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*Via E-mail*

May 22, 2013

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*Re: Proposed Permit (AKG315100) for Mobile Oil and Gas Exploration Facilities in State Waters in Cook Inlet*

Dear Mr. Brown,

Trustees for Alaska submits these comments on behalf of Cook Inletkeeper, Kachemak Bay Conservation Society, Port Graham Village Council, and Alaska Community Action on Toxics (collectively, “Inletkeeper”) regarding the draft general permit for mobile oil and gas exploration facilities in state waters in Cook Inlet. We appreciate the opportunity to provide comments and assist with the Department of Environmental Conservation’s (DEC) review of the proposed permit.

The overarching objective of the CWA “is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”<sup>1</sup> To achieve this objective, Congress established several goals, including (1) eliminating the discharge of pollutants into navigable waters by 1985; (2) attaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water by July 1, 1983; and (3) prohibiting the discharge of toxic pollutants in toxic amounts.<sup>2</sup> Although water quality has improved in many respects since the passage of the Clean Water Act (CWA), these three goals have not been attained with respect to the oil and gas facilities in Cook Inlet. The permit almost universally maintains the *status quo* and DEC took few, if any, steps to eliminate or reduce the discharge of pollutants into Cook Inlet.

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<sup>1</sup> 33 U.S.C. § 1251(a).

<sup>2</sup> *Id.*

Inletkeeper has serious concerns about the ongoing impacts to Cook Inlet. The continued protection of water quality in Cook Inlet is of vital significance and importance to the health of present and future Alaskans, the quality of fish and shellfish harvested from Cook Inlet waters, and the marketing of fish and shellfish from Cook Inlet. As the agency now tasked with implementing the Alaska Pollutant Discharge Elimination System program, DEC has the opportunity to implement measures that are more protective of state waters and resources than in the previous permits issued by EPA. DEC should strengthen the permit provisions to ensure that the permit requires the best available technology and effluent limitations that truly protect human health and the environment. The following sections provide comments on DEC's draft permit and discuss areas where DEC should strengthen the permit provisions.

## **I. Ocean Discharge Criteria Evaluation**

As explained in the comments submitted to the U.S. Environmental Protection Agency (EPA), there is insufficient information on which to base the determination of no unreasonable degradation. Specifically, there is insufficient information on which to base the unreasonable degradation finding because of the lack of information about the potential for bioaccumulation or persistence of pollutants to be discharged, the potential fate and transport of such pollutants, the composition and vulnerability of biological communities that may be exposed to the pollutants, and the potential impacts on human health. Inletkeeper hereby incorporates by reference the attached comments on the ODCE that Inletkeeper submitted to EPA.

Because there is insufficient information on which to base a determination of the unreasonable degradation factors, DEC may only issue the permit "if the discharge will not cause irreparable harm to the marine environment while additional monitoring is undertaken, and if there are no reasonable alternatives to on-site disposal."<sup>3</sup> In this case, DEC has failed to show that there are no reasonable alternatives to on-site disposal. "No reasonable alternatives" means there are either "[n]o land-based disposal sites, discharge point(s) within internal waters, or approved ocean dumping sites within a reasonable distance of the site of the proposed discharge the use of which would not cause unwarranted economic impacts on the discharger," or even if there are land-based disposal sites, "[o]n-site disposal is environmentally preferable to other alternative means of disposal" when considering the "relative environmental harm of disposal on-site" and the "risk to the environment and human safety posed by the transportation of the pollutants."<sup>4</sup> DEC failed to analyze whether there were reasonable alternatives to the discharges, and there is no indication that on-site disposal would be environmentally preferable to waste reinjection or another reasonable alternative.

There is also no indication that DEC independently verified the accuracy of the ODCE. The ODCE was prepared by EPA with the assistance of Tetra Tech. DEC provided only a

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<sup>3</sup> ALASKA DEP'T OF ENVTL. CONSERVATION, ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FACT SHEET DRAFT: PERMIT NO. AKG 315100, at 17 (2013) [hereinafter Fact Sheet].

<sup>4</sup> 40 C.F.R. § 125.123(d); 18 AAC 83.010(c)(8).

conclusory statement that, after considering the 2013 ODCE and existing limitations from the 2007 permit, “DEC determined that discharges authorized by the permit and discharged in accordance with the permit requirements will not cause unreasonable degradation of the ocean environment *when receiving waters have adequate dispersion and mixing.*”<sup>5</sup> This statement is insufficient to show that DEC independently verified the accuracy of the information in the ODCE. DEC also did not indicate in the ODCE discussion or elsewhere when receiving waters will have “adequate dispersion and mixing.” Without sufficient information about what actually constitutes adequate dispersion and mixing, there can be no finding that there is no unreasonable degradation because the unknown risk exists. As such, DEC must either demonstrate that there is adequate dispersion and mixing or require measures to ensure adequate dispersion and mixing so that a finding of no unreasonable degradation can be made.

## **II. Mixing Zones Analysis**

DEC can only authorize a mixing zone if the department finds that available evidence reasonably demonstrates that (1) the mixing zone will comply with the mixing zone regulations, (2) “the mixing zone will be as small as practicable;” and (3) “an effluent or substance will be treated to remove, reduce, and disperse pollutants, using methods found by the department to be the most effective and technologically and economically feasible consistent with the highest statutory and regulatory treatment requirements.”<sup>6</sup> The permit authorizes standard, 100-meter mixing zones for several discharges, including drilling fluids and drill cuttings; mud, cuttings, and cement at the seafloor; total residual chlorine for domestic wastewater and graywater; chronic WET for miscellaneous chemically treated discharges; and Total Aromatic Hydrocarbons (TAH), Total Aqueous Hydrocarbons (TAqH), metals, ammonia, dissolved inorganic substances, and WET for test fluids.

DEC failed to demonstrate — as required by its regulations — that the mixing zones will be as small as practicable. DEC provided no information about the modeling used for the mixing zone authorization or any other grounds for making the determination about the size of the mixing zones, except to say that the department authorized a standard, 100-meter mixing zone. In the mixing zone authorization checklist, DEC refers to several Fact Sheet sections and appendices that either do not exist or do not provide any support for whether the mixing zones are as small as practicable.<sup>7</sup> DEC also referred to the Technical Support Document for Water Quality Based Toxics Control, DEC’s RPA (Reasonable Potential Analysis) Guidance, and the EPA Permit Writers’ Manual, but at no point did DEC provide a factual, scientific, or model-based analysis for its 100-meter length decisions. The 100-meter mixing zone lengths are also far more lenient than the mixing zone lengths authorized in 2007 for chemically treated miscellaneous discharges. In the 2007 permit, the DEC adopted mixing zone lengths for

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<sup>5</sup> Fact Sheet at 18 (emphasis added).

<sup>6</sup> 18 AAC 70.240.

<sup>7</sup> Fact Sheet at 65.

chemically treated miscellaneous discharges from *production* platforms (with significantly higher-volume discharges) that, with one exception, ranged from three to ten meters. DEC appears to have significantly relaxed the length requirements with regard to chemically treated miscellaneous discharges, and has failed to provide any justification for the conclusion that any of the mixing zones are as small as practicable.

The permit also does not guarantee that the effluent will be treated using methods that are the most effective and technologically and economically feasible. For example, DEC states that the permit retains the maximum daily limit for total residual chlorine of 1.0 mg/L established previously through [best professional judgment], citing dechlorination as an effective and technologically and economically feasible treatment to attain this limit.”<sup>8</sup> The Fact Sheet goes on to state that facilities must comply with the minimum treatment requirements unless DEC approves a waiver of the requirements under 18 AAC 72.060.<sup>9</sup> The provisions in 18 AAC 72.060 in turn indicate that DEC is able to waive the minimum treatment requirements if DEC determines the waiver or modification “will be protective of public health, public and private water systems, and the environment,” and will not violate the requirements of the Alaska Pollutant Discharge Elimination System Program.<sup>10</sup> Because DEC is able to waive the treatment requirements for domestic wastewater and graywater discharges, there is no guarantee that dischargers will utilize the most effective and technologically and economically feasible treatment methods. DEC is also relying upon “a systematic approach for operators to implement corrective actions should operational problems arise.”<sup>11</sup> These measures and an evaluation “of treatment systems before obtaining authorization under the permit”<sup>12</sup> are not requirements or a finding that the most effective and technologically and economically feasible treatment methods will be used under the permit. As such, the permit does not comply with 18 AAC 70.240(a)(3).

Additionally, DEC regulations indicate that, when determining the size and appropriateness of a mixing zone, the department should ensure that existing uses of the waterbody outside the mixing zone are maintained and fully protected.<sup>13</sup> The discharge can “neither partially nor completely eliminate an existing use of the waterbody outside the mixing zone” and cannot “impair the overall biological integrity of the waterbody.”<sup>14</sup> In making this determination, the department considers several factors, including the (1) “physical, biological,

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<sup>8</sup> *Id.* at 19.

<sup>9</sup> *Id.*

<sup>10</sup> 18 AAC 72.060.

<sup>11</sup> Fact Sheet at 52.

<sup>12</sup> *Id.*

<sup>13</sup> 18 AAC 70.245(a).

<sup>14</sup> 18 AAC 70.245(a)(1)-(2).

and chemical characteristics of the receiving water, including volume and flow rate;” (2) “effects the discharge might have on the uses of the receiving water;” (3) “flushing and mixing characteristics of the receiving water;” (4) “effluent treatment technology requirements . . . ;” (5) “characteristics of the effluent, including volume, flow rate, dispersion, and quality after treatment;” (6) methods for analyzing and modeling near- and far-field mixing; and (7) “cumulative effects of multiple mixing zones and diffuse, nonpoint source inputs located within, or affecting, the receiving water.”<sup>15</sup>

DEC’s analysis of whether existing uses will be protected is flawed. DEC provided almost no analysis or justification for its conclusions on the various factors for determining whether a discharge will impair the waterbody or partially or completely eliminate an existing use of the waterbody. When “an agency does not consider an important factor, its decision is regarded as arbitrary, and those important factors which it did consider, must be discussed in the decisional document.”<sup>16</sup> Additionally, DEC is required to “cogently explain why it has exercised its discretion in a given manner.”<sup>17</sup>

For DEC’s analysis of the existing uses, its conclusion turns in part on its determination that “discharges associated with the permit do not include any new discharges that would contribute to lowering water quality more than what has previously been authorized.”<sup>18</sup> This conclusion is not based on reality. There have been few exploration facilities in Cook Inlet over the past several years, but the issuance of this permit and the increasing interest in Cook Inlet exploration recognizes the revitalization of this field that was once thought to be in decline. Most of the discharges authorized under the permit will be new discharges. The mere fact that the discharges were authorized under the old permit is irrelevant to the question of whether the discharges will contribute to lowering water quality. DEC also only provides conclusory statements about its determination that existing uses will be maintained and fully protected.<sup>19</sup> DEC provides no indication of the process or reasoning behind this conclusion, and the statement fails to recognize the cumulative impact of these additional discharges to Cook Inlet. DEC is required to explain how it reached its conclusions.

DEC has completely failed to discuss its reasoning on several other factors that the agency is required to consider when authorizing a mixing zone. DEC failed to discuss its analysis of the physical, biological, and chemical characteristics of the receiving water (*e.g.*, Cook Inlet is an estuary, not an ocean, with extreme tidal fluctuations, including significant slack tides), or the

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<sup>15</sup> 18 AAC 70.245(b).

<sup>16</sup> *Ninilchik Traditional Council v. Noah*, 928 P.2d 1206, 1217 (Alaska 1996) (quoting *Trustees for Alaska v. State, Dep’t of Natural Res.*, 795 P.2d 805 (Alaska 1990)).

<sup>17</sup> *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 48 (1983).

<sup>18</sup> Fact Sheet at 20.

<sup>19</sup> *Id.*

discharge characteristics, including volume and flow rate, the actual effects the discharge might have on the uses, the methods used to analyze and model the mixing, and the cumulative effects of having multiple mixing zones.

Similarly, under the general conditions applicable to mixing zones, the department will not authorize a mixing zone if the department finds that available evidence reasonably demonstrates that the pollutants could “bioaccumulate, bioconcentrate, or persist above natural levels in sediments, water, or biota to significant adverse levels, based on consideration of bioaccumulation and bioconcentration factors, toxicity, and exposure[.]”<sup>20</sup> DEC again provides only a conclusory statement that the mixing zones will not result in discharges of pollutants at levels that will bioaccumulate, bioconcentrate, or persist above natural levels and does not provide any basis for its conclusion.<sup>21</sup> The authorized discharges contain metals and other contaminants that are known to bioaccumulate and cause other adverse effects, and yet little is known about the levels of contaminants that are likely to present a hazard to human health and the environment. The ODCE, which DEC apparently relies on to support its technical findings, acknowledges that little is known about the acute and lasting effects from discharges such as drill cuttings.<sup>22</sup> DEC has therefore not provided sufficient information to support its conclusion on this factor.

