UNITED STATES GOVERNMENT MEMORANDUM

August 6, 2004

To:

Public Information (MS 5034)

From:

Plan Coordinator, FO, Plans Section (MS

5231)

Subject:

Public Information copy of plan

Control #

N-08158

Type

Initial Exploration Plan

Lease(s)

OCS-G25139 Block - 320 Green Canyon Area

Operator

Kerr-McGee Oil & Gas Corporation

Description -

Wells A, B, C, D, and E

Rig Type

SEMISUBMERSIBLE

Attached is a copy of the subject plan.

It has been deemed submitted as of this date and is under review for approval.

June miles Michelle Griffitt Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
WELL/A	G25139/GC/320	3738 FSL, 882 FEL	G25139/GC/320
WELL/B	G25139/GC/320	9184 FSL, 3610 FEL	G25139/GC/320
WELL/C	G25139/GC/320	1245 FSL, 11730 FEL	G25139/GC/320
WELL/D	G25139/GC/320	5182 FSL, 9951 FEL	G25139/GC/320
WELL/E	G25139/GC/320	2754 FSL, 5087 FEL	G25139/GC/320

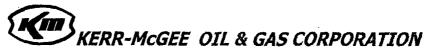
natural co

ISS AUG 6\*04AM10\*56

N-8158

Phone: 281/673-6338

Fax: 281/673-4338



16666 Northchase · Houston, Texas 77060

Cary V. Bradford Manager of Regulatory Affairs GOM and North America Region

July 20, 2004

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

Attention:

Mr. Nick Wetzel

Plans Unit

RE: Initial Exploration Plan for Lease OCS-G 25139, Green Canyon Block 320, OCS Federal Waters, Gulf of Mexico, Offshore, Louisiana

#### Gentlemen:

In accordance with the provisions of Title 30 CFR 250.203 and that certain Notice to Lessees (NTL 2003-G17), Kerr-McGee Oil & Gas Corporation (Kerr-McGee) hereby submits for your review and approval an Initial Exploration Plan (Plan) for Lease OCS-G 25139, Green Canyon Block 320, Offshore, Louisiana. Excluded from the Public Information copies are certain geologic and geophysical discussions and attachments.

Enclosed are two Proprietary Information copies (one hard copy and one CD) and two Public Information copies (one hard copy and one CD) of the Plan.

Contingent upon receiving regulatory approvals and based on equipment and personnel availability, Kerr-McGee anticipates operations under this Plan commencing as early as October 1, 2004.

Should additional information be required, please contact the undersigned, or our regulatory consultant, Christine Groth, R.E.M. Solutions, Inc., at 281.492.8562.

CONTROL NO. N - 415 8

Sincerely,

Cary V. Bradford

CVB:CAG:mjs
Attachments

REVIEWER: Michelle Griffitt PHONE: (504) 736-2975

Public Information

# KERR-MCGEE OIL & GAS CORPORATION

16666 Northchase Drive Houston, Texas 77060

Cary V. Bradford cbradford@kmg.com

# INITIAL EXPLORATION PLAN

LEASE OCS-G 25139

GREEN CANYON BLOCK 320

(CHILKOOT PROSPECT)

#### PREPARED BY:

Christine Groth
R.E.M. Solutions, Inc.
17171 Park Row, Suite 390
Houston, Texas 77084
281.492.8562 (Phone)
281.492.6117 (Fax)
christine@remsolutionsinc.com

DATED:

July 22, 2004

# SECTION A Plan Contents

# A. <u>Description</u>, Objectives and Schedule

Lease OCS-G 25139, Green Canyon Block 320 was acquired by Kerr-McGee Oil & Gas Corporation, Ocean Energy, Inc. and Union Oil Company of California at the Central Gulf of Mexico Lease Sale No. 185 held on March 19, 2003. The lease was issued with an effective date of July 1, 2003 and a primary term ending date of June 30, 2013.

The current lease operatorship and ownership are as follows:

Area/Block Lease No.	Operator	Ownership				
Green Canyon Block 320 Lease OCS-G 25139	Kerr-McGee Oil & Gas Corporation	Kerr-McGee Oil & Gas Corporation Devon Louisiana Corporation Union Oil Company of California				

Kerr-McGee proposes to drill, complete, and potentially test Well Locations A, B, C, D and E in Green Canyon Block 320. Information pertaining to the geological targets, including a narrative of trapping features, is included as *Attachment A-1*.

# B. Location

Attachments A-2 through A-4 is Form MMS-137 "OCS Plan Information Form", well location plat, and bathymetry map (original copy only) detailing the proposed well surface location disturbance areas with proposed anchor radius of semi-submersible rig.

# C. Drilling Unit

Kerr-McGee will utilize a typical semi-submersible drilling rig for the proposed drilling, completion and testing operations provided for in this Plan. Actual rig specifications will be included with the Applications for Permit to Drill.

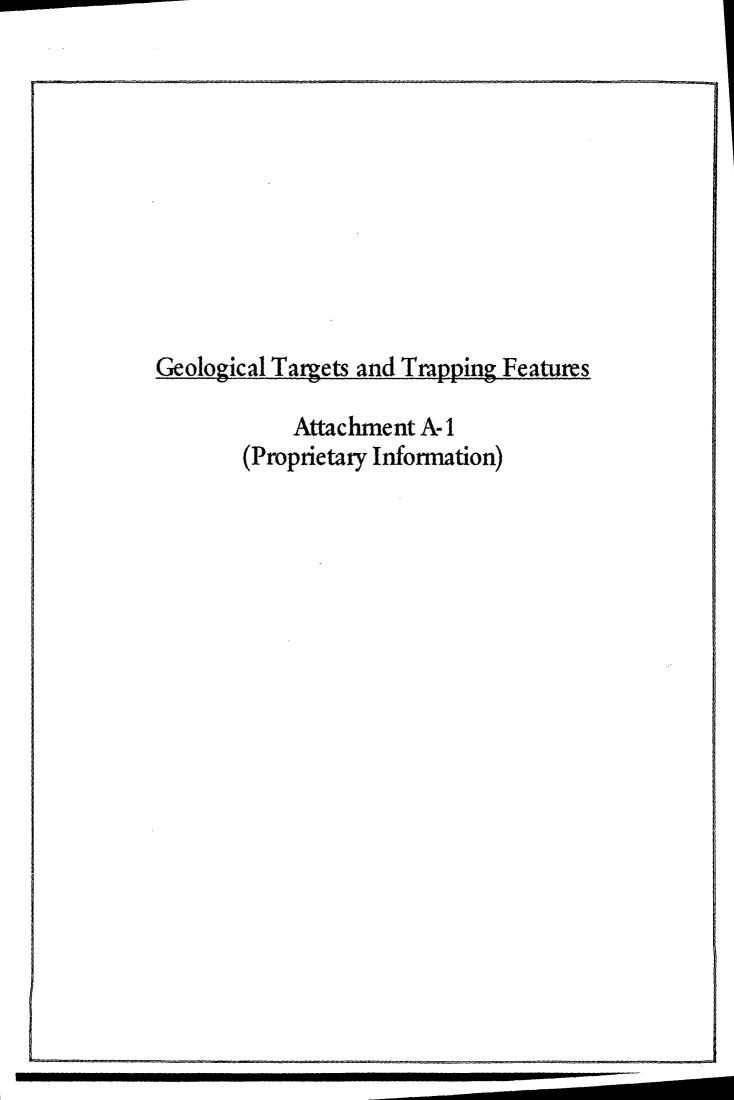
Safety of personnel and protection of the environment during the proposed operations is of primary concern with Kerr-McGee, and mandates regulatory compliance with the contractors and vendors associated with the proposed operations as follows:

Minerals Management Service regulations contained in Title 30 CFR Part 250, Subparts C, D, E, and O mandate the operations comply with well control, pollution prevention, construction and welding procedures as described in Title 30 CFR Part 250, Subparts C, D, E, and O; and as further clarified by MMS Notices to Lessees.

# SECTION A Contents of Plan - Continued

Minerals Management Service conducts periodic announced and unannounced onsite inspections of offshore facilities to confirm operators are complying with lease stipulations, operating regulations, approved plans, and other conditions; as well as to assure safety and pollution prevention requirements are being met. The National Potential Incident of Noncompliance (PINC) List serves as the baseline for these inspections.

- U. S. Coast Guard regulations contained in Title 33 CFR mandate the appropriate life rafts, life jackets, ring buoys, etc., be maintained on the facility at all times.
- U. S. Environmental Protection Agency regulations contained in the NPDES General Permit GMG290000 mandate that supervisory and certain designated personnel on-board the facility be familiar with the effluent limitations and guidelines for overboard discharges into the receiving waters.



# OCS Plan Information Form Attachment A-2 (Public Information)

## OCS PLAN INFORMATION FORM

) Ti							Gen	eral In	form.	ation				1				
Туре	of OCS	Plan		XI	Exploration	n Plan (	EP)			Developme	nt Ope	rations C	cordin	natio	on Doc	umen	t (DC	OCD)
Comp	any Na	me:	Kerr N	1cGee	Oil & G	as Coi	pora	tion	MM	IMS Operation Number: 02219						,		
Addre	ss:		16666	North	chase				Contact Person: Christine Groth R.E.M. Solutions, In			Inc.						
			Houst	on, T	exas 7706	50			Pho	ne Number:	281.4	92.8562	,					
									E-M	ail Address:	christ	ine@rem	solutio	onsi	nc.con	1		
Lease(	ease(s): OCS-G 25139 Area: GC Block(s): 320 Project Name (If App						plic	able): (	Chilk	oot								
Object	ive(s):	Oil	X Ga	3	Sulphur	Sal	t C	Inshore	Base:	Fourchon	, LA	Distanc	e to C	lose	es Lanc	l (Mile	s):	100
Description of Proposed Activities (Mark all that apply)																		
X Exploration drilling Development drilling								3										
X	Well	completion									Install	lation of	produ	ctio	n platfo	orm		
X	Well	test flaring (	for more	than 48	3 hours)						Instal	ation of	produ	ctio	n facili	ties		
	Insta	llation of cai	sson or p	latform	as well pr	otection	ı stru	cture			Install	lation of	satellit	e st	ructure			
X	Insta	llation of sul	osea welll	eads a	nd/or man	ifolds					Comn	nence pr	oductio	on				
Installation of lease term pipelines Other (Specify and descri								ibe)										
7								X	No									
Do you propose to use new or unusual technology to conduct your activities?  Do you propose any facility that will serve as a host facility for deepwater subsea development?								Yes	X	No								
			<del></del>			<u>-</u> -										Yes	X	No
										oility archaeo						Yes Yes	X	No No
Have a	ul of th	e surface loc	ations of	your p	AND THE RESERVE OF THE PARTY OF				The sales are seen as	iewed and ap		by MMS	? 		V - 4	162	A	140
						S \$100 Property Color of	sche	dule of	Prop	osed Activ	Accepta Branch	45 J	T 7	1			T .	(D)
الترا	Com	oloto and T	act Wal		sed Activ	ity						t Date	<del></del>		Date			f Days
		olete and T									· · · · · · · · · · · · · · · · · · ·	1/2004	<del></del>		2004	90		
		olete and T										1/2005	+		2005	90		
		olete and T										0/2005	+		2005	90		
	<del>-</del>	olete and T										8/2005 7/2005	+		2005 2006	90		
		to the Edward ward over the		Fes. 8125-2504-2-2-1	ling Rig					Des		on of Pi				90 form		- 314
	Jack	The State State of the State of			7	Drillshi	p P			Caisson		2011-514-24-24-24		Ten	sion L	eg Pla	tform	1
	Goi	rilla Jackup				Platfort	n rig			Well protect	tor			Cor	npliant	towe	 r	
X		ni-submersib	· · · · · · · · · · · · · · · · · · ·						yed tov									
	DP	Semi-subme	rsible			Other ( descrip		h		Subsea man	ifold			Floa	ating p	roduci	ion s	ystem
Drillin	g Rig N	Name (if kno	wn): Un	know	1					Spar				Oth	er (Att	ach D	escri	ption)
					: PD	escript	ion (	of Leas	e Tei	m Pipeline	is .					1.		114
	Fn	om (Facility	/Area/E	lock)		T	o (Fa	acility/	Area/	Block)	Dian	neter (F	eet)		Le	ngth	(Fee	t)
N/A																		

## OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

1000			Proposed	Well/Structu	re Eocation								
Well or Structure	Name/N	umber (If r	enaming well or struct Well Location	-	revious name):	S	Subs	ea Completi	on				
Anchor Radius (if	applicabl	le) in feet:				Х	<b>(</b>	Yes		No			
	Surface I	ocation	Professional States		Bottom Hole Location (For Wells)								
Lease No.	OCS-G	25139			OCS-G 25139								
Area Name	Green C	anyon			Green Canyo	n							
Block No. 44	320				320								
Blockline Departures	N/S Dep	arture	3738' FSL		N/S Departure:	:							
(in feet)	E/W Dep	parture	882' FEL		E/W Departure	2:							
THE REAL PROPERTY AND THE PARTY OF THE PARTY	X:		2,185,038.00		X:								
coordinates	Y:		10,030,458.00		Y:		,,,,,						
	Latitude:		27° 37' 51.66"		Latitude								
Longitude	Longitude		-91° 19' 03.13"		Longitude								
	TVD (Fee	et):		MD (Feet):		W	Vate	er Depth (Fe	et):	2602'			
Anchor Locatio	ons for I	Drilling R	g or Construction	Barge (If and	hor radius sup	plied above	e, r	ot necessa	iry)				
Anchor Name or No.	Area	Block	X Coordinate		Y Coordinate	e		Ler Cha	igth o	of Anchor 1 Seafloor			
1	GC	365	2,191,513		10,026,382			320	0'				
2	GC	365	2,188,651		10,023,747			317:	5'				
3	GC	364	2,180,855		10,026,088			3150	)'				
4	GC	320	2,178,233		10,026,962			3150	)'				
5	GC	320	2,178,563		10,034,534			3175	5'				
6	GC	320	2,181,426		10,037,169			3175	5'				
7	GC	321	2,189,223		10,036,828			3175	5'				
8	GC	321	2,191,844		10,033,954			3150	)'				

## OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

			Proposed	Well/Structu	re Location							
Well or Structur	Name/N	lumber (If 1	renaming well or struct Well Location	•	revious name):	Sul	osea Comple	etion				
Anchor Radius (	if applicab	le) in feet:				X	Yes		No			
	Surface l	ocation		1	Bottom-Hole Loca	tion (For	Wells)					
Lease No.	OCS-G	25139			OCS-G 25139							
Area Name	Green (	Canyon			Green Canyon							
Block No.	320				320							
Blockline Departures	N/S Dep	arture	9184' FSL		N/S Departure:							
(in feet)	E/W Dej	parture	3610' FEL		E/W Departure:							
Lambert X-Y	X:		2,182,310.00		X							
coordinates	Y:		10,035,904.00		Y:							
Latitude /	Latitude:		27° 38' 45.95"	:	Latitude							
Longitude	Longitud	e	-91° 19' 32.64"		Longitude							
	TVD (Fe	et):		MD (Feet):		Wa	ter Depth (I	eet):	2614'			
Anchor Locat	ions for I	<mark>Filling R</mark>	ig or Construction	Barge (If anc	nor radius supplied	l aboye,	not neces	sary)	1			
Anchor Name or No.	Area	Block	X Coordinate		Y Coordinate		L <sub>6</sub>	ngth o	of Ancho n Seafloo			
1	GC	321	2,187,645		10,030,040		34	34'				
2	GC	320	2,184,042		10,028,260		33	80'				
3	GC	320	2,176,430		10,030,752		33	80'				
4	GC	320	2,174,581		10,034,304		33	98'				
5	GC	320	2,176,998		10,041,741		33	98'				
	GC	276	2,180,554		10,043,657		34	70'				
6	4		<del></del>		10.041.10/		24	34'				
6 7	GC	321	2,188,245		10,041,106		34	J4				

#### OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

en fact to a compare of				Well/Structur	product control of the control of th			10001				
Well or Structure	Name/N	umber (If r	renaming well or struct	•	vious name):	Sub	Subsea Completion					
			Well Location	<u>C</u>		_	·		<del></del>			
Anchor Radius (i						X	Yes		No			
relativistica de la constanti	Surface I	cocation			Bottom-Hole Location (For Wells)							
Lease No.	OCS-G	25139			OCS-G 25139							
Area Name	Green C	anyon			Green Canyon							
Block No.	320				320							
Blockline Departures	N/S Dep	arture	1245' FSL		N/S Departure:							
(in feet)	E/W Deg	oarture	11,730' FEL		E/W Departure:							
	X:		2,174,190.00		X:							
coordinates	Y:		10,027,965.00		Y:							
	Latitude:		27° 37' 28.42"		Latitude							
Longitude -	Longitude	?	-91° 21' 04.11"		Longitude							
	TVD (Fee	et):		MD (Feet):		Wat	er Depth (F	eet):	2874'			
Anchor Locati	ons for I	Drilling R	ig or Construction	Barge (If anch	or radius supplied:	above,	not necess	ary)				
Anchor Name or No.	Area	Block	X Coordinate		Y Coordinate				of Anchor 1 Seafloor			
1	GC	364	2,179,696		10,022,517		33.	30'				
2	GC	364	2,176,272		10,020,602		32	35'				
3	GC	363	2,168,755		10,022,679		324	45'				
4	GC	363	2,166,861		10,026,044		32:	20'				
5	GC	319	2,168,729		10,033,366	<del></del>	328	85'				
	GC	320	2,172,074		10,035,453		333	75'	<del></del>			
6		<del> </del>	2 170 000	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	10,029,434		34	10'				
7	GC	320	2,179,808		1							
	GC	320 320	2,179,808		10,029,954		339	90'				

## OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

Well or Structure	Name/N	Tumber (If 1	enaming well or structur		vious name):	Sul	osea Comple	tion				
Anchor Radius (	if applicab	le) in feet	Well Location D	<del></del>	<del></del>	$\frac{1}{\mathbf{x}}$	Yes	<del></del>	No			
Thener Tuestes (	erica de combinado de Colora Como Si	Location			Bottom-Hole Locati							
Lease No.	OCS-G				OCS-G 25139							
Area Name	Green (				Green Canyon							
Block No.	320			<del></del>	320							
Blockline : Departures	N/S Dep	parture	5182' FSL		N/S Departure:							
(in feet)	E/W De	parture	9951' FEL	]	E/W Departure:							
Lambert X-Y	X:		2,175,969.00	3	X:							
coordinates	Y:	*	10,031,902.00	7	Y:			<del></del> -				
Latitude /	Latitude:		27° 38' 07.17"	1	Latitude							
Longitude	Longitud	e	-91° 20' 43.74"	1	Longitude							
	TVD (Fe	et):		MD (Feet):		Wa	ter Depth (I	Feet):	2689'			
Anchor Locat	ions for I	Drilling R	ig or Construction B	arge (Hanch	or radius supplied	above,	not neces	sary)	11.4			
Anchor Name or No.	Area	Block	X Coordinate		Y Coordinate				of Ancho Seafloo			
1	GC	364	2,181,531		10,026,398		33	61'				
2	GC	364	2,178,075		10,024,449		33	25'				
3	GC	364	2,170,514		10,026,595		32	235'				
4	GC	319	2,171,710		10,030,803		32	35'				
5	GC	320	2,170,424		10,037,388		33	43'				
6	GC	320	2,173,825		10,039,497	. <del></del>	34	34'				
7	GC	320	2,181,426		10,037,169		31	75'				
8	GC	320	2,183,632		10,033,912		34	34'				

