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May 19, 2010

Honorable Ken Salazar
Secretary of the Interior
1849 C Street, N.W.
Washington, DC 20240

Dear Secretary Salazar:

On May 14, Shell Oil Company responded to the Minerals Management Service's (MMS) request for information about additional safety procedures Shell intends to put in place for its proposed Arctic Ocean drilling this summer in light of the *Deepwater Horizon* spill. There are many reasons that Shell's Arctic drilling plans should be put on hold, including lack of baseline science and response and rescue capabilities; this letter focuses only on the specific issues raised by Shell's response to MMS.

Shell falls far short of ensuring that drilling can be conducted safely in the Arctic Ocean this summer. It is in the best interest of the United States that the Department of the Interior (DOI) suspend exploration drilling in the Arctic Ocean this summer until, at a minimum, the causes of the Gulf BP blowout are fully understood, DOI can be confident that this type of incident will not happen in the Arctic Ocean, Shell has a demonstrated oil spill response capability for the Arctic Ocean, and the agency has conducted a thorough re-evaluation of its decision based on the new information.

Before allowing Shell to drill exploration wells in the frontier areas of the Chukchi and Beaufort seas, DOI has a responsibility to document and analyze fully the failures of MMS and industry that led to the ongoing spill in the Gulf of Mexico. DOI must identify the root causes of the BP blowout and spill—including lax government oversight and operator failures—and take action to address those causes. And DOI must analyze and understand the risks and benefits of response efforts, some of which Shell suggests it would employ in case of a spill. These essential actions cannot be completed in the six weeks remaining before Shell's proposed drilling would commence.

The oil spill response and safety measures that Shell outlines in its letter remain inadequate. Shell's letter offers little new information about its spill prevention and response plans. Instead, the letter primarily attempts to justify the adequacy of Shell's original, pre-*Deepwater Horizon* spill prevention and response plans. The few additional measures the letter does introduce are not explained or justified, and they raise more questions than they answer.

SHELL'S EXISTING EXPLORATION AND OIL SPILL PREVENTION AND RESPONSE PLANS ARE FLAWED

A. Shell fails to acknowledge that there are no proven means of effectively cleaning up spilled oil in the Arctic Ocean's icy waters.

It is widely accepted that, even in optimal conditions, recovery rates of spilled oil rarely exceed 20 percent.[1] As we are witnessing daily, even under the relatively temperate conditions present in the Gulf of Mexico, efforts to contain and clean up the BP spill have been plagued by failures and setbacks. Shell's letter acknowledges that there are important differences between cleaning up an oil spill in Arctic conditions and cleaning up a spill in temperate Gulf conditions. Shell asserts, however, that Arctic conditions such as ice actually enhance its ability to clean up spilled oil. This assertion directly contradicts what most experts have to say about cleaning up oil in the Arctic's icy waters.

Coast Guard Commandant Admiral Thad Allen, who is leading the joint response efforts in the Gulf of Mexico, has cautioned "that oil spill clean-up is significantly more difficult in colder temperatures and ice-covered waters," because of "a harsh environment and limited response resources and capabilities"[2] The U.S. Arctic Research Commission recently reiterated these concerns:

> The Arctic is a venue with particular need for oil spill prevention and response. Unique risks in the North include protracted darkness, cold, ice cover, and powerful storms, all of which complicate prevention and response efforts for spills in ice-covered waters. Good scientific baseline information is lacking for living resources in the much of the region and the need exists to better understand

[1] *See* Letter from Dr. Jane Lubchenco, Undersecretary of Commerce for Oceans and Atmosphere, to Ms. S. Elizabeth Birnbaum, Director, Minerals Management Service (Sept. 21, 2009) at 6; International Tanker Owners Pollution Federation, Limitations of Containment and Recovery at 1, *available at* http://www.itopf.com/spill-response/clean-up-and-response/containment-and-recovery/ ("containment and recovery at sea rarely results in the removal of more than a relatively small proportion of a large [oil] spill, at best only 10 - 15% and often considerably less").