DEC has also failed to analyze the risks to passing organisms in the mixing zone. Under 18 AAC 70.255, a “discharge may not cause or reasonably be expected to cause . . . lethality to passing organisms in the mixing zone[] or . . . a toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone.”<sup>23</sup> The acute aquatic life criteria are also required to “apply at and beyond the boundaries of a smaller initial mixing zone surrounding the outfall” that is “sized to prevent lethality to passing organisms.”<sup>24</sup> DEC has not addressed whether the mixing zone discharges will or will not cause lethality to passing organisms in the mixing zone and has not provided any information about the boundaries of the smaller mixing zone that is sized to prevent lethality to passing organisms.

DEC also did not address whether the discharges are expected to cause “carcinogenic, mutagenic, or teratogenic effects on, or otherwise present a risk to, human health,”<sup>25</sup> nor can the agency realistically make a determination on this factor given that the permit does not require

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<sup>20</sup> 18 AAC 70.250(a)(1)(A).

<sup>21</sup> Fact Sheet at 20.

<sup>22</sup> REGION 10, U.S. ENVTL. PROT. AGENCY, DRAFT OCEAN DISCHARGE CRITERIA EVALUATION FOR THE COOK INLET EXPLORATION GENERAL PERMITS 72 (2013) [hereinafter ODCE]; Fact Sheet at 18.

<sup>23</sup> 18 AAC 70.255(b).

<sup>24</sup> 18 AAC 70.255(d).

<sup>25</sup> 18 AAC 70.250(a)(1)(B).

reporting of chemical usage until facilities submit their end of well report. Because biocides and other chemicals used in oil and gas operations are known or suspected to be linked to carcinogenic and other side effects, it is crucial that DEC provide a meaningful discussion about this factor. Instead, DEC failed to analyze this factor or provide any basis for a determination on this ground to inform the public about these toxic discharges and their impacts.

The draft permit also indicates that DEC may authorize a mixing zone under the permit after receiving a complete application and that the Notice of Intent (NOI) to discharge serves as the application for the permit.<sup>26</sup> Under the mixing zone regulations, an applicant requesting a mixing zone is required to provide all available evidence reasonably necessary for a decision,<sup>27</sup> including all information as required by the mixing zone regulations.<sup>27</sup> The burden of proof for demonstrating a mixing zone complies with the regulations rests with the applicant.<sup>28</sup> The list of requirements for the notice of intent does not include any requirement that the applicant include all available evidence necessary for a mixing zone decision and as required by the mixing zone regulations.<sup>29</sup> Thus, the NOI requirements do not appear to be sufficient to ensure that the applicant submits the information necessary to meet its burden of demonstrating the mixing zone complies with the regulations. DEC must add clear requirements for applicants to include the information required in the mixing zone regulations as part of the NOI to ensure there is adequate information for the public and for decision-making by DEC.

### **III. Zones of Deposit**

The permit also completely fails to take into consideration the zones of deposit from the discharges, and DEC has failed to perform the proper analysis for allowing the deposit of substances on the bottom of marine waters. Alaska regulations differentiate between mixing zones and zones of deposit. The regulations related to zones of deposit indicate that, if there is a zone of deposit, “standards must be met at every point outside the zone of deposit” and “in no case may the water quality standards be violated in the water column outside the zone of deposit.”<sup>30</sup> In deciding whether to allow a zone of deposit, DEC is required to consider, as appropriate, the following factors:

- (1) alternatives that would eliminate, or reduce, any adverse effects of the deposit;
- (2) the potential direct and indirect impacts on human health;

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<sup>26</sup> Fact Sheet at 18.

<sup>27</sup> 18 AAC 70.260.

<sup>28</sup> *Id.*

<sup>29</sup> Fact Sheet at 15-16.

<sup>30</sup> 18 AAC 70.210(a).

- (3) the potential impacts on aquatic life and other wildlife, including the potential for bioaccumulation and persistence;
- (4) the potential impacts on other uses of the waterbody;
- (5) the expected duration of the deposit and any adverse effects; and
- (6) the potential transport of pollutants by biological, physical, and chemical processes.<sup>31</sup>

The discharges authorized under the permit can lead to zones of deposit. As recognized in the ODCE, part of the solids in the drilling fluids and cuttings may accumulate on the seafloor near the discharge and there will be “[r]apid settling of the heavier particles.”<sup>32</sup> DEC violated its own regulations by failing to authorize the zones of deposit and by failing to analyze the required factors in the regulations.

#### **IV. Antidegradation**

Under the State’s antidegradation policy, existing water uses and the level of water quality necessary to protect those existing uses must be maintained and protected. DEC is therefore only allowed to authorize a reduction in water quality after the department finds (1) authorizing the reduction in water quality is necessary for important economic or social development; (2) the reduction in water quality will not violate the water quality standards, limitations on carcinogenic substances, or whole effluent toxicity (WET) limits; (3) “the resulting water quality will be adequate to fully protect existing uses of the water”; (4) DEC will require the most effective and reasonable methods of pollution prevention, control, and treatment; and (5) all wastes and discharges will be treated and controlled to achieve the highest statutory and regulatory requirements.<sup>33</sup>

Under the second factor, DEC has not demonstrated that the reduction in water quality will comply with the water quality standards. DEC explains that all applicable water quality criteria “must be met at the boundary of that authorized mixing zone to ensure that the quality of the waterbody as a whole is protected and maintained.”<sup>34</sup> DEC also states that, “if the terms of the permit are followed, violations of marine water quality criteria in 18 AAC 70.020 and the WET limit in 18 AAC 70.030 should not occur.”<sup>35</sup> As explained elsewhere in these comments, DEC’s permit and monitoring provisions are inadequate to ensure that facilities will comply with the terms of the permit. For example, even though the mixing zone modeling is not based on

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<sup>31</sup> 18 AAC 70.210(b).

<sup>32</sup> ODCE at 98.

<sup>33</sup> 18 AAC 70.015.

<sup>34</sup> Fact Sheet at 49.

<sup>35</sup> *Id.*



reality and does not typically take into consideration several variables that can lead to dispersion differences, DEC provides no requirement that facilities actually sample at the edge of mixing zones to ensure compliance. The WET testing requirements also occur only quarterly or less, depending on the results of the initial tests. This sampling requirement is insufficient for ensuring that facilities are able to identify variations in toxicity. DEC's statements that if the terms of the permit are followed, violations "should not occur," in combination with other monitoring flaws in the permit, provides little assurance that facilities will not violate the terms of the permit and therefore water quality standards. DEC's findings on this factor are flawed.

Inletkeeper was particularly concerned with DEC's analysis of whether the resulting water quality will be adequate to fully protect existing uses of Cook Inlet. To support its conclusions about the fact that existing uses will be protected, DEC relies on an industry report that has yet to be finalized, as well as the findings from the Integrated Cook Inlet Environmental Monitoring and Assessment.<sup>36</sup> DEC lists several conclusions from these reports indicating concentrations for several metals in sediments in Cook Inlet were at background values.<sup>37</sup> DEC explained that arsenic, manganese, and selenium were above background values at some locations, "but could be caused by natural changes of rock and sediments."<sup>38</sup> DEC also states that mercury concentrations were above background at ten of fifty-five testing locations, including five in Kachemak Bay, but that global sources of mercury discharges impact waterbodies world-wide and that discharges are not authorized in Kachemak Bay.<sup>39</sup> Based on these findings, DEC concludes that existing discharges have not adversely impacted existing uses and the discharges associated with the permit are unlikely to impact existing uses so long as facilities comply with the permit.

DEC's findings about the metal concentrations in sediments do not actually address whether oil and gas facilities could be the cause of the increased metals levels in sediments, nor does DEC acknowledge the lack of information about the actual impacts of the discharges. For example, as noted in the ODCE, little is known about the risk of toxicity from bioaccumulation of contaminants and pollutants.<sup>40</sup> Studies performed to date on the effects of drilling fluids and drill cuttings on the environment and various species provide little information about what level

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<sup>36</sup> *Id.* at 50.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> *See, e.g.,* ODCE at 72 ("The risk of toxicity and bioaccumulation [in sei whales] of contaminants and pollutants (e.g. PCBs, PAHs, DDT, DDE, dieldrin, mercury, other metals) is unknown, but it appears that concentrations of organochlorine and metal compounds are lower in baleen whale tissues than other kinds of marine mammals."); *id.* at 74 ("Other risks to sperm whales with low or unknown impacts include toxicity and bioaccumulation of contaminants and pollutants (e.g., PCBs, PAHs, DDT, DDE, dieldrin, mercury, other metals) . . .").

of exposure is safe.<sup>41</sup> DEC's findings also do not address how increased levels of mercury and other contaminants have already impacted existing uses such as subsistence, recreational, and commercial fishing. In addition to direct impacts to the ability of individuals to harvest and consume resources impacted by increased contaminant levels, DEC has not accounted for impacts to existing uses such as commercial fishing, which depends heavily on the ability to successfully market Alaskan fish as healthy, pristine, and wild. DEC's analysis on this factor is insufficient to show that existing uses will be fully protected, as required by 18 AAC 70.015(a)(2)(C).

## **V. The Draft Permit and Fact Sheet**

### **A. DEC Needs to Expressly Indicate that Exploration Facilities Will Not Be Authorized to Discharge Produced Water.**

DEC indicates that “[e]xploratory drilling does not typically include discharges of water flood produce water or well completion, treatment, or work over.”<sup>42</sup> DEC accordingly indicates that “the permit for exploration does not include these discharges.”<sup>43</sup> DEC should expressly indicate that exploration facilities will not be authorized to discharge produced water, even if requested by individual facilities.

### **B. DEC Should Include a Limitation on the Total Discharges and Not Just the Rate of Discharge.**

DEC provides a depth-dependent discharge rate for the discharge of water-based fluid and cutting discharges. However, DEC does not provide a limit on the total volume of discharges, which has a bearing on whether there will be harm to the environment from the discharges. For non-aqueous drilling fluids that adhere to drill cuttings, DEC only requires reporting of the average volumes and provides no limitation on the discharge rate or total quantity of drill cuttings that facilities can discharge under the permit. DEC should limit both the rates of discharge and the total volumes discharged.

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<sup>41</sup> *Id.* at 95-96; *see also* Letter from Timothy J. Ragen, Executive Dir., Marine Mammal Comm'n, to Mr. P. Michael Payne, Nat'l Marine Fisheries Serv., Regarding Recommendations to NMFS Re: Shell's Application for Incidental Take Authorization 4 (Dec. 9, 2011) (stating that “information regarding sub-lethal, long-term, and cumulative impacts from discharge of drilling muds and cuttings on marine mammals and the marine environment” and available studies “do not provide a sufficient basis for predicting, with full confidence, the severity of either short or long-term effects of exposure”) (attached).

<sup>42</sup> Fact Sheet at 8.

<sup>43</sup> *Id.*

C. The Provisions Related to Wastewater and Graywater Discharges Are Not Restrictive Enough.

The permit provides too much leeway for DEC to adjust the requirements applied to discharges of domestic wastewater and graywater. For example, upon request, DEC has the ability to authorize a 100-meter mixing zone for total residual chlorine for domestic wastewater and graywater.<sup>44</sup> DEC also has the authority to waive the requirements for minimum treatment for domestic wastewater and graywater.<sup>45</sup> Allowing mixing zones and waivers of these treatment requirements will allow facilities to avoid utilizing the most effective methods of pollution prevention and control, as required by the State's mixing zone regulations, antidegradation requirements and other provisions. Additionally, under 18 AAC 83.480, "effluent limits, standards, or conditions must be at least as stringent as the final effluent limits, standards, or conditions in the previous permit." Permits may not be issued with "an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed or reissued."<sup>46</sup> DEC should not authorize waivers to these treatment requirements because it constitutes backsliding on the technology and effluent requirements applied to wastewater and graywater.<sup>47</sup>

The corrective action section applicable to wastewater and graywater discharges does not sufficiently restrict permittees.<sup>48</sup> According to the Fact Sheet, when there is a violation of the effluent limits applicable to domestic wastewater and graywater or any other requirement of the permit, facilities must conduct a corrective action assessment.<sup>49</sup> The assessment requires that facilities document the conditions discovered, the cause of the conditions, and the corrective actions necessary to eliminate the violations.<sup>50</sup> If the corrective action involves a minor adjustment, facilities are required to conduct the corrective action no later than one month after discovery of the condition.<sup>51</sup> For major adjustments, facilities are required to remedy the condition within four months of discovering the condition and permittees "must make every effort to reduce potential environmental harm."<sup>52</sup> DEC does not provide a definition or

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<sup>44</sup> *Id.* at 19.