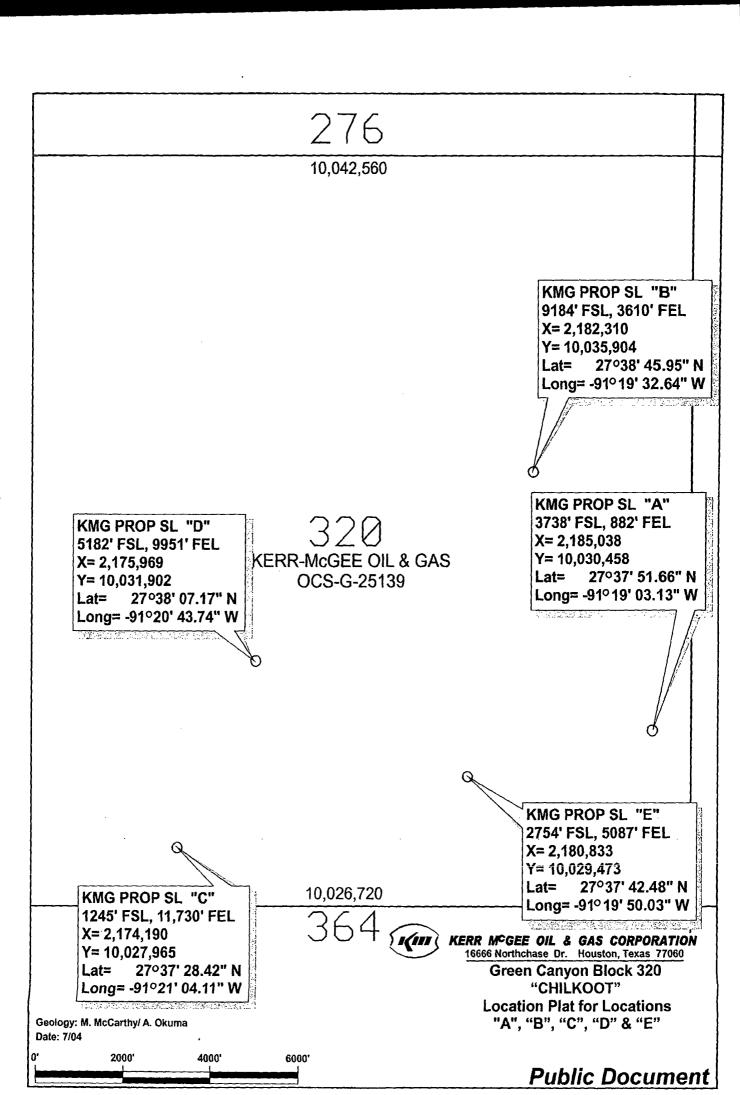
## OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

				Well/Structu		<del>- 1</del>		487.4					
Well or Structu	re Name/N	iumber (If r	enaming well or struc	•	revious name):	Sub	sea Completi	on .					
			Well Location	E 			T						
Anchor Radius	· • •			29.5	les en la companya de la companya d	X	Yes	No					
	Surface I				Bottom-Hole Location (For Wells)								
Lease No.	OCS-G	25139			OCS-G 25139								
Area Name	Green C	anyon			Green Canyon								
Block No.	320				320								
Blockline Departures	N/S Dep	arture	2754' FSL		N/S Departure:								
(in feet) 🕒	E/W Dep	parture	5087' FEL	,	E/W Departure:								
Lambert X-Y	X:		2,180,833.00		X:								
coordinates	Y:		10,029,473.00		Y:								
Latitude /	Latitude:		27° 37' 42.48"		Latitude								
Löngitude 💷	Longitude	:	-91° 19' 50.03"		Longitude								
	TVD (Fee	et):		MD (Feet):		Wa	ter Depth (Fe	et): 2658'					
Anchor Loca	tions for I	Drilling R	ig or Construction	Barge (If and	hor radius supplied	l above,	not necessa	ry) 🔭 💛 a					
Anchor Name or No.	December of the Commence of the	Block	X Coordinate		Y Coordinate		Len	gth of Anchor in on Seafloor					
1	GC	364	2,184,725		10,022,817		3300	o'					
2	GC	364	2,180,938		10,021,793		3300	0'					
3	GC	364	2,174,155		10,025,740		328	5'					
4	GC	320	2,173,152		10,029,516		328	5'					
5	GC	320	2,176,832		10,032,322		345	5'					
6	GC	320	2,180,728		10,037,314		3410	)'					
7	GC	321	2,187,624		10,033,273		337	5'					
		<del> </del>	2 400 7/4		10 020 422		345	=)					
8	GC	321	2,188,764		10,029,432		( 243	)					

Well Location Plat

Attachment A-3 (Public Information)



# Bathymetry Maps with Proposed Well Location Surface Disturbances & Anchor Radius

Attachment A-4 (Public Information)

Original Copy Only

# SECTION B General Information

## A. Contact

Questions or requests for additional information should be made to Kerr-McGee's authorized representative for this project:

Christine Groth
R.E.M. Solutions, Inc.
17171 Park Row, Suite 390
Houston, Texas 77084
281.492.8562 (Phone)
281.492.6117 (Fax)
christine@remsolutionsinc.com

# B. Prospect Name

The proposed exploratory activities will be referred to by Kerr-McGee as the "Chilkoot Prospect".

# C. New or Unusual Technology

Kerr-McGee does not propose using any new and/or unusual technology for the operations proposed in this Plan.

# D. Bonding Information

In accordance with Title 30 CFR Part 256, Subpart I, Kerr-McGee elected and has on file with the Minerals Management Service Gulf of Mexico Regional Office a \$3,000,000 Areawide Development Bond.

As deemed warranted, Minerals Management Service will contact the designated operator in the event a supplemental bond is required for the proposed operations, as outlined in Notice to Lessees (NTL) 2003-N06 to cover plugging liability of the wellbores, removal of associated well protector structures and site clearance.

Kerr-McGee is on the exempt list with the Minerals Management Service for supplemental bonding.

# E. Onshore Base and Support Vessels

The proposed surface disturbances in Green Canyon Block 320 will be located approximately 100 miles from the nearest Louisiana shoreline, and approximately 125 miles from the onshore support base to be located in Fourchon, Louisiana.

# SECTION B General Information - Continued

Kerr-McGee will use an existing onshore base to accomplish the following routine operations:

- Loading/Offloading point for equipment supporting the offshore operations,
- Dispatching personnel and equipment, and does not anticipate the need for any expansion of the selected facilities as a result of the activities proposed in this Plan,
- Temporary storage for materials and equipment
- 24-Hour Dispatcher

Personnel involved in the proposed operations will typically use their own vehicles as transportation to and from the selected onshore base; whereas the selected vendors will transport the equipment by a combination of trucks, boats and/or helicopters to the onshore base. The personnel and equipment will then be transported to the drilling rig via the transportation methods and frequencies shown below, taking the most direct route feasible as mandated by weather and traffic conditions:

Support Vessel	Drilling and Completion Trips Per Week
Crew Boat	7
Supply Boat	3
Helicopter	3

The proposed operations are temporary in nature and do not require any immediate action to acquire additional land, expand existing base facilities.

A Vicinity Plat showing the location of Green Canyon Block 320 relative to the shoreline and onshore base is included as *Attachment B-1*.

# F. <u>Lease Stipulations</u>

Under the Outer Continental Shelf Lands Act, the Minerals Management Service is charged with the responsibility of managing and regulating the exploration and development on the OCS.

As part of the regulatory process, an Environmental Impact Statement (EIS) is prepared for each lease sale, at which time mitigation measures are addressed in the form of lease stipulations, which then become part of the oil and gas lease terms and are therefore enforceable as part of that lease.

As part of this process, the designated operator proposing to conduct related exploratory and development activities, must review the applicable lease stipulations, as well as other special conditions, which may be imposed by the Minerals Management Service, and other governing agencies.

# SECTION B General Information - Continued

Lease OCS-G 25139, Green Canyon Block 320 is subject to the following stipulation and conditions:

## Marine Protected Species

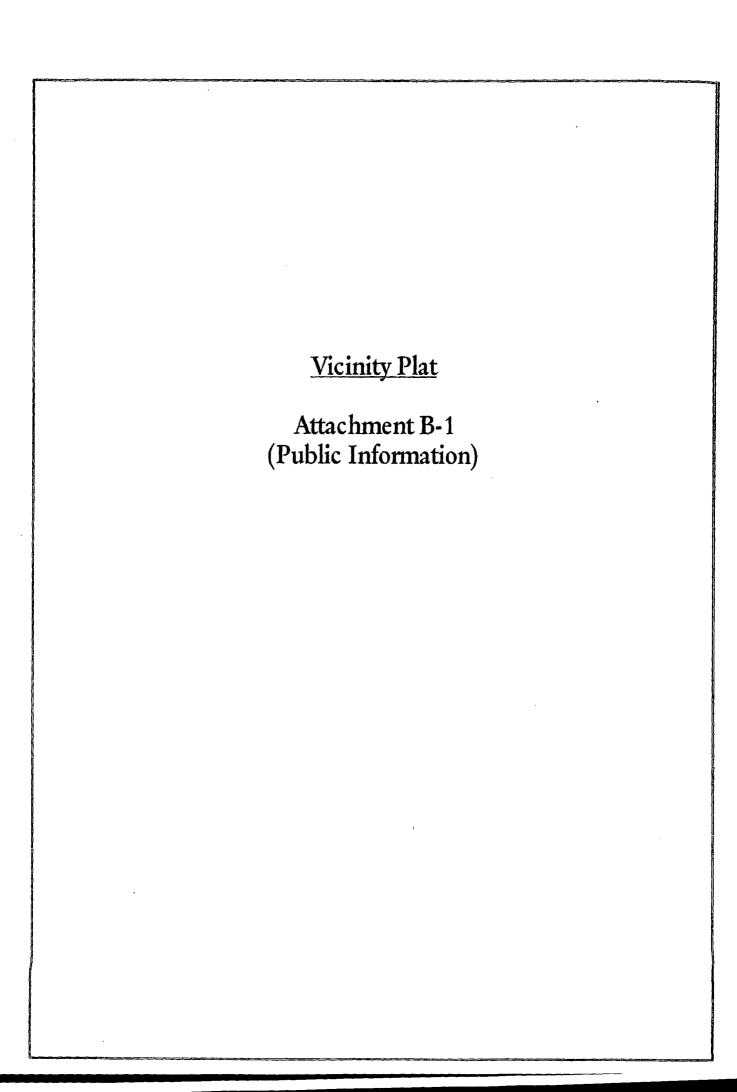
Lease Stipulation No. 6 is to reference measures to minimize or avoid potential adverse impacts to protected species (sea turtles, marine mammals, gulf sturgeon, and other federally protected species). MMS has issued Notice to Lessees NTL 2004-G01 "Implementation of Seismic Mitigation Measures and Protected Species Observer Program", NTL 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting" and NTL 2003-G11 "Marine Trash and Debris Awareness and Elimination".

# **Special Conditions**

Certain area of the Gulf of Mexico have been designated by the U.S. Coast Guard as lightering zones for the purpose of permitting single hull vessels to off-load oil within the U.S. Exclusive Economic Zone. As defined in Title 33 CFR Part 156.300, there are currently four lightering zones established in the Gulf of Mexico: Southtex, Gulfmex No. 2, Offshore Pascagoula No. 2, and South Sabine Point.

Green Canyon Block 320 is located within the boundaries of Gulfmex No. 002 lightering zone. Kerr-McGee will exercise caution while conducting the proposed activities within this area.

Kerr-McGee may potentially complete Well Locations A, B, C, D and E as subsea completions. In this event, Kerr-McGee will follow the guidelines of the applicable Notice to Lessees (NTL's) 2000-N05 and 2000-N06, which mandates the submittal and approval of separate regulatory filings entitled as a "Conservation Information Document" and a "Deepwater Operations Plan", respectively.



			<del></del>										<del>,</del>							
1	Ε	UGENE ISLJ SOUTH AD LA4	ו אטוזוס	390				30.					15'					81, 60,		
206	395	3 396	397	5	6	7	8	9	10	n	12	13	14	15	16	17	18	19	20	163 440.00 21 137 800.00
46	46	47	48	49	50	<b>6</b> 1	52	63	54	56	56	57	58	69	60	61	62	63	64	65
69	90	91	92	93	94	85	96	97	98	99	100	101	102	103	104	105	106	107	108	109
133	134	135	136	137	138	139	140	<b>141</b>	142	143	144	145	146	147	148	149	150	151	152	153 090 080.000
177	178	179	180	181	182	183	ocs	IR-Mc 5-G-25	5139		188	189	190	191	192	193	194	195	196	197
221	222	223	224	225	226	227	11	EN C		ON	232	233	234	235	236	237	238	239	240	241 058 400.000
265	266	267	268	269	270	271	272	273	274	1	276	277	278	279	280	281	282	283	284	285 042 550.000
309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329 028 720.000
363	354	356	356	367	358	369	360	361	362	363	364	365	366	367	368	369	370	371	372	373
397	398	389	400	401	402	403	L.	L <b>F</b>	400	<b>F</b> <sub>407</sub>	M.	E X	I "Ç	0 411	412	413	414	416	416 Y = 9	417 995 040.000
141	442	443	444	446	446	447	448	449 - -	460	451	462	453	464 +	456	466	467	458	469 +	460 Y = 9 979 2	461 0.000'
185	486 8	487 8	488 8	489 8	490 8	491 8	492 8	493 ò	494 ò	495 8	496 Š	497	498 Š	499 8	500 8	501 8	502	503 8	504 Y = 8	506 963 360,000
29 6 29 6	530 65 - X	531 S	532 8	533 S	534 8	535 50 57 57	536	637 E	538 2	539 £	540	541	542	543 E	544 8	545 67 **	646 N	547 8 **	548 E 7 = 8	549 947 520,000
573	574	575	576	577	578	679	580	581	582	583	584	585	586	587	588	589	590	591	592 Y ≠ 9	593 931680.000
517	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	636	636 Y=9	637 915 840.000
561	662	563	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680 Y = 9	681 900 000.000
705	706	707	+708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	+ 723	724 Y - 9	725 884 (60,000
749	750	751	752	753	754	756	756	757	768	759	760	761	762	763	764	765	766	767	768 Y • 9	769 868 320,000
793	794	796	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812 Y = 8	813 662 480,000
337	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856 Y = 9	857 138 640.000
881	882	883	884	886	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900 Y = 9	801 820 800,000
26	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	843	844 Y • 9	945
69	970	971	972	973	974	975	976	- <del> </del> - 977	978	979	980	981	982	983	984	985	986	987		989 789 120 000
			45'					30.			{1(i	71 } K	ERR I	MCGE	E OIL	& G/	as co	RPOR	ATION	į

SUBMITTED BY: M. McCARTHY/A. OKUMA DATE: 7/04

GREEN CANYON BLOCK 320 OCS-G-25139 POE LOCATIONS "A", "B", "C", "D" & "E" MMS AREA MAP

# SECTION C Geological, Geophysical & H2S Information

# A. Structure Contour Maps

Included as *Attachment C-1* is a current structure map (depth base and expressed in feet subsea) depicting the entire lease coverage area; drawn on the top of each prospective hydrocarbon sand. The map depicts each proposed bottom hole location and applicable geological cross section.

# B. Interpreted Deep Seismic Lines

Included as Attachment C-2 are page size copies of the migrated and annotated (shot point, time lines, well paths) of the deep seismic line within 500 feet of the surface locations.

# C. Geological Structure Cross Sections

Interpreted geological cross sections depicting the proposed well locations and depth of the proposed wells are included as *Attachment C-3*. Such cross sections correspond to each seismic line being submitted.

# D. Shallow Hazards Report

Geoscience Earth & Marine Services, Inc. conducted a 3D survey in Green Canyon Block 320 on behalf of Kerr-McGee Oil & Gas Corporation. The purpose of the survey was to evaluate geologic conditions and inspect for potential hazards or constraints to lease development.

Copies of these reports have been submitted to the Minerals Management Service under separate cover.

# E. Shallow Hazards Assessment

Utilizing the 3D seismic exploration data, a shallow hazards analysis was prepared for the proposed surface locations, evaluating seafloor and subsurface geologic and manmade features and conditions, and is included as *Attachment C-4*.

# F. High Resolution Seismic Lines

Utilizing the 3D seismic exploration data, an analysis was prepared for the proposed surface locations, evaluating seafloor and subsurface geologic and manmade features and conditions.

# G. Stratigraphic Column

A generalized biostratigraphic/lithostratigraphic column from the seafloor to the total depth of the proposed wells is included as Attachment C-5.

# SECTION C Geological, Geophysical & H2S Information-Continued

# H. Time Vs. Depth Tables

Kerr-McGee has determined that there is existing sufficient well control data for the target areas proposed in this plan; therefore, tables providing seismic time versus depth for the proposed well locations are not required.

# I. Hydrogen Sulfide Classification

In accordance with Title 30 CFR 250.417, Kerr McGee requests that Green Canyon Block 320 be classified by the Minerals Management Service as an area where the absence of hydrogen sulfide has been confirmed as addressed in *Attachment C-6*.

Structure Maps Attachment C-1 (Proprietary Information)

Deep Seismic Lines Attachment C-2 (Proprietary Information)

Cross Section Maps Attachment C-3 (Proprietary Information) **Shallow Hazards Assessment** Attachment C-4 (Public Information)



10615 SHADOW WOOD DRIVE SUITE 200

HOUSTON, TEXAS 77043

Phone: (713) 468-1410 Fax: (713) 468-1438

E-mail: gems@gemsinc.com

July 14, 2004

Project No. 1103-739

Kerr-McGee Oil & Gas Corporation 16666 Northchase Drive Houston, Texas 70060

Attention: Ms. Margaret McCarthy

Site Clearance Letter Proposed Wellsite KMG-A Block 320 (OCS-G-25139) Green Canyon Area Gulf of Mexico

The Proposed Wellsite KMG-A in GC 320 appears suitable for exploration drilling operations. Complex faulting above salt and the potential for some faults in the area used as conduits for shallow gas may influence drilling strategies at this site. This site may require further study for production purposes.

#### Introduction

Geoscience Earth & Marine Services, Inc., (GEMS) was contracted by Kerr-McGee Oil & Gas Corporation (Kerr-McGee) to prepare a Site Clearance Letter for the Proposed Wellsite KMG-A in Block 320 (OCS-G-25139), Green Canyon area (GC). This letter addresses specific seafloor and subsurface conditions near the proposed location to a depth of about 1,500 ft below the mudline (bml). This letter is based on findings provided within the geohazard report "Geologic and Stratigraphic Assessment, Blocks 320 (OCS-G-25139), 321 (OCS-G-20058), 364 (OCS-G-25141), and 365 (OCS-G-16737), Green Canyon Area, Gulf of Mexico" (GEMS Project No. 1103-739). The text, maps, and figures included in that report provide detail to the regional geology of the study area. This letter is intended to supplement that report with details pertaining directly to the proposed wellsite.

