In Reply Refer To: MS 5231

November 2, 1994

SCANA Petroleum Resources, Inc.
Attention: Mr. Bert H. Bates, Jr. CEP
1200 Smith Street, Suite 500
Houston, Texas 77002-4308

Gentlemen:

Reference is made to the following plan received October 11, 1994:

Type Plan - Supplemental Development Operations Coordination Document
Lease - OCS-G 6847
Block - 865
Area - Mobile
Activities Proposed - Wells and Caissons Nos. 3 and 4

In accordance with 30 CFR 250.34, this plan is hereby deemed submitted and is now being considered for approval.

Your control number is S-3433 and should be referenced in your communication and correspondence concerning this plan.

Sincerely,

(Orig. Sgd.) J. R. Hennessey

Donald C. Howard
Regional Supervisor
Field Operations

bcc: Lease OCS-G 6847 POD File (MS 5032)
MS 5034 w/public info. copy of the plan
and accomp. info.

AGobert:cic:11/01/94:DOCDCOM

SPR

SCANA Petroleum Resources, Inc.

October 20, 1994

Mr. Don Howard
Regional Supervisor
Office of Field Operations
U.S. Department of the Interior
Minerals Management Service
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

Attention: Ms. Angie Gobert
Plans Unit

RE: Amendment to Supplemental Development Operations Coordination Document
Lease OCS-G 6847, Mobile Area Block 865 (Control No. S-3433), OCS Federal Waters,
Gulf of Mexico, Offshore, AL

Gentlemen:

By letter dated October 10, 1994, SCANA Petroleum Resources, Inc. (SCANA) submitted a Supplemental Development Operations Coordination Document for Lease OCS-G 6847, Mobile Area Block 865, Offshore, Alabama.

Upon further review, SCANA has elected to drill proposed Well Location No. 3 immediately adjacent to the existing surface location of Platform "A" located 5697' FNL and 7609' FWL of Block 865.

Enclosed are seven (7) Proprietary and four (4) Public Information copies of the amended attachments which are to be made a part of the previously submitted plan.

Should additional information be required, please contact SCANA's regulatory agent, Connie J. Goers, J. Connor Consulting, Inc. at (713) 578-3388.

Sincerely,

SCANA PETROLEUM RESOURCES, INC.

Bert H. Bates, Jr. /cjg

Bert H. Bates, Jr. C.E.P.
Director, Regulatory and
Environmental Affairs

BHH:CJG
Enclosures

"Public Information"

A SCANA COMPANY

Citicorp Building, Two Allen Center
1200 Smith Street, Suite 500, Houston, Texas 77002-4308
Phone: 713-658-8585, Facsimile: 713-658-1825

SCANA PETROLEUM RESOURCES, INC.

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

LEASE OCS-G 6847

MOBILE AREA BLOCK 865

WELL LOCATION TABLE

WELL	LOCATION	TOTAL DEPTH	WATER DEPTH	TOTAL DAYS
003	PSL: 5697' FNL & 7609'FWL		61'	15
004	PSL: 500' FNL & 3700' FWL		60'	15

ATTACHMENT B-1

AMENDED 10-20-94

821

865

WELL NO. 4

MOBILE BAY

GULF OF MEXICO

(PBHL)
WELL NO. 3

WELL A-1 & A-2, 3

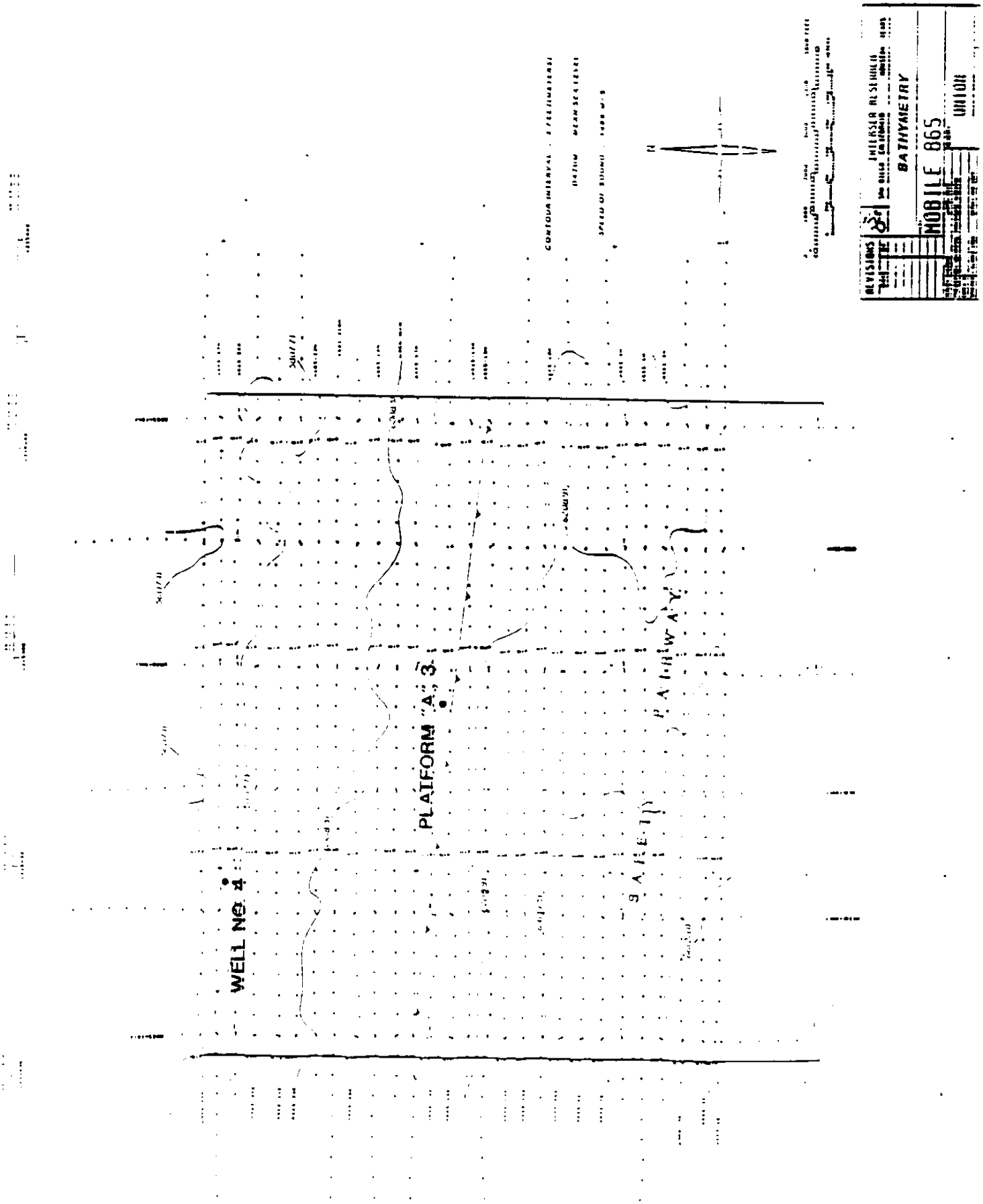
SAFETY FAIRWAY

WELL A-2

ATTACHMENT B-2

909

	SCANA PETROLEUM RESOURCES, INC.	DWG. / FIG:
		DATE: 10-08-94
	MOBILE BLOCK 865	SCALE: 1" = 2000'
		PROJECT:



ATTACHMENT E

Figure 2

SCANA Petroleum Resources, Inc.

October 8, 1994

Mr. Don Howard
Regional Supervisor
Office of Field Operations
U.S. Department of the Interior
Minerals Management Service
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

RE: Supplemental Development Operations Coordination Document
Lease OCS-G 6847, Mobile Area Block 865
OCS Federal Waters, Gulf of Mexico, Offshore, AL

Gentlemen:

In accordance with the provisions of Title 30 CFR 250.34, SCANA Petroleum Resources, Inc. (SCANA) hereby submits for your review and approval eleven (11) copies of a Supplemental Development Operations Coordination Document for Lease OCS-G 6847, Mobile Area Block 865, Offshore, Alabama. Seven (7) copies are "Proprietary Information" and four (4) copies are "Public Information".

Excluded from the Public Information copies are certain geologic discussions, depth of wells and structure map.

SCANA anticipates activities will commence under this proposed Supplemental Development Operations Coordination Document on approximately November 15, 1994.

Should additional information be required, please contact SCANA's regulatory agent, Connie J. Goers, J. Connor Consulting, Inc. at (713) 578-3388.

Sincerely,

SCANA PETROLEUM RESOURCES, INC.

Bert H. Bates, Jr. C.E.P.
Director, Regulatory and
Environmental Affairs

BHH:CJG
Enclosures

Unicorn Building, Two Allen Center
1200 Smith Street, Suite 500, Houston, Texas 77002-4308
Phone: 713-658-8585, Facsimile: 713-658-1825

SCANA PETROLEUM RESOURCES, INC.

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

LEASE OCS-G 6847

MOBILE AREA BLOCK 865

SCANA Petroleum Resources, Inc. (SCANA), as designated operator, hereby submits this proposed Supplemental Development Operations Coordination Document in accordance with the regulations contained in Title 30 CFR 250.34 and more specifically defined in the Minerals Management Service Letters to Lessees and Operators dated October 12, 1988 and September 5, 1989.

HISTORY OF LEASE

Lease OCS-G 6847 was awarded to Union Oil Company of California at the Central Gulf of Mexico Lease Sale No. 81 held April 24, 1984.

Under an approved Initial Development Operations Coordination Document, OEDC Exploration & Production, L.P.installed Platform "A", tied-back and completed two existing locations, redesignated as Wells No. A-1 and A-2 and installed a 8.500" bulk gas right-of-way pipeline to Mobile Block 822, Platform "A".

SCANA has recently acquired OEDC E&P ' interest in the subject oil and gas lease with associated facilities; and has been designated operator.

The lease is presently maintained by ongoing production operations.

In accordance with Letter to Lessees and Operators (LTL) dated November 5, 1993 which amends Title 30 CFR Part 256 surety bonds requirements applicable to OCS lessees and operators, SCANA Petroleum Resources, Inc. has submitted the additional bonding to meet the $3,000,000 areawide development criteria.

SCHEDULE OF OPERATIONS

Under this Supplemental Development Operations Coordination Document, SCANA proposes to drill, complete and produce two (2) additional satellite development wells. Minimum well protector structures will be installed over the proposed wellbores and flowlines installed to transport production to Platform "A" in Mobile Block 822. An additional 8-Inch right-of-way pipeline will be installed departing Mobile Block 865, Platform "A", running parallel to the existing 8-Inch right-of-way pipeline terminating at Mobile Block 22, Platform "A". Planned commencement date is approximately November 15, 1994, subject to the approval of this Supplemental Development Operations Coordination Document and issuance of the required Permits to Drill.

The following schedule details the chronological order of the proposed events leading to the full start up of production.

	Activity	Activity Schedule Approximate Date
1.	Commence Drilling and Completion of Well No. 3 and Install Caisson No. 3	November 15, 1994
2.	Commence Drilling and Completion of Well No. 4 and Install Caisson No. 4	December 1, 1994
3.	Commence Installation of Lease Pipelines and Right-of-Way Pipeline	December 1, 1994
4.	Hook-Up and Commence Production from Wells No. 3 and No. 4	January 1, 1995

DESCRIPTION OF DRILLING UNIT

Offshore development activities are carried out from mobile drilling rigs. The six most common types of mobile rigs employed for development drilling offshore are platform rigs, submersible drilling rigs, semi-submersible drilling rigs, jack-up drilling rigs, drillships, and drill barges.

The proposed well locations will be drilled with a typical submersible rig. When a rig is selected, the rig specifications will be made a part of the Applications for Permit to Drill. Typical Diverter and BOP Schematics are included as Attachments A-1 and A-2.

Safety features will include well control and blowout prevention equipment as described in Title 30 CFR 250.50. The appropriate life rafts, life jackets, ring buoys, etc., as prescribed by the U. S. Coast Guard will be maintained on the facility at all times.

DESCRIPTION OF PLATFORM

Minimum well protector structures will be installed over the proposed wellbores. SCANA will not install any processing equipment on proposed Caissons No. 3 and No. 4. Produced hydrocarbons from Caisson No. 3 will be transported via a proposed flowline over to existing Platform "A" in Mobile Block 865 (former Wells No. 1 and No. 2) where the incoming flowline will be "looped" with the existing departing 8.500" pipeline terminating at Mobile Block 822, Platform "A". Produced hydrocarbons from Caisson No. 4 will be transported by a proposed flowline to a subsea tie-in point with the existing 8.500" pipeline originating at Mobile Block 865, Platform "A" and terminating at Mobile Block 822, Platform "A".

All hydrocarbons handling equipment installed for testing and production operations on Mobile Block 865, Platform "A" have been designed, installed, and will be operated to prevent pollution from the existing structure.

Maintenance or repairs which are necessary to prevent pollution of offshore waters shall be undertaken immediately.

SCANA will allow no disposal of equipment, cables, containers, or others materials into offshore waters.

An elevation view drawing of the proposed caissons is included as Attachment B.

WELL LOCATIONS

The approximate locations of the proposed wells in this Supplemental Development Operations Coordination Document are shown on the Well Location Table and accompanying Location Plats included as Attachments C-1 and C-2.

STRUCTURE MAP

A current structure map drawn to the top of each prospective hydrocarbon accumulation showing the surface and bottom hole locations of the proposed wells is included as Attachment D.

Life of reserves for the proposed wells in Lease OCS-G 6847 is six (6) years with expected initial combined production rates of 16000 MCFD and 16 BCPD.

BATHYMETRY MAP

Portions of Mobile Area Block 865 are contained within a designated shipping fairway/anchorage area. However, the proposed surface locations will be located outside the designated area.

The seafloor dips gently to the south-southwest at an average angle of 0.04 degrees. Water depths range from 55 feet near the northern boundary of the block to 67 feet in the southwestern corner.

A bathmetry map depicting the proposed surface locations of the wells and associated structures is included as Attachment E.

SHALLOW HAZARDS

A shallow hazards analysis evaluating any seafloor and subsurface geologic and manmade features and conditions for the proposed surface locations is included as Attachment F.

OIL SPILL CONTINGENCY PLAN

All drilling, completion and production operations shall be performed in accordance with industry standards to prevent pollution of the environment. SCANA Petroleum Resources, Inc. has an approved Regional Oil Spill Contingency Plan on file with MMS. This plan designates an Oil Spill Response Team consisting of SCANA's personnel and contract personnel. This team's duties are to eliminate the source of any spill, remove all sources of possible ignition, deploy the most reliable means of available transportation to monitor the movement of a slick, and contain and remove the slick if possible.

