Alaska Oil and Gas Association

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March 30, 2012

Hanh Shaw
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Mail Stop OWW-130
1200 6th Avenue, Suite 900
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Re: Comments on the Proposed Reissuance of the NPDES General Permits for Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters in the Beaufort Sea and on the Outer Continental Shelf in the Chukchi Sea

Dear Ms. Shaw:

The Alaska Oil and Gas Association (AOGA) appreciates the opportunity to provide comments on the Proposed Reissuance of the National Pollutant Discharge Elimination System (NPDES) General Permits for Oil and Gas Exploration Facilities on the Outer Continental Shelf (OCS) and Contiguous State Waters in the Beaufort Sea and on the OCS in the Chukchi Sea. AOGA is a business trade association whose 16 member companies account for the majority of oil and gas exploration, development, production, transportation, refining, and marketing activities in Alaska.

AOGA's detailed comments are attached to this letter. We encourage the Environmental Protection Agency (EPA) to seriously consider the issues we have raised. We believe EPA will find our comments to be useful and informative. If you have any questions, or you need clarification regarding any of our comments, please do not hesitate to contact me.

Sincerely,

Kate Williams

KATE WILLIAMS
Regulatory and Legal Affairs Manager

Attachment

cc: The Honorable Sean Parnell, Governor, State of Alaska
The Honorable Lisa Murkowski, United States Senate
The Honorable Mark Begich, United States Senate
The Honorable Don Young, United States House of Representatives

Comments on the Environmental Protection Agency's Proposed Reissuance of the National Pollutant Discharge Elimination System (NPDES) General Permits for Oil and Gas Exploration Facilities on the Outer Continental Shelf (OCS) and Contiguous State Waters in the Beaufort Sea and on the OCS in the Chukchi Sea

Following expiration of the Arctic NPDES general permit for oil and gas exploration wastewater discharges in 2011, USEPA proposes to re-issue two separate exploration general permits for discharges to the Beaufort and Chukchi Seas in October 2012. USEPA has requested public review and comment on the draft general permits and fact sheet. The following comments focus on the scope, frequency and duration of monitoring proposed in the draft permits and accompanying fact sheet.

General Comments

The scientific justification for incorporating the requirement to conduct an Environmental Monitoring Program in the draft general permits (Section II.A.12) is unclear. According to a recent comprehensive scientific review performed by Neff (2010), the potential effects of discharges from exploration activities in Arctic waters have been extensively studied with little evidence to suggest that these activities have long term adverse impacts on the marine environment. Short terms impacts to benthic communities may occur under certain circumstances as a result of burial or organic enrichment effects; however, these impacts are similar to those caused over much larger spatial scales by natural disturbance events (e.g., ice scour, seasonal fluvial inputs, and storms) and the affected communities recover rapidly. Based on these conclusions, the expansive scope, frequency, duration and replication of proposed environmental monitoring program components in the draft general permits appear to be unreasonably costly, time-consuming and place an undue burden on the operators.

The research studies performed on discharges from oil and gas well drilling operations using water-based drilling muds (WBM) have generally found that: 1) WBMs are rapidly dispersed, 2) WBMs and cuttings are non-toxic, 3) there is no bioaccumulation of metals and hydrocarbons by marine animals, and 4) there is no uptake in the food web (Neff 2010).

Dispersion

Discharges during exploratory drilling variously comprise increased temperature, dissolved constituents, and suspended particulate matter of different sizes and densities, containing physical and chemical constituents that are subject to dispersion, dilution, dissolution, flocculation, and settling as they drift away with the prevailing water current in the form of plumes from the point of discharge. The results of field and modeling studies performed between 1980 and 2009 have shown that dilution and dispersion of the dissolved and particulate fractions of the discharges are in most cases extremely rapid (Ayers et al., 1980, 1982, 1994; Houghton et al, 1980; O'Reilly et al, 1989; Ray and Meek, 1980), and non-toxic concentrations of mud/cuttings are reached within about 50 feet of the points of discharge (Ayers, 1994). Non-contact cooling water, on the order of 1 °C above the temperature of the receiving water and accounting for up to 99% or more of the total discharges by volume, has been shown by numerical modeling simulations to

dissipate to non-detectable levels within 50 m to 100 m from the point of discharge (Shell, 2011a, b).