This letter complies with the Minerals Management Service (MMS) Notice-to-Lessees (NTL's) 2000-G20 and 98-20 (MMS, 2000 and 1998, respectively). The above stated Federal lease block does not lie within a historically significant area; therefore, requirements set forth in NTL 2002-G01 (MMS, 2002) are not applicable.

The Proposed Wellsite KMG-A is located in the southeast portion of Block 320, Green Canyon area, Gulf of Mexico. Kerr-McGee provided the following coordinates:

	Proposed Wellsite KMG-A									
Spheroid & Datum: Clarke 1866, NAD27 Seismic Line Block Calls										
Projection	: UTM Zone 15 North	Reference	GC 320							
X: 2,185,038.34 ft	Latitude: 27° 37' 51.66" N	Inline: 3306	881.66 ft FEL							
Y: 10,030,458.08 ft	Longitude: 91° 19' 03.13" W	Crossline: 2839	3,738.08 ft FSL							

#### Attachments

The letter-size maps and figures accompanying this letter were extracted from the main report's original maps and 3-D data volume. The maps and figures (listed below) are centered on the proposed well location.

Map A-1: Bathymetry Map
Map A-2: Seafloor Rendering

Map A-3: Seafloor Amplitude Rendering

Map A-4: Geologic Features Map

Figure A-1: Tophole Prognosis Chart, Proposed Wellsite KMG-A, Green Canyon Block 320

Figure A-2: Inline 3306 and Crossline 2839 Showing Conditions Beneath Proposed Wellsite KMG-A

#### Water Depth and Seafloor Conditions

The water depth at the proposed location is -2,602 ft (Map A-1) with soft hemipelagic clays likely covering the seafloor (Figure A-1). The seafloor slopes to the south with a gradient of 5.2° (9.1%). The proposed location lies within a large band of irregular seafloor (Map A-2). The irregular seafloor is a result of the shallow salt uplift and surface faulting in the area. Seafloor conditions, however, appear to be favorable for exploration drilling activity.

#### Chemosynthetic Communities

There are no features or areas that could support significant high-density chemosynthetic communities within 1,500 ft of the proposed location. The Seafloor Amplitude Rendering (Map A-3) shows normal or ambient amplitudes along the seabed near the proposed wellsite.

#### Man-Made Features

There are no man-made features near the proposed surface location (Maps A-1 through A-4).

#### Sediments/Stratigraphy

Stratigraphic details are provided with the Tophole Prognosis Chart (Figure A-1). There are at least 272 ft of normally consolidated clays immediately below the seafloor. These normally consolidated clays should provide favorable conditions for anchoring and any bottom-founded structures. Mass-transport deposits occur below these clays and throughout the tophole section to the Top of Salt (about 1,140 ft bml). These mass-transport deposits are probably clayrich; however, some sands are likely to occur.

#### **Faults**

The uplift of the shallow salt has resulted in complex faulting near the proposed wellsite (Figure A-2). The Proposed Wellsite KMG-A will penetrate a buried fault at approximately 394 ft bml (-2,996 ft bsl). This fault trends northnorthwest to south-southeast and is downthrown to the northwest.

No seafloor faults will be penetrated nor lie within 1,000 ft of the proposed wellsite (Maps A-1 through A-4).

#### **Shallow Gas**

There are no apparent subsurface high-amplitude anomalies directly below the proposed wellsite (Map A-4; Figures A-1 and A-2). There is a negligible potential for encountering shallow gas in the upper 272 ft of normally deposited, fine-grained sediments.

There is a low potential for encountering significant shallow gas within the mass-transport deposits between 272 ft bml and 1,140 ft bml. Higher amplitude reflectors along the buried fault penetrated by the proposed wellsite suggest that the buried fault may be used as a conduit for shallow gas. However, significant pressures are unlikely and only minor amounts of solution gas may be present at the proposed wellsite.

#### Shallow Water Flow

The Proposed Wellsite KMG-A has a low potential for shallow water flow between 272 ft bml and 1,140 ft bml. Sand lenses may exist within the mass-transport deposits above salt; however, insufficient sediment cover exists to provide the necessary overpressured environment. Abundant faulting in the area could also provide a release of any significant overpressures.

The potential for encountering overpressured water sands in the remaining sequences at the proposed wellsite is negligible (Figure A-1).

#### Closing

The Proposed Wellsite KMG-A in GC 320 appears suitable for exploration drilling operations. We appreciate the opportunity to be of service to Kerr-McGee and look forward to working closely with you on other projects.

Sincerely,

GEOSCIENCE EARTH & MARINE SERVICES, INC.

un William Janes
Erin Williams Janes

Geoscientist

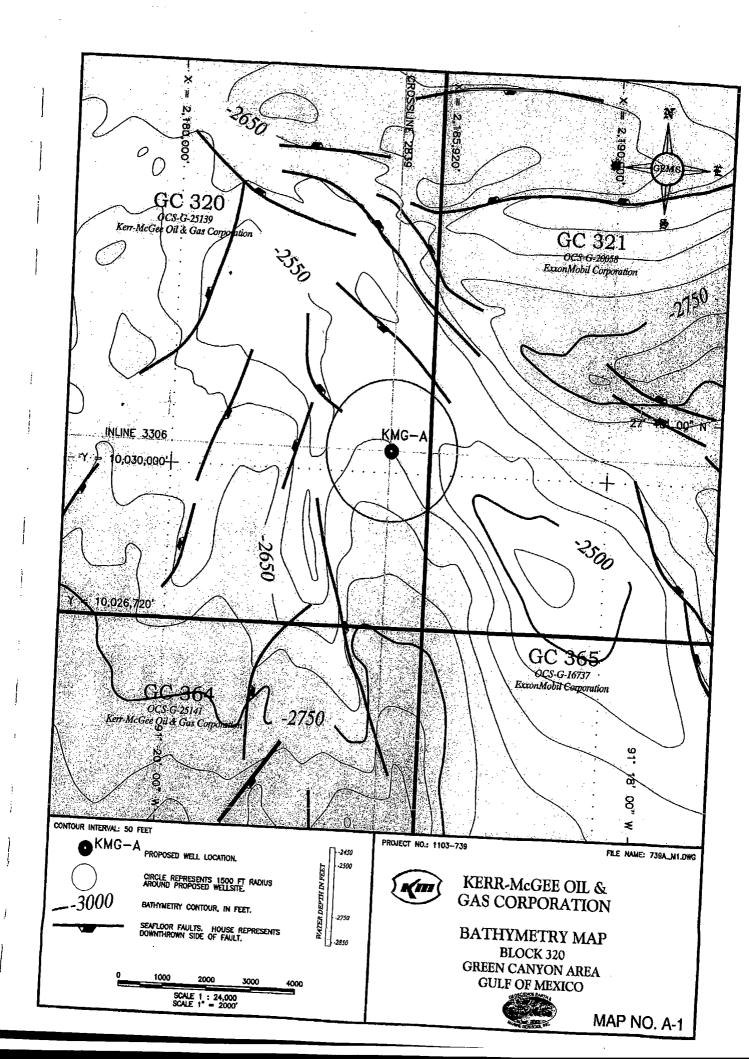
Michael J. Kaluza

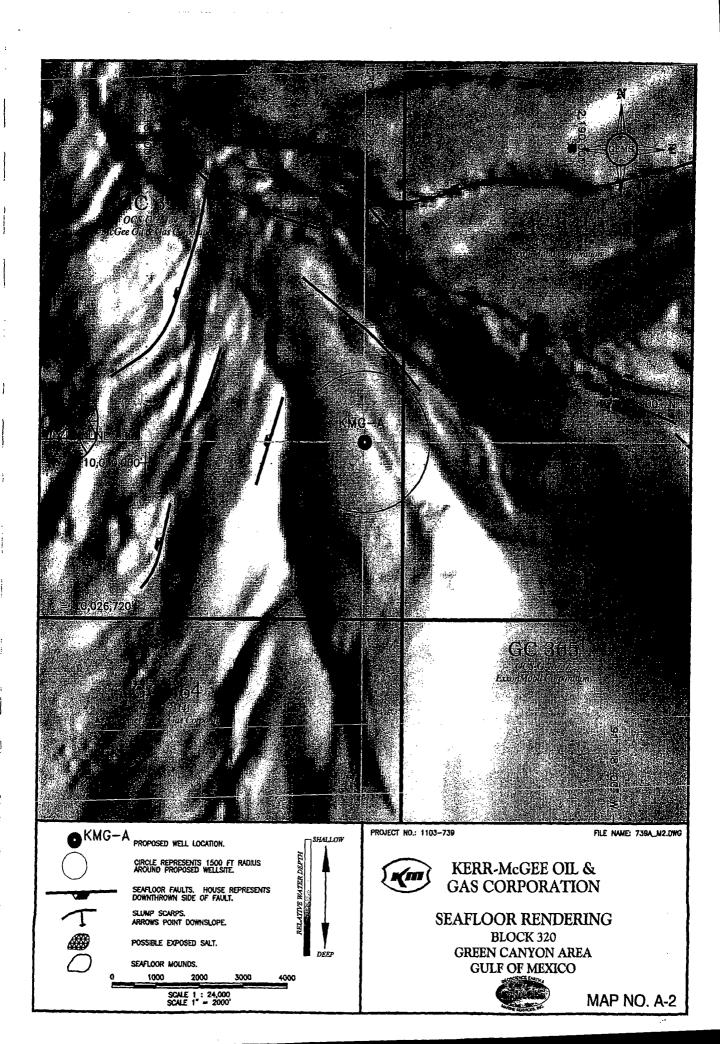
President/Marine Geologist

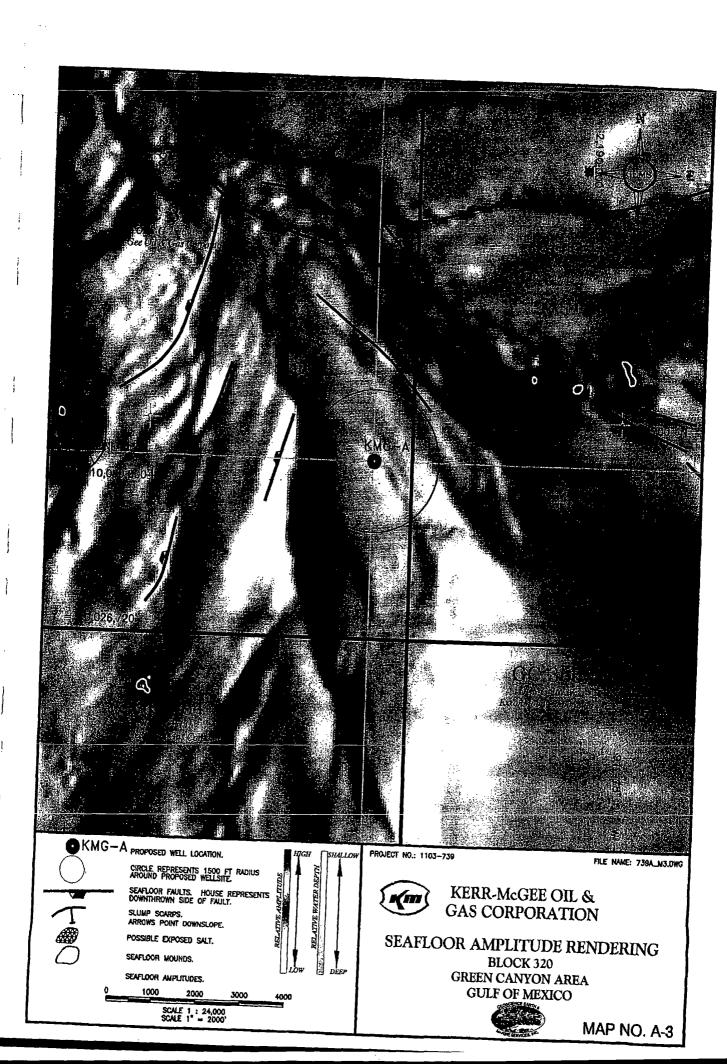
Attachments (4 Maps, 2 Figures)

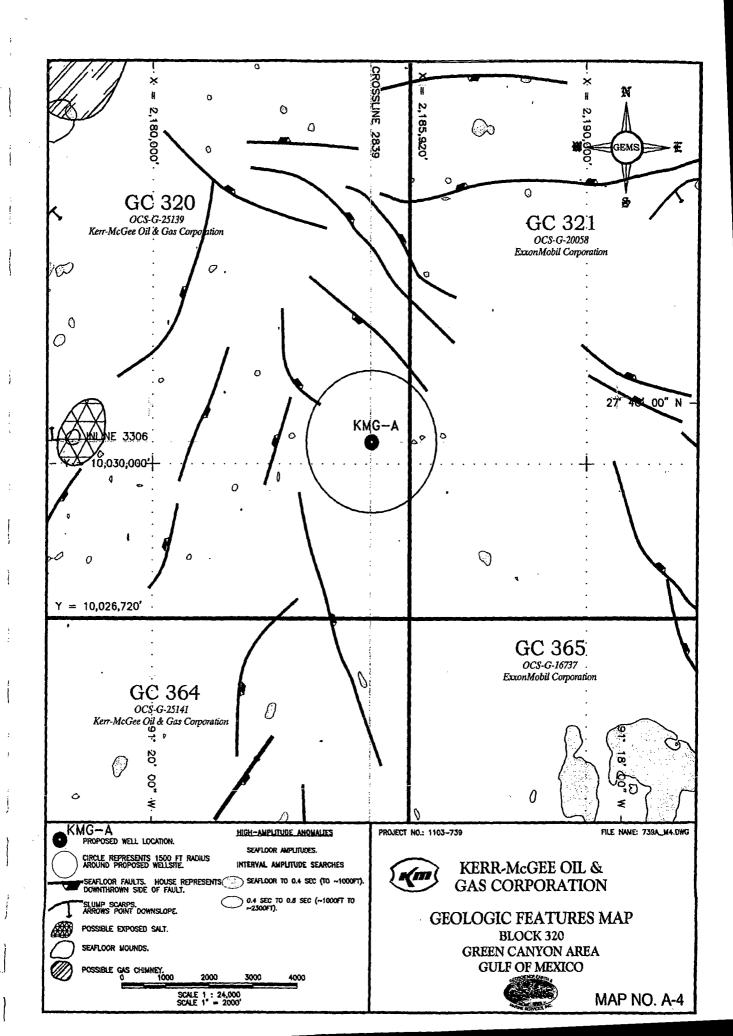
Distribution:

Ms. Margaret McCarthy, Kerr-McGee Oil & Gas Corporation, Houston, TX (7)











10615 SHADOW WOOD DRIVE SUITE 200

HOUSTON, TEXAS 77043

Phone: (713) 468-1410 Fax: (713) 468-1438

Project No. 1103-739

E-mail: gems@gemsinc.com

July 14, 2004

Kerr-McGee Oil & Gas Corporation 16666 Northchase Drive Houston, Texas 70060

Attention: Ms. Margaret McCarthy

Site Clearance Letter Proposed Wellsite KMG-B Block 320 (OCS-G-25139) Green Canyon Area Gulf of Mexico

The Proposed Wellsite KMG-B in GC 320 appears suitable for exploration drilling operations. Complex faulting above salt and the potential for some faults in the area used as conduits for shallow gas may influence drilling strategies at this site. This site may require further study for production purposes.

#### Introduction

Geoscience Earth & Marine Services, Inc., (GEMS) was contracted by Kerr-McGee Oil & Gas Corporation (Kerr-McGee) to prepare a Site Clearance Letter for the Proposed Wellsite KMG-B in Block 320 (OCS-G-25139), Green Canyon area (GC). This letter addresses specific seafloor and subsurface conditions near the proposed location to a depth of about 600 ft below the mudline (bml). This letter is based on findings provided within the geohazard report "Geologic and Stratigraphic Assessment, Blocks 320 (OCS-G-25139), 321 (OCS-G-20058), 364 (OCS-G-25141), and 365 (OCS-G-16737), Green Canyon Area, Gulf of Mexico" (GEMS Project No. 1103-739). The text, maps, and figures included in that report provide detail to the regional geology of the study area. This letter is intended to supplement that report with details pertaining directly to the proposed wellsite.

This letter complies with the Minerals Management Service (MMS) Notice-to-Lessees (NTL's) 2000-G20 and 98-20 (MMS, 2000 and 1998, respectively). The above stated Federal lease block does not lie within a historically significant area; therefore, requirements set forth in NTL 2002-G01 (MMS, 2002) are not applicable.

The Proposed Wellsite KMG-B is located in the northeastern portion of Block 320, Green Canyon area, Gulf of Mexico. Kerr-McGee provided the following coordinates:

Proposed Wellsite KMG-B									
Spheroid & Datum: Clarke 1866, NAD27 Seismic Line Block Calls									
Projection	: UTM Zone 15 North	Reference	GC 320						
X: 2,182,309.55 ft	Latitude: 27° 38' 45.95" N	Inline: 3389	3,610.45 ft FEL						
Y: 10,035,904.22 ft	Longitude: 91° 19' 32.64" W	Crossline: 2806	6,655.78 ft FNL						

#### Attachments

The letter-size maps and figures accompanying this letter were extracted from the main report's original maps and 3-D data volume. The maps and figures (listed below) are centered on the proposed well location.

Map B-1: Bathymetry Map Map B-2: Seafloor Rendering

Map B-3: Seafloor Amplitude Rendering

Map B-4: Geologic Features Map

Figure B-1: Tophole Prognosis Chart, Proposed Wellsite KMG-B, Green Canyon Block 320

Figure B-2: Inline 3389 and Crossline 2806 Showing Conditions Beneath Proposed Wellsite KMG-B

#### Water Depth and Seafloor Conditions

The water depth at the proposed location is -2,614 ft (Map B-1) with soft hemipelagic clays likely covering the seafloor (Figure B-1). The seafloor slopes to the north-northeast with a gradient of 2.8° (4.9%). The proposed location lies within a large band of irregular seafloor (Map B-2). This irregular seafloor is a result of the shallow salt uplift and surface faulting in the area. Seafloor conditions, however, appear to be favorable for exploration drilling activity.

#### **Chemosynthetic Communities**

There are no features or areas that could support significant high-density chemosynthetic communities within 1,500 ft of the proposed location. The Seafloor Amplitude Rendering (Map B-3) shows normal or ambient amplitudes along the seabed near the proposed wellsite.

#### Man-Made Features

There are no man-made features near the proposed surface location (Maps B-1 through B-4).

## Sediments/Stratigraphy

Stratigraphic details are provided with the Tophole Prognosis Chart (Figure B-1). There are at least 194 ft of normally consolidated clays immediately below the seafloor. These normally consolidated clays should provide favorable conditions for anchoring and any bottom-founded structures. Mass-transport deposits occur below these clays and throughout the tophole section to the Top of Salt (about 600 ft bml). These mass-transport deposits are probably clayrich; however, some sands are likely to occur.

#### **Faults**

The uplift of the shallow salt has resulted in complex faulting near the proposed wellsite (Figure B-2). The Proposed Wellsite KMG-B will penetrate a fault with seafloor expression at approximately 379 ft bml (-2,993 ft bsl). This fault trends northwest to southeast and is downthrown to the northeast. The seafloor expression of this fault occurs approximately 447 ft southwest of the proposed wellsite (Maps B-1 through B-4).

Other seafloor faults are present within 1,500 ft of the proposed wellsite. The closest seafloor fault to the proposed wellsite occurs approximately 300 ft to the north-northeast (Maps B-1 through B-4). This fault trends northwest to southeast and is downthrown to the northeast, away from the wellsite.