<sup>45</sup> *Id.* at 13.

<sup>46</sup> 18 AAC 38.480(c).

<sup>47</sup> 18 AAC 83.480

<sup>48</sup> Fact Sheet at 44-45.

<sup>49</sup> *Id.* at 45.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.* at 45-46.

<sup>52</sup> *Id.* at 46.

parameters for how facilities should reduce potential environmental harm. For corrective actions involving major renovations, facilities “must address the underlying cause of the noncompliance at the next available shutdown period or scheduled dry dock.”<sup>53</sup> Facilities “must return to compliance and/or complete necessary renovations or repairs prior to recommencing exploration activities in waters subject to the permit.”<sup>54</sup>

The corrective action provisions are insufficient. First, because the corrective action section applies to violations of both graywater and wastewater discharges and “any other requirement of the permit,” the corrective actions appear to apply broadly to any provision of the permit. Inletkeeper is concerned that the broad language in the corrective action section could allow non-compliant facilities to discharge contaminants other than graywater and wastewater for extended periods of time. DEC should clarify whether the provisions of the corrective action section actually apply to discharges or other requirements that are unrelated to graywater and wastewater.

Second, the corrective action schedules appear to be both contradictory and too lenient. On the one hand, facilities are required to return to compliance or complete necessary renovations or repairs prior to recommencing exploration activities. However, facilities are also provided relaxed time frames for achieving compliance and completing renovations or repairs. DEC needs to clarify the relationship between these provisions. DEC should also not provide such relaxed timeframes for achieving compliance. The time tables potentially allow facilities to continue discharging for extended periods of time, violating limits in the permit. This could lead to greater levels of pollutants being discharged than anticipated in the water quality analysis and could cause harm to the environment and public health, as well unreasonable degradation. Particularly given the short time frame in which exploration facilities operate, DEC should reduce the amount of time for non-compliance and should not allow facilities to discharge until after they achieve compliance with the permit.

Lastly, the provisions for major adjustments provide too much discretion for facilities to determine the methods for making “every effort to reduce potential environmental harm.”<sup>55</sup> DEC should not allow facilities to make their own determination of how they will reduce potential environmental harm, nor should DEC allow facilities to discharge potentially harmful substances that exceed the effluent limitations and other provisions in the permit, especially when it is due to operator error and/or facility malfunction.

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<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at 46.

D. The Chemical Additives Reporting Requirements Are Inadequate.

The permit includes a new requirement for the permittee to maintain a precise chemical inventory of all constituents used downhole, including drilling fluid additives.<sup>56</sup> However, the chemical inventory does not have to be submitted until the permittee submits the end-of-well report.<sup>57</sup> Inletkeeper supports the permit's new inventory requirements, but believes that earlier reporting is necessary to ensure that permittees comply with the permit requirements. The reporting requirement is also a toothless requirement since there is no corresponding mechanism to ensure that facilities utilize the least harmful additives. DEC should add a mechanism in the permit that requires DEC approval of chemicals and additives prior to use. This requirement would ensure that DEC reviews and approves additives prior to use and that the agency has the ability to prohibit the use of any substances that, even when subject to use limitations, are either known or suspected of causing risks to the environment and human health.

E. DEC Should Expand the Baseline Monitoring Program.

Inletkeeper is also concerned about the sufficiency of the baseline monitoring requirements. As a threshold matter, DEC has misstated the scope of the 2007 baseline study provisions and, as a result, has not integrated the correct baseline monitoring requirements. In the 2007 permit, EPA required that operators of any new facilities — not just new facilities within 4,000 meters of coastal marsh — conduct baseline monitoring.<sup>58</sup> EPA explained in the 2007 Fact Sheet that it decided to expand the monitoring requirements to apply to all facilities regardless of the distance to the nearest coastal marsh in order to assist with understanding the impacts of the discharges on Cook Inlet.<sup>59</sup> Restricting the monitoring requirements in DEC's draft permit to facilities within 4,000 meters of a coastal marsh would weaken the permit. Retaining the 4,000-meter study requirement would also be unlikely to lead to statistically valid samples and information because the permit prohibits discharges within the boundaries or within 4,000 meters of a coastal marsh.<sup>60</sup> DEC should update the draft permit to ensure the baseline monitoring requirements apply to all facilities, regardless of their proximity to a coastal marsh.

The collection of baseline data is crucial to understanding the potential and actual impacts of the permitted discharges. Because there are significant gaps in understanding about the impacts of oil and gas discharges in Cook Inlet, DEC should expand the baseline monitoring

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<sup>56</sup> *Id.* at 14.

<sup>57</sup> *Id.*

<sup>58</sup> U.S. ENVTL. PROT. AGENCY, FACT SHEET: OIL AND GAS EXPLORATION, DEVELOPMENT AND PRODUCTION FACILITIES LOCATED IN STATE AND FEDERAL WATERS IN COOK INLET: PERMIT NO. AKG-31-5000, at 46 (2006).

<sup>59</sup> *Id.*

<sup>60</sup> Fact Sheet at 10.

program to maximize the ability of DEC and the public to fully understand the changes and impacts to Cook Inlet from the permitted discharges. Because no new facilities were installed during the previous permit term, no entities ever conducted baseline monitoring.<sup>61</sup> DEC should expand the requirements to encompass both existing and new facilities.

Inletkeeper is supportive of DEC's decision to retain the baseline monitoring. However, Inletkeeper believes DEC should further strengthen the program to ensure that the monitoring leads to the collection of statistically valid samples and information. The existing baseline monitoring requirements are too open-ended to be effective. DEC should design the monitoring requirements in a way that ensures that facilities collect data that is representative of the likely impacts from oil and gas discharges and that can be used to inform future decisions about the degradation caused by oil and gas facilities in Cook Inlet.

The environmental monitoring provisions also allow DEC to exempt a permittee from the environmental monitoring requirements if "the permittee can satisfactorily demonstrate that information on the fate and effects of the discharge are available and/or the discharge will not have significant impacts in the discharge area."<sup>62</sup> The permit further allows for an exemption from the monitoring program "if no impact was indicated during drilling."<sup>63</sup> Because of the broad, undefined authority for DEC to exempt facilities, this exemption process could effectively allow all exploration facilities to bypass the environmental monitoring requirements. The permit also does not provide any parameters for what constitutes "no impact" for purposes of the post-drilling monitoring exemption. DEC should remove these exemptions from the environmental monitoring provisions so that the exemptions do not swallow the rule.

F. The Permit Does Not Sufficiently Restrict DEC's Authorization of Additional Wells at Drilling Sites.

The permit allows facilities, upon request, to drill more than five exploratory wells at a single drilling site.<sup>64</sup> The permit, Fact Sheet, and ODCE did not take into consideration the impacts from these additional discharges, even though they could lead to greater degradation and harm to human health and the environment than anticipated. Additional discharges and wells at single drilling sites should not be authorized under the permit.

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<sup>61</sup> *Id.* at 34.

<sup>62</sup> ALASKA DEP'T OF ENVTL. CONSERVATION, DRAFT AUTHORIZATION TO DISCHARGE UNDER THE ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR MOBILE OIL AND GAS EXPLORATION FACILITIES IN STATE WATERS IN COOK INLET: GENERAL PERMIT NUMBER AKG315100, at 23 (2013).

<sup>63</sup> *Id.* at 24.

<sup>64</sup> Fact Sheet at 32.

G. The WET Monitoring Requirements Are Insufficient.

DEC requires WET testing once per quarter unless chronic toxicity is detected above the permit trigger values.<sup>65</sup> If facilities do not exceed the trigger values for one year, then the permit allows a reduction in toxicity monitoring to once every six months after a facility receives written approval.<sup>66</sup> DEC should increase the testing frequency for exploration facilities. Exploratory drilling operations do not involve constant, regular activities, and there can be many starts, stops, and variations in conditions that can impact effluent toxicity. One sampling event every quarter and then every six months is likely insufficient to address changes in operating conditions and could evade toxic discharges. DEC should require more frequent WET testing to ensure that facilities do not miss or intentionally evade variations in toxicity.

DEC also does not provide WET trigger levels for surface discharges less than 10,000 gallons per day.<sup>67</sup> DEC has not provided a legal or scientific basis for failing to include these toxicity triggers. DEC should add toxicity triggers to discharges of less than 10,000 gallons to ensure that they will not cause unreasonable degradation or any harm to passing organisms or the environment.

H. DEC Should Require Sampling/Monitoring at the Edge of Mixing Zones.

EPA should require monitoring at the edge of mixing zones to determine if the discharges actually comply with permit limits and water quality standards. Because mixing zone models are not based on reality, DEC should add a requirement for monitoring at the edge of mixing zones to ensure that public health and the environment are protected as forecasted by the modeling. DEC should also require benthic organism sampling in the vicinity of the mixing zones. Benthic organism sampling would provide a direct method for determining the impacts of the discharges on the environment and aquatic ecology.

I. DEC Should Identify Specific Mitigation Measures to Minimize Impacts to Endangered and Threatened Species.

The Fact Sheet identifies several threatened or endangered species that will potentially be impacted by the discharges authorized under the permit, including Steller sea lions, beluga whales, northern sea otters, and Steller's eiders. However, DEC has not identified any mitigation measures to ensure that facilities mitigate impacts to these species. DEC should provide conservation and mitigation measures in the permit to ensure that facilities minimize and avoid impacts to these species. Additionally, DEC's discussion of the endangered and threatened species appears to focus on the areas where there are critical habitat designations. Because many of these species can be found both inside and outside of the designated critical habitat areas,

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<sup>65</sup> *Id.* at 26.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 41.

DEC should ensure that the mitigation measures apply to areas beyond the boundaries of any critical habitat.

### **Conclusion**

For the reasons stated above, the permit, Fact Sheet, and ODCE are legally and factually flawed. DEC provided few, if any, justifications for its water quality determinations, particularly with respect to the mixing zone analysis. The permit is also not sufficiently protective of human health and the environment, and it does not fully protect existing uses of Cook Inlet. DEC should accordingly not issue the draft permit as currently written.

Please contact me at (907) 276-4244 x 115 with any questions regarding these comments.

Sincerely,

s/ Suzanne Bostrom  
Suzanne Bostrom  
Staff Attorney  
sbostrom@trustees.org



**Attached Documents**

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Comments submitted on behalf of Cook Inletkeeper et al. by Suzanne Bostrom,  
Staff Attorney, Trustees for Alaska, to Cindi Godsey, Region 10, U.S.  
Envtl. Prot. Agency Re: Draft General Permit for Oil and Gas Exploration  
Facilities Located in Federal Waters in Cook Inlet (May 21, 2013) ..... A-1

Letter from Timothy J. Ragen, Marine Mammal Comm'n, to Mr. P. Michael  
Payne, Nat'l Marine Fisheries Serv., Regarding Recommendations to  
NMFS Re: Shell's Application for Incidental Take Authorization 4 (Dec.  
9, 2011) .....A-20



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*Via E-mail*

May 21, 2013

Cindi Godsey  
Alaska Operations Office  
U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue, Suite 900 OWW-130  
Seattle, Washington 98101  
godsey.cindi@epa.gov

*Re: Draft General Permit for Oil and Gas Exploration Facilities Located in Federal Waters in Cook Inlet (NPDES Permit No. AKG-28-5100)*

Dear Ms. Godsey:

Trustees for Alaska submits these comments on behalf of Cook Inletkeeper, Kachemak Bay Conservation Society, Port Graham Village Council, and Alaska Community Action on Toxics (collectively, “Inletkeeper”) regarding the draft general permit for oil and gas facilities located in the federal waters of Cook Inlet. We appreciate the opportunity to provide comments and assist with the Environmental Protection Agency (EPA) review of the proposed permit.

The overarching objective of the CWA “is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”<sup>1</sup> To achieve this objective, Congress established several goals, including (1) eliminating the discharge of pollutants into navigable waters by 1985; (2) attaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water by July 1, 1983; and (3) prohibiting the discharge of toxic pollutants in toxic amounts.<sup>2</sup> Although water quality has improved in many respects since the passage of the Clean Water Act (CWA), these three goals have not been attained in general, and specifically with regards to the oil and gas facilities in Cook Inlet. The permit almost universally maintains the status quo and EPA took few, if any, steps to eliminate or reduce the discharge of pollutants into Cook Inlet from oil and gas exploration facilities. This is particularly troubling given the renewed interest in oil and gas exploration in Cook Inlet.