Non-Toxicity

Research conducted since the 1960s has been used to identify the most harmful components of drilling muds and cuttings, and advances in technologies have been continuously employed to replace toxic components with more environmentally benign substitutes (Neff, 2005). Modern WBMs used for drilling offshore wells are environmentally friendly due to the benign environmental impact of aqueous muds which have low toxicity characteristics (Neff, 2010). Heavy metal constituents of concern have been reduced to levels in WBM that are similar to concentrations found in marine sediment, for example: 1) chrome lignosulfonate has been replaced with chrome-free additives, 2) the industry complies with EPA limits on mercury (1mg/kg) and cadmium (3ppm) in barite, 3) metal-bearing pipe thread compounds have been replaced with metal-free compounds (Neff, 2010).

In 1989, the National Research Council (NRC) concluded, based on a review of results of the modeling and field studies, that offshore discharges of WMB and cuttings have little or no harmful effects on water column organisms (NRC, 1989). Since then EPA has required oil and gas companies to decrease the concentrations of metals and hydrocarbons in WMB, thereby greatly reducing the impact of mud and cuttings to water column biological communities.

The use of natural or synthetic organic polymers has reduced or eliminated the need for applying petroleum lubricants during drilling. Effluent limits control the discharge of hydrocarbons that originate from sediment layers and deposits. Most WBM additives are not bioavailable, are non-toxic, or are used in such small amounts that they are not present in used drilling fluids at concentrations high enough to contribute significantly to whole mud toxicity (Wojtanowicz et al., 1989).

The majority of toxicity to aquatic organisms documented in previous studies has been associated with petroleum components (Breteler et al., 1988; Conklin et al., 1983)and chrome lignosulfonate (Neff, 1987; Parrish et al., 1989); WBM, lacking these constituents as required under the proposed general permits, have not exhibited toxicity (Neff, 2010).

Discharges of WBM and cuttings from Beaufort Sea exploratory wells have been comprehensively monitored (Neff et al., 2009; Brown et al., 2010). The results of these studies are consistent with the conclusion of the 1983 NRC report on drilling discharges in the marine environment: disturbance to the marine environment was minor and recovery rapid (NRC, 1983). The NRC concluded, based on a review of results of modeling and field studies of drilling mud and cuttings solids performed prior to 1989, that offshore discharges of WBM and associated cuttings have little or no harmful effects on water-column organisms. The US Bureau of Offshore Energy Management (BOEM; formerly the Minerals Management Service [MMS]) and the oil industry have been monitoring the effects of drilling activities in the area of the Beaufort Sea for more than 20 years. The monitoring conducted has shown that little metal and petroleum hydrocarbons accumulate in sediments. Environmentally-significant concentrations of petroleum hydrocarbons

elevated above regional background levels, particularly PAHs, in Beaufort Sea sediments have not been detected.

Bioaccumulation and Uptake in the Food Web

Bioavailability of metals and organic compounds in drilling muds and cuttings is low (Crecelius et al., 2007; Neff 2002; Neff, 2008; Terzaghi et al., 1998; Trefry et al., 1986, 2007; Westerlund et al., 2001, 2002) and these constituents do not bioaccumulate in marine food webs appreciably(Jenkins et al., 1989; Leuterman et al., 1997; Neff, 1987, 1989; Phillips et al., 1987; Schaanning et al., 2002; Trefry et al., 1986; URS, 2002). A review of available information supports the conclusion that drilling mud and cuttings components are generally not bioavailable and will tend not to bioaccumulate in arctic food webs (Neff, 2010). Most biomonitoring studies have demonstrated that concentrations of metals and hydrocarbons in marine animals in the vicinity of wells drilled are not elevated compared to regional levels (Crippen et al., 1980; NTS, 1981, 1982; Tornberg et al., 1980). Concentrations of metals and petroleum hydrocarbon compounds detected in Beaufort Sea invertebrates and fish tissue collected during the ANIMIDA and cANIMIDA programs are generally consistent with background levels (Brown et al., 2010; Neff and Durell, 2012; Neff et al., 2009).

In summary, based on the large volume scientific literature available, exploration drilling discharges in the Arctic seas that meet the draft NPDES general permit limits effectively eliminate the need for an extensive Environmental Monitoring Program.

Comments on the Draft Permits

The comments that follow are made relative to the content and section numbering in draft Permit No. AKG-28-2100 for the Beaufort Sea and the combined fact sheet.

