexico OCS Region (OSTS)

Subject: Platform Removal

OPERATOR: MUIBHY

Control No: ES/SR 94-045

BEST AVAILABLE COPY

Platform

Area/Block

Lease

Carsin No #2

WEST

ocs-G 6573

CAMBROW

BLK. 188

Shore Base:

Cameran, Lit

The attached application is forwarded to your office so that the Finding of No Significant Impact can be prepared. Since explosives will not be used in this removal operation, an Endangered Species Act Section 7 Consultation Documentation is not required. There are are existing pipeline(s) within 500 feet of the proposed removal location.

Arvind Shah (OSTS) Extension 2894

Attachment

cc:

AShah: :LEXITYPE:Disk 5

DECEIVED

MINERALS MANAGEMENT SERVICE LEASING & ENVIRONMENT

1 4

LE 94.45



131 SOUTH ROBERTSON STREET P.O. BOX 61780 NEW ORLEANS, LA 70161-1780 (504) 561-2611

March 8, 1994

REGEIVED

MAR 1 1 1991

Office of Structural and Technical Support

U.S. Department of the Interior Minerals Management Service 1201 Elmwood Park Boulevard New Orleans, Louisiana 70123-2394

Attention:

Mr. Dan Bourgeois Regional Supervisor Field Operations

MS 5210

Re: Proposed OCS Structure Removal and Well Site Clearance

Verification

West Cameron Block 188 OCS-G-6573 #2 Well Jacket

**CPXID 23727** 

#### Gentlemen:

Murphy Exploration and Production Company in accordance with NTL No. 92-02 and CFR 250.143 is submitting this application to perform removal and well site clearance verification operations for the above referenced structure in West Cameron Block 188. Mechanical cutting devices will be used to sever the well conductor below the mud line. The enclosed "Proposed OCS Platform/Structural Removal" form provides the details of the proposed removal operation.

We are submitting the proposed trawling area at this time for your approval. Once the area is approved, we will solicit bids to the trawling contractors to complete this work. Once we have selected a Trawling Contractor, we will submit specific information for the Trawling Contractor and his equipment to you for approval.

Murphy's shore base for these operations will be Cameron, Louisiana.

We shall comply with the NMFS Incidental Take Statement dated July 25, 1988.

As concerns NTL 92-02 Well Site Clearance Verification, Murphy plans to follow the procedure indicated below:

(\MMS\GHS01.94)

U.S. Department of the Interior Minerals Management Service Attn: Mr. Dan Bourgeois - MS 5210 March 8, 1994 Page 2

- 1. Clear the structure, conductors and major debris with a liftboat during salvage operations.
- 2. Perform Side Scan Sonar and Mesotech Surveys as considered appropriate and remove debris as necessary.
- 3. Trawl the areas in two directions by a Trawling Contractor with no ties to our Salvage Contractor. The limits to be trawled are attached.

The following will apply to the trawling operation:

- a. The trawling vessel will be equipped with a navigational system providing position accuracy of ±30 ft. and be capable of producing data to comply with NTL 92-02, 2(a)(2). The navigational system will be Starfix, Styledis, UHF Trisponder Positioning System or a Differential GPS System.
- b. The Trawling Contractor shall possess a valid commercial trawling license from the State of Louisiana for the Vessel and its Captain and the Captain shall have prior trawling experience.
- c. The trawling nets and procedures used will comply with NTL 92-02, 2(a)(3) and trawling patterns will comply with 2(a)(4).
- d. Any oil and gas related objects encountered by the trawl shall be removed and necessary coverage maintained in accordance with NTL 92-02, 2(a)(b).
- 4. Site verification is intended to be completed within 60 days after the structure has been salvaged. Hazard to navigation markings are not considered necessary for this location.
- 5. Upon completion of the site clearance, documentation will be submitted in compliance with NTL 92-02 (3) including the following:
  - a. Verification letter from the Trawling Contractor.

(\MMS\GHS01.94)

U.S. Department of the Interior Minerals Management Service Attn: Mr. Dan Bourgeois - MS 5210 March 8, 1994 Page 3

- b. A statement from the Trawling Contractor regarding objects recovered.
- c. Details of results of the trawling operation from the Trawling Contractor.
- d. Verification letter signed by a Murphy Representative.
- e. A report of the structural removal.

Enclosed are copies of the following:

- 1. Proposed Platform/Structural Removal Form including drawings and sketches indicating configurations of the well conductor.
- 2. A Drawing showing proposed trawl areas.

Please contact George Smith at (504)561-2306 for any further information.