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<sup>1</sup> 33 U.S.C. § 1251(a).

<sup>2</sup> *Id.*

Inletkeeper is concerned about the ongoing impacts to Cook Inlet. The continued protection of water quality in Cook Inlet is of vital significance and importance to the health of present and future Alaskans, the quality of fish and shellfish harvested from Cook Inlet waters, and the marketing of fish and shellfish from Cook Inlet. The following sections provide comments on EPA's draft permit and discuss areas where EPA should strengthen the permit provisions.

**I. EPA Should Not Issue the Permits Because the Agency Has Not Properly Determined That There Will Be No Unreasonable Degradation of the Marine Environment.**

Section 403 of the Clean Water Act prohibits the issuance of an NPDES permit for discharge into the territorial sea, the waters of the contiguous zone, or the oceans unless in compliance with guidelines for determining whether receiving waters will be unreasonably degraded.<sup>3</sup> EPA's regulations define unreasonable degradation as encompassing following types of impacts to the aquatic and human environment: (1) "[s]ignificant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities"; (2) "[t]hreat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms"; or (3) "[l]oss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge."<sup>4</sup> EPA has also set forth ten criteria to guide its consideration of whether unreasonable degradation will occur from the discharges:

- (1) The quantities, composition and potential for bioaccumulation or persistence of the pollutants to be discharged;
- (2) The potential transport of such pollutants by biological, physical or chemical processes;
- (3) The composition and vulnerability of the biological communities which may be exposed to such pollutants . . . ;
- (4) The importance of the receiving water area to the surrounding biological community . . . ;
- (5) The existence of special aquatic sites . . . ;
- (6) The potential impacts on human health through direct and indirect pathways;
- (7) Existing or potential recreational and commercial fishing . . . ;

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<sup>3</sup> *Id.* § 1343.

<sup>4</sup> 40 C.F.R. 125.121(e).

- (8) Any applicable requirements of an approved Coastal Zone Management plan;
- (9) Such other factors relating to the discharge as may be appropriate;
- (10) Marine water quality criteria developed pursuant to section 304(a)(1).<sup>5</sup>

EPA has a nondiscretionary duty under these standards to determine whether a discharge will cause degradation. Section 403 of the CWA also provides that if “insufficient information exists on any proposed discharge to make a reasonable judgment on any of the guidelines established . . . no permit shall be issued.”<sup>6</sup> EPA is only allowed to overcome this requirement if it determines that (1) the discharge will not cause irreparable harm to the environment during the period in which monitoring is undertaken, (2) there are no reasonable alternatives to the on-site disposal, and (3) the permit will comply with the permit requirements in 40 C.F.R. § 125.123(d), such as monitoring program requirements.<sup>7</sup>

A. There Is Insufficient Information to Support a Finding of No Unreasonable Degradation.

Under the Ocean Discharge Criteria Evaluation (ODCE) for the Cook Inlet NPDES Permit,<sup>8</sup> there is insufficient information for EPA to make a reasonable decision on several of the ten factors. EPA also ignored and omitted important information suggesting that unreasonable degradation could occur. Because there is insufficient information on more than one factor, EPA should not issue the permit.

1. *Quantities, Composition, and Potential for Bioaccumulation or Persistence of Pollutants to Be Discharged*

The ODCE estimation of the potential discharge volumes is arbitrary. The ODCE determined the potential discharge volumes for exploration facilities by averaging the discharge quantities provided in Furie’s Notice of Intent (NOI) and choosing an arbitrary number of wells — 12.<sup>9</sup> To ensure that no unreasonable degradation will occur, the ODCE cannot underestimate the potential discharge quantity under the permit. There is no indication that Furie’s NOI estimates are indicative of the actual volumes that are likely to be discharged by other exploration facilities in Cook Inlet or that they reflect the maximum quantity likely to be discharged under the permit. Furie is operating in state waters, which are shallower than Federal

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<sup>5</sup> 40 C.F.R. 125.122(a).

<sup>6</sup> 33 U.S.C. § 1343(c)(2).

<sup>7</sup> 40 C.F.R. § 125.123(c)-(d).

<sup>8</sup> REGION 10, U.S. ENVTL. PROT. AGENCY, DRAFT OCEAN DISCHARGE CRITERIA EVALUATION FOR THE COOK INLET EXPLORATION GENERAL PERMITS (2013) [hereinafter ODCE].

<sup>9</sup> *Id.* at 25-26.

waters. EPA could also integrate information related to Buccaneer's plans for the North Cook Inlet and Southern Cross units, where Buccaneer plans to conduct extensive exploration drilling with the Endeavor jack-up rig over the course of the next five years. Because there are no corresponding limits on the number of wells allowed or the overall quantities that wells are allowed to discharge, this arbitrary estimate of the discharge volumes could lead to much higher contaminant exposures than those considered in the ODCE resulting in unreasonable degradation to the marine environment.

EPA also based its estimate of the total amount of pollution that could be discharged on its calculations for the total number of wells that could be drilled. Although permittees are generally limited to drilling no more than five exploratory wells at a single drilling site, EPA can authorize the drilling of additional wells per site on a case-by-case basis.<sup>10</sup> The ODCE does not analyze whether allowing the drilling of additional wells in a drilling site could result in unreasonable degradation, even though such an activity is possible under the permit. This exception means that there is no real ceiling on how much heavy metal and other contaminants could be released at a single drilling site.

The ODCE for the draft permits also provides insufficient information about the risk of bioaccumulation. In the few instances where EPA actually discusses the risks of bioaccumulation, EPA notes that little is known about the risk of toxicity or bioaccumulation of contaminants and pollutants.<sup>11</sup> It is particularly disturbing to see that the ODCE did not include the discussion regarding metal accumulation potential that was originally included in the 2006 ODCE.<sup>12</sup> EPA also did not provide an explanation for why it omitted this important information, and EPA should not be allowed to rely on the omission of key information to avoid showing that there is a lack of sufficient information on bioaccumulation and the health impacts of heavy metals.

Lastly, in EPA's analysis of criterion 1, EPA provided only a conclusory statement about the low potential for bioaccumulation and persistence of contaminants.<sup>13</sup> Because EPA provided only a bare-bones discussion about the actual risk of bioaccumulation elsewhere in the ODCE

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<sup>10</sup> REGION 10, U.S. ENVTL. PROT. AGENCY, DRAFT AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FOR OIL AND GAS EXPLORATION FACILITIES IN FEDERAL WATERS IN COOK INLET: PERMIT NO. AKG-28-5100 (2013) [hereinafter Draft Permit].

<sup>11</sup> *See, e.g.*, ODCE at 72 ("The risk of toxicity and bioaccumulation [in sei whales] of contaminants and pollutants (e.g. PCBs, PAHs, DDT, DDE, dieldrin, mercury, other metals) is unknown, but it appears that concentrations of organochlorine and metal compounds are lower in baleen whale tissues than other kinds of marine mammals."); *id.* at 74 ("Other risks to sperm whales with low or unknown impacts include toxicity and bioaccumulation of contaminants and pollutants (e.g., PCBs, PAHs, DDT, DDE, dieldrin, mercury, other metals) . . .").

<sup>12</sup> REGION 10, U.S. ENVTL. PROT. AGENCY, OCEAN DISCHARGE CRITERIA EVALUATION FOR THE COOK INLET NPDES PERMIT 53-54 (Jan. 24, 2006) [hereinafter 2006 ODCE].

<sup>13</sup> ODCE at 108.

and failed to acknowledge the lack of information about the long-term effects of substances such as heavy metals, EPA's conclusion on this criterion is arbitrary and EPA does not have sufficient information on which to base a determination of no significant degradation under this factor.

2. *The Potential Transport of Such Pollutants by Biological, Physical, or Chemical Processes*

In the ODCE discussion about marine water quality and discharges, the ODCE states, "The volume and concentrations of pollutants in the discharges from oil and gas facilities in Cook Inlet Exploration general permits are expected to meet human health water quality criteria at the end-of-pipe."<sup>14</sup> The ODCE therefore concludes that "there is little potential for discharges to exceed marine water quality criteria."<sup>15</sup> The ODCE statement that dischargers will meet human health and water quality criteria at the end of the pipe is inaccurate. The criteria are required to be met at the edge of the mixing zones. The ODCE analysis must be performed based on actual discharges, which will exceed water quality criteria within the mixing zones and will not meet water quality standards at the end of the pipe. There is insufficient information on this ground to support a finding of no unreasonable degradation to the marine environment.

The ODCE also explains that "[d]ischarged substances that are dissolved or remain in suspension generally would be transported out of Cook Inlet and into the Gulf of Alaska within about 10 months."<sup>16</sup> However, the ODCE also acknowledges that there will be "[r]apid settling of the heavier particles" and that "discharges associated with short-term exploration operations would have little effect on the environment due to deposition of drilling-related materials on the seafloor."<sup>17</sup> Although the ODCE recognizes that at least some of the particles that remain suspended will be transported out of Cook Inlet, the ODCE does not discuss whether contaminated drill cuttings and other materials that settle to the seafloor will be transported out of Cook Inlet, even though the ODCE recognizes that there are significant, unknown long-term risks to benthic and possibly other organisms.<sup>18</sup> Because the ODCE does not provide any indication of how long pollutants and discharges are likely to persist on the seafloor, there is insufficient information in the ODCE on which to base an unreasonable degradation finding for this criterion.

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<sup>14</sup> *Id.* at 107.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at 98.

<sup>17</sup> *Id.* at 98.

<sup>18</sup> *Id.* at 95-96, 98.

3. *The Composition and Vulnerability of the Biological Communities That May Be Exposed to Such Pollutants*

EPA is also required to consider the composition and vulnerability of the biological communities that may be exposed to such pollutants, including “the presence of species identified as endangered or threatened pursuant to the Endangered Species Act, or the presence of those species critical to the structure or function of the ecosystem, such as those important for the food chain.”<sup>19</sup>

EPA has failed to show that the discharge of drilling fluids and drill cuttings will not cause unreasonable degradation. Studies performed to date on the effects of drilling fluids and drill cuttings on the environment and various species provide little information about what level of exposure is safe.<sup>20</sup> Recent studies indicate that the toxicity of drill cuttings can harm the environment. One water-based drill cutting study found that there were no adverse effects from natural sedimentation, but there was a “significant reduction in [the] number of taxa, abundance, biomass and diversity . . . with increasing layer thickness of water-based drill cuttings.”<sup>21</sup> EPA similarly acknowledged the uncertainty and risks associated with drill cutting discharges.<sup>22</sup> The ODCE explains that the “presence of potentially toxic trace elements in drilling fluids and adherence to cuttings is a concern.”<sup>23</sup> Even water-based fluids and cuttings contain dangerous substances like mercury, cadmium, arsenic, chromium, copper, lead, nickel, and zinc.<sup>24</sup> The ODCE states that drill cuttings, even in small quantities, can have severe impacts on benthic organisms: “Exposure to mixtures as low as 10 percent cuttings and 90 percent sand were found to affect the survival of the benthic organisms, with 100 percent mortality occurring within 23 days in some test cases.”<sup>25</sup> EPA also recognized that there is a lack of information about long-term impacts of exposure and that, even to the extent that there have been studies, testing to date

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<sup>19</sup> 40 C.F.R. § 125.122(a)(3).

<sup>20</sup> ODCE at 95-96; *see also* Letter from Timothy J. Ragen, Executive Dir., Marine Mammal Comm’n, to Mr. P. Michael Payne, Nat’l Marine Fisheries Serv., Regarding Recommendations to NMFS Re: Shell’s Application for Incidental Take Authorization 4 (Dec. 9, 2011) (stating that “information regarding sub-lethal, long-term, and cumulative impacts from discharge of drilling muds and cuttings on marine mammals and the marine environment” and available studies “do not provide a sufficient basis for predicting, with full confidence, the severity of either short or long-term effects of exposure”) (attached).

<sup>21</sup> Hilde Trannum et al., *Effects of Sedimentation from Water-Based Drill Cuttings and Natural Sediment on Benthic Macrofaunal Community Structure and Ecosystem Processes*, 383 J. EXPERIMENTAL MARINE BIOLOGY & ECOLOGY 111, 115 (2010) (attached).

<sup>22</sup> ODCE at 95-96.

<sup>23</sup> *Id.* at 17.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.* at 96.

has only been on invertebrates.<sup>26</sup> EPA does not have sufficient information on which to base its determination about whether the discharge of drill cuttings and drilling fluids will cause unreasonable degradation.

