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May 14, 2010

S. Elizabeth Birnbaum
1849 C Street, NW
United States Department of the Interior
Minerals Management Service
Washington, DC 20240

Dear Director Birnbaum,

I am writing in response to your letter of May 6, 2010 regarding Shell's proposed exploratory drilling activity in the Chukchi Sea and Beaufort Sea. You requested information that may be pertinent to the review of Shell's Applications to Drill (APDs) that Minerals Management Service (MMS) will undertake in light of the Deepwater Horizon incident; and information about additional safety procedures that Shell plans to undertake in light of that incident.

Before responding to your request, I want to acknowledge the tragedy of the Gulf of Mexico (GOM) blowout and oil spill. I commend the Department of Interior (DOI) for its role in coordinating the unprecedented joint industry-government response effort. Shell is a full participant in this response; and additional Shell resources and expertise are available if needed.

I also commend the DOI for the urgency with which it is pursuing an investigation into the cause of the blowout. Root cause analyses are critically important in order for industry and government to identify steps that should be taken to ensure the safety and integrity of oil and gas operations on the Outer Continental Shelf (OCS). At Shell, we have already begun to enhance our operational excellence in light of this incident and we will continuously make adjustments as new learnings are revealed. We do not believe that best practices are static.

Regarding Shell's Chukchi and Beaufort Sea leases, please consider the following important points. First, Shell is committed to undertaking a safe and environmentally responsible exploration program in the Chukchi Sea and Beaufort Sea in 2010. Second, MMS has diligently and proactively challenged and reviewed Shell's 2010 Arctic exploration drilling program. On Thursday, May 13, 2010, the 9th Circuit Court of Appeals upheld the MMS's approvals of our 2010 exploration plans. At every step, Shell has worked with MMS, other

federal agencies, the State of Alaska, and local communities to develop a program that meets the highest operational and environmental standards. In response to the recent MMS Safety Alert, Shell will check each point raised in the letter against our internal audit of operations. Third, following the Deepwater Horizon incident, Shell initiated its own thorough review of the prevention and contingency plans for our 2010 Arctic exploration plans

I am confident that we are ready to conduct the 2010 Arctic exploratory program safely and, I want to be clear, the accountability for this program rests with Shell.

I appreciate the opportunity to provide information here about Shell's 2010 Arctic exploration program. I will discuss (1) how our program differs significantly from the GOM deepwater exploratory wells; (2) the oil spill prevention, mitigation and response plans included in Shell's current 2010 Arctic exploration plans; and (3) the additional measures that Shell has identified to add to the 2010 exploration plans in light of the GOM incident.

1. Differences between exploration in Alaska and deepwater exploration in the Gulf of Mexico

Drilling conditions for Shell's proposed 2010 Alaska wells are typical of well conditions that have been safely and effectively addressed for more than 30 years. They are much different than those in the GOM deepwater, most notably in terms of water depth and pressure. The Deepwater Horizon was drilling in 5,000 feet of water to a depth of 18,000 feet. This type of well is technically more complex than those wells planned in the Arctic for 2010. The pressure encountered in the Macondo well was about 15,000 psi based on mud weight at total depth. This is 2 to 3 times greater than what Shell expects to encounter in Alaska where 2010 drilling will be in approximately 150 feet of water to a depth of approximately 7,000 to 8,000 feet in the Chukchi and up to approximately 10,200 feet in the Beaufort. We are expecting a pressure at total depth of no more than 6,000 psi in any of these 2010 wells.

Shell has developed extensive reservoir pressure models based on previously drilled wells in the Chukchi and Beaufort Seas. Knowing the pressure profile of the previously drilled wells reduces uncertainty in pore pressure prediction for the 2010 wells. Due to the difference in expected down-hole pressure of the Macondo well versus our planned 2010 wells, our margin to safely operate in Alaska is much greater than that experienced by the Deepwater Horizon. Our biggest safety advantage is the water depth that will allow us to detect and respond to an event quickly and appropriately. Even in the highly unlikely event of Shell's drilling riser failing, the remaining drilling fluid below the seafloor would effectively stop any well flow in such a low-pressure system.