Yours very truly,

James A. Hunter

Chief Engineer, Petroleum

JAH-GHS/dca Enclosures

(MMS\GHS01.94)

# PROPOSED OCS PLATFORM/STRUCTURE REMOVAL

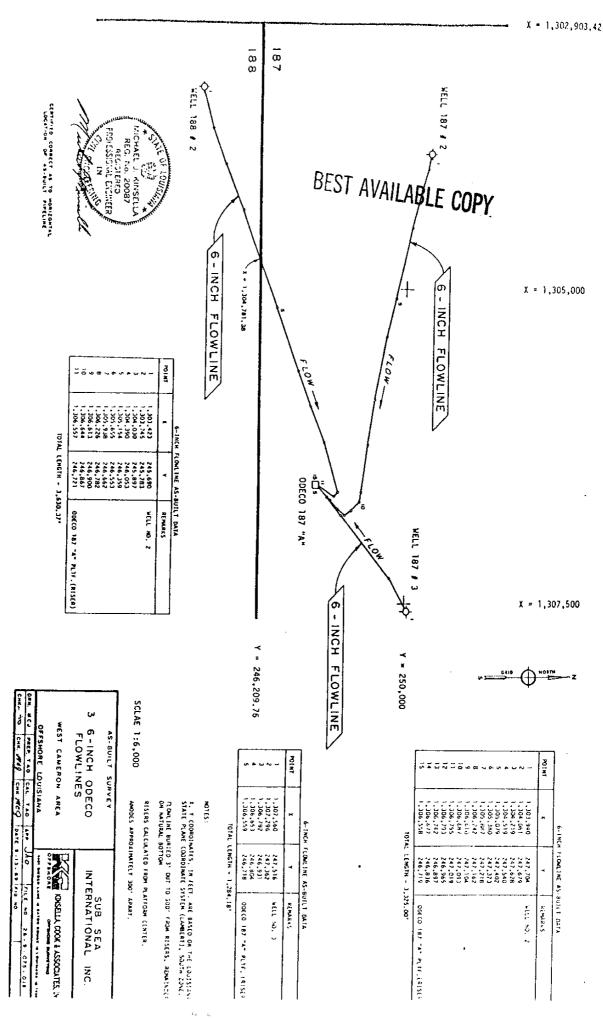
<b>[</b> .	Respor	nsible Party
	A.	Lease Operator Name Murphy Exploration & Production Co.
	B.	Address 131 South Robertson St., P.O. Box 61780
		New Orleans, LA 70161-1780
	C.	Contact Person and Telephone Number <u>George Smith (504) 561-2306</u>
II.	<u>Identif</u>	fication of Structure to be Removed
	A.	Platform NameCPXID 23727
	B.	Location (Lease, Area, Block, and Block Coordinates;
		West Cameron Block 188, OCS-G-6573 #2 Well Jacket
		X = 1,303,443.64 $Y = 245,675.26$
	C.	Date Installed (Year)
	' D.	Proposed Date of Removal (Month/Year) April/1994
	∕ E.	Water Depth53 Feet
III.	Descr	ription of Structure to be Removed
	A.	Configuration (Attach a Photograph or a Diagram)
		Single Well Conductor/Caisson
	В.	Size
	C.	Number of Legs/Casings/Pilings 1 Well Conductor

D.	Diameter and Wall Thickness of Legs/Casings/Pilings
	48" O.D. Caisson x (3/4" - 1-3/4" wall); 30" O.D. Drivepipe; 16" O.D.
	Casing: 10-3/4" O.D. Casing: 7-5/8 O.D. Casing
E.	Are Piles Grouted? N/A Inside or Outside?
F.	Brief description of soil composition and condition
	Clay/Silt/Sand
<u>Pur</u> j	oose
Brie	f discussion of the reason for removing the structure
	Vell is depleted. Lease has expired. Structure has no further use at this
	ocation.
<del></del>	
Rem	oval Method
A.	Brief description of the method to be used
	Mechanical cutters will be used to cut the well conductor. The cuts will be
	16' BML. The structure and well conductors will be removed using a liftboat.
В.	If explosives are to be used, provide the following:
	1. Kind of ExplosivesN/A
	2. Number and Sizes of ChargesN/A

		a.	Single Shot or Multiple Shots? N/A
		b.	If multiple shots, sequence and timing of
			detonationsN/A
	3.	Bulk	or Shaped Charge? N/A
		a.	Depth of Detonation Below Mud Line N/A
		b.	Inside or Outside Piling?N/A
C.	Pre-R	Removal	Monitoring Techniques
	1.	Is the	use of scare charges or acoustic devices
		ргоро	sed? No
		If yes	, provide the following:
		a.	Number and Kind
		b.	Size of Charges
	•	c.	Brief description of how, where, and when scare
			charges or acoustic devices will be used
	2.	Will d	ivers or acoustic devices be used to conduct
		a pre-i	removal survey to detect presence of turtles
		and ma	arine mammals? No