The ODCE also fails to discuss or recognize the potential link between benthic organisms and effects on other species. The ODCE recognizes that drilling fluid discharges could alter prey available to species such as the northern sea otter “through burial of benthic organisms or changing bottom habitat characteristics,”<sup>27</sup> but fails to analyze the potential impacts that contaminated benthic organisms are likely to have on sea otters that rely on benthic organisms for their food source.

As identified in the ODCE, there are several vulnerable, endangered or threatened species in Cook Inlet, including Steller sea lions, beluga whales, and northern sea otters.<sup>28</sup> However, during the long history of oil and gas development in Cook Inlet, little has been done by either EPA or industry to understand the impacts of oil and gas pollution, noise, and other impacts on these species. Until there is more ambient water quality data, significantly more rigorous monitoring data, biological studies, and other information, there is insufficient information on which to base a finding of no unreasonable degradation under this factor.

#### 4. *The Potential Impacts on Human Health Through Direct and Indirect Pathways*

EPA does not have sufficient information on which to base its determination about human health. The ODCE finds that there is no direct exposure pathway to humans from the permitted discharges, but there are indirect impacts from direct consumption of species exposed to the discharges.<sup>29</sup> There is insufficient information to determine whether there is unreasonable degradation of the marine environment under this factor because no comprehensive study has been undertaken to evaluate exposures from eating subsistence species.

The ODCE relies on the 2009 Health Consultation report published by the Agency for Toxic Substances and Disease Registry (ATSDR).<sup>30</sup> The report did not present new information; instead the report evaluated data from a number of other flawed reports, including two 2000 and 2003 reports by EPA, a report based on a 2005 fish fillet analysis by DEC, and 1999 and 2001

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<sup>26</sup> *Id.* at 95-96.

<sup>27</sup> *Id.* at 109.

<sup>28</sup> *Id.* at 60.

<sup>29</sup> *Id.* at 110.

<sup>30</sup> *Id.* at 96.



reports by the Cook Inlet Regional Citizens Advisory Council on clam and mussel samples.<sup>31</sup> Inletkeeper is disturbed to see that EPA based its determination on outdated and flawed information. The latest collection of data reviewed in the report was from 2005, and even that information was limited to only fish fillet samples and is now approximately eight years old. Because of the risks of bioaccumulation and changing conditions in Cook Inlet, EPA should not rely on stale information when making a determination about human health impacts. The methodologies, study designs, and analyses in the underlying reports have also been questioned by EPA and others for various reasons.<sup>32</sup> EPA does not have sufficient information on current contaminant levels and the risk to human health on which to base the unreasonable degradation finding.

Second, the Health Consultation is based on flawed and limited information. Sampling was conducted on only a limited range of species and was not done at all for some key subsistence species, such as Dolly Varden. The studies did not analyze contaminant levels in marine mammals, which potentially have the highest concentrations of any contaminants having a tendency to bioaccumulate. It is also unclear from the report whether the samples collected were from small specimens or whether the study took into consideration variations in sizes. This is particularly important in species such as halibut, where contaminant concentrations will tend to be higher in larger specimens.

The studies relied on in the Health Consultation, such as the 2003 EPA study, in part relied on whole animal and composite samples.<sup>33</sup> The use of whole animal or composite samples skews results by making it difficult to determine the levels of contaminants in the parts of the animal that people actually consume. Whole animal samples do not accurately project the actual level of contaminant exposure and do not provide a basis for making a finding of no unreasonable degradation. It is also unclear from the Health Consultation and studies what impacts and risks there will be from mixed seafood diets.

The Health Consultation identified a wide array of contaminants present in a variety of Cook Inlet subsistence foods. The existing contaminants, such as lead levels in chiton, have already reached disturbing levels that pose a threat to human health. Where there is a “[t]hreat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms,” that threat meets the definition of “unreasonable degradation of the marine environment.”<sup>34</sup> Despite the survey’s flaws, the data exposes a “threat” to human health,

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<sup>31</sup> U.S. DEP’T OF HEALTH & SOC. SERVS., HEALTH CONSULTATION: EVALUATION OF SEAFOOD AND PLANT DATA COLLECTED FROM COOK INLET NEAR THE NATIVE VILLAGES OF PORT GRAHAM, NANWALEK, SELDOVIA, AND TYONEK, ALASKA at 1 (2009) [hereinafter Health Consultation].

<sup>32</sup> See, e.g., Tribal Coal. for Cook Inlet, Comments on the EPA Cook Inlet Contaminants Study (2003) (analyzing the draft version of the 2003 EPA report relied on in the Health Consultation) (attached).

<sup>33</sup> See, e.g., Health Consultation at 15.

<sup>34</sup> 40 C.F.R. § 125.121(e)(2).

especially in light of the heavy reliance on subsistence foods by local Alaska Natives, and as a result constitutes “unreasonable degradation of the marine environment.”

In addressing bioaccumulation, the Health Consultation also failed to consider the existing levels of exposure in members of the population. When individuals consume fish or other species that have been exposed to contaminants, the additional contaminants are added to their background level of exposure. However, the Health Consultation and underlying studies did not consider the background levels of exposure in tandem with the contaminant levels in the samples.

There are also several gaps in information about fish consumption. The ODCE identifies that there is insufficient information to determine the effects of activities such as eating eggs or organs from Cook Inlet fish, even though those fish parts are important to dietary customs of Alaskan Natives.<sup>35</sup> The ODCE also recognizes that basic information about the quantity of fish consumed per day often varies based on age, sex, lifestyle, traditional customs, or health status.<sup>36</sup> The Health Consultation report relied on by EPA to determine the average quantity of fish consumed was based on survey data from only forty-four individuals from Port Graham.<sup>37</sup> Additionally, EPA averaged the daily fish consumption per person to determine the average consumption quantity — 7.1 ounces — instead of basing its determination on the maximum quantity that is likely to be consumed by members of the population. For example, elders were listed in the survey as consuming nine ounces of fish per day and the highest consumption levels ranged as high as eighteen ounces of fish per day.<sup>38</sup> Without accurate information about the quantity of fish consumed by subsistence users in Cook Inlet, and particularly the maximum quantities consumed by members of the population and the corresponding risk associated with those consumption rates, EPA does not have sufficient information on which to base its finding that there will not be unreasonable degradation.

**B. EPA Cannot “Save” the Permit.**

As discussed above, when there is insufficient information to find no unreasonable degradation, EPA can only issue an NPDES permit if it determines the following: (1) the “discharge will not cause irreparable harm to the marine environment during the period in which monitoring is undertaken”; (2) “[t]here are no reasonable alternatives to the on-site disposal of these materials”; and (3) “[t]he discharge will be in compliance with all permit conditions

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<sup>35</sup> ODCE at 97; Health Consultation at v.

<sup>36</sup> ODCE at 97.

<sup>37</sup> Health Consultation at 10.

<sup>38</sup> *Id.* at 10, 14.

established pursuant to paragraph (d) of [40 C.F.R. § 125.123].”<sup>39</sup> EPA is required to make all these findings before issuing the permit.

In this case, EPA cannot make the second and third findings. For the second finding, “[n]o reasonable alternatives” means there are either “[n]o land-based disposal sites, discharge point(s) within internal waters, or approved ocean dumping sites within a reasonable distance of the site of the proposed discharge the use of which would not cause unwarranted economic impacts on the discharger,” or even if there are land-based disposal sites, “[o]n-site disposal is environmentally preferable to other alternative means of disposal” when considering the “relative environmental harm of disposal on-site” and the “risk to the environment and human safety posed by the transportation of the pollutants.”<sup>40</sup> Both EPA and others have recognized that there are reasonable alternatives — including waste reinjection and onshore disposal or treatment — to the discharges authorized by the permit.<sup>41</sup> Additionally, given the risk to the environment and human safety posed by the pollutants, EPA cannot find that on-site disposal is environmentally preferable to waste reinjection or another reasonable alternative.

EPA also cannot show that it meets the requirements of 40 C.F.R. § 125.123(c)(3), which provides that all permits authorizing the discharge of pollutants under 40 C.F.R. § 125.123(c) “[s]pecify a monitoring program, which is sufficient to assess the impact of the discharge on water, sediment, and biological quality including, where appropriate, analysis of the bioaccumulative and/or persistent impact on aquatic life of the discharge.” EPA has failed to provide a monitoring program that is sufficient to assess the impacts of the discharges on water, sediment, and biological quality. As will be discussed in further detail below, the monitoring program and environmental study requirements are too open-ended and unclear to be sufficient to assess the impacts of the discharges on water, sediment, and biological quality. EPA provides several exemptions to the baseline monitoring studies that could effectively eliminate the need for any studies to determine the impacts of the discharges. Even to the extent that facilities do not obtain an exemption, the monitoring program does not provide any definite requirements for analyzing bioaccumulation or the persistent impacts of the discharge on aquatic life.

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<sup>39</sup> 40 C.F.R. § 125.123(c).

<sup>40</sup> *Id.* § 125.123(d).

<sup>41</sup> Letter from Elin D. Miller, Reg’l Adm’r, Region 10, U.S. Env’tl. Prot. Agency, to Benjamin H. Grumbles, Assistant Administrator for Water, U.S. Env’tl. Prot. Agency 2-3 (Aug. 14, 2007) [hereinafter EPA Letter] (attached); LOIS N. EPSTEIN, COOK INLETKEEPER, DISHONORABLE DISCHARGES: HOW TO SHIFT COOK INLET’S OFFSHORE OIL & GAS OPERATIONS TO ZERO DISCHARGE (2006) (attached).

## **II. The Permit Should Require Zero Discharge.**

### **A. EPA Should Reevaluate the Coastal Effluent Limitation Guidelines that Exempt Cook Inlet from the Zero Discharge Requirement.**

EPA continues to exempt Cook Inlet oil and gas facilities from the zero discharge requirement that applies elsewhere in the country to other facilities subject to the Effluent Limitation Guidelines (ELGs) for oil and gas extraction facilities in the coastal subcategory. Inletkeeper recognizes that EPA's permit is subject to the requirements in the offshore subcategory ELGs and not the Coastal ELGs, but EPA has ultimate authority over the coastal ELGs incorporated into the Alaska Pollutant Discharge Elimination System (APDES) permit. All facilities regulated by the coastal subcategory ELGs except for facilities in Cook Inlet are prohibited from discharging drill cuttings, produced water, and other drilling wastes.<sup>42</sup> EPA's exemption of these facilities is based on rules that are nearly twenty years old and that rely on assumptions that are no longer valid. EPA should revisit the ELG exemption for Cook Inlet facilities.

The exemption for Cook Inlet is based on outdated information about the ability of facilities to achieve zero discharge of wastes such as drilling fluids and drill cuttings. In 2007, EPA Region 10 sent a letter to the Assistant Administrator for Water requesting that EPA review the Cook Inlet ELG exemption and explained that "Region 10 strongly believes that the factors identified in the 1996 ELG development and reconsidered in the 2004 Technical Support Document . . . have changed significantly, and reevaluation is warranted."<sup>43</sup> EPA Region 10 recognized that "[i]t has long been held that the Cook Inlet platforms are at the end of their production cycle, and very near the point where facilities will be shut in," and yet the "projected shut in of additional facilities has not occurred."<sup>44</sup>

EPA's reevaluation of the 1996 Coastal ELGs is particularly important at this time because Alaska's APDES permit authorizes discharges from almost entirely new facilities in Cook Inlet, but still allows them to discharge drill cuttings and drilling fluids under the outdated exemption for Cook Inlet. EPA previously assumed that Cook Inlet was a mature oil and gas field near the end of its useful life, but the draft permits recognize the reinvigoration of oil and gas exploration and development in Cook Inlet, and paves the way for new exploration facilities that will likely lead to new development and production facilities and more pollution in Cook Inlet. EPA should ensure that these facilities are held accountable for protecting important Cook Inlet subsistence resources, endangered species, and the health of the people who depend on Cook Inlet for their food and livelihoods. It can do so by revising the ELGs.

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<sup>42</sup> Final Effluent Limitations Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category, 61 Fed. Reg. 66086 (Dec. 16, 1996).

<sup>43</sup> EPA Letter at 1-2.

<sup>44</sup> *Id.* at 2.