[2] S. Hrg. 111-259, Strategic Importance of the Arctic in U.S. Policy, 111th Cong. S. Hrg. 111-259 at 17-18 (Aug. 20, 2009) (written testimony of U.S. Coast Guard Commandant, Admiral Thad W. Allen, *available at* http://www.voltairenet.org/IMG/pdf/Strategic_Importance_of_the_Arctic.pdf.

> both basic biological features, as well as the spatial habitat of flora and fauna that might be at risk from spills.[3]

A 2009 joint report by the National Oceanic and Atmospheric Administration and the University of New Hampshire concluded that more needs to be done to enhance emergency response capacity in the Arctic.[4] The 2009 Arctic Marine Shipping Assessment states that "[t]he current lack of marine infrastructure in all but a limited number of areas coupled with the vastness and harshness of the environment, make conduct of emergency response significantly more difficult in the Arctic."[5] Similarly, the Arctic Council has noted that "[d]uring much of the year and under many conditions, response capabilities and methods are limited by environmental conditions, lack of resources capable of responding in a timely manner, and limited technologies for responding to oil spills in ice conditions."[6]

MMS itself acknowledges major oil spill response gaps in the Arctic Ocean. It states that, "[f]ield deployment tests of booms and skimmers in broken ice conditions in the Alaskan Beaufort Sea highlighted the severe limitations of conventional equipment *in even trace concentrations* of broken ice."[7] According to the agency, a "critical gap in spill response is the lack of capability to accurately measure and map the thickness of oil on water and to rapidly

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[3] White Paper, U.S. Arctic Research Commission Recommends Steps to Expanded U.S. Funding for Arctic/Subarctic Oil Spill Research February 24, 2010 – DRAFT at 1, *available at* http://www.arctic.gov/publications/usarc_oilspill_2-24-10.pdf.

[4] Coastal Response Research Center (2009), *Opening the Arctic Seas: Envisioning Disaster & Framing Solutions*, University of New Hampshire, Durham, N.H., *available at* http://www.crrc.unh.edu/workshops/arctic_spill_summit/arctic_summit_report_final.pdf.

[5] Arctic Council, *Arctic Marine Shipping Assessment* (2009), *available at* http://arctic-council.org/filearchive/amsa2009report.pdf.

[6] Arctic Council, *Arctic Offshore Oil and Gas Guidelines* (2009) at 8, *available at* http://arctic-council.org/filearchive/Arctic%20Offhsore%20Oil%20and%20Gas%20Guidelines%202009.pdf.

[7] Arctic Oil Spill Response Research and Development Program: A Decade of Achievement, U.S. Department of the Interior Minerals Management Service (MMS Decade of Achievement) at 24, *available at* http://www.mms.gov/tarprojectcategories/PDFs/MMSArcticResearch.pdf; *see also see also Advancing Oil Spill Response in Ice-Covered Waters*, DF Dickson Associates Ltd. for Prince William Sound Oil Spill Recovery Institute (OSRI) and the United States Arctic Research Commission (USARC) (March 2004) (Advancing Oil Spill Response) at iv, *available at* http://www.arctic.gov/publications/oil_in_ice.pdf ("Mechanical recovery of oil spills in pack ice is limited by drifting ice interrupting conventional containment and skimming activities."). For an assessment of the MMS Decade of Achievement report and description of the remaining challenges of oil spill cleanup in the Arctic Ocean, see World Wildlife Fund, *Not So Fast: Some Progress in Spill Response, but US Still Ill-Prepared for Arctic Offshore Development*, *available at* http://www.worldwildlife.org/what/wherewework/arctic/WWFBinaryitem14712.pdf .