Section II.A.11. Beaufort Sea Permit Restrictions

The permittee is required to seek authorization by the Director or DEC to discharge certain wastes during Bowhead whale hunting season and under stable ice conditions. The draft permit is silent, however, on the criteria by which the Director or DEC will determine whether to grant an authorization. EPA should identify the decision-making process and specifically commit to using tools such as Net Environmental Benefit Analysis and Lifecycle Assessment in the evaluation of alternative waste disposal options. (This comment also pertains to Section II.B.5. Seasonal Restrictions.)

Section II.A.12.b.1. Environmental Monitoring Program Objectives

A stated objective of the Phase I initial site assessment is "…to ensure the exploratory facility is not located or anchored in a sensitive biological area." Relative to the start of drilling, when does EPA anticipate that the initial site assessment would take place? Unless the initial site assessment is conducted well before the drilling starts, the permittee will have already investigated the drilling sites as part of the exploration planning process and ruled out locations that may be on or near sensitive biological areas.

Section II.A.12.d.1. Dilution, Plume and Deposition Modeling.

EPA requires permittees to collect data for model simulations to predict turbidity and suspended solids concentrations, temperature plumes, and the location and characteristics

of solids deposition. EPA proposes that much of the site-specific data required as inputs to these models, such as current speed and direction, and temperature gradients, would be collected during the Phase I Site Assessment. However, reports on the modeling must be submitted to the Director and DEC along with the Plan of Study prior to the conduct of the Phase I Site Assessment. EPA should allow the use of available historical regional water quality data for this initial characterization as model inputs, or otherwise EPA should clarify the timing and sequence of planning and data collection events and submittals.

Can EPA confirm in this section that the purpose of performing the modeling simulations is to optimize the sampling programs to focus on areas where changes from pre-drill conditions are to be expected so that, for example, increased benthic sediment sampling can be targeted in areas where deposition is probable, and concomitantly decreased in areas where deposition is unlikely? This would improve both the effectiveness of the program and minimize sampling in areas where no impacts are anticipated.

Section II.A.12.d.3.a.i. Initial Site Physical Sea Bottom Survey.

See comment under II.A.12.b.1 above.

Section II.A.12.d.3.a.ii. Physical Characteristics.

See comment under II.A.12.d.1. above.

Section II.A.12.d.3.a.iii. Receiving Water Chemistry and Characteristics

It is not clear how collection of the Phase I Assessment water chemistry data is necessary to achieve the stated study objectives. Databases (e.g., ANIMIDA, cANIMIDA) are available and adequate to understand general spatial and temporal trends in regional water quality. Because ocean water conditions vary constantly, there is limited utility in collecting site-specific water chemistry data prior to the Phase II Assessment phase to be conducted during drilling. Upstream water column samples collected for background reference purposes concurrently with the assessment of discharge plumes in Phase II are of greater heuristic value for evaluating the magnitude and extent of potential perturbations associated with drilling operations than data collected during a prior sampling event.

Section II.A.12.d.3.b.i. Effluent Toxicity Characterization.

There would be no need to test non-contact cooling water for effluent toxicity unless compounds are added.

Section II.A.12.c.i Phase III Assessment—Physical Sea Bottom Survey

From previous WBM and drill cutting environmental assessments performed it is likely, based on metocean characteristics, mud and cuttings particle size and other factors, that the Phase III physical sea bottom survey may find either no significant or limited solids deposition around the well and no substantive change in the natural sediment physical characteristics. If the physical and visual characterization of the seafloor fail to identify significant impacts of the drilling operation, then it may be concluded that there has been no impact to the benthic community structure. In this case, provision should be made to allow the permittee the flexibility to conduct the Benthic Community Structure assessment (Section Section II.A.12.d.ii) concurrently with the Phase III Assessment, thereby obviating the need to return to the well location for a Phase IV Assessment. In these cases,

verification in Phase III that the benthic community had not been altered would support a position to eliminate the Phase IV assessment.

Section II.A.12.d.ii Phase IV Assessment

See comment under Section II.A.12.c.i above.

Section II.A.12.e. Whole Effluent Toxicity Testing

In cases where initial screening toxicity test results are negative but where a flow rate or volume greater than 10,000 gallons during any 24-hour period are exceeded, or where chemicals are added or may exist in the system, the requirement of a full battery of chronic duration toxicity tests with three separate laboratory organisms for discharges appears overly conservative. We suggest that EPA consider revising the draft permits to require a supplemental round of screening level testing in these situations; multiple species chronic toxicity testing would be then conducted if a positive screening test result is obtained.