EPA should also revisit the ELGs for the offshore subcategory, which apply in federal waters.<sup>45</sup> The offshore ELGs exempt all facilities off the Alaskan coast from a zero discharge requirement for drilling fluids and drill cuttings.<sup>46</sup> EPA issued the offshore ELGs in 1993 — prior to EPA’s issuance of the coastal ELGs and prior to EPA’s decision to expand the Cook Inlet General Permit’s coverage into federal waters.<sup>47</sup> As with the coastal ELGs, the offshore exemption relied in part on the difficulties with transporting wastes and the lack of commercial disposal sites.<sup>48</sup> As described above, many of these assumptions no longer hold true for Cook Inlet. EPA should review and update the outdated offshore ELGs, particularly as they relate to Cook Inlet.

Additionally, because the more lenient offshore ELGs apply to discharges south of Kalgin Island, these outdated ELGs allow facilities to discharge these toxic pollutants in valuable areas such as the relatively shallow waters near Anchor Point. Anchor Point contains a rich, kelp bed ecosystem and provides vital habitat for numerous species that are important for subsistence use. Facilities discharging in valuable areas, such as Anchor Point, in the territorial sea and federal waters should be held to the same strict standard of zero discharge as facilities in coastal waters.

B. Even if the Coastal and Offshore ELGs exempt Cook Inlet, EPA Still Has the Ability to Require Zero Discharge.

EPA should require operators to demonstrate that zero discharge is not technically feasible for exploration facilities. In *American Frozen Food Institute v. Train*, the DC Circuit stated that, under Section 402 of the CWA, EPA is “clearly . . . able to employ any limitation it finds appropriate for a specific plant which falls between a ‘range’ of zero pollutant discharge and the nationally set effluent limitations.”<sup>49</sup> EPA similarly recognized in the *Technical Support Document for the 2004 Effluent Guidelines Program Plan* that the permit writer has “the ability . . . to require an operator to demonstrate that zero discharge is not technically feasible for a specific project.”<sup>50</sup> As noted earlier, even EPA has indicated that many of the assumptions

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<sup>45</sup> Oil and Gas Extraction Point Source Category; Offshore Subcategory Effluent Limitations Guidelines and New Source Performance Standards, 58 Fed. Reg. 12454 (Mar. 4, 1993).

<sup>46</sup> *Id.* at 12455.

<sup>47</sup> *See id.* at 12458 (“Structures off Alaska in Cook Inlet are in the coastal subcategory and are not affected by this rulemaking. Currently, there is only one existing facility in Alaskan waters that is seaward of the inner boundary of the territorial seas.”).

<sup>48</sup> *Id.* at 12474-75.

<sup>49</sup> 539 F.2d 107, 141 (D.C. Cir. 1976).

<sup>50</sup> U.S. ENVTL. PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT FOR THE 2004 EFFLUENT GUIDELINES PROGRAM PLAN 5-230 (2004).

underlying the ELGs and the ability of operators to utilize technologies such as waste reinjection are no longer valid.

EPA should require operators subject to the general permit to demonstrate that zero discharge is not technically feasible for drill cuttings and drilling fluids. Even water-based drilling fluids and related cuttings contain toxic heavy metals such as mercury, cadmium, arsenic, chromium, copper, lead, nickel, and zinc.<sup>51</sup> Given the uncertainty surrounding the potential impacts to human health and the environment from such toxins, as well as the availability of disposal methods that do not involve discharges to Cook Inlet, EPA should require zero discharge for exploration facilities in Cook Inlet.

### III. **Essential Fish Habitat and Biological Evaluation**

In the Fact Sheet, EPA stated that, “[b]ased on information on EFH presented in the [Biological Evaluation], EPA has determined that the discharge will not adversely affect [Essential Fish Habitat].”<sup>52</sup> However, EPA has not yet issued the Biological Evaluation (BE) and it is unclear whether EPA plans to complete an Essential Fish Habitat (EFH) assessment. For the last permit, the public had the opportunity to comment on the Biological Evaluation (BE) and the Essential Fish Habitat (EFH) assessment. EPA should involve the public to ensure that important resources in Cook Inlet are adequately protected.

### IV. **The Draft NPDES Permit**

In addition to the concerns expressed above, Inletkeeper has several additional suggestions and comments related to the draft NPDES permit.

#### A. **EPA Should Include a Limitation on the Total Discharges and Not Just the Rate of Discharge.**

EPA provides a depth-dependent discharge rate for the discharge of water-based fluid and cutting discharges. However, EPA does not provide a limit on the total volume of discharges, which has a bearing on whether unreasonable degradation will occur from the discharges. For non-aqueous drilling fluids that adhere to drill cuttings, EPA only requires reporting of the average volumes and provides no limitation on the discharge rate or total quantity of drill cuttings that entities can discharge under the permit. EPA should limit both the rates of discharge and the total volumes discharged.

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<sup>51</sup> ODCE at 17.

<sup>52</sup> U.S. ENVTL. PROT. AGENCY, FACT SHEET: NPDES PERMIT NO. AKG-28-5100, at 28 (2013) [hereinafter Fact Sheet].

B. The Permit Requirements Regarding Chemically Treated Sea Water and Fresh Water Discharges Are Inadequate.

EPA limits the discharge of chemically treated seawater and freshwater discharges by controlling the input rather than the discharge quantities of specific biocides, scale inhibitors, and corrosion inhibitors.<sup>53</sup> EPA determined that “it would be very difficult to develop technology-based limits for each individual additive” and, “if the Draft Permit were to limit specific chemicals, it could potentially halt the development and use of new and potentially more beneficial treatment chemicals.”<sup>54</sup> To ensure flexibility, EPA “does not prescribe specific chemical additives that may be used” and “allows operators to use treatment chemicals that “are most efficient for their operation as long as they will enable the facility to consistently meet effluent limits.”<sup>55</sup>

The permit should include additional restrictions on the use and discharge of biocides and other chemicals. Although EPA indicates that it does not want to limit the use of more beneficial treatment chemicals, the permit provides no incentives or parameters for ensuring that facilities use the least-toxic chemical additives. Because there is no disclosure to the public prior to use of these chemicals, EPA should add requirements to the permit to ensure that facilities do not use chemicals that contain ingredients that are suspected or known to cause risks to public health and the environment.

Examples from other permits, such as the Vessel General Permit (VGP) for ballast water discharges, illustrate how EPA could better regulate the discharge of chemicals added to sea water and fresh water. In the VGP, EPA provides limitations on the maximum ballast water effluent limitations for residual biocides used to treat ballast water.<sup>56</sup> EPA indicates that ballast water treatment systems must not use any biocides that are a pesticide within the meaning of the Federal Insecticide, Fungicide, and Rodenticide Act.<sup>57</sup> The permit lists specific biocides and residual biocides and their corresponding effluent limits, and then goes on to state that if a biocide is not listed in the table, entities must notify EPA at least 120 days prior to using the biocide and must provide associated aquatic toxicity data for that biocide or its derivative.<sup>58</sup> EPA may then impose additional limitations or require that a discharger obtain coverage under an individual permit.<sup>59</sup> EPA should provide a similar system with effluent limitations for commonly

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<sup>53</sup> Fact Sheet at 19, 23.

<sup>54</sup> *Id.* at 19.

<sup>55</sup> *Id.* at 23.

<sup>56</sup> U.S. ENVTL. PROT. AGENCY, VESSEL GENERAL PERMIT FOR DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF VESSELS 32-33 (2013).

<sup>57</sup> *Id.* at 32.

<sup>58</sup> *Id.*

<sup>59</sup> *Id.*

used treatment chemicals and with notification and additional procedures for facilities wanting to use different chemicals.

EPA should also require earlier reporting of chemical use. In the permit, EPA does not require permittees to submit their inventory of chemical additives, chemical concentration determinations, and limitation compliance until they submit their end-of-well report.<sup>60</sup> EPA should require earlier notification and compliance timeframes to ensure that facilities do not exceed the permit requirements. As with the VGP, EPA should add a requirement for entities to notify EPA at least 120 days before using biocides that are not specified in an approved list of treatment chemicals. Requiring earlier reporting and compliance incentives will allow EPA to further implement its principles of compliance assurance in the permit.<sup>61</sup>

EPA explained that it does not have sufficient information from which to determine effluent limitations for whole effluent toxicity. However, this is not a reason for failing to develop effluent limitations for whole effluent toxicity (WET). EPA should operate under the precautionary principle and impose effluent limitations for whole effluent toxicity to ensure the protection of human health and the environment. The precautionary principle “requires that in . . . light of scientific uncertainty, when credible evidence is put forth that a risk exists, action should be taken to minimize that risk or eliminate it even though absolute proof has not been obtained which quantifies the risk.”<sup>62</sup> Given the lack of information on the impacts of these discharges, EPA should operate under the precautionary principle, which directs preemptive action to minimize or eliminate risk to the environment instead of post hoc evaluation of how to implement WET effluent limitations. EPA could use information from other regions and other sectors to inform the decision about WET limits in the current permit. EPA could then later adjust the limitations as necessary and as more information becomes available. Additionally, EPA noted that the WET triggers “are not limits and are only utilized to initiate an investigation of the causes of toxicity if the trigger is exceeded.”<sup>63</sup> EPA should link the WET triggers to mandatory limits to ensure that entities do not exceed toxicity levels that pose a risk to human health and the environment.

The monitoring requirements for chemically treated sea and fresh water discharges are also problematic. Entities are only required to provide estimates of their total flow quantities.<sup>64</sup> Permittees are then required to use the estimated flow volume to calculate the concentration of

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<sup>60</sup> Draft Permit at 29.

<sup>61</sup> Fact Sheet at 27 (“EPA acknowledges that a comprehensive compliance program is a critical component of an effective permit. EPA will continue to fairly employ the four principles of compliance assurance (*i.e.*, compliance assurance, compliance incentives, compliance monitoring, and enforcement) for the Draft Permit.”).

<sup>62</sup> *New Mexico v. Gen. Elec. Co.*, 335 F. Supp. 2d 1185, 1221 (D.N.M. 2004).

<sup>63</sup> *Id.* at 22.

<sup>64</sup> Draft Permit at 28.



chemicals added to the waste stream.<sup>65</sup> In other words, the concentration calculations turn on uncertain estimates of how many million gallons per day the facilities discharge and not on the actual volume discharged. These requirements provide little to no certainty to the public about whether facilities are accurately determining the toxicity of their discharges and whether facilities are complying with water quality standards. EPA should require that facilities test chemical concentrations at the end of pipe to ensure that the discharges comply with the permit limits and should not allow facilities to rely on potentially inaccurate estimates to determine the risks to the environment and human health. Because discharge quantities are likely to fluctuate, EPA should also increase the reporting frequency for discharge volume from monthly to daily during discharges.

C. EPA Has Provided Insufficient Information to Show that the Allowed Mixing Zones Protect Human Health and the Environment.

EPA has provided only very basic details about its assumptions and the outcomes of the mixing zone modeling for the permit. There is no information about the modeling parameters, whether EPA modeled Cook Inlet as an estuary, or any other information on the model results. Because the mixing zone sizes are not determined from real-world information, it is essential that the public be informed of all the assumptions used in the modeling. For example, it is unclear whether the CORMIX modeling took into consideration key information, such as the contamination levels of the receiving waters in Cook Inlet and the particular hydrology of Cook Inlet (*e.g.*, slack tides). If EPA did not have the correct information on the existing contaminant levels of the receiving water, then that could lead to greater levels of contaminants being present in the water than estimated in the modeling and permits. There is also no indication that EPA updated the information in the CORMIX model to reflect existing contaminant levels in Cook Inlet. According to Cindi Godsey, EPA relied on the 2007 CORMIX modeling to determine the mixing zone sizes for the draft permit.<sup>66</sup> EPA should have updated the CORMIX modeling to take into consideration existing conditions in Cook Inlet.

Additionally, EPA did not provide any information about whether the modeling indicated that certain mixing zones could be smaller than 100 meters. Even if there is a 100-meter default, the mixing zones still must be as small as possible to ensure that they are protective of water quality. The toxicity of some of the discharges makes this crucial. If the mixing zone modeling indicated that mixing zones should be smaller than 100 meters, but the 100-meter default was used, EPA must explain that.

There is also no indication that EPA independently verified the CORMIX modeling results. The 2007 modeling was done by Parametrix, a consultant for the dischargers, and the Alaska Department of Environmental Conservation. EPA should have independently verified the

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<sup>65</sup> *Id.* at 28-29.

<sup>66</sup> Telephone Conversation with Cindi Godsey, Alaska Operations Office, U.S. Env'tl. Prot. Agency (May 13, 2013).

accuracy of the 2007 modeling, particularly as it relates to exploration facility discharges, for purposes of the draft permit. Much of the 2007 modeling appears to have been focused on production facility discharges, so EPA should update the modeling to ensure that the modeling for exploration facilities is accurate, particularly since little is known about exploration facility discharges.

