Appendix B

National Pollutant Discharge Elimination System

Authorizations & Notice of Intent

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Authorization and Extension of Authorizations Dated 23 June 2011 Covering EP Blocks Posey Area 6714, 6762, 6764, 6812, 6912, and 6915

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10 1200 Sixth Avenue, Suite 900 Seattle, WA 98101-3140

OFFICE OF THE REGIONAL ADMINISTRATOR

JUN 23 2011

Ms. Susan Childs Alaska Venture Support Integrator Manager Shell Exploration & Production Company 3601 C Street, Suite 1000 Anchorage, Alaska 99503

RE: Coverage for Shell Exploration & Production Company under the National Pollutant Discharge Elimination System (NPDES) General Permit for Oil and Gas Exploration Activities on the Outer Continental Shelf and Contiguous State Waters for Discharges into the Chukchi and Beaufort Seas, Alaska

Dear Ms. Childs:

This letter provides the U.S. Environmental Protection Agency's (EPA) response to the Shell Exploration & Production Company's (Shell) submission of new and revised Notices of Intent (NOIs) and related documents for authorization to discharge into the Chukchi and Beaufort Seas. Specifically, the Shell NOIs requested permit coverage under the NPDES General Permit, AKG-28-0000 (Arctic GP), for wastewater discharges from Shell's proposed exploration activities beginning in the 2012 drilling season in both seas. This letter also addresses permit number changes for prior EPA-issued discharge authorizations under the Arctic GP.

Permit Number Changes and Revised Permit Authorizations for Blocks 6658 and 6610

In May 2009, Shell submitted NOIs for five lease blocks in the Chukchi Sea and two lease blocks in the Beaufort Sea. On January 20, 2010, the EPA issued discharge authorizations under the Arctic GP for Blocks 6764, 6714, 6912, 6864 and 7007 located in the Chukchi Sea. The EPA assigned permit number AKG-28-0004 for these five proposed drill sites. On April 20, 2010, the EPA issued discharge authorizations under the Arctic GP for Blocks 6658 and 6610 located in the Beaufort Sea. The EPA assigned permit number Assigned permit number AkG-28-0005 for these two proposed drill sites.

On October 12, 2010, Shell submitted a revised NOI for Block 6658 (Sivulliq N/G). The revised NOI removed six waste streams from the original NOI (i.e., drilling muds, drilling cuttings, sanitary waste, domestic waste, uncontaminated ballast water and bilge water).

On December 16, 2010, Shell resubmitted the five (5) original NOIs for the Chukchi Sea in accordance with the duty to reapply provisions of the Arctic GP, Part IV.B and 40 C.F.R. § 122.21(d). Shell also resubmitted the Sivulliq N/G NOI for Block 6658 and included a revised NOI for Block 6610 (Torpedo H). The revised NOI removed six waste streams from the original NOI (i.e., drilling muds, drilling cuttings, sanitary waste, domestic waste, uncontaminated ballast water and bilge water).

The five Chukchi Sea and the two revised Beaufort Sea NOIs were deemed complete. Accordingly, Arctic GP coverage for the five Chukchi Sea proposed drill sites is continued pursuant to the NPDES regulations at 40 C.F.R. §§ 122.6 and 122.21(d).

Pursuant to Part I.D.3 of the Arctic GP and in accordance with the two revised Beaufort Sea NOIs, Shell is authorized the following discharges into the Beaufort Sea from the two proposed drill sites, Block 6658 (Sivulliq N/G) and Block 6610 (Torpedo H), subject to the terms and conditions of the Arctic GP:

Discharge Number	Discharge Description			
002	Deck Drainage			
005	Desalination Unit Wastes			
006	Blowout Preventer Fluid			
009	Non-contact Cooling Water			
012	Excess Cement Slurry			
013	Muds, Cuttings, Cement at Seafloor			

The EPA has determined that administration of Arctic GP discharge authorizations will be clearer if different permit numbers are assigned to individual proposed drill sites. Consequently, the EPA is reassigning permit numbers as identified in the enclosed Attachment A. Attachment A is incorporated herein by reference. Please use the applicable NPDES permit numbers in all future correspondence and reports.

New Discharge Authorizations

On December 16, 2010, Shell also submitted 24 new NOIs for 11 proposed drill sites in the Chukchi Sea and 13 proposed drill sites in the Beaufort Sea (six in Harrison Bay and seven in Camden Bay). The 24 NOIs were submitted before any applicable deadline under 40 C.F.R. § 122.21(d)(2) or Part VI.B of the Arctic GP. The 24 NOIs are deemed complete.

Pursuant to Part I.D.3 of the Arctic GP, Shell is authorized the following discharges into the Chukchi Sea from 11 proposed drill sites (i.e., 6564, 6514, 6812, 6762, 6713, 6811, 6914, 6864, 6915, 6763 and 6971), subject to the terms and conditions of the Arctic GP:

Discharge Number	Discharge Description
001	Drilling Fluids and Drilling Cuttings
002	Deck Drainage
003	Sanitary Wastes
004	Domestic Wastes
005	Desalination Unit Wastes
006	Blowout Preventer Fluid
009	Non-contact Cooling Water
010	Uncontaminated Ballast Water
011	Bilge Water
012	Excess Cement Slurry
013	Muds, Cuttings, Cement at Seafloor

Pursuant to Part I.D.3 of the Arctic GP, Shell is authorized the following discharges into the Beaufort Sea (Harrison Bay) from six proposed drill sites (i.e., 6222, 6273, 6352, 6373, 6374/6424 and 6351/6401), subject to the terms and conditions of the Arctic GP:

Discharge Number	Discharge Description
001	Drilling Fluids and Drilling Cuttings
002	Deck Drainage
003	Sanitary Wastes
004	Domestic Wastes
005	Desalination Unit Wastes
006	Blowout Preventer Fluid
009	Non-contact Cooling Water
010	Uncontaminated Ballast Water
011	Bilge Water
012	Excess Cement Slurry
013	Muds, Cuttings, Cement at Seafloor

Pursuant to Part I.D.3 of the Arctic GP, Shell is authorized the following discharges into the Beaufort Sea (Camden Bay) from the seven proposed drill sites (i.e., 6757, 6707, 6709, 6559 (Torpedo C/J), 6609, 6558 and 6508), subject to the terms and conditions of the Arctic GP:

Discharge Number	Discharge Description
002	Deck Drainage
005	Desalination Unit Wastes
006	Blowout Preventer Fluid
009	Non-contact Cooling Water
012	Excess Cement Slurry
013	Muds, Cuttings, Cement at Seafloor

The EPA has assigned individual permit numbers to each of the 24 proposed drill sites as identified in the enclosed Attachment A. Please use the applicable NPDES permit numbers in all future correspondence and reports.

Please note the effluent limitations and monitoring requirements in Part II and the monitoring, recording and reporting requirements in Part III of the Arctic GP. Discharge Monitoring Reports must be submitted monthly by the 10th day of the following month.

A copy of the Arctic GP is enclosed and is also available on the EPA's webpage at <u>http://yosemite.epa.gov/r10/water.nsf/npdes+permits/arctic-gp</u>. Facilities discharging under the authority of the Arctic GP must keep a copy of the permit and this coverage letter at the facility where the discharges occur, or retain a copy at the nearest administrative or field office managing the operation.

The EPA is in the process of reissuing the Arctic GP as two separate exploration general permits for the Beaufort and Chukchi Seas. Permit coverage under the Arctic GP will expire when coverage under the reissued general permits is in effect. Operators authorized to discharge under the Arctic GP will be required to submit new NOIs for continued permit coverage under the applicable general permits when they are reissued.

If you have any questions regarding this coverage letter or the Arctic GP, please do not hesitate to contact Hanh Shaw, NPDES Permits Unit, at <u>shaw.hanh@epa.gov</u> or (206) 553-0171.

Sincerely,

Mahe

Dennis J. McLerran Ar Regional Administrator

Enclosures

Attachment A Shell Exploration and Production Company AKG-28-0000 NPDES Permit Numbers

Permit Number	Lease Block	Well Name	Location
AKG-28-0004	6912	Burger J	Chukchi Sea
AKG-28-0005	6764	Burger C	Chukchi Sea
AKG-28-0006	6714	Burger F	Chukchi Sea
AKG-28-0007	7007	SW Shoebill C	Chukchi Sea
AKG-28-0008	6864	Crackerjack C	Chukchi Sea
AKG-28-0009	6658	Sivulliq N/G	Beaufort Sea – Camden Bay
AKG-28-0010	6610	Torpedo H	Beaufort Sea – Camden Bay
AKG-28-0011	6564	Bluefoot A	Chukchi Sea
AKG-28-0012	6514	Bluefoot B	Chukchi Sea
AKG-28-0013	6812	Burger R	Chukchi Sea
AKG-28-0014	6762	Burger S	Chukchi Sea
AKG-28-0015	6713	Burger TBD	Chukchi Sea
AKG-28-0016	6811	Burger TBD	Chukchi Sea
AKG-28-0017	6914	Burger TBD	Chukchi Sea
AKG-28-0018	6864	Burger U	Chukchi Sea
AKG-28-0019	6915	Burger V	Chukchi Sea
AKG-28-0020	6763	Burger Z	Chukchi Sea
AKG-28-0021	6971	Honey Guide A	Chukchi Sea
AKG-28-0022	6222	Cornell A	Beaufort Sea – Harrison Bay
AKG-28-0023	6273	Cornell B	Beaufort Sea – Harrison Bay
AKG-28-0024	6352	Mauya A	Beaufort Sea – Harrison Bay
AKG-28-0025	6373	Mauya B1	Beaufort Sea – Harrison Bay
AKG-28-0026	6374/6424	Mauya B2	Beaufort Sea – Harrison Bay
AKG-28-0027	6351/6401	Maya B3	Beaufort Sea – Harrison Bay
AKG-28-0028	6757	Sivulliq K	Beaufort Sea – Camden Bay
AKG-28-0029	6707	Sivulliq R	Beaufort Sea – Camden Bay
AKG-28-0030	6709	Sivulliq W	Beaufort Sea – Camden Bay
AKG-28-0031	6559	Torpedo C/J	Beaufort Sea – Camden Bay
AKG-28-0032	6609	Torpedo D	Beaufort Sea – Camden Bay
AKG-28-0033	6558	Torpedo E	Beaufort Sea – Camden Bay
AKG-28-0034	6508	Torpedo F Beaufort Sea – Camde	

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Initial EPA Authorization Dated 20 January 2010 Covering EP Blocks Posey Area 6762, 6915, and 6812

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10 1200 Sixth Avenue, Suite 900 Seattle, Washington 98101-3140

JAN 2 0 2010

Reply to Attn of: OWW-130

Ms. Susan Childs Regulatory Affairs Manager, Alaska Shell Exploration & Production Company 3601 C Street, Suite 1000 Anchorage, Alaska 99503

Re: Coverage for Shell Exploration & Production Company under the National Pollutant Discharge Elimination System (NPDES) General Permit for Oil and Gas Exploration Activities on the Outer Continental Shelf and Contiguous State Waters for Discharges into the Chukchi Sea, Alaska (AKG-28-0004)

Dear Ms. Childs:

On May 22, 2009, the U.S. Environmental Protection Agency received five Notices of Intent (NOIs) from Shell Exploration & Production Company (Shell) for authorization to discharge into the Chukchi Sea. Specifically, the NOIs requested permit coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit, AKG-28-0000 (Arctic GP), for wastewater discharges from Shell's proposed exploration activities planned for the 2010 Outer Continental Shelf (OCS) drilling season with the drillship *Frontier Discoverer*.