SCANA's Oil Spill Response Team attends drills for familiarization with pollution-control equipment and operation procedures on an annual basis.

SCANA is a member of Clean Gulf Associates (CGA). The CGA stores pollution control equipment at two locations in Texas, at Port Aransas and Galveston; five locations in Louisiana, at Venice, Grand Isle, Intracoastal City, Houma and Cameron and one location in Alabama, at Theodore.

Each base is equipped with fast response skimmers and there is a barge mounted high volume open sea skimmer based at Grand Isle, Louisiana. In addition to providing equipment, the CGA also supplies advisors for clean-up operations. Equipment available from CGA and the base it is located at is listed in the CGA Manual, Volume I, Section III.

SCANA will make every effort to see that a spill is responded to as quickly as possible. Response equipment and response times will be suitable for anticipated environmental conditions in the area.

In good weather conditions fast response with oil boom, skimmers, pump and storage tanks would require approximately 8 to 10 hours, including preparation time as indicated below. A heavy equipment system response would require approximately 24-36 hours, including 6 hours preparation time.

		Hours
1.	Procurement of boat capable of handling oil spill containment equipment and deployment to nearest CGA Base in Theodore, AL	2.0
2.	Load out Fast Response Unit	2.0
3.	Travel time to Lease Site from CGA Base (33 miles @ 10 MPH to Lease Site)	3.5
	Estimated Total Time	8.5

Equipment located in Theodore, Alabama would be utilized first with additional equipment transported from the nearest equipment base as required.

In the event a spill occurs from the proposed surface locations in Mobile Area Block 865, a projected trajectory of a spill has been prepared utilizing information in the Environmental Impact Statement (EIS) for OCS Lease Sales 142 and 143.

The EIS contains oil spill trajectory simulations using seasonal surface currents coupled with wind data, adjusted every 3 hours for 30 days or until a target is contacted. Hypothetical spill trajectories were simulated for each of the potential launch sites across the entire Gulf. These simulations presume 500 spills occurring in each of the four seasons of the year. The results in the EIS were presented as probabilities that an oil spill beginning from a particular launch site would contact a certain land segment within 3, 10, or 30 days.

Utilizing the summary of the trajectory analysis as presented in the EIS, the probable projected land fall of an oil spill is as follows. Also listed is the CGA Map Number corresponding to the land segment which will be utilized to determine environmentally sensitive areas that may be affected by a spill.

AREA/BLOCK	LAND SEGMENT	%	CGA MAP
Mobile Block 865	St.Bernard Parish, LA etal	5%	LA Map #7 & #8
	Hancock, MS et al	23%	MS Map #9
	Mobile, AL	17%	AL Map #9
	Baldwin, AL	9%	AL Maps #9 & #10

If a spill should occur from the proposed surface locations, SCANA would immediately activate its Oil Spill Response Team, determine from current conditions the probable location and time of land fall by contacting Continental Shelf Associates and/or the National Oceanic Atmospheric Administration's (NOAA) Gulf of Mexico Scientific Support Coordinator (SSC), for assistance in predicting spill movement. Then, using the Clean Gulf Operations Manual, Volume II, identify the biologically sensitive area and determine the appropriate response mode.

Volume II, Sections V and VI of the CGA Manual contains maps as listed above, equipment containment/cleanup protection response modes for the sensitive areas and depicts the protection response modes that are applicable for oil spill clean-up operations. Each response mode is schematically represented to show optimum deployment and operation of the equipment in areas of environmental concern. Implementation of the suggested procedures assures the most effective use of the equipment and will result in reduced adverse impact of oil spills on the environment. Supervisory personnel have the option to modify the deployment and operation of equipment to more effectively respond to site-specific circumstances.

NEW OR UNUSUAL TECHNOLOGY

No new techniques or unusual technology will be required for these operations.

LEASE STIPULATIONS

Oil and gas exploration and development activities on the OCS are subject to stipulations developed before the lease sale and would be attached to the lease instrument, as necessary, in the form of mitigating measures. The MMS is responsible for ensuring full compliance with stipulations.

Lease Stipulation No. 1 requires preparation of a Cultural Resources Report assessing the potential existence of any cultural resources.

This stipulation provides protection of prehistoric archaeological resources by requiring remote sensing surveys in areas designated to have a high probability for archaeological resources and by requiring protection of archaeological resources discovered outside of the designated high probability zones.

The Cultural Resource Report was previously submitted with the Initial Plan of Exploration for the subject lease.

Lease Stipulation No. 4 requires control of electromagnetic emissions emanating from individual designated defense warning areas in accordance with requirements specified by the commander of the command headquarters to the degree necessary to prevent damage to, or unacceptable interference with, Department of Defense flight, testing or operations activities conducted with the warning area.

SCANA will enter into an agreement with the commander of the Air National Guard located in Gulfport, Mississippi for positive control of boats and aircraft operating within Military Warning Area (W-453) during the proposed development operations.

DISCHARGES

All discharges associated with the drilling, completion and production of the subject wells will be in accordance with regulations by Minerals Management Service (MMS), U. S. Environmental Protection Agency (EPA), and the U. S. Coast Guard (USCG).

The MMS issued a special advisory notice (NTL 86-11) strongly encouraging the oil and gas industry to take special educational, operational and awareness measures to reduce or eliminate contributions to marine debris in the Gulf of Mexico.

Annex V of the International Convention for the Prevention of Pollution from ships, also known as MARPOL Protocol, prohibits the dumping of all plastic wastes, including plastic packaging materials and fishing gear.

EPA's Eastern Gulf of Mexico NPDES General Permit GMG280000 addresses the discharge limitations and testing protocol for drilling fluids, cuttings and associated wastes.

The subject NPDES General Permit was administratively extended for those operators with coverage prior to the expiration of same. Existing coverage under this lease block has been transferred from the previous operator to SCANA Petroleum Resources, Inc.

Discharges will contain no free oil and will be in compliance with and monitored as required by the permit. Any drilling fluid contaminated with oil will be transported to shore for proper disposal at an authorized disposal site.

Solid domestic wastes will be transported to shore for proper disposal at an authorized disposal site, and sewage will be treated on location by U. S. Coast Guard approved marine sanitation devices.

Mud may be discharged for purposes of dilution or at end of well. Surveillance of the fluid is accomplished through daily inventory of mud and chemicals added to the system; in addition to monthly and end-of-well LC50 toxicity tests required by EPA. Typical mud components which may be used in the drilling of the proposed wells are included as Attachment G.

The anticipated discharges associated with SCANA's operations in Mobile Area Block 865 is included as Attachment H.

HYDROGEN SULFIDE

In accordance with Title 30 CFR 250.67, SCANA Petroleum Resources, Inc. requests that Mobile Area Block 865 be classified by the Minerals Management Service as an area where the absence of hydrogen sulfide has been confirmed.

The basis for this determination is through the evaluation of geological data obtained through the drilling of Lease OCS-G 6847, Wells No. 1 and No. 2.

PROJECTED EMISSIONS

Offshore air emissions related to the proposed activities result from mainly from the drilling rig operations, helicopters and service vessels. These emissions occur mainly from combustion or burning of fuels and natural gas and from venting or evaporation of hydrocarbons. The combustion of fuels occurs primarily on diesel-powered generators, pumps or motors and from lighter fuel motors. Other air emissions can result from catastrophic events such as oil spills or blowouts.

Primary air pollutants associated with OCS activities are nitrogen oxides, carbon monoxide, sulphur oxides, volatile organic compound, and suspended particulate.

SCANA will use low sulphur fuel during the proposed development activities addressed in this plan.

Projected Air Quality Emissions are included as Attachment I.

ENVIRONMENTAL REPORT

An Environmental Report is included as Attachment J.

COASTAL ZONE CONSISTENCY CERTIFICATION

Issues identified in the Alabama Coastal Zone Management Programs include the following: general coastal use guidelines, levees. linear facilities (pipelines); dredged soil deposition; shoreline modifications, surface alterations, hydrologic and sediment transport modifications; waste disposal; uses that result in the alteration of waters draining into coastal waters; oil, gas or other mineral activities; and air and water quality.

A certificate of Coastal Zone Management Consistency for the State of Alabama is included as Attachment K.

A Vicinity Plat showing the location of Mobile Area Block 865 relative to the shoreline and onshore base is included as Attachment L.

SCANA will utilize existing onshore facilities located in Theodore, Alabama. This will serve as port of debarkation for supplies and crews. No onshore expansion or construction is anticipated with respect to the proposed activities.

This base is capable of providing the services necessary for the proposed activities. It has 24-hour service, a radio tower with a phone patch, dock space, equipment and supply storage base, drinking and drill water, etc. Support vessels and travel frequency during drilling and completion and production activities are as follows:

	DRILLING/COMPLETION	PRODUCTION
Crew Boat	7 Trips Per Week	3 Trips Per Week
Supply Boat	4 Trips Per Week	0 Trips Per Week
Helicopter	1 Trips Per Week	0 Trips Per Week

AUTHORIZED REPRESENTATIVE

Inquiries may be made to the following authorized representative:

Connie J. Goers
J. Connor Consulting, Inc.
P. O. Box 219217
Houston, Texas 77218
(713) 578-3388

LIST OF ATTACHMENTS

A Typical Diverter and Blowout Preventer Schematics
B Well Location Table and Plat
C Structure Elevation View Drawing
D Structure Map
E Bathymetry Map
F Shallow Hazards Analysis
G Typical Mud Components
H Quantities and Rates of Discharges
I Projected Air Emissions
J Environmental Report
K Coastal Zone Consistency Certification Statement
L Vicinity Map

20″ HYDRIL DIVERTER 2000 psi

ITEM	DESCRIPTION
1	20" HYDRIL 2000 psi Type MSP
2	20" FLANGE SPOOL 2000 psi w/6" 2000 psi Outlets
3	6" GATE VALVE std Low Pressure (REMOTE)
4	6" DIVERTER LINE (To Overboard)

BLOWOUT PREVENTER STACK

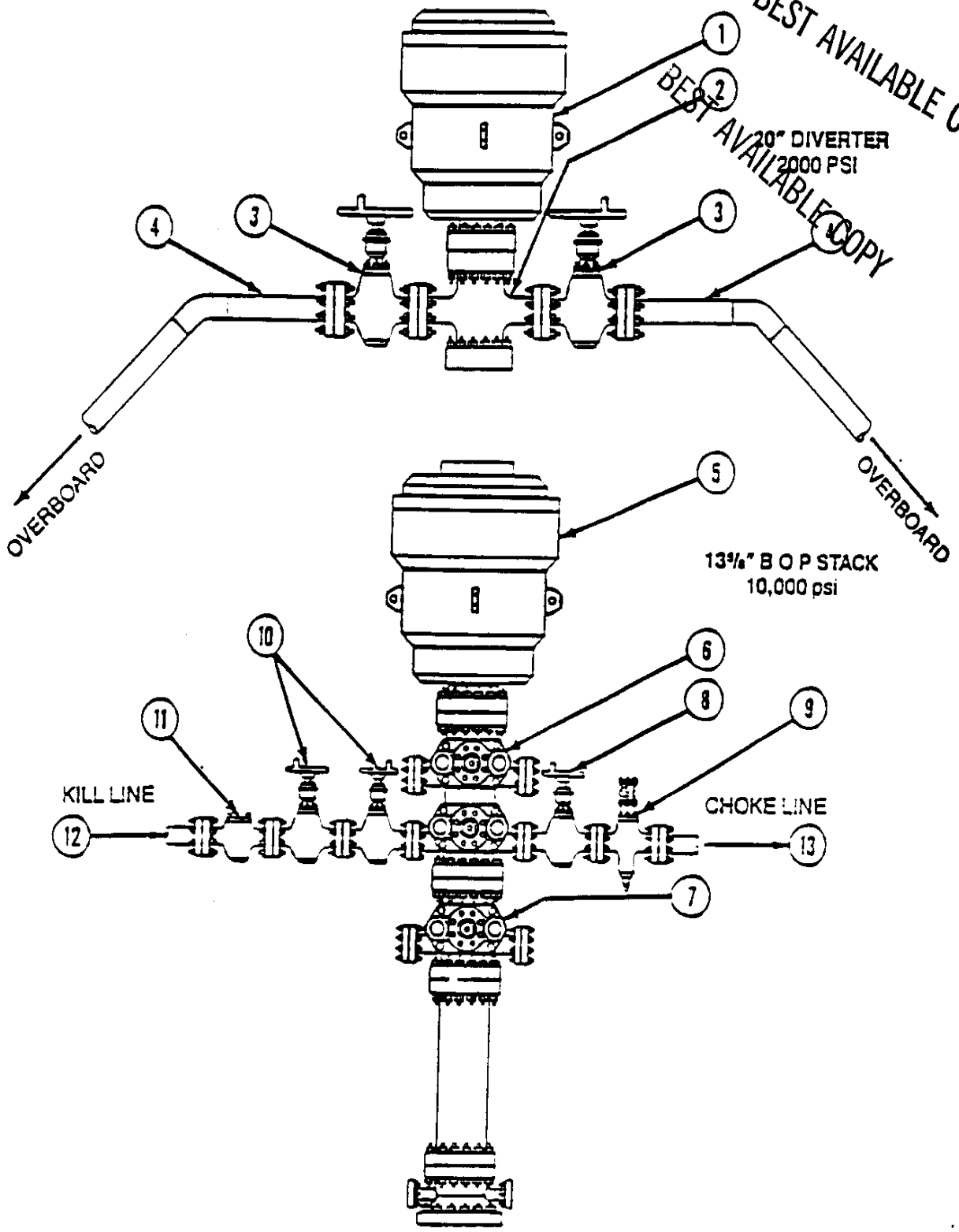
13⅝′ 10,000 psi

ITEM	DESCRIPTION
5	13⅝" HYDRIL ANNULAR BOP 5000 psi Type GK H25 Trimmed
6	13⅝" CAMERON DOUBLE BOP 10,000 psi WP H_2S Trimmed
7	13⅝" CAMERON SINGLE BOP 10,000 psi WP H_2S Trimmed
8	4 1/16" MANUAL GATE VALVE Cameron Type "F" H_2S
9	2 1/16" REMOTE HYDRAULIC VALVE Cameron Type "F" 10,000 psi H_2S
10	2 1/16" MANUAL GATE VALVE Cameron Type "F" 10,000 psi H_2S
11	2 1/16" CHECK VALVE Cameron Type "R" 10,000 psi H_2S
12	3" 10,000 psi KILL LINE from Choke Manifold
13	3" 10,000 psi CHOKE LINE from choke Manifold

ATTACHMENT A-1

6" LINE

BLOWOUT PREVENTER STACK
WITH A
HYDRIL DIVERTER



Refer to following page for description of individual items of this assembly.