send this information to response personnel in the command post."[8] Another limitation is "[t]he present inability to reliably detect and map oil trapped in, under, on, or among ice" which "is a critical deficiency, affecting all aspects of response to spills in ice."[9] MMS also has concluded generally that "[o]ne fundamental problem with the application of in situ burning to oil well blowouts or subsea oil pipeline leaks is that the slicks are initially too thin, or they can thin quickly, preventing effective ignition and burning."[10]

Shell does not address these widespread limitations in its letter and Shell's plan relies on some of the same equipment found to be inadequate in the Beaufort field tests. Moreover, Shell has never conducted an offshore oil spill response drill in the Chukchi Sea to test its equipment and assumptions. The letter's only justification for Shell's assertion that ice facilitates oil spill clean-up is a recent ice-field test in the Barents Sea, conducted in limited, controlled conditions with only small amounts of oil.

Shell's complete failure to address the limitations of spill response techniques in Arctic Ocean conditions clearly violates MMS regulations requiring operators to discuss their ability to respond in adverse weather conditions, including when sea-ice is present. *See* 30 C.F.R. § 254.6; *id.* § 254.26(d), (e)(1).

B. Shell fails to address the difficulties of mounting a large-scale, rapid oil spill response in the context of the Arctic's limited infrastructure.

The Gulf of Mexico constitutes this country's most well-developed offshore drilling region. As of May 19, the response to the Gulf blowout had included approximately 20,000 personnel, 970 vessels, 1.9 million feet of containment and sorbent boom, and 600,000 gallons of dispersants.[11] Equipment, personnel, boats and aircraft have been flooding into the Gulf region since the spill began. Despite these resources, however, the spill continues largely unabated, with response teams able to clean up only a small fraction of the spilled oil.

The Arctic Ocean where Shell proposes to drill in several weeks is extremely remote. There is no road system in this part of Alaska. Equipment or personnel that arrive on cargo planes will need to be transported to the spill site by barge or helicopter, and such transport is limited by weather conditions. The nearest airports to Shell's Chukchi Sea drill sites that can handle a C-130 cargo plane are Barrow (100 miles away) and Point Hope (150 miles away). Barrow's airstrip is 2,000 linear miles from Seattle, 2,900 miles from Los Angeles, 3,400 from New Jersey and 3,600 miles from Houston. The flight time from any of the major U.S.

[8] MMS Decade of Achievement at 12.
[9] Advancing Oil Spill Response at iv.
[10] MMS Decade of Achievement at 24.
[11] *Deepwater Horizon* Response: Current Operations and Ongoing Response, *available at* http://www.deepwaterhorizonresponse.com/go/doc/2931/543103/.

equipment caches (Seattle, Los Angeles, New Jersey, Houston) to Barrow could be 12 hours or more. The nearest Coast Guard Station is in Kodiak, Alaska over 1,000 miles away.

Shell does not address these procurement, logistical, and deployment challenges in its letter or its spill response plans, in violation of regulations implementing the Oil Pollution Act of 1990. *See* 30 C.F.R. § 254.23 (operator must describe emergency response action plan procedures it expects to follow in the event of a spill or a substantial threat of a spill); *id*. § 254.24 (requiring inventory of spill-response materials, supplies, services, equipment, and response vessels available locally and regionally). A major spill would require Shell to bring in trained personnel, boats, boom, skimmers, aircraft and dispersants from all over the country. *See* 30 C.F.R. § 254.23(g)(5) (requiring plans for "ensur[ing] that containment and recovery equipment as well as response personnel are mobilized and deployed at the spill site"); *see also* 30 C.F.R. § 254.26(d)(4) (requiring individual deployment times for equipment and personnel procurement and deployment). But Shell does not specify when, where, or how these resources would be transported to a remote Arctic Ocean spill site. Shell never explains basic concerns regarding mobilizing resources and people to such a remote location. For example, there are no hotels that could handle such an influx of people. Large berthing ships or cruise ships would likely be needed to house cleanup workers. In plans submitted to MMS, Shell has demonstrated contractual access to only a few hundred trained workers. And Wainwright, the nearest village to Shell's drill sites in the Chukchi, does not even have a boat dock—only a boat ramp. More generally, Shell does not say what it will do while it waits for the aircraft, barges, or other storage vessels to arrive at the spill site. *See* 30 C.F.R. § 254.23(g)(6) (requiring assurance that "devices for the storage of recovered oil are sufficient to allow containment and recovery operations to continue without interruption").