On November 5, 2009, EPA requested additional information from Shell to determine whether the requested discharges could be covered under the Arctic GP. EPA received the supplemental information on December 1, 2009.

Pursuant to Part I.D.3 of the Arctic GP, Shell is authorized the following discharges into the Chukchi Sea from the five proposed drill sites summarized in Table 1, below, subject to the terms and conditions of the Arctic GP:

Discharge Number	Discharge Description
001	Drilling Fluids and Drilling Cuttings
002	Deck Drainage
003	Sanitary Wastes
004	Domestic Wastes
005	Desalination Unit Wastes
006	Blowout Preventer Fluid
009	Non-contact Cooling Water
010	Uncontaminated Ballast Water
011	Bilge Water
012	Excess Cement Slurry
013	Muds, Cuttings, Cement at Seafloor

Prospect	Well	Area	Block	Lease No.
Burger	С	Posey	6764	OCS-Y-2280
Burger	F	Posey	6714	OCS-Y-2267
Burger	J	Posey	6912	OCS-Y-2321
Crackerjack	С	Karo	6864	OCS-Y-2111
SW Shoebill	С	Karo	7007	OCS-Y-2142

Table 1 – Proposed Drill Sites (Chukchi Sea)

Please note the effluent limitations and monitoring requirements in Part II. and the monitoring, recording and reporting requirements in Part III of the Arctic GP. Discharge Monitoring Reports must be submitted monthly by the 10th day of the following month.

The permit number assigned to this operation is AKG-28-0004. Please use this number in all future correspondence and reports. A copy of the Arctic GP is enclosed and is also available on EPA's webpage at <u>http://epa.gov/r10earth/waterpermits.htm</u> under general permits. Facilities discharging under the authority of the Arctic GP must keep a copy of the permit and this coverage letter at the facility where the discharges occur, or retain a copy at the nearest administrative or field office managing the operation.

If you have any questions regarding this coverage letter or the Arctic GP, please do not hesitate to contact Hanh Shaw of my staff at <u>shaw.hanh@epa.gov</u> or (206) 553-0171.

Sincerely,

Michael J. Lidgard, Manager NPDES Permits Unit

Enclosure

Notice of Intent for Extension Dated 16 December 2010 Covering EP Blocks Posey Area 6762, 6915, and 6812

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Shell Exploration & Production Company

December 16, 2010

Ms. Hanh Shaw U.S. EPA, Region 10 Office of Water & Watersheds, NPDES Permits Unit 1200 Sixth Avenue, Suite 900, M/S OWW-130 Seattle, WA 98101 Shell 3601 C Street, Suite 1000 Anchorage, AK 99503

Tel. (907) 646-7112 Email <u>susan.childs@shell.com</u> Internet <u>http://www.shell.com</u>/

Dear Ms. Shaw:

Subject: Notice of Intent for administrative extension under General Permit AKG-28-0000 Lease Number OCS-Y-2266, Lease Block 6713 Lease Number OCS-Y-2278, Lease Block 6762 Lease Number OCS-Y-2279, Lease Block 6763 Lease Number OCS-Y-2310, Lease Block 6864 Lease Number OCS-Y-2323, Lease Block 6914 Lease Number OCS-Y-2324, Lease Block 6915 Lease Number OCS-Y-2294, Lease Block 6812 Lease Number OCS-Y-2293, Lease Block 6811 Lease Number OCS-Y-1976, Lease Block 6971 Lease Number OCS-Y-2040, Lease Block 6514 Lease Number OCS-Y-2050, Lease Block 6564

In accordance with 40 CFR 122.21(d) Shell Gulf of Mexico Inc. (Shell) is submitting Notices of Intent (NOIs) for the Lease Blocks listed above for authorization to discharge under General Permit AKG-28-0000 that expires on June 26, 2011. It is Shell's understanding that a new general permit is not scheduled to be issued until the fall of 2011. Therefore, these NOIs also serve as Shell's request for an administrative extension to discharge under NPDES General Permit AKG-28-0000 for 2011 and beyond for each authorized NOI until the new General Permit is available.

If you have questions about any component of the proposed project, please contact me at (907) 646-7112 or email <u>susan.childs@shell.com</u>, or call Nicole St. Amand at (907) 646-7152 or email <u>nicole.stamand@shell.com</u>.

Sincerely,

Jusco Childe

Susan Childs Alaska Venture Support Integrator Manager Attachments - Notice of Intent (NOI) Information Sheets Location Maps Ocean Discharge Tables Discharge Flow Diagrams

cc: Diane Soderlund, USEPA Region 10, Alaska Operations Michael Lidgard, USEPA Region 10 Jeff Walker, BOEM Alaska Don Perrin, Alaska DNR Administrative Record

Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	CANT (Own	er/Oper	rator)							
Owner Nar	me:	Shell	Gulf of Mex	xico Inc.				3601 C Stre	et	
Telephone	Number:	907-770-3700			Operator Mailing Address:			Suite 1000		
Operator N	lame:	Shell Gulf of Mexico Inc.						Anchorage,	AK 99503	
Telephone	Number:	907-7	/70-3700							
FACILITY										
Facility Na	ime:	Noble	e Discoverer	•	Es silita Mailin a			3601 C Stre	et	
Contact Na	ame:	Susar	1 Childs		Addro		mg	Suite 1000		
Telephone	Number:	907-7	70-3700		Audre	35.		Anchorage,	AK 99503	
Beginning	Date of	TBD						Latitude:		
Operation:					Statio	nary				
Expected I	Duration of	32 da	ys per well s	site	Facili	ties		Longitude:		
Operation:										
			Jackup					Initial	TBD	
Facility Ty	pe		Drill Ship					Latitude:		
(check appli	icable type)		Semisubm	ersible	Mobile Facilities					
			Other (spe	cify):			Initial	TBD		
							Longitude:			
Submit a si	ite map showi	ing the	exact location	on of facility and	dischar	ges ass	ociate	d with the pro	ject. Mobile facilities	
may design	nate an area w	here th	ey may be o	perating and mus	st includ	le a ma	p sho	wing those are	eas and a description of	
operations	within those	areas.	If the dischar	rge is within 400	0 meter	s of an	envire	onmentally se	nsitive area indicated by	
the permit,	those areas a	nd thei	r distance fro	om the operation/	/dischar	ge mus	t be sl	hown on the n	nap.	
RECEIV	/ING WAT	ΓER								
Chu	kchi Sea					Other	r (<i>spe</i>	cify): 🗌		
Beau	ufort Sea									
Supply con	firmation wit	th the U	J.S. Departm	nent of State and	NOAA	that the	e discł	narge is seawa	ard of the inner boundary	
baseline, if	applicable.		•					2	-	
LOCAT	ION OF D	ISCH	ARGE							
MMS	Lease Num	ber	OCS-Y-2	2278		ND	Leas	se Number	N/A	
IVIIVIS	Block Num	ber	Posev Ar	osev Area Block		INK	Bloc	ck Number	N/A	
			6762							
Range of w	vater depths b	elow m	iean lower	_						
low water (low water (MLLW) in the lease block:			145	•		To:	145'		

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NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

Discharges (check	all that apply)				
001 Drilling N	Aud and Cuttings	Water Depth	n: 19.6'		
002 Deck Dra	inage	Water Depth	n: 19.6'		
003 Sanitary	Waste		Water Depth	n: 19.6'	
004 Domestic	Waste		Water Depth	n: 19.6'	
005 Desalinat	ion Unit Waste		Water Depth	n: 19.6'	
006 Blowout	Preventer Fluid		Water Depth	n: 145'	
007 Boiler Bl	owdown		Water Depth	1:	
008 Fire Cont	rol System Test Water		Water Depth	1:	
009 Non-Con	act Cooling Water		Water Depth	n: on the surface at	
				several locations	
010 Uncontar	ninated Ballast Water		Water Depth	n: 19.6'	
011 Bilge Wa	ter		Water Depth	n: 19.6'	
012 Excess C	ement Slurry		Water Depth	n: 19.6'	
013 Mud, Cut	tings, Cement and Seafloor		Water Depth	n: MLC through 26	11
				section cuttings at	t
				135', excess cemer	nt
				at 145'	
014 Test Flui	1		Water Depth	n:	
Provide a brief descrip	tion of the treatment process(es) an	d disposal pract	tices (e.g., ba	ckhauled, reinjected, discharg	ed,
etc.) at the facility. Se	e attached (Table T)	te streams throu	igh the facili	ty Indicate intake sources	
operations contributin	g to the effluent, and treatment units	s labeled to corr	respond to the	e discharges (001 – 014).	
Construct a flow balar	ce on the line drawing by showing	average flows b	etween intak	kes, operations, treatment units	3,
and outfalls. If a flow	balance cannot be determined, prov	vide a pictorial o	description o	f the nature and amount of any	y
sources, and any colle	ction or treatment measures.				
Well Information	D	Tradicales		TIDD	
Well Name:	Burger	Lantude:			
well Number:	S	Longitude:			
Beginning Drill Date:	TBD	Figure Figure Figure And Figure A	er or stal Discharg	36" diameter at	
	Volur			surface, reducing	
			throug		
Derilling - Flasid				8.5° at depth	
Drilling Fluid	Water based			Lignogulfonata	
Category		4			
(check all that apply)	heck all that apply)				
(inter and man apply)	Other (specify):	(check all the	$(t apply) \mid \frac{L}{N}$	$\square Oyp$	
	Unier (specify).			Sea-water	

	\square	Saltwater
		Saturated Saltwater
	\boxtimes	Nondispersed
		(Viscosifier/Polymer) PH/PA

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NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

Zone of Deposit Request (applicable to those discharges within state of Alaska waters)							
Are you requesting a Zone of Deposit from ADEC?			Yes (continue f this section	ïlling out 1)	\boxtimes	No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST BE PROVIDED IF REQUESTING A ZONE OF DEPOSIT. The burden							
of proof for justifying a zone of deposit through demonstrating compliance with the requirements of 18 AAC 70.210 rests with the applicant							
Distance from shoreline of discharge point				Average 1	Mud		
(measured at M.L.L.W.):				density:			
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:		
Orientation of outfall to shoreline				T. (1 V. 1			
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:		
Orientation of outfall to water surface				Maximun	n currer	nt	
(e.g., perpendicular, 45°, parallel):				and direct	tion:		
If possible, provide salinity and temperature data	from the rec	eiving w	vater surface t	o the depth of	the disc	harge port or diffuser.	
Mixing Zone Request (applicable to	those di	scharg	ges within	state of Al	aska w	vaters)	
Are you requesting a mixing zone from ADE	EC?	Yes (continue filling of this section)				No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of	
proof for justifying a mixing zone through dem	nonstrating	complia	ance with the	requirements	s of 18 A	AAC 70.240 through	
18 AAC 70.270 rests with the applicant.							
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first	Length of diffuser:					
Depth of discharge port or diffuser							
(measured at M.L.L.W.):				:			
Orientation of diffuser to shoreline				NT 1 C			
(e.g., perpendicular, 45°, parallel):				Number of j	ports:		
Maximum current:				Port spacing	;:		
USE OF RECEIVING WATER AT DISTAN	NCE FROM	M DIFF	USER i.e., S	upply for dri	nking w	ater, Supply for	
agriculture including irrigation & stock water, Supply for aquaculture, Supply for industrial use, Contact recreation,							
Secondary recreation, Fish spawning, Harvesting and consumption of raw fish, or other aquatic life (Not needed if not							
requesting a mixing zone from ADEC):							
If any it is a second section in the second se	C			- 411 -(1 - (41 1	hanna mart an 1°66	
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.							