A vertical borehole will not penetrate any other mapped faults within the upper 600 ft bml (Figure B-1 and B-2). Additional minor faults may be present but are masked by the chaotic stratigraphy and structural complexity.

#### Shallow Gas

There are no apparent subsurface high-amplitude anomalies directly below the proposed wellsite (Map B-4; Figures B-1 and B-2). There is a negligible potential for encountering shallow gas in the upper 194 ft of normally deposited, fine-grained sediments.

There is a low potential for encountering significant shallow gas within the mass-transport deposits between 194 ft bril and 600 ft bril. Slightly higher amplitude reflectors along the seafloor fault penetrated by the proposed wellsite suggest that the fault has the potential to be used as a conduit for shallow gas. However, significant pressures are unlikely and only minor amounts of solution gas may be present at the proposed wellsite.

#### **Shallow Water Flow**

The Proposed Wellsite KMG-B has a low potential for shallow water flow between 194 ft bml and 600 ft bml. Sand lenses may exist within the mass-transport deposits above salt; however, insufficient sediment cover exists to provide the necessary overpressured environment. Abundant faulting in the area could also provide a release of any significant overpressures.

The potential for encountering overpressured water sands in the remaining sequence at the proposed wellsite is negligible (Figure B-1).

#### Closing

The Proposed Wellsite KMG-B in GC 320 appears suitable for exploration drilling operations. We appreciate the opportunity to be of service to Kerr-McGee and look forward to working closely with you on other projects.

Sincerely,

GEOSCIENCE EARTH & MARINE SERVICES, INC.

Erin Williams Janes

Geoscientist

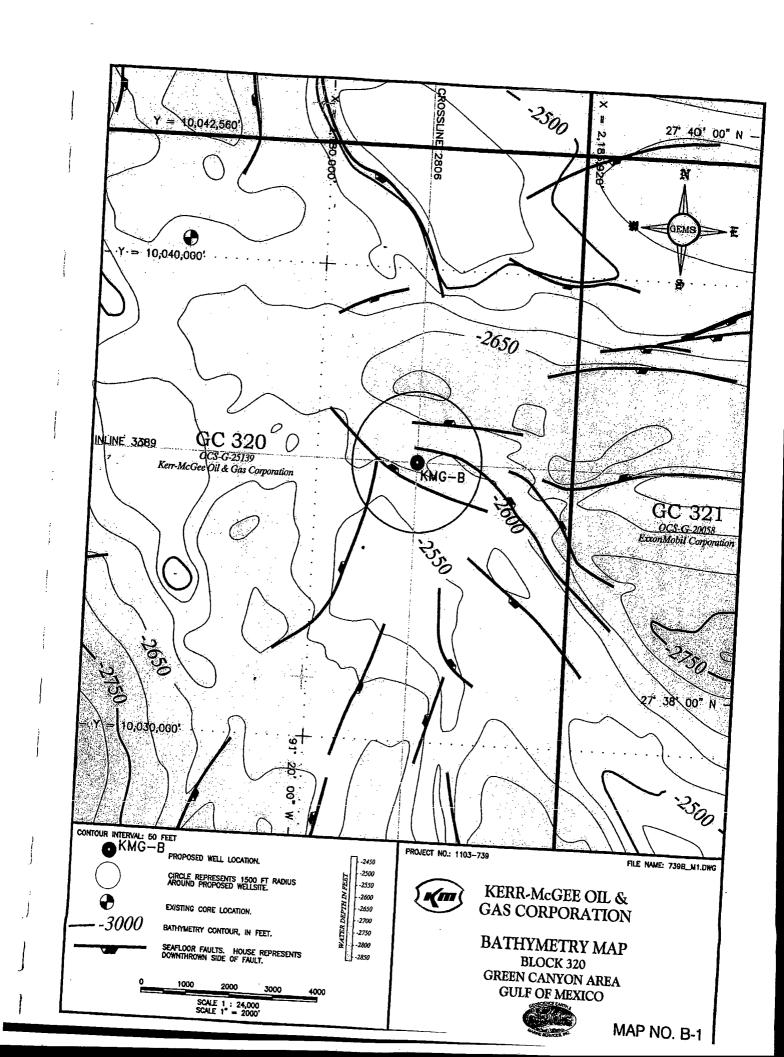
Michael J. Kaluza

President/Marine Geologist

Attachments (4 Maps, 2 Figures)

in William Jams

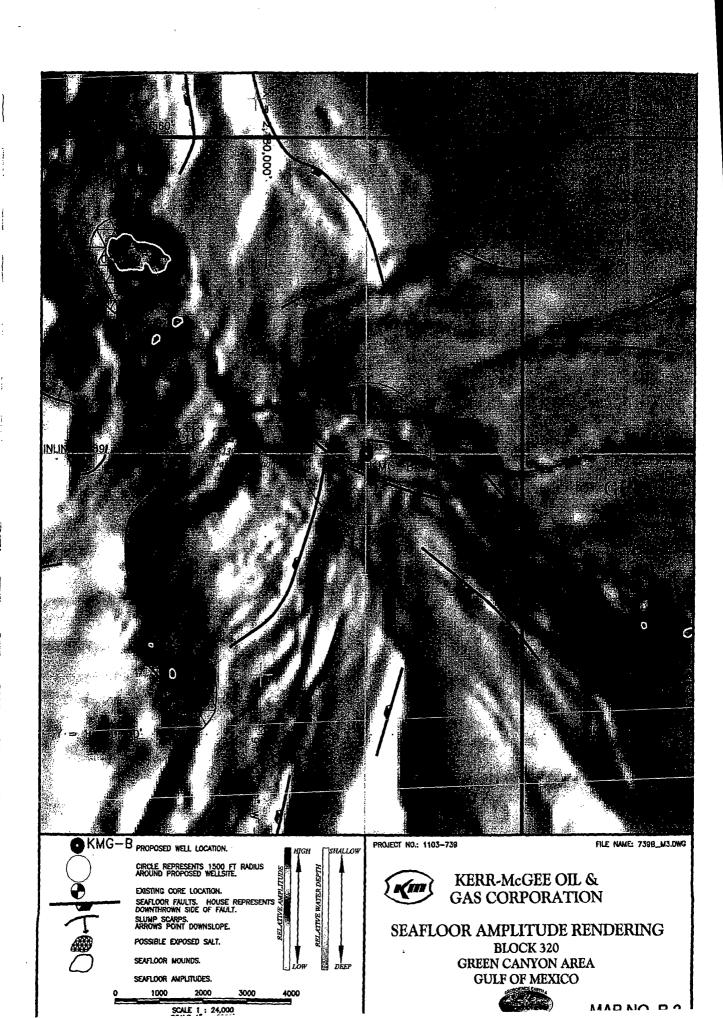
Distribution:

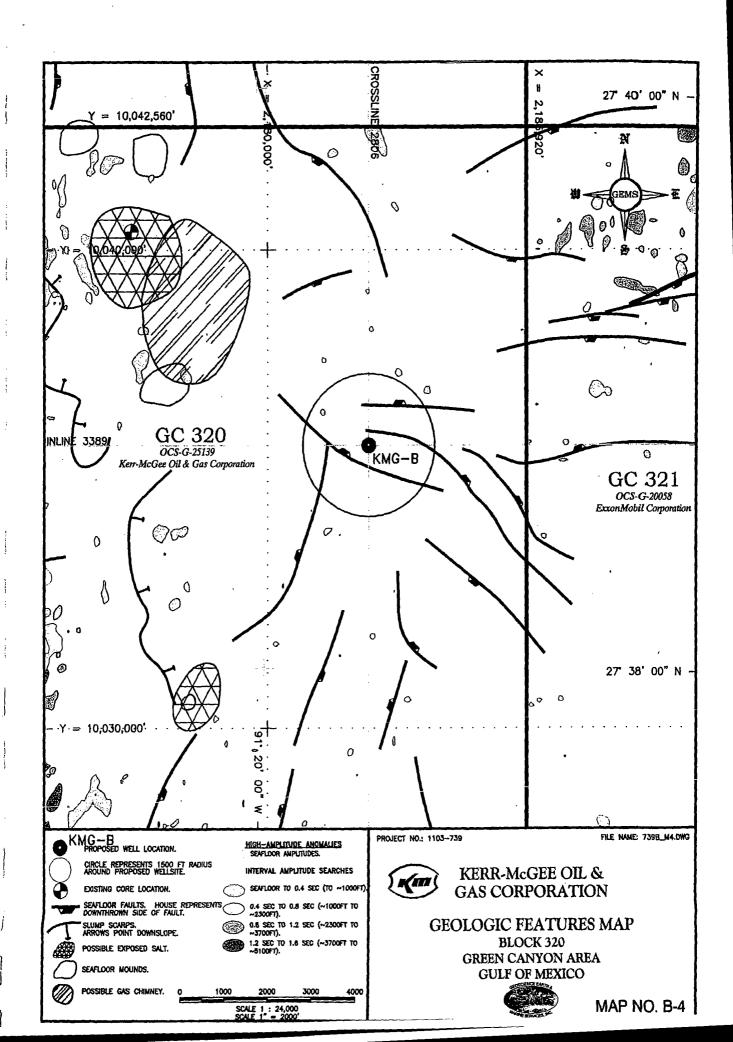


●KMG—B PROPOSED WELL LOCATION. PROJECT NO.: 1103-739 FILE NAME: 7398\_M2.DWG CIRCLE REPRESENTS 1500 FT RADIUS AROUND PROPOSED WELLSITE. KERR-McGEE OIL & GAS CORPORATION EXISTING CORE LOCATION. SEAFLOOR FAULTS. HOUSE REPRESENTS DOWNTHROWN SIDE OF FAULT. SEAFLOOR RENDERING SLUMP SCARPS.
ARROWS POINT DOWNSLOPE. BLOCK 320 POSSIBLE EXPOSED SALT. GREEN CANYON AREA **GULF OF MEXICO** SEAFLOOR MOUNDS. 2000

MAP NO. B-2

SCALE 1 : 24,000 SCALE 1 = 2000







10615 SHADOW WOOD DRIVE SUITE 200

HOUSTON, TEXAS 77043

Phone: (713) 468-14 10 Fax: (713) 468-1438

E-mail: gems@gemsinc.com

July 14, 2004

Project No. 1103-739

Kerr-McGee Oil & Gas Corporation 16666 Northchase Drive Houston, Texas 70060

Attention: Ms. Margaret McCarthy

Site Clearance Letter Proposed Wellsite KMG-C Block 320 (OCS-G-25139) Green Canyon Area Gulf of Mexico

The Proposed Wellsite KMG-C in GC 320 appears suitable for exploration drilling operations. The potential for shallow water flow and minor shallow gas may influence drilling strategies at this site.

#### Introduction

Geoscience Earth & Marine Services, Inc., (GEMS) was contracted by Kerr-McGee Oil & Gas Corporation (Kerr-McGee) to prepare a Site Clearance Letter for the Proposed Wellsite KMG-C in Block 320 (OCS-G-25139), Green Canyon area (GC). This letter addresses specific seafloor and subsurface conditions near the proposed location to a depth of about 5,000 ft below the mudline (bml). This letter is based on findings provided within the geohazard report "Geologic and Stratigraphic Assessment, Blocks 320 (OCS-G-25139), 321 (OCS-G-20058), 364 (OCS-G-25141), and 365 (OCS-G-16737), Green Canyon Area, Gulf of Mexico" (GEMS Project No. 1103-739). The text, maps, and figures included in that report provide detail to the regional geology of the study area. This letter is intended to supplement that report with details pertaining directly to the proposed wellsite.

This letter complies with the Minerals Management Service (MMS) Notice-to-Lessees (NTL's) 2000-G20 and 98-20 (MMS, 2000 and 1998, respectively). The above stated Federal lease block does not lie within a historically significant area; therefore, requirements set forth in NTL 2002-G01 (MMS, 2002) are not applicable.

The Proposed Wellsite KMG-C is located in the southwest portion of Block 320, Green Canyon area, Gulf of Mexico. Kerr-McGee provided the following coordinates:

Proposed Wellsite KMG-C			
^	ntum: Clarke 1866, NAD27 a: UTM Zone 15 North	Seismic Line Reference	Block Calls GC 320
X: 2,174,189.6 ft	Latitude: 27° 37' 28.42" N	Inline: 3268	4,109.6 ft FWL
Y: 10,027,964.6 ft	Longitude: 91° 21' 04.11" W	Crossline: 2707	1,244.6 ft FSL

#### Attachments

The letter-size maps and figures accompanying this letter were extracted from the main report's original maps and 3-D data volume. The maps and figures (listed below) are centered on the proposed well location.

Map C-1: Bathymetry Map
Map C-2: Seafloor Rendering

Map C-3: Seafloor Amplitude Rendering

Map C-4: Geologic Features Map

Figure C-1: Tophole Prognosis Chart, Proposed Wellsite KMG-C, Green Canyon Block 320

Figure C-2: Inline 3268 and Crossline 2707 Showing Conditions Beneath Proposed Wellsite KMG-C

#### Water Depth and Seafloor Conditions

The water depth at the proposed location is -2,874 ft (Map C-1) with soft hemipelagic clays likely covering the seafloor (Figure C-1). The seafloor slopes to the west with a gradient of 2.5° (4.4%) and is relatively smooth at this location (Map C-2). Seafloor conditions are favorable for exploration drilling activity.

#### Chemosynthetic Communities

There are no features or areas that could support significant high-density chemosynthetic communities within 1,500 ft of the proposed location. The Seafloor Amplitude Rendering (Map C-3) shows normal or ambient amplitudes along the seabed near the proposed wellsite.

#### Man-Made Features

There are no man-made features near the proposed surface location (Maps C-1 through C-4).

#### Sediments/Stratigraphy

Stratigraphic details are provided with the Tophole Prognosis Chart (Figure C-1). There are at least 203 ft of normally consolidated clays immediately below the seafloor. These normally consolidated clays should provide favorable conditions for anchoring and any bottom-founded structures. Mass-transport deposits occur below these clays and throughout the shallow section to the limit of investigation (about 4,898 ft bml). These mass-transport deposits are likely clay-rich, but may contain some sands, particularly from 742 ft bml to 1,177 ft bml and 2,931 ft bml to 3,831 ft bml.

#### **Faults**

The Proposed Wellsite KMG-C will penetrate a fault with seafloor expression at approximately 3,535 ft bml (-6,409 ft bsl). This fault trends northeast to southwest with its seafloor expression approximately 3,330 ft northwest of the proposed wellsite (Map C-1 through C-4). No other faults will be penetrated by the proposed well.

#### **Shallow Gas**

There are no apparent subsurface high-amplitude anomalies directly below the proposed wellsite (Map C-4; Figures C-1 and C-2). There are low potentials for encountering significant accumulations of shallow gas between 742 ft bml and 1,177 ft bml and 2,931 ft bml and 3,831 ft bml. High-amplitude events that exist near the proposed wellsite occur within these units. Minor amounts of solution gas may exist within these sand-prone units; however, significant pressures are unlikely.

The potential for encountering gas in the remaining sequences at the Proposed Wellsite KMG-C is negligible (Figure C-1).

#### Shallow Water Flow

Mass-transport deposits within the Horizon 20 to Horizon 30 and Horizon 40 to Horizon 50 sequences (about 742 ft to 1,177 ft bml and 2,931 ft to 3,831 ft bml) are the most likely units to be sand-prone and water-bearing. There is an increase in the number of amplitude events from these units in this area. The Proposed Wellsite KMG-C is rated with a moderate potential for shallow water flow from these mass-transport deposits.

Low potentials for shallow water flow exist from 203 ft to 742 ft bml, 1,177 ft to 2,931 ft bml, and below 3,831 ft bml to the Limit of Investigation (about 4,898 ft bml); Figure C-1. Thin sand layers may exist within these generally clay-rich sequences; however, overpressured sand layers not likely.

The potential for encountering overpressured water sands in the remaining sequence (between the Seafloor and 203 ft bml) is negligible (Figure C-1).

#### Closing

The Proposed Wellsite KMG-C in GC 320 appears suitable for exploration drilling operations. We recommend, however, that your geologists, geophysicists, and drilling engineers consult on the best approach to drilling through the expected sandy units from 742 ft to 1,177 ft bml and 2,931 ft to 3,831 ft bml.

We appreciate the opportunity to be of service to Kerr-McGee and look forward to working closely with you on other projects.

Sincerely,

GEOSCIENCE EARTH & MARINE SERVICES, INC.