C. Shell ignores MMS data showing that the risk of a blowout is greater in shallow water than in deep water.

Shell attempts to distinguish its proposed Arctic Ocean drilling from the *Deepwater Horizon* by arguing that there are differences in water depth and pressure between the Gulf of Mexico and this summer's Arctic drill sites. Shell fails to address data indicating that blowouts are more common in shallow water than deep water. As MMS's career-long employee, Elmer P. Danenberger, recently testified before the Senate Committee on Energy and Natural Resources, MMS data collected over a 15-year period, demonstrate that "well control performance for deepwater drilling was significantly better than for shallow water operations."[12] An MMS report synthesizing that data concludes that between 1992 and 2006 "most blowouts occurred during the drilling of wells in water depths of less than 500 [feet]." It also concluded that 19 of the 39

[12] Written Statement of Elmer P. Danenberger III, Senate Committee on Energy and Natural Resources (May 11, 2010) at 2, *available at* http://www.scribd.com/doc/31169012/Danenberger-Testimony-05-11-10.

blowouts in this time frame occurred in water depths of zero to 200 feet.[13] Blowouts can happen and blowout preventers can malfunction—regardless of depth.

Shell's argument also ignores the fact that MMS requires blowout preventers (BOP) to be designed and installed to handle the highest surface pressure expected at a particular well. 30 C.F.R. § 250.440. Therefore, any difference in pressure between Shell's Arctic drill sites and BP's Gulf of Mexico sites is not a major factor in the risks associated with a particular drill site; each respective BOP must match the specific well pressure plus a safety factor. Regardless of the pressure, the BOP either works or it fails. If the BOP malfunctions, the consequence of an uncontrolled blowout is the same.

In addition, with respect to the Chukchi Sea, at least, MMS's statements at the time it was reviewing Shell's drilling plan call into question Shell's assertions about well pressure. In November 2009, MMS agency personnel acknowledged that the agency did not have "any flow data from any well tests for the Chukchi basin," and thus resorted to using the Alaska state standard flow rate of 5,500 barrels of oil per day for blowout response planning purposes.[14]

THE NEW INFORMATION PROVIDED IN SHELL'S LETTER IS INADEQUATE AND RAISES MORE QUESTIONS THAN IT ANSWERS

A. Shell has failed to demonstrate it has an adequate plan to drill a relief well.

The May 14 letter continues to assert that Shell's primary vessel for drilling a relief well in the event of a blowout will be the *Frontier Discoverer*. As recent experience in the Gulf of Mexico and Australia demonstrates, however, blowouts can damage and sink drill rigs. Shell does not explain why it is reasonable to assume the *Discoverer* will be unharmed and be able to move off the drill-site and drill a relief well in the event of an emergency. In addition, Shell fails to address how it would handle a late-season spill, when ice conditions could prevent it altogether from drilling a relief well.

Shell also states that it will use another drillship, the *Kulluk*, to drill a relief well if it cannot use the *Discoverer*. But Shell's letter does not provide any details about this eleventh-hour addition.

[13] Absence of Fatalities in Blowouts Encouraging in MMS Study of OCS Incidents 1992-2006, David Izon, E.P. Danenberger, Melinda Mayes, Minerals Management Service, Drilling Contractor, (July/August 2007) at 84, *available at* http://drillingcontractor.org/dcpi/dc-julyaug07/DC_July07_MMSBlowouts.pdf.