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NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

Special Conditions (provide justification for all that are not required, completed or provided)								
Special Monitoring			Required	\boxtimes	Not Requi	red	Justification:	
Exploration Plans			Attached	\boxtimes	Not Provid	led	Justification: TBD	
Biological Surveys			Attached	\boxtimes	Not Provid	rovided Justification: None required		
Environmental Rep	ort(s)		Attached		Not Provid	led	Justification: Will be submitted to BOEMRE as part of the Exploration Plan	
Drilling Fluid Plan			Complete	\square	Not Comp	lete	Justification: In Preparation	
Certification		•		•				
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge.							epared under my direction or supervision in y gather and evaluate the information ystem, or those persons directly responsible knowledge and belief, true, accurate, and information, including the possibility of fine	
Signature:	Sus	cn (thilde		Date:	12/1	6/2010	
Printed Name:	Ited Name: Susan Childs Title: Alaska Support Intergrator Manager						ska Support Intergrator Manager	
Mail Complete	d NOI to I	EPA	and ADE	C at	the follow	ving	addresses:	
US EPA ADEC, Water Divis					Division			
1200 6 th Avenue, N	1200 6 th Avenue, M/S OWW-130 555 Cordova Street						Street	
Seattle, WA 98101 Anchorage, Alaska 99501						laska 99501		

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TABLE 1	
Types and Estimated Volume Ocean Discharges – Burger S Prospect	

Type of Waste	Total Amount to be	Dischargo Pato*	Discharge Method
Drill cuttings (from MLC through 26- inch section) Discharge 013	4,152 bbl/well (cuttings only; no drilling muds used)	346 bbl/day	Mud Line Cellar (MLC) through 26" section cuttings deposited at the seafloor
WBM spent drilling fluids – Discharge 001	3,327 bbl/well spent mud plus mud in tanks (if multiple wells drilled per season, water based muds will be transferred to and used at the next well)	166 bbl/day (including discharge of excess water based drilling fluid at end of the drilling season)	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Cuttings from water based intervals – Discharge 001	1,664 bbl/well	83 bbl/day	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Sanitary waste – Discharge 003	960 bbl/well	30 bbl/day	Treated in marine sanitary device prior to discharge to meet NPDES limits (based on 140 people at 9 gal/person/day)
Domestic waste – Discharge 004	10,667 bbl/well	333 bbl/day	Discharged to water through the disposal caisson (based on 140 people at 100 gal/person/day) Note: all food waste to be incinerated
Excess cement – Discharge 012	50 bbl/well	Two occasions at 1 bbl/min	Discharged at seafloor during 30-inch and 20-inch cementing operations
Desalination unit brine water – Discharge 005	4,000 bbl/well	125 bbl/day	Discharged to water through disposal caisson
Deck drainage – Discharge 002	160 bbl/well	5 bbl/day (dependent on rainfall)	Drains to the oily water separator. Uncontaminated water id discharged through the disposal caisson; contaminated water is stored in a waste oil tank then transferred by boat to an approved treatment/disposal site.
Cooling water – Discharge 009	1,440,000 bbl/well	45,000 bbl/day	Discharged to water through a number of outlets
Firewater - Discharge 008	0	0 bbl/month	No routine firewater system testing anticipated
Ballast water – Discharge 010	160 bbl/well	5 bbl/day	Discharged to sea through disposal caisson
Bilge water – Discharge 011	404 bbl/well	13 bbl/day	Treated in oily water separator, uncontaminated water discharged to sea through disposal caisson, oily water stored onboard, transferred for transport by boat to an approved disposal site
BOP fluid – Discharge 006	42 bbl/well (6 tests; 7 bbl per test)	7 bbl/test	Discharged subsea at BOP when testing BOP

* assumes 12 days to complete the MLC through 26-inch section; 20 days to complete the remainder of the well













Discharge Caisson

The discharge caisson is a pipe that runs vertically through the sponson on the hull of the drillship from the main deck level to the base of the sponson. The sponson is an exterior reinforced cladding installed on the *Discoverer* to provide ice resistance. It is hollow and extends from the main deck level to well below the water line.

Waste streams are collected aboard the drillship to a point on the main deck near the mud room. A 15-in. diameter pipe exits the hull, turns downwards and is connected to the top of the discharge caisson.

The discharge caisson, also a 15-in OD pipe, is welded into the sponson top and bottom (so that the interior of the sponson remains dry). The bottom of the sponson and the end of the discharge caisson is 5.6 ft (1.7 m) above the keel depth, and since it remains open to the sea at all times, the discharge caisson is constantly filled with water to mean sea level. This caisson is not equipped with a "float" valve; it is merely an open conduit to the sea through which most waste streams are discharged below sea level.

The Discoverer has the following draft characteristics:

Max draft at load line:	27 ft (8.2 m)
Transit draft	26.3 ft (8.0 m)
Drilling draft	25.2 ft (7.7 m)
Light ship draft	19.0 ft (5.8 m)

With the bottom of the sponson 5.6 ft above the keel, the base of the discharge caisson while drilling is 25.2 ft - 5.6 ft = 19.6 ft (6.0 m) below mean sea level. Because of heave, the water level inside the caisson is constantly changing.

See attached schematic drawings:





Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	CANT (Own	er/Oper	rator)							
Owner Nat	me:	Shell	Gulf of Mex	xico Inc.	Operator Mailing Address:		3601 C Street			
Telephone	Number:	907-7	70-3700				ling	Suite 1000		
Operator N	lame:	Shell	Gulf of Mex	xico Inc.				Anchorage, AK 99503		
Telephone	Number:	907-7	70-3700							
FACILI	TY									
Facility Na	ame:	Noble	e Discoverer	•	Equility Mailing		3601 C Street			
Contact Na	ame:	Susar	n Childs		Address:			Suite 1000		
Telephone	Number:	907-7	70-3700		- Address:		Anchorage, AK 99503			
Beginning	Date of	TBD						Latitude:		
Operation:					Stationary					
Expected I	Duration of	31 da	ys per well s	site	Facilit	ties		Longitude:		
Operation:										
			Jackup					Initial	TBD	
Facility Ty	pe		Drill Ship		Mobile Facilities			Latitude:		
(check appli	icable type)		Semisubm	ersible			ties			
			Other (spe	cify):				Initial	TBD	
							Longitude:			
Submit a si	ite map showi	ing the	exact location	on of facility and	dischar	ges asso	ociate	d with the pro	ject. Mobile facilities	
may design	nate an area w	here th	ley may be o	perating and mus	t includ	le a map	p shov	wing those are	eas and a description of	
operations	within those	areas.	If the discha	rge is within 400	0 meter	s of an e	enviro	onmentally se	nsitive area indicated by	
the permit, those areas and their distance from the operation/discharge must be shown on the map.										
RECEIV	RECEIVING WATER									
Chu	kchi Sea					Other	· (spec	cify):		
Beaufort Sea										
Supply confirmation with the U.S. Department of State and NOAA that the discharge is seaward of the inner boundary										
baseline, if applicable.										
LOCATION OF DISCHARGE										
MMS	Lease Num	ber	r OCS-Y-2324			ND	Leas	se Number	N/A	
	Block Number		Posev Area Block		ADINK		Bloc	k Number	N/A	
			6915							
Range of w	vater depths b	elow n	nean lower	Б				Ŧ		
low water	(MLLW) in the	he lease	e block:	From:	145	•		10:	145'	

Page 1 of 4

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

Discharges (chec	k all that apply)					
001 Drilling	001 Drilling Mud and Cuttings			19.6'		
002 Deck Dr	002 Deck Drainage			19.6'		
003 Sanitary	Waste	Wate	er Depth:	19.6'		
004 Domesti	c Waste	Wate	er Depth:	19.6'		
005 Desalina	tion Unit Waste	Wate	er Depth:	19.6'		
006 Blowout	Preventer Fluid	Wate	er Depth:	145'		
007 Boiler B	lowdown	Wate	er Depth:			
008 Fire Cor	trol System Test Water	Wate	er Depth:			
009 Non-Con	tact Cooling Water	Wate	er Depth:	on the surface at		
				several locations		
010 Unconta	minated Ballast Water	Wate	er Depth:	19.6'		
011 Bilge W	ater	Wate	er Depth:	19.6'		
012 Excess 0	Cement Slurry	Wate	er Depth:	19.6'		
013 Mud, Cu	ttings, Cement and Seafloor	Wate	er Depth:	MLC through 26"		
				section cuttings at		
				135'; excess cement		
				at 145'		
014 Test Flu	d	Wate	er Depth:			
Provide a brief descri	ption of the treatment process(es) an	d disposal practices (e.g., backha	uled, reinjected, discharged,		
Provide a line drawing	ee attached (Table T) g that shows flow of discharged was	te streems through th	e facility I	ndicata intaka sourcas		
operations contributin	g that shows now of discharged was	s labeled to correspor	nd to the disc	charges $(001 - 014)$.		
Construct a flow bala	nce on the line drawing by showing	average flows betwee	en intakes, c	operations, treatment units,		
and outfalls. If a flow balance cannot be determined, provide a pictorial description of the nature and amount of any						
sources, and any collection or treatment measures.						
Well Information		Tradicala				
Well Name:	Burger	Latitude:		TBD		
Well Number:	V	Longitude:		TBD		
Beginning Drill Date	TBD	Hole Diameter or		36" diameter at		
		Volume:	ischarge	surface, reducing		
		1	through 4 stages to			
				8.5" at depth		
Drilling Fluid		1		10		
	Water-based	4		Lignosulfonate		
(check all that apply)	U Oil-based	Group		Lime		
(check all that apply)	Synthetic-based	(check all that app	$(ly) \square 0$	Gyp		
	Uther (<i>specify</i>):			Sea-water		
	\square	Saltwater				
--	-------------	-----------------------------				
		Saturated Saltwater				
	\boxtimes	Nondispersed				
		(Viscosifier/Polymer) PH/PA				