ATTACHMENT A-2

SCANA PETROLEUM RESOURCES, INC.

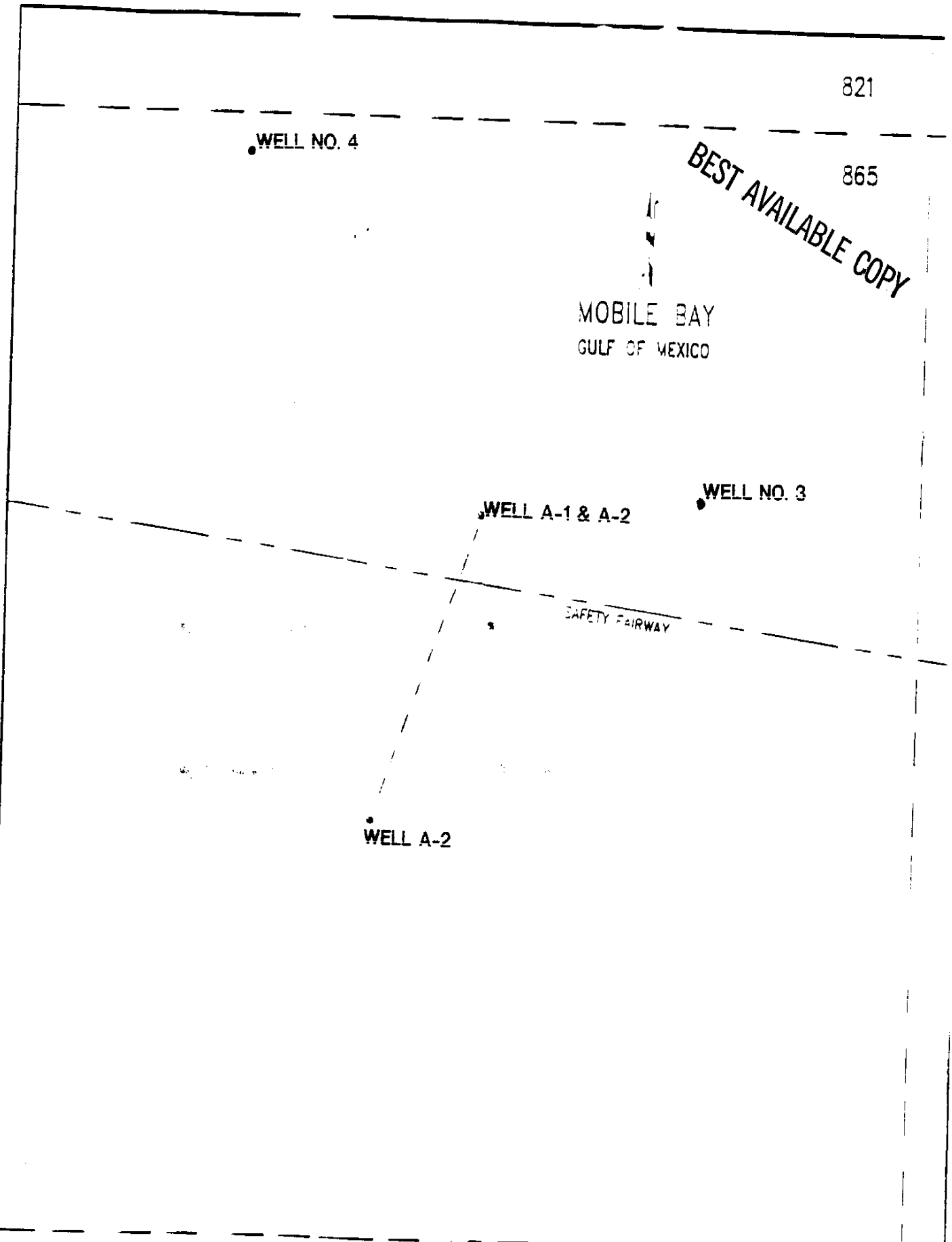
SUPPLEMENTAL DEVELOPMENT
OPERATIONS COORDINATION DOCUMENT

LEASE OCS-G 6847

MOBILE AREA BLOCK 865

WELL LOCATION TABLE

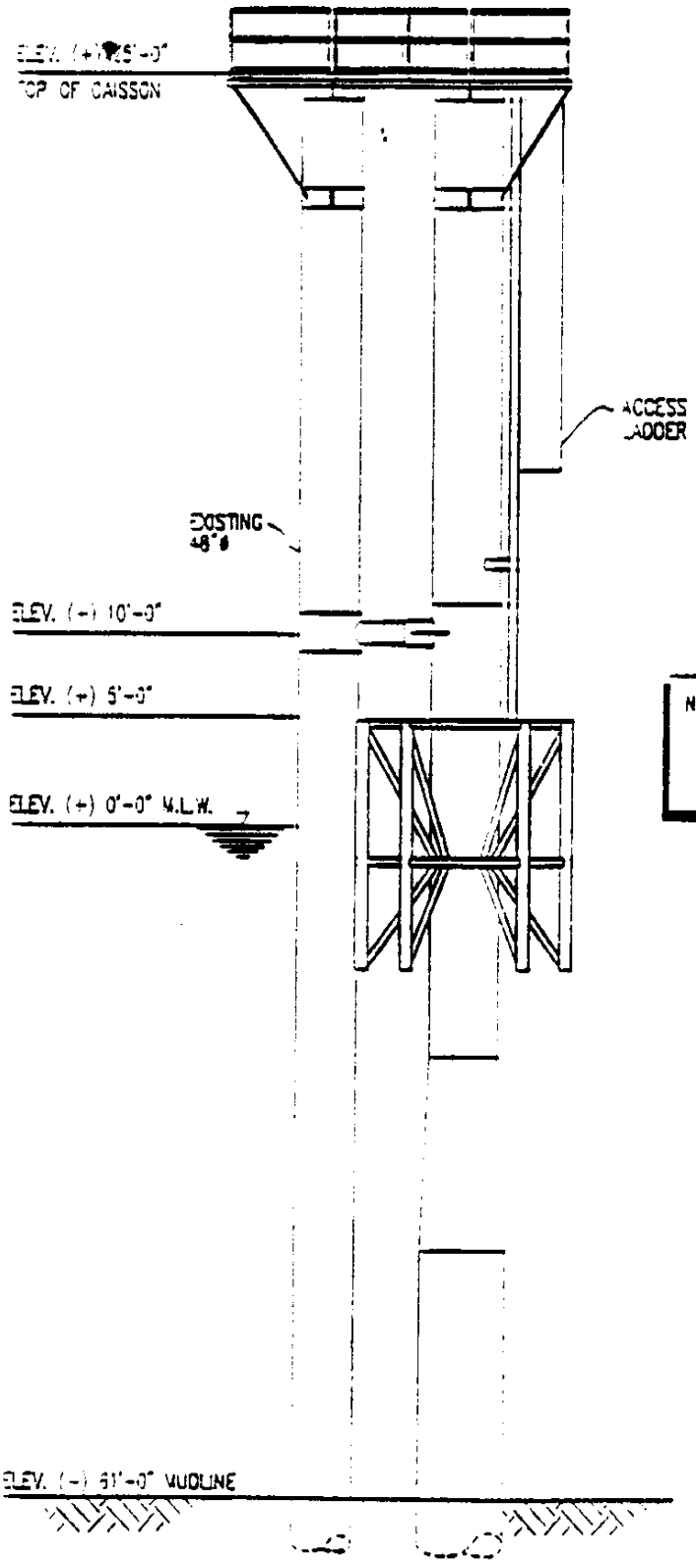
WELL	LOCATION	TOTAL DEPTH	WATER DEPTH	TOTAL DAYS
003	PSL: 5500' FNL & 11000'FWL	2600'MD	61'	15
	PBHL: [redacted]	[redacted]		
004	PSL: 500' FNL & 3700' FWL	2600'MD	60'	15
	PBHL: [redacted]	[redacted]		



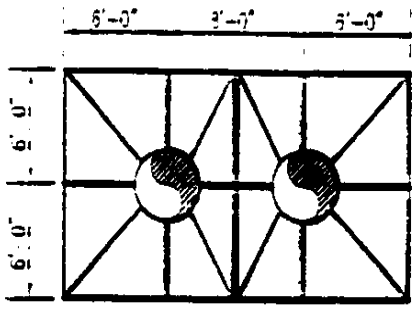
ATTACHMENT B-2

909

	SCANA PETROLEUM RESOURCES, INC.	DWG. / FIG: 1
		DATE: 10-08-94
	MOBILE BLOCK 865	SCALE: 1" = 2000'
		PROJECT:



ELEVATION



PLAN

NOTE:
DECK, BOAT LANDING AND LADDER TO BE INSTALLED AT A LATER DATE.

MPC INTERNATIONAL, Inc.	SCANA PETROLEUM RESOURCES, INC.	DWG./FIG: 30-I-PM-9001
	MOBILE BLOCK 865	DATE: 09/28/93
	ASSEMBLY DRAWING	SCALE: N.T.S.
	ATTACHMENT C	k 45-112

ATTACHMENT E

Figure 2

SCANA PETROLEUM RESOURCES, INC.

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

LEASE OCS-G 6847

MOBILE AREA BLOCK 865

SHALLOW HAZARDS ANALYSIS

SCANA Petroleum Resources, Inc. has reviewed the high resolution geophysical data for Mobile Area Block 865 relative to the proposed surface locations addressed below:

Well Location No. 3: 5500' FNL & 11000'FWL

Well Location No. 4: 500' FNL & 3700'FWL

Based on our review of the subject data, SCANA concludes the proposed surface locations are clear of any shallow drilling hazards.

ATTACHMENT F

DRILLING FLUID ADDITIVES
PRODUCT CROSS REFERENCE

MILPARK	BAROID	M-I	DESCRIPTION

DRILLING FLUID ADDITIVES
PRODUCT CROSS REFERENCE

MILPARK	BAROID	M-I	DESCRIPTION
WEIGHT MATERIALS			
MIL-BAR	BAROID	M-I BAR	API barite, 4.2 specific gravity
DENSIMIX	BARODENSE	FER-OX	Macaceous hematite
W.O. 30	BARACARB	LO-WATE	Calcium carbonate
VISCOSIFIERS			
MILGEL	AQUAGEL	M-I GEL	API-grade Wyoming bentonite
MILGEL NT	AQUAGEL GOLD SEAL		Untreated Wyoming bentonite
SALTWATER GEL	ZEOGEL	SALT GEL	API-grade attapulgite
SUPER-COL	QUIK-GEL	KWIK-THIK	High-yield bentonite, treated
NEW-VIS			Organic polymer blend
XCD POLYMER	XCD POLYMER	XCD POLYMER	XC Dispersable
MIL-BEN	SHUR-GEL		Bentonite-OCMA Spec. DFCP4
DEFLOCCULANTS			
MIL-TEMP	THERMA-THIN DP	MELANEX-T	High-temperature deflocculant
NEW-THIN	THERMA-THIN	TACKLE (Liquid)	Polymeric deflocculant
UNI-CAL	Q-BROXIN	SPERSENE	Chrome lignosulfonate
UNI-CAL CF	Q-B II	SPERSENE CF	Chrome-free lignosulfonate
MIL-KEM	LIGNOX	RD 2000	Lime mud thinner
SAPP	SAPP	SAPP	Sodium acid pyrophosphate
OILFOS	BARAFOS	PHOS	Sodium tetraphosphate
MIL-THIN	THERMA-THIN	THIN X (Liquid)	Anionic copolymer thinner
FILTRATION CONTROL AGENTS			
BIO-LOSE			Modified polysaccharide
CHEMTROL X	DURENEX	RESINEX	Polymer blend, high-temperature
FILTREX	BARANEX	RESINEX	Polyanionic lignin resin
LIGCO	CARBONOX	TANNATHIN	Lignite
LIGCON	CC-16	CAUSTILIG	Causticized lignite
MILSTARCH	IMPERMEX	MY-LO-GEL	Pregelatinized starch
NEW-TROL	POLYAC	SP-101	Sodium polyacrylate
PERMA-LOSE HT	DEXTRID	POLY-SAL	Nonfermenting starch, high-temp.
PYRO-TROL	THERMA-CHEK	POLY RX	Polymeric, high-temperature
KEM-SEAL	THERMA-CHEK		Copolymer, high-temperature
MIL-PAC	PAC R	POLYPAC	Polyanionic cellulose
MIL-PAC LV	PAC L	POLYPAC	Low-viscosity polyanionic cellulose
MILPARK CMC HV	CELLEX (High Vis)	CMC HV	Sodium carboxymethylcellulose
MILPARK CMC LV	CELLEX	CMC LV	Sodium carboxymethylcellulose
CORROSION CONTROL CHEMICALS			
MIL-GARD	NO-SULF	SULF-X	Basic zinc carbonate
MIL-GARD R	BARASCAV-L	SULF-X ES	Chelated zinc
NOXYGEN	COAT-888 BARACOR 113	OXYGEN SCAVENGER	Oxygen scavenger
SCALE-BAN	SURFLO-H35 BARACOR 129	SI-1000	Scale inhibitor
AMI-TEC	BARA FILM BARACOR 300 COAT-B1400 COAT-C1815	CONQOR 202 CONQOR 101 CONQOR 303	Film-forming amine
CARBO-DRILL OIL MUD ADDITIVES			
CARBO-MUL	INVERMUL NT VERSACOAT	VERSAWET	Emulsifier (and wetting agent) primarily
CARBO-MUL HT	EZ MUL NT		High-temperature emulsifier and wetting agent
CARBO-TEC	INVERMUL	VERSAMUL	Emulsifier
CARBO-GEL	GELTONE II	VERSAGEL	Organophilic clay rectonte
CARBO-VIS	GELTONE II	VERSAMOD	Organophilic clay
CARBO-TROL		VERSATROL	Filtration control agent
CARBO-TROL A-9	DURATONE HT	VERSALIG	Nonasphaltic filtration control, high-temperature
SURF-COTE	DRILTREAT or OMC	VERSAWET	Oil wetting agent for oil muds
CARBO-MIX	DRILTREAT		Nonionic emulsifier, high-activity
CARBO-TEC HW			HW oil mud emulsifier