EPA also explained in the fact sheet that it has the authority to redefine the size of the mixing zones.<sup>67</sup> EPA should not expand the mixing zone sizes beyond that considered in the permit because the implications from expanded mixing zones were not considered in the permit and ODCE.

EPA should require monitoring at the edge of mixing zones to determine if the discharges actually comply with the permits. Because the CORMIX model is not based on reality, EPA should add a requirement for monitoring at the edge of mixing zones to ensure that public health and the environment are protected as forecasted by the modeling. EPA should also require benthic organism sampling in the vicinity of the mixing zones. Benthic organism sampling would provide a direct method for determining the impacts of the discharges on the environment and aquatic ecology.

D. EPA Should Expand the Baseline Monitoring Program.

The collection of baseline data is crucial to understanding the potential and actual impacts of the permitted discharges. In the 2007 permit, EPA required that operators of any new facilities conduct baseline monitoring.<sup>68</sup> However, because no new facilities were installed during the five-year term, no entities ever conducted baseline monitoring.<sup>69</sup> In the Fact Sheet, EPA explains that the Ocean Discharge Criteria “require a full understanding of the potential impacts of permitted discharges.”<sup>70</sup> Inletkeeper supports EPA’s decision to retain the baseline monitoring requirement, but asks that EPA expand the requirements to encompass both existing and new facilities. Because there are significant gaps in understanding about the impacts of oil and gas discharges in Cook Inlet, EPA should expand this program to maximize the ability of EPA to fully understand the changes and impacts to Cook Inlet from the permitted discharges.

EPA should also provide specific requirements to ensure that the baseline monitoring leads to the collection of statistically valid samples and information. The existing baseline monitoring requirements are too open-ended to be effective. EPA should design the monitoring requirements in a way that ensures that facilities collect data that is representative of the likely

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<sup>67</sup> Fact Sheet at 21-22.

<sup>68</sup> *Id.* at 25.

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

impacts from oil and gas discharges and that can be used to inform future decisions about the degradation caused by oil and gas facilities in Cook Inlet to properly set effluent limitations.

The environmental monitoring provisions also allow EPA to exempt a permittee from the environmental monitoring requirements if “the permittee can satisfactorily demonstrate that information on the fate and effects of the discharge is available and/or the discharge will not have significant impacts on the receiving environment.”<sup>71</sup> The permit further allows for an exemption from the monitoring program “if no impact was indicated during drilling.”<sup>72</sup> The post-drilling exemption must be submitted to EPA for review within three months of well completion.<sup>73</sup> Because of the broad, undefined authority for EPA to exempt facilities when the discharge will not have “significant impacts,” this exemption process could allow all exploration facilities to bypass the environmental monitoring requirements. The permit also does not provide any parameters for what constitutes “no impact” for purposes of the post-drilling monitoring exemption. EPA should remove these exemptions from the environmental monitoring provisions.

E. The Compliance and Monitoring Requirements in the Permit Are Insufficient.

In addition to the comments provided above, Inletkeeper is concerned about several of the other monitoring and compliance provisions. In the draft general permit, EPA requires whole effluent toxicity (WET) testing once per quarter unless chronic toxicity is detected above the permit trigger values.<sup>74</sup> If facilities do not exceed the trigger values for a year, then the permit allows a reduction in toxicity monitoring to once every six months.<sup>75</sup> EPA should increase the testing frequency for exploration facilities. Exploratory drilling operations do not involve constant, regular activities, and there can be many starts, stops, and variations in conditions that can impact effluent toxicity. One test every quarter and then every six months may be insufficient to address changes in operating conditions and could miss toxic discharges. EPA should require more frequent WET testing to ensure that facilities do not miss variations in toxicity.

EPA also did not provide toxicity triggers for discharges of less than 10,000 gallons per day because discharges of that size are “not likely to exhibit toxic effects at the edge of the mixing zone.”<sup>76</sup> EPA has not provided a legal or scientific basis for failing to include these

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<sup>71</sup> Draft Permit at 23.

<sup>72</sup> *Id.* at 24.

<sup>73</sup> *Id.*

<sup>74</sup> *Id.* at 32-33.

<sup>75</sup> Fact Sheet at 25.

<sup>76</sup> *Id.* at 24.

toxicity triggers. Although EPA indicates that discharges of less than 10,000 gallons per day are “not likely” to exhibit toxic effects, EPA should provide toxicity triggers for these discharges to ensure that they will not exceed the toxicity triggers.

EPA stated that it would not answer questions at the public hearings, but indicated that it would respond to questions in written comments. Inletkeeper would like responses to the following questions about the compliance and enforcement history in Cook Inlet to further understand the effectiveness of EPA’s compliance and enforcement program:

- (1) How many inspections of exploration facilities have been conducted in the past twenty years? Of those inspections, how many were unannounced inspections?
- (2) How many samples were drawn and tested during those inspections?
- (3) How many violations were found for Cook Inlet exploration facilities? How many fines did EPA assess?
- (4) How many employees and hours will be dedicated to inspections in the next five years?

**V. Conclusion**

For the reasons stated above, the permit and ODCE are legally and factually flawed. EPA does not have sufficient information about several of the factors related to unreasonable degradation. The permit is also not sufficiently protective of human health and the environment. EPA should accordingly not issue the draft permit as currently written.

Thank you for the opportunity to comment on this important permit. Please contact me at (907) 276-4244 x 115 with any questions regarding these comments.

Sincerely,

s/ Suzanne Bostrom  
Suzanne Bostrom  
Staff Attorney  
sbostrom@trustees.org



# MARINE MAMMAL COMMISSION

9 December 2011

Mr. P. Michael Payne, Chief  
Permits, Conservation, and Education Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, Maryland 20910-3226

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application from Shell Offshore, Inc., seeking an incidental take authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act. The applicant is seeking authorization to take small numbers of marine mammals by harassment incidental to offshore exploratory drilling at the Burger prospects in the Chukchi Sea, Alaska, during the 2012 Arctic open-water season. The Commission also has reviewed the National Marine Fisheries Service's 9 November 2011 Federal Register notice (76 Fed. Reg. 69958) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

## RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- issue the requested incidental harassment authorization but also facilitate development of conflict avoidance agreements that involve all potentially affected communities and co-management organizations and take into account potential adverse impacts on all marine mammal species taken for subsistence purposes including, but not limited to, bowhead whales;
- require Shell to collect all new and used drilling muds and cuttings and either reinject them or transport them to an Environmental Protection Agency licensed treatment/disposal site outside the Arctic;
- require Shell to evaluate the source levels of the *Discoverer* at the proposed drilling location and recalculate the 120-dB re 1 $\mu$ Pa harassment zone and estimated takes as appropriate;
- require Shell to develop and employ a more effective means for monitoring the entire corrected 120-dB re 1 $\mu$ Pa harassment zone for the presence and movements of all marine mammals and for estimating the actual number of takes, including, but not limited to, aerial and acoustic surveys of the proposed drilling site before, during, and after drilling operations: Shell also should make the data associated with the monitoring program publicly available for evaluation by independent researchers;
- track and enforce Shell's implementation of mitigation and monitoring measures to ensure that they are executed as expected;
- require Shell to cease drilling operations in mid- to late-September to reduce the possibility of having to respond to a large oil spill in ice conditions; and

- require Shell to develop and implement a detailed, comprehensive, and coordinated Wildlife Protection Plan that includes strategies and sufficient resources for minimizing contamination of sensitive marine mammal habitats and that provides a realistic description of the actions that Shell can take, if any, to respond to oiled or otherwise affected marine mammals; the plan should be developed in consultation with Alaska Native communities (including marine mammal co-management organizations), state and federal resource agencies, and experienced non-governmental organizations.

## **RATIONALE**

Shell has proposed to drill up to four exploratory wells at Shell's Burger prospect (Lease Blocks 6764, 6714, 6912, 6812, 6762, and 6916) in the Chukchi Sea, Alaska, during the 2012 Arctic open-water season (July through October). Drilling would occur 105 to 125.5 km from shore, in waters 43.7 to 45.8 m in depth. Shell would use the drillship *Discoverer*, with estimated broadband sound source levels of 177–185 dB re 1 $\mu$ Pa at 1 m. Shell also would deploy vessels and aircraft for ice management and other support. Sound pressure levels for the icebreaking supply ship *Robert Lemeur* were estimated to be 193 dB re 1 $\mu$ Pa at 1 m. Shell would conduct geophysical surveys at the end of each drill hole using a zero-offset vertical seismic profile airgun array. A typical eight-airgun array consists of four 150 in<sup>3</sup> (2,458 cm<sup>3</sup>) airguns and four 40 in<sup>3</sup> (655 cm<sup>3</sup>) airguns, with source levels of 238 and 241 dB re 1 $\mu$ Pa at 1 m, depending on source depth.

Drilling and associated activities could affect marine mammals in several ways. Sound emitted from drilling, ice management, and seismic profile surveys could cause marine mammals to change their behavior, modify habitat use patterns, or mask their calls. If received at sufficiently high levels, such sound also could affect marine mammals physically, including temporary or permanent hearing impairment. In addition, oil spills—albeit unlikely—have the potential to affect marine mammals through exposure to toxic contaminants either externally through contact with the oil or internally through ingestion of the oil or inhalation of oil fumes.

The Service preliminarily has determined that the proposed activities could result in a temporary modification in the behavior of small numbers of up to twelve species of marine mammals, but that the total taking would have a negligible impact on the affected species or stocks. The Service does not anticipate any take of marine mammals by death or serious injury. The Service believes that the likelihood of an oil spill is extremely remote and therefore does not propose to authorize take from an oil spill. The Service also believes that the potential for temporary or permanent hearing impairment from drilling and other acoustic impacts would be at the least practicable level because of Shell's proposed mitigation and monitoring measures, as well as additional mitigation and monitoring measures proposed by the Service. Together, those include—

- (1) using Service-approved vessel-based observers to monitor for marine mammals on the drillship and all support vessels, including the ice management vessels, throughout the exploration drilling period;

- (2) using two observers to monitor the 190- and 180-dB re 1  $\mu$ Pa exclusion zones (for pinnipeds and cetaceans, respectively) and beyond during active drilling or airgun operations and before and during start-ups of airguns day or night;
- (3) using ramp-up and shut-down procedures;
- (4) prohibiting initiation of airgun operations during nighttime or low visibility conditions after an extended shutdown;
- (5) reducing vessel speed to 9 knots or less and avoiding multiple changes in vessel direction and speed within 274 m of whales;
- (6) avoiding injury to whales by reducing vessel speed and changing direction as necessary, especially when weather conditions diminish visibility;
- (7) limiting aircraft overflights to an altitude of 457 m or higher and a horizontal distance of 305 m or greater when marine mammals are present (except during takeoff, landing, or an emergency situation);
- (8) conducting aerial surveys in the coastal areas of the eastern Chukchi Sea and to collect and report on beluga whales near traditional hunting areas;
- (9) conducting in-situ measurements of sound propagation from the drilling vessel, support vessels, and the airgun array;
- (10) deploying acoustic recorders to record vocalizations of bowhead whales as they migrate through the drilling area;
- (11) deploying acoustic recorders widely across the U.S. Chukchi Sea to gain information on the distribution of marine mammals in the region;
- (12) reporting injured and dead marine mammals to the Service and local stranding network using the Service's phased approach and suspending activities, if appropriate; and
- (13) submitting field and technical reports and a final comprehensive report to the Service.

### **Availability of marine mammals for subsistence**

Shell has met, and plans to continue meeting, with various stakeholders to develop and implement a plan of cooperation. The plan specifies measures to minimize impacts to Alaska Natives who use marine mammals for subsistence purposes. As part of the plan, Shell would not bring its drillship and support vessels into the Chukchi Sea before July 1. Vessels that can travel safely outside the polynya zone would do so, and would notify the communication and call centers in local communities if it is necessary to move into the polynya zone to avoid ice breaking. Shell also would implement a proposed communication plan with local subsistence users and village whaling associations before initiating exploratory drilling operations and maintain communication throughout the open-water season. Shell would employ local subsistence hunters from the Beaufort and Chukchi Sea villages to advise the company regarding the whale migration and subsistence hunt. Finally, Shell would recycle all drilling mud to the extent practicable. Based on the timing and location of the proposed activities and these additional mitigation measures, the Service preliminarily has determined that the expected taking would not have an unmitigable adverse impact on the availability of marine mammals for subsistence use by Alaska Natives. Shell should be acknowledged for its efforts to avoid such impacts.