Page 2 of 4

Zone of Deposit Request (applicable to those discharges within state of Alaska waters)									
Are you requesting a Zone of Deposit from A		Yes (continue f this section	ïlling out 1)	\boxtimes	No (skip this section and proceed to Special Conditions, below)				
THE FOLLOWING INFORMATION MUST BE PROVIDED IF REQUESTING A ZONE OF DEPOSIT. The burden									
of proof for justifying a zone of deposit through with the applicant.	n demonstra	ating co	mpliance wit	h the require	nents of	f 18 AAC 70.210 rests			
Distance from shoreline of discharge point				Average 1	Mud				
(measured at M.L.L.W.):				density:					
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:				
Orientation of outfall to shoreline				T. (1 V. 1					
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:				
Orientation of outfall to water surface				Maximun	n currer	nt			
(e.g., perpendicular, 45°, parallel):	.g., perpendicular, 45°, parallel):				and direction:				
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.									
Mixing Zone Request (applicable to those discharges within state of Alaska waters)									
Are you requesting a mixing zone from ADE	EC?		Yes (continue f this section	illing out		No (skip this section and proceed to Special Conditions, below)			
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of			
proof for justifying a mixing zone through dem	nonstrating	complia	ance with the	requirements	s of 18 A	AAC 70.240 through			
18 AAC 70.270 rests with the applicant.									
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first	Length of diffuser:							
Depth of discharge port or diffuser									
(measured at M.L.L.W.):		Diameter of port(s):				:			
Orientation of diffuser to shoreline				NT 1 C					
(e.g., perpendicular, 45°, parallel):				Number of j	ports:				
Maximum current: Port space									
USE OF RECEIVING WATER AT DISTAN	NCE FROM	M DIFF	USER i.e., S	upply for dri	nking w	ater, Supply for			
agriculture including irrigation & stock water, Supply for aquaculture, Supply for industrial use, Contact recreation,									
Secondary recreation, Fish spawning, Harvesting and consumption of raw fish, or other aquatic life (Not needed if not									
requesting a mixing zone from ADEC):									
If any it is a second section in the second se	C			- 411 -(1 - (41 1	hanna mart an 1°66			
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.									

Page 3 of 4

Special Conditions (provide justification for all that are not required, completed or provided)								
Special Monitoring	5		Required	\boxtimes	Not Requi	red	Justification:	
Exploration Plans			Attached		Not Provided		Justification: TBD	
Biological Surveys			Attached	\boxtimes	Not Provid	ded	Justification: None required	
Environmental Rep	oort(s)		Attached		Not Provided		Justification: Will be submitted to BOEM as part of the Exploration Plan	
Drilling Fluid Plan			Complete	\boxtimes	Not Comp	lete	Justification: In Preparation	
Certification								
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.								
Signature:	Sun	uson Childe		Date:	12/1	6/2010		
Printed Name:	nted Name: Susan Childs			Title:	Alas	aska Support Intergrator Manager		
Mail Completed NOI to EPA and ADEC at the following addresses:							addresses:	
US EPA			ADEC, Water Division					
1200 6 th Avenue, M/S OWW-130					555 Cordova Street			
Seattle, WA 98101					Anchorage, Alaska 99501			

Page 4 of 4



Total Amount to be **Discharge Rate*** Type of Waste Discharged Discharge Method Mud Line Cellar (MLC) through 26" Drill cuttings (from 4,152 bbl/well (cuttings only; 346 bbl/day MLC through 26no drilling muds used) section cuttings deposited at the seafloor inch section) Discharge 013 WBM spent 3,291 bbl/well spent mud 173 bbl/dav Discharged to sea through disposal (including discharge plus mud in tanks (if multiple drillina fluids caisson after 30:1 dilution with seawater wells drilled per season, Discharge 001 of excess water based drilling fluid at water based muds will be transferred to and used at end of the drilling the next well) season) Cuttings from 1,645bbl/well 87 bbl/day Discharged to sea through disposal caisson after 30:1 dilution with seawater water based intervals -Discharge 001 Sanitary waste -10,333 bbl/well 30 bbl/day Treated in marine sanitary device prior Discharge 003 to discharge to meet NPDES limits (based on 140 people at 9 gal/person/day) Discharged to water through the Domestic waste -2573 bbl/well 333 bbl/day Discharge 004 disposal caisson (based on 140 people at 100 gal/person/day) Note: all food waste to be incinerated Excess cement -50 bbl/well Two occasions at 1 Discharged at seafloor during 30-inch bbl/min and 20-inch cementing operations Discharge 012 Desalination unit 3.875 bbl/well 125 bbl/day Discharged to water through disposal brine water caisson Discharge 005 Deck drainage -155 bbl/well 5 bbl/dav Drains to the oilv water separator. (dependent on Uncontaminated water id discharged Discharge 002 rainfall) through the disposal caisson; contaminated water is stored in a waste oil tank then transferred by boat to an approved treatment/disposal site. 45,000 bbl/day Cooling water -1,395,000 bbl/well Discharged to water through a number Discharge 009 of outlets Firewater -0 0 bbl/month No routine firewater system testing Discharge 008 anticipated Ballast water -155 bbl/well 5 bbl/day Discharged to sea through disposal Discharge 010 caisson Bilge water -391 bbl/well 13 bbl/day Treated in oily water separator, Discharge 011 uncontaminated water discharged to sea through disposal caisson, oily water stored onboard, transferred for transport by boat to an approved disposal site BOP fluid -42 bbl/well (6 tests; 7 bbl per 7 bbl/test Discharged subsea at BOP when testing Discharge 006 test) BOP

TABLE 1 Types and Estimated Volume Ocean Discharges – Burger V Prospect

* assumes 12 days to complete the MLC through 26-inch section; 19 days to complete the remainder of the well













Discharge Caisson

The discharge caisson is a pipe that runs vertically through the sponson on the hull of the drillship from the main deck level to the base of the sponson. The sponson is an exterior reinforced cladding installed on the *Discoverer* to provide ice resistance. It is hollow and extends from the main deck level to well below the water line.

Waste streams are collected aboard the drillship to a point on the main deck near the mud room. A 15-in. diameter pipe exits the hull, turns downwards and is connected to the top of the discharge caisson.

The discharge caisson, also a 15-in OD pipe, is welded into the sponson top and bottom (so that the interior of the sponson remains dry). The bottom of the sponson and the end of the discharge caisson is 5.6 ft (1.7 m) above the keel depth, and since it remains open to the sea at all times, the discharge caisson is constantly filled with water to mean sea level. This caisson is not equipped with a "float" valve; it is merely an open conduit to the sea through which most waste streams are discharged below sea level.

The Discoverer has the following draft characteristics:

Max draft at load line:	27 ft (8.2 m)
Transit draft	26.3 ft (8.0 m)
Drilling draft	25.2 ft (7.7 m)
Light ship draft	19.0 ft (5.8 m)

With the bottom of the sponson 5.6 ft above the keel, the base of the discharge caisson while drilling is 25.2 ft - 5.6 ft = 19.6 ft (6.0 m) below mean sea level. Because of heave, the water level inside the caisson is constantly changing.

See attached schematic drawings:





Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	CANT (Own	er/Oper	rator)							
Owner Nat	me:	Shell Gulf of Mexico Inc.						3601 C Street		
Telephone	Number:	907-7	70-3700		Operator Mailing		Suite 1000			
Operator N	lame:	Shell Gulf of Mexico Inc.			Address:			Anchorage,	AK 99503	
Telephone	Number:	907-7	70-3700							
FACILI	TY									
Facility Na	ame:	Noble	e Discoverer	•	Facility Mailing			3601 C Stre	et	
Contact Na	ame:	Susar	n Childs		Addro	Facility Mailing		Suite 1000		
Telephone	Number:	907-7	70-3700		Addre	.55.		Anchorage, AK 99503		
Beginning	Date of	TBD						Latitude:		
Operation:					Statio	nary				
Expected I	Duration of	50 da	ys per well s	site	Facili	ties		Longitude:		
Operation:										
			Jackup				Initial	TBD		
Facility Ty	pe		Drill Ship					Latitude:		
(check appli	icable type)		Semisubm	ersible	Mobile Facilities					
			Other (spe	cify):			Initial	TBD		
								Longitude:		
Submit a si	ite map show	ing the	exact location	on of facility and	dischar	ges asso	ociate	d with the pro	ject. Mobile facilities	
may design	nate an area w	here th	ley may be o	perating and mus	st includ	le a maj	p shov	wing those are	eas and a description of	
operations	within those	areas.	If the discha	rge is within 400	0 meter	s of an	enviro	onmentally se	nsitive area indicated by	
the permit,	those areas a	nd thei	r distance fro	om the operation/	dischar	ge mus	t be sl	nown on the n	nap.	
RECEIV	ING WA	ΓER								
Chu	kchi Sea					Other	: (spec	cify):		
Beau	ufort Sea									
Supply cor	nfirmation wit	th the U	J.S. Departm	ent of State and I	NOAA	that the	disch	arge is seawa	rd of the inner boundary	
baseline, if	applicable.							U	-	
LOCATION OF DISCHARGE										
MMS	Lease Num	ber	OCS-Y-2	OCS-Y-2294		ND	Leas	se Number	N/A	
IVIIVIS	Block Num	ber	Posev Ar	Posev Area Block		INK	Bloc	k Number	N/A	
			6812							
Range of w	vater depths b	elow m	nean lower							
low water	(MLLW) in the	he lease	e block:	From:	145	'		To:	145'	