Section II.A.12.e.6. Reporting

Environmental samples, particularly for organic parameters, have maximum holding times before analysis to ensure the quality of the results. Because of the remote location of drilling operations and the logistics of transporting samples to analytical laboratories, conventional holding times may be exceeded. In addition to general questions about analytical holding times the logistics associated with the conduct of the chronic toxicity tests raise several questions. Determination of the outcome of the proposed testing would require a couple weeks following the initial trigger and the results not provided to the regulatory agencies for up to six weeks. How would the latency in obtaining this information be used in the decision-making process?

Section II.A.12.h. EMP at Subsequent Drilling Site

EPA allows permittees to propose using data from a completed EMP as the basis for requesting to modify data gathering requirements at subsequent drilling sites if the data satisfy the goals and objectives of the program (Sections II.A.12.a-12.b). Within a lease block area or marine domain, it is preferable to propose a monitoring program for the first well drilled by an operator which would act as a representative for all anticipated drilling sites instead of requiring an EMP be performed for each individual well. Such an optimized design could result in greater statistical power and lower overall costs.

Section II.B.3. Requirements for Water-Based Drilling Fluids and Drill Cuttings (Discharge-001)

See comment under Section II.A.12.d.ii above.

Section II.B.3.b. Sediment Characteristics and Discharge Effects.

See comment under Section II.A.12.c.1 above.

Section II.B.c. Benthic Community Bioaccumulation Monitoring.

Environmental effects attributable to metals are unlikely where screening toxicity tests or WET testing results are negative. Available scientific information (summarized in Neff 2010) supports a conclusion that releases of current WBM formulations that meet effluent

discharge requirements to the marine environment pose neither a toxic or bioaccumulative threat to aquatic life.

See comment under Section II.A.12.d.3.c.i. above regarding specific requirement for additional bioaccumulation/bioavailability determination 15 months after cessation of the drilling program activities. Absent a complete exposure pathway between inorganic components in discharged WBM and benthic tissue, if the physical survey conducted during the third phase determines that the seafloor has not been altered by the drilling operation, and discounting the body of scientific evidence concerning the ability of these compounds to migrate into biological tissue, there is no justification for the final phase of the bioaccumulation monitoring program.

Comments on the Fact Sheet

Section I.F.k. Alternatives analysis for discharges to stable ice

See comment under Section II.A.11.

Section II.D.2.c. Community Outreach and Traditional Knowledge

EPA incorporated information and observations from North Slope stakeholders into the ODCE process and general permits. However, with few exceptions, EPA has uniformly adopted the same EMP requirements broadly throughout the OCS without regard to factors such as remote distance from subsistence areas and areas of low marine ecosystem biodiversity. It is not clear why the community derived input justified a wholesale EMP roll-out that overrides the body of scientific information indicating no environmental impact from offshore drilling discharges (as summarized in Neff, 2010).

Section II.E.h. Effluent Limits and Requirements

The draft permit allows permittees to propose using EMP data from an operator's first drill site as the basis for requesting to modify data gathering requirements at subsequent drilling sites if the data satisfies the goals and objectives of the program (Sections II.A.12.a-12.b). If the results of the completed EMP do not indicate unreasonable degradation of the marine environment, then EMPs for subsequent similar wells should not be required.

A single WET test should be adequate when a screening test toxicity threshold is exceeded. The WET tests are more comprehensive (i.e., chronic and subchronic exposures to multiple species) more relevant to marine biota and are a much better indicators of potential toxicity. Single test results are routinely utilized for decision-making in other programs. If temporal variability in the toxicological potential of a given effluent exists, the required sampling frequency is suitable for detecting it.

In consideration of the significant logistical issues involved in sample transport between the survey ship and land-based toxicity laboratories and absent scientific information indicating that the toxicological properties of the effluents typical of off-shore exploration activities, we request that EPA consider relaxing the sample holding time requirements. In support of extending holding time specifications, EPA might wish to consider requiring that permittees conduct a special evaluation of the impact of holding times on representative effluents.

Other

EPA is requested to precisely define the terms used in the general permits and fact sheet such as “area of biological concern,” “sensitive or unique biological area,” “sensitive biological area,” “sensitive biological areas and habitats,” “sensitive marine environment” and “environmentally significant or sensitive areas that are necessary for critical stages of marine organisms” since their meanings could have far-reaching implications on exploration planning and environmental monitoring.

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