ATTACHMENT G

DRILLING FLUID ADDITIVES
PRODUCT CROSS REFERENCE

MILPARK	BAROID	M-I	DESCRIPTION
SHALE CONTROL ADDITIVES			
ALPLEX			Aluminum complex
BIO-DRILL 1402			Oil mud alternative
NEW-DRILL	EZ MUD	POLY-PLUS	PHPA liquid
NEW-DRILL HP			Powdered PHPA
NEW-DRILL PLUS	EZ MUD DP		Powdered PHPA
SHALE-BOND	SHALE-BAN	HOLECOAT	Resinous shale stabilizer
PROTECTOMAGIC			Oil-soluble blown asphalt
PROTECTOMAGIC M	AK-70	STABIL-HOLE	Water-dispersants. Blown asphalt
SPOTTING FLUIDS			
BLACK MAGIC			Oil-base spotting fluid
BLACK MAGIC LT	EX SPOT		Low toxicity oil-base spotting fluid
BLACK MAGIC SFT		OIL-FAZE	Oil-base spotting fluid concentrate
MIL-FREE	SCOT-FREE/ ENVIRO-SPOT	PIPE-LAX	Liquid spotting fluid
BIO-SPOT	ENVIRO-SPOT		Nontoxic water-base spotting fluid
BIO-SPOT II			Nontoxic water-base spotting fluid
MIL-SPOT 2	SCOT-FREE	PIPE-LAX W	Weighted (oil-base) spotting fluid concentrate
LUBRICANTS			
AQUA-MAGIC			Low-toxicity lubricant
LUBRI-FILM	EP MUDLUBE	E.P. LUBE	Extreme-pressure lubricant
MIL-LUBE		LUBE-106	General lubricant
DETERGENTS/FOAMERS			
AMPLI-FOAM	DRILFOAM	FOAMER 80	Mist and stiff foaming agent
MIL CLEAN	BAROID RIG WASH BARA-KLEAN	KLEEN-UP	Biodegradeable detergent
MILPARK MD	CON-DET	DD	Drilling detergent
DEFOAMING AGENTS			
LD-8	BARA DEFOAM	DEFOAM-X	Hydrocarbon-base defoamer
W.O. DEFOAM	BARA BRINE DEFOAM	DEFOAM-A	Alcohol-base, saltwater muds
ALUMINUM STEARATE	Aluminum Stearate	Aluminum Stearate	Aluminum Stearate
LOST-CIRCULATION MATERIALS			
CHEK-LOSS			Seepage loss control differential sticking preventative
MIL-CEDAR FIBER	PLUG-GIT	M-I CEDAR FIBER	Cedar fiber
MIL-FIBER	FIBERTEX	M-I FIBER	Fiber blend
MILFLAKE	JELFLAKE	FLAKE	Shredded cellophane flake
MILMICA	MICATEX	MICA	(Muscovite) mica graded
MIL-PLUG		NUT PLUG	Ground pecan shells
MIL-SEAL	BARO-SEAL	KWIK SEAL	Blended lost-circulation material
COTTONSEED HULLS	Cottonseed Hulls	Cottonseed Hulls	Cottonseed Hulls
PAPER			Ground paper
WALNUT SHELLS	WALL-NUT		Ground walnut shells
MAGNE-SET			Acid-soluble cement
WORKOVER AND COMPLETION FLUID ADDITIVES			
MUD-PAC	COAT-44 & 45	CONQOR 404 X-CORE	Corrosion (packer fluid) inhibitor
BRINE-PAC	BARACOR-A		Corrosion inhibitor clean brine fluids
W.O. 21L	LIQUI-VIS	VIS-L	Liquid HEC polymer
PRESERVATIVES			
DRYOCIDE			Dry (biodegradable) biocide
X-CIDE 207	BARA B466	BACBAN II & III	Biocide

X-CIDE 207 is a registered trademark of Petrotite Corporation.
DRYOCIDE is a registered trademark of Nalco Chemical Company
XCD (in XCD POLYMER) is a registered trademark of Marck & Co., Inc.
OILFOS is a registered trademark of Monsanto Company.

J. Connor Consulting, Inc.

08-Oct-94

AIR QUALITY REVIEW

COMPANY:	SCANA PETROLEUM RESOURCES, INC.
AREA:	MOBILE
BLOCK:	865
LEASE:	OCS-G 6647
PLATFORM:	CAISSONS NO. 3 & NO. 4
WELL:	WELLS NO. 3 AND NO. 4
LATITUDE:	
LONGITUDE:	

COMPANY CONTACT:	BERT H. BATES
TELEPHONE NO.:	(713) 578-3388

REMARKS: THE PROPOSED SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT PROVIDES FOR THE DRILLING AND COMPLETION OF TWO (2) SATELLITE WELLS AND CAISSONS, AND TWO LEASE PIPELINES TO TRANSPORT FULL-WELL STREAM PRODUCTION TO AN EXISTING 8.500" PIPELINE . THE CAISSONS WILL NOT BE EQUIPPED WITH ANY PROCESSING EQUIPMENT. ALL PROCESSING WILL TAKE PLACE ON SCANA'S EXISTING PLATFORM "A" IN MOBILE BLOCK 822.

THE PROJECTED EMISSIONS PROVIDE FOR THE USE OF LOW SULPHUR FUEL (0.4%).

ATTACHMENT I

16225 Park Ten Place Suite 500 Houston, Texas 77084 (713) 578-3388 Fax (713) 578-8895

GULF OF M ICO AIR EMISSION CALCULATIONS

General

This document (MMS.WK3) was prepared through the cooperative efforts of those professionals in the oil industry including the API/OOC Gulf of Mexico Air Quality Task Force, who deal with air emission issues. Exploration (POE) and Development, Operations, Coordination Documents (DOCD) approved by the Minerals Management Service (MMS). It is intended to be thorough but flexible to meet the needs of different operators. This first sheet gives the basis for the emission factors used in the emission spreadsheet as well as some general instructions. This file contains 8 sheets: A,B,C,D,E,F,G,& H. A is the Instruction Sheet, B is the Title Sheet, C is the Factors Sheet, D,E,F, & G are the Emission Spreadsheets and H is the Summary Sheet. These sheets will describe and calculate emissions from an activity.

Title Sheet

The Title Sheet requires input of the company's name, area, block, OCS-G number, platform and/or well(s) in the necessary lines. This data will automatically be transferred to the spreadsheet and summary sheet.

Factor Sheet

The emission factors were compiled from the latest AP-42 references or from industry studies if no AP-42 reference was available. Factors can be revised as more data becomes available. A change to this Factor Sheet will be automatically changed in Emission Spreadsheet.

The basis for the factors is as follows:

1. NG Turbines — Fuel usage scf/hr = HP X 9.524 (10,000 btu/HP-hr / 1050 btu/scf)
2. NG Engines — Fuel usage scf/hr = HP X 7.143 (7,500 btu/HP-hr / 1050 btu/scf)
3. Diesel — Fuel usage gals/hr = HP X 0.0483 (7,000 btu/HP-hr / 145,000 btu/gal)

Emission Factors

Natural Gas Prime Movers

1. TNMOC refers to total non-methane organic carbon emissions and these can be assumed equivalent to VOC emissions.
2. The sulfur content assumed is 2000 grains/mmscf (3.33 ppm). If your concentration is different then ratio your emission factor up or down.

Diesel-Fired Prime Movers

1. Diesel sulfur level 0.4% by wt
2. For boats use > 600 HP factors based on AP-42 Vol. II, Table II-3-3. Those figures closely match the above values. Include only the emissions from the boats within 25 mile radius of the well/platform.
3. For diesel engines <600 HP VOC emissions equal total HC emissions: for diesel engines>600 HP VOC emissions equal non-methane HC emissions.

Heaters/Boilers/Firetubes/NG-Fired

1. NG Sulfur content is 2000 grains per million cu ft

2. VOCs emissions based on total non-methane HCs

Gas Flares

1. Flare is non-smoking

2. 1050 btu/cu. ft. for NG heating value

3. The sulfur content assumed is 2000 grains/mmscf (3.33 ppm). If your concentration is different then ratio your emission factor up or down or you may use the following formula

   H2S flared (lbs/hr) = Gas flared (cu ft/hr) X ppm H2S X 106 X 34/379

   SOx emis (lbs/hr) = H2S flared (lbs/hr) X 64/34

Liquid Flares

1. Assume 1% by wt Sulfur maximum in the crude oil.

2. VOC equals non-methane HCs

3. Particulate emissions assumes Grade 5 oil.

Tanks

1. Tank emissions assumes uncontrolled fixed roof tank.

Fugitives

1. Fugitives are based on the 1993 Star Environmental Report. It requires that you count or estimate your components.

Glycol Dehydrator Vent

1. The dehydrated gas rate in SCF/HR must be entered in the spreadsheet. The emission factor is from the compilation of the Louisiana Survey and an average emissions per gas rate.

Gas Venting

1. The emission factor is based on venting unburned natural gas of average weight.

Emissions Spreadsheet

The emissions from an operation should be presented for a calendar year (1994, 1995, etc.). The operation may include drilling only or drilling in conjunction with other activities such as pipeline installation or production operations. For the first year use sheet D, for the second year use sheet E, third use F, fourth use G and if you need more you will have to insert a sheet and copy the spreadsheet to the new sheet. The year (CELL D:A38) should be changed and the different operating parameters entered to calculate revised emissions for that subsequent year. The spreadsheet will calculate maximum fuel usage (UNIT/HR) using the known horsepower. It will assume maximum fuel usage is equal to actual fuel

(UNIT/DAY) usage unless the actual fuel usage is known. If so, insert actual fuel usage in appropriate column. The emissions will be calculated as follows:

Emission rate (lb/hr) = (HP or fuel rate) X Emission Factor (Potential to emit)

Emissions (tpy)=Emission rate (lb/hr) X load factor(Act Fuel/Max Fuel) X hrsX daysX ton/2000 lbs (Actual emissions)

To customize the spreadsheet for your application you may want to delete lines for non-applicable equipment/activities or you can input "0" for the HP of equipment that does not apply. You may also need to copy/insert an entire line if more than one similiar type of equipment is present.

Also, the production equipment can be customized further by adding the use of the equipment behind each type of engine, i.e.,

Turbine
Turbine - Gas Compressor

Burner
Burner - Line Heater

Summary Sheet

The Summary Sheet is designed to show a proposed estimate of emissions from an activity over a future period of time. In this example ten years was chosen. Each row links to the corresponding emission calculation spreadsheet for that year. For example, Row 7 of the summary corresponds to the annual totals from Sheet D. Row 8 links to the second emission calculation spreadsheet, Row 9 to the third and Row 10 to the fourth. Row 11 - 16 will carry down the emissions from the last spreadsheet with an emission rate greater than zero. The Summary Sheet will always carry down the last non-zero emission total. For example, if emission calculations are done for the years 1994 and 1995, then the the 1995 total will be carried down through the year 2003. Row 17 of the summary sheet reflects the allowable for the air quality review exemption determination. If more or less years are needed you will will have to modify the spreadsheet.

Print Instructions

The table below lists macros that were written to print sheets A, C, D, E, F, G, & H.

\A - This macro prints 3 pages of instructions (sheet A).
\C - This macro prints the emissions factors sheet (sheet C).
\D - This macro prints the emissions calculations sheet (sheet D).
\E - This macro prints the emissions calculations sheet (sheet E).
\F - This macro prints the emissions calculations sheet (sheet F).
\G - This macro prints the emissions calculations sheet (sheet G).
\H - This macro prints the emissions calculations sheet (sheet H).
\X - This macro prints all sheets - A, C, D, E, F, G, & H.

To run one of these macros, hold down ALT and press the letter in the macro range name. For example, to run the macro \A, press ALT-a.

AIR EMISSION CALCULATIONS

Fuel Usage Conversion Factors	Natural Gas Turbines		Natural Gas Engines		Diesel Recip. Engine		REF.	DATE
	SCF/hp-hr	9.524	SCF/hp-hr	7.143	GAL/hp-hr	0.0483	AP42 3.2-1	4/76 & 8/84

Equipment/Emission Factors	units	TSP	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-2	4/93
NG 2-cycle lean	gms/hp-hr		0.00185	11	0.43	1.5	AP42 3.2-2	4/93
NG 4-cycle lean	gms/hp-hr		0.00185	12	0.72	1.8	AP42 3.2-2	4/93
NG 4-cycle rich	gms/hp-hr		0.00185	1.928	0.14	8.6	AP42 3.2-2	4/93
Diesel Recip. < 600 hp.	gms/hp-hr	1	0.116	14	1.12	3.03	AP42 3.3-1	4/93
Diesel Recip. > 600 hp.	gms/hp-hr	0.24	0.18625	11	0.33	2.4	AP42 3.4-1	4/93
NG Heaters/Boilers/Burners	lbs/mmscf	5	0.6	140	2.8	35	AP42 1.4-1	4/93
NG Flares	lbs/mmscf		0.57	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbls	0.42	6.6	2.3	0.01	0.21	AP421.3-1	4/93
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.000025		API Study	12/93
Glycol Dehydrator Vent	lbs/mmscf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTACT	PHONE	REMARKS
SCANA PETROLEUM RESOURCES, INC	MOBILE	865	OCS-G 6847	CAISSONS N	WELLS NO. 3 AN			BERT H BATES	(713) 578-3388	

OPERATIONS	EQUIPMENT		MAX. FUEL	ACT. FUEL	RUN TIME		POUNDS PER HOUR					TONS PER YEAR				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	TSP	SOx	NOx	VOC	CO	TSP	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	1500	72.45	1738.80	24	30	0.79	0.62	36.34	1.09	7.93	0.29	0.22	13.08	0.39	2.85
	PRIME MOVER>600hp diesel	1500	72.45	1738.80	24	30	0.79	0.62	36.34	1.09	7.93	0.29	0.22	13.08	0.39	2.85
	PRIME MOVER>600hp diesel	1500	72.45	1738.80	24	30	0.79	0.62	36.34	1.09	7.93	0.29	0.22	13.08	0.39	2.85
	AUXILIARY EQUIP<600hp diesel	165	7.97	191.27	1	30	0.36	0.04	5.09	0.41	1.10	0.01	0.00	0.08	0.01	0.02
	AUXILIARY EQUIP<600hp diesel	140	6.76	162.29	4	30	0.31	0.04	4.32	0.35	0.93	0.02	0.00	0.26	0.02	0.06
	AUXILIARY EQUIP<600hp diesel	140	6.76	162.29	3	30	0.31	0.04	4.32	0.35	0.93	0.01	0.00	0.19	0.02	0.04
	VESSELS>600hp diesel	2065	99.74	2393.75	1	17	1.09	0.85	50.03	1.50	10.92	0.01	0.01	0.43	0.01	0.09
	VESSELS>600hp diesel	2065	99.74	2393.75	2	30	1.09	0.85	50.03	1.50	10.92	0.04	0.03	1.80	0.05	0.39
PIPELINE	PIPELINE BARGE diesel															
INSTALLATION	GENERATORS	256	12.36	296.76	24	30	0.14	0.11	6.20	0.19	1.35	0.05	0.04	2.23	0.07	0.49
	ENGINES	2520	121.72	2921.18	24	30	1.33	1.03	61.06	1.83	13.32	0.48	0.37	21.98	0.66	4.80
	WINCH ENGINES	128	6.18	148.38	24	30	0.07	0.05	3.10	0.09	0.68	0.02	0.02	1.12	0.03	0
	SUPPORT VESSEL - DIESEL	2065	99.74	2393.75	24	30	1.09	0.85	50.03	1.50	10.92	0.39	0.30	18.01	0.54	3
	SUPPORT VESSEL - DIESEL	2065	99.74	2393.75	24	30	1.09	0.85	50.03	1.50	10.92	0.39	0.30	18.01	0.54	3.93
FACILITY	DERRICK BARGE diesel-JACKET	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	DERRICK BARGE diesel- DECK	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MATERIAL TUG diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP <600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP >600hp diesel-COMPRESSOR	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP <600hp diesel-CRANE	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 2 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC	BPD	SCF/HR	COUNT												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			0.0		0				0.00					0.00	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
1994	YEAR TOTAL						9.26	6.54	393.25	12.48	85.78	2.28	1.75	103.36	3.13	22.55
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES 4.0											133.20	133.20	133.20	133.20	8607.14