Page 1 of 4

Discharges (c	eck all that apply)						
001 Drill	ng Mud and Cuttings	Water Depth:	19.6'				
002 Decl	Drainage	Water Depth:	19.6'				
003 Sani	ary Waste	Water Depth:	19.6'				
004 Don	estic Waste	Water Depth:	19.6'				
005 Desa	ination Unit Waste		Water Depth:	19.6'			
006 Blov	out Preventer Fluid		Water Depth:	145'			
007 Boil	r Blowdown		Water Depth:				
008 Fire	Control System Test Water		Water Depth:				
009 Non	Contact Cooling Water		Water Depth:	on the surface at			
				several locations			
010 Unc	ntaminated Ballast Water		Water Depth:	19.6'			
011 Bilg	Water		Water Depth:	19.6'			
012 Exce	ss Cement Slurry		Water Depth:	19.6'			
013 Mud	Cuttings, Cement and Seafloor		Water Depth:	MLC through 26''			
			section cuttings at				
			135'; excess cement				
			at 145'				
014 Test	Fluid	Water Depth:					
Provide a brief de	scription of the treatment process(es) and disposal pra-	ctices (e.g., backl	nauled, reinjected, discharged,			
etc.) at the facilit	. See attached (Table 1)	d waste streams thre	ugh the facility	Indicate intake sources			
operations contri	uting to the effluent. and treatmen	it units labeled to con	rrespond to the di	scharges $(001 - 014)$.			
Construct a flow	alance on the line drawing by sho	wing average flows	between intakes,	operations, treatment units,			
and outfalls. If a	low balance cannot be determined	d, provide a pictorial	description of th	e nature and amount of any			
sources, and any	ollection or treatment measures.						
Well Informa	ion						
Well Name:	Burger	Latitude:		TBD			
Well Number:	R	Longitude:		TBD			
Beginning Drill I	eginning Drill Date: TBD		eter or	36" diameter at			
			otal Discharge	surface, reducing			
		, oranie.		through 4 stages to			
	8.5" at depth						
Drilling Fluid							
	Water-based			Lignosulfonate			
Category	du) Oil-based	Group		Lime			
Check all that ap	Synthetic-based	(check all th	nat apply)	Gyp			
	Other (<i>specify</i>):		Sea-water				

	\square	Saltwater
		Saturated Saltwater
	\boxtimes	Nondispersed
		(Viscosifier/Polymer) PH/PA

Page 2 of 4

Zone of Deposit Request (applicable to those discharges within state of Alaska waters)									
Are you requesting a Zone of Deposit from A		Yes (continue f this section	ïlling out 1)	\boxtimes	No (skip this section and proceed to Special Conditions, below)				
THE FOLLOWING INFORMATION MUST BE PROVIDED IF REQUESTING A ZONE OF DEPOSIT. The burden									
of proof for justifying a zone of deposit through with the applicant.	n demonstra	ating co	mpliance wit	h the require	nents of	f 18 AAC 70.210 rests			
Distance from shoreline of discharge point				Average 1	Mud				
(measured at M.L.L.W.):				density:					
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:				
Orientation of outfall to shoreline				T. (1 V. 1					
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:				
Orientation of outfall to water surface				Maximun	n currer	nt			
(e.g., perpendicular, 45°, parallel):	.g., perpendicular, 45°, parallel):				and direction:				
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.									
Mixing Zone Request (applicable to those discharges within state of Alaska waters)									
Are you requesting a mixing zone from ADE	EC?		Yes (continue f this section	illing out		No (skip this section and proceed to Special Conditions, below)			
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of			
proof for justifying a mixing zone through dem	nonstrating	complia	ance with the	requirements	s of 18 A	AAC 70.240 through			
18 AAC 70.270 rests with the applicant.									
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first	Length of diffuser:							
Depth of discharge port or diffuser									
(measured at M.L.L.W.):		Diameter of port(s):				:			
Orientation of diffuser to shoreline				NT 1 C					
(e.g., perpendicular, 45°, parallel):				Number of j	ports:				
Maximum current: Port space									
USE OF RECEIVING WATER AT DISTAN	NCE FROM	M DIFF	USER i.e., S	upply for dri	nking w	ater, Supply for			
agriculture including irrigation & stock water, Supply for aquaculture, Supply for industrial use, Contact recreation,									
Secondary recreation, Fish spawning, Harvesting and consumption of raw fish, or other aquatic life (Not needed if not									
requesting a mixing zone from ADEC):									
If any it is a second and it is the second s	C			- 411 -(1 - (41 1	hanna mart an 1°66			
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.									

Page 3 of 4

Special Conditions (provide justification for all that are not required, completed or provided)									
Special Monitoring	,		Required	\boxtimes	Not Requi	red	Justification:		
Exploration Plans			Attached	\boxtimes	Not Provid	led	Justification: TBD		
Biological Surveys			Attached	\boxtimes	Not Provid	led	Justification: None required		
Environmental Rep	oort(s)		Attached		Not Provided		Justification: Will be submitted to BOEMRE as part of the Exploration Plan		
Drilling Fluid Plan			Complete	\boxtimes	Not Comp	lete	Justification: In Preparation		
Certification	Certification								
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.									
Signature:	Sun	non Childe			Date:	12/1	6/2010		
Printed Name:	ame: Susan Childs			Title:	Alas	ska Support Intergrator Manager			
Mail Completed NOI to EPA and ADEC at the following addresses:						addresses:			
US EPA			ADEC, Water Division						
1200 6 th Avenue, M/S OWW-130					555 Cord	555 Cordova Street			
Seattle, WA 98101			Anchorage, Alaska 99501						

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TABLE 1	
Types and Estimated Volume Ocean Discharges – Burger R Prospect	

	Total Amount to be		
Type of Waste	Discharged	Discharge Rate*	Discharge Method
Drill cuttings (from MLC through 26- inch section) Discharge 013	4,152 bbl/well (cuttings only; no drilling muds used)	346 bbl/day	Mud Line Cellar (MLC) through 26" section cuttings deposited at the seafloor
WBM spent drilling fluids – Discharge 001	4,159 bbl/well spent mud plus mud in tanks (if multiple wells drilled per season, water based muds will be transferred to and used at the next well)	109 bbl/day (including discharge of excess water based drilling fluid at end of the drilling season)	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Cuttings from water based intervals – Discharge 001	2,080 bbl/well	55 bbl/day	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Sanitary waste – Discharge 003	1,500 bbl/well	30 bbl/day	Treated in marine sanitary device prior to discharge to meet NPDES limits (based on 140 people at 9 gal/person/day)
Domestic waste – Discharge 004	16,667bbl/well	333 bbl/day	Discharged to water through the disposal caisson (based on 140 people at 100 gal/person/day) Note: all food waste to be incinerated
Excess cement – Discharge 012	50 bbl/well	Two occasions at 1 bbl/min	Discharged at seafloor during 30-inch and 20-inch cementing operations
Desalination unit brine water – Discharge 005	6,250 bbl/well	125 bbl/day	Discharged to water through disposal caisson
Deck drainage – Discharge 002	250 bbl/well	5 bbl/day (dependent on rainfall)	Drains to the oily water separator. Uncontaminated water id discharged through the disposal caisson; contaminated water is stored in a waste oil tank then transferred by boat to an approved treatment/disposal site.
Cooling water – Discharge 009	2,250,000 bbl/well	45,000 bbl/day	Discharged to water through a number of outlets
Firewater - Discharge 008	0	0 bbl/month	No routine firewater system testing anticipated
Ballast water – Discharge 010	250 bbl/well	5 bbl/day	Discharged to sea through disposal caisson
Bilge water – Discharge 011	631 bbl/well	13 bbl/day	Treated in oily water separator, uncontaminated water discharged to sea through disposal caisson, oily water stored onboard, transferred for transport by boat to an approved disposal site
BOP fluid – Discharge 006	42 bbl/well (6 tests; 7 bbl per test)	7 bbl/test	Discharged subsea at BOP when testing BOP

* assumes 12 days to complete the MLC through 26-inch section; 38 days to complete the remainder of the well













Discharge Caisson

The discharge caisson is a pipe that runs vertically through the sponson on the hull of the drillship from the main deck level to the base of the sponson. The sponson is an exterior reinforced cladding installed on the *Discoverer* to provide ice resistance. It is hollow and extends from the main deck level to well below the water line.

Waste streams are collected aboard the drillship to a point on the main deck near the mud room. A 15-in. diameter pipe exits the hull, turns downwards and is connected to the top of the discharge caisson.

The discharge caisson, also a 15-in OD pipe, is welded into the sponson top and bottom (so that the interior of the sponson remains dry). The bottom of the sponson and the end of the discharge caisson is 5.6 ft (1.7 m) above the keel depth, and since it remains open to the sea at all times, the discharge caisson is constantly filled with water to mean sea level. This caisson is not equipped with a "float" valve; it is merely an open conduit to the sea through which most waste streams are discharged below sea level.

The Discoverer has the following draft characteristics:

Max draft at load line:	27 ft (8.2 m)
Transit draft	26.3 ft (8.0 m)
Drilling draft	25.2 ft (7.7 m)
Light ship draft	19.0 ft (5.8 m)

With the bottom of the sponson 5.6 ft above the keel, the base of the discharge caisson while drilling is 25.2 ft - 5.6 ft = 19.6 ft (6.0 m) below mean sea level. Because of heave, the water level inside the caisson is constantly changing.

See attached schematic drawings:





Notice of Intent for Initial / Extension Dated 16 December 2010 Covering EP Blocks Posey Area 6764, 6714, and 6912

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Shell Exploration & Production Company

December 16, 2010

Ms. Hanh Shaw U.S. EPA, Region 10 Office of Water & Watersheds, NPDES Permits Unit 1200 Sixth Avenue, Suite 900, M/S OWW-130 Seattle, WA 98101 Shell 3601 C Street, Suite 1000 Anchorage, AK 99503

Tel. (907) 646-7112 Email <u>susan.childs@shell.com</u> Internet <u>http://www.shell.com</u>/

Dear Ms. Shaw:

Subject: Notice of Intent for administrative extension under General Permit AKG-28-0000 Lease Number OCS-Y-2280, Lease Block 6764 Lease Number OCS-Y-2267, Lease Block 6714 Lease Number OCS-Y-2321, Lease Block 6912 Lease Number OCS-Y-2111, Lease Block 6864 Lease Number OCS-Y-2142, Lease Block 7007

In accordance with 40 CFR 122.21(d) Shell Gulf of Mexico Inc. (Shell) is submitting Notices of Intent (NOIs) for the Lease Blocks listed above for authorization to discharge under General Permit AKG-28-0000 that expires on June 26, 2011. It is Shell's understanding that a new general permit is not scheduled to be issued until the fall of 2011. Therefore, these NOIs also serve as Shell's request for an administrative extension to discharge under NPDES General Permit AKG-28-0000 for 2011 and beyond for each authorized NOI until the new General Permit is available. The attached NOIs were originally granted by EPA on January 21, 2010 for AKG-28-0004.

If you have questions about any component of the proposed project, please contact me at (907) 646-7112 or email <u>susan.childs@shell.com</u>, or call Nicole St. Amand at (907) 646-7152 or email <u>nicole.stamand@shell.com</u>.