(\MMS\GHS01.94)

		method
D.	Post-	Removal Monitoring Techniques
	1.	Will transducers be used to measure the pressure and
		impulse of the detonations? No
	2.	Will divers be used to survey the area after removal
		to determine any effects on marine life?No
Biolo	ogical Ir	nformation
	_	nformation provide the results of any recent biological
If av	ailable,	
If av	railable,	provide the results of any recent biological
If av surve avail	railable, eys cond	provide the results of any recent biological ducted in the vicinity of the structure. If
If av surve avail mari	railable, eys cond lable, de ne mam	provide the results of any recent biological ducted in the vicinity of the structure. If escribe any recent observations of turtles or
If av surve avail mari	railable, eys cond lable, de ne mam	provide the results of any recent biological fucted in the vicinity of the structure. If escribe any recent observations of turtles or mals at the structure site.



6.5/5. \$ C 52 6.280 (XC)/252 . Z. 271-2 12750 EL CAS 2-10-FOUT LENDING HINEL (+) 20:6 E-512 3 327 ROW A FL.(+) S.-6" EL(-)3'-6" 6-515 \$ 7.80 18" \$ .250 (TYE) 11:0 WILD FINE ET (+; 24,0" El (+) 20.6 SMING ROPES WILL (+) 0'-0" 22E 6 . 975-B 6-5/8-0.280 PLAN EL (+) 5:-10 FLEVATION -31331.0;8x,2/x 0.0 .25. 6-5/5 \$ 1ED 218 0 150 16516 48' P PIPE BEARING PILE 159:6 Cm = 1.45 INERTIA COEFFICIENT Cd = . 72 COEFFICIENT/DRAG DESIGN CRITERIA 45:0 40:0" .≱ PIPE CUT-OFF WATH O'C. 100.01 3:7017 60/sz. 2 EXIVIROMENTAL LOADS AMAXIUM MOMENT BELOW MUS S.MAXIUM MUD LIKE MOMEKT 4573 FT.KIPS I. VERTICAL LINE & CEKO LOAD TIKE 6906 FIXIPS @ 26 FT. L DESIGN WAVE NO YEAR STORM 2.STRUCTURAL STEEL DESIGN GENERAL MOTES -A. ALL GRATING FHANDRAILS TO 3. DESIGN LOAD ON PRODUCTION SIGN OF MEMBERS SUBJECTED THE LATEST REVISION OF ASTA FASKICATION TO CONFORM TO TO WIND & WAVE FORCES MASH COLD DES-G-6573 WELL JACKET NOS THESE FORCES GOIERN THE DESIGN MICREASE IN ALLOHABLE STRES HAS BEEN PERMITTED A 123, BE HOT OIP GRIMNITED AFTER PLATIONS (FEB 12, 1869) A 33% IN GILLE WATERS DECK : A. DSID LOAD 30 PSF OCECO OIL & GAS COMPANY WEST CAMERON BIK. 188 DESIGN LONDING DECK FOR PLATFORM B 115 1040 . 200 PSF 103 KIPS 130 KIPS 1N 0E 20

BEST AVAILABLE COPY

RKB= 81'
WATER DEPTH= 53'
RKB- MUDLINE= 153'

WEST CAM BLK. 188
OCS - 6573 #2
PROPOSED P & A

MARCH, 1994

NOTE:ALL CSG STRINGS CUT TO +16' BML

46'x (3/4-1 3/4) CAISSON DRIVEN TO 255' (102' BML)

30"x (3/4) DRIVEN TO 351'(198' BML)

16", 65#, H-40, BUTT, TO 715'
(WASHED OUT 16x30 ANN TO 30' BML)

OTIS 2.813 X-NIPPLE @ 2987'

10 3/4 "40.5 & 45,K-55,STC 0-4400" (WASH'D OUT 10 3/4x16 ANN TO 30'BML)

3 1/2,"9.3# N-80, ABC MOD, 11,300"

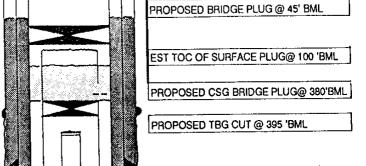
Article State of the Control of

OTIS 2.813"X-NIPPLE @ 112331

BAKER FB-1 PKR @ 11300'

BIG HUM PERFORATIONS 11388'-11414' 12 SPF 5"CSG GUNS

7 5/8", 29.7#, S-95 LT+C 0-11510"



X

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BALANCED PLUG TOC= 7000'

PROPOSED TBG PERFS= 7560'

PROPOSED TOP OF CEMENT= 10750'

PBTD= 11475