BEST AVAILABLE COPY

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTAC	PHONE	REMARKS
SCANA PETROLEUM RESOURCES, INC.	MOBILE	865	OCS-G 6847	CAISSONS N	WELLS NO. 3 A			BERT H. BATES	(713) 578-3388	

OPERATIONS	EQUIPMENT		MAX. FUEL	ACT. FUEL	RUN TIME		POUNDS PER HOUR					TONS PER YEAR				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	TSP	SOx	NOx	VOC	CO	TSP	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PIPELINE	PIPELINE LAY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
FACILITY	DERRICK BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION - MOBILE BLOCK 822 "A"	RECIP <600hp diesel - GENERATOR	750	36.23	869.40	24	2	1.65	0.19	23.13	1.85	5.01	0.04	0.00	0.56	0.04	0.12
	RECIP <600hp diesel - CRANE	85	4.11	98.53	3	20	0.19	0.02	2.62	0.21	0.57	0.01	0.00	0.08	0.01	0.02
	SUPPORT VESSEL diesel	2065	99.74	2393.75	2	156	1.09	0.85	50.03	1.50	10.92	0.17	0.13	7.83	0.23	1.71
	TURBINE nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas - GENERATOR	150	1071.45	25714.80	24	365		0.00	3.96	0.24	0.59		0.00	17.37	1.04	2.60
	RECIP.4 cycle rich nat gas - COMPRESSOR	1085	7750.15	186003.72	24	365		0.00	4.61	0.33	20.55		0.02	20.18	1.47	90.02
	RECIP.4 cycle rich nat gas - COMPRESSOR	1085	7750.15	186003.72	24	365		0.00	4.61	0.33	20.55		0.02	20.18	1.47	90.02
	BURNER nat gas - REBOILER	0.2	190.48	4571.43	24	365	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.12	0.00	0.03
	MISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			0.0		0				0.00					0.00	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
1995	YEAR TOTAL						2.93	1.07	88.99	4.47	58.20	0.22	0.18	66.31	4.26	184.52
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES	4.0										133.20	133.20	133.20	133.20	8607.14

BEST AVAILABLE COPY

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AIR EMISSION CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
SCANA PETROLEUM RESOURCES, INC.	MOBILE	865	OCS-G 6847	CAISSONS N	WELLS NO. 3 AN

Year	Emitted Substance				
	TSP	SOx	NOx	HC	CO
1994	2.28	1.75	103.36	3.13	22.55
1995	0.22	0.18	66.31	4.26	184.52
1996	0.22	0.18	66.31	4.26	184.52
1997	0.22	0.18	66.31	4.26	184.52
1998	0.22	0.18	66.31	4.26	184.52
1999	0.22	0.18	66.31	4.26	184.52
Allowable	133.20	133.20	133.20	133.20	8607.14

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

ENVIRONMENTAL REPORT

MOBILE BLOCK 865

LEASE OCS-G 6847

OFFSHORE, ALABAMA

Prepared by:

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713/578-3388

October 5, 1994

ATTACHMENT J

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I. DESCRIPTION OF PROPOSED ACTION

SCANA Petroleum Resources, Inc. (SCANA) proposes to conduct supplemental development activities within Mobile Block 865, Lease OCS-G 6847, Offshore, Alabama.

As proposed, the Supplemental Development Operations Coordination Document for Mobile Block 865 provides for the drilling and completion of two additional satellite locations, to be designated as Wells No. 3 and No. 4. Minimum well protector structures will be installed over the wellbores, and flowlines installed to transport production to existing Mobile Block 865, Platform "A". An additional right-of-way pipeline will be installed departing Mobile Block 865, Platform "A" and run parallel to an existing right-of-way pipeline terminating at existing Mobile Block 822, Platform "A".

At this time, the planned commencement date for proposed activities is on or about November 15, 1994.

A. DESCRIPTION OF PROPOSED TRAVEL MODES, ROUTES AND FREQUENCY

Support vessels will be dispatched from a support base located in Theodore, Alabama. The boats will normally move to the block via the most direct route from Theodore, Alabama; however, boats operating in the field may travel from other facilities nearby. Following is an estimate of trips to the proposed operations.

PRODUCTION OPERATIONS

Crew Boat	3 Trips Per Week
Supply Boat	0 Trips Per Week
Helicopter	0 Trips Per Week

B. ONSHORE SUPPORT BASE

The proposed activities will utilize a support base located at Theodore, Alabama. This base provides 24-hour service, a radio tower with phone patch, dock space, office space, parking lot, equipment and supply storage space, drinking and drill water, etc. The proposed development activities will help to maintain this base at its present level of activity. No expansion of the physical facilities or the creation of new jobs is expected to result from the work planned in conjunction with these blocks.

The first socioeconomic data base report will be submitted when the MMS and the States of Alabama, Louisiana, and Mississippi identify the specific parameters to be addressed in these semi-annual reports.

C. NEW OR UNUSUAL TECHNOLOGY

No new or unusual technology will be required for these operations.

D. VICINITY MAP

Mobile Block 865 is located approximately 22 nautical miles from Pascagoula, Mississippi on the Mississippi-Alabama Shelf and approximately 30 miles from SCANA's shorebase located in Theodore, Alabama. The seafloor dips gently to the south-southwest at an average angle of 0.04 degrees. Water depths ranged from 55 feet in the northern boundary of the block to 67 feet in the southwestern corner.

E. PROPOSED MEANS TO TRANSPORT OIL OR GAS

Hydrocarbon production from SCANA's proposed Caissons No. 3 and No. 4 will be transported via proposed flowlines to existing Platform "A" in Mobile Block 865. An additional right-of-way pipeline will be installed departing existing Mobile Block 865, Platform "A", running parallel to an existing right-of-way pipeline terminating at existing Mobile Block 822, Platform "A".

II. DESCRIPTION OF AFFECTED ENVIRONMENT

A. COMMERCIAL FISHING

The Gulf of Mexico continues to provide nearly 20% of the commercial fish landings in the continental United States. During 1991, commercial landings of all fisheries in the Gulf totaled nearly 1.5 billion pounds valued at about $641 million.

Menhaden, with landings of 1.2 billion pounds, valued at $41 million, was the most important Gulf species in quantity landed during 1991. Shrimp, with landings of 229 million pounds, valued at $411 million, was the most important Gulf species in value landed during 1991. The 1990 Gulf oyster fishery accounted for 43% of the national total with landings of 13.7 million pounds of meats, valued at about $35.5 million. The Gulf blue crab fishery accounted for 29% of the national total with landings of 65.5 million pounds, valued at $23.5 million.

Alabama ranked last among Central and Western Gulf states in total commercial landings for 1991 with 13.6 million pounds landed, valued at $18.3 million. Shrimp was the most important fishery landed, with 6.5 million pounds, valued at $14.2 million. In addition, during 1991, the following six species each accounted for landings valued at over $125,000: blue crab, shark, black mullet, red snapper, flounder, and the American oyster. Alabama had about 3470 and 2515 commercial saltwater, licensed fishermen during 1991 and 1992, respectively.

Mississippi ranked second among Central and Western Gulf states in total commercial fishery landings for 1991, with 208.6 million pounds landed, valued at $20.5 million. Shrimp was the most important fishery, with 15.6 million pounds landed, valued at about $9.6 million. Menhaden landings were significant during 1991, with 200 million pounds landed, valued at $11.7 million. In addition, during 1991, the following four species each accounted for landings valued at over $150,000: red snapper, Vermilion snapper, American oyster, and black mallet. In 1991 and 1992, Mississippi had about 3329 and 2515 commercial saltwater, licensed fishermen, respectively.

Louisiana ranked first among Central and Western Gulf states in total commercial fishery landings for 1991, with nearly 1.2 billion pounds landed, valued at $163.4 million. Menhaden was the highest quantity finfish, with 1.0 billion pounds landed, valued at $48 million. Shrimp was the highest value shellfish, with 27.3 million pounds landed, valued at $36.7 million. In addition, during 1991, the following nine species each accounted for landings valued at over $1 million: black drum, red mullet roe, shark, red snapper, spotted seatrout, bluefin tuns, yellowfin tuns, blue crab, and the American oyster. In 1991 and 1992, Louisiana had about 19,923 and 19,241 commercial saltwater, licensed fishermen, respectively.

Texas ranked third among Central and Western Gulf states in total commercial fishery landings for 1990 with nearly 99 million pounds landed, valued at $182 million. In quantity and value, shrimp ranked first, with about 92 million pounds, valued at $17 million. In addition, during 1991, the following four species each accounted for landings valued at over $500,000: red snapper, black drum, blue crab, and American oyster. In 1991 and 1992, Texas had about 17,483 and 14,519 commercial saltwater, licensed fishermen, respectively.

The Gulf of Mexico yielded the nation's second largest regional commercial fishery by weight in 1991. The Gulf Fisheries landing were 20% of the national total by weight and 20% by value. Most commercial species harvested from Federal waters of the Gulf of Mexico are considered to be at or near an overfished condition. Continued fishing at the present levels may result in rapid declines in commercial landings and eventual failure of certain fisheries. Commercial landings of traditional fisheries, such as shrimp, red snapper, and spiny lobster, have declined over the past decade despite substantial increases in fishing effort. Commercial landings of recent fisheries, such as shark, black drum, and tuna, have increased exponentially over the past five years, and those fisheries are thought to be in need of conservation communication.

The Gulf of Mexico shrimp fishery is the most valuable in the United States accounting for 71.5% of the total domestic production. Three species of shrimp--brown, white, and pink--dominate the landings. The status of the stocks are as follows: (1) brown shrimp yields are at or near the maximum sustainable levels; (2) white shrimp yields are beyond maximum sustainable levels with signs of overfishing occurring; and (3) pink shrimp yields are at or beyond maximum sustainable levels.

B. SHIPPING

The establishment of a series of safety fairways or traffic separation schemes (TSS's), and anchorage areas provide unobstructed approach for vessels using U.S. ports. Shipping safety fairways are lanes or corridors in which no fixed structure, whether temporary or permanent, is permitted. TSS's increase navigation safety by separating opposing lanes of vessel traffic. Fairway anchorage are areas contiguous to and associated with a fairway, in which fixed structures may be permitted within certain spacing limitations.

Fairways play an important role in the avoidance of collisions on the OCS, particularly in the case of the larger oceangoing vessels, but not all vessels stay within the fairways. Many others, such as fishing boats and OCS support vessels, travel through areas with high concentration of fixed structures. In such cases the most important mitigation factor is the requirement for adequate marking and lighting of structures. After a structure has been in place for a while, it often becomes a landmark and an aid to navigation for vessels that operate in the area on a regular basis. Most ocean going vessels are equipped with radar capable of aiding navigation in all

weather conditions. This has contributed to safe navigation on the OCS.

A portion of Mobile Block 865 lies within a designated shipping fairway and/or anchorage areas. However, the proposed surface locations will be within the designated area.

The caissons and each of the marine vessels servicing these operations will be equipped with all U.S. Coast Guard required navigational safety aids to alert ships of its presence in all weather conditions.

C. PLEASURE BOATING, SPORT FISHING AND RECREATION

The northern Gulf of Mexico coastal zone is one of the major recreational regions of the United States, particularly for marine fishing and beach activities. Gulf Coast shorelines offer a diversity of natural and developed landscapes and seascapes. Major recreational resources include publicly owned and administered areas, such as national seashores, parks, beaches, and wildlife lands, as well as designated preservation areas, such as national seashores, parks, beaches, and wildlife lands, as well as designated preservation areas, such as historic and natural sites land landmarks, wilderness areas, wildlife sanctuaries, and scenic rivers. Gulf Coast residents and tourists from throughout the nation, as well as from foreign countries, use these resources extensively and intensively for recreational activity. Commercial and private recreational facilities and establishments, such as resorts, marinas, amusement parks, and ornamental gardens, also serve as primary-interest areas.

The two major recreational areas most directly associated with the offshore leasing and potentially affected by it are the offshore marine environment and the coastal shorefront of the adjoining states. The major recreational activity occurring on the OCS is offshore marine recreational fishing and diving. Studies, reports, and conference proceedings published by MMS and others have documented a substantial recreational fishery, including scuba diving, directly associated with oil and gas production platforms. The recreational fishing associated with oil and gas structures stems from their function as high profile artificial fishing reefs. The NMFS Marine Recreational Fisheries Statistics Survey for the Gulf and Atlantic Coasts (USDOC, NMFS, 1990a) and a special report by Schmied and Burgess (1987) indicates there are about 4 million resident participants in marine recreational fishing and over 2 million tourists who angle for Gulf marine species. According to NMFS, over 40 percent of the nation's marine recreational fishing catch comes from the Gulf of Mexico, and marine anglers in the Gulf made over 13 million fishing trips in 1989, exclusive of Texas (USDOC, NMFS, 1990a).

The coastal shorelines of the CPA and WPA contain extensive public park and recreation areas, private resorts, and commercial lodging. Most of the outdoor recreational activity focused on the Gulf shorefront is associated with accessible beach areas. Beaches are a major inducement for coastal tourism, as well as a primary resource for resident recreational activity. However, recreational resources, activities, and expenditures are not constant along the Gulf of Mexico shorefront, but are focused where public beaches are close to major urban centers. Beach use is a major economic factor for many Gulf coastal communities, especially during peak-use seasons in the spring and summer.