Sincerely,

Susan Childe

Susan Childs Alaska Venture Support Integrator Manager

Attachments - Notice of Intent (NOI) Information Sheets Location Maps Ocean Discharge Tables Discharge Flow Diagrams

cc: Diane Soderlund, USEPA Region 10, Alaska Operations Michael Lidgard, USEPA Region 10 Jeff Walker, BOEMRE Alaska Don Perrin, Alaska DNR Administrative Record

Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	ANT (Own	er/Oper	rator)							
Owner Name:		Shell Gulf of Mexico Inc.					3601 C Street			
Telephone	Number:	907-770-3700			Operator Mailing Address:		ling	Suite 1000		
Operator N	lame:	Shell Gulf of Mexico Inc.					Anchorage, AK 99503			
Telephone	Number:	907-770-3700								
FACILITY										
Facility Name:		Noble Discoverer			Facility Mailing Address:		na	3601 C Street		
Contact Name:		Susan Childs					ng	Suite 1000		
Telephone Number:		907-770-3700						Anchorage, AK 99503		
Beginning Date of		TBD			Stationary			Latitude:		
Operation:										
Expected I	Expected Duration of		32 days per well site			Facilities		Longitude:		
Operation:	eration:									
			Jackup					Initial	TBD	
Facility Ty	pe		Drill Ship		Mobile Facilities		Latitude:			
(check appli	icable type)		Semisubm	ersible			ties			
			Other (specify):				Initial	TBD		
								Longitude:		
Submit a site map showing the exact location of facility and discharges associated with the project. Mobile facilities										
may designate an area where they may be operating and must include a map showing those areas and a description of										
operations within those areas. If the discharge is within 4000 meters of an environmentally sensitive area indicated by										
the permit, those areas and their distance from the operation/discharge must be shown on the map.										
RECEIV	ING WA	ΓER								
Chu	kchi Sea	chi Sea				Other	(spec	cify):		
Beau	ufort Sea									
Supply confirmation with the U.S. Department of State and NOAA that the discharge is seaward of the inner boundary.										
baseline, if applicable.										
LOCATION OF DISCHARGE										
MMC	Lease Number		OCS-Y-2280		ADNR		Leas	se Number	N/A	
IVIIVIS	Block Number		6764				Bloc	k Number	N/A	
Range of water depths below mean lower										
low water	(MLLW) in th	ne lease block:		From:	149'			To:	149'	

Page 1 of 4

Discharges (check all that apply)											
001 Drilling N	Aud and Cuttings	W	/ater Depth:	19.6'							
002 Deck Dra	inage	W	/ater Depth:	19.6'							
003 Sanitary	Waste	W	/ater Depth:	19.6'							
004 Domestic	Waste	W	/ater Depth:	19.6'							
005 Desalinat	ion Unit Waste	W	/ater Depth:	19.6'							
006 Blowout	Preventer Fluid	W	/ater Depth:	149'							
007 Boiler Bl	owdown	W	/ater Depth:								
008 Fire Cont	rol System Test Water	W	/ater Depth:								
009 Non-Con	act Cooling Water	W	/ater Depth:	on the surface at							
				several locations							
010 Uncontar	ninated Ballast Water	W	/ater Depth:	19.6'							
011 Bilge Wa	ter	W	/ater Depth:	19.6'							
012 Excess C	ement Slurry	W	/ater Depth:	19.6'							
013 Mud, Cut	tings, Cement and Seafloor	W	ater Depth:	MLC through 26"							
				section cuttings at							
				139', excess cement							
				at 149'							
014 Test Flui	1	W	ater Depth:								
Provide a brief description of the treatment process(es) and disposal practices (e.g., backhauled, reinjected, discharged,											
etc.) at the facility. Se	e attached (Table T)	te streams through	h the facility	Indicate intake sources							
operations contributin	g to the effluent, and treatment units	s labeled to correst	pond to the dis	scharges $(001 - 014)$.							
Construct a flow balance on the line drawing by showing average flows between intakes, operations, treatment units,											
and outfalls. If a flow balance cannot be determined, provide a pictorial description of the nature and amount of any											
sources, and any collection or treatment measures.											
Well Information											
well Name:	Burger	Lanude:		TBD							
Well Number:	A	Longitude:		TBD							
Beginning Drill Date:	TBD	Hole Diameter	or 1 Discharge	36" diameter at							
		Volume:	i Discharge	surface, reducing							
				through 4 stages to							
				8.5" at depth							
Drilling Fluid				T 10 /							
	Water-based	4		Lignosulfonate							
(check all that apply)	Oil-based	Group		Lime							
(check an mai apply)	Synthetic-based	(check all that a	apply)	Сур							
	Uther (<i>specify</i>):			Sea-water							
	\square	Saltwater									
--	-------------	-----------------------------									
		Saturated Saltwater									
	\boxtimes	Nondispersed									
		(Viscosifier/Polymer) PH/PA									

Page 2 of 4

Zone of Deposit Request (applicable t	o those dis	charge.	s within state	e of Alaska w	vaters)		
Are you requesting a Zone of Deposit from A	ADEC?		Yes (continue f this section	ïlling out 1)	\boxtimes	No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A ZONE	OF DE	POSIT. The burden	
of proof for justifying a zone of deposit through demonstrating compliance with the requirements of 18 AAC 70.210 rests with the applicant							
Distance from shoreline of discharge point				Average 1			
(measured at M.L.L.W.):				density:			
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:		
Orientation of outfall to shoreline				T. (1 V. 1			
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:		
Orientation of outfall to water surface				Maximun	n currer	nt	
(e.g., perpendicular, 45°, parallel):				and direct	tion:		
If possible, provide salinity and temperature data	from the rec	eiving w	vater surface t	o the depth of	the disc	harge port or diffuser.	
Mixing Zone Request (applicable to	those di	scharg	ges within	state of Al	aska w	vaters)	
Are you requesting a mixing zone from ADEC?			Yes (continue f this section	illing out 1)		No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of	
proof for justifying a mixing zone through dem	nonstrating	complia	ance with the	requirements	s of 18 A	AAC 70.240 through	
18 AAC 70.270 rests with the applicant.							
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first	Length of diffuser:					
Depth of discharge port or diffuser							
(measured at M.L.L.W.):				Diameter of	port(s)	:	
Orientation of diffuser to shoreline				NT 1 C			
(e.g., perpendicular, 45°, parallel):				Number of j	ports:		
Maximum current:				Port spacing	;:		
USE OF RECEIVING WATER AT DISTAN	NCE FROM	M DIFF	USER i.e., S	upply for dri	nking w	ater, Supply for	
agriculture including irrigation & stock water, S	Supply for a	aquacult	ture, Supply f	for industrial	use, Co	ntact recreation,	
Secondary recreation, Fish spawning, Harvestin	ng and cons	sumption	n of raw fish,	or other aqua	atic life	(Not needed if not	
requesting a mixing zone from ADEC):							
If any it is a second section in the second se	C			- 411 -(1 - (41 1	hanna mart an 1°66	
II possible, provide salinity and temperature data	from the rec	eiving w	vater surface t	o the depth of	the disc	charge port or diffuser.	

Page 3 of 4

Special Conditions (provide justification for all that are not required, completed or provided)									
Special Monitoring			Required	\boxtimes	Not Requ	ired	Justification:		
Exploration Plans			Attached		Not Provi	ded	Justification: approved 2010 EP previously submitted to BOEMRE		
Biological Surveys			Attached	\boxtimes	Not Provi	ded	Justification: None required		
Environmental Rep	oort(s)		Attached		Not Provi	ded	Justification: Submitted to BOEMRE as part of the 2010 Exploration Plan		
Drilling Fluid Plan			Complete	\boxtimes	Not Comp	olete	Justification: In Preparation		
Certification									
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.									
Signature:					Date:	12/1	6/2010		
Printed Name:	Susan Child	ls			Title:	Alas	ska Support Intergrator Manager		
Mail Complete	d NOI to E	EPA	and ADE	C at	the follow	wing	addresses:		
US EPA					ADEC, V	ADEC, Water Division			
1200 6 th Avenue, N	1/S OWW-13	0			555 Cordova Street				
Seattle, WA 98101					Anchora	ge, A	laska 99501		

Page 4 of 4



TABLE 1
Types and Estimated Volume Ocean Discharges – Burger A Prospect

Type of Waste	Total Amount to be	Dischargo Pato*	Discharge Method
Drill cuttings (from MLC through 26- inch section) Discharge 013	4,152 bbl/well (cuttings only; no drilling muds used)	346 bbl/day	Mud Line Cellar (MLC) through 26" section cuttings deposited at the seafloor
WBM spent drilling fluids – Discharge 001	3,327 bbl/well spent mud plus mud in tanks (if multiple wells drilled per season, water based muds will be transferred to and used at the next well)	166 bbl/day (including discharge of excess water based drilling fluid at end of the drilling season)	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Cuttings from water based intervals – Discharge 001	1,664 bbl/well	83 bbl/day	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Sanitary waste – Discharge 003	960 bbl/well	30 bbl/day	Treated in marine sanitary device prior to discharge to meet NPDES limits (based on 140 people at 9 gal/person/day)
Domestic waste – Discharge 004	10,667 bbl/well	333 bbl/day	Discharged to water through the disposal caisson (based on 140 people at 100 gal/person/day) Note: all food waste to be incinerated
Excess cement – Discharge 012	50 bbl/well	Two occasions at 1 bbl/min	Discharged at seafloor during 30-inch and 20-inch cementing operations
Desalination unit brine water – Discharge 005	4,000 bbl/well	125 bbl/day	Discharged to water through disposal caisson
Deck drainage – Discharge 002	160 bbl/well	5 bbl/day (dependent on rainfall)	Drains to the oily water separator. Uncontaminated water id discharged through the disposal caisson; contaminated water is stored in a waste oil tank then transferred by boat to an approved treatment/disposal site.
Cooling water – Discharge 009	1,440,000 bbl/well	45,000 bbl/day	Discharged to water through a number of outlets
Firewater - Discharge 008	0	0 bbl/month	No routine firewater system testing anticipated
Ballast water – Discharge 010	160 bbl/well	5 bbl/day	Discharged to sea through disposal caisson
Bilge water – Discharge 011	404 bbl/well	13 bbl/day	Treated in oily water separator, uncontaminated water discharged to sea through disposal caisson, oily water stored onboard, transferred for transport by boat to an approved disposal site
BOP fluid – Discharge 006	42 bbl/well (6 tests; 7 bbl per test)	7 bbl/test	Discharged subsea at BOP when testing BOP

* assumes 12 days to complete the MLC through 26-inch section; 20 days to complete the remainder of the well













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Discharge Caisson

The discharge caisson is a pipe that runs vertically through the sponson on the hull of the drillship from the main deck level to the base of the sponson. The sponson is an exterior reinforced cladding installed on the *Discoverer* to provide ice resistance. It is hollow and extends from the main deck level to well below the water line.

Waste streams are collected aboard the drillship to a point on the main deck near the mud room. A 15-in. diameter pipe exits the hull, turns downwards and is connected to the top of the discharge caisson.

The discharge caisson, also a 15-in OD pipe, is welded into the sponson top and bottom (so that the interior of the sponson remains dry). The bottom of the sponson and the end of the discharge caisson is 5.6 ft (1.7 m) above the keel depth, and since it remains open to the sea at all times, the discharge caisson is constantly filled with water to mean sea level. This caisson is not equipped with a "float" valve; it is merely an open conduit to the sea through which most waste streams are discharged below sea level.

