Shell Exploration & Production

November 14, 2011

U.S Department of the Interior
Bureau of Ocean Energy Management
Alaska Continental Shelf Region
Attn: David Johnston, Regional Supervisor for Leasing and Plans
3801 Centerpoint Drive, Suite 500
Anchorage, AK, 99503-5820

Shell
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Anchorage, AK 99503
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RE: 3rd Set of Responses to Requests for Additional Information, dated October 28, 2011, for the revised Chukchi Sea Exploration Plan

Dear Mr. Johnston:

On October 28, 2011 Shell Gulf of Mexico Inc. (Shell) received a second request for additional information (RFAI) from the Bureau of Ocean Energy Management (BOEM) containing 17 RFAIs regarding the revised Chukchi Sea Exploration Plan (EP). On November 4, 2011, Shell provided responses to 15 of 17 RFAIs. Also on November 4th, Shell received from BOEM a clarification request on the content of our pending responses to the remaining two RFAIs (#1 and #3). On November 9, 2011 Shell responded to RFAI's #1 and #3, plus responded to BOEM's November 4th clarification request. Shell received a second request for clarification on November 10, 2011 regarding the same RFAIs (#1 and #3), for which we have prepared the following response (*i.e.*, 3rd set of responses to October 28th RFAIs).

Economy. Please see Attachment 1 to this letter, in which Shell addresses the content of the expansion of this RFAI as described in BOEM's November 10th letter. Shell's response fully addresses the content of the expanded RFAI. However, as noted in attached, Shell will not provide estimated annual income ranges for the positions that will be filled as a part of its exploration program, as that information is confidential.

Sound. Shell provides the outstanding references/reports plus appendices on the enclosed CD. Shell has responded fully to this request, and notes that agency representatives with the former Minerals Management Service/BOEM have been contributing review participants of the Joint Monitoring Program Draft/Final Comprehensive Reports since Shell began contributing its activities to these reports in 2006. Last, the 2006-2007 Joint Monitoring Program Final Comprehensive Report is available on the National Marine Fisheries Service, Office of Protected Services website http://www.nmfs.noaa.gov/pr/pdfs/permits/arctic_seismic_report.pdf.

Air Quality. Please see Attachment 2 to this letter for the Chukchi Sea non-OCS vessel emissions inventory calculations. This attachment should be used for the purpose of assessing air emissions beyond those specifically evaluated in the context of the permit review for the OCS source (*e.g.*, EPA air permit review) and in the Chukchi Environmental Impact Analysis. The assumptions used for vessel emissions are the same as those in Shell's previous correspondence with BOEM on November 9th. When utilizing the emissions data provided in Attachment 2, it is

important to note that the emissions from vessels operating more than 25 miles from the *Discoverer* during drilling operations will be dispersed over a large area because the vessels are expected to be moving during the activities in question, with the result that the impact of these emissions at any one location would be negligible. To the extent that any of the vessels would be stationary for any extended period of time outside the 25 mile area, they would be anchored and not using their propulsion engines, minimizing emissions and emissions impacts.

Based on conversations with BOEM following receipt of its November 10th letter, Shell will be finished shortly with printing final copies of the revised Chukchi Sea EP and is prepared to deliver to BOEM.

If there are any questions or comments, please contact me at (907) 646-7112 or at Susan.Childs@shell.com or Pauline Ruddy at (907) 771-7243 or e-mail Pauline.Ruddy@shell.com.

Sincerely,

Susan Childs
AK Venture Support Integrator, Manager

Attachments/Enclosure
Attachment 1 – Shell Economy Response
Attachment 2 – Chukchi Sea Non-OCS Vessel Emissions
Enclosure – Chukchi Sea RFAI References CD

Exhibit 15
ICAS Petition

Air Sciences Inc.	PROJECT TITLE: Shell Offshore, Inc.	BY: R. Steen		
	PROJECT NO: 180-20-4	PAGE: 1	OF: 1	SHEET: VesselEmis
ENGINEERING CALCULATIONS	SUBJECT: Chukchi Sea Non-OCS Vessel Emissions	DATE: November 9, 2011		