Sim Williams Janes

Erin Williams Janes

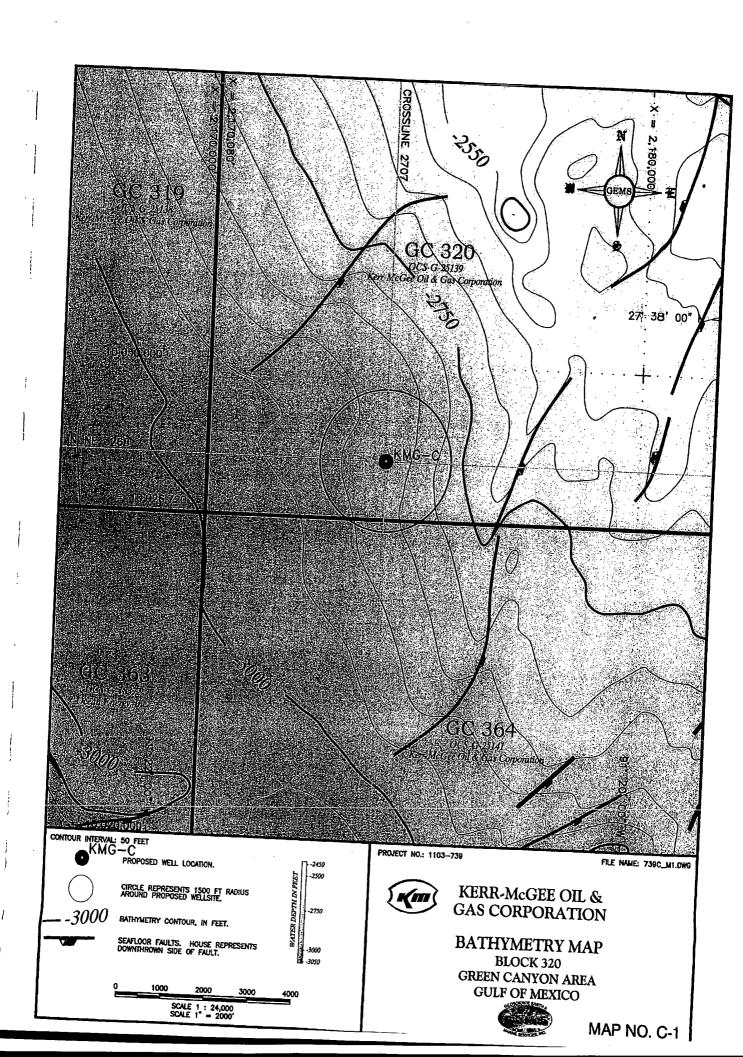
Geoscientist

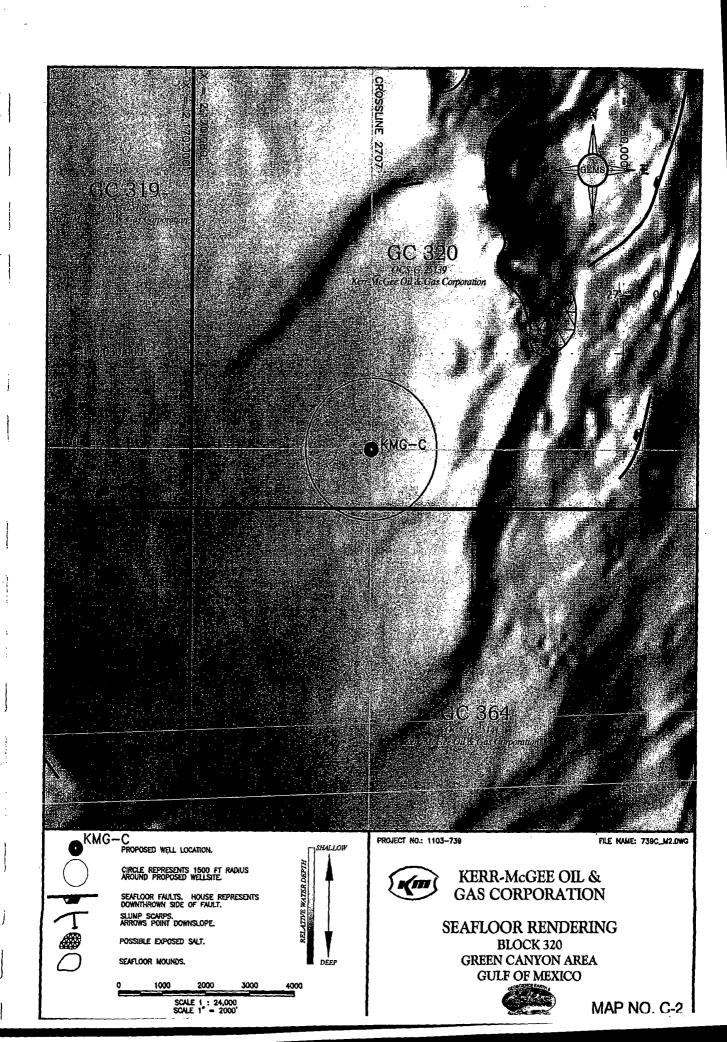
Michael J. Kaluza

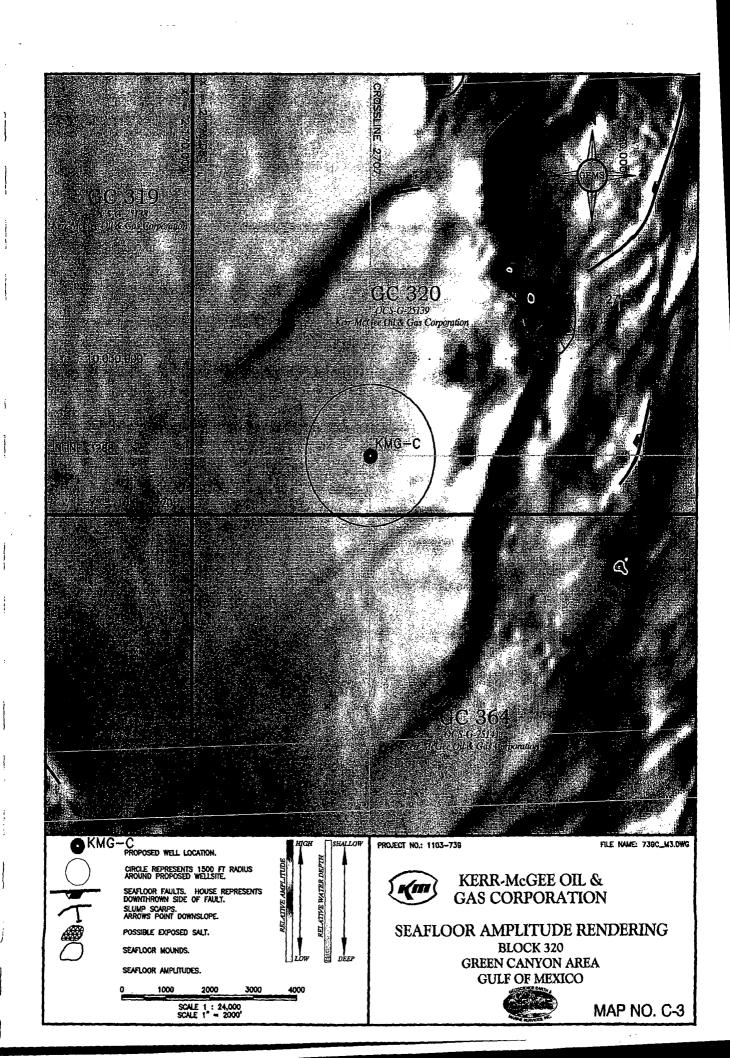
President/Marine Geologist

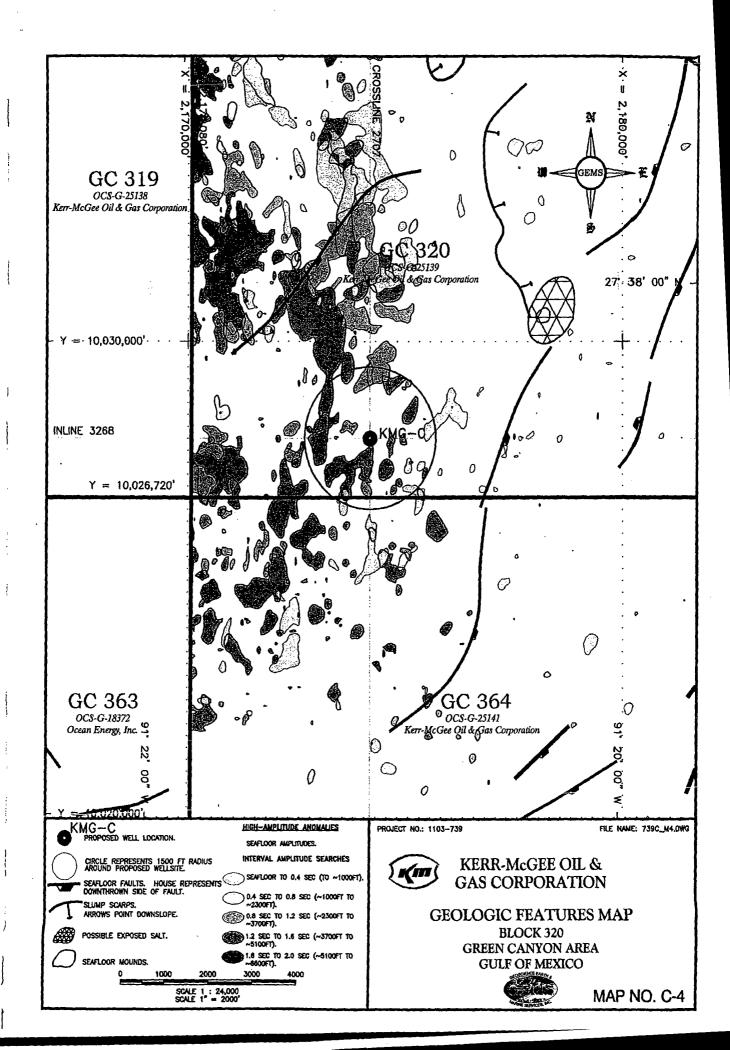
Attachments (4 Maps, 2 Figures)

Distribution:











10615 SHADOW WOOD DRIVE SUITE 200

HOUSTON, TEXAS 77043

Phone: (713) 468-1410 Fax: (713) 468-1438

E-mail: gems@gemsinc.com

July 14, 2004

Project No. 1103-739

Kerr-McGee Oil & Gas Corporation 16666 Northchase Drive Houston, Texas 70060

Attention: Ms. Margaret McCarthy

Site Clearance Letter Proposed Wellsite KMG-D Block 320 (OCS-G-25139) Green Canyon Area Gulf of Mexico

The Proposed Wellsite KMG-D in GC 320 appears suitable for exploration drilling operations. The potential for shallow water flow and minor shallow gas may influence drilling strategies at this site.

#### Introduction

Geoscience Earth & Marine Services, Inc., (GEMS) was contracted by Kerr-McGee Oil & Gas Corporation (Kerr-McGee) to prepare a Site Clearance Letter for the Proposed Wellsite KMG-D in Block 320 (OCS-G-25139), Green Canyon area (GC). This letter addresses specific seafloor and subsurface conditions near the proposed location to a depth of about 5,000 ft below the mudline (bml). This letter is based on findings provided within the geohazard report "Geologic and Stratigraphic Assessment, Blocks 320 (OCS-G-25139), 321 (OCS-G-20058), 364 (OCS-G-25141), and 365 (OCS-G-16737), Green Canyon Area, Gulf of Mexico" (GEMS Project No. 1103-739). The text, maps, and figures included in that report provide detail to the regional geology of the study area. This letter is intended to supplement that report with details pertaining directly to the proposed wellsite.

This letter complies with the Minerals Management Service (MMS) Notice-to-Lessees (NTL's) 2000-G20 and 98-20 (MMS, 2000 and 1998, respectively). The above stated Federal lease block does not lie within a historically significant area; therefore, requirements set forth in NTL 2002-G01 (MMS, 2002) are not applicable.

The Proposed Wellsite KMG-D is located in the southwest portion of Block 320, Green Canyon area, Gulf of Mexico. Kerr-McGee provided the following coordinates:

Proposed Wellsite KMG-D			
	ntum: Clarke 1866, NAD27 a: UTM Zone 15 North	Seismic Line Reference	Block Calls GC 320
X: 2,175,968.96 ft	Latitude: 27° 38' 07.17" N	Inline: 3328	5,888.96 ft FWL
Y: 10,031,901.54 ft	Longitude: 91° 20' 43.74" W	Crossline: 2729	5,181.54 ft FSL

#### Attachments

The letter-size maps and figures accompanying this letter were extracted from the main report's original maps and 3-D data volume. The maps and figures (listed below) are centered on the proposed well location.

Map D-1: Bathymetry Map Map D-2:

Seafloor Rendering Map D-3: Seafloor Amplitude Rendering

Map D-4: Geologic Features Map

Tophole Prognosis Chart, Proposed Wellsite KMG-D, Green Canyon Block 320 Figure D-1:

Figure D-2: Inline 3328 and Crossline 2729 Showing Conditions Beneath Proposed Wellsite KMG-D

#### Water Depth and Seafloor Conditions

The water depth at the proposed location is -2,689 ft (Map D-1) with soft hemipelagic clays likely covering the seafloor (Figure D-1). The seafloor slopes to the southwest with a gradient of 3.6° (6.3%) and is relatively smooth at this location (Map D-2). A seafloor slump scarp occurs approximately 925 ft east of the proposed wellsite (Map D-2). This scarp trends generally north-south with slumping occurring to the east. The slump scarp and related debris field should not impact the proposed wellsite. Seafloor conditions are favorable for exploration drilling activity.

#### **Chemosynthetic Communities**

There are no features or areas that could support significant high-density chemosynthetic communities within 1,500 ft of the proposed location. The Seafloor Amplitude Rendering (Map D-3) shows normal or ambient amplitudes along the seabed near the proposed wellsite.

#### Man-Made Features

There are no man-made features near the proposed surface location (Maps D-1 through D-4).

#### Sediments/Stratigraphy

Stratigraphic details are provided with the Tophole Prognosis Chart (Figure D-1). There are at least 201 ft of normally consolidated clays immediately below the seafloor. These normally consolidated clays should provide favorable conditions for anchoring and any bottom-founded structures. Mass-transport deposits occur below these clays and throughout the shallow section to the approximate Top of Salt (about 5,311 ft bml). These mass-transport deposits are likely clay-rich, but may contain some sands, particularly from 459 ft bml to 767 ft bml and 1,786 ft bml to 2,952 ft bml.

#### **Faults**

The Proposed Wellsite KMG-D will penetrate a fault with seafloor expression at approximately 2,072 ft bml (-4,761 ft bsl). This fault trends northeast to southwest with its seafloor expression approximately 1,840 ft northwest of the proposed wellsite (Map D-1 through D-4). No other shallow faults will be penetrated by the proposed wellsite.

#### **Shallow Gas**

There are no apparent subsurface high-amplitude anomalies directly below the proposed wellsite (Map D-4; Figures D-1 and D-2). There are low potentials for encountering significant accumulations of shallow gas between 459 ft bml and 767 ft bml and 1,786 ft bml and 2,952 ft bml. High-amplitude events that exist near the proposed wellsite occur within these units. Minor amounts of solution gas may exist within these sand-prone units; however, significant pressures are unlikely.

The potential for encountering gas in the remaining sequences at the Proposed Wellsite KMG-D is negligible (Figure D-1).

#### Shallow Water Flow

Mass-transport deposits within the Horizon 20 to Horizon 30 and Horizon 40 to Horizon 50 sequences (about 459 ft to 767 ft bml and 1,786 ft to 2,952 ft bml) are the most likely units to be sand-prone and water-bearing. There is an increase in the number of amplitude events originating from these units in this area. The Proposed Wellsite KMG-D is rated with a moderate potential for shallow water flow from these mass-transport deposits.

Low potentials for shallow water flow exist from 201 ft to 459 ft bml, 767 ft to 1,786 ft bml, and 2,952 ft bml to 5,311 ft bml (Figure D-1). Thin sand layers may exist within these generally clay-rich sequences; however, overpressured sand layers not likely.

The potential for encountering overpressured water sands in the remaining sequence at the proposed wellsite is negligible (Figure D-1).

#### Closing

The Proposed Wellsite KMG-D in GC 320 appears suitable for exploration drilling operations. We recommend, however, that your geologists, geophysicists, and drilling engineers consult on the best approach to drilling through the expected sandy units from 459 ft to 767 ft bml and 1,786 ft bml to 2,952 ft bml.

We appreciate the opportunity to be of service to Kerr-McGee and look forward to working closely with you on other projects.

Sincerely,

GEOSCIENCE EARTH & MARINE SERVICES, INC.