The Discoverer has the following draft characteristics:

Max draft at load line:	27 ft (8.2 m)
Transit draft	26.3 ft (8.0 m)
Drilling draft	25.2 ft (7.7 m)
Light ship draft	19.0 ft (5.8 m)

With the bottom of the sponson 5.6 ft above the keel, the base of the discharge caisson while drilling is 25.2 ft - 5.6 ft = 19.6 ft (6.0 m) below mean sea level. Because of heave, the water level inside the caisson is constantly changing.

See attached schematic drawings:





Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	ANT (Own	er/Oper	rator)							
Owner Nar	me:	Shell	Gulf of Mex	xico Inc.				3601 C Street		
Telephone	Number:	907-7	70-3700		Opera	tor Mai	ling	Suite 1000		
Operator N	lame:	Shell	Gulf of Mex	kico Inc.	Address:			Anchorage,	AK 99503	
Telephone	Number:	907-7	70-3700							
FACILI	ГҮ									
Facility Na	ime:	Noble	e Discoverer	•	Facilit	w Moili	na	3601 C Stre	et	
Contact Na	ame:	Susar	n Childs		Address:		Suite 1000			
Telephone	Number:	907-7	70-3700				Anchorage, AK 99503			
Beginning	Date of	TBD						Latitude:		
Operation:					Station	nary				
Expected I	Duration of	32 da	ys per well s	site	Facilit	ties		Longitude:		
Operation:										
			Jackup				Initial	TBD		
Facility Ty	pe		Drill Ship					Latitude:		
(check appli	cable type)		Semisubm	ersible	Mobil	e Facili	ties			
			Other (spe	cify):				Initial	TBD	
								Longitude:		
Submit a si	ite map showi	ing the	exact location	on of facility and	dischar	ges asso	ociate	d with the pro	ject. Mobile facilities	
may desigr	nate an area w	here th	ley may be o	perating and mus	t includ	le a map	o shov	wing those are	eas and a description of	
operations	within those	areas.	If the discha	rge is within 400	0 meter	s of an o	enviro	onmentally se	nsitive area indicated by	
the permit,	those areas a	nd thei	r distance fro	om the operation/	dischar	ge must	t be sl	hown on the n	nap.	
RECEIV	VING WAT	ΓER								
Chu	kchi Sea				Other (<i>specify</i>):					
Beau	ufort Sea									
Supply con	firmation wit	th the U	J.S. Departm	ent of State and I	NOAA	that the	disch	narge is seawa	ard of the inner boundary	
baseline, if	applicable.								· · · · · · · · · ,	
LOCAT	ION OF D	ISCH	ARGE							
MMS	Lease Num	ber	OCS-Y-2	2267		ND	Leas	se Number	N/A	
IVIIVIS	Block Num	ber	Posev Ar	ea Block	AD.	INK	Bloc	k Number	N/A	
			6714							
Range of w	vater depths b	elow m	nean lower	_						
low water ((MLLW) in the	ne lease	e block:	From:	148	•		To:	148'	

Page 1 of 4

Discharges (ch	eck all that apply)			
001 Drilli	g Mud and Cuttings	W	ater Depth:	19.6'
002 Deck	Drainage	W	ater Depth:	19.6'
003 Sanit	ry Waste	W	ater Depth:	19.6'
004 Dom	stic Waste	W	ater Depth:	19.6'
005 Desa	nation Unit Waste	ater Depth:	19.6'	
006 Blow	ut Preventer Fluid	W	ater Depth:	148'
007 Boile	Blowdown	W	ater Depth:	
008 Fire 0	ontrol System Test Water	W	ater Depth:	
009 Non-	Contact Cooling Water	W	ater Depth:	on the surface at
				several locations
010 Unco	taminated Ballast Water	W	ater Depth:	19.6'
011 Bilge	Water	W	ater Depth:	19.6'
012 Exce	s Cement Slurry	W	ater Depth:	19.6'
013 Mud,	Cuttings, Cement and Seafloor	W	ater Depth:	MLC through 26"
				section cuttings at
				138'; excess cement
				at 148'
014 Test	luid	W	ater Depth:	
Provide a brief de	cription of the treatment process(es) a	nd disposal practice	es (e.g., backh	auled, reinjected, discharged,
etc.) at the facility	See attached (Table 1)	sta straams through	h the facility	Indicate intake sources
operations contrib	ting to the effluent, and treatment uni	ts labeled to corresi	pond to the dis	scharges $(001 - 014)$.
Construct a flow b	lance on the line drawing by showing	average flows betw	ween intakes,	operations, treatment units,
and outfalls. If a	ow balance cannot be determined, pro	vide a pictorial des	scription of the	e nature and amount of any
sources, and any c	ellection or treatment measures.			
Well Informat	on	Tradicales		
well Name:	Burger	Latitude:		TBD
well Number:	F	Longitude:		TBD
Beginning Drill D	inning Drill Date: TBD		Or I Discharge	36" diameter at
			I Discharge	surface, reducing
				through 4 stages to
				8.5" at depth
Drilling Fluid				I. 10 /
Q (Water-based	_		
<i>(check all that an</i>)	V) Ull-based	Group		Lime
teneek an mai app	Synthetic-based	(check all that a	apply)	Gyp
	Uther (<i>specify</i>):		M	Sea-water

	\square	Saltwater
		Saturated Saltwater
	\boxtimes	Nondispersed
		(Viscosifier/Polymer) PH/PA

Page 2 of 4

Zone of Deposit Request (applicable t	o those dis	charge.	s within state	e of Alaska w	vaters)		
Are you requesting a Zone of Deposit from A	ADEC?		Yes (continue f this section	ïlling out 1)	\boxtimes	No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A ZONE	OF DE	POSIT. The burden	
of proof for justifying a zone of deposit through demonstrating compliance with the requirements of 18 AAC 70.210 rests with the applicant							
Distance from shoreline of discharge point				Average 1			
(measured at M.L.L.W.):				density:			
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:		
Orientation of outfall to shoreline				T. (1 V. 1			
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:		
Orientation of outfall to water surface				Maximun	n currer	nt	
(e.g., perpendicular, 45°, parallel):				and direct	tion:		
If possible, provide salinity and temperature data	from the rec	eiving w	vater surface t	o the depth of	the disc	harge port or diffuser.	
Mixing Zone Request (applicable to	those di	scharg	ges within	state of Al	aska w	vaters)	
Are you requesting a mixing zone from ADEC?			Yes (continue f this section	illing out 1)		No (skip this section and proceed to Special Conditions, below)	
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of	
proof for justifying a mixing zone through dem	nonstrating	complia	ance with the	requirements	s of 18 A	AAC 70.240 through	
18 AAC 70.270 rests with the applicant.							
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first	Length of diffuser:					
Depth of discharge port or diffuser							
(measured at M.L.L.W.):				Diameter of	port(s)	:	
Orientation of diffuser to shoreline				NT 1 C			
(e.g., perpendicular, 45°, parallel):				Number of j	ports:		
Maximum current:				Port spacing	;:		
USE OF RECEIVING WATER AT DISTAN	NCE FROM	M DIFF	USER i.e., S	upply for dri	nking w	ater, Supply for	
agriculture including irrigation & stock water, S	Supply for a	aquacult	ture, Supply f	for industrial	use, Co	ntact recreation,	
Secondary recreation, Fish spawning, Harvestin	ng and cons	sumption	n of raw fish,	or other aqua	atic life	(Not needed if not	
requesting a mixing zone from ADEC):							
If any it is a second and it is the second s	C			- 411 -(1 - (41 1	hanna mart an 1°66	
II possible, provide salinity and temperature data	from the rec	eiving w	vater surface t	o the depth of	the disc	charge port or diffuser.	

Page 3 of 4

Special Conditions (provide justification for all that are not required, completed or provided)									
Special Monitoring			Required	\boxtimes	Not Requ	ired	Justification:		
Exploration Plans			Attached		Not Provi	ded	Justification: approved 2010 EP previously submitted to BOEMRE		
Biological Surveys			Attached	\boxtimes	Not Provi	ded	Justification: None required		
Environmental Rep	oort(s)		Attached		Not Provi	ded	Justification: Submitted to BOEMRE as part of the 2010 Exploration Plan		
Drilling Fluid Plan			Complete	\boxtimes	Not Comp	plete	Justification: In Preparation		
Certification									
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowling violations.									
Signature:					Date:	12/1	6/2010		
Printed Name:	Susan Child	ls			Title:	Alas	ska Support Intergrator Manager		
Mail Complete	d NOI to E	EPA	and ADE	C at	the follow	wing	addresses:		
US EPA					ADEC, V	ADEC, Water Division			
1200 6 th Avenue, N	1/S OWW-13	0			555 Cordova Street				
Seattle, WA 98101					Anchora	ge, A	laska 99501		

Page 4 of 4



TABLE 1	
Types and Estimated Volume Ocean Discharges – Burger F Prospec	ct

	Total Amount to be					
Type of Waste	Discharged	Discharge Rate*	Discharge Method			
Drill cuttings (from MLC through 26- inch section) Discharge 013	4,152 bbl/well (cuttings only; no drilling muds used)	346 bbl/day*	Mud Line Cellar (MLC) through 26" section cuttings deposited at the seafloor			
WBM spent drilling fluids – Discharge 001	3,506 bbl/well spent mud plus mud in tanks (if multiple wells drilled per season, water based muds will be transferred to and used at the next well)	175 bbl/day (including discharge of excess water based drilling fluid at end of the drilling season)	Discharged to sea through disposal caisson after 30:1 dilution with seawater			
Cuttings from water based intervals – Discharge 001	1,753 bbl/well	88 bbl/day	Discharged to sea through disposal caisson after 30:1 dilution with seawater			
Sanitary waste – Discharge 003	960 bbl/well	30 bbl/day	Treated in marine sanitary device prior to discharge to meet NPDES limits (based on 140 people at 9 gal/person/day)			
Domestic waste – Discharge 004	10,667 bbl/well	333 bbl/day	Discharged to water through the disposal caisson (based on 140 people at 100 gal/person/day) Note: all food waste to be incinerated			
Excess cement – Discharge 012	50 bbl/well	Two occasions at 1 bbl/min	Discharged at seafloor during 30-inch and 20-inch cementing operations			
Desalination unit brine water – Discharge 005	4,000 bbl/well	125 bbl/day	Discharged to water through disposal caisson			
Deck drainage – Discharge 002	160 bbl/well	5 bbl/day (dependent on rainfall)	Drains to the oily water separator. Uncontaminated water id discharged through the disposal caisson; contaminated water is stored in a waste oil tank then transferred by boat to an approved treatment/disposal site.			
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Firewater - Discharge 008	0	0 bbl/month	No routine firewater system testing anticipated			
Ballast water – Discharge 010	160 bbl/well	5 bbl/day	Discharged to sea through disposal caisson			
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BOP fluid – Discharge 006	42 bbl/well (6 tests; 7 bbl per test)	7 bbl/test	Discharged subsea at BOP when testing BOP			

* assumes 12 days to complete the MLC through 26-inch section; 20 days to complete the remainder of the well













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Discharge Caisson

The discharge caisson is a pipe that runs vertically through the sponson on the hull of the drillship from the main deck level to the base of the sponson. The sponson is an exterior reinforced cladding installed on the *Discoverer* to provide ice resistance. It is hollow and extends from the main deck level to well below the water line.