D. POTENTIAL OR KNOWN CULTURAL RESOURCES

Archaeological resources are any prehistoric or historic site, building, structure, object, or feature that is manmade or modified by human activity. Significant archaeological resources are defined in 36 CFR 800, Section 60.6. The MMS has previously contacted the State Historic Preservation Officers for all Gulf Coast States and requested them to provide a list of those National Register of Historic Places that are in their State's coastal zones and that could potentially be affected by OCS leasing activities.

With the exception of the Ship Shoal Lighthouse, **historic archaeological resources** on the OCS consist of shipwrecks. Management of this resource was accomplished by establishing a high-probability zone for the occurrence of historic shipwrecks. A recently completed Texas A&M University (Garrison et al, 1989) updated the shipwreck database. Statistical analysis of over 4,000 potential shipwrecks in the northern Gulf indicated that many of the OCS shipwrecks occur in clustered patterns related mainly to navigation hazards and port entrances.

Geomorphic features that have a high probability for associated **prehistoric archaeological resources** in the Central and Western Gulf include barrier islands and back-barrier embayments, river channels and associated floodplains and terraces, and salt dome features.

The geophysical survey data for Mobile Block 8565, Offshore, Alabama has been evaluated for evidence of historic shipwreck remains and high probability areas for prehistoric archaeological sites associated with formerly subaerially exposed landforms. The survey area lites in a zone of high probability for the occurrence of both types of cultural resources.

According to sea level curves published by Coastal Environments, Inc., for the northern Gulf of Mexico this area may have been subaerially exposed sometime between approximatelly 6500 years b.p. and 24,000 years b.p. In terms of human occupation of this area, this relatively wide time span would include cultural sequences from the middle archaic to early man. The potential for site occurrence is thought to be good. Submerged terrestrial landforms would have been subaerially exposed at time periods during which the features could have been available for exploitation by prehistoric man.

Within the uppermost geologic section, portions of a paleochannel system were detected. These channels appear to have been part of a meandering fluvial system, apparently of two generations which incised a generally flatlying area. Depth, below the mudline, to channel margins was approximately 3 to 10 feet for the second generation and 10 to 50 feet for the first generation. No channel margin features, such as natural levees were observed in the survey. Sea level transgression probably wave-planned the uppermost portions of the remaining channel features. Based on this information, the potential is considered poor for prehistoric site preservation in the block.

Coastal Environments, Inc. includes the survey area within their "Zone 1" classification. In this zone, the probability of shipwreck occurrence is considered high. It was estimated by Coastal Environments that 80% or more of all shipwrecks are likely to occur in this Zone.

Shipwrecks located where water depths are less than 66 feet to 130 feet would probably be subjected to the degenerating effects of swells and waves which occur in shallower water. The water depth in Mobile Block 865 ranges from 55 feet to 67 feet representing a high energy, shallow water environment. The potential for occurrence of any possible shipwrecks located

within block 865 is thought to be good based on the great amound of seafaring activity that has occurred in the region since 1500. The potential for preservation of older wooden ships is thought to be fair to poor due primarily to the intense action of the sea in shallow water during storms.

SCANA Petroleum Resources, Inc., as a prudent operator, will avoid all sites, structures, or objects of historical or archaeological significance. Such findings will be reported and every reasonable effort will be made preserve and protect the cultural or archaeological resources.

E. ECOLOGICALLY SENSITIVE FEATURES

Coastal barrier landforms consist of islands, spits, and beaches that stretch in an irregular chain from Alabama to Texas. These elongated, narrow landforms are composed of sand and other unconsolidated, predominantly coarse sediments that have been transported and deposited by waves, currents, storm surges, and winds. Barrier landforms are young coastal features. They began to form 5,000 to 6,000 years ago after the main mass of continental ice sheets had melted and global rate of sea-level rise began to slow.

The term "barrier" identifies the structure as one that protects other features, such as bays, lagoons, estuaries, and marshes, from the direct impacts of open ocean. By separating coastal waters from the ocean, barriers contribute to the amount of estuaries habitat available along the coast. As much as two-thirds of the high-value Atlantic and Gulf species of fish are considered to be directly dependent during some stage of their life on conditions in an estuary. Another benefit of both the barriers and their adjacent marshes and bays is that of providing habitats for a large number of birds and other animals, including several threatened or endangered species, such as the loggerhead turtle, the southern bald eagle, the alligator, and the brown pelican.

Barrier landforms are relatively low landmasses that are continually adjusting configuration in response to changing environmental conditions. Landform changes can be seasonal and cyclical, such as the transition from a summer (swell wave) beach to a winter (storm wave) beach, or they can be indicative of a trend, such as a net landward movement of a feature.

The long-term survival of fixed structures, such as roads, buildings, and power lines, constructed on a barrier landform can often be jeopardized by the changing and migratory nature of the barrier features. Some types of construction or stabilization projects on barrier landforms may actually encourage erosion, especially when the project interferes with longshore or shore-normal sediment movements.

The barrier landforms of the Central Gulf of Mexico occur in three settings. From east to west, these include the barrier islands of Mississippi Sound, the Mississippi River deltaic plain barriers, and the barriers of the Chenier Plain in Louisiana.

Louisiana has the most rapidly retreating beaches in the nation. The statewide average for 1956-1978 was 27.2 ft/yr (van Beek and Meyer-Arendt, 11182). The average retreat for the Fourchon beach over the last 100 years has been from 35 to 65 ft/yr (Boyd and Penland, 11188). The statewide average, according to Dolan et al. (11182) is in excess of 3.6 m/yr. Beaches along the deltaic plain in Louisiana fit into one of three categories, depending on the stage of the deltaic cycle of the nearby landmass. When a major distributary of the Mississippi River is abandoned, subsidence results in a local sea-level transgression that transforms the active delta into an erosional headland with flanking barriers. Fourchon Beach is an example of an eroding headland

beach. With increased age and subsidence, the barrier shoreline evolves into a transgressive barrier-island arc that is separated from the mainland by a lagoon. Isles Derniers is an example of a barrier that underwent the transformation from a headland beach to a barrier arc within the past century. Eventually, with continued subsidence and sediment deprivation, the island ceases to exist, its remnant forming a submarine inner-shelf shoal.

The Chenier Plain is located farther to the west in Louisiana. Here, the coast is fronted by sand beaches and coastal mudflats. The source of the mud is the discharge of the Mississippi and Atchafalaya Rivers, which tends to drift westward along with the prevailing winds and associated nearshore currents.

From the Texas-Louisiana border to Rollover Pass, Texas, the Texas coast is a physiographic continuation of the Chenier Plain. Here, thin accumulations of sand, shell, and caliche nodules make up beaches that are migrating landward over tidal marshes. These beaches are narrow and have numerous overwash features and local, poorly developed sand dunes.

The rest of the Texas coast is a continuous barrier shoreline. The barrier islands and spits were formed from sediments supplied from three deltaic headlands: the Trinity delta, which is immediately west of the Sabine River, in Jefferson County; the Brazos-Colorado Rivers delta complex in Brazoria and Matagorda Counties; and the Rio Grande delta in southernmost Cameron County.

The Central and Western Gulf Coast includes barrier islands that are part of the National Park System. These are the Padre Island National Seashore along the south Texas coast and Gulf Islands National Seashore offshore Mississippi.

The importance of coastal wetlands to the coastal environment has been well documented. Coastal wetlands are characterized by high organic productivity, high detritus production, and efficient nutrient recycling. They provide habitat for a great number and wide diversity of invertebrates, fish, reptiles, birds, and mammals. Wetlands are particularly important as nursery grounds for juvenile forms of many important fish species. The Louisiana coastal wetlands support over two-thirds of the Mississippi Flyway wintering waterfowl population and the largest fur harvest in North America.

Louisiana contains most of the Gulf coastal wetlands. The deterioration of coastal wetlands, particularly in Louisiana, is an issue of concern. In Louisiana, the annual rate of wetlands loss has been measured at 130 km^2 for the period 1955-1978. A recent study has shown that the current rate of landloss on the Deltaic Plain area of the Louisiana coast has decreased to about 90 km^2 per year. Several factors contribute to wetlands loss in Coastal Louisiana, including sediment deprivation (a result of a 50% decrease in the suspended-sediment load of the river since the 1950's and the channelization of the river, which has prevented overbank sediment deposition), subsidence and sea-level rise, and the construction of pipeline and navigation canals through the wetlands.

In Mississippi and Alabama, the mainland marshes behind Mississippi Sound occur as discontinuous wetlands associated with estuarine environments. The most extensive wetland areas in Mississippi occur east of the Pearl River delta near the western border of the State and in the Pascagoula River delta area near the eastern border of the State. The wetlands of Mississippi seem to be more stable than those in Louisiana, reflecting the more stable substrate and more active sedimentation per unit of wetland area. Also, there have been only minor

amounts of canal dredging in the Mississippi wetlands.

Most of the wetlands in Alabama occur on the Mobile River delta or along northern Mississippi Sound. Between 1955 and 1979, fresh marshes and estuarine marshes declined in these areas by 69% and 29%, respectively. On a percentage basis, wetlands loss has occurred more rapidly in Alabama during these years than it did in Louisiana. Major causes of non-fresh wetland losses were industrial development and navigation, residential and commercial development, natural succession, and erosion/subsidence. The loss of fresh marsh was mainly attributable to commercial and residential development and silviculture.

In Texas, coastal marshes occur along the inshore side of barrier islands and bays and on river deltas. Salt marshes consisting primarily of smooth cordgrass occur at lower elevations and at higher salinities. Brackish marshes occur in transition areas landward of salt marshes on slightly higher elevations and at greater distances from saltwater bodies. Freshwater marshes of the region occur primarily along the major rivers and tributaries. Sparse bands of black mangroves are also found in the region. Broad expanses of emergent wetland vegetation and hypersaline waters to the south. In these areas, Spartina Alterniflora, the most common salt-marsh grass elsewhere in the Gulf, occurs rarely in salt marshes. Common salt-marsh plants here include more salt-tolerant species such as Batis Maritima and Salicornia.

Wetland changes observed in Texas during the past several decades appear to be driven by subsidence and sea-level increases. Open-water areas are appearing in wetlands along their seaward margins, while new wetlands are encroaching onto previously non-wetland habitat along the landward margin of wetland areas on the mainland, on the back side of barrier islands, and onto spoil banks. In addition, wetlands are being affected by human activities including canal dredging, impoundments, and accelerated subsidence caused by fluid withdrawals. The magnitudes of these wetland acreage changes in most of Texas have not been determined at the present time. In the Freeport, Texas area, along the Louisiana border, wetlands loss is occurring at rates similar to those occurring in adjacent parts of the Louisiana Chenier Plain.

A recent study funded by MMS entitled "Causes of Wetland Loss in the Coastal Central Gulf of Mexico", examined coastal ecosystems of the Northern Gulf of Mexico region and how wetland habitats have changed as a result of natural processes and man's activities thereon. The study's primary focus was on assessing and quantifying the direct and indirect impacts of OCS-related activities on wetland areas. Canal construction for pipelines and navigation has been the major OCS-related impacting factor.

Direct impacts were defined as those physical alterations that are the direct result of canal construction. Direct impacts include wetlands resulting from the actual dredging of the canal, the disposal of dredged spoil and any subsequent widening of the canal as a result of channel-bank erosion. Based on the study's findings, OCS-related direct impacts have accounted for 16% of all the direct impacts that have occurred in Louisiana's wetlands. Direct OCS impacts account for only 4%-5% of the total wetlands loss during the period 1955/1956 to 1978. In recent years, more stringent construction regulations have required that pipelines installed across wetlands be backfilled with spoil material immediately after the pipeline is emplaced in its ditch. Direct impacts per unit length of OCS- related navigation canals are about 20 times greater than OCS pipeline canals. Indirect impacts are those that occur as a result of hydrologic changes (salinity and drainage regimes) brought on by canal construction. Indirect impacts from canals associated with the OCS program have been estimated as accounting for 4%-13% of the total amount of wetland loss that occurred in coastal Louisiana between 1955/56 to 1978.

Offshore seagrasses are not conspicuous in the Central and Western Gulf; however, fairly extensive beds may be found in estuarine areas behind the barrier islands throughout the Gulf. Seagrasses would be continuous around the entire periphery of the Gulf if it were not for the adverse effects of turbidity and low salinity of the Mississippi effluent from the delta to Galveston. In general, the vast majority of the benthos of the Central and Western Gulf consists of soft, muddy bottom dominated by polychaetes. Benthic habitats that are at the most risk to potential impacts from oil and gas operations are those of the topographic features, and the pinnacle trend live bottom.

The term offshore sensitive resources refers both to the water column and the seafloor. Seafloore (benthic) habitats are the most likely to be adversely affected by the offshore oil and gas operations, especially live-bottom areas, deep-water benthic communities, and topographic features. The northeastern portion of the Central Gulf of Mexico exhibits a region of topographic relief, the "pinnacle trend," between 67 and 110 m (220 and 360 ft) depth. The pinnacles appear to be carbonate reefal structures in an intermediate stage between growth and fossilization. The region contains a variety of features from low to major pinnacles, as well as ridges, scarps,and relict patch reefs. It has been postulated that these features were built during lower stands of the sea during the rise in sea level following the most recent ice age. The heavily indurated pinnacles provide a surprising amount of surface area for the growth of sessile invertebrates and attract large numbers of fish.

The pinnacles are found at the outer edge of the Mississippi-Alabama shelf between the Mississippi River and DeSoto Canyon. The bases of the pinnacles rise from the seafloor between 50 and 100 m with vertical relief occasionally in excess of 20 m. These features exist in turbid water and contain limited biotal coverage. Pinnacles photographed in 1985 showed biota similar to the transitional antipatharian-zone assemblage described by Rezak (CSA, 1985). These pinnacles may provide structural habitat for a variety of pelagic fish.

With the exception of the region defined as the pinnacle-trend areas,the substrate in waters shallower than 67 m of the Central Gulf is a mixture of mud and/or sand. The live-bottom survey required by MMS and conducted in the eastern portions of the area have also revealed sand or mud substrate. These areas are not conducive to "live-bottom" community growth since a hard substrate is needed for epifaunal attachment. As the substrate grades to carbonate sand in the Eastern Gulf, the potential for "live bottoms" increases.

Chemosynthetic clams, mussels, and tube worms, similar to the hydrothermal vent communities of the eastern Pacific have been discovered in the deep waters of the Gulf. These cold-water communities are associated with seismic wipe-out zones and hydrocarbon seep areas between water depths greater than 400 meters and 1,000 meters. Chemosynthetic communities have been a source of controversy over the past few years, in part because of the unusual environmental requirements and hypothesized sensitivity of the communities to oil and gas activities. The MMS requires site-specific surveys of bottom-disturbing actions in water depths grater than 400 m in order to judge the potential of the region for supporting chemosynthetic organisms. In accordance with NTL 88-11, SCANA Petroleum Resources, Inc. will review these blocks for any site-specific activities.