Total Fuel Burn Chukchi Sea

	Mobilization					Anchor Handling/Towing			Resupply			
Vessel Name	Assumed Transit Speed (knots)	Program Area Boundary to Drilling Site (approximate	Fuel Burn (gallons/day)	Days to Site	Fuel Burn to Site (gal/season)	Days	Fuel Burn (gallons/day)	AH/Towing Fuel Burn (gal/season)	Resupply Trips	Resupply RT Transit Days (@ 9 knots)	Fuel Burn (gallons/day)	Resupply Fuel Burn (gal/season)
Anchor Handler	9	150	1,183	0.7	822	9	1,420	12,781	NA			
Ice Management Vessel	9	150	1,376	0.7	956	3	688	1,720	NA			
OSV	9	150	3,936	0.7	2,733	3	4,723	11,808	8.5	1.5	3,936	50,184
OSV	9	150	3,936	0.7	2,733	3	4,723	11,808	8.5	1.5	3,936	50,184
Nanuq	9	150	5,800	0.7	4,028	NA			NA			
Shallow Water Landing Craft	9	150	1,500	0.7	1,042	NA			NA			
OST	9	150	8,400	0.7	5,833	NA			NA			
OSR Barge and Tug	9	150	3,408	0.7	2,367	NA			NA			
Containment Barge & Tug	9	150	3,408	0.7	2,367	NA			NA			
Discoverer	9	150	8,400	0.7	5,833	NA			NA			
Total					28,713			38,117				100,368

	During Drilling-Not Resupply			Demobilization					Total		
Vessel Name	Days	Fuel Burn (gallons/day)	Fuel Burn (gal/season)	Assumed Transit Speed (knots)	NM from Drilling Site to Prog Area Boundary (approximate	Fuel Burn (gallons/day)	Days to Program Area Boundary	Fuel Burn from Site (gal/season)	IM/AH Total Fuel Burn (gal/season)	Other Vessels Total Fuel Burn (gal/season)	Total Fuel Burn (gal/season)
Anchor Handler	0		0	9	150	1,183	0.7	822	14,424		14,424
Ice Management Vessel	54	688	37,153	9	150	1,376	0.7	956	40,784		40,784
OSV				9	150	3,936	0.7	2,733		67,459	67,459
OSV				9	150	3,936	0.7	2,733		67,459	67,459
Nanuq				9	150	5,800	0.7	4,028		8,056	8,056
Shallow Water Landing Craft				9	150	1,500	0.7	1,042		2,083	2,083
OST	2	8,400	12,600	9	150	8,400	0.7	5,833		24,267	24,267
OSR Barge and Tug	100	1,704	170,400	9	150	3,408	0.7	2,367		175,133	175,133
Containment Barge & Tug	100	1,704	170,400	9	150	3,408	0.7	2,367		175,133	175,133
Discoverer				9	150	8,400	0.7	5,833		11,667	11,667
Total			390,553					28,713	55,209	531,256	586,465

Notes:
Anchor Handling (AH) assumed to be within 25-mile radius for entire season
Ice Management (IM) assumed to be within 25-mile radius for 46 days so 54 days remain of a 100-day season (best estimate)
AH is assumed to take 3 days per well.
Shallow water landing craft will most likely already be on the North Slope.
The Discoverer will propel itself to the drilling location.
Barge & tug combinations emissions assumed at 50% power during drilling and outside 25-mile radius
OST traverses the program area twice per season (300 NM).
Emission factors provided below are from the EPA permit application

Values in blue are input, values in black are calculated

Emissions

	Emission Factors		Emissions		
	IM/AH	other vessels	IM/AH	other vessels	Total
Pollutant	lb/gallon	lb/gallon	ton/season	ton/season	ton/season
NOx	0.05	0.59	1.38	156.72	158
PM	0.008	0.041	0.22	10.89	11
SO_2	0.00021	0.00021	0.01	0.06	0
CO	0.023	0.1046	0.63	27.78	28
VOC	0.004	0.0188	0.11	4.99	5
CO_2e	22.5	22.5	621.1	5,976.63	6,598

Conversion	
2000	lb/ton