Erin Williams Janes

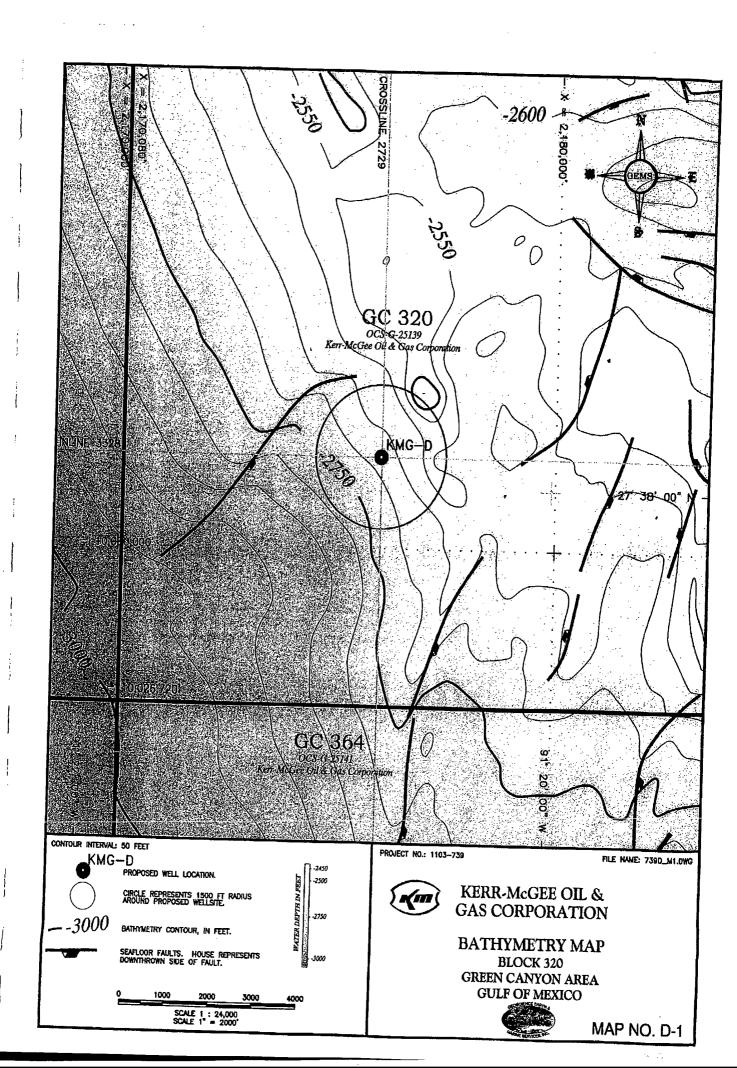
Geoscientist

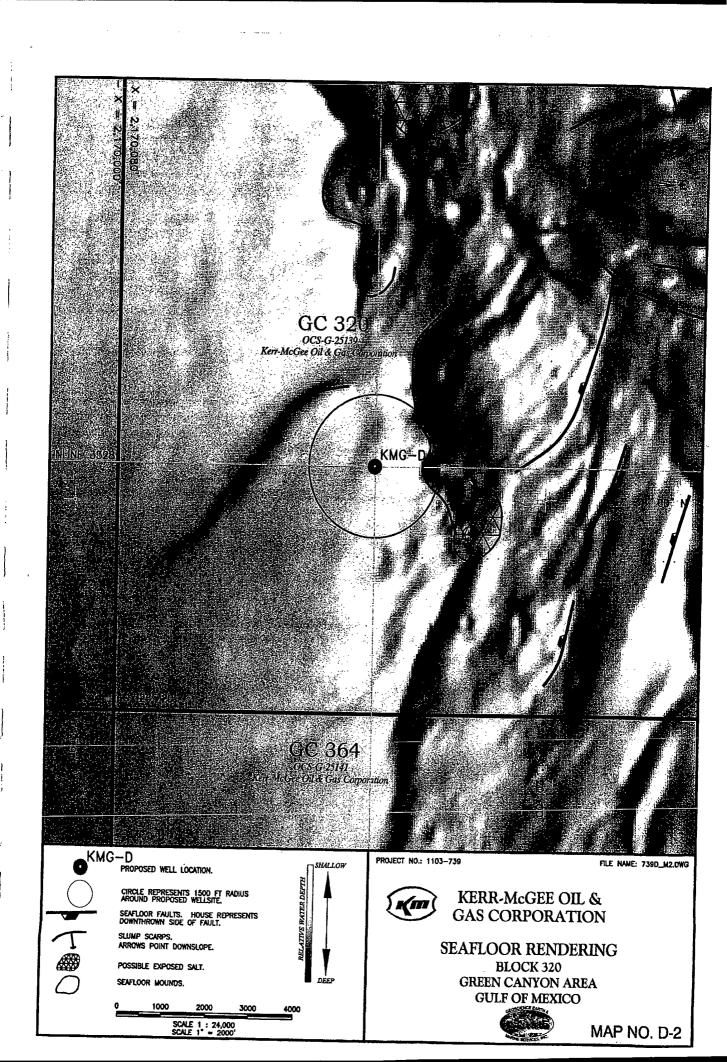
Michael J. Kaluza

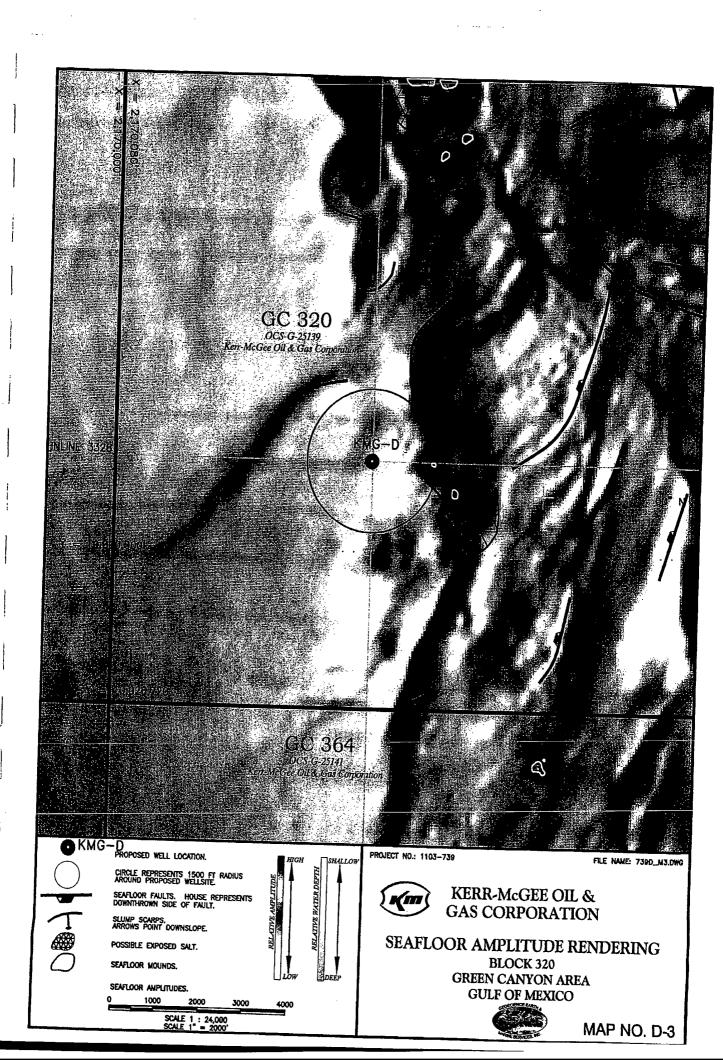
President/Marine Geologist

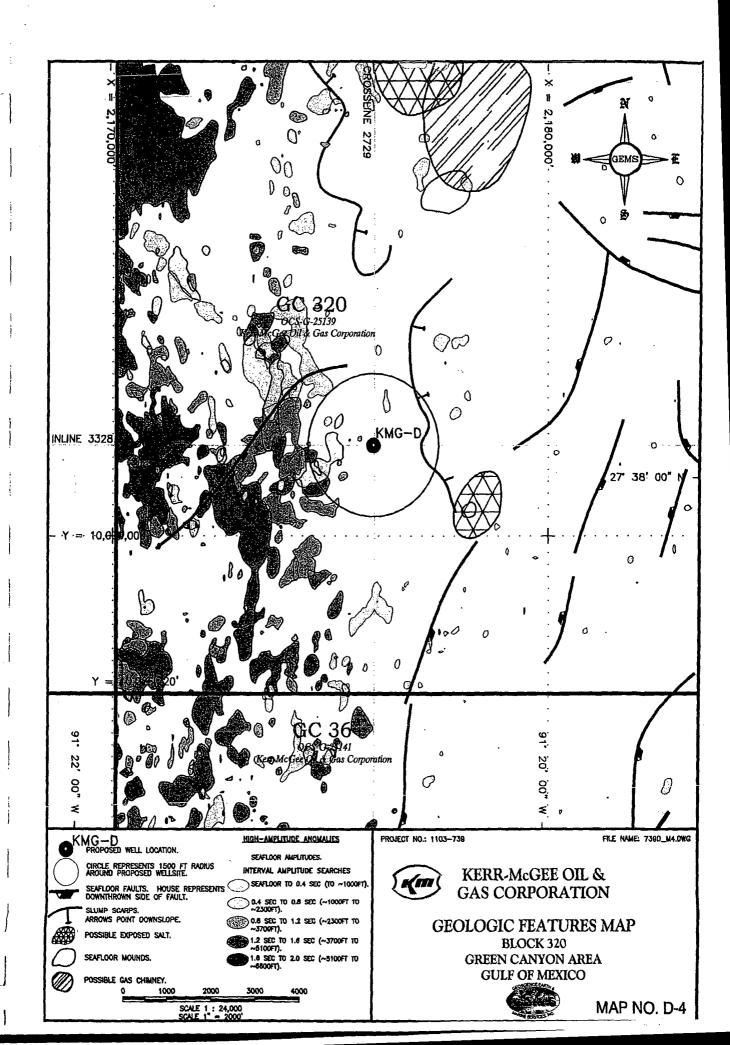
Attachments (4 Maps, 2 Figures)

Distribution:











10615 SHADOW WOOD DRIVE SUITE 200 HOUSTON, TEXAS 77043 Phone: (713) 468-1410 Fax: (713) 468-1438

E-mail: gems@gemsinc.com

Project No. 1103-739

July 14, 2004

Kerr-McGee Oil & Gas Corporation 16666 Northchase Drive Houston, Texas 70060

Attention: Ms. Margaret McCarthy

Site Clearance Letter Proposed Wellsite KMG-E Block 320 (OCS-G-25139) Green Canyon Area Gulf of Mexico

The Proposed Wellsite KMG-E in GC 320 appears suitable for exploration drilling operations. Complex faulting above salt and the potential for some faults in the area used as conduits for shallow gas may influence drilling strategies at this site. This site may require further study for production purposes.

#### Introduction

Geoscience Earth & Marine Services, Inc., (GEMS) was contracted by Kerr-McGee Oil & Gas Corporation (Kerr-McGee) to prepare a Site Clearance Letter for the Proposed Wellsite KMG-E in Block 320 (OCS-G-25139), Green Canyon area (GC). This letter addresses specific seafloor and subsurface conditions near the proposed location to a depth of about 1,200 ft below the mudline (bml). This letter is based on findings provided within the geohazard report "Geologic and Stratigraphic Assessment, Blocks 320 (OCS-G-25139), 321 (OCS-G-20058), 364 (OCS-G-25141), and 365 (OCS-G-16737), Green Canyon Area, Gulf of Mexico" (GEMS Project No. 1103-739). The text, maps, and figures included in that report provide detail to the regional geology of the study area. This letter is intended to supplement that report with details pertaining directly to the proposed wellsite.

This letter complies with the Minerals Management Service (MMS) Notice-to-Lessees (NTL's) 2000-G20 and 98-20 (MMS, 2000 and 1998, respectively). The above stated Federal lease block does not lie within a historically significant area; therefore, requirements set forth in NTL 2002-G01 (MMS, 2002) are not applicable.

The Proposed Wellsite KMG-E is located in the southeast portion of Block 320, Green Canyon area, Gulf of Mexico. Kerr-McGee provided the following coordinates:

Proposed Wellsite KMG-E			
	ntum: Clarke 1866, NAD27 I: UTM Zone 15 North	Seismic Line Reference	Block Calls GC 320
X: 2,180,833.23 ft	Latitude: 27° 37' 42.48" N	Inline: 3291	5,086.77 ft FEL
Y: 10,029,473.82 ft	Longitude: 91° 19' 50.03" W	Crossline: 2788	2,753.82 ft FSL

#### Attachments

The letter-size maps and figures accompanying this letter were extracted from the main report's original maps and 3-D data volume. The maps and figures (listed below) are centered on the proposed well location.

Map E-1: Bathymetry Map
Map E-2: Seafloor Rendering

Map E-3: Seafloor Amplitude Rendering

Map E-4: Geologic Features Map

Figure E-1: Tophole Prognosis Chart, Proposed Wellsite KMG-E, Green Canyon Block 320

Figure E-2: Inline 3291 and Crossline 2788 Showing Conditions Beneath Proposed Wellsite KMG-E

#### Water Depth and Seafloor Conditions

The water depth at the proposed location is -2,658 ft (Map E-1) with soft hemipelagic clays likely covering the seafloor (Figure E-1). The seafloor slopes to the southwest with a gradient of 1.3° (2.3%). The proposed location lies within a large band of irregular seafloor (Map E-2). This irregular seafloor is a result of the shallow salt uplift and surface faulting in the area. Seafloor conditions, however, appear to be favorable for exploration drilling activity.

#### Chemosynthetic Communities

There are no features or areas that could support significant high-density chemosynthetic communities within 1,500 ft of the proposed location. The Seafloor Amplitude Rendering (Map E-3) shows normal or ambient amplitudes along the seabed near the proposed wellsite.

#### Man-Made Features

There are no man-made features near the proposed surface location (Maps E-1 through E-4).

#### Sediments/Stratigraphy

Stratigraphic details are provided with the Tophole Prognosis Chart (Figure E-1). There are at least 284 ft of normally consolidated clays immediately below the seafloor. These normally consolidated clays should provide favorable conditions for anchoring and any bottom-founded structures. Mass-transport deposits occur below these clays and throughout the tophole section to the shallow Top of Salt (about 1,211 ft bml). These mass-transport deposits are probably clay-rich; however, some sands are likely to occur.

#### **Faults**

The uplift of the shallow salt has resulted in complex faulting near the proposed wellsite (Figure E-2). Two mapped seafloor faults, as well as several small bathymetric slope breaks that may represent minor seafloor offsets, exist within 1,500 ft of the proposed wellsite (Map E-2). Additionally, the Proposed Wellsite KMG-E will penetrate a seafloor fault at approximately 258 ft bml (-2,916 ft bsl). This fault trends northeast to southwest and is downthrown to the southeast. The seafloor expression of this fault occurs approximately 270 ft northwest of the proposed wellsite (Maps E-1 through E-4).

A vertical borehole will not penetrate any other mapped faults within the upper 1,211 ft bml (Figure E-1 and E-2). Additional faults may be present but are masked by the chaotic stratigraphy and structural complexity.

#### **Shallow Gas**

There are no apparent subsurface high-amplitude anomalies directly below the proposed wellsite (Map E-4; Figures E-1 and E-2). There is a negligible potential for encountering shallow gas in the upper 284 ft of normally deposited, fine-grained sediments.

There is a low potential for encountering significant shallow gas within the mass-transport deposits between 284 ft bml and 1,211 ft bml. Slightly higher amplitude reflectors along the seafloor fault penetrated by the proposed wellsite suggest that the fault has the potential to be used as a conduit for shallow gas. However, significant pressures are unlikely and only minor amounts of solution gas may be present at the proposed wellsite.

### **Shallow Water Flow**

The Proposed Wellsite KMG-E has a low potential for shallow water flow between 284 ft bml and 1,211 ft bml (Figure E-1). Sand lenses may exist within the mass-transport deposits above salt; however, insufficient sediment cover exists to provide the necessary overpressured environment. Abundant faulting in the area could also provide a release of any significant overpressures.

There is a negligible potential for shallow water flow in the remaining sequences above the salt.

#### Closing

The Proposed Wellsite KMG-E in GC 320 appears suitable for exploration drilling operations. We appreciate the opportunity to be of service to Kerr-McGee and look forward to working closely with you on other projects.

Sincerely,

GEOSCIENCE EARTH & MARINE SERVICES, INC.

Erin Williams Janes

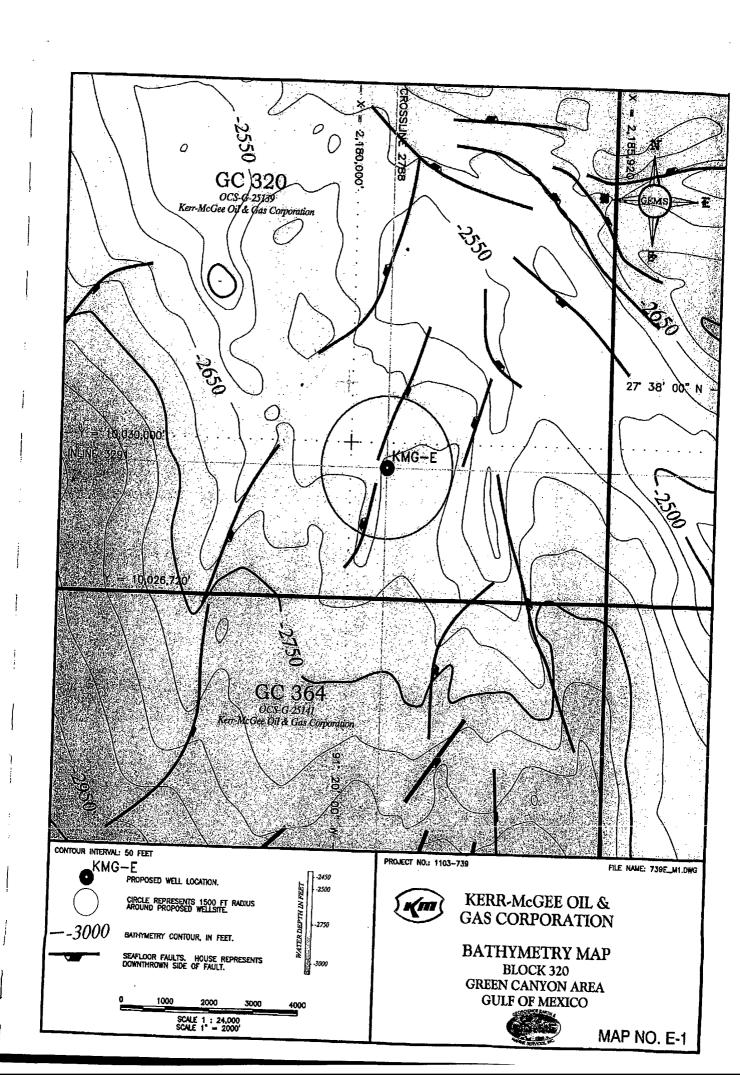
Geoscientist

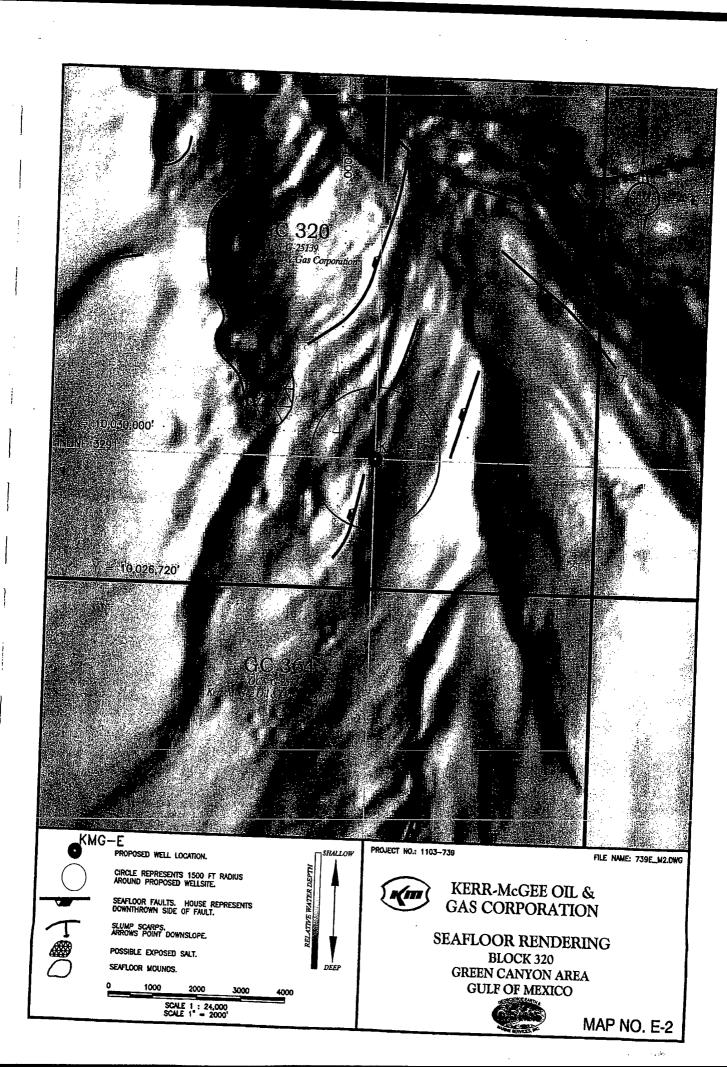
Michael J. Kaluza

President/Marine Geologist

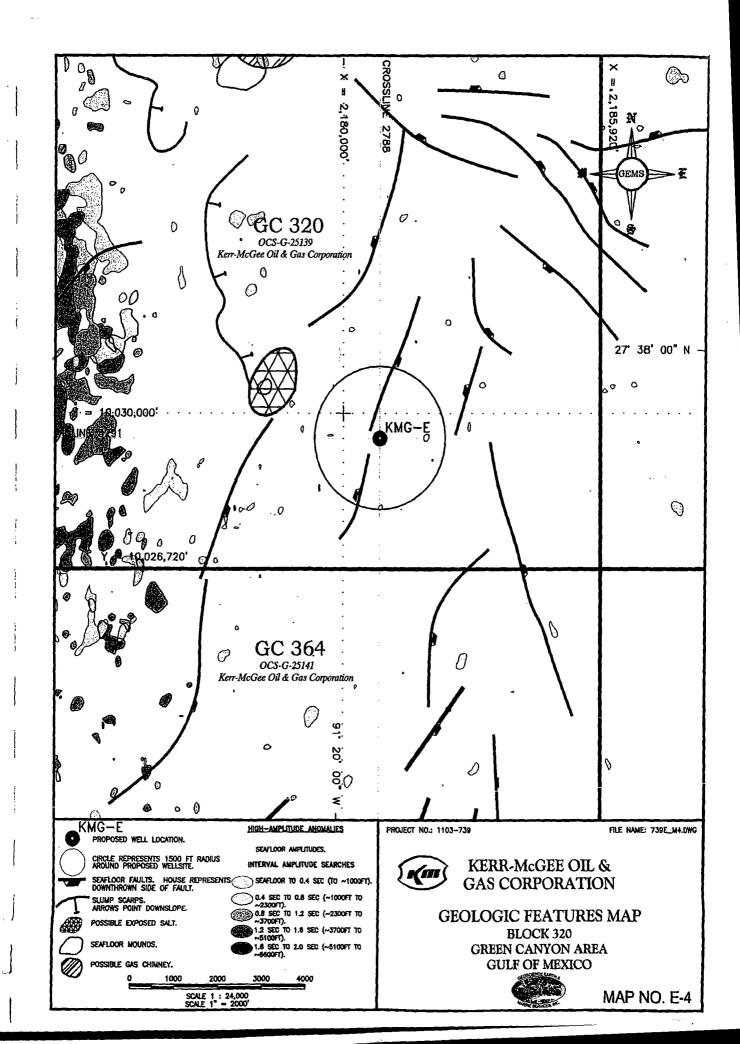
Attachments (4 Maps, 2 Figures)

Distribution:









## Stratigraphic Column

Attachment C-5 (Proprietary Information) **H2S Classification** 

Attachment C-6 (Public Information)

#### INTERNAL CORRESPONDENCE

Km	то	Mr. Cary Bradford	DATE	July 13, 2004
Gulf of Mexico Deepwater Exploration	FROM	Margaret McCarthy Angelo Okuma GOM Deepwater Exploration	SUBJECT	Plan of Exploration H₂S Statement Green Canyon Block 320

The proposed test will penetrate middle interval below salt. Few wells in the area have penetrated the sediments. A list of recently drilled wells which penetrated parts of the upper, middle and lower is provided below. To our knowledge none of these wells encountered H2S and therefore we request this area be declared absent of H2S through the . After penetrating the top , H2S equipment may be installed and monitored through total depth.