[14] Email from Jeffrey Walker, Minerals Management Service, to, Douglas Choromanski, Minerals Management Service, Re: Chukchi Sea Worst Case Discharge (Nov. 9, 2009).

As an initial matter, the addition of the *Kulluk* is inconsistent with an MMS-funded study that concluded "[i]t is apparent from statistical wind/wave data that the Chukchi Sea has more extreme wave conditions, potentially making a '*Kulluk*-like' drilling unit *unsuitable* for this area."[15] Indeed, Shell's letter raises concerns whether the *Kulluk* is even operational, stating only that Shell has "made significant capital improvements" and is "managing rig readiness" of the ship. There is no information about whether and when the *Kulluk* could be ready to drill a relief well.

Shell's continuing failure to explain how it will ensure an adequate response in the event of a blowout violates Outer Continental Shelf Lands Act and Oil Pollution Act regulations. *See, e.g.*, 30 C.F.R. § 250.213(g) (requiring a blowout description that discusses "the availability of a rig to drill a relief well, and rig package constraints"); 30 C.F.R. § 254.26 (requiring detailed discussion of Shell's worst case discharge scenario, including response in "adverse weather conditions" and "description of the response equipment that you will use" that must include "the types, location(s) and owner, quantity, and capabilities of the equipment").

B. Shell's proposed underwater use of dispersants in the event of an oil spill is untested, potentially lethal to the benthic-driven Arctic Ocean ecosystem, and possibly ineffective.

Shell states that it would expand the use of dispersants in the Arctic Ocean to combat an oil spill this summer by "apply[ing] dispersant under water at the sources of any oil that might occur . . . ."[16] However, Shell has not provided adequate analysis of the effectiveness of such a response or explained how an experimental and emergency procedure now being attempted in the Gulf of Mexico is an appropriate response measure for Arctic conditions. It is one thing for the government to make a difficult choice to use untested technology in the context of a catastrophe like the ongoing BP spill; it is another to accept Shell's proposed undersea use of dispersants when there is ample time to consider likely impacts of such use before it occurs.

Even with respect to surface applications of dispersants, Shell fails to provide an adequate level of detail in its spill response plans. In the Chukchi Sea, Shell provided approximately two pages describing the company's use of dispersants,[17] and in the Beaufort Sea,

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[15] Michael J. Paulin, *Arctic Offshore Technology Assessment of Exploration and Production Options for Cold Regions of the US Outer Continental Shelf* (2008) at 240, *available at* http://www.mms.gov/tarprojects/584/FINAL_REPORT.pdf (emphasis added).

[16] Shell Letter at 5.

[17] Shell Gulf of Mexico, Inc., Chukchi Sea Regional Exploration Oil Discharge Prevention and Contingency Plan, Revision 0 (May 2009) at Sec. 1.7 (pp. 1-90-2), *available at* http://www.mms.gov/alaska/ref/ProjectHistory/2009_Chukchi_Shell/2009_0623_Shell_cplan.pdf.

Shell provided no information whatsoever regarding the company's dispersant plan.[18] By contrast, BP provided MMS a Dispersant Use Plan totaling more than 40 pages for its Gulf of Mexico drilling, explaining what dispersants the company would use, under what circumstances, and how the company would apply the chemicals.[19] Shell's cursory description of dispersant use clearly violates MMS regulations requiring a full description of a dispersant use plan. *See* 30 C.F.R. § 254.27.

Shell's failure to fully analyze the use of dispersants is all the more troubling in light of MMS's acknowledgment that "[t]here are regional concerns that dispersants may not be effective on spills of Alaskan crude oils in cold water/broken ice, especially those that could take place in the colder months and that dispersants should not be or cannot be used in these conditions."[20] Other experts recognize that "[i]n cold-water environments where there is also ice, dispersants have been viewed as having the potential for only limited success. Concerns include the lack of natural mixing energy due to the dampening effects of the ice, and the tendency for oils to become viscous at low temperatures."[21]

The use of underwater dispersants raises a host of questions. These include the fundamental matter of effectiveness as well as potentially disastrous long-term ecological impacts that require a thorough analysis prior to approval as part of a response plan.