2. Current practices and our plans, which includes our mitigation for prevention and response

Shell has design standards and practices that have enabled us to successfully and safely drill many deepwater and shallow water wells worldwide. These practices include:

- a. Shell generally does not install full string casings through high-pressure zones. It is our practice to install and cement liners then to install and cement casing tiebacks. This practice delivers better cementation and hydraulic isolation across the zone of interest as well as the opportunity to install a liner top packer. We test our liner tops both in pressure and with an inflow test prior to installing a tieback string of casing back to the wellhead; this ensures we have hydraulic isolation prior to installing the tieback casing.

- b. Shell has a two-barrier policy, with each barrier validated in the direction of potential flow for all well operations. During the transition from drilling to temporary abandonment and prior to disconnecting the subsea Blow Out Preventer (BOP) from the well, a mechanical barrier, in addition to the cement and shoe track or plugs, must be installed and tested in all production casings thus ensuring that at least two independent barriers are in place.
- c. Shell policy requires that all casing hangers be locked down and that the seals be engaged. All seals on casing hangers are tested to ensure that we have two independent validated barriers at all times.

Shell will rigorously apply an appropriate similar level of standards in all well operations on the Alaska OCS. Because of lower anticipated down-hole pressure in the planned 2010 Alaska wells, all of the mechanical barriers included in Shell's well design (including contingency equipment) have inherently higher overall safety margin between operating pressure and mechanical barrier design pressures.

Shell's BOP has been and continues to be extensively inspected and tested by 3rd party specialists. The BOP has been validated to comply with the original equipment manufacturer specifications, in accordance with API Recommend Practice No. 53. Further inspection and testing has been performed to assure the reliability of the BOP and that all functions will be performed as necessary including shearing the drill pipe. Before initiating operations, the BOP will have a final test in Dutch Harbor and MMS inspection verification. Shell's BOP is well suited for operating in the Arctic. Our BOP control function is rapid and secure given its full hydraulic control system and relatively shallow working depth. In addition we will have a second BOP available in Dutch Harbor (or closer to drilling locations) for relief well drilling and other intervention techniques. An acoustic switch was considered for our Alaska wells, however placement on some of the components in the mud-line cellar and the shallow water depth diminishes the effectiveness of this approach. Specifically, the angles of transmission are too extreme and therefore unreliable when the secondary activation vessel moves a sufficient distance from the rig.

Shell's 2010 Arctic wells are exploratory and will not be converted for future production operations, thus production casing will not be installed. It is our understanding that production casing had just been run in the Macondo well and may have been a factor in the GOM incident.

The following items are safety aspects of our 2010 plans

- a. We have regional Blow Out Contingency Plans, one for the Chukchi Sea and one for the Beaufort. We also have specific relief well drilling plans for each well, which must be approved by the MMS.
- b. We understand MMS inspectors will be housed on board the Frontier Discoverer 24-hours per day/7 days per week throughout the 2010 drilling program.
- c. We have a comprehensive Critical Operations and Curtail Plan with specific procedures for suspending operations in case of emergency evacuation that properly seal and secure a well site.
- d. We will follow all current MMS plug and abandon procedures; for example, MMS requires a competent cement plug, the top of which must extend to 500' above the top of the upper most hydrocarbon-bearing zone. In addition to the required procedures and as an additional safety barrier, we will add a mechanical plug and appropriately test leak paths.
- e. We have simultaneous operational plans (SIMOPS) that will be managed to avoid well control incidents. In addition, we have full time SIMOPS coordinators to ensure no inappropriate simultaneous operations are conducted. For example, we will not induce an underbalance while waiting on cement. We will have a BOP, riser, and surface casing in place prior to drilling into known

or predicted productive gas or liquid hydrocarbon zones to isolate fragile overlying intervals to avoid fracturing under reservoir pressure.

- f. We can determine drill string position to avoid placing a tooljoint in the sheer/blind rams, a process that is much easier in shallow water than in deep water.
- g. Shell's primary relief well plan for Arctic drilling remains disconnecting the Frontier Discoverer from the wellbore and utilizing the Frontier Discoverer to spud a relief well expeditiously. This remains a robust plan due to the well control procedures and shorter response times as explained above. One of the reasons for selecting the Frontier Discoverer drill ship is its ability to safely and quickly depart from the well location in the event of unmanageable ice. In the event of a blowout, the same riser and anchor disconnect technologies make it probable that the Discoverer and its crew will be moved out of harms way thereby allowing it to drill a relief well. We have prepared for this circumstance by ensuring that we have a full extra set of equipment including a BOP, anchors, drill pipes and casings as well as drilling supplies on or quickly available to the Discoverer. In the unlikely event of a blowout resulting in the loss of the Discoverer, Shell would mobilize the Shell owned Kulluk drilling vessel that is capable of drilling same season relief wells in the Alaska OCS. Shell has made significant capital improvements to the Kulluk and is currently managing rig readiness.