Local wells that have penetrated the upper, middle, and lower intervals are:

GC 99 #1	OCS-G-22930	Anadarko
GC 236 #2	OCS-G-15562	Chevron
GC 142 #1	OCS-G- 05093	Conoco
GC 485 #1	OCS-G-20070	Kerr McGee O & G
GC 534 #1	OCS-G-22974	Kerr McGee O & G
GC 415 #1	OCS-G-09931	Texaco
GC 640 #1	OCS-G-26082	Chevron

Angelo Okuma

Geologist, GOM Deepwater

## SECTION D Biological and Physical Information

## A. Chemosynthetic Information

The proposed seafloor disturbing activities vary in water depths from 2602 feet to 2874 feet.

#### MAPS

Submitted under separate cover are the maps prepared using high resolution seismic information and/or 3-D seismic data to depict bathymetry, seafloor and shallow geological features, surface location of each proposed well and platform, positions of anchors and chains relative to the proposed operations.

#### **ANALYSIS**

Submitted under separate cover is the analysis of seafloor features and areas that could be disturbed by the activities proposed in this Plan.

Features or areas that could support high-density chemosynthetic communities are not located within 1500 feet of each proposed muds and cuttings discharge location.

Features or areas that could support high-density chemosynthetic communities are not located within 1500 feet of any seafloor disturbances resulting from our use of anchors (including those caused by anchors, anchor chains, and wire ropes).

## B. Topographic Features Information

MMS and the National Marine Fisheries Service (NMFS) have entered into a programmatic consultation agreement for Essential Fish Habitat that requires that no bottom disturbing activities, including anchors or cables from a semi-submersible drilling rig, may occur within 500 feet of the no-activity zone of a topographic feature. If such proposed bottom disturbing activities are within 500 feet of a no activity zone, the MMS is required to consult with the NMFS.

The activities proposed in this Plan are not affected by a topographic feature.

## C. Live Bottom (Pinnacle Trend) Information

Certain leases are located in areas characterized by the existence of live bottoms. Live bottom areas are defined as seagrass communities; those areas that contain biological assemblages consisting of sessile invertebrates living upon and attached to naturally occurring hard or rocky formations with rough, broken, or smooth topography; and areas where the lithotope favors the accumulation of turtles, fishes, or other fauna. These leases contain a Live Bottom Stipulation to ensure that impacts from nearby oil and gas activities on these live bottom areas are mitigated to the greatest extent possible.

## SECTION D Biological and Physical Information - Continued

For each affected lease, the Live Bottom Stipulation requires that you prepare a live bottom survey report containing a bathymetry map prepared by using remote sensing techniques. This report must be submitted to the Gulf of Mexico OCS Region (GOMR) before you may conduct any drilling activities or install any structure, including lease term pipelines in accordance with NTL 99-G16.

Green Canyon Block 320 is not located within the vicinity of a proposed live bottom area.

### D. Remotely Operated Vehicle (ROV Surveys)

Pursuant to NTL No. 2003-G03, operators may be required to conduct remote operated vehicle (ROV) surveys during pre-spudding and post-drilling operations for the purpose of biological and physical observations.

Kerr-McGee is familiar with the ROV survey and reporting provisions of this NTL; and if required, will conduct surveys immediately prior to commencing drilling operations on Well Location A with an anticipated spud date of October 1, 2004, and following the completion of drilling operations approximately 90 days later.

Kerr-McGee will utilize a semi-submersible rig based ROV equipped with video imaging capabilities. The survey pattern will consist of six transects centered on the well location with tracks extending approximately 100 meters away from the well on bearing of 30 degrees, 90 degrees, 150 degrees, 210 degrees, 270 degrees and 330 degrees. The seafloor will be videotaped continuously along each track.

Kerr-McGee will make biological and physical observations as described in the subject NTL and Form MMS-141 prior to commencing drilling operations and also following the completion of drilling operations, but prior to moving the rig off location. The observations will be documented using Form MMS-141 or a facsimile and submitted to the MMS within 60 days after the second survey is completed.

## E. Archaeological Reports

MMS has issued NTL 2002-G01, this requirement provides protection of prehistoric and historic archaeological resources by requiring remote sensing surveys in areas designated to have a high probability for archaeological resources.

Green Canyon Block 320 is classified by MMS as a low probability area for archaeological resources; therefore, an archaeological survey is not required.

## SECTION E Wastes and Discharge/Disposal Information

The Minerals Management Service (MMS), U. S. Coast Guard (USCG) and the U.S. Environmental Protection Agency (EPA) regulate the overboard discharge and/or disposal of operational waste associated with drilling, completing, testing and/or production operations from oil and gas exploration and production activities.

Minerals Management Service regulations contained in Title 30 CFR 250.300 require operators to "prevent the unauthorized discharge of pollutants into offshore waters". These same regulations prohibit the intentional disposal of "equipment, cables, chains, containers, or other materials" offshore. Small items must be stored and transported in clearly marked containers and large objects must be individually marked. Additionally, items lost overboard must be recorded in the facility's daily log and reported to MMS as appropriate.

- U. S. Coast Guard regulations implement the Marine Pollution Research and Control Act (MARPOL) of 1987 requiring manned offshore rigs, platforms and associated vessels prohibit the dumping of all forms of solid waste at sea with the single exception of ground food wastes, which can be discharged if the facility is beyond 12 nautical miles from the nearest shore. This disposal ban covers all forms of solid waste including plastics, packing material, paper, glass, metal, and other refuse. These regulations also require preparation, monitoring and record keeping requirements for garbage generated on board these facilities. The drilling contractor must maintain a Waste Management Plan, in addition to preparation of a Daily Garbage Log for the handling of these types of waste. MODU's are equipped with bins for temporary storage of certain garbage. Other types of waste, such as food, may be discharged overboard if the discharge can pass through 25-millimeter type mesh screen. Prior to off loading and/or overboard disposal, an entry will be made in the Daily Garbage Log stating the approximate volume, the date of action, name of the vessel, and destination point.
- U. S. Environmental Protection Agency regulations address the disposal of oil and gas operational wastes under three Federal Acts. The Resource Conservation and Recovery Act (RCRA) which provides a framework for the safe disposal of discarded materials, regulating the management of solid and hazardous wastes. The direct disposal of operational wastes into offshore waters is limited under the authority of the Clean Water Act. And, when injected underground, oil and gas operational wastes are regulated by the Underground Injection Control program. If any wastes are classified as hazardous, they are to be properly transported using a uniform hazardous waste manifest, documented, and disposed at an approved hazardous waste facility.

A National Pollutant Discharge Elimination System (NPDES) permit, based on effluent limitation guidelines, is required for any discharges into offshore waters. Kerr-McGee has requested coverage under the Region VI NPDES General Permit GMG290000 for discharges associated with exploration and development activities in Green Canyon Block 320 and will take applicable steps to ensure all offshore discharges associated with the proposed operations will be conducted in accordance with the permit.

## SECTION E Wastes and Discharge/Disposal Information-Continued

## A. Composition of Solid and Liquid Wastes

The major operational solid waste in the largest quantities generated from the proposed operations will be the drill cuttings, drilling and/or completion fluids. Other associated wastes include waste chemicals, cement wastes, sanitary and domestic waste, trash and debris, ballast water, storage displacement water, rig wash and deck drainage, hydraulic fluids, used oil, oily water and filters, and other miscellaneous minor discharges.

These wastes are generated into categories, being solid waste (trash and debris), nonhazardous oilfield waste (drilling fluids, nonhazardous waste including cement and oil filters), and hazardous wastes (waste paint or thinners).

The type of discharges included in this permit application allow for the following effluents to be discharged overboard, subject to certain limitations, prohibitions and recordkeeping requirements.

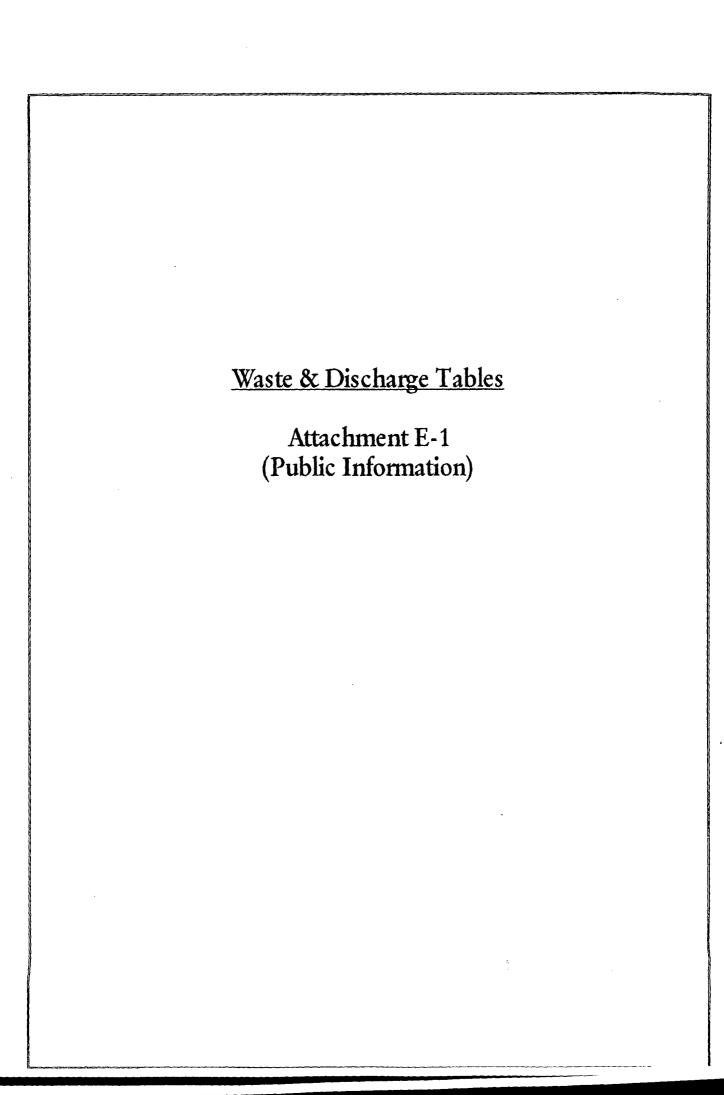
#### Overboard Discharges

In accordance with NTL 2003-G17, overboard discharges generated by the activities are not required for submittal in this Plan.

#### Disposed Wastes

The wastes detailed in *Attachment E-1* are those wastes generated by our proposed activities that are disposed of by means of offsite release, injection, encapsulation, or placement at either onshore or offshore permitted locations for the purpose of returning them back to the environment.

Kerr-McGee will manifest these wastes prior to being offloaded from the MODU, and transported to shore for disposal at approved sites regulated by the applicable State. Additionally, Kerr-McGee will comply with any approvals or reporting and recordkeeping requirements imposed by the State where ultimate disposal will occur.



### Kerr-McGee Oil & Gas Corporation Green Canyon Block 320 Examples of Wastes and Discharges Information

Table 1. Disposal Table (Wastes to be disposed of, not discharged)

The state of Despote the Control of the state of the stat				
Type of Waste	Amount*	Rate per	Name/Location of	Treatment and/or
Approximate		day	Disposal Facility	Storage, Transport and
Composition				Disposal Method
Spent oil-based drilling	1,000 bbl/well	200 bbl/day	Newpark Environmental	Transport to shore in barge
fluids and cuttings			Fourchon, LA	tanks to a land farm
Spent synthetic-based	1,000 bbl/well	200 bbl/day	Newpark Environmental	Transport to shore base in
drilling fluids and			Fourchon, LA	cuttings boxes on crew boat
cuttings				then inject down hole at
1				offshore waste disposal
				facility
Norm - contaminated	1 ton	Not	Green Canyon Block 320	Transport to a transfer station
wastes		applicable		via dedicated barge
Trash and debris	1,000 ft <sup>3</sup>	3 ft <sup>3</sup> /day	Newpark Environmental	Transport in storage bins on
			Fourchon, LA	crew boat to disposal facility
Chemical product	50 bb1/yr	2 bbl/day	Newpark Environmental	Transport in containers to
wastes			Fourchon, LA	shore location
Chemical product	100 bbl	2 bbl/day	Newpark Environmental	Transport in barrels on crew
wastes	<u> </u>		Fourchon, LA	boat to shore location

<sup>\*</sup>can be expressed as a volume, weight, or rate

# SECTION F Oil Spill Response and Chemical Information

## A. Regional Oil Spill Response Plan (OSRP) Information

Effective May 5, 2004, Minerals Management Service approved Kerr-McGee Oil & Gas Corporation (Kerr-McGee's) Regional Oil Spill Response Plan (OSRP). An update to the Regional Oil Spill Response Plan was submitted on June 23, 2004 updating the current exploratory worst-case discharge. Kerr-McGee Oil & Gas Corporation is the only entity covered under this OSRP. Activities proposed in this Initial Exploration Plan will be covered by the Regional OSRP.

### B. Oil Spill Removal Organizations (OSRO)

Kerr-McGee utilizes Clean Gulf Associates (CGA) as its primary provider for equipment, which is an industry cooperative owning an inventory of oil spill clean-up equipment. CGA is supported by the Marine Spill Response Corporation's (MSRC), which is responsible for storing, inspecting, maintaining and dispatching CGA's equipment. The MSRC STARS network provides for the closest available personnel, as well as an MSRC supervisor to operate the equipment.

## C. Worst-Case Scenario Comparison (WCD)

Category	Current Regional OSRP WCD	Proposed Exploration Plan WCD
Type of Activity	Drilling/Completion/Testing	Drilling/Completion/Testing
Facility Surface Location	Grand Island Block 106	Green Canyon Block 320
Facility Description	MODU	Jack-Up Rig
Distance to Nearest Shoreline (Miles)	50 Miles	100 Miles
Volume: Storage Tanks (total) Facility Piping (total) Lease Term Pipeline Uncontrolled Blowout (day) Potential 24 Hour Volume (Bbls.)	10,000	2,000
Type of Liquid Hydrocarbon	Oil	Oil
API Gravity	43°	28°

## SECTION F Oil Spill Response and Chemical Information-Continued

Due to the estimated flow rates from an exploratory well blowout are speculative and temporary in nature, Kerr-McGee will not modify their Regional OSRP to change the WCD.

Since Kerr-McGee has the capability to respond to the worst-case discharge (WCD) spill scenario included in its Regional OSRP approved on May 5, 2004, and since the worst-case scenario determined for our EP does not replace the worst-case scenario in our Regional OSRP, I hereby certify that Kerr-McGee has the capability to respond, to the maximum extent practicable, to a worst-case discharge, or a substantial threat of such a discharge, resulting from the activities proposed in our SEP.

## D. Facility Tanks, Production Vessels

The following table details the *tanks* (capacity greater than 25 bbls. or more) to be used to support the proposed activities (MODU and barges):

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)	
Fuel Oil	MODU	250	2	500	38° (Diesel)	

## E. Spill Response Sites

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## F. Diesel Oil Supply Vessels

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## G. Support Vessel Fuel Tanks

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## H. Produced Liquid Hydrocarbon Transportation Vessels

Kerr-McGee is proposing to conduct well testing operations on the proposed well locations. This process will include flaring the produced gas hydrocarbons and burning the liquid hydrocarbons.

## I. Oil and Synthetic-Based Drilling Fluids

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## SECTION F Oil Spill Response and Chemical Information (Continued)

## J. Oil Characteristics

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

### I. Blowout Scenario

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## L. Spill Discussion for NEPA Analysis

According to NIL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## M. Pollution Prevention Measures

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## N. FGBNMS Monitoring Plans

According to NTL 2003-G17, this section of the Plan is not applicable to the proposed operations.

## SECTION G Air Emissions Information

The primary air pollutants associated with OCS exploration activities are:

- Carbon Monoxide
- Particulate Matter
- Sulphur Oxides
- Nitrogen Oxides
- Volatile Organic Compounds

These offshore air emissions result mainly from the drilling rig operations, helicopters, and support 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.

### A. Calculating Emissions

Attachment G-1 is the Projected Air Quality Emissions Report (Form MMS-138) for Plan Emissions addressing drilling, potential completion and testing operations utilizing a typical semi-submersible drilling unit, with related support vessels and construction barge information.

## B. Screening Questions

As evidenced by Attachment G-1, the worksheets were completed based on flaring and burning operations.

#### C. Emission Reduction Measures

The projected air emissions are within the exemption level; therefore, no emission reduction measures are being proposed.

#### D. Verification of Non-Default Emissions Factors

Kerr-McGee has elected to use the default emission factors as provided in Attachment G-1.

## E. Non-Exempt Activities

The proposed activities are within the exemption amount as provided in Attachment G-1.

## SECTION G Air Emissions Information-Continued

## F. Review of Activities with Emissions Below the Exemption Level

The proposed activities are below the exemption amount and should not affect the air quality of an onshore area, as provided in *Attachment G-1*.

## G. Modeling Report

The proposed activities are below the exemption amount and should not affect the air quality of an onshore area.

Air Quality Emissions Report Attachment G-1 (Public Information)

EXPLORATION PLAN (EP)

OMB C	ontrol No. 1010-0049
Expires:	<b>September 30, 2003</b>

COMPANY	Kerr-McGee Oil & Gas Corporation	OMB Approval Expire
AREA	Green Canyon	
BLOCK	320	
LEASE	OCS-G 25139	
RIG	Semi-submersible	
WELL	A, B, C, D, and E	
COMPANY CONTACT	Christine Groth/R.E.M. Solutions, Inc.	
TELEPHONE NO.	281.492.8562	
REMARKS	Drill, Complete and potentially test five (5) well locat	ions.

Screening Questions for EP's 1. Company of the contract of the	- Yes	No
Is any calculated Complex Total (CT) Emission amount (in tons associated with your proposed exploration activities more than 90% of the amounts calculated using the following formulas: $CT = 3400D^{2/3}$ for CO, and $CT = 33.3D$ for the other air pollutants (where D = distance to shore in miles)?		X
Does your emission calculations include any emission reduction measures or modified emission factors?		×
Are your proposed exploration activities located east of 87.5° W longitude?		X
Do you expect to encounter H <sub>2</sub> S at concentrations greater than 20 parts per million (ppm)?		X
Do you propose to flare or vent natural gas for more than 48 continuous hours from any proposed well?	Х	
Do you propose to burn produced hydrocarbon liquids?	X	

Air Pollutant	Plan	Calculated	Calculated
A STATE OF THE STA	Emission	Exemption ::	Complex Total
		Amounts <sup>2</sup>	Emission
	(tons)	(tons)	Amountsi 2
Carbon monoxide (CO)	716.07	73250.78	NA
Particulate matter (PM)	94.99	3330.00	NA
Sulphur dioxide (SO <sub>2</sub> )	439.46	3330.00	NA
Nitrogen oxides (NOx)	3257.11	3330.00	NA
Volatile organic compounds (VOC)	98.54	3330.00	NA

<sup>&</sup>lt;sup>1</sup> For activities proposed in your EP or DOCD, list the projected emissions calculated from the worksheets.
<sup>2</sup> List the exemption amounts in your proposed activities calculated using the formulas in 30 CFR 250.303(d).
<sup>3</sup> List the complex total emissions associated with your proposed activities calculated from the worksheets.