The shelf and shelf edge of the Central and Western Gulf are characterized by topographic features which are inhabited by benthic communities. The habitat created by the topographic features is important because they support hard-bottom communities of high biomass, high diversity, and high numbers of plant and animal species; they support, either as shelter, food, or

both, large numbers of commercially and recreationally important fishes; they are unique to the extent that they are small isolated areas of communities in the vast Gulf of Mexico; they provide a relatively pristine area suitable for scientific research; and they have an aesthetically attractive intrinsic value.

Seven distinct biotic zones on the banks of the Gulf have been identified. None of the banks contain all of the seven zones. The zones are divided into four categories dependent upon the degree of reef-building activity in each zone. The Central Gulf of Mexico lists 16 topographic features and the western Gulf of Mexico lists 23 topographic features. None of those listed are in or near the vicinity of the proposed operations in Mobile Block 865.

F. PIPELINES AND CABLES

As a prudent operator, SCANA Petroleum Resources, Inc. will conduct its operations in accordance with the provisions specified in Minerals Management Service Notice to Lessees 83-03 in order to avoid all pipelines and/or cables in the vicinity of the proposed operations.

G. OTHER MINERAL USES

The activities proposed for Mobile Block 865 will have no direct or indirect impact on other mineral uses.

H. OCEAN DUMPING

The Marine Pollution Research and Control Act of 1987 implements Annex V of the International Convention for the Prevention of Pollution from Ships. Most of the law's regulatory provisions became effective on December 31, 1988. Under provisions of the law, all ships and watercraft, including all commercial and recreational fishing vessels, are prohibited from dumping plastics at sea. The law also severely restricts the legality of dumping other vessel-generated garbage and solid waste items both at sea and in U.S. navigable waters. The USCG is responsible for enforcing the provisions of this law and has developed final rules for its implementation, calling for adequate trash reception facilities at all ports, docks, marinas, and boat launching facilities.

Interim final rules published May 2, 1990 explicitly stated that fixed and floating platforms or all drilling rigs, manned production platforms, and support vessels operating under a Federal oil and gas lease are required to develop Waste Management Plans and to post placards reflecting MARPOL, Annex V dumping restrictions. Waste Management Plans will require oil and gas operators to describe procedures for collecting, processing, storing, and discharging garbage and to designate the person who is in charge of carrying out the plan. These rules also apply to all oceangoing ships of 40 ft or more in length that are documented under the laws of the U.S. or numbered by a State and that are equipped with a galley and berthing. Placards noting discharge limitations and restrictions, as well as penalties for noncompliance, apply to all boats and ships 26 ft or more in length. Furthermore, the Shore Protection Act of 1988 requires ships transporting garbage and refuse to assure that the garbage and refuse is properly contained on board so that it will not be lost in the water from inclement wind or water conditions.

The disposal of oil and gas operational wastes is managed by USEPA through regulations established under three Federal Acts. The Resource Conservation and Recovery Act (RCRA) provides a framework for the safe disposal of discarded materials, regulating the management of solid and hazardous wastes. The USEPA has exempted many oil and gas wastes from coverage under hazardous wastes regulations under Subtitle C of RCRA. If covered, such wastes would be more stringently regulated under hazardous waste rules, i.e., industry would be responsible for the wastes from their generation to their final disposal. Exempt wastes include those generally coming from an activity directly associated with the drilling, production, or processing of a hydrocarbon product. Nonexempt oil and gas wastes include those not unique to the oil and gas industry and used in the maintenance of equipment.

The direct disposal of operational wastes into offshore waters is limited by USEPA under the authority of the Clean Water Act. And, when injected underground, oil and gas operational wastes are regulated by USEPA's third program, the Underground Injection Control program.

A general NPDES, based on effluent limitation guidelines, is required for direct disposal of operational wastes into offshore waters. The major discharges from offshore oil and gas exploration and production activities include produced water, drilling fluids and cuttings, ballast water, and storage displacement water. Minor discharges from the offshore oil and gas industry include drilling-waste chemicals, fracturing and acidifying fluids, and well completion and workover fluids; and from production operations, produced sand, deck drainage, and miscellaneous well fluids (cement, BOP fluid); and other sanitary and domestic wastes, gas and oil processing wastes, and miscellaneous discharges.

I. ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT

Twenty-nine species of cetaceans, one sirenian, and one exotic pinniped (California sea lion) have been sighted in the northern Gulf of Mexico. Seven species of baleen whales have been reported in the Gulf of Mexico. These include the northern right wale and six species of balaenopterid whales (blue, fin, sei, Bryde's, minke and humpback).

Sightings and strandings of these species in this area are uncommon, though historical sightings and strandings census data suggest that they more often frequent the north-central Gulf region in comparison to the other areas of the Gulf.

Twenty-two species of toothed whales and dolphins have been reported in the Gulf of Mexico. These include the great sperm whale; pygmy and dwarf sperm whales; four species of beaked whales (Cuviers, Gervais', Blainville's, and Sowerby's); killer whale; false and pygmy killer whale; short-finned pilot whale; grampus (Risso's dolphin); melon-headed whale; and nine other species of delphinid dolphins (bottlenose, Atlantic spotted, pantropical spotted, spinner, clymene, striped, common, Fraser's and rough-toothed). Many of these species are distributed in warm temperate to tropical waters throughout the world.

Six species of baleen whales (northern right, blue, fin, sei, minke, and humpback) and one species of toothed whales (sperm whale) found within the Gulf of Mexico are currently listed as endangered species under the provisions of the U.S. Endangered Species Act of 1973. All are uncommon to rare in the Gulf except for the sperm whale.

A component of the ongoing GULFCET study will include an attempt to tag and track a limited number of sperm whales within the continental slope area of the north-central and northwestern Gulf using satellite telemetry to determine seasonal movements, diving behavior, and preferred habitat.

The Alabama, Choctawhatchee, and Perdido Key beach mice, subspecies of the old field mouse, occupy restricted habitats in the mature coastal dunes of Florida and Alabama. The beach mice feed nocturnally on the lee side of the dunes and remain in burrows during the day. Seeds are the major item of their diet.

The green turtle population in the Gulf once supported a commercial harvest in Texas and Florida, but the population has not completely recovered since the collapse of the fishery around the turn of the century. Green turtles prefer depths of less than 20 m, where seagrasses and algae are plentiful. Leatherbacks, the most oceanic of the marine turtles, occasionally enter shallow water in more northern areas. Their nesting is concentrated on coarse-grain beaches in the tropical latitudes.

The hawksbill is the least commonly reported marine turtle in the Gulf. Texas is the only Gulf state where stranded turtles are regularly reported. The Kemp's ridley sea turtle is the most imperiled of the world's marine turtles. Nesting in the United States occurs infrequently on Padre and Mustang Islands in south Texas from May to August.

Female Kemp's ridleys appear to inhabit nearshore areas, and congregations of Kemp's have been recorded off the mouth of the Mississippi River. Juvenile ridleys that were recently tagged and released in Atlantic habitats deomonstrated movements southward along the coast of Florida (NMFS Newsbreaker, 1993), but to date their re-migration to the Gulf is unverified.

The loggerhead sea turtle appears worldwide in habitats ranging from estuaries to the continental shelf. Aerial surveys indicate that loggerheads are common in less than 50m depths, but they are also found in deep water. In the Gulf of Mexico, recent surveys indicate that the Florida Panhandle accounts for approximately one-third of the nesting on the Florida Gulf Coast. In the Central Gulf, loggerhead nesting has been reported on Gulf Shores and Dauphin Island, Alabama; Ship Island, Mississippi; and the Chandeleur Islands, Louisiana. Nesting in Texas occurs primarily on North and South Padre Island, although occurrences are recorded throughout coastal Texas.

The recently designated Archie Carr National Wildlife Refuge in Brevard and Indian River Counties, Florida, hoses the largest concentration of nesting loggerhead and green sea turtles in the United States. It is believed to be the second largest nesting beach for loggerheads inthe world.

The offshore waters, coastal beaches, and contiguous wetlands of the northern Gulf of Mexico are populated by both resident and migratory species of coastal and marine birds separated into five major groups: seabirds, shorebirds, wading birds, marsh birds and waterfowl. The following coastal and marine bird species which inhabit or frequent the north-central and western Gulf of Mexico coastal area and recognized by the Fish and Wildlife Service as either endangered or threatened are: piping plover, whopping crane, eskimo curlew, bald eagle, peregrine falcon, eastern brown pelican, and interior least tern.

Those birds most susceptible to oiling either raft at sea, such as gulls and terns, or dive when disturbed, such as cormorants and boobies. Migrant and nonmigrant coastal and marine birds populate the beaches and wetlands of the northern Gulf of Mexico. This broad category consists of three main groups: waterfowl, wading birds, and marine birds. Feeding habitats include the waters and coastal shores of the open Gulf, bays, and estuaries, brackish and freshwater wetlands, as well as coastal farmlands and landfills.

The piping plover is endangered in the Great Lakes watershed and threatened elsewhere. Its historic populations have remained depressed because of losses to their beach and nesting habitat. On the Gulf Coast, Texas and Louisiana have the largest numbers and highest wintering densities. There, the plover prefers intertidal flats and beaches for its habitat. Piping plovers are susceptible to contact with spilled oil because of their preference for feeding in intertidal areas.

The whooping crane breeding population winters along the Texas coast from November to April, occupying the coastal marshes of Aransas, Calhoun, and Matagorda Counties. Portions of these counties and the Aransas National Wildlife Refuge have been designated as critical habitat for the whooping crane.

The Arctic peregrine falcon is a subspecies of the peregrine falcon, which breeds in North American tundra. A portion of the population migrates along the Central, Mississippi, and Eastern flyways to winter on the U.S. and Mexican gulf coasts. The birds concentrate along beaches and barrier islands.

Bald eagles are found throughout the Gulf States. Bald eagles actively nest in upland and wetland areas 30-50 miles from the coast throughout the Gulf. Bald eagles inhabit areas near water although they rarely nest on the coast. They prey on birds, fish, and small mammals.

Historically, two nestings have occurred along the Mississippi coast. In northwestern Florida, coastal nesting occurs at St. Vincent, St. Marks, and lower Suwannee National Refuges. Brown pelicans have been removed from the Federal endangered species list in Alabama and Florida but remain listed as endangered in Mississippi, Louisiana, and Texas. Their decline is primarily the result of hatching failure caused be ingestion of fish containing pesticides Nesting occurs in colonies on coastal islands. Six brown pelican rookeries have been documented in Louisiana: on Queen Bess, North, Last, Calumet-Timbalier, and Grand Gosier Islands, and at South Pass. There is also a small rookery on Pelican Island in Nueces County, Texas. Unsuccessful nesting has occurred on Sunset Island in Matagorda Bay, and 40 hatchlings have been reintroduced to San Bernard National Wildlife Refuge. Brown pelicans inhabit the coast, rarely venturing into freshwater or flying more than 32 km (20 miles) offshore. They feed by plunge-diving to catch fish near the surface.

J. SOCIOECONOMIC

In relation to oil and gas activity in the Gulf of Mexico, the exploration and production of crude oil and gas is classified as a primary industry. Classified as secondary industries are activities associated with the processing of crude oil and gas in refineries, natural gas plants, and petrochemical plants.

The production of OCS oil and gas, particularly offshore Louisiana, has been a major source of revenue in the study area since 1954. Data from the 1987 Census show that the average annual

payroll associated with oil and gas activities amounts to approximately $2.2 billion for the Gulf of Mexico Region ($1.7 billion for the Central Gulf, $0.6 billion for the Western Gulf, and $2.2 million for the Eastern Gulf). Average annual tax dollars generated per employee in the offshore oil and gas program are estimated at 8% of payroll revenues. Thus, State and local taxes generated annually by the Federal offshore oil and gas program are estimated at $134.7 million from the Central Gulf, $44.3 million from the Western Gulf, and $0.2 million from the Eastern Gulf.

Job estimates as of June 1991 show that 83,400 jobs are directly or indirectly dependent on the offshore program. Approximately 80% of these jobs are associated with activity in the Central Gulf and 20% are related to the Western Gulf. Nearly all offshore-related employment in the Central Gulf is due to activity offshore Louisiana; In addition, offshore activity in other areas of the Gulf also generates employment in Louisiana. Estimates of direct employment offshore are 30,000 workers in the Central Gulf, and 7,500 workers in the Western Gulf.

The offshore oil exploration industry including oil companies, drilling contractors, and oilfield suppliers provide a major input to Louisiana's economy. A number of ports in the Central and Western Gulf have developed into important centers for offshore support. The most active of these in Louisiana are (from east to west) Venice, Morgan City, Intracoastal City, and Cameron, Louisiana. The onshore support base for operations in Mobile Block 865 will be Theodore, Alabama.

The MMS sponsored a socioeconomic workshop in September, 1992 designed to provide a recommended social and economic studies agenda for the region. A total of 18 proposed studies were designed by participants in hopes of defining gaps in the understanding of social and economic impacts of the OCS oil and gas industry in the Region and to provide a mechanism to provide this information to decision makers.

III. UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

A. WATER QUALITY

Routine operational discharges (drilling muds and cuttings, produced waters, deck drainage and sanitary and domestic wastes) or accidental oil spills may temporarily degrade some measures of water quality adjacent to the proposed surface location. However, these impacts decrease to very low with distance from the source. Therefore, the impact level from these factors is considered to be low.

B. EFFECTS ON MARINE ORGANISMS

Some organisms will be killed and some will be temporarily functionally impaired as a result of operational discharges. The most affected groups will be plankton and benthos immediately around the proposed surface locations. Damage will be both mechanical and toxicological. These communities are widespread throughout the deep-water areas of the Gulf. These impacts are considered to be localized, short term and reversible at the population level.

An oil spill could affect a broad spectrum of marine organisms. However, most effects would be localized and short term. Any effects on mammals and turtles would be significant.

C. EFFECTS ON THREATENED OR ENDANGERED SPECIES

Activities resulting from the proposed action have a potential to cause detrimental effects on endangered cetaceans. These cetaceans could be impacted by operational discharges, helicopter and vessel traffic, platform noise, explosive platform removals, seismic surveys, oil spills, and oil-spill response activities. The effects of the majority of these activities are estimated to be sublethal, and expected impact levels range from low to very low. Sale-related oil spills of any size are expected to seldom contact endangered and threatened cetaceans.