Waste streams are collected aboard the drillship to a point on the main deck near the mud room. A 15-in. diameter pipe exits the hull, turns downwards and is connected to the top of the discharge caisson.

The discharge caisson, also a 15-in OD pipe, is welded into the sponson top and bottom (so that the interior of the sponson remains dry). The bottom of the sponson and the end of the discharge caisson is 5.6 ft (1.7 m) above the keel depth, and since it remains open to the sea at all times, the discharge caisson is constantly filled with water to mean sea level. This caisson is not equipped with a "float" valve; it is merely an open conduit to the sea through which most waste streams are discharged below sea level.

The Discoverer has the following draft characteristics:

Max draft at load line:	27 ft (8.2 m)
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With the bottom of the sponson 5.6 ft above the keel, the base of the discharge caisson while drilling is 25.2 ft - 5.6 ft = 19.6 ft (6.0 m) below mean sea level. Because of heave, the water level inside the caisson is constantly changing.

See attached schematic drawings:





Permit No.: AKG280000

ATTACHMENT 1

NOTICE OF INTENT (NOI) IFORMATION SHEET NPDES GENERAL PERMIT AKG280000 OIL AND GAS EXPLORATION FACILITIES ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

APPLIC	CANT (Own	er/Oper	rator)							
Owner Na	me:	Shell Gulf of Mexico Inc.			Operator Mailing		3601 C Street			
Telephone	Number:	907-770-3700					Suite 1000			
Operator N	Name:	Shell Gulf of Mexico Inc.			Address:			Anchorage, AK 99503		
Telephone	Number:	907-7	70-3700							
FACILITY										
Facility Na	ame:	Noble Discoverer			Facilit	v Maili	nα	3601 C Street		
Contact Na	ame:	Susan Childs			Address:		Suite 1000			
Telephone	Number:	907-770-3700						Anchorage, AK 99503		
Beginning	Date of	TBD						Latitude:		
Operation					Station	nary				
Expected I	Duration of	32 da	ys per well s	site	Facilities			Longitude:		
Operation:										
		\square	Jackup					Initial	TBD	
Facility Ty	pe		Drill Ship		Mobile Facilities			Latitude:		
(check appl	icable type)		Semisubm	ersible						
			Other (spe	cify):			Initial	TBD		
							Longitude:			
Submit a site map showing the exact location of facility and discharges associated with the project. Mobile facility							ject. Mobile facilities			
may desig	nate an area w	here th	ley may be o	perating and mus	st includ	le a maj	p sho	wing those are	eas and a description of	
operations	within those	areas.	If the discha	rge is within 400	0 meters	s of an e	envire	onmentally set	nsitive area indicated by	
the permit	, those areas a	nd thei	r distance fro	om the operation	/dischar	ge must	t be sl	hown on the n	nap.	
RECEIV	VING WAT	ΓER								
Chu	kchi Sea					Other (<i>specify</i>):				
Bea	Beaufort Sea									
Supply confirmation with the U.S. Department of State and NOAA that the discharge is seaward of the inner boundary										
baseline, in	f applicable.		•					U	5	
LOCAT	ION OF D	ISCH	ARGE							
MMS	Lease Num	ber	OCS-Y-2	2321			Leas	se Number		
WIND	Block Num	iber 6912					Bloc	k Number		
Range of water depths below mean lower					144	,		To	144	
low water (MLLW) in the lease bloc			e block:	110111.	144			10.	144	

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Discharges (a	check a	all that apply)					
001 Dri	001 Drilling Mud and Cuttings					19.6'	
002 Dec	002 Deck Drainage					19.6'	
003 San	itary W	aste	Water De	pth:	19.6'		
004 Doi	nestic V	Waste		Water De	pth:	19.6'	
005 Des	alinatio	on Unit Waste	Water De	pth:	19.6'		
006 Blo	wout Pi	reventer Fluid		Water De	pth:	144'	
007 Boi	ler Blov	wdown		Water De	pth:		
008 Fire	Contro	ol System Test Water		Water De	pth:		
009 Noi	-Conta	ct Cooling Water		Water De	pth:	on the surface at	
						several locations	
010 Uno	ontami	nated Ballast Water		Water De	pth:	19.6'	
011 Bilg	ge Wate	er -		Water De	pth:	19.6'	
012 Exc	ess Cer	nent Slurry		Water De	pth:	19.6'	
013 Mu	l, Cutti	ngs, Cement and Seafloor		Water De	pth:	MLC through 26"	
						section cuttings at	
					134', excess cement		
						at 144'	
014 Tes	t Fluid		Water De	pth:			
Provide a brief c	Provide a brief description of the treatment process(es) and disposal practices (e.g., backhauled, reinjected, discharge						
Provide a line dr	y. See	attached (Table T) hat shows flow of discharged wast	a straams thro	ugh the fac	vility In	dicata intaka sourcas	
operations contr	buting	to the effluent, and treatment units	labeled to cor	respond to	the disc	harges $(001 - 014)$.	
Construct a flow	balanc	e on the line drawing by showing a	verage flows	between in	takes, of	perations, treatment units,	
and outfalls. If a	flow b	alance cannot be determined, provi	de a pictorial	description	n of the i	nature and amount of any	
sources, and any	collect	ion or treatment measures.					
Well Informa	ation	-	T 1				
Well Name:		Burger	Latitude:		[]	[BD	
Well Number:	Number: J Longitude				1	(BD	
Beginning Drill Date:		TBD	Hole Diame	ter or	3	6" diameter at	
			Estimated Total Dis		^{irge} s	urface, reducing	
			volume.		t	hrough 4 stages to	
					8	3.5" at depth	
Drilling Flui	1						
		Water-based				ignosulfonate	
Category	y ıll that apply)	U Oil-based	Group			lime	
(cneck all that a		Synthetic-based	(check all th	at apply)		бур	
Other (<i>specify</i>):		、····	··· r r · 5 /		ea-water		

		\square	Saltwater
			Saturated Saltwater
	Γ	\boxtimes	Nondispersed
			(Viscosifier/Polymer) PH/PA

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Zone of Deposit Request (applicable to those discharges within state of Alaska waters)								
Are you requesting a Zone of Deposit from ADEC?			Yes (continue f this section	ïlling out 1)		No (skip this section and proceed to Special Conditions, below)		
THE FOLLOWING INFORMATION MUST BE PROVIDED IF REQUESTING A ZONE OF DEPOSIT. The burden								
of proof for justifying a zone of deposit through demonstrating compliance with the requirements of 18 AAC 70.210 rests with the applicant.								
Distance from shoreline of discharge point	stance from shoreline of discharge point							
(measured at M.L.L.W.):				density:				
Depth of discharge (measured at M.L.L.W.):				Flow Rate	e:			
Orientation of outfall to shoreline				T. (1 V. 1				
(e.g., perpendicular, 45°, parallel):				Total Vol	ume:			
Orientation of outfall to water surface				Maximun	n currer	nt		
(e.g., perpendicular, 45°, parallel):				and direct	tion:			
If possible, provide salinity and temperature data	from the rec	eiving w	ater surface t	o the depth of	the disc	harge port or diffuser.		
Mixing Zone Request (applicable to those discharges within state of Alaska waters)								
Are you requesting a mixing zone from ADEC?			Yes (continue f this section	illing out		No (skip this section and proceed to Special Conditions, below)		
THE FOLLOWING INFORMATION MUST I	BE PROVI	DED IF	REQUESTI	NG A MIXIN	IG ZON	IE. The burden of		
proof for justifying a mixing zone through den	nonstrating	complia	nce with the	requirements	s of 18 A	AAC 70.240 through		
18 AAC 70.270 rests with the applicant.								
Distance from shoreline of discharge point of port of diffuser (measured at M.L.L.W.):	r first			Length of di	iffuser:			
Depth of discharge port or diffuser								
(measured at M.L.L.W.):				:				
Orientation of diffuser to shoreline				NT 1 C				
(e.g., perpendicular, 45°, parallel):								
Maximum current:		Port spacing:						
USE OF RECEIVING WATER AT DISTANCE FROM DIFFUSER i.e., Supply for drinking water, Supply for								
agriculture including irrigation & stock water, Supply for aquaculture, Supply for industrial use, Contact recreation,								
Secondary recreation, Fish spawning, Harvesting and consumption of raw fish, or other aquatic life (Not needed if not								
requesting a mixing zone from ADEC):								
If possible provide colinity and temperature data from the manipular sector surface to the dark of the discharge of the								
If possible, provide salinity and temperature data from the receiving water surface to the depth of the discharge port or diffuser.								

Page 3 of 4

Special Conditions (provide justification for all that are not required, completed or provided)									
Special Monitoring			Required	\boxtimes	Not Requ	ired	Justification:		
Exploration Plans			Attached		Not Provi	ded	Justification: approved 2010 EP previously submitted to BOEMRE		
Biological Surveys			Attached	\boxtimes	Not Provi	ded	Justification: None required		
Environmental Rep	oort(s)		Attached		Not Provi	ded	Justification: Submitted to BOEMRE as part of the 2010 Exploration Plan		
Drilling Fluid Plan			Complete	\boxtimes	Not Comp	olete	Justification: In Preparation		
Certification	Certification								
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.						epared under my direction or supervision in y gather and evaluate the information ystem, or those persons directly responsible knowledge and belief, true, accurate, and information, including the possibility of fine			
Signature:					Date:	12/1	12/16/2010		
Printed Name:	Susan Child	ls			Title:	Alaska Support Intergrator Manager			
Mail Completed NOI to EPA and ADEC at the following addresses:									
US EPA					ADEC, Water Division				
1200 6 th Avenue, M/S OWW-130					555 Cordova Street				
Seattle, WA 98101					Anchorage, Alaska 99501				

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TABLE 1	
Types and Estimated Volume Ocean Discharges – Burger J Prospect	

Type of Waste	Total Amount to be	Discharge Pate*	Discharge Method
Drill cuttings (from MLC through 26- inch section) Discharge 013	4,152 bbl/well (cuttings only; no drilling muds used)	346 bbl/day	Mud Line Cellar (MLC) through 26" section cuttings deposited at the seafloor
WBM spent drilling fluids – Discharge 001	3,378 bbl/well spent mud plus mud in tanks (if multiple wells drilled per season, water based muds will be transferred to and used at the next well)	169 bbl/day (including discharge of excess water based drilling fluid at end of the drilling season)	Discharged to sea through disposal caisson after 30:1 dilution with seawater
Cuttings from water based intervals – Discharge 001	1,689 bbl/well	84 bbl/day	Discharged to sea through disposal caisson after 30:1 dilution with seawater
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