#### **EMISSIONS CALCULATIONS 1ST YEAR**

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL			CONTACT		PHONE	REMARKS					
Kerr-McGee Oil & Gas (				emi-submersibl	A, B, C, D, a	nd E		Christine Groth	R.E.M. Solutions	281.492.8562						
OPERATIONS	EQUIPMENT			ACT. FUEL	RUN	TIME		MAXIMU	VI POUNDS P	ER HOUF		4	ES	TIMATED TO	NS	
	Diesel Engines	HP	GAL/HR	GAL/D												
<del></del>	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR		SCF/D	HR/D	DAYS	PM	SOx	NOx	voc	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	39555	1910.5065	45852.16	24	90	27.88	127.90	958.38	28.75	209.10	30.11	138.13	1035.05	31.05	225.83
	PRIME MOVER>600hp diesel	0	0	0.00	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	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	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0	1		0	1 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diese	0	0	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(crew)	2065	99.7395	2393.75	8	90	1.46	6.68	50.03	1.50	10.92	0.52	2.40	18.01	0.54	3.93
	VESSELS>600hp diesel(supply)	2065	99.7395	2393.75	10	39	1.46	6.68	50.03	1.50	10.92	0.28	1.30	9.76	0.29	2.13
	VESSELS>600hp diesel(tugs)	4200	202.86	4868.64	12	4	2.96	13.58	101.76	3.05	22.20	0.07	0.33	2.44	0.07	0.53
	DERRICK BARGE diese	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NSTALLATION	MATERIAL TUG diesel	0	0	0.00	O	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	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(supply)	0	0	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		<del> </del>		L	ll			<del> </del>	L			L
	TANK-	0			0	0				0.00					0.00	1
	OIL BURN	250			24	2	4.38	71.15	20.83	0.10	2.19	0.11	1.71	0.50	0.00	0.05
WELL TEST	GAS FLARE		208333.33		24	2		0.12	14.87	12.56	80.94	<b></b>	0.00	0.36	0.30	1.94
2004	YEAR TOTAL						38.13	226.10	1195.92	47.47	336.26	31.09	143.87	1066.12	32.26	234.42
EXEMPTION	DISTANCE FROM LAND IN	<del> </del>	L	L1		I	L	<b>I</b>	L							<del> </del>
CALCULATION	MILES	j										3330.00	3330.00	3330.00	3330.00	73250.7
	100.0	1										1	†			)

#### **EMISSIONS CALCULATIONS 2ND YEAR**

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		t	CONTACT		PHONE	REMARKS					
Kerr-McGee Oil & Gas Co	Green Canyon	320	OCS-G 25139	emi-submersible	A, B, C, D, and f			Christine Groth/	R.E.M. Solutions	281.492,8562						
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN	TIME	MAXIMUM POUNDS PER HOUR				ESTIMATED TONS					
	Diesel Engines	HP	GAL/HR	GAL/D												
<del> </del>	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	39555	1910.5065	45852.16	24.00	275.00	27.88	127.90	958.38	28.75	209.10	92.00	422.07	3162.66	94.88	690.03
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	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	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2065	99.7395	2393.75	8.00	275.00	1.46	6.68	50.03	1.50	10.92	1.60	7.34	55.04	1.65	12.01
	VESSELS>600hp diesel(supply)	2065	99.7395	2393.75	10.00	118.00	1.46	6.68	50.03	1.50	10.92	0.86	3.94	29.52	0.89	6.44
	VESSELS>600hp diesel(tugs)	4200	202.86	4868.64	12.00	12.00	2.96	13.58	101.76	3.05	22.20	0.21	0.98	7.33	0.22	1.60
FACILITY	DERRICK BARGE diesel	0	0	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	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(crew)	D	a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	G	0	0.00	0.00	0.00	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		<del></del>	}	<u> </u>	<u> </u>		L	<u> </u>	<u> </u>	<u> </u>	l	<u> </u>
	TANK-	0			0	0				0.00					0.00	
DRILLING	OIL BURN	250			24	6	4.38	71.15	20.83	0.10	2.19	0.32	5.12	1.50	0.00	0.16
WELL TEST	GAS FLARE		208333.33		24	6	<b> </b>	0.12	14.87	12.56	80.94	}	0.01	1.07	0.90	5.83
2005	YEAR TOTAL	-					38.13	226.10	1195.92	47.47	336.26	94.99	439.46	3257.11	98.54	716.07
EXEMPTION	DISTANCE FROM LAND IN	<del> </del>	l	L	·	<u> </u>	Ш	L	1	<u> </u>	L	<b> </b>	<del> </del>	<del> </del>	<del> </del>	<del> </del>
CALCULATION	MILES	Ì										3330.00	3330.00	3330.00	3330.00	73250.78
	100.0	7										{{	1	1	}	1

#### **EMISSIONS CALCULATIONS 3RD YEAR**

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL			CONTACT		PHONE	REMARKS					
Kerr-McGee Oil & Gas C	Green Canyon	320	OCS-G 25139	semi-submersible	A, B, C, D, and I			Christine Groth	R.E.M. Solutions	281.492.8562						
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT, FUEL	RUN	RUN TIME		MAXIMUM POUNDS PER HOUR				ESTIMATED TONS				
	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	PM	SOx	NOx	VOC	CO	PM	SOx	NOx_	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	39555	1910.5065	45852.16	24	86	27.88	127.90	958.38	28.75	209.10	28.77	131.99	989.05	29.67	215.79
	PRIME MOVER>600hp diesel	0	0	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	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	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	1 0			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	1 0	0	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(crew)	2065	99.7395	2393.75	8	86	1.46	6.68	50.03	1.50	10.92	0.50	2.30	17.21	0.52	3.76
	VESSELS>600hp diesel(supply)	2065	99.7395	2393.75	10	37	1.46	6.68	50.03	1.50	10.92	0.27	1.24	9.26	0.28	2.02
	VESSELS>600hp diesel(tugs)	4200	202.86	4868.64	12	4	2.96	13.58	101.76	3.05	22.20	0.07	0.33	2.44	0.07	0.53
FACILITY	DERRICK BARGE diesel	0	0	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	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(crew)	0	0	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(supply)	0	0	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				<u> </u>	<u> </u>	L	<u> </u>	<b> </b>	<u> </u>	L	<u> </u>	1
	TANK-	0			0	0				0.00			]		0.00	
DRILLING	OIL BURN	250			24	2	4.38	71.15	20.83	0.10	2.19	0.11	1.71	0.50	0.00	0.05
WELL TEST	GAS FLARE		208333.33		24	2		0.12	14.87	12.56	80.94	ļ	0.00	0.36	0.30	1.94
2006	YEAR TOTAL	1					38.13	226.10	1195.92	47.47	336.26	29.72	137.56	1018.82	30.84	224.10
EXEMPTION	DISTANCE FROM LAND IN		L		1	L	·	<del></del>	<u> </u>	L	L	<b> </b>		<del> </del>	<del> </del>	<del> </del>
CALCULATION	MILES	}										3330.00	3330.00	3330.00	3330.00	73250.78
	100.0	1												ļ		1

#### SUMMARY

COMPANY	AREA	BLOCK	15405				
Kerr-McGee Oil & Gas Corporation	Green Canyon		LEASE	PLATFORM	WELL		
	Cicen Carryon	320	OCS-G 25139	Semi-submersible	A, B, C, D, and E		
Year		Emitted		Substance			
	PM						
2004		SOx	NOx	Voc	Lco		
	31.09	143.87	1066.12	32.26			
2005	94.99	439.46	3257.11		234.42		
2006	29.72			98.54	716.07		
Allowable	1/	137.56	1018.82	30.84	224.10		
	<b>3330.00</b>	3330.00	3330.00	3330.00	227.10		

## SECTION H Environmental Impact Analysis

### A. IMPACT PRODUCING FACTORS (IPF'S)

The following matrix is utilized to identify the environmental resources that could be impacted by these IPF's. An "x" has been marked for each IPF category that Kerr-McGee has determined may impact a particular environmental resource as a result of the proposed activities. For those cells which are footnoted, a statement is provided as to the applicability of the proposed activities, and where there may be an effect, an analysis of the effect is provided.

Environmental Resources	Emissions (air, noise,	Effluents (muds, cuttings,	Physical Disturbances	Wastes Sent to	Accidents (e.g. oil spills,	Other IPF's
	light, etc.)	other discharges to the water column or seafloor	To the seafloor (rig or anchor emplacement, etc.)	Shore for Treatment Or disposal	chemical spills, H2S releases)	identified
Site Specific at Offshore	<del>                                     </del>	seartoor	<del> </del>	<del> </del>		<b></b>
Location	1			}		·
Designated topographic	<del> </del>			<b></b>	<del> </del>	<del> </del> -
feature				1		1
Pinnacle Trend area live	<del>  </del>			<del> </del>	<del> </del>	
hottoms	}			}	!	
Eastern Gulf live bottoms				1		<del> </del>
Chemosynthetic	<del>  </del>			<del> </del>	l	<u> </u>
communities				ļ	l	
Water quality		X			X	
Fisheries		X		l	X	
Marine mammals	X	X			X	
Sea turtles	X	X		1	X	
Air quality				l		
Shipwreck sites (known or		· · · · · · · · · · · · · · · · · · ·				
potential)	) )			1		
Prehistoric archaeological						
sites				ļ	į	
Vicinity of Offshore		·····				
Location				1		
Essential fish habitat					X	
Marine and pelagic birds					X	
Public health and safety				}		
Coastal and Onshore						
Beaches					X	
Wetlands		7			X	
Shorebirds and coastal						1
nesting birds				1	X	1
Coastal wildlife refuges					X	
Wilderness areas					X	
Other Resources						

#### B. VICINITY OF OFFSHORE LOCATION ANALYSES

### 1. Designated Topographic Features

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to topographic features. The proposed surface disturbances within Green Canyon Block 320 are located approximately 30 miles away from the closest designated topographic feature (Jakkula Bank). The crests of designated topographic features in the northern Gulf are found below 10 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by the currents moving around the bank; thereby avoiding the sessile biota.

#### 2. Pinnacle Trend Live Bottoms

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to a pinnacle trend area. The proposed surface disturbances within Green Canyon Block 320 are located a significant distance (> 100 miles) from the closest pinnacle trend live bottom stipulated block. The crests of the pinnacle trend area are much deeper than 20 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and thus not impacting the pinnacles.

#### 3. Eastern Gulf Live Bottoms

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to Eastern Gulf live bottoms. The proposed surface disturbances within Green Canyon Block 320 are located a significant distance (>100 miles) from the closest pinnacle Eastern Gulf live bottom stipulated block. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and would not be expected to cause adverse impacts to Eastern Gulf live bottoms because of the depth of the features and dilutions of spills.

### 4. Chemosynthetic Communities

Water depths in Green Canyon Block 320 range from 2602 feet to 2874 feet. The proposed activities are not located within the vicinity of any known chemosynthetic communities.

### 5. Water Quality

Accidental oil spill releases from the proposed activities, and cumulative similar discharge activity within the vicinity could potentially cause impacts to water quality. It is unlikely that an accidental oil spill release would occur from the proposed activities. In the event of such a release, the water quality would be temporarily affected by the dissolved components and small droplets. Currents and microbial degradation would remove the oil from the water column or dilute the constituents to background levels.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. Kerr-McGee will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

#### 6. Fisheries

Accidental oil spill releases from the proposed activities, and cumulative similar discharge activity within the vicinity may potentially cause some detrimental effects on fisheries. It is unlikely a spill would occur, however, such a release in open waters closed to mobile adult finfish or shellfish would likely be sublethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. Kerr-McGee will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

#### 7. Marine Mammals

As a result of the proposed activities, marine mammals may be adversely impacted by traffic, noise, accidental oil spills, cumulative similar discharge activity, and loss of trash and debris. Chronic and sporadic sublethal effects could occur that may stress and/or weaken individuals of a local group or population and make them more susceptible to infection from

natural or anthropogenic sources. Few lethal effects are expected from accidental oil spill, chance collisions with service vessels and ingestion of plastic material.

The net results of any disturbance would depend on the size and percentage of the population affected, ecological importance of the disturbed area, environmental and biological parameters that influence an animal's sensitivity to disturbance and stress, and the accommodation time in response to prolonged disturbance (Geraci and St. Aubin), 1980). Collisions between cetaceans and ship could cause serious injury or death (Laist et al., 2001). Sperm whales are one of 11 whale species that are hit commonly by ships (Laist et al., 2001). Collisions between OCS vessels and cetaceans within the project area are expected to be unusual events.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. Kerr-McGee will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality. Additionally, Kerr-McGee and its contractors will conduct the proposed activities under the additional criteria addressed by MMS in Notice to Lessee's (NTL's) 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species" and NTL 2003-G11 "Marine Trash & Debris Awareness & Elimination".

#### Sea Turtles

As a result of the proposed activities, sea turtles may be adversely impacted by traffic, noise, accidental oil spills, cumulative similar discharges, and loss of trash and debris. Small numbers of turtles could be killed or injured by chance collision with service vessels or by eating indigestible trash, particularly plastic items accidentally lost from drilling rigs, production facilities and service vessels. Drilling rigs and project vessels (construction barges) produce noise that could disrupt normal behavior patterns and crease some stress to sea turtles, making them more susceptible to disease. Accidental oil spill releases are potential threats which could have lethal effects on turtles. Contact and/or consumption of this released material could seriously affect individual sea turtles. Most OCS related impacts on sea turtles are expected to be sublethal. Chronic and/or avoidance of effected areas could cause declines in survival or productivity, resulting in gradual population declines.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which

address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. Kerr-McGee will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements.

As such, it is not anticipated these discharges will cause significant adverse impacts to water quality. Additionally, Kerr-McGee and its contractors will conduct the proposed activities under the additional criteria addressed by MMS in Notice to Lessee's (NTL's) 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species" and NTL 2003-G11 "Marine Trash & Debris Awareness & Elimination".

### 9. Air Quality

The proposed activities are located approximately 100 miles to the nearest shoreline. There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Air quality analyses of the proposed activities are below the MMS exemption level.

### 10. Shipwreck Site (Known or Potential)

There are no physical disturbances to the seafloor which could impact known or potential shipwreck sites, as the review of high resolution shallow hazards data indicate there are no known or potential shipwreck sites located within the surveyed area.

### 11. Prehistoric Archaeological Sites

There are no physical disturbances to the seafloor which could cause impacts to prehistoric archaeological sites, as the review of high resolution shallow hazards data and supporting studies did not reflect the occurrence of prehistoric archaeological sites.

## Site Specific Offshore Location Analyses

#### 1. Essential Fish Habitat

An accidental oil spill that may occur as a result of the proposed activities has potential to cause some detrimental effects on essential fish habitat. It is unlikely that an accidental oil spill release would occur, however, if a spill were to occur in close proximity to finfish or shellfish, the effects would likely be sublethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

### 2. Marine and Pelagic Birds

An accidental oil spill that may occur as a result of the proposed activities has potential to impact marine and pelagic birds, by the birds coming into contact with the released oil. It is unlikely that an accidental oil spill release would occur.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

### 3. Public Health and Safety Due to Accidents

There are no anticipated IPF's from the proposed activities that could impact the public health and safety. Kerr-McGee has requested MMS approval to classify the proposed objective area as absent of hydrogen sulfide.

## Coastal and Onshore Analyses

#### 1. Beaches

An accidental oil spill release from the proposed activities could cause impacts to beaches. However, due to the distance from shore (approximately 100 miles), and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

#### 2. Wetlands

An accidental oil spill release from the proposed activities could cause impacts to wetlands. However, due to the distance from shore (approximately 100 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

#### 3. Shore Birds and Coastal Nesting Birds

An accidental oil spill release from the proposed activities could cause impacts to shore birds and coastal nesting birds. However, due to the distance from shore (approximately 100 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

### 4. Coastal Wildlife Refuges

An accidental oil spill release from the proposed activities could cause impacts to coastal wildlife refuges. However, due to the distance from shore (approximately 100 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

#### 5. Wilderness Areas

An accidental oil spill release from the proposed activities could cause impacts to wilderness areas. However, due to the distance from shore (approximately 100 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Kerr-McGee's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

### Other Identified Environmental Resources

Kerr-McGee has not identified any other environmental resources other than those addressed above.

## Impacts on Proposed Activities

No impacts are expected on the proposed activities as a result of taking into consideration the site specific environmental conditions.

A High Resolution Shallow Hazards Survey was conducted, a report prepared in accordance with NTL 2002-G01 and NTL 98-20.

Based on the analysis of the referenced data, there are no surface or subsurface geological and manmade features and conditions that may adversely affect the proposed activities. Kerr-McGee will institute procedures to avoid pipelines and abandoned wells within the vicinity of the proposed operations.

### <u>Alternatives</u>

Kerr-McGee did not consider any alternatives to reduce environmental impacts as a result of the proposed activities.

## Mitigation Measures

Kerr-McGee will not implement any mitigation measures to avoid, diminish, or eliminate potential environmental resources, other than those required by regulation and policy.

## Consultation

Kerr-McGee has not contacted any agencies or persons for consultation regarding potential impacts associated with the proposed activities. Therefore, a list of such entities is not being provided.

## References

The following documents were utilized in preparing the Environmental Impact Assessment:

Document	Author	Dated
3D Seismic Data Survey	Geoscience Earth & Marine Services, Inc.	2004
MMS Environmental Impact Statement Report No. 2002-15	Minerals Management Service	2002
NTL 2003-N06 "Supplemental Bond Procedures	Minerals Management Service	2003
NTL 2004-G01 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"	Minerals Management Service	2004
NTL 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species"	Minerals Management Service	2003
NTL 2003-G11 "Marine Trash & Debris Awareness & Elimination"	Minerals Management Service	2003
NTL 2002-G09 "Regional and Subregional Oil Spill Response Plans"	Minerals Management Service	2002
NTL 2003-G17 "Guidance for Submitting Exploration Plans and Development Operations Coordination Documents"	Minerals Management Service	2003
NTL 2002-G01 "Archaeological Resource Surveys and Reports"	Minerals Management Service	2002
NTL 2000-G16 "Guidelines for General Lease Surety Bonds"	Minerals Management Service	2000
NTL 98-20 "Shallow Hazards Survey Requirements"	Minerals Management Service	1998
NTL 98-16 "Hydrogen Sulfide Requirements"	Minerals Management Service	1998
NPDES General Permit GMG290000	EPA - Region VI	1998
Regional Oil Spill Response Plan	Kerr-McGee Oil & Gas Corporation	2004

## SECTION I CZM Consistency

Under direction of the Coastal Zone Management Act (CMZA), the States of Alabama, Florida, Louisiana, Mississippi and Texas developed Coastal Zone Management Programs (CZMP) to allow for the supervision of significant land and water use activities that take place within or that could significantly impact their respective coastal zones.

A certificate of Coastal Zone Management Consistency for the State of Louisiana is enclosed as Attachment I-1.

Kerr-McGee Oil & Gas Corporation has considered all of Louisiana's enforceable policies and certifies the consistency for the proposed operations.

# Louisiana Coastal Zone Consistency Statement

Attachment I-1 (Public Information)

### **COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION**

## INITIAL EXPLORATION PLAN GREEN CANYON BLOCK 320

#### LEASE OCS-G 25139

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

By:	Kerr-McGee Oil & Gas Corporation
Signed By:	Chyrmasgo
Dated:	