C. Shell proposes to fabricate and use a containment dome, but fails to provide information about why that dome would be more successful than the one that failed in the Gulf.

Shell proposes to add a containment dome to its Arctic Ocean drilling response equipment, but it has provided no details about the novel response idea. For example, Shell never explains the dome's specifications, testing results, location at the time of drilling, or deployment logistics. In addition, Shell offers no explanation for its assumption that the use of a coffer dam in the Arctic Ocean—with its storms and dynamic sea-ice conditions—would be more successful than it has been in the Gulf of Mexico.

The "siphon strategy" most recently deployed by BP in the Gulf of Mexico has been shown to be only capable of siphoning off a very small fraction of the on-going blowout, undermining the credibility of this approach as a meaningful response strategy. Whether it were

[18] Shell Offshore, Inc., Beaufort Sea Regional Exploration Oil Discharge Prevention and Contingency Plan, Revision 1 (April 2009) at MMS-2 (describing plan as "not applicable"), *available at* http://www.mms.gov/alaska/ref/ProjectHistory/Shell_BF/2007_cplan.pdf.
[19] BP Gulf of Mexico Regional Oil Spill Response Plan, Sec. 18 (http://www.mms.gov/DeepwaterHorizon/BP_Regional_OSRP_Redactedv2.pdf).
[20] MMS Decade of Achievement at 22.
[21] Advancing Oil Spill Response at iii.

to involve a containment dome or other "siphon" mechanism, Shell fails to provide information as to how it would stage and manage the logistics of siphoning oil to a tanker at the surface of the ocean, how many ships would be required, what ice breaker support would be involved, what would be done to dispose of the recovered oil, or how such an operation could be sustained over any significant length of time which could extend into freeze up.

D. Shell proposes to make available a second BOP, but it fails to provide an adequate description of how the device would be used.

Shell now claims it will have an alternative BOP available for this summer's Arctic drilling. Shell's claim, however, provides MMS no information that would allow the agency to evaluate the risks or efficacy of this proposal. Essential questions remain unanswered: when and how will Shell use this BOP; what are the BOPs specifications; when was it tested; and how long will it take to mobilize to the drill sites? Shell's suggestion that it might use an alternative BOP in some unidentified manner at some undefined moment in time raises more questions than it answers.

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For all of the foregoing reasons, the undersigned groups hereby respectfully request that you immediately suspend Shell's drilling plans in the Arctic Ocean.

The tragic events unfolding in the Gulf of Mexico have focused the nation's attention on the need to understand what led to the BP blowout and spill and to prevent it from happening again. These causes include not only the engineering problems of blowout preventers and potentially criminal behavior on the part of one or more corporations but also the systemic regulatory failures of MMS to provide needed environmental impact analysis, appropriate industry oversight, and meaningful enforcement.

President Obama has appropriately pledged to task a special commission to undertake a thorough investigation and analysis of the failures that resulted to the *Deepwater Horizon* disaster. Damage from the ongoing oil spill in the Gulf of Mexico may last for generations, and a quick 30-day review is clearly not sufficient to credibly address the many technical and regulatory concerns that have been brought to light by this spill.

It is imperative to allow sufficient time for the President's commission and other investigative bodies to complete their investigations of the failures that led to the ongoing BP blowout and to apply the lessons learned from this disaster before proceeding with new drilling,

especially in frontier areas such as the Arctic Ocean where there is a profound lack of baseline science, an inadequate understanding of Arctic ecosystems, and a clear lack of spill response capability.

Sincerely,

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cc:

David Hayes, Deputy Secretary of the Interior
Liz Birnbaum, Director, Minerals Management Service