Activities resulting from the proposed action have a potential to affect Alabama, Choctawhatchee, and Perdido Key beach mice detrimentally. Beach mice could be impacted by oil spills and oil-spill response activities. It is expected that there will seldom be interaction between these events and beach mice or their habitats.

Activities resulting from the proposed action have a potential to affect marine turtles detrimentally. Marine turtles could be impacted by anchoring, structures installation, pipeline placement, dredging, operational discharges, OCS-related trash and debris, vessel traffic, explosive platform removals, oil-spill response activities and oil spills. The effects of the majority of these activities are expected to be sublethal. Sale-related oil spills of any size are seldom expected to contact marine turtles.

Activities resulting from the proposed action have the potential to affect Central Gulf coastal and marine birds detrimentally. It is expected that the effects from the major impact-producing factors on coastal and marine birds are negligible and of nominal occurrence. As a result, there will be no discernible disturbance to Gulf coastal and marine birds.

The brown pelican, arctic peregrine falcon, bald eagle, and piping plover may be impacted by helicopter and service-vessel traffic, offshore pipeline landfalls, entanglement in and ingestion of offshore oil- and gas-related plastic debris, and oil spills. The effects of these activities are expected to be sublethal. Sale-related oil spills of any size are expected to seldom contact threatened and endangered birds or their critical feeding, resting, or nesting habitats.

The Gulf sturgeon can be impacted by oil spills resulting from the proposed action. The impact is expected to result in sublethal effects and cause short-term physiological or behavioral changes.

D. WETLANDS AND BEACH

The major impact-producing factors associated with the proposed action that could affect barrier landforms include oil spills, pipeline emplacements, navigation canal dredging and maintenance dredging, and support infrastructure. Impacts from onshore and nearshore construction of OCS-related infrastructure (pipeline landfalls, navigation channels, service bases, platform yards, etc) are not expected to occur, because no new infrastructure construction is anticipated as a result of the proposed action. Although some maintenance dredging is expected to occur, this activity has not been shown to have a negative impact on barriers, and the need for dredging cannot be attributed to the small percentage of vessel traffic in these channels. Deepening of the channel to Port Fourchon is not expected to affect nearby barrier features.

The proposed activities are not expected to result in permanent alterations of barrier beach configurations, except in localized areas downdrift from navigation channels that have been dredged and deepened. The contribution to this localized erosion is expected to be less than 1%.

Wetlands include forested wetlands (swamps), tidal marshes, and seagrasses. Swamps and marshes occur throughout the coastal zone. Seagrasses are restricted in distribution to small areas behind barrier islands in Mississippi and Chandeleur Sounds. Impact-producing factors resulting from OCS oil and gas activities that could adversely affect wetlands include oil spills, onshore discharge of OCS-produced waters, pipeline placements, dredging of new navigation channels, maintenance dredging and vessel usage of existing navigation channels, and construction of onshore facilities in wetland areas.

The proposed activities are expected to result in a small amount of dieback and mortality of wetlands vegetation as a result of contacts from oil spills. Most of these wetlands will recover within 10 years and the remaining will be converted to open water. Some wetlands are projected to be eroded along channel margins as a result of OCS vessel wake erosion, and some wetlands are projected to be created as a result of beneficial disposal of dredged material from channel-deepening projects.

E. AIR QUALITY

The potential degrading effects on air quality from onshore and offshore operational activities are platform emissions; drilling activities during exploration, delineation, and development; service vessel operation; evaporation of volatile hydrocarbons from surface oil slicks; and fugitive emissions during hydrocarbon venting and offloading.

Emissions of pollutants into the atmosphere for these activities are likely to have minimum impact on offshore air quality because of prevailing atmospheric conditions, emission heights, and pollutant concentrations. Onshore impact on air quality from emission from OCS activities is estimated to be negligible because of the atmospheric regime, the emission rates, and distance of these emissions from the coastline. The above discussion is based on average conditions; however, there will be days of low mixing heights and wind speeds that could increase impact levels. These conditions are characterized by for formation, which in the Gulf occurs about 35 days a year, mostly during winter. Impact from these conditions is reduced in winter because the onshore winds have the smallest frequency (37%) and rain removal is greatest. Summer is the worst time, with onshore winds having a frequency of 61%. Emissions of pollutants into the atmosphere are expected to have concentrations that would not change the onshore air quality classifications.

F. COMMERCIAL FISHING

The major impact producing factors on fishing activities from the proposed operations is structure placement, oil spills, production platform removals, seismic surveys, subsurface blowouts, OCS discharges of drilling muds and produced waters, and underwater OCS obstructions.
The effects on and the extent of damage from an oil spill to Gulf commercial fisheries is restricted by time and location. Oil spills that contact coastal bays, estuaries, and waters of the OCS when high concentrations of pelagic eggs and larvae are present have the greatest potential to damage commercial fishery resources. Migratory species, such as mackerel, cobia, and crevalle could be impacted if oil spills contact nearshore open waters. The majority of the Gulf's fishes are

estuary dependent. The effects from an oil spill contacting a large area of a Gulf estuary would be considerable on local populations of commercial fishery resources, such as menhaden, shrimp, and blue crabs, that use that area as a nursery and/or spawning ground. The effects from chronic oiling in Gulf coastal wetlands would be substantial on all life stages of a local population of a sessile fishery resource such as oysters.

The emplacement of a structure, with a surrounding 100-m navigational safety zone, results in the loss of approximately 6 ha of bottom trawling area to commercial fishermen and causes space-use conflicts. Gear conflicts from underwater OCS obstructions result in losses of trawl and shrimp catch, business downtime, and vessel damage.

Commercial fishery resources may also be affected by the discharge of drilling muds which may contain material toxic to marine fishes; however, this is only at concentrations four or five orders of magnitude higher than those found more than a few meters from the discharge point. Further dilution is extremely rapid in offshore waters.

Activities resulting from the proposed action have the potential to cause detrimental effects to Central Gulf commercial fisheries. It is expected that the effects from the major impact-producing factors on commercial fisheries in the CPA are inconsequential and of nominal occurrence. As a result, there will be little discernable disturbance to Gulf commercial fisheries.

G. SHIP NAVIGATION

Very little interference can be expected between the drilling unit, structures and marine vessels utilized during development operations and ships that use established fairways. However, at night and during rough weather, fog, and heavy seas, ships not using established fairways could collide with the structures.

Approved aids to navigation will be installed on the structure and all marine vessels servicing these operations in accordance with USCG regulations.

H. CULTURAL RESOURCES

The greatest potential impact to an historic and/or prehistoric archaeological resource as a result of the proposed action would result from a contact between an OCS offshore activity (platform installation, drilling rig emplacement, dredging or pipeline project) and a historic shipwreck.

The OCS activity could contact a shipwreck because of incomplete knowledge on the location of shipwrecks in the Gulf. Although this occurrence is not probable, such an event would result in the disturbance or destruction of important historic archaeological information. Other factors associated with the proposed action are not expected to affect historic archaeological resources.

The archaeological surveys required prior to an operator beginning oil and gas activities in a lease block are estimated to be 90% effective as identifying possible sites.

The evaluation of the high resolution survey data for this area indicates that no formerly subaerially exposed landforms which would represent high probability areas for the occurrence of prehistoric archaeological sites.

There is a high probability that an unknown cultural resource exists in the lease area.

SCANA Petroleum Resources, Inc., as a prudent operator, agrees that should any site, structure, or object of historical or archaeological significance be discovered during drilling and exploration activities within the lease, such findings would immediately be reported to the Director, Gulf of Mexico OCS Region, and every reasonable effort would be made to preserve and protect the cultural resources from damage until said Director has given directions as to its preservation.

I. RECREATION AND AESTHETIC VALUES

The drilling rig and marine vessels may represent an obstacle to some sport fisherman, but such effect is expected to be negligible and not permanent.

Even though existing regulations and orders prohibit indiscriminate littering of the marine environment with trash, offshore oil and gas operations involving men, machines, equipment, and supplies is bound to result in some littering of the ocean. Human nature and accidents associated with offshore operation will contribute some floatable debris to the ocean environment which will eventually come ashore on major recreational beaches.

The effects that normal operations or a minor oil spill would have any fish stocks important to sport fishermen are also considered to be negligible.

A few oil spills greater than 1 and less than or equal to 50 bbls are assumed to affect portions of CPA beaches, with little disruption of recreational activities. Marine debris will be lost from time to time. However, the impact from the resulting intermittent pollution wash up on Louisiana and Texas beaches should be very low. A drilling rig and production platform in the nearshore area off Louisiana and Mississippi could also impact the natural seascape from some wilderness beaches. Helicopter and vessel traffic will add very little additional noise pollution likely to affect wilderness beach users.

The proposed action is expected to result in minor pollution events and nearshore operations that may adversely affect the enjoyment of some beach users on Texas and Louisiana beaches.

IV. SUMMARY

The proposed activity will be carried out and completed with the guarantee of the following items.

A. The best available and safest technologies will be utilized throughout the project. This includes meeting all applicable requirements for equipment types, general project layout, safety systems, and equipment and monitoring systems.

B. All operations are covered by a Minerals Management Service approved Oil Spill Contingency Plan.

C. All applicable Federal, State, and Local requirements regarding air emission and water quality and discharge for the proposed activities, as well as any other permit conditions, will be complied with.

D. The proposed activities described in detail in the Supplemental Development Operations Coordination Document will comply with Alabama's Coastal Management Program and will be conducted in a manner consistent with such Program.

REFERENCES

1. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 110 and 112, Gulf of Mexico OCS Region, OCS EIS, MMS 86-0087.

2. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 110 and 112, Gulf of Mexico OCS Region, OCS EIS, MMS 86-0087, visuals.

3. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 113, 115, and 116, Gulf of Mexico OCS Region, OCS EIS, MMS 87-0077.

4. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 118 and 122, Gulf of Mexico OCS Region, OCS EIS, MMS 88-0044.

5. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 123 and 125, Gulf of Mexico OCS Region, OCS EIS, MMS 89-0053.

6. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 131, 135 and 137, Gulf of Mexico OCS Region, OCS EIS, MMS 90-0042.

7. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 139 and 141, Gulf of Mexico OCS Region, OCS EIS, MMS-91-0054.

8. Final Environmental Impact Statement, Proposed Oil and Gas Lease Sales 142 and 143, Gulf of Mexico OCS Region, OCS EIS, MMS-92-0054.

COASTAL ZONE MANAGEMENT

CONSISTENCY CERTIFICATION

Supplemental Development
OPERATIONS COORDINATION DOCUMENT

MOBILE Block 865

Lease OCS-G 6847

The proposed activities described in this Plan comply with Alabama's approved Coastal Zone Management Program and will be conducted in a manner consistent with such Program.

SCANA PETROLEUM RESOURCES, INC.

October 8, 1994

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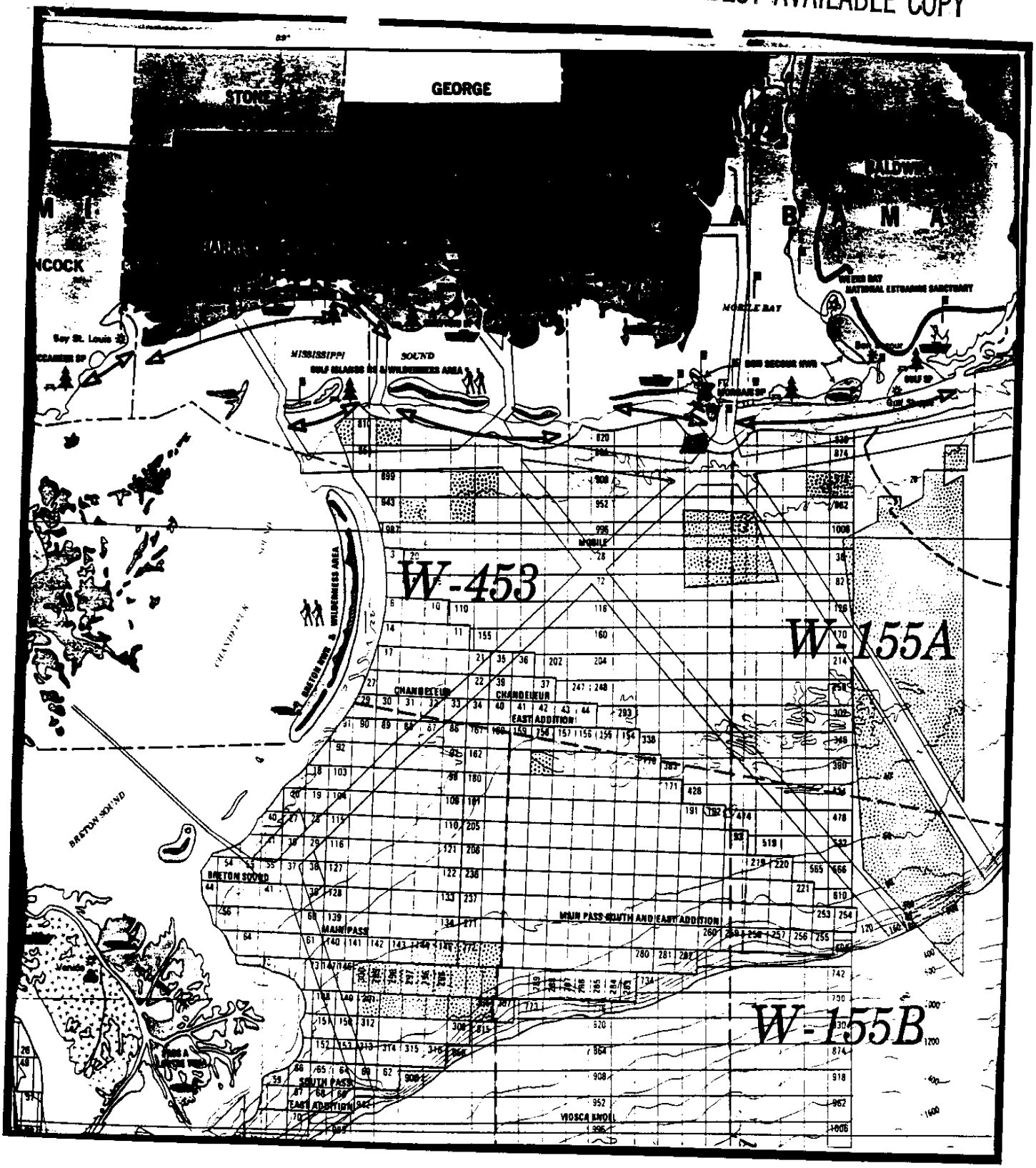

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SCALE

SCANA PETROLEUM RESOURCES, INC.

MOBILE BLOCK 865

VICINITY PLAT

SHOREBASE: THEODORE, LA

DLS:10/10/94

ATTACHMENT L