Oil Discharge Prevention and Response Plan

Shell will be ready to respond with oil spill response assets in one hour. Shell has an unprecedented three-tier system consisting of an on-site dedicated oil spill response fleet, near-shore barges and oil spill response vessels, and onshore oil spill response teams. These resources are staffed with trained crews and supported by Alaska Clean Seas and Arctic Slope Regional Corporation.

Arctic conditions create differences in responding to oil in cold and ice conditions. Differences in evaporation rates, viscosity and weathering provide greater opportunities to recover oil. Shell and MMS were among the participants in the SINTEF Joint Industry Project that concluded in 2009. This project demonstrated that, in Arctic conditions, ice can aid oil spill response by slowing oil weathering, dampening waves, preventing oil from spreading over large distances, and allowing more time to respond.

3. Additional measures that we have identified to add in light of the incident in the Gulf of Mexico

Our program is robust and includes high safety and mitigation standards to enable safe operations in the Arctic; we have taken early lessons from the GOM incident and incorporated them into our 2010 drilling plans.

Well control enhancement

- a. In 2010, instead of whole coring objective reservoirs in initial penetrations, we will first evaluate formations using drillpipe- or wireline-conveyed logging tools, and potentially rotary sidewall cores, in the original wellbore. Any whole coring would be performed in a bypass hole only after reservoir parameters (pressure, fluid content, temperature, etc.) have been ascertained in the original wellbore. This will further reduce the risk of a "kick" or unwanted flow in the original wellbore.
- b. BOP testing frequency will be increased from 14-day intervals to 7-day intervals to further assure proper functioning.

Enhancements to Blow Out Preventers

- a. We are evaluating the risks-benefits of an additional set of shear rams, which would provide redundancy for shear blind capabilities. Such changes require careful consideration as it represents a significant departure from our successful and reliable well control training and practices.
- b. A remote hot stab system is being designed that will allow a Remote Operated Vehicle (ROV), diver, or support vessel to actuate the BOP from a sled on the seafloor - a safe distance away from the well connected by an umbilical.
- c. A subsea BOP remote operating panel will be relocated from the bottom of the BOP to the top for easier diver or ROV intervention. This provides two ROV/diver intervention options.

Remote Operating Vehicles and Divers

- a. We will have a fully functional work-class ROV for BOP intervention on one of our previously identified support vessels in addition to the ROVs on the drilling rig and science vessel.
- b. We will have backup launch and recovery capability for divers on a support vessel. If the Frontier Discoverer is disabled, this plan provides for redundant diver support capability.

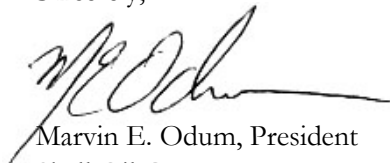
Containment and Response

- a. We will have a pre-fabricated coffer dam pre-staged in Alaska that will take into consideration issues associated with hydrate formation i.e. GOM, and gas/oil separation. We will locate the dome for immediate deployment, if required.
- b. If needed, we will also apply dispersant under water at the source of any oil flow that might occur; however the dispersant would not be used until all necessary permits are acquired.

In closing, I have complete confidence in the technical integrity of our well plans. As described herein, those plans employ a layered approach designed to prevent all types of incidents, including well control incidents like that experienced in the Gulf of Mexico. Furthermore, I also have complete confidence in our ability to execute the 2010 Chukchi Sea and Beaufort Sea exploration plans in a safe and environmentally responsible manner. Those exploration plans, which reflect 60 years of experience conducting exploration and development drilling on OCS lands and were developed over the course of the last three years with direct input from the MMS, other federal regulatory agencies, the state of Alaska and local communities, meet the highest operational and environmental standards.

Please let me know if you have any additional questions. We look forward to receiving your final authorizations to proceed with our 2010 exploration plans.

Sincerely,



Marvin E. Odum, President
Shell Oil Company

cc: Governor Parnell, Senator Murkowski, Senator Begich & Rep. Young