However, it is not yet clear that those steps are sufficient. A determination of “no unmitigable adverse impact” on the availability of marine mammals for subsistence uses should be based, in part, on concurrence of those people who are the experts regarding the availability of marine mammals for subsistence hunts—the Alaska Native hunters themselves. Shell signed a conflict avoidance agreement in 2011 with the Alaska Eskimo Whaling Commission and intends to enter into negotiations again in 2012. Negotiating and completing a conflict avoidance agreement related to bowhead whales is useful but also prompts the question as to why such agreements are not being developed with subsistence hunters taking other species that might be affected by oil and gas operations. For example, the Point Lay hunt for beluga whales occurs in late June or the first two weeks in July. If the hunt were delayed into mid-July, would Shell agree to delay its entry into the Chukchi Sea until after the hunt was completed to avoid deterring beluga whale movements? These and other potential issues should be addressed as part of a conflict avoidance agreement with, for example, the Alaska Beluga Whale Committee.

With these concerns in mind, the Marine Mammal Commission recommends that the National Marine Fisheries Service issue the requested incidental harassment authorization but also facilitate development of conflict avoidance agreements that involve all potentially affected communities and co-management organizations and take into account potential adverse impacts on all marine mammal species taken for subsistence purposes including, but not limited to, bowhead whales.

### **Mitigating impacts from drilling muds and cuttings**

Unlike Shell’s proposed Beaufort Sea exploratory drilling program, Shell is not proposing to collect drilling muds or cuttings for transport and disposal outside the Arctic. Shell states that “[B]oth modeling and field studies have shown that discharged drilling fluids are diluted rapidly in receiving waters” and that “[T]he impact of the limited amount of drilling mud and cuttings discharges would be localized to the drill sites and temporary.” This might be acceptable if Shell were only planning on drilling a few exploratory wells. Clearly, however, the intent is to locate oil and gas reserves that can be exploited, which would involve much more drilling and, over time, the cumulative effects of repeated discharges could be significant. Shell also has stated that a considerable amount has been invested in research on exposures of marine mammals to organochlorines or other toxins. The Commission disagrees, as information regarding sub-lethal, long-term, and cumulative impacts from discharge of drilling muds and cuttings on marine mammals and the marine environment is quite limited. Studies done to date regarding the impacts on marine mammals from exposure to polycyclic aromatic hydrocarbons are informative, yet do not provide a sufficient basis for predicting, with full confidence, the severity of either short- or long-term effects of exposure (Marine Mammal Commission 2011). Therefore, as a prudent and precautionary measure, the Marine Mammal Commission recommends that the National Marine Fisheries Service require Shell to collect all new and used drilling muds and cuttings and either reinject them or transport them to an Environmental Protection Agency licensed treatment/disposal site outside the Arctic.



### **Monitoring impacts from drilling and ice management activities**

Drilling and icebreaking are considered continuous sound sources and a 120-dB re 1 $\mu$ Pa threshold was used to estimate the area in which marine mammals may be taken by Level B harassment. The “corrected” 120-dB re 1 $\mu$ Pa harassment zone (the Level B harassment zone multiplied by 1.5) has a radius of 1.97 km for the *Discoverer*, and 9.50 km for icebreaking (Table 4 in the *Federal Register* notice). However, as noted in the Commission’s comments regarding Shell’s proposed drilling program for the Beaufort Sea, it is not clear which specific source level was used to model the size of the corrected 120-dB re 1 $\mu$ Pa harassment zone for the *Discoverer*, as the reported source levels for the *Discoverer* ranged from 177–185 dB re 1 $\mu$ Pa at 1 m. It also is not clear how the source level measurements taken in the South China Sea were incorporated in the model to estimate the 120-dB re 1 $\mu$ Pa harassment zone in the Chukchi Sea.

In addition, the corrected 120-dB re 1 $\mu$ Pa harassment zone for ice management activities is too large to be monitored effectively using visual methods, especially when visibility is poor. Acoustic recorders deployed widely across the U.S. Chukchi Sea and on the prospect would help provide information on the distribution of marine mammals, but the shortcomings of acoustic methods are well known. They do not provide a basis for tracking movements of animals in response to noise, they can be used to detect only those animals that vocalize, and they can be used as an index of abundance, but only if some substantial assumptions are made. In addition, marine mammals in the area may decrease their vocalization rate because of the noise from drilling operations (Richardson et al. 1985, Blackwell et al. 2011). In the Commission’s view, the “net” array proposed by Shell would not be sufficient to characterize the distribution of marine mammals in the area or their responses to drilling operations.

In addition to expanding its acoustic monitoring capabilities, Shell also could use aerial surveys to detect marine mammals and characterize their responses to drilling operations. Shell has indicated that it does not consider aerial surveys to be sufficiently safe. However, it also plans to use airplanes for monitoring ice and helicopters for support activities at this site. That being the case, Shell is essentially indicating that it is willing to use aircraft to support its operations, but does not consider potential effects on marine mammals to be sufficient to warrant monitoring. The Marine Mammal Commission recognizes that aircraft must be used with caution in this region. However, it does not agree that the circumstances are such that aircraft cannot be used safely. Indeed, aerial surveys are flown throughout U.S. waters, including Alaskan and Arctic waters, to survey marine mammals. So while the Commission concurs with Shell’s desire to ensure safety, it also believes that aerial surveys can be flown safely in this region.

To address these concerns, the Marine Mammal Commission recommends that the National Marine Fisheries Service require Shell to evaluate the source levels of the *Discoverer* at the proposed drilling location and recalculate the 120-dB re 1 $\mu$ Pa harassment zone and estimated takes, as appropriate. The Marine Mammal Commission further recommends that the National Marine Fisheries Service require Shell to develop and employ a more effective means for monitoring the entire corrected 120-dB re 1 $\mu$ Pa harassment zone for the presence and movements of all marine mammals and for estimating the actual number of takes, including, but not limited to, aerial and

acoustic surveys of the proposed drilling site before, during, and after drilling operations. Shell also should make the data collected by the monitoring program publicly available for evaluation by independent researchers.

Requiring certain mitigation and monitoring measures will mean little if the parties involved fail to implement them. In this case, Shell is working under a tight schedule to drill its proposed wells, and its ability to meet that schedule would be determined in part by seasonal changes in weather and, particularly, ice conditions. Although Shell may recognize that the specified mitigation and monitoring measures are important, it may not deem these measures to be its highest priority if they conflict with operations considered essential to drilling progress. Under such conditions, mitigation and monitoring measures may not be fully implemented as the Service intended and their value may be compromised. To avoid such situations, the Marine Mammal Commission recommends that the National Marine Fisheries Service track and enforce Shell's implementation of mitigation and monitoring measures to ensure that they are executed as expected.

### **Mitigation measures for potential oil spills**

The *Federal Register* notice and Shell's application provided a summary of potential risks to marine mammals from oil spills, including contact with oil, ingestion of oil or contaminated prey, and inhalation of oil. Shell also noted that oil spill cleanup activities may have more of an impact than the oil itself. The Commission believes that Shell's summary of potential impacts underrepresents the risks to marine mammals, and that information regarding the long-term effects of exposure to oil and oil spill cleanup activities is inadequate (Marine Mammal Commission 2011). Shell also states that "[T]he likelihood of a large or very large ... oil spill occurring during Shell's proposed program has been estimated to be low" and that Shell "will deploy an oil spill response (OSR) fleet that is capable of collecting oil on the water up to the worst case discharge (WCD) planning scenario." Here, too, the Commission believes these statements both downplay the potential risks of an oil spill to marine mammals and overstate Shell's oil spill response capabilities. The Commission also believes that the Service is being too dismissive of the potential for a large oil spill based on the conclusion that such a spill is not likely.

However, the risk of a spill is not simply a function of its probability of occurrence—it also must take into account the consequences if such a spill occurs. Those consequences are, in part, a function of the spill's characteristics and the ability of the industry and government to mount an effective response. In all areas, but particularly in the Arctic, the longstanding but still unresolved question is whether the responsible parties can mount an effective response. Having just witnessed the requirements for and difficulties of responding to a major spill in the much less harsh environment of the Gulf of Mexico, the Commission sees no basis for concluding that the necessary response capability exists in Arctic ice conditions. The assertion that Shell would be able to respond adequately to any kind of major spill is simply unsupported by all the available evidence. The Commission does not mean to dismiss Shell's efforts to develop response capabilities, but the reality is that the harsh conditions and lack of infrastructure, trained personnel, supplies, etc., could make it virtually impossible to respond effectively to a significant Arctic spill.

With regard to marine mammals that might be affected, impacts from a spill would be determined by the time of year, the species in or migrating through the area down-current from the facility (i.e., in the spill's path), and the amount of disruption to their natural behavior (e.g., reproduction, feeding). Given that marine mammals move through this area in large pulses, it may or may not be the case that few animals would be affected; actual effects would depend on the timing and circumstances, such as the size of the spill. And although Shell has emphasized oil spill response strategies that would prevent oil from reaching shorelines, impacts to marine mammals would incur both from oil that remains in the offshore environment as well as oil that reaches the shore. It also is important to consider that some of the animals may already be in a compromised state as a result of climate disruption, stochastic variation in food resources, or variation in physiological state due to normal life history events (e.g., molting or reproduction in pinnipeds).

Shell's Oil Discharge Prevention and Contingency Plan for the Chukchi Sea outlines several measures for preventing and responding to a spill, as summarized in the incidental harassment authorization application. Although Shell revised the contingency plan in May 2011 in response to new Bureau of Ocean Energy Management safety and environmental requirements, the contingency plan is still inadequate for addressing a large oil spill in the Arctic, and especially a worst case discharge. For example, the plan states that in the event of a worst-case incident (estimated at 25,000 barrels of oil per day for 30 days, for a total of 750,000 barrels), the "OSR [oil spill response] fleet will be available within 72 hours if needed and will be capable of collecting oil on the water up to the calculated Worst Case Discharge." However, the worst case discharge scenario and assertions regarding Shell's response capabilities are based on a summer (August) spill rather than a late October spill, which would be a more appropriate worst-case discharge. The plan also includes a response strategy for a spill of unspecified size occurring nine days before freezeup, noting that as the response enters Day 21, "it is no longer possible to conduct containment and recovery operations safely and effectively downstream of the blowout." These statements all indicate that Shell has little chance of recovering oil that spills once ice formation begins, which can vary from as early as the beginning of October to as late as the end of November.

Even if a spill were to occur during summer, Shell's ability to contain the well and recover spilled oil is limited by the lack of adequate infrastructure. The contingency plan states that the preference is to use the original drilling rig to drill a relief well. However, if there is damage to the rig as a result of a blowout or other accident, Shell would need to move a second rig onsite, which may take several weeks considering that the second rig would likely be fully engaged in drilling activities in the Beaufort Sea. The plan proposes to use skimming and in-situ burning for recovery of oil—technologies that were effective in recovering only 8 percent of the oil spilled from the Gulf of Mexico Macondo well (NOAA 2010) and which have not been proven (and cannot reasonably be assumed) to be effective in Arctic conditions.

In the event of a spill, Shell also has included provisions for wildlife protection in its contingency plan. However, the provisions of the "Wildlife Protection Plans" are limited to monitoring and deterrents at the spill site, hazing, placement of containment booms to prevent contamination of sensitive shoreline, and the designation of a facility to treat oiled animals. Based on experience gained from the Exxon Valdez, the Deepwater Horizon, and other small and large oil

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spills, a more detailed, comprehensive, and coordinated strategy would be needed to respond to, recover, and rehabilitate oiled wildlife. The Commission must question whether such response activities are realistic, given that the expertise and infrastructure needed to conduct them are simply not available in the Arctic.

For these and other reasons, the Commission must question whether Shell can respond effectively to a large spill under harsh Arctic conditions. At the same time, the impact of a spill on Arctic marine mammals could be significant and long-lasting. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require Shell to cease drilling operations in mid- to late-September to reduce the possibility of having to respond to a large oil spill in ice conditions. The Marine Mammal Commission also recommends that the National Marine Fisheries Service require Shell to develop and implement a detailed, comprehensive, and coordinated Wildlife Protection Plan that includes strategies and sufficient resources for minimizing contamination of sensitive marine mammal habitats and that provides a realistic description of the actions that Shell can take, if any, to respond to oiled or otherwise affected marine mammals; the plan should be developed in consultation with Alaska Native communities (including marine mammal co-management organizations), state and federal resource agencies, and experienced non-governmental organizations.

Please contact me if you have questions regarding these recommendations.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director

Cc: Kaja Brix, National Marine Fisheries Service Alaska Regional Office  
Jim Kendall, Bureau of Ocean Energy Management